PUBLIC REVIEW DRAFT

MERCED MALL EXPANSION PROJECT INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

MERCED, CALIFORNIA



LSA

November 2018

ENCLOSURE 1

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CITY OF MERCED

"Gateway to Yosemite"

City of Merced Development Services Department, Planning Division, 678 West 18th Street, Merced, CA 95340

Notice of Intent to Adopt an
Initial Study/Mitigated Negative Declaration

Date: November 19, 2018
To: Public Agencies, Organizations, and Interested Parties
From: City of Merced, Planning Division
Subject: **Notice of Intent to Adopt an Initial Study/Mitigated Negative Declaration**

Pursuant to the *State of California Public Resources Code and the Guidelines for Implementation of the California Environmental Quality Act*, as most recently amended, this is to advise that the City of Merced has prepared an Initial Study to evaluate the environmental effects of the project identified below:

Project Title: Merced Mall Expansion Project

Project Sponsor: Bill Kenney, The Kenney Company, 824 Harbor Island Drive, Newport Beach, CA 92660.

Project Location: This project site is located at 851 West Olive Avenue and is bound by West Olive Avenue to the south, R Street to the west, Loughborough Drive, office buildings, and City of Merced Fire Station 53 to the north, and M Street and office buildings to the east.

Project Description: Under two development phases, the Merced Mall Expansion Project would increase the leasable retail area within the Merced Mall and construct a new movie theater at one of two possible locations within the shopping center.

Phase I. The project would expand the existing buildings located along the southern elevation of the shopping center south towards West Olive Avenue by 80 feet. This would result in an increase in the gross leasable area (GLA) of 50,000 square feet. In addition, the project would include reconfiguring, repaving, restriping, and relandscaping of the southern parking lot.

Phase II. Under Phase II, the project would construct a 72,000-square-foot movie theater containing up to 3,000 seats. The project applicant has proposed two alternatives under Phase II which would result in the location of a new movie theater at one of two locations within the project site, as follows:

- Alternative 1 would add an at-grade 72,000-square-foot theater between the existing JC Penny and Kohl's stores in the main shopping center building. In addition, this Phase would remove the enclosed mall roof between JC Penney and Kohl's, and result in a pedestrian mall and open courtyard in front of the new theater. The existing 22,680-square-foot United

Artists movie theater would be demolished and replaced with a new retail building of similar size. The total GLA of the project site after Phase I and Phase II Alternative 1 would be approximately 660,097 square feet. The total number of parking spaces within the project site following completion of Phase I and Phase II Alternative 1 would decrease by 232 parking spaces for a total of 2,810 parking spaces.

- Alternative 2 would demolish the existing United Artists Theater and two retail stores located along the eastern boundary of the project site, and would construct a 72,000-square-foot at-grade theater at that location. The existing theater is approximately 22,680 square feet in size, and the existing retail stores are approximately 25,416 square feet in size. As a result, the total GLA would increase by approximately 23,904 square feet for a total GLA of 612,001 square feet under Phase I and Phase II Alternative 2. Construction of Phase II Alternative 2 would include reconfigured parking for the theater. The existing 3,099 parking spaces would decrease by 124 parking spaces under Phase I and Phase II Alternative 2, resulting in a total of 2,975 parking spaces under Phase II Alternative 2 buildout.

CEQA Project Status: An Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared for this project pursuant to the provisions of CEQA. The IS/MND determined that the proposed project would result in less-than-significant impacts, and therefore a Mitigated Negative Declaration is proposed. The Public Review Draft IS/MND and all related analysis are available on the City's website at https://www.cityofmerced.org/depts/cd/planning/documents_and_handouts/default.asp

Public Hearing: The Planning Commission will consider the proposed project and IS/MND at a public meeting tentatively scheduled for January 23, 2019. The Planning Commission hearing will be held at 7:00 p.m. at the City Council Chambers in the Merced Civic Center located at 678 West 18th Street, Merced, CA 95340.

Public Review Period: A 30-day public review period will begin on November 19, 2018. Written comments must be mailed, submitted in person or via email to the contact person identified below no later than 5:00 p.m. on December 18, 2018.

Julie Nelson, Associate Planner
City of Merced Planning Division
678 West 18th Street
Merced, CA 95340
Fax: (209) 385-6858
Email: nelsonj@cityofmerced.org

City staff encourages your agency or organization to review the IS/MND and offer comments during the public review period. If convenient, City of Merced staff would greatly appreciate receiving written comments at the earliest possible time. This would greatly assist us in meeting the project schedule. You are also welcome to contact us at (209) 385-6858 with any questions you might have.

Sincerely,

Kim Espinosa
Planning Manager

PUBLIC REVIEW DRAFT

MERCED MALL EXPANSION PROJECT INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

MERCED, CALIFORNIA

Submitted to:

Kim Espinosa, Planning Manager
City of Merced Planning & Permitting
678 West 18th Street
Merced, California 95340

Prepared by:

LSA
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559.490.1210

Project No. MED1801

LSA

November 2018

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LIST OF ABBREVIATIONS AND ACRONYMS

µg/m^3	micrograms per cubic meter
AB	Assembly Bill
AQMD	air quality management district
BAU	Business-As-Usual
BMP	Best Management Practices
BSA	Biological Study Area
CalEEMod	California Emissions Estimator Model version 2016.3.2
CALFIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CARB	California Air Resources Board
CBES	Commercial Buildings Energy Consumption Survey
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CH_4	methane
City	City of Merced
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide

CO_2e	CO_2 equivalents
Court	California Supreme Court
CRHR	California Register of Historic Resources
CWA	Federal Clean Water Act
dB	decibel
dBA	A-weighted decibels
DTSC	California Department of Toxic Substances Control
EIA	U.S. Energy Information Administration
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
GAMAQI	Guidance for Assessing and Mitigating Air Quality Impacts
GHG	greenhouse gas
GLA	gross leasable area
GWP	Global Warming Potential
HCM	Highway Capacity Manual
HCP	Habitat Conservation Plan
HFCs	hydrofluorocarbons
I-5	Interstate 5
IS/MND	Initial Study/Mitigated Negative Declaration
ITE	Institute of Transportation Engineers
L_{dn}	day-night average level
L_{eq}	equivalent continuous sound level
L_{max}	maximum instantaneous noise level
L_{min}	minimum instantaneous noise level

LOS	level of service
MBTA	Migratory Bird Treaty Act
MCAG	Merced County Association of Governments
MFD	Merced Fire Department
MGD	million gallons per day
MID	Madera Irrigation District
MPD	Merced Police Department
MRZ	mineral resource zone
N_2O	nitrous oxide
NEV	neighborhood electric vehicle
NO_2	nitrogen dioxide
NO_x	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
O&M	operation and maintenance
O_3	ozone
OPR	Governor's Office of Planning and Research
OSHA	Occupational Safety and Health Administration
Ozone Plan	2013 Plan for the Revoked 1-Hour Ozone Standard
P-D	Planned Development #1 zoning district
Pb	lead
PFCs	perfluorocarbons
PG&E	Pacific Gas and Electric
$PM_{2.5}$	fine particulate matter
PM_{10}	respirable particulate matter

ppb	parts per billion
PRC	Public Resources Code
R/C	Regional/Community Commercial
ROG	reactive organic gases
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RWQCB	Regional Water Quality Control Board
SF_6	sulfur hexafluoride
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SO_2	sulfur dioxide
SO_x	sulfur oxides
SR	State Route
State Water Board	State Water Resources Control Board
SWPPP	Storm Water Pollution Prevention Plan
TACs	toxic air contaminants
TDML	total maximum daily load
TIA	Traffic Impact Analysis
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UWMP	Urban Water Management Plan
VMT	Vehicle Miles Traveled
WPCP	Water Pollution Control Preparation
WWTP	Wastewater Treatment Plant

1.0 PROJECT INFORMATION

1. Project Title

Merced Mall Expansion Project

2. Lead Agency Name and Address

City of Merced Planning & Permitting
678 West 18th Street
Merced, CA 95340

3. Contact Person and Phone Number

Kim Espinosa, Planning Manager OR Julie Nelson, Associate Planner
(209) 385-6858
espinosak@cityofmerced.org or nelsonj@cityofmerced.org

4. Project Location

Merced Mall, 851 West Olive Avenue, Merced, CA 95348

5. Project Sponsor's Name and Address

Bill Kenney
The Kenney Company
824 Harbor Island Drive
Newport Beach, CA 92660

6. General Plan Designation

Regional/Community Commercial (RC)

7. Zoning

Planned Development #1 (P-D)

8. Description of Project

The proposed project would increase leasable retail area and construct a new movie theater at one of two possible locations located within the Merced Mall shopping center. Both movie theater locations are described below, and upon further consideration, the project applicant will select one alternative to construct and operate.

Phase I of the proposed project would expand the buildings located along the southern elevation of the shopping center south towards West Olive Avenue by an additional 80 feet. The

new frontage would be constructed in an updated and contemporary design. The height of the new frontage would increase the building mass and would be approximately 50 feet. This would increase the GLA of the project site by approximately 50,000 square feet, for a total GLA of 588,097 square feet. The southern parking lot would be reconfigured, repaved, restriped, and relandscaped. The total parking within the project site under Phase I would decrease by 232 parking spaces for a total of 2,867 parking spaces.

Phase II of the proposed project would include construction of a 72,000-square-foot movie theater containing up to 3,000 seats. The project applicant has proposed two alternatives under Phase II which would result in the location of a new movie theater at one of two locations within the project site.

Phase II Alternative 1 would add an at-grade 72,000-square-foot theater between the existing JC Penny and Kohl's stores in the main shopping center building. In addition, this Phase would remove the enclosed mall roof between JC Penney and Kohl's, and result in a pedestrian mall and open courtyard in front of the new theater. The design and height of the movie theater addition would be integrated into the existing shopping center building and would be consistent with the exterior additions completed under Phase I. The height of the movie theater would be approximately 50 feet in height. The existing 22,680-square-foot United Artists movie theater would be demolished and replaced with a new retail building of similar size. The total GLA of the project site after Phase I and Phase II Alternative 1 would be approximately 660,097 square feet. The total number of parking spaces within the project site following completion of Phase I and Phase II Alternative 1 would decrease by 232 parking spaces for a total of 2,810 parking spaces.

Phase II Alternative 2 would demolish the existing United Artists Theater and two retail stores located along the eastern boundary of the project site, and would construct a 72,000-square-foot at-grade theater at that location. The design and height of the movie theater would be consistent with the exterior additions completed under Phase I, and would be approximately 50 feet in height. The existing theater is approximately 22,680 square feet in size, and the existing retail stores are approximately 25,416 square feet in size. As a result, the total GLA would increase by approximately 23,904 square feet for a total GLA of 612,001 square feet under Phase I and Phase II Alternative 2. Construction of Phase II Alternative 2 would include reconfigured parking for the theater. The existing 3,099 parking spaces would decrease by 124 parking spaces under Phase I and Phase II Alternative 2, resulting in a total of 2,975 parking spaces under Phase II Alternative 2 buildout.

9. Surrounding Land Uses and Setting:

Retail and commercial uses are directly adjacent to the project site to the west, south and east. City of Merced Fire Station 53 is located directly north of the project site along Loughborough Drive. Multi-family residential uses are located north of the project site. Merced High School is located on West Olive Avenue, approximately 0.3 miles east of the project site.

10. Other Public Agencies Whose Approval is Required (i.e., permits, financial approval, or participation agreements):

The City is the Lead Agency with discretionary authority over the project. No other agencies are anticipated to require discretionary approvals for the project.

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resource Code section 21080.3.1? If so, has consultation begun?

The City has not been contacted by any California Native American tribes requesting to be notified when projects are proposed in Merced. As such, no tribes have requested consultation pursuant to Public Resources Code section 21080.3.1.

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2.0 PROJECT DESCRIPTION

The following describes the proposed Merced Mall Expansion Project (project). This section includes a summary description of the project's location and existing site characteristics, required approvals, and entitlements. The City of Merced (City) is the lead agency for review of the project under the California Environmental Quality Act (CEQA).

2.1 PROJECT SITE

The following section describes the location and characteristics of the project site and provides a brief overview of the existing land uses within and in the vicinity of the project site.

2.1.1 Location

The approximately 52-acre project site is located at 851 West Olive Avenue in the City of Merced, Merced County. The project site is bounded by West Olive Avenue to the south, R Street to the west, Loughborough Drive, office buildings, and City of Merced Fire Station 53 to the north, and M Street and office buildings to the east.

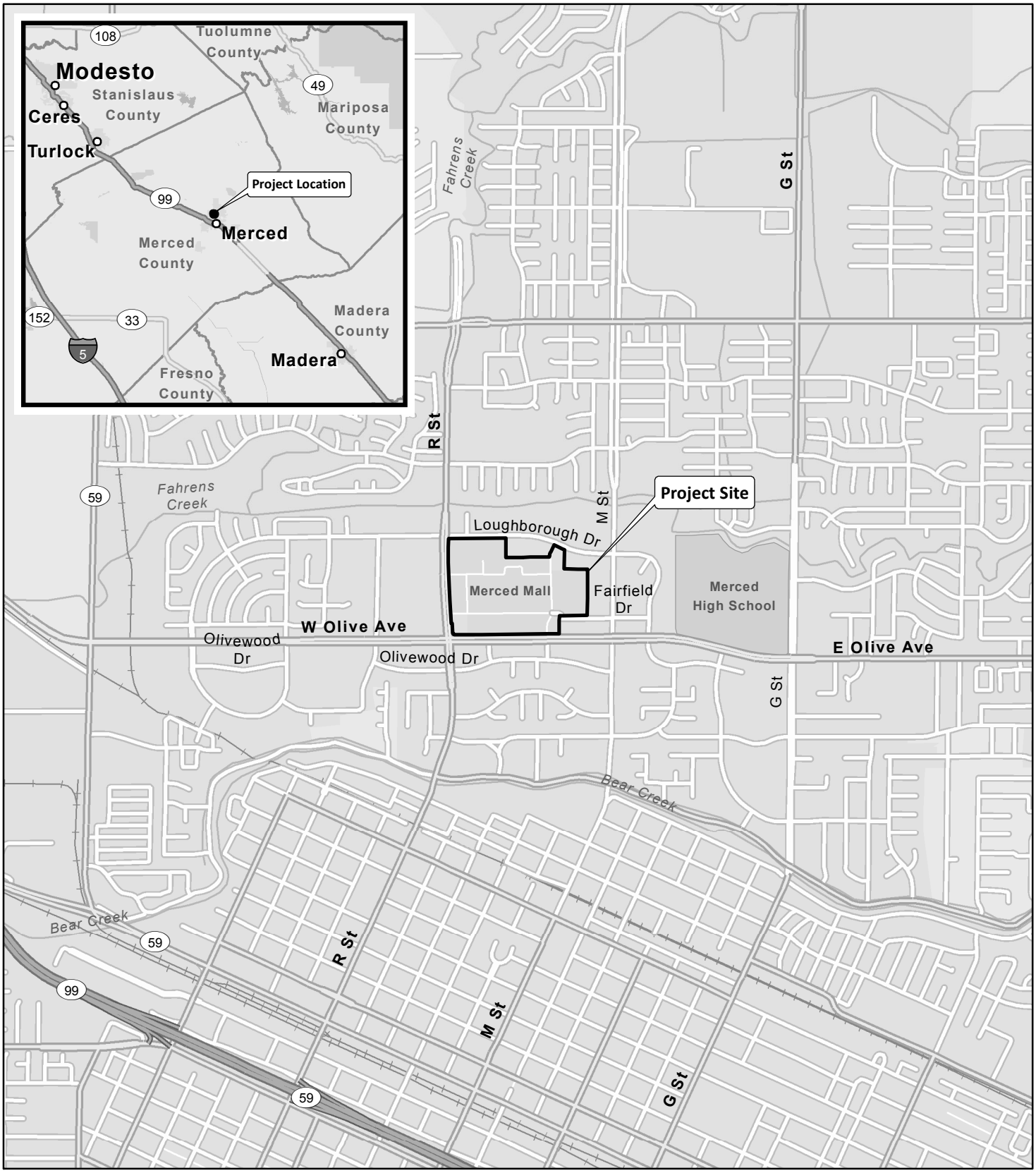
Regional vehicular access to the project site is provided by West Olive Avenue. In addition, State Route (SR) 59 is located to the west of the project site, and SR 99 is located to the south and east of the project site. The Bus, Merced's Regional Transit System, provides transit service to the project site. Six stops along Loughborough Drive between R Street and M Street provide stops for three routes (M1, M2, M3), and two stops along M Street between Loughborough Drive and West Olive Avenue provide stops for the UC Merced Route.

Figure 2-1 shows the project site's regional and local context. Figure 2-2 depicts an aerial photograph of the project site and identifies surrounding land uses.

2.1.2 Site Characteristics and Current Site Conditions

Merced Mall is a single level enclosed shopping center with Sears, JC Penney, and Kohl's department stores. In addition, a Target store is located near the northeast corner of the project site. A seven-screen United Artists Theater, approximately 22,680 square feet in size, currently exists on the east side of the project site which is not attached to the main shopping center building. A Michael's Arts and Crafts store is located adjacent to the theater within the project site.

The project site is generally level and consists of six whole parcels (Assessor's Parcel Numbers [APNs] 236-220-022, -029, -030, -031, -032, -038), and portions of four parcels (APNs 236-310-007 and 236-220-014, -015, -016). The project site is currently developed with an existing shopping center and three outbuildings containing restaurants, small retail spaces, offices and a movie theater, totaling a gross leasable area (GLA) of 538,097 square feet. The project site contains 3,099 parking spaces. Vegetation within the project site includes mature trees located throughout the parking area, and streetscape landscaping including trees and shrubs along the boundary of the project site.



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FIGURE 2-1

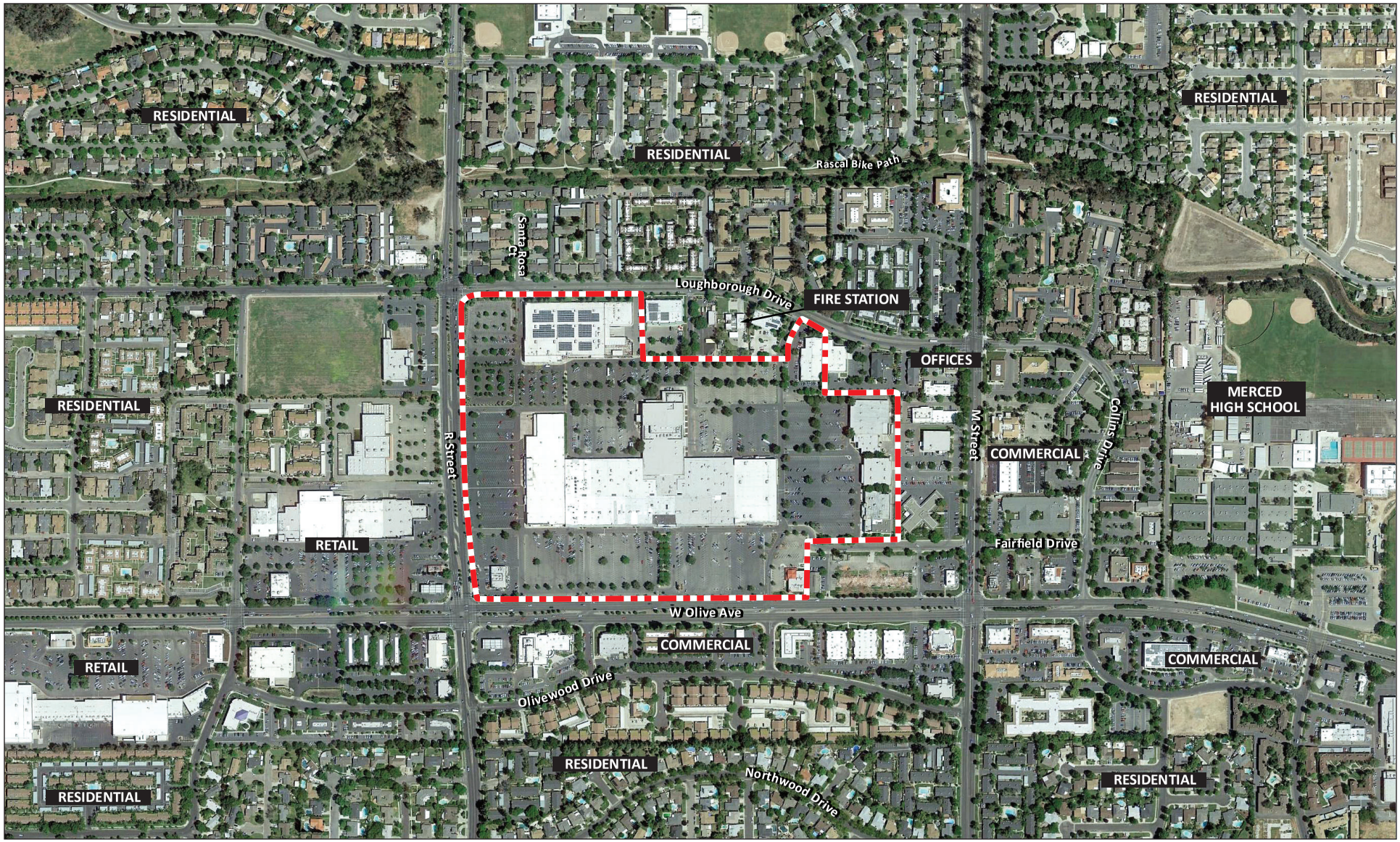
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SOURCE: ESRI STREETMAP NORTH AMERICA (2012).

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Merced Mall Project IS/MND
Project Location and Regional Vicinity Map



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FIGURE 2-2

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Project Site

Merced Mall Project IS/MND

Aerial Photograph of Project Site and Surrounding Land Uses

SOURCES: GOOGLE EARTH, 5/2/17; LSA, 2018.

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2.1.3 Existing General Plan and Zoning

The project site is designated Regional/Community Commercial (RC) in the Merced 2030 General Plan. This land use designation is intended to provide community and regional commercial centers to serve a variety of retail goods, general merchandise, apparel, and home furnishings, with one or more major department stores as key tenants. The project site is located in a Planned Development #1 (P-D) zoning district which allows for high quality development that deviates from standards and regulations applicable to other zoning districts within Merced. The P-D zoning districts are intended to promote creativity in building design, flexibility in permitted land uses, and innovation in development concepts, and in all P-D zoning districts, permitted land uses shall conform to the applicable general plan designation.

2.1.4 Surrounding Land Uses

The project site is located along the West Olive Avenue corridor that is predominantly developed with commercial, retail uses and multi-family residential uses. As shown in Figure 2-2, the retail and commercial uses are directly adjacent to the project site to the west, south and east. City of Merced Fire Station 53 is located directly north of the project site along Loughborough Drive. Multi-family residential uses are located north of the project site. Merced High School is located on West Olive Avenue, approximately 0.3 miles east of the project site.

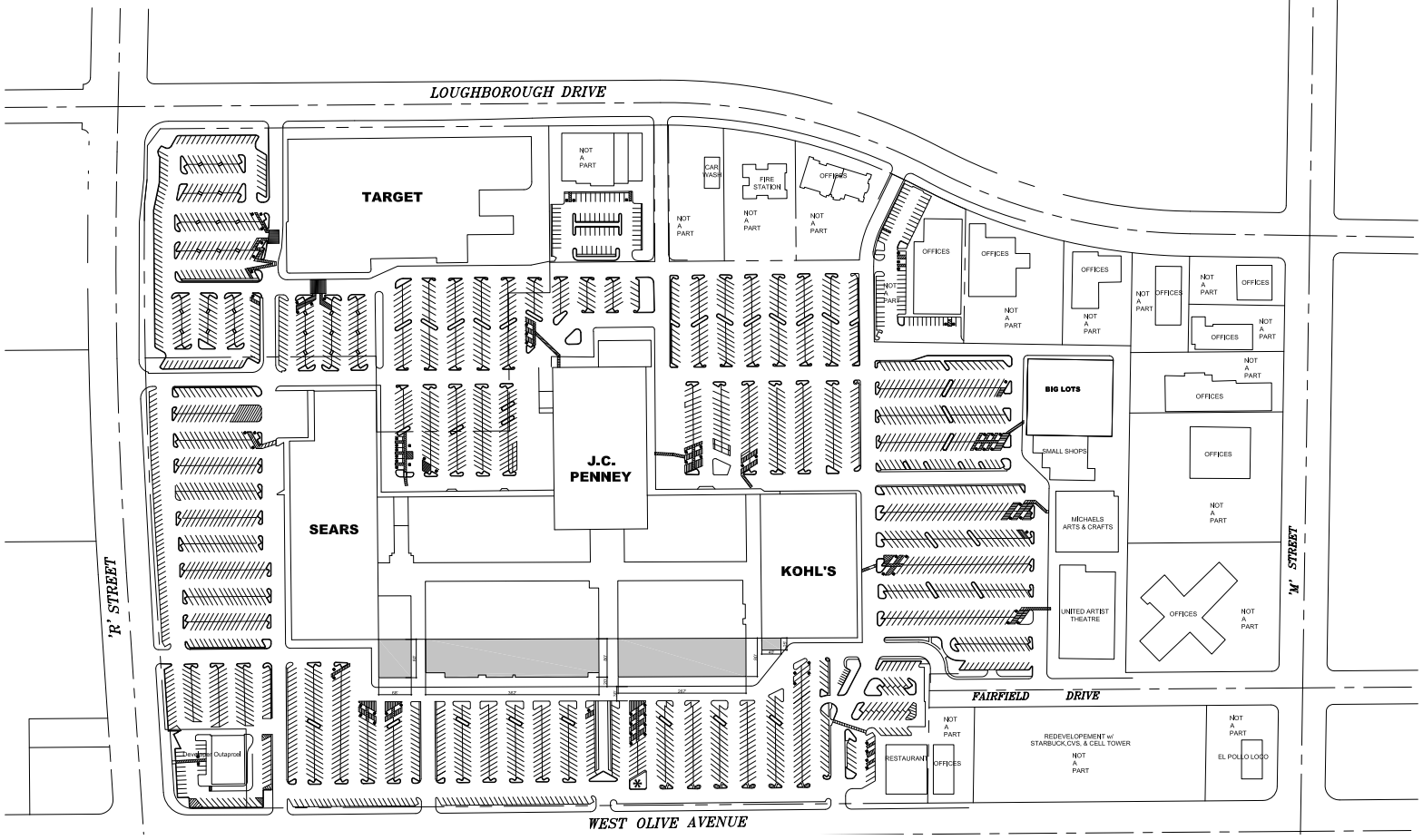
2.2 PROPOSED PROJECT

This section provides a description of the proposed project as identified in the materials provided by Codding (the project applicant), dated March 2018. The project applicant proposes to improve the project site by increasing leasable retail area and constructing a new movie theater at one of two possible locations within the project site. Both movie theater locations are described below, and upon further consideration, the project applicant will select one alternative to construct and operate.

2.2.1 Building Program

2.2.1.1 Phase I

Phase I of the proposed project would expand the buildings located along the southern elevation of the shopping center south towards West Olive Avenue by an additional 80 feet. The new frontage would be constructed in an updated and contemporary design. The height of the new frontage would increase the building mass and would be approximately 50 feet. This would increase the GLA of the project site by approximately 50,000 square feet, for a total GLA of 588,097 square feet. The vacant retail space located to the east of the main mall entrance (previously occupied by CVS) would be reconfigured and leased to new retailers and restaurants, some of which would have storefronts facing the parking lot adjacent to West Olive Avenue. The southern parking lot would be reconfigured, repaved, restriped, and relandscaped. As a result of the increase in GLA and reconfigured parking, the total parking within the project site under Phase I would decrease by 232 parking spaces for a total of 2,867 parking spaces. Figure 2-3 shows the proposed site plan for Phase I.



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FIGURE 2-3

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Building Expansion Proposed Under Phase I

* Approximate Location of Proposed Reader Board Sign

Merced Mall Project IS/MND

Proposed Site Plan - Phase 1

SOURCE: CODDING, MARCH 2018.

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Phase I of the project would include a reader board sign on West Olive Avenue, south of the central entrance to the shopping center, at the approximate location of the existing sign.

2.2.1.2 Phase II

Phase II of the proposed project would include construction of a 72,000-square-foot movie theater containing up to 3,000 seats. The project applicant has proposed two alternatives under Phase II which would result in the location of a new movie theater at one of two locations within the project site.

Alternative 1

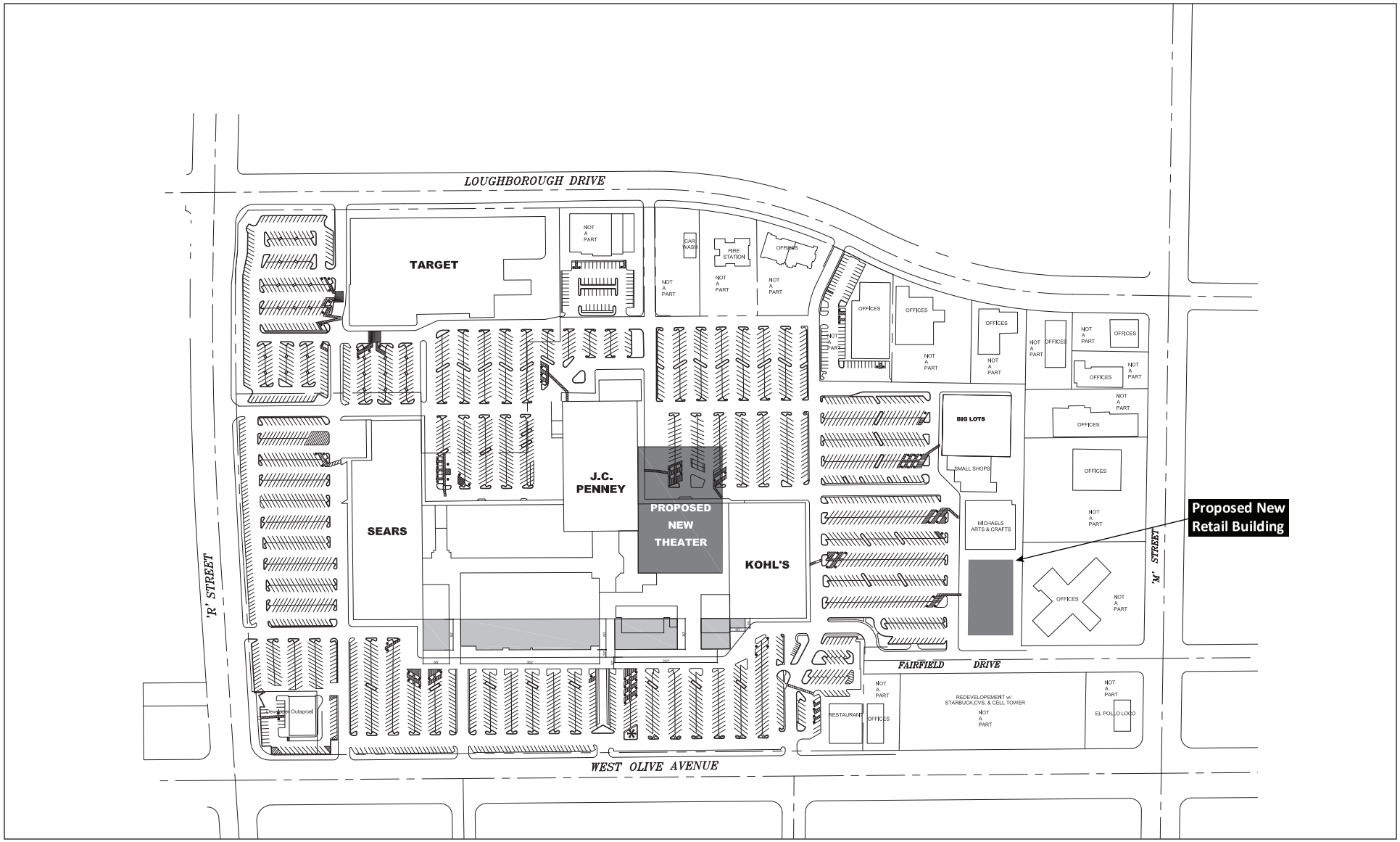
Phase II Alternative 1 would add an at-grade 72,000-square-foot theater between the existing JC Penny and Kohl's stores in the main shopping center building. In addition, this Phase would remove the enclosed mall roof between JC Penney and Kohl's, and result in a pedestrian mall and open courtyard in front of the new theater. The design and height of the movie theater addition would be integrated into the existing shopping center building and would be consistent with the exterior additions completed under Phase I. The height of the movie theater would be approximately 50 feet in height. This alternative would also include the demolition of the existing 22,680-square-foot United Artists Theater and construction of retail building of approximately the same size at the same location. The design and height of the new retail building would be consistent with the exterior additions completed under Phase I. The total GLA of the project site after Phase I and Phase II Alternative 1 would be approximately 660,097 square feet.

The total number of parking spaces within the project site following completion of Phase I and Phase II Alternative 1 would decrease by 232 parking spaces for a total of 2,810 parking spaces. Figure 2-4 shows the proposed site plan for Phase II Alternative 1.

Alternative 2

Phase II Alternative 2 would demolish the existing United Artists Theater and two retail stores located along the eastern boundary of the project site, and would construct a 72,000-square-foot at-grade theater at that location. The design and height of the movie theater would be consistent with the exterior additions completed under Phase I, and would be approximately 50 feet in height. The existing theater is approximately 22,680 square feet in size, and the existing retail stores are approximately 25,416 square feet in size. As a result, the total GLA would increase by approximately 23,904 square feet for a total GLA of 612,001 square feet under Phase I and Phase II Alternative 2. Figure 2-5 shows the proposed site plan for Phase II Alternative 2.

Construction of Phase II Alternative 2 would include reconfigured parking for the theater. The existing 3,099 parking spaces would decrease by 124 parking spaces under Phase I and Phase II Alternative 2, resulting in a total of 2,975 parking spaces under Phase II Alternative 2 buildout.



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FIGURE 2-4

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Building Expansion Proposed Under Phase I

Movie Theater and New Retail Building Proposed Under Phase II Alternative 1

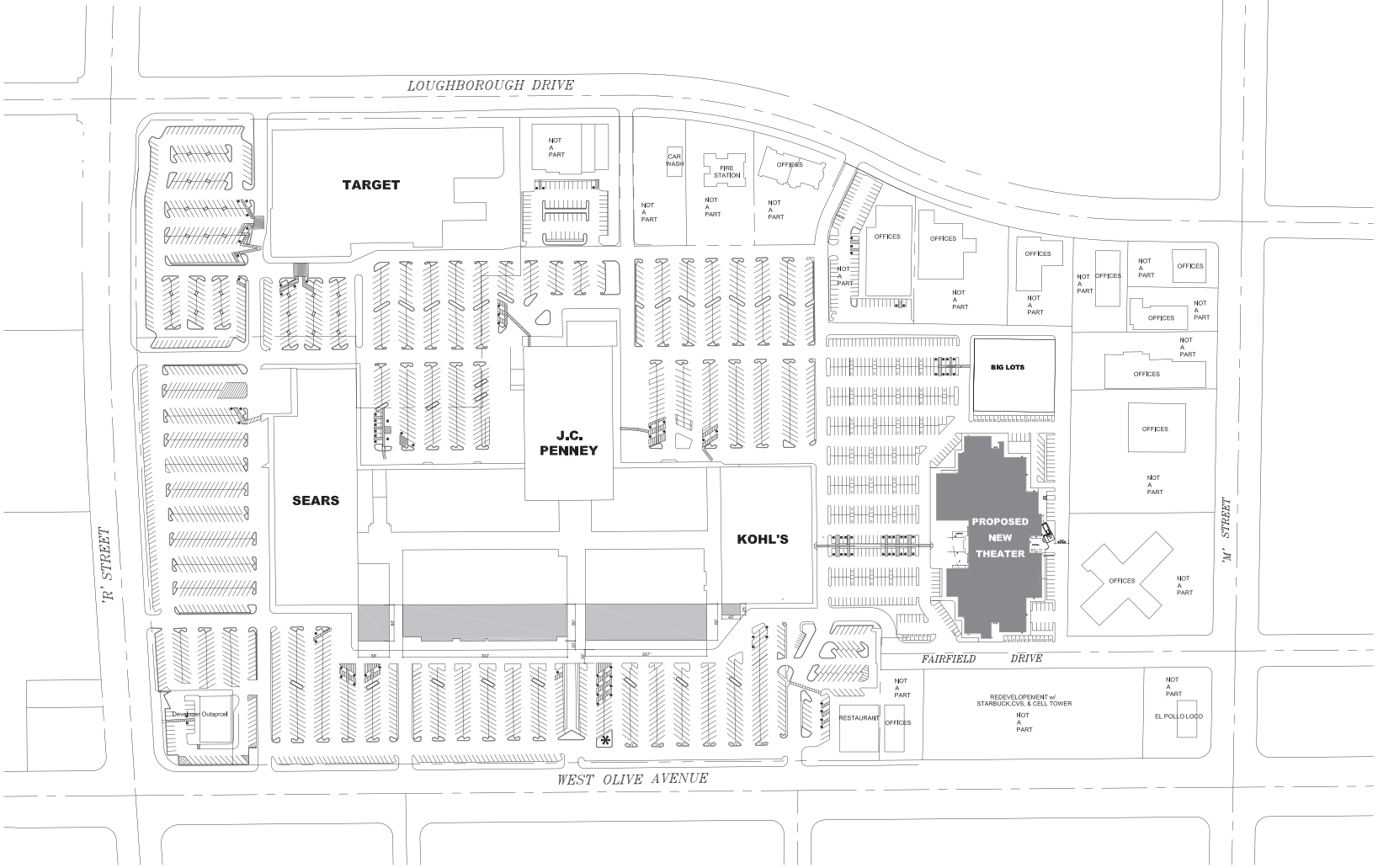
* Approximate Location of Proposed Reader Board Sign

Merced Mall Project IS/MND

Proposed Site Plan - Phase 2 Alternative 1

SOURCE: CODDING, MARCH 2018.

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FIGURE 2-5

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Building Expansion Proposed Under Phase I

Movie Theater Proposed Under Phase II Alternative 2

* Approximate Location of Proposed Reader Board Sign

Merced Mall Project IS/MND

Proposed Site Plan - Phase 2 Alternative 2

SOURCE: CODDING, MARCH 2018.

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2.2.2 Open Space and Landscaping

The proposed project would upgrade the perimeter landscaping to include new vegetation and drought-tolerant plantings. As a result of the expansion under Phase I, 14 trees would be removed in order to accommodate development. In addition, 10 trees would be removed under Phase II Alternative 1, and 13 trees would be removed under Phase II Alternative 2.

2.2.3 Access, Circulation, and Parking

The current configuration of vehicle driveways and pedestrian access would not be altered as a result of the proposed project. The project site currently has 11 vehicle ingress/egress driveways providing access to and from West Olive Avenue, R Street, Loughborough Drive and Fairfield Drive. As noted above, the parking lot facing West Olive Avenue would be reconfigured, repaved, and restriped.

Following construction of Phase I, the total number of parking spaces in the project site would be 2,867 parking spaces. Following construction of Phase I and Phase II Alternative 1, the total number of parking spaces in the project site would total 2,810 parking spaces. Following construction of Phase I and Phase II Alternative 2, the total number of parking spaces would be 2,975 parking spaces.

2.2.4 Utilities and Infrastructure

The project site is located in an urban area with existing utilities and infrastructure. The proposed project would be required to utilize the following utility connections to the satisfaction of the applicable utility providers: water, wastewater, stormwater drainage, and power services.

2.2.4.1 Water

The City owns and operates its own water distribution system and provides water service to all residential, commercial, and industrial users within the incorporated City limits, including the project site. A 16-inch distribution main is located within the right-of-way of M Street and West Olive Avenue. In addition, a 10-inch water line and an 8-inch water line are located within the project site. The proposed project under both phases would continue to utilize existing service connections.

2.2.4.2 Wastewater

The City owns and operates the wastewater collection and treatment system that serves all residential, commercial, and industrial users within the incorporated City limits. The City operates a Wastewater Treatment Plant (WWTP) that is designed to treat up to 12 million gallons of wastewater per day (MGD). A sanitary sewer main between 21 inches and 30 inches in diameter is located within the R Street right-of-way. In addition, a sewer line between 10 inches and 12 inches is located within the project site. The proposed project under both phases would continue to utilize existing service connections.

2.2.4.3 Stormwater

The City owns and operates storm drainage facilities that serve all of the residential, commercial, and industrial users within the incorporated City limits. The storm drainage collection system consists of 112 miles of underground storm drain lines, underground storage pipes, and 141 acres of detention ponds. A 42-inch storm drain is located within the project site and connects to a storm drain within the West Olive Avenue right-of-way. The proposed project under both phases would continue to utilize existing service connections.

The project site currently includes approximately 2.2 million square feet (49.68 acres) of impervious surface. As result of the proposed project, an increase in impervious surfaces would be minimal given that the project site is mostly built out aside from planting areas located in the parking lot and the perimeter of the project site. As required by National Pollutant Discharge Elimination System (NPDES), a Stormwater Pollution Prevention Plan (SWPPP) would be developed prior to any ground disturbance at the project site and would include practices to reduce erosion and surface water contamination during construction.

2.2.4.4 Electricity and Natural Gas

Electricity and natural gas services are provided to the project site by Pacific Gas and Electric (PG&E). The proposed project under both phases would continue to utilize existing service connections.

2.2.5 Demolition and Construction

Development of the project would result in the demolition and reconstruction of the existing southern façade of shopping center. Approximately 4,920 cubic yards of construction debris would be collected and off-hauled from the project site.

Demolition and construction of Phase I is anticipated to occur over approximately 20 months, starting in April 2019 and ending in January 2021.

The timing of the construction of the selected Phase II alternative would be dependent on market conditions.

Under Phase II Alternative 1, approximately 5,910 cubic yards of construction debris would be collected and off-hauled from the project site. Demolition and construction of Phase II Alternative 1 is anticipated to occur over approximately 20 months.

Under Phase II Alternative 2, approximately 4,200 cubic yards of construction debris would be collected and off-hauled from the project site. Demolition and construction of Phase II Alternative 2 is anticipated to occur over approximately 24 months.

2.3 APPROVALS/PERMITS

While the City is the CEQA Lead Agency for the project, other agencies also have discretionary authority related to the project and approvals, or serve as a responsible and/or trustee agency in connection to the proposed project. A list of these agencies and potential permits and approvals that may be required is provided below.

- City of Merced, Adoption of the IS/MND for the Merced Mall Expansion Project
- City of Merced, Site Utilization Plan Revision to Planned Development #1
- City of Merced, Sign Ordinance Amendment
- City of Merced, demolition, grading and building permit approval
- City of Merced approval for water, wastewater, and stormwater connections
- PG&E electricity and gas connection approvals

3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist in Chapter 3.0.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology/Soils
☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials	☐ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☐ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffic	☐ Tribal Cultural Resources	☐ Utilities/Service Systems
☐ Mandatory Findings of Significance		

DETERMINATION

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "Potentially Significant Impact" or "Potentially Significant Unless Mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



Signature

11/14/18

Date

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4.0 CEQA ENVIRONMENTAL CHECKLIST

4.1 AESTHETICS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	☐	☐	☐	☒
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

4.1.1 Impact Analysis

a. Would the project have a substantial effect on a scenic vista?

A scenic vista is generally defined as a public vantage point with an expansive view of a significant landscape feature. As described in the General Plan, the City of Merced has developed along routes and corridors which have come to be part of the City's identity.[1] The City has designated many of these scenic routes for special development review regulation. The project site is not included in the City's designated Scenic Corridors, as designated in Implementing Action 1.3.b of the General Plan.

The proposed project site is currently developed with the existing Merced Mall. The proposed project would include improvements to the existing Merced Mall by increasing leasable retail area and constructing a new movie theater. The height of the new buildings would be generally consistent with the height of the existing buildings, with a height of approximately 50 feet. The project site is not readily visible from any scenic vista, nor would the project block public views of a scenic vista. Therefore, the proposed project would have ***no impact***.

b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

The California Department of Transportation's (Caltrans) Landscape Architecture Program administers the Scenic Highway Program, contained in the State Streets and Highways Code, Sections 260–263. State highways are classified as either Eligible for Scenic Designation, Officially Designated, or Connecting Federal Highway. Within Merced County, there are two Officially designated State Scenic Highways (Interstate 5 [I-5; north of State Route 152{SR152}] and SR 52

[1] Merced, City of, 2012. *Merced Vision 2030 General Plan*. January 3.

[west of I-5]).[2] Both of these State Scenic Highways are located approximately 34 miles west of the project site. The project site is not visible from either State Scenic Highways; therefore the proposed project does not have the potential to damage scenic resources from designated scenic highways, and will have ***no impact***.

c. Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

The project site is currently developed with the existing Merced Mall. The proposed project would include improvements to the existing Merced Mall by increasing leasable retail area and constructing a new movie theater. As described in the Project Description, Phase I of the proposed project would expand the buildings located along the southern elevation of the shopping center south towards West Olive Avenue by an additional 80 feet. The new frontage would be constructed in an updated and contemporary design. The height of the new frontage would be generally consistent with the height of the existing shopping center building, with a height of approximately 50 feet.

In addition, as described in the Project Description, Phase II would include construction of a 72,000-square-foot movie theater containing up to 3,000 seats. The project applicant has proposed two alternatives under Phase II which would result in the location of a new movie theater at one of two locations within the project site. Phase II Alternative 1 would add an at-grade 72,000-square-foot theater between the existing JC Penny and Kohl's stores in the main shopping center building. In addition, this Phase would remove the enclosed mall roof between JC Penney and Kohl's, and result in a pedestrian mall and open courtyard in front of the new theater. The existing theater is approximately 22,680 square feet in size and would be demolished and replaced with a building of the same size to be used for retail uses. The design and height of the movie theater and retail addition would be integrated into the existing shopping center building and would be consistent with the exterior additions completed under Phase I.

Phase II Alternative 2 would demolish the existing United Artists Theater and two retail stores located along the eastern boundary of the project site, and would construct a 72,000-square-foot at-grade theater at that location. The design and height of the movie theater would be consistent with the exterior additions completed under Phase I.

Although the proposed additions would change the massing of the building frontage by creating the pedestrian mall and open courtyard or by constructing a new movie theater on the east side of the project site, the design of the additions would be contemporary and not result in a consistent visual character within the project site. Although the character of the project site would change, the project would not substantially degrade the visual character or quality of the site and its surroundings. Therefore, the proposed project would have a ***less-than-significant impact***.

[2] Caltrans, 2011. California Scenic Highway Mapping System, Merced County. Website: www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm (accessed August 2018).

d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

The project site is located in an urbanized area, which is subject to preexisting exterior lighting from surrounding development and existing street lighting. The proposed project would introduce new sources of light and glare to the area in the form of new windows and exterior safety and security lighting. However, new sources of light and glare associated with the project would not be substantial in the context of existing lighting sources. In addition, daytime glare would not be substantial because no highly-reflective glass elements or building material are proposed as part of the project.

Compliance with the Building Code and Title 24 standards would ensure that light and glare impacts from the proposed project would be ***less than significant***.

4.2 AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources would result in significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, would result in significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection (CALFIRE) regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board (CARB).

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

4.2.1 Impact Analysis

a. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

The project site is located within an urbanized area of Merced. There are no agricultural uses located within or adjacent to the project site. Additionally, the site is classified as "Urban and Built-Up Land" by the State Department of Conservation.[3] Therefore, development of the proposed project would not convert agricultural land to a non-agricultural use. The proposed project would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use and there would be ***no impact***.

b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

The project site is designated Regional/Community Commercial (RC) in the General Plan.[4] The project site is located in a Planned Development #1 (P-D) zoning district which allows for high quality development that deviates from standards and regulations applicable to other zoning districts within Merced. The project site is not subject to a Williamson Act contract.[5] Therefore, development of the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract, and the proposed project would have ***no impact***.

c. Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

The project site is located within an existing urban area and is zoned within a P-D district within the City of Merced. The proposed project would not conflict with the existing zoning for, or cause rezoning of, forest land or conversion of forest land to non-forest uses. Therefore, the proposed project would have ***no impact***.

d. Would the project result in the loss of forest land or conversion of forestland to non-forest use?

Please refer to Section 4.2.1.c. The proposed project would not result in the loss of forest land or conversion of forest land to non-forest uses. Therefore, the proposed project would have ***no impact***.

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3 California, State of, 2014. *Department of Conservation. California Important Farmland Finder.* Website: maps.conservation.ca.gov/dlrp/ciff (accessed August 2018).

4 Merced, City of, 2012. *Merced Vision 2030 General Plan*. January 3.

5 California, State of, 2015. *Merced County Williamson Act FY 2013/2014* (Map).

e. Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

Please refer to Sections 4.2.1.a and 4.2.1.c. The project site is located within an existing urban environment and would not result in the conversion of farmland to non-agricultural uses or forest land to non-forest uses. The proposed project would not adversely affect agricultural or forestry resources and there would be ***no impact***.

4.3 AIR QUALITY

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e. Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

4.3.1 Impact Analysis

The proposed project is located within the City of Merced. Merced is part of the San Joaquin Valley Air Basin (SJVAB), which is within the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). The SJVAPCD is responsible for air quality regulation within the eight-county San Joaquin Valley region.

Both the California Air Resources Board (CARB) and the U.S. Environmental Protection Agency (USEPA) have established health-based Ambient Air Quality Standards for six criteria air pollutants: carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), and suspended particulate matter (PM_{10} and $PM_{2.5}$). These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety. Two criteria pollutants, O_3 and NO_2, are considered regional pollutants because they (or their precursors) affect air quality on a regional scale. Pollutants such as PM, CO, SO_2, and Pb are considered local pollutants because they tend to accumulate in the air locally. The San Joaquin Valley Air Basin is under State non-attainment status for ozone and particulate matter (PM_{10} and $PM_{2.5}$) standards. The Air Basin is also classified as non-attainment for both the federal ozone 8-hour standard and the federal $PM_{2.5}$ 24-hour standard.

A threshold of significance is defined by the SJVAPCD in its *Guidance for Assessing and Mitigating Air Quality Impacts* (GAMAQI)[6] as an identifiable quantitative, qualitative, or performance level of a particular environmental effect. Non-compliance with a threshold of significance means the effect will normally be determined to be significant. Compliance with a threshold of significance means the effect normally will be determined to be less than significant. The SJVAPCD has established thresholds of significance for criteria pollutant emissions generated during construction and operation of projects as shown in Table 4.A below.

Table 4.A: SJVAPCD Construction and Operation Thresholds of Significance (Tons per Year)

	CO	NO_x	ROG	SO_x	PM_{10}	$PM_{2.5}$
Construction Thresholds	100	10	10	27	15	15
Operation Thresholds	100	10	10	27	15	15

Source: SJVAPCD, 2015. Guidance for Assessing and Mitigating Air Quality Impacts. March 19.

The emissions thresholds in the SJVAPCD GAMAQI were established based on the attainment status of the air basin in regard to air quality standards for specific criteria pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety, these emission thresholds are regarded as conservative and would overstate an individual project's contribution to health risks.

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

CEQA requires that certain proposed projects be analyzed for consistency with the applicable air quality plan. An air quality plan describes air pollution control strategies to be implemented by a city, county, or region classified as a non-attainment area. The main purpose of the air quality plan is to bring the area into compliance with the requirements of the federal and State air quality standards. To bring the SJVAB into attainment, the SJVAPCD has developed the 2013 Plan for the Revoked 1-Hour Ozone Standard (Ozone Plan), adopted on September 19, 2013.[7] The SJVAPCD also adopted the 2016 Plan for the 2008 8-Hour Ozone Standard in June 2016 to satisfy Clean Air Act requirements and ensure attainment of the 75 parts per billion (ppb) 8-hour ozone standard.[8]

To assure the SJVAB's continued attainment of the USEPA PM_{10} standard, the SJVAPCD adopted the 2007 PM_{10} Maintenance Plan in September 2007.[9] SJVAPCD Regulation VIII (Fugitive PM_{10}

6 San Joaquin Valley Air Pollution Control District, 2015. *Guidance for Assessing and Mitigating Air Quality Impacts*. March 19. Website: www.valleyair.org/transportation/ceqa_idx.htm (accessed August 2018).

7 San Joaquin Valley Air Pollution Control District, 2013. *2013 Plan for the Revoked 1-Hour Ozone Standard*. September 19. Website: www.valleyair.org/Air_Quality_Plans/Ozone-OneHourPlan-2013.htm (accessed August 2018).

8 San Joaquin Valley Air Pollution Control District, 2016. *2016 Plan for the 2008 8-Hour Ozone Standard*. June 16. Website: www.valleyair.org/Air_Quality_Plans/Ozone-Plan-2016.htm (accessed August 2018).

9 San Joaquin Valley Air Pollution Control District, 2007. *2007 PM_{10} Maintenance Plan and Request for Redesignation*. Available online at: www.valleyair.org/Air_Quality_Plans/docs/Maintenance%20Plan10-25-07.pdf (accessed August 2018).

Prohibitions) is designed to reduce PM_{10} emissions generated by human activity. The SJVAPCD adopted the2016 Moderate Area Plan for the 2012 $PM_{2.5}$ standard to address the USEPA federal annual $PM_{2.5}$ standard of 12 µg/m^3, established in 2012.[10] In addition, the SJVAPCD is in the process of developing an attainment strategy to address multiple $PM_{2.5}$ standards (1997, 2006, and 2012 $PM_{2.5}$ standards) and a plan to demonstrate maintenance of the 1987 PM_{10} standard as required under the federal Clean Air Act.

For a project to be consistent with SJVAPCD air quality plans, the pollutants emitted from a project should not exceed the SJVAPCD emission thresholds or cause a significant impact on air quality. In addition, emission reductions achieved through implementation of offset requirements are a major component of the SJVAPCD air quality plans. As discussed below, construction of the proposed project would not result in the generation of criteria air pollutants that would exceed SJVAPCD thresholds of significance. Implementation of SJVAPCD Regulation VIII would further reduce construction dust impacts. Operational emissions associated with the proposed project would not exceed SJVAPCD established significance thresholds for CO, nitrogen oxides (NO_x) reactive organic gases (ROG), sulfur oxides (SO_x), PM_{10}, or $PM_{2.5}$ emissions. Therefore, the project would be consistent with the SJVAPCD air quality plans, would not conflict with or obstruct the implementation of the applicable air quality plan, and air quality impacts would be ***less than significant***.

b. Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

The proposed project would generate air emissions during project construction and operation. Short-term construction emissions would occur in association with construction activities, including demolition, grading, and vehicle/equipment use. Long-term operational emissions are associated with stationary sources and mobile sources. Stationary source emissions result from the consumption of natural gas and electricity. Mobile source emissions result from vehicle trips and result in air pollutant emissions affecting the entire air basin. As noted above, specific criteria for determining whether the potential air quality impacts of a project are significant are set forth by the SJVAPCD.

Short-Term (Construction Emissions). During construction, short-term degradation of air quality may occur due to the release of particulate matter emissions generated by demolition, grading, hauling, and building activities. Emissions from construction equipment are also anticipated and would include CO, NO_x, ROG, directly-emitted particulate matter ($PM_{2.5}$ and PM_{10}), and toxic air contaminants (TACs) such as diesel exhaust particulate matter.

Site preparation and project construction would involve demolition, grading, paving, reconstruction and building activities. Construction-related effects on air quality from the proposed project would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils on the site. If not properly controlled, these activities would temporarily generate PM_{10}, $PM_{2.5,}$ and to a lesser extent CO, SO_2, NO_x, and volatile organic compounds. Sources of fugitive dust would include disturbed soils at the construction site and

[10] San Joaquin Valley Air Pollution Control District, 2016. *2016 Moderate Area Plan for the 2012 $PM_{2.5}$ Standard*. Website: http://www.valleyair.org/Air_Quality_Plans/PM25Plans2016.htm (accessed August 2018).

trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit dirt and mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions would depend on soil moisture, the silt content of soil, wind speed, and the amount of operating equipment. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site. These emissions would be temporary and limited to the immediate area surrounding the construction site.

As discussed in the Project Description, development of the project would result in the demolition and reconstruction of the existing southern façade of shopping center. Under Phase I, approximately 4,920 cubic yards of construction debris would be collected and off-hauled from the project site. Demolition and construction of Phase I is anticipated to occur over approximately 20 months, starting in April 2019 and ending in January 2021. The timing of the construction of the selected Phase II alternative would be dependent on market conditions. Under Phase II Alternative 1, approximately 5,910 cubic yards of construction debris would be collected and off-hauled from the project site. Demolition and construction of Phase II Alternative 1 is anticipated to occur over approximately 20 months. Under Phase II Alternative 2, approximately 4,200 cubic yards of construction debris would be collected and off-hauled from the project site. Demolition and construction of Phase II Alternative 2 is anticipated to occur over approximately 24 months.

The SJVAPCD has established construction emissions thresholds on an annual basis as shown in Table 4.B below. Construction emissions for the proposed project were analyzed using the California Emissions Estimator Model version 2016.3.2 (CalEEMod). Project construction duration and phasing was input into CalEEMod. Other precise details of construction activities are unknown at this time; therefore, default assumptions (e.g., construction fleet activities) from CalEEMod were used. Construction-related emissions are presented in Table 4.B. CalEEMod output sheets are included in Appendix A.

Table 4.B: Project Construction Emissions in Tons Per Year

Project Construction	CO	NO_x	ROG	SO_x	PM_{10}	$PM_{2.5}$
Alternative 1						
Phase I Annual Construction Emissions	1.5	1.9	0.6	0.0	0.3	0.2
Phase II Alternative 1 Annual Construction Emissions	1.9	2.5	0.8	0.0	0.3	0.2
Total Alternative 1 Annual Construction Emissions	**3.4**	**4.4**	**1.4**	**0.0**	**0.6**	**0.4**
SJVAPCD Thresholds	100	10	10	27	15	15
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Alternative 2						
Phase I Annual Construction Emissions	1.5	1.9	0.6	0.0	0.3	0.2
Phase II Alternative 2 Annual Construction Emissions	1.6	2.2	0.6	0.0	0.3	0.2
Total Alternative 2 Annual Construction Emissions	**3.1**	**4.1**	**1.2**	**0.0**	**0.6**	**0.4**
SJVAPCD Thresholds	100	10	10	27	15	15
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: LSA (August 2018).

As shown in Table 4.B, construction emissions would not exceed the SJVAPCD threshold for annual construction emissions for either alternative. In addition to the construction period thresholds of significance, the SJVAPCD has implemented Regulation VIII measures for dust control during construction. These control measures are intended to reduce the amount of PM_{10} emissions during the construction period. Implementation of the following fugitive dust control measures would ensure that the proposed project complies with Regulation VIII and further reduces the short-term construction period air quality impacts.

Mitigation Measure AIR-1: Consistent with SJVAPCD Regulation VIII (Fugitive PM_{10} Prohibitions), the following controls are required to be included as specifications for the proposed project and implemented at the construction site:

- All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover.
- All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.
- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.
- When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained.
- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.)
- Following the addition of materials to, or the removal of materials from, the surface of out-door storage piles, said piles shall be effectively stabilized of fugitive dust emission utilizing sufficient water or chemical stabilizer/suppressant.

As shown in Table 4.B, the short-term construction emissions associated with the proposed project would be well below SJVAPCD established significance thresholds. Therefore, construction of the proposed project would not result in a violation of air quality standards and this impact would be ***less than significant with mitigation***.

Long-Term Operational Emissions. The project would generate long-term air emissions associated with changes in the permanent use of the project site. These long-term emissions are primarily mobile source emissions that would result from vehicle trips associated with the proposed project. The proposed project would also generate energy emissions, which would result from electricity and natural gas usage. Area sources, such as natural gas heaters, landscape equipment, and use of consumer products such as pressurized air canisters would also result in pollutant emissions.

Emissions associated with the project were calculated using CalEEMod. The annual emissions associated with project operational trip generation, energy and area sources are identified in Table 4.C. All calculation details are provided in Appendix A. The results indicate the project emissions would not exceed the SJVAPCD threshold; therefore, the proposed project would not have a significant effect on regional air quality or result in a violation of air quality standards.

The primary emissions associated with the project are regional in nature, meaning that air pollutants are rapidly dispersed on emission or, in the case of vehicle emissions associated with the project; emissions are released in other areas of the air basin. Because the resulting emissions are dispersed rapidly and contribute only a small fraction of the region's air pollution, air quality in the immediate vicinity of the project site would not substantially change compared to existing conditions.

As shown in Table 4.C, the primary source of emissions associated with the project are mobile source emissions generated by visitor and employee vehicle trips to and from the project site. Alternative 2 would result in lower emissions than those identified for Alternative 1 as it would include the demolition of the existing United Artists Theater and two retail stores, which would generate less traffic emissions.

The long-term operational emissions associated with the proposed project would not exceed SJVAPCD established significance thresholds for CO, NO_x, ROG, SO_x, PM_{10}, or $PM_{2.5}$ emissions for either alternative (shown in Table 4.C). Therefore, the proposed project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation and impacts would be ***less than significant***.

Table 4.C: Project Operational Emissions in Tons Per Year

Project Operational Emissions	CO	NO_x	ROG	SO_x	PM_{10}	$PM_{2.5}$
Alternative 1						
Phase I Area Source Emissions	0.0	0.0	0.2	0.0	0.0	0.0
Phase I Energy Source Emissions	0.0	0.0	0.0	0.0	0.0	0.0
Phase I Mobile Source Emissions	5.3	1.0	0.5	0.0	1.2	0.3
Total Phase I Emissions	**5.3**	**1.0**	**0.7**	**0.0**	**1.2**	**0.3**
Phase II Alternative 1 Area Source Emissions	0.0	0.0	0.4	0.0	0.0	0.0
Phase II Alternative 1 Energy Source Emissions	0.1	0.1	0.0	0.0	0.0	0.0
Phase II Alternative 1 Mobile Source Emissions	7.5	1.3	0.7	0.0	2.2	0.6
Total Phase II Alternative 1 Emissions	**7.6**	**1.4**	**1.1**	**0.0**	**2.2**	**0.6**
Total Alternative 1 Emissions	**12.9**	**2.4**	**1.8**	**0.0**	**3.4**	**0.9**
SJVAPCD Thresholds	100	10	10	27	15	15
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Alternative 2						
Phase I Area Source Emissions	0.0	0.0	0.2	0.0	0.0	0.0
Phase I Energy Source Emissions	0.0	0.0	0.0	0.0	0.0	0.0
Phase I Mobile Source Emissions	5.3	1.0	0.5	0.0	1.2	0.3
Total Phase I Emissions	**5.3**	**1.0**	**0.7**	**0.0**	**1.2**	**0.3**
Phase II Alternative 2 Area Source Emissions	0.0	0.0	0.3	0.0	0.0	0.0
Phase II Alternative 2 Energy Source Emissions	0.1	0.1	0.0	0.0	0.0	0.0
Phase II Alternative 2 Mobile Source Emissions	1.5	1.0	0.2	0.0	0.4	0.1
Total Phase II Alternative 2 Emissions	**1.6**	**1.6**	**0.5**	**0.0**	**0.4**	**0.1**
Total Alternative 2 Emissions	**7.1**	**1.2**	**1.3**	**0.0**	**1.7**	**0.5**
SJVAPCD Thresholds	100	10	10	27	15	15
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: LSA (August 2018).

c. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

CEQA defines a cumulative impact as two or more individual effects, which when considered together, are considerable or which compound or increase other environmental impacts. Therefore, if annual emissions of construction- or operational-related criteria air pollutants exceed any applicable threshold established by the SJVAPCD, the proposed project would result in a cumulatively significant impact. As discussed above, with implementation of Mitigation Measure AIR-1, the proposed project's construction emissions of criteria pollutants are estimated to be below the emissions threshold established for the region. Operational emissions associated with the proposed project would not exceed SJVAPCD established significance thresholds for CO, NO_x, ROG, SO_x, PM_{10}, or $PM_{2.5}$ emissions. Therefore, with implementation of Mitigation Measure AIR-1, the proposed project would not result in a cumulatively considerable contribution to a net increase of any criteria pollutant for which the project region is in non-attainment, and impacts would be ***less than significant***.

d. Would the project expose sensitive receptors to substantial pollutant concentrations?

Construction of the proposed project may expose surrounding sensitive receptors to airborne particulates, as well as a small quantity of construction equipment pollutants (i.e., usually diesel-fueled vehicles and equipment). However, construction contractors would be required to implement measures to reduce or eliminate emissions by following the Regulation VIII, Fugitive PM_{10} Prohibitions as required by Mitigation Measure AIR-1. Project construction emissions would be below the SJVAPCD significance thresholds. Once the project is constructed, the project would not be a significant source of long term operational emissions. Therefore, sensitive receptors would not be exposed to substantial pollutant concentrations during project operation, and with implementation of Mitigation Measures AIR-1, potential impacts associated with project construction would be considered ***less than significant***.

e. Would the project create objectionable odors affecting a substantial number of people?

During construction, the various diesel powered vehicles and equipment in use on-site would create localized odors. These odors would be temporary and are not likely to be noticeable for extended periods of time beyond the project site. The potential for diesel odor impacts is therefore considered less than significant. In addition, the proposed uses that would be developed within the project site are not expected to produce any offensive odors that would result in frequent odor complaints. The proposed project would not create objectionable odors affecting a substantial number of people during project construction or operation, and this impact would be ***less than significant***.

4.4 BIOLOGICAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

LSA conducted a biological resources study for the proposed project to assess the site for compliance with the CEQA review process. The following summarizes the biological setting in the vicinity of the proposed project.

Methods. For purposes of the biological analysis, a Biological Study Area (BSA) was established. The BSA, totaling 56.81 acres, is located in the City of Merced and is entirely developed, consisting of the Merced Mall, associated parking lots, and outbuildings. The BSA is bordered by Loughborough Drive to the north, M Street to the east, West Olive Drive to the south, and R Street to the west. The BSA includes lands beyond the proposed project footprint that could potentially be affected by project construction and/or were determined necessary to inventory in order to perform an adequate analysis of impacts to biological resources.

A list of sensitive wildlife and plant species potentially occurring within the BSA was compiled to evaluate the potential impacts resulting from project construction. Sources used to compile the list include the California Natural Diversity Database (CNDDB), the U.S. Fish and Wildlife Service (USFWS) online special-status species list, and the California Native Plant Society (CNPS) Online

Edition. The species lists obtained from the CNDDB, CNPS, and USFWS were reviewed to determine which species could potentially occur in the project area.

LSA conducted a general field survey and nesting bird survey within the BSA on July 31, 2018.

Environmental Setting. Developed areas, totaling 56.81 acres, include the Merced Mall, associated parking lots, and outbuildings containing big box stores (e.g. Target, Michael's, Big Lots). These areas are characterized by little to no vegetation, with the exception of small amounts of landscaping within the parking lots. The landscaped areas within the parking lots primarily contain introduced shade trees such as Modesto ash (*Fraxinus velutina*), African sumac (*Rhus lancea*), crepe myrtle (*Lagerstroemia indica*), callery pear (*Pyrus calleryana*), and southern magnolia (*Magnolia grandiflora*).

The BSA does not contain suitable habitat for special-status plants or special-status wildlife. No special-status plants or wildlife are expected to occur within the BSA. However, shade trees within the parking lots may provide potential nesting habitat for migratory bird species, which are protected under the Migratory Bird Treaty Act (MBTA) and the California Fish and Game Code (CFGC).

No aquatic resources were identified within the BSA. The nearest aquatic resources to the BSA include Black Rascal Creek, located approximately 0.1 mile to the north, and Bear Creek, located approximately 0.4 mile to the south.

4.4.1 Impact Analysis

a. Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

As described above, no State or federally listed or proposed plant or wildlife species are expected to occur in the BSA; therefore, no special-status plants or wildlife would be affected by implementation of the proposed project. However, the proposed project has the potential to affect nesting bird species that could occur within the BSA. Disturbance of migratory birds during their nesting season (February 1 to August 31) could result in "take" which is prohibited under the MBTA and Section 3513 of the CFGC. CFGC Section 3503 also prohibits take or destruction of bird nests or eggs. Potential impacts to these protected species are described below.

Nesting Birds. Potential nesting trees are present throughout the parking lots within the BSA, though larger trees are concentrated on the northern and eastern sides of the mall. Six vacant nests were observed during the field survey in large trees located north of JC Penny in the Merced Mall and west of the Big Lots entrance east of the mall. Signs of recent activity (e.g. whitewash) were observed beneath each nest.

The proposed project would result in the removal of approximately 14 trees under Phase I expansion and either 10 trees under Phase II Alternative 1 or 13 trees under Phase II Alternative 2. Of the trees proposed for removal, none contain nests or signs of recent nesting activity. However, adherence to the requirements in Mitigation Measure BIO-1 would ensure potential impacts to nesting birds would result in a ***less–than-significant impact with mitigation***.

Mitigation Measure BIO-1: The following measures shall be implemented to reduce potential impacts to nesting birds:

- If tree removal will occur during the nesting season (February 1 to August 31), a qualified biologist shall survey all suitable nesting habitat in the BSA for presence of nesting birds. This survey shall occur no more than 10 days prior to the start of construction. If no nesting activity is observed, work may proceed as planned. If an active nest is discovered, a qualified biologist shall evaluate the potential for the proposed project to disturb nesting activities. The evaluation criteria shall include, but are not limited to, the location/orientation of the nest in the nest tree, the distance of the nest from the BSA, and line of sight between the nest and the BSA.
- California Department of Fish and Wildlife (CDFW) shall be contacted to review the evaluation and determine if the project can proceed without adversely affecting nesting activity.
- If work is allowed to proceed after nesting activity has been observed, a qualified biologist shall be on-site daily during construction activities to monitor nesting activity. The biologist shall have the authority to stop work if it is determined the project is adversely affecting nesting activities.

b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

No riparian habitat or other sensitive natural communities occur in the BSA; the project site consists entirely of developed areas. As a result, ***no impact*** would occur.

c. Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No aquatic resources occur within the BSA, and no potential wetlands are located within the BSA. As a result, ***no impact*** would occur.

d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

The BSA is completely developed and the project would not interfere substantially with wildlife movement. As a result, ***no impact*** would occur.

e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The project would not conflict with any local policies or ordinances protecting biological resources. Though the proposed project does fall within the City of Merced, and is therefore subject to provisions of the City's Municipal Code regarding tree removal (City of Merced Ord. 1501 § 2 (part), 1983), the proposed project does not conflict with any of the existing ordinances. As a result, ***no impact*** would occur.

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The PG&E San Joaquin Valley Operation and Maintenance (O&M) Habitat Conservation Plan (HCP) was approved in 2007 and covers portions of nine counties, including Merced County and the City of Merced. This HCP covers PG&E activities which occur as a result of ongoing O&M that would have an adverse impact on any of the 65 covered species and provides incidental take coverage from the USFWS and CDFW. The project site is not located within the covered area of any other HCP, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Mitigation Measure BIO-1, for potential impacts to nesting birds, is largely consistent with avoidance and minimization measure 22 in the PG&E HCP. Therefore, the project would not conflict with the provisions of the PG&E HCP and the proposed project and would have ***no impact***.

4.5 CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

4.5.1 Impact Analysis

a. Would the project cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

A historical resource defined by CEQA includes one or more of the following criteria: 1) the resource is listed, or found eligible for listing in, the California Register of Historical Resources (CRHR); 2) listed in a local register of historical resources as defined by Public Resources Code (PRC) Section 5020.1(k); 3) identified as significant in a historical resources survey meeting the requirements of PRC Section 5024.1(g); or 4) determined to be a historical resource by the project's lead agency (PRC Section 21084.1; CEQA Guidelines Section 15064.(a)). Under CEQA, historical resources include built-environment resources and archaeological sites.

As discussed in the Cultural Resources Review, attached in Appendix B, no historical resources were identified within or adjacent to the project site. In addition, the City has determined that impacts to cultural resources could occur as a result of development within the City, and that unknown archaeological materials may be present. Although no evidence of archeological deposits have been identified, there is a potential for unknown archaeological resources that qualify as a historical resource under CEQA to be discovered during construction. Mitigation Measure CUL-1 requires that if unknown archaeological resources are discovered during construction, work in the area would halt and a qualified archaeologist would be contacted. Therefore, adherence to the requirements in Mitigation Measure CUL-1 would reduce potential impacts to unknown archaeological historical resources to ***less-than-significant with mitigation***.

Mitigation Measure CUL-1: If unknown pre-contact or historic-period archaeological materials are encountered during project activities, all work in the immediate vicinity of the find shall halt until a qualified archaeologist can evaluate the find and make recommendations.

Cultural resources materials may include pre-contact resources such as flaked and ground stone tools and debris, shell, bone, ceramics, and fire-affected rock, as well as historic resources such as glass, metal, wood, brick, or structural remnants. If the qualified archaeologist determines that the discovery represents a potentially significant cultural resource, additional investigations shall be required to mitigate adverse impacts from project implementation. These additional studies may include, but are not limited to recordation, archaeological excavation, or other forms of significance evaluations.

The applicant shall inform its contractor(s) of the sensitivity of the project site for archaeological deposits, and include the following directive in the appropriate contract documents:

"The subsurface of the construction site is sensitive for archaeological deposits. If archaeological deposits are encountered during project subsurface construction, all ground-disturbing activities within 25 feet shall be redirected and a qualified archaeologist shall assess the situation, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. Project personnel shall not collect or move any archaeological materials. Archaeological deposits can include, but are not limited to, shellfish remains; bones, including human remains; flakes of, and tools made from, obsidian, chert, and basalt; mortars and pestles; historical trash deposits containing glass, ceramics, and metal artifacts; and structural remains, including foundations and wells."

The City shall verify that the language has been included in the grading plans prior to issuance of a grading permit or other permitted project action that includes ground-disturbing activities on the project site.

b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

According to the CEQA Guidelines, "When a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource" (CEQA Guidelines Section 15064.5(c)(1)). Those archaeological sites that do not qualify as historical resources shall be assessed to determine if these qualify as "unique archaeological resources" (California PRC Section 21083.2). No archaeological resources were identified in the project site. However, there is a potential for unknown archaeological resources to be discovered during construction. Mitigation Measure CUL-1 requires that if unknown archaeological resources are discovered during construction, work in the area would halt and a qualified archaeologist would be contacted. Therefore, adherence to the requirements in Mitigation Measure CUL-1 would reduce potential impacts to archaeological resources to ***less-than-significant with mitigation***.

Mitigation Measure CUL-2: Implement Mitigation Measure CUL-1.

c. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

No paleontological resources or unique geological features are known to exist within or near the project site, and the project is not expected to alter or destroy a paleontological resource, site, or unique geologic feature. Furthermore, the project would not require excavation to depths that have not already been disturbed by previous construction. Therefore, ***no impact*** would occur.

d. Would the project disturb any humans remains, including those interred outside of formal cemeteries?

Disturbance of human remains interred outside of formal cemeteries would result in a significant impact. If human remains are identified during project construction, Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the Public Resources Code shall apply, as appropriate. Therefore, implementation of Mitigation Measure CUL-3 would reduce potential impacts to human remains to ***less than significant with mitigation***.

Mitigation Measure CUL-3: If human remains are identified during construction and cannot be preserved in place, the applicant shall fund 1) the removal and documentation of the human remains from the project corridor by a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archaeology, 2) the scientific analysis of the remains by a qualified archaeologist, should such analysis be permitted by the Native American Most Likely Descendant, and 3) the reburial of the remains, as appropriate. All excavation, analysis, and reburial of Native American human remains shall be done in consultation with the Native American Most Likely Descendant, as identified by the California Native American Heritage Commission.

4.6 GEOLOGY AND SOILS

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☒	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

4.6.1 Impact Analysis

a. Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

ii. Strong seismic ground shaking?

iii. Seismic-related ground failure, including liquefaction?

iv. Landslides?

Fault Rupture. Fault rupture is generally expected to occur along active fault traces that have exhibited signs of recent geological movement (i.e., 11,000 years). Alquist-Priolo Earthquake Fault Zones delineate areas around active faults with potential surface fault rupture hazards that would require specific geological investigations prior to approval of certain kinds of development within

the delineated area. The project site is not located within an Alquist-Priolo Earthquake Fault Zone.[11] In addition, no known active or potentially active faults or fault traces are located in the project vicinity.

The closest active faults are the Kings Canyon Lineament, located 10 miles southwest of the project site, San Joaquin Fault System, located approximately 30 miles west of the project site, Melones Fault System, located approximately 40 miles east of the project site, and Vernalis Fault, located approximately 45 miles northwest of the project site.[12] Due to the distance of these known faults, no people or structures would be exposed to potential substantial adverse effects, including the risk of loss, injury, or death from the rupture of a known earthquake fault as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, and this would be considered a ***less-than-significant impact***.

Seismic Ground Shaking. Merced is vulnerable to shaking from a number of faults that run through the mountains to the east and west of the City. As discussed above, the closest known active faults are the Kings Canyon Lineament, located 10 miles southwest of the project site, San Joaquin Fault System, located approximately 30 miles west of the project site, Melones Fault System, located approximately 40 miles east of the project site, and Vernalis Fault, located approximately 45 miles northwest of the project site. According to the City's General Plan, the most likely hazard associated with earthquakes for the Merced area is ground shaking, rather than surface rupture or ground failure.[13] However, due to the distance to the known faults, hazards due to ground shaking would be minimal. In addition, compliance with the California Building Code (Title 24, California Code of Regulations) would ensure that geotechnical design of the proposed project would reduce potential impacts related to seismic ground shaking to a ***less-than-significant*** impact.

Seismic Ground Failure. The potential for different types of ground failure to occur during a seismic event is discussed below.

> ***Liquefaction.*** Soil liquefaction is a phenomenon primarily associated with saturated soil layers located close to the ground surface. During ground shaking, these soils lose strength and acquire "mobility" sufficient to permit both horizontal and vertical movements. Soils that are most susceptible to liquefaction are clean, loose, uniformly graded, saturated, fine-grained sands that lie relatively close to the ground surface. However, loose sands that contain a significant amount of fines (silt and clay) may also liquefy. Based on the predicted seismic accelerations, and soil and groundwater conditions typically encountered in the region, general liquefaction potential is low in Merced.[14] Additionally, compliance with the California Building Code would ensure potential impacts associated with liquefaction would be ***less than significant***.

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11 California Geologic Survey, 2010. *Cities and Counties Affected by Alquist-Priolo Earthquake Fault Zones*. January.

12 California Department of Conservation, 2010. *Fault Activity Map of California (2010)*. Website: maps.conservation.ca.gov/cgs/fam (accessed September 2018).

13 Merced, City of, 2012. *Merced Vision 2030 General Plan*. January 3.

14 Merced, City of, 2010. General Plan EIR, page 3.6-3. August.

Lateral Spreading. Lateral spreading is a phenomenon in which surficial soil displaces along a shear zone that has formed within an underlying liquefied layer. Upon reaching mobilization, the surface soils are transported downslope or in the direction of a free face by earthquake and gravitational forces. The project site is relatively flat and development of the proposed project would not exacerbate lateral spreading. Therefore, the proposed project would have a ***less-than-significant impact*** related to lateral spreading.

Landslides. A landslide generally occurs on relatively steep slopes and/or on slopes underlain by weak materials. The project site is located on a relatively flat area and is not located next to any hills. In general, the potential for land sliding or slope failure in Merced is very low and would not be susceptible to landslides.[15] Therefore, the potential for the proposed project to expose people or structures to risk as a result of landslides would be ***less than significant***.

b. Would the project result in substantial soil erosion or the loss of topsoil?

Topsoil is defined as the upper part of the soil profile that is relatively rich in humus and is technically known as the A-horizon of the soil profile.[16] Grading and earthmoving during project construction has the potential to result in erosion and loss of topsoil. Exposed soils could be entrained in stormwater runoff and transported off the project sites. However, this impact would be reduced to a less-than-significant level through compliance with water quality control measures, which include preparation of a Stormwater Pollution Prevention Plan (SWPPP) (refer to Section 4.9, Hydrology and Water Quality). Although designed primarily to protect stormwater quality, the SWPPP would incorporate Best Management Practices (BMPs) to minimize erosion. Additional details regarding the SWPPP are provided in Section 4.9, Hydrology and Water Quality of this Initial Study. This impact would be ***less than significant***.

c. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

As described in Section 4.6.1.a, soils on the project site would not be subject to liquefaction, lateral spreading, or landslides. Additionally, the proposed project would be required to conform with the California Building Code, which would reduce risks related to unstable soils. Therefore, the proposed project would have a ***less-than-significant impact*** related to unstable soils.

d. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Expansive soils are characterized by the potential for shrinking and swelling as the moisture content of the soil decreases and increases, respectively. Shrink-swell potential is influenced by the amount

[15] Ibid.

[16] California State Mining and Geology Board, 2014. Surface Mining Reclamation Act Regulations. California Code of Regulations, Title 14, Division 2, Chapter 8, Subchapter 1.

and type of clay minerals present and can be measured by the percent change of the soil volume.[17] Portions of the soils at the project site contain clay, and therefore have shrinking and swelling potential. However, compliance with the California Building Code requirements would ensure that geotechnical design of the proposed project would reduce potential impacts related to expansive soils to a less-than-significant level. As such, the risk of expansive soil affecting the proposed project is considered low and would represent a ***less-than-significant impact***.

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

Development of the proposed project would not involve the use of septic tanks or alternative wastewater disposal systems. Therefore, the proposed project would have ***no impact*** related to septic tanks or alternative waste water disposal systems.

4.7 GREENHOUSE GAS EMISSIONS

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☒	☐	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

4.7.1 Impact Analysis

Greenhouse gases (GHGs) are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced global climate change are:

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur Hexafluoride (SF_6)

[17] Natural Resources Conservation Service, 2017. *Web Soil Survey*. Website: websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx (accessed August 2018).

Certain gases, such as water vapor, are short-lived in the atmosphere. Others remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is excluded from the list of GHGs above because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

These gases vary considerably in terms of Global Warming Potential (GWP), which is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and the length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO_2, the most abundant GHG; the definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO_2 over a specified time period. GHG emissions are typically measured in terms of pounds or tons of "CO_2 equivalents" (CO_2e).

The SJVAPCD *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA*[18] presents a tiered approach to analyzing project significance with respect to GHG emissions. Project GHG emissions are considered less than significant if they can meet any of the following conditions, evaluated in the order presented:

- Project is exempt from CEQA requirements;
- Project complies with an approved GHG emission reduction plan or GHG mitigation program;
- Project implements Best Performance Standards (BPS); or
- Project demonstrates that specific GHG emissions would be reduced or mitigated by at least 29 percent compared to Business-as-Usual (BAU), including GHG emission reductions achieved since the 2002-2004 baseline period.

On November 20, 2015, the California Supreme Court (Court) issued its decision on the Center for Biological Diversity v. California Department of Fish and Wildlife on the Newhall Ranch project case (Newhall Ranch case). Among the findings, the Court supported the use of BAU analyses if it also substantiates the reduction a project must achieve to comply with Statewide goals. If no additional reductions are required from an individual project beyond that achieved by regulations to achieve the Assembly Bill (AB) 32 target for 2020, then the amount needed to reach the AB 32 target is the reduction a project must achieve to comply with Statewide goals.

[18] San Joaquin Valley Air Pollution Control District, 2009. *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA*. December 17. Available online at: www.valleyair.org/Programs/CCAP/12-17-09/3%20CCAP%20-%20FINAL%20LU%20Guidance%20-%20Dec%2017%202009.pdf (accessed August 2018).

a. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

This section discusses the proposed project's potential impacts related to the release of GHG emissions for both construction and project operation.

Construction Greenhouse Gas Emissions. Construction activities, such as site preparation, site grading, on-site heavy-duty construction vehicles, equipment hauling materials to and from the project site, and motor vehicles transporting the construction crew would produce combustion emissions from various sources. During construction of the proposed project, GHGs would be emitted through the operation of construction equipment and from worker and builder supply vendor vehicles, each of which typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO_2, CH_4, and N_2O. Furthermore, CH_4 is emitted during the fueling of heavy equipment. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change.

Construction GHG emissions associated with the proposed project were estimated using CalEEMod. Appendix A contains CalEEMod output worksheets. Based on the CalEEMod results, construction of Phase I would generate approximately 455.9 metric tons CO_2e, construction of Phase II Alternative 1 would generate approximately 572.2 metric tons of CO_2e, and construction of Phase II Alternative 2 would generate approximately 552.3 metric tons of CO_2e. Therefore, the total construction of Alternative 1 would generate approximately 1,028.1 metric tons of CO_2e and the total construction of Alternative 2 would generate approximately 1,008.3 metric tons of CO_2e.

The SJVAPCD does not recommend assessing the significance of construction GHG emissions because these emissions would be temporary However, other air quality management districts (AQMDs) such as the South Coast AQMD and Sacramento Metropolitan AQMD recommend accounting for construction emissions by amortizing them over a 30-year project life and adding to the operational GHG emissions. The total amortized construction emissions for the proposed project would be 34.3 metric tons of CO_2e per year under Alternative 1 and 33.6 metric tons of CO_2e per year under Alternative 2. Construction of the proposed project would not generate GHG emissions that would have a significant impact on the environment and construction-related impacts would be ***less than significant***.

Operational Greenhouse Gas Emissions. Long-term operation of the proposed project would generate GHG emissions from mobile sources and indirect emissions from sources related to energy consumption. Mobile-source emissions of GHG would include project-generated vehicle trips associated with future visitors of the project site. Emissions would also be generated at off-site utility providers as a result of increased electricity demand generated by the proposed project. Operational GHG emissions were estimated using CalEEMod and the results are presented in Table 4.D.

As shown in Table 4.D below, Alternative 1 would generate 3,783.2 metric tons of CO_2e per year and Alternative 2 would generate 2,358.1 metric tons of CO_2e per year. As shown in Table 4.D, the primary source of emissions associated with the project are mobile source emissions generated by visitor and employee vehicle trips to and from the project site. Alternative 2 would result in lower

emissions than those identified for Alternative 1 as it would include the demolition of the existing United Artists Theater and two retail stores, which would generate less traffic and other emissions.

Table 4.D: Operational GHG Emissions

Emissions Source Category	Operational Emissions (Metric Tons per Year)				
	CO_2	CH_4	N_2O	CO_2e	Percent of Total
Alternative 1					
Phase I Area Source Emissions	0.0	0.0	0.0	0.0	0
Phase I Energy Source Emissions	89.3	0.0	0.0	90.0	7
Phase I Mobile Source Emissions	1,202.7	0.1	0.0	1,204.0	90
Phase I Waste Source Emissions	10.7	0.6	0.0	26.4	2
Phase I Water Source Emissions	5.3	0.1	0.0	9.2	1
Total Phase I Annual Emissions				**1,329.6**	**100**
Phase II Alternative 1 Area Source Emissions	0.0	0.0	0.0	0.0	0
Phase II Alternative 1 Energy Source Emissions	215.4	0.0	0.0	216.9	9
Phase II Alternative 1 Mobile Source Emissions	1,948.5	0.1	0.0	1,950.3	80
Phase II Alternative 1 Waste Source Emissions	88.1	5.2	0.0	218.4	9
Phase II Alternative 1 Water Source Emissions	35.9	1.0	0.0	68.0	3
Total Phase II Alternative 1 Annual Emissions				**2,453.6**	**100**
Total Alternative 1 Annual Emissions				**3,783.2**	**-**
Alternative 2					
Phase I Area Source Emissions	0.0	0.0	0.0	0.0	0
Phase I Energy Source Emissions	89.3	0.0	0.0	90.0	6
Phase I Mobile Source Emissions	1,202.7	0.1	0.0	1,204.0	91
Phase I Waste Source Emissions	10.7	0.6	0.0	26.4	2
Phase I Water Source Emissions	5.3	0.1	0.0	9.2	1
Total Phase I Annual Emissions				**1,329.6**	**100**
Phase II Alternative 2 Area Source Emissions	0.0	0.0	0.0	0.0	0
Phase II Alternative 2 Energy Source Emissions	174.9	0.0	0.0	176.1	17
Phase II Alternative 2 Mobile Source Emissions	581.8	0.0	0.0	582.2	57
Phase II Alternative 2 Waste Source Emissions	83.3	4.9	0.0	206.4	20
Phase II Alternative 2 Water Source Emissions	33.5	0.9	0.0	63.8	6
Total Phase II Alternative 2 Annual Emissions				**1,028.5**	**100**
Total Alternative 2 Annual Emissions				**2,358.1**	**-**

Source: LSA (August 2018).

The proposed project is not exempt from CEQA requirements and the City's Climate Action Plan (CAP) does not qualify as an approved GHG emission reduction plan or GHG mitigation program; therefore, the first two GHG significance criteria would not apply. Therefore, the proposed project's GHG emissions would not be considered a significant impact if the project would implement BPS strategies. Precise details of project features are not yet available; therefore, Mitigation Measure GHG-1 would require the proposed project to implement the following applicable BPS strategies.

Mitigation Measure GHG-1: The project applicant shall demonstrate compliance with the applicable BPS strategies to the Planning Division prior to the issuance of a building permit. The following BPS strategies are considered to be applicable, feasible, and effective in reducing GHG emissions generated by the project:

- The project applicant shall provide a pedestrian access network that internally links all uses and connects to existing external streets and pedestrian facilities.
- The project applicant shall ensure site design and building placement minimize barriers to pedestrian access and interconnectivity. Physical barriers such as walls, berms, landscaping, and slopes between nonresidential uses that impede bicycle or pedestrian circulation shall be eliminated. In addition, barriers to pedestrian access of neighboring facilities and sites shall be minimized.
- The project applicant shall design roadways to reduce motor vehicle speeds and encourage pedestrian and bicycle trips by featuring traffic calming measures. Traffic calming measures include: bike lanes, center islands, closures (cul-de-sacs), diverters, education, forced turn lanes, roundabouts, and speed humps.
- The project shall provide car sharing programs, accommodations such as parking spaces for the car share vehicles at convenient locations accessible by public transportation.
- The project applicant shall plant trees to provide shade.
- The project applicant shall install energy efficient heating and cooling systems, appliances and equipment, and control systems.

Implementation of Mitigation Measure GHG-1 would implement various BPS strategies recommended by the SJVAPCD that are applicable to the project to reduce GHG emissions. Overall, the mitigated project would implement GHG reduction strategies in compliance with the SJVAPCD and, therefore, would not be a significant source of GHG emissions. In addition, the proposed project would implement several measures required by State regulations to reduce GHG emissions by 2020, including the following:

- Pavley II (LEV III) Advanced Clean Cars Program;
- 2016 California Green Building Code Standards;
- Renewable Portfolio Standard;
- California Model Water Efficient Landscape Ordinance; and
- CalRecycle Waste Diversion and Recycling Mandate.

The second phase of Pavley standards will reduce GHG emissions from new cars by 34 percent from 2016 levels by 2025, resulting in a 3 percent decrease in average vehicle emissions for all vehicles by 2020. The California Green Building Code Standards reduce GHGs by including a variety of different measures, including reduction of construction waste, wastewater, water use, and building energy use. The 2016 Green building Standards reduce energy use by 28 percent compared to 2013 standards and 32 percent compared to the 2008 standards, representing a substantial reduction compared to 2005 levels. The Renewable Portfolio Standard requires electricity purchased for use at the project site to be composed of at least 33 percent renewable energy by 2020. The Water Efficient Landscape Ordinance will reduce outdoor water use by 20 percent, and the CalRecycle Waste Diversion and Recycling Mandate will reduce solid waste production by 25 percent.

Implementation of these measures is expected to allow the State to achieve AB 32 emission targets by 2020. Therefore, with implementation of Mitigation Measure GHG-1 and compliance with State requirements, it is expected that the proposed project would achieve the reductions required by regulations to meet the AB 32 target.

In addition, the Newhall Ranch case indicates that as 2020 nears, new post-2020 thresholds will be necessary. Phase I of the proposed project is expected to be operational in 2021; therefore the 2020 target would not still be appropriate. However, operation of the proposed project would comply with any new measures established to achieve post-2020 reductions.

Therefore, with implementation of Mitigation Measure GHG-1 and compliance with State regulations, the proposed project would not be a significant source of GHG emissions. Therefore, the project's impacts would be ***less than significant with mitigation***.

b. Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The City of Merced CAP,[19] adopted in August 2012, includes goals, strategies, and actions to reduce local community GHG emissions to 1990 levels by the year 2020, consistent with the state objectives set forth in the "Global Warming Solutions Act," otherwise known as AB 32. The CAP presents a comprehensive list of actions, that when implemented, will help to achieve broadly-supported community values including: 1) protecting water and air resources; 2) reducing the waste-stream to

[19] Merced, City of, 2012. *City of Merced Climate Action Plan.* August.

the landfill; 3) improving energy-efficiency; 4) enhancing choice in mobility; and 5) creating healthy and livable communities and reducing GHG emissions.

The CAP's goals, strategies, and actions relate to buildings, mobility, waste, water, and land use. Table 4.E evaluates the proposed project's consistency with the relevant CAP strategies.

Table 4.E: Consistency with Merced Climate Action Plan

Climate Action Plan Strategy	Project Consistency with Strategy
Strategy EM 1.1: Site Design Planning. Increase percentage of citizens that travel by walking, cycling, and by using transit services.	**Consistent.** The proposed project site is currently developed with the existing Merced Mall. The proposed project would include improvements to the existing Merced Mall by increasing leasable retail area and constructing a new movie theater. In addition, as required by Mitigation Measure GHG-1, the project applicant shall ensure site design and building placement minimize barriers to pedestrian access and interconnectivity.
Strategy EM 1.2: Transit Planning. Improve local transit service and ridership through proactive partnership with transit planners and providers.	**Consistent.** As required by Mitigation Measure GHG-1, the project applicant shall ensure bus or streetcar service provides headways of one hour or less for stops within 1/4 mile; project provides safe and convenient bicycle/pedestrian access to transit stop(s) and provides essential transit stop improvements (i.e., shelters, route information, benches, and lighting).
Strategy EM 1.4: Pedestrian Planning And Projects. Build Enticing Pedestrian Corridors	**Consistent.** As required by Mitigation Measure GHG-1, the project applicant shall provide a pedestrian access network that internally links all uses and connects to existing external streets and pedestrian facilities.
Strategy SC 2.1: Compact Urban Form / Infill. Foster Compact and Efficient Development Patterns to Maintain a Compact Urban Form	**Consistent.** The proposed project site is currently developed with the existing Merced Mall. The proposed project would include improvements to the existing Merced Mall by increasing leasable retail area and constructing a new movie theater.
Strategy SC 2.4: Community Appearance. Maintain and Enhance the Unique Community Appearance of Merced	**Consistent.** The proposed additions would be visually similar to the existing buildings at the Merced Mall. While the proposed project would result in a change in the visual character of the project site, the change would be consistent with the existing Merced Mall.
Strategy WR 5.1: Reduce, Reuse, And Recycle. Continue Efforts to Increase the City's Waste Diversion Rate, and Aim to achieve a 65 percent Diversion Rate by 2020.	**Consistent.** The project would contribute toward a Statewide reduction in waste by utilizing the City of Merced recycling service.
Strategy BE 7.2: Energy Efficiency In New Development. Encourage new development to reduce significant GHG emission impacts through energy efficient building designs and siting.	**Consistent.** As required by Mitigation Measure GHG-1, the project shall exceed Title 24 requirements by 20 percent.

Therefore, as demonstrated in Table 4.E above, the proposed project would not conflict with plans, policies, or regulations adopted for the purpose of reducing GHG emissions. In addition, the proposed project would not result in a substantial increase in GHG emissions. Therefore, the

proposed project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs and impacts would be ***less than significant***.

4.8 HAZARDS AND HAZARDOUS MATERIALS

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

4.8.1 Impact Analysis

a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Construction activities associated with the proposed project would involve the use of limited amounts of potentially hazardous materials, including but not limited to, solvents, paints, fuels, oils, and transmission fluids. However, all materials used during construction would be contained, stored, and handled in compliance with applicable standards and regulations established by the Department of Toxic Substances Control (DTSC), the USEPA, and the Occupational Safety and Health Administration (OSHA). No manufacturing, industrial, or other uses utilizing large amounts of hazardous materials would occur within the project site. Project operation would involve the use of

small quantities of commercially-available hazardous materials (e.g., paint, cleaning supplies) that could be potentially hazardous if handled improperly or ingested. However, these products are not considered acutely hazardous and are not generally considered unsafe. All storage, handling, and disposal of hazardous materials during project construction and operation would comply with applicable standards and regulations. The proposed commercial uses would not generate significant amounts of any hazardous materials. Therefore, the proposed project would have a ***less-than-significant impact*** associated with the routine transport, use, or disposal of hazardous materials, and no mitigation is required.

b. Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

See Section 4.8.1.a above. The proposed project would not result in a significant hazard to the public or the environment through a reasonably foreseeable upset or accident condition related to the release of hazardous materials. This impact would be considered ***less than significant***. No mitigation is required.

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

The closest existing school is Merced High School, located approximately 0.28 mile east of the project site. As previously stated, the proposed project would not result in the use or emission of substantial quantities of hazardous materials that would pose a human or environmental health risk. In addition, all materials would be handled, stored, and disposed of in accordance with applicable standards and regulations. Therefore, because the proposed project does not involve activities that would result in the emission of hazardous materials or acutely hazardous substances, implementation of the proposed project would result in a ***less-than-significant impact*** in the use or emission of hazardous materials that would adversely affect an existing school.

d. Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

According to the DTSC EnviroStor database,[20] the project site is not located on a federal superfund site, State response site, voluntary cleanup site, school cleanup site, evaluation site, school investigation site, military evaluation site, tiered permit site, or corrective action site. The project site is not included on the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.[21] As a result, no impacts related to this issue are anticipated, and no mitigation is required. There would be ***no impact***.

[20] California Department of Toxic Substances Control, 2007. EnviroStor. Website: www.envirostor.dtsc.ca.gov/public/map/?myaddress=851+olive+avenue+merced+ca (accessed August 2018).

[21] California Environmental Protection Agency, 2018. Government Code Section 65962.5(a) Hazardous Waste and Substances Site List.

e. Would the project be located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

The proposed project is not located within 2 miles of a public airport or a public use airport and is not within an airport land use plan. The nearest airports include Merced Regional Airport, located approximately 2.6 miles southwest of the project site, and Castle Airport, located approximately 4.8 miles northwest of the project site. Operations at Merced Regional Airport and Castle Airport are not expected to pose a safety hazard for people working at or visiting the project site. Therefore, implementation of the proposed project would not expose persons to airport-related hazards, and ***no impact*** would occur.

f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

See Section 4.8.1.e, above. No hazardous impacts related to the site's proximity to a private airport facility would occur. There would be ***no impact***.

g. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The proposed project would not result in any alterations of existing roadways. Therefore, the proposed project would not interfere with any emergency evacuation routes within Merced County or an adopted emergency response plan, and this impact would be ***less than significant***.

h. Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

The project site is located in an urban area and is not located within a very high fire hazard severity zone.[22] Therefore, the proposed project would not expose people or structures to a significant loss, injury or death involving wildland fires and there would be ***no impact***.

[22] Cal Fire, 2008. *Merced County Very High Fire Hazard Severity Zones in LRA.* November.

4.9 HYDROLOGY AND WATER QUALITY

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f. Otherwise substantially degrade water quality?	☐	☐	☒	☐
g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j. Inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐

4.9.1 Impact Analysis

a. Would the project violate any water quality standards or waste discharge requirements?

The State Water Resources Control Board and nine Regional Water Quality Control Boards regulate the water quality of surface water and groundwater bodies throughout California. The proposed project is within the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB).

Pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. During construction activities, excavated soil would be exposed with an increased potential to expose soils to wind and water erosion, which could result in temporary minimal increases in sediment load in nearby water bodies, including the Black Rascal Creek, located approximately 0.1 mile to the north, and Bear Creek, located

approximately 0.4 mile to the south. Any potential short-term water quality effects from project related construction activities can be minimized and reduced through implementation of Mitigation Measure HYDRO-1, as follows.

Mitigation Measure HYDRO-1: To minimize any potential short-term water quality effects from project-related construction activities, the project contractor shall implement Best Management Practices (BMPs) in conformance with the California Storm Water Best Management Practice Handbook for Construction Activity. In addition, the proposed project shall be in compliance with existing regulatory requirements, including the Water Pollution Control Preparation (WPCP) Manual. In addition, implementation of a Storm Water Pollution Prevention Plan (SWPPP) would be required under the National Pollutant Discharge Elimination System (NPDES) to regulate water quality associated with construction activities.

The nearest water bodies to the proposed project include the Black Rascal Creek, located approximately 0.1 mile to the north, and Bear Creek, located approximately 0.4 mile to the south. Operation of the proposed project could result in surface water pollution associated with chemicals, liquid products, petroleum products (such as paints, solvents, and fuels), and waste that may be spilled or leaked and have the potential to be transported via runoff during periods of heavy precipitation into these water bodies. Implementation of Mitigation Measure HYDRO-2, described below, would ensure that stormwater runoff from the proposed project would be appropriately managed to prevent pollutants from being discharged into these water bodies.

Mitigation Measure HYDRO-2: To reduce the potential for degradation of surface water quality during project operation, a SWPPP shall be prepared for the proposed project. The SWPPP shall describe specific programs to minimize stormwater pollution resulting from the proposed project. Specifically, the SWPPP shall identify and describe source control measures, treatment controls, and BMP maintenance requirements to ensure that the project complies with post-construction stormwater management requirements of the RWQCB.

With implementation of Mitigation Measures HYDRO-1 and HYDRO-2, impacts associated with the proposed project would result in a ***less than significant with mitigation***.

b. Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

The proposed project would result in a minimal increase in impervious surfaces given that the project site is mostly built out aside from planting areas located in the parking lot and the perimeter of the project site. However, the proposed project would include stormwater control features and

BMPs as required by Mitigation Measures HYDRO-1 and HYDRO-2. Therefore, the proposed project would not substantially interfere with groundwater recharge.

As discussed below in Section 4.18.1.d, the City receives all of its water supply from groundwater. Based on the City's Urban Water Management Plan (UWMP),[23] City wells produced 17,855 acre-feet of water in 2015. The UWMP also estimates the projected acre-feet of water use for years 2020, 2025, 2030, and 2035, which are projected to increase each year. By 2035, the City's projected water use is expected to be 31,960 acre-feet of potable and raw water and 5,869 acre-feet of recycled water.

Using water consumption data from the Commercial Buildings Energy Consumption Survey (CBECS), the U.S. Energy Information Administration (EIA) estimated that large commercial buildings generate the need for approximately 20 gallons per square foot of water annually.[24] The proposed project would generate the need for approximately 2.44 million gallons or approximately 7.5 acre-feet per year under both alternatives, which comprises less than 0.1 percent of the City's annual water use. In addition, the project is consistent with the General Plan land use designation and does not represent unplanned growth given that the project site would be developed consistent with its land use and zoning designations. In addition, as discussed in the UWMP, the City expects that passive savings, such as the implementation of the City's Water Efficient Landscape Ordinance, Title 20 appliance standards for toilets, urinals, faucets and showerheads and CALGreen Building Code requirement, will help the City reduce per capita water demand in the future. Therefore, the City would have sufficient water supplies to serve the proposed project. Therefore, the proposed project would have a ***less-than-significant impact*** related to depletion of groundwater supplies.

c. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

Implementation of the proposed project would result in grading and landform alteration on the site that would expose native soils that could be subject to the effects associated with wind and water erosion unless adequate measures are taken to limit the transport of soils in surface water from the site to downstream locations. As discussed under Section 4.9.1.a above, the project applicant would be required to implement a SWPPP that would identify specific measures to address erosion and siltation resulting from grading and construction as well as the potential long-term water quality impacts.

In addition, as described in the Project Description, the City owns and operates storm drainage facilities that serve all of the residential, commercial, and industrial users within the incorporated City limits. The storm drainage collection system consists of 112 miles of underground storm drain lines, underground storage pipes, and 141 acres of detention ponds. A 42-inch storm drain is located

23 Merced, City of, 2017. *2015 Urban Water Management Plan Final*. November.

24 U.S. Energy Information Administration, 2012. *Commercial Buildings Energy Consumption Survey (CBECS) 2012 Commercial Buildings Energy Consumption Survey: Water Consumption in Large Buildings Summary.* Release date: February 9, 2017. Website: www.eia.gov/consumption/commercial/reports/2012/water (accessed August 2018).

within the project site and connects to a storm drain within the West Olive Avenue right-of-way. The proposed project under both phases would continue to utilize existing service connections.

The project site currently includes approximately 2.2 million square feet (49.68 acres) of impervious surface. As result of the proposed project, an increase in impervious surfaces would be minimal given that the project site is mostly built out aside from planting areas located in the parking lot and the perimeter of the project site. As required by Mitigation Measures HYDRO-1 and HYDRO-2, a SWPPP would be developed prior to any ground disturbance at the project site and would include practices to reduce erosion and surface water contamination during construction. In addition, the proposed project would not alter the course of a stream or river. Therefore, the proposed project would have a ***less-than-significant impact*** related to drainage patterns.

d. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

Please refer to Section 4.9.1.c, above. Implementation of the proposed project would not substantially increase the rate or amount of surface runoff that would result in flooding on or off site. This impact would be considered ***less than significant***. No mitigation is required.

e. Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

The proposed project would result in a minimal increase in impervious surfaces given that the project site is mostly built out aside from planting areas located in the parking lot and the perimeter of the project site. With implementation of Mitigation Measure HYDRO-1, which would require implementation of BMPs and compliance with the WPCP, construction impacts related to exceeding the capacity of, and providing additional sources of polluted runoff to, storm water drainage systems would be reduced to ***less-than-significant levels***.

As discussed above, the proposed project would result in a minimal increase in impervious surfaces and therefore would not substantially increase runoff from the site. The proposed project would not contribute runoff water that would exceed the capacity of an existing or planned storm water drainage system. Mitigation Measure HYDRO-2 requires preparation of a SWPPP that would require site design, source control, and treatment control BMPs to be incorporated into final design. With implementation of Mitigation Measure HYDRO-2, operational impacts related to exceeding the capacity of, and providing additional sources of polluted runoff to, storm water drainage systems would be reduced to ***less-than-significant levels***. No mitigation is required.

f. Would the project otherwise substantially degrade water quality?

Operation of the proposed project would not result in any substantial changes to on-site water quality, with the exception of potential impacts associated with stormwater runoff. However, implementation of Mitigation Measures HYDRO-1 and HYDRO-2 would reduce potential impacts to a ***less-than-significant level***.

g. Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

The project does not include housing and is not located within the 100-year flood hazard area as mapped by the Federal Emergency Management Agency (FEMA).[25] Therefore, no housing would be placed within a 100-year floodplain and the proposed project would have **no impact** related to flood hazards.

h. Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows?

Please refer to Section 4.9.1.g. The project site is not located within the 100-year flood zone and development of the proposed project would not impede or redirect potential flood flows, and the proposed project would have ***no impact*** related to flooding.

i. Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

As discussed in Section 4.9.1.g.above, the project site is not located within a 100-year flood hazard area. Implementation of the proposed project would not place housing or structures in the 100-year flood hazard area, therefore potential impacts related to exposure of people or structures to flooding would be less than significant. In addition, no dams or levees exist in the project area that could inundate the project site, therefore, impacts are considered ***less than significant*** and no mitigation is required.

j. Would the project be inundated by seiche, tsunami, or mudflow?

The project site is located within an urbanized area of Merced and is not immediately adjacent to any hillsides. As such, the risk from mudflow would be low. Furthermore, no enclosed bodies of water are in close enough proximity that would create a potential risk for seiche or a tsunami at the project site. Therefore, potential hazards from inundation from seiche, tsunami, or mudflow would be ***less than significant*** and no mitigation is required.

[25] Federal Emergency Management Agency, 2018. *FEMA Flood Map Service Center: Search By Address.* Website: msc.fema.gov/portal/search?AddressQuery=merced%20mall#searchresultsanchor (accessed August 2018).

4.10 LAND USE AND PLANNING

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
a. Physically divide an established community?	☐	☐	☐	☒
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

4.10.1 Impact Analysis

a. Would the project physically divide an established community?

The physical division of an established community typically refers to the construction of a physical feature (such as an interstate highway or railroad tracks) or removal of a means of access (such as a local road or bridge) that would impair mobility within an existing community, or between a community and outlying areas. For instance, the construction of an interstate highway through an existing community may constrain travel from one side of the community to another; similarly, such construction may also impair travel to areas outside of the community.

The proposed project site is currently developed with the existing Merced Mall. The proposed project would include improvements to the existing Merced Mall by increasing leasable retail area and constructing a new movie theater. These improvements would not affect connectivity, and would not divide an established community. Therefore, the proposed project would have ***no impact*** related to these issues.

b. Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

The project site is designated Regional/Community Commercial (RC) in the General Plan.[26] This land use designation is intended to provide community and regional commercial centers to serve a variety of retail goods, general merchandise, apparel, and home furnishings, with one or more major department stores as key tenants. The project site is located in a Planned Development (P-D) zoning district which allows for high quality development that deviates from standards and regulations applicable to other zoning districts within Merced. The P-D zoning districts are intended to promote creativity in building design, flexibility in permitted land uses, and innovation in development concepts, and in all P-D zoning districts, permitted land uses shall conform to the applicable general plan designation.

[26] Merced, City of, 2012. *Merced Vision 2030 General Plan*. January 3.

The project would not require a change the General Plan land use designation or the current zoning and would be consistent with the City's General Plan and Zoning Ordinance. Additionally, the project would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect and therefore would result in ***no impact***.

c. Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

Please refer to Section 4.4.1.f. The proposed project would not conflict with any applicable habitat conservation plan or natural community conservation plan and would result in ***no impact***.

4.11 MINERAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

4.11.1 Impact Analysis

a. Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

The project site is located within an urban area on an infill site. There are no known mineral resources within or in the vicinity of the project site. The City's Open Space, Conservation, and Recreation chapter of the City's General Plan states that, according to the State Mining and Geology Board, the City does not contain any mineral resources that require managed production.[27] In addition, there are no Mineral Resource Zones (MRZ), areas designated as possessing minerals which are of State-wide or regional significance, within the City of Merced or in the area designated for future expansion of the City. As a result, the proposed project would not result in the loss of availability of a known mineral resource of value to the region or residents of the State. Therefore, the proposed project would have ***no impact***.

b. Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

Please refer to Section 4.11.a. The proposed project would not result in the loss of availability of any known locally-important mineral resource recovery sites. Therefore, the proposed project would have ***no impact***.

[27] Merced, City of, 2012. *Merced Vision 2030 General Plan*. January 3.

4.12 NOISE

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project result in:				
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐
f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

4.12.1 Impact Analysis

Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, or sleep. Several noise measurement scales exist that are used to describe noise in a particular location. A decibel (dB) is a unit of measurement that indicates the relative intensity of a sound. Sound levels in dB are calculated on a logarithmic basis. An increase of 10 dB represents a 10-fold increase in acoustic energy, while 20 dB is 100 times more intense and 30 dB is 1,000 times more intense. Each 10 dB increase in sound level is perceived as approximately a doubling of loudness; and similarly, each 10 dB decrease in sound level is perceived as half as loud. Sound intensity is normally measured through the A-weighted sound level (dBA). This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. The A-weighted sound level is the basis for 24-hour sound measurements that better represent human sensitivity to sound at night.

As noise spreads from a source, it loses energy so that the farther away the noise receiver is from the noise source, the lower the perceived noise level would be. Geometric spreading causes the sound level to attenuate or be reduced, resulting in a 6 dB reduction in the noise level for each doubling of distance from a single point source of noise to the noise sensitive receptor of concern.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. Equivalent continuous sound level (L_{eq}) is the total sound energy of time varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq}, the community noise equivalent level (CNEL), and the day-night average level (L_{dn}) based on A-weighted decibels (dBA). CNEL

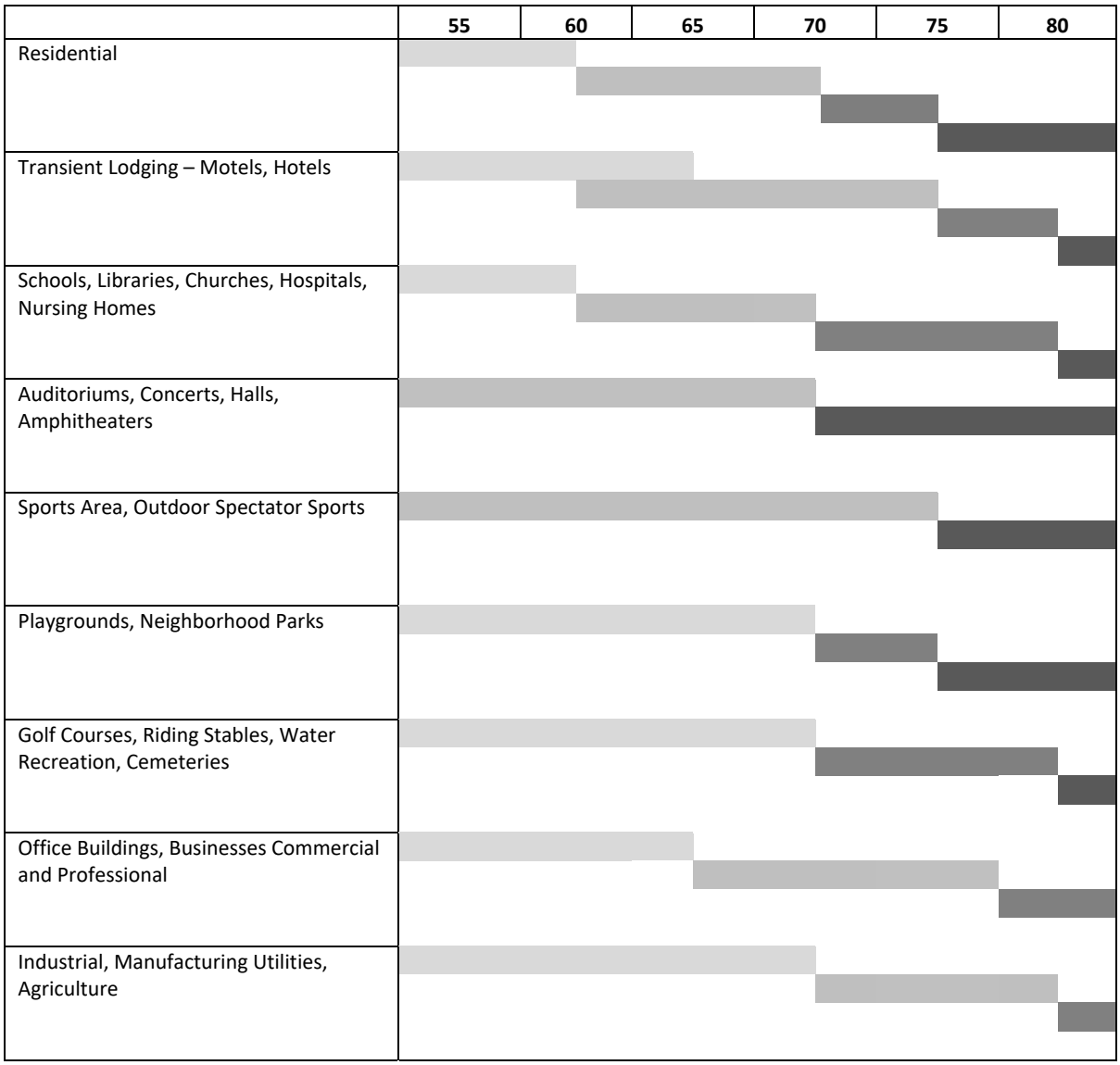
is the time varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale, but without the adjustment for events occurring during the evening relaxation hours. CNEL and L_{dn} are within one dBA of each other and are normally exchangeable. The noise adjustments are added to the noise events occurring during the more sensitive hours.

Certain land uses are considered more sensitive to noise than others. Examples of these include residential areas, educational facilities, hospitals, childcare facilities, and senior housing. The project site is located along the West Olive Avenue corridor that is predominantly developed with commercial, retail uses and multi-family residential uses. The closest sensitive receptors include the multi-family residences along Loughborough Drive, located approximately 100 feet north of the project site and approximately 800 feet north of proposed improvements. In addition, multi-family residences are located along Olivewood Drive, approximately 370 feet south of the project site and approximately 570 feet south of proposed improvements.

A project would have a significant noise effect if it would substantially increase the ambient noise levels for adjoining areas or be in conflict with adopted environmental plans and goals of applicable regulatory agencies, including, as appropriate, the City of Merced.

The City of Merced addresses noise in the Noise Element of the General Plan and in the Municipal Code. The Noise Element of the General Plan provides goals, policies, and actions that work to protect residents from excessive noise, prevent incompatible land uses from encroaching upon existing or planned noise-producing uses, and apply state of the art land use planning methodologies in areas of potential noise conflicts. Implementing Action 1.3.a of the Noise Element recommends limiting operating hours for noisy construction equipment used in the City of Merced. The Noise Element also sets noise and land use compatibility standards, as shown in Table 4.F below.

Table 4.F: Community Noise Exposure L_{dn} or CNEL, dB



Source: City of Merced (2012).

Normally Acceptable	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise requirements.
Conditionally Acceptable	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design.
Normally Unacceptable	New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design.
Clearly Unacceptable	New construction or development clearly should not be undertaken.

a. Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Short-Term (Construction) Noise Impacts. Project construction would result in short-term noise impacts on the nearby sensitive receptors. Maximum construction noise would be short-term, generally intermittent depending on the construction phase, and variable depending on receiver distance from the active construction zone. The duration of noise impacts generally would be from one day to several days depending on the phase of construction. The level and types of noise impacts that would occur during construction are described below.

Short-term noise impacts would occur during grading and site preparation activities. Table 4.G lists typical construction equipment noise levels (L_{max}) recommended for noise impact assessments, based on a distance of 50 feet between the equipment and a noise receptor, obtained from the Federal Highway Administration (FHWA) Roadway Construction Noise Model. Construction-related short-term noise levels would be higher than existing ambient noise levels currently in the project area but would no longer occur once construction of the proposed project is completed.

Table 4.G: Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor (%)	Maximum Noise Level (L_{max}) at 50 Feet[1]
Backhoes	40	80
Compactor (ground)	20	80
Compressor	40	80
Cranes	16	85
Dozers	40	85
Dump Trucks	40	84
Excavators	40	85
Flat Bed Trucks	40	84
Forklift	20	85
Front-end Loaders	40	80
Graders	40	85
Impact Pile Drivers	20	95
Jackhammers	20	85
Pick-up Truck	40	55
Pneumatic Tools	50	85
Pumps	50	77
Rock Drills	20	85
Rollers	20	85
Scrapers	40	85
Tractors	40	84
Welder	40	73

Source: Roadway Construction Noise Model (FHWA 2006).
Note: Noise levels reported in this table are rounded to the nearest whole number.
[1] Maximum noise levels were developed based on Spec 721.560 from the Central Artery/Tunnel (CA/T) program to be consistent with the City of Boston's Noise Code for the "Big Dig" project.
L_{max} = maximum instantaneous sound level

Two types of short-term noise impacts could occur during construction of the proposed project. The first type involves construction crew commutes and the transport of construction equipment and materials to the site, which would incrementally increase noise levels on roads leading to the project site. As shown in Table 4.G, there would be a relatively high single-event noise exposure potential at a maximum level of 84 dBA L_{max} with trucks passing at 50 feet.

The second type of short-term noise impact is related to noise generated during excavation, grading, and construction on the project site. Construction is performed in discrete steps, or phases, each with its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on site. Therefore, the noise levels vary as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase.

Table 4.G lists maximum noise levels recommended for noise impact assessments for typical construction equipment, based on a distance of 50 feet between the equipment and a noise receptor. Typical maximum noise levels range up to 88 dBA L_{max} at 50 feet during the noisiest construction phase, assuming a crane, forklift, tractor, welder, and backhoe would be operating simultaneously. The site preparation phase, including excavation and grading of the site, tends to

generate the highest noise levels because earthmoving machinery is the noisiest construction equipment. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers, draglines, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full-power operation followed by 3 or 4 minutes at lower power settings.

The closest sensitive receptors to construction activity associated with the proposed project include the multi-family residences located along Olivewood Drive, approximately 570 feet south of the building expansion proposed under Phase I. Based on a reduction in noise of 6 dBA per doubling of distance, there would be a decrease of approximately 21 dBA from the active construction area to the nearest residences. Therefore, the closest off-site sensitive receptors may be subject to short-term construction noise reaching 67 dBA L_{max} when construction of the building expansion proposed under Phase I is occurring. This noise level is similar to the existing peak noise experienced during the day from single-event noise sources such as truck pass-bys.

However, construction noise would be intermittent and sporadic as construction phasing occurs. Noise levels would attenuate at sensitive receptors as construction activity moves further into the site. The City of Merced has not adopted a City Noise Ordinance, however Implementing Action 1.3.a of the Noise Element recommends limiting operating hours for noisy construction equipment used in the City of Merced. Therefore, construction activities shall be limited to between 8:00 a.m. and 5:00 p.m. to avoid noise-sensitive hours of the day.

As discussed above, construction noise would result in a temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. Implementation of the following mitigation measure for project construction would reduce potential construction period noise impacts for the indicated sensitive receptors to less-than-significant levels.

Mitigation Measure NOI-1: The project contractor shall implement the following measures during construction of the project:

- Equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.
- Ensure that all general construction related activities are restricted to between the hours of 8:00 a.m. and 5:00 p.m. to avoid noise-sensitive hours of the day.
- Designate a "disturbance coordinator" at the City who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad muffler) and would determine and implement reasonable measures warranted to correct the problem.

Implementation of the above mitigation measure would limit construction activities to the less noise-sensitive periods of the day and would reduce construction impacts to a level of ***less than significant with mitigation***.

Operational Noise Impacts. Motor vehicles with their distinctive noise characteristics are the dominant noise source in the project vicinity. The amount of noise varies according to many factors, such as volume of traffic, vehicle mix (percentage of cars and trucks), average traffic speed, and distance from the observer. Implementation of the proposed project would result in new daily trips on local roadways in the project site vicinity. A characteristic of sound is that a doubling of a noise source is required in order to result in a perceptible (3 dBA or greater) increase in the resulting noise level.

As discussed below in Section 4.16, Transportation/Traffic, Alternative 1 would generate approximately 4,892 daily trips and Alternative 2 would generate approximately 2,431 daily trips. The adjacent West Olive Avenue carries approximately 15,570 average daily trips. Project trips would represent a small fraction of the overall roadway traffic volumes. As such, project-related increases in traffic noise levels are also anticipated to be small along Olivewood Drive, R Street, Loughborough Drive, and M Street and are not anticipated to be perceptible by the human ear. Therefore, project daily trips would not result in a doubling of traffic volumes along any roadway segment in the project vicinity and would not result in a perceptible increase in traffic noise levels at receptors in the project vicinity.

In addition, with implementation of the proposed project, there would be an increase in activity at the project site, which would increase use of the parking lot. Representative parking lot activities, such as people conversing and slamming doors, would generate approximately 60 to 70 dBA L_{max} at 50 feet. However, when averaged over a 24-hour period, parking lot activities would not cause an increase in noise levels of more than 3 dBA. Therefore it is not expected that the proposed project would substantially increase noise levels over existing conditions. Operation of the proposed project would result in similar noise levels as existing conditions and therefore it is not expected that the proposed project would substantially increase noise levels over existing conditions, and impacts would be ***less than significant.***

b. Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

No permanent noise sources would be located within the project site that would expose persons to excessive groundborne vibration or noise levels. Construction activities associated with implementation of the proposed project are not expected to result in excessive groundborne vibration or groundborne noise levels. Therefore, implementation of the proposed project would not permanently expose persons within or around the project sites to excessive groundborne vibration or noise and the project impacts would be ***less than significant***.

c. Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Refer to Section 4.12.1.a. Audible increases in noise levels generally refer to a change of 3 dB or more, as this level has been found to be barely perceptible to the human ear in outdoor environments. Implementation of the proposed project would not result in substantial increases in traffic noise levels on local roadways in the project vicinity or operational noise at sensitive receptor locations. Therefore, project-related noise increases would be ***less than significant***.

d. Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Although there would be temporary intermittent construction noise at times in the project area during project construction, implementation of Mitigation Measure NOI-1 would ensure construction of the proposed project would not significantly affect land uses adjacent to the project sites. In addition, with implementation of Mitigation Measure NOI-1, construction of the project would be limited to the less noise-sensitive periods of the day as required by the City. Therefore, the project would not result in a substantial temporary or periodic increase in ambient noise levels and would be considered ***less than significant with mitigation.***

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The nearest airports to the project site include Merced Regional Airport, located approximately 2.6 miles southwest of the project site, and Castle Airport, located approximately 4.8 miles northwest of the project site. No portion of the project site lies within the 55 dBA CNEL noise contours of these airports. Given the project site's distance from the nearest airports, project implementation would not expose people residing or working in the project area to excessive noise levels and impacts would be ***less than significant***.

f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

As discussed in Section 4.12.e above, the proposed project site is not located within the vicinity of a private airstrip, and the site does not lie within an airport land use plan area or within the 55 dBA CNEL noise contours of any private airfield. As such, there would be ***no impact***.

4.13 POPULATION AND HOUSING

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐

b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

4.13.1 Impact Analysis

a. Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The proposed project would include improvements to the existing Merced Mall by increasing leasable retail area and constructing a new movie theater. The proposed project would not result in direct population growth as the use proposed is not residential and would not contribute to permanent residency on site. Further, the General Plan's Regional/Community Commercial (RC) land use designation and would not generate growth beyond that anticipated in the General Plan. Therefore, the proposed project would not directly or indirectly induce population growth and this impact would be considered ***less than significant***.

b. Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

The project site is located within the existing Merced Mall, which does not include housing. Therefore, the project would not displace existing housing or require the construction of replacement housing and would result in ***no impact***.

c. Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

As discussed in Section 4.13.1.b, above, the project site is located within the existing Merced Mall, which does not include housing. Therefore, the project would not displace existing housing or require the construction of replacement housing and would result in ***no impact***.

4.14 PUBLIC SERVICES

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i. Fire protection?	☐	☐	☒	☐
ii. Police protection?	☐	☐	☒	☐

iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☐	☒
v. Other public facilities?	☐	☐	☐	☒

4.14.1 Impact Analysis

a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

i. Fire protection?

The City of Merced Fire Department (MFD) would provide fire protection services to the proposed project. There are five MFD fire stations in Merced, with the closest fire station, Fire Station 53, located directly adjacent to the project site at 800 Loughborough Drive. Planned growth under the General Plan would increase calls for fire protection service in the City. The project is consistent with the site's General Plan designation and does not represent unplanned growth given that the project site would be developed consistent with its land use and zoning designations. The project could result in an incremental increase in the demand for fire protection services as a result of additional employees and visitors to the project site. However, the proposed project would be required to comply with all applicable codes for fire safety and emergency access. In addition, the project applicant would be required to submit plans to the MFD for review and approval prior to the issuance of building permits to ensure the project would conform to applicable building codes.

The MFD would continue providing services to the project site and would not require additional firefighters to serve the proposed project. The construction of a new or expanded fire station would not be required. The proposed project would not result in a significant impact on the physical environment due to the incremental increase in demand for fire protection and life safety services. The incremental increase in demand for services is not expected to adversely affect existing responses times to the site or within the City. Therefore, construction and operation of the proposed project would have a ***less-than-significant impact*** on fire protection and safety services and facilities.

ii. Police protection?

The City of Merced Police Department (MPD) provides police protection to the project site. The MPD headquarters are located at 611 West 22nd Street, approximately 1.2 miles south of the project site. Planned growth under the General Plan would increase calls for police protection service in the City. The project is consistent with the site's General Plan designation and does not represent unplanned growth. The project could result in an incremental increase in the demand for police protection services; however, the project site

would be required to comply with Chapter 20.38.070 of the Municipal Code, by providing appropriate lighting in the parking areas.

The MPD would continue to provide services to the project site and would not require additional officers to serve the project site. The construction of new or expanded police facilities would not be required. In addition, the Merced Mall employs security, which patrols and monitors areas of the shopping center. The Merced Mall security would also continue to provide services to the project site and would not require additional security guards to serve the project site. Therefore, the proposed project would not result in a substantial adverse impact associated with the provision of additional police facilities or services, and impacts to police services represent a ***less-than-significant impact***.

iii. Schools?

The proposed project will not generate student demand or otherwise impact school services given that there is no housing or a residential component. As such, there would be ***no impact***.

iv. Parks?

The proposed project would include expansion of an existing shopping center. The project does not include any residential uses and would not generate a need for additional park space. As such, there would be ***no impact***.

v. Other public facilities?

Development of the proposed project would not increase demand for other public services including libraries, community centers, and public health care facilities. As previously discussed, the project does not include development of residential uses and would therefore not result in increased demand for other public facilities. As such, there would be ***no impact***.

4.15 RECREATION

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

4.15.1 Impact Analysis

a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

The proposed project would involve the expansion of an existing shopping center and would not generate population growth that would result in an increase in the use of existing neighborhood and regional parks or other recreational facilities. Therefore, there would be ***no impact*** to parks or recreational facilities that would occur as a result of the proposed project.

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Employees working within the proposed project site may use nearby recreational facilities. However, the proposed expansion would not result in a substantial increase in the use of parks or other recreational facilities, and the proposed project would not require the construction or expansion of existing recreational facilities. Therefore, the project would have a ***less-than-significant impact*** on existing recreational facilities.

4.16 TRANSPORTATION/TRAFFIC

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location which results in substantial safety risks?	☐	☐	☐	☒
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e. Result in inadequate emergency access?	☐	☐	☒	☐
f. Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐

4.16.1 Impact Analysis

a. Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Traffic impacts of the proposed project were analyzed at 11 intersections during weekday AM and PM peak hours. Traffic conditions were examined for the weekday daily, AM peak hour, and PM peak hour conditions. The AM peak hour is defined as the one hour of highest traffic volumes occurring between 7:00 and 9:00 a.m. The PM peak hour is the one hour of highest traffic volumes occurring between 4:00 and 6:00 p.m. The Traffic Impact Analysis (TIA), attached in Appendix C, also analyzed 6 roadway segments.

Analysis Methodology and Significance Criteria. Roadway operations and the relationship between capacity and traffic volumes are generally expressed in terms of levels of service (which are defined using the letter grades A through F). These levels recognize that, while an absolute limit exists as to the amount of traffic traveling through a given intersection (the absolute capacity), the conditions that motorists experience rapidly deteriorate as traffic approaches the absolute capacity. Under such

conditions, congestion is experienced. There is general instability in the traffic flow, which means that relatively small incidents (e.g., a momentary engine stall) can cause considerable fluctuations in speeds and delays. This near-capacity situation is labeled Level of Service (LOS) E. Beyond LOS E, capacity has been exceeded, and arriving traffic will exceed the ability of the intersection to accommodate it. An upstream queue will then form and continue to expand in length until the demand volume again declines.

The City calculates LOS during the AM and PM peak hours using the Highway Capacity Manual (HCM) methodology. For signalized intersections, the HCM methodology calculates the average delay experienced by vehicles traveling through an intersection based on the operation of the traffic signal. For unsignalized (stop-controlled) intersections, average delay for the entire intersection is calculated at all-way stop controlled intersections and delay for each approach is calculated for two-way stop controlled intersections and the worst performing approach is reported. Table 4.H presents the relationship between delay and LOS.

Table 4.H: Level of Service for Signalized and Unsignalized Intersections

Level of Service	Signalized Intersection Delay per Vehicle (seconds)	Unsignalized Intersection Delay per Vehicle (seconds)
A	≤ 10.0	≤ 10.0
B	10.0–20.0	10.0–15.0
C	20.0–35.0	15.0–25.0
D	35.0–55.0	25.0–35.0
E	55.0–80.0	35.0–50.0
F	> 80.0	> 50.0

Source: *Merced Mall Expansion And Redevelopment Project Draft Traffic Impact Analysis*, LSA (August 2018).

As for roadway segments, the General Plan presents daily traffic volume LOS thresholds that can be employed on a planning level basis. These values are illustrated in Table 4.I.

The City of Merced General Plan Action T-1.8.b establishes LOS D as the acceptable level of service standard for intersections and roadways.[28] However, in certain cases, deviations are allowed as stated in Action T-1.8.c of the General Plan. Action T-1.8.c. Therefore, as described in the TIA, it has been considered that a significant project impact occurs at study intersections or roadway segments when the peak hour LOS falls below the City's LOS standard, LOS D (to E or F), or the project contributes to an existing or forecast deficiency. However, based on discussions with City staff and the policy stated in Action T-1.8.c of the General Plan, LOS E and F have also been considered to be acceptable for some study intersections and roadway segments, as the area around Merced Mall is dense with heavy existing traffic, making road widening and other mitigations difficult.

[28] Merced, City of, 2012. *Merced Vision 2030 General Plan*. January 3.

Table 4.I: Level of Service Definitions for Roadway Segments

LOS	Description
A	Describes primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control Delay at the boundary intersection is minimal. The travel speed exceeds 85% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
B	Describes reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted, and control delay at the boundary is not significant. The travel speed is between 67% and 85% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
C	Describes stable operation. The ability to maneuver and change lanes at mid-segment locations may be more restricted than at LOS B. Longer queues at the boundary intersection may contribute to lower travel speeds. The travel speed is between 50% and 67% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
D	Indicates a less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volume, or inappropriate signal timing at the boundary intersection. The travel speed is between 40% and 50% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
E	Characterized by unstable operation and significant delay. Such operations may be due to some combination of adverse progression, high volume, and inappropriate signal timing at the boundary intersection. The travel speed is between 30% and 40% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
F	Characterized by flow at extremely low speed. Congestion is likely occurring at the boundary intersection, as indicated by high delay and extensive queuing. The travel speed is between 30% or less of the base free-flow speed, and the volume-to-capacity ratio is greater than 1.0.

Source: *Merced Mall Expansion And Redevelopment Project Draft Traffic Impact Analysis*, LSA (August 2018).

Intersection Impacts. An analysis of the existing, existing plus project, cumulative (2023), and cumulative (2023) plus project at 11 study intersections in the vicinity of the proposed project was completed to determine potential project impacts on the circulation system.

To determine the number of trips that could be generated by the proposed project, trip generation rates from the Institute of Transportation Engineers (ITE), Trip Generation (10th Edition), were used. The trip generation for the proposed project was developed using rates for Land Uses 820 - "Shopping Center" and 445 - "Multiplex Movie Theater."

As shown in Table 4.J, under Alternative 1, the proposed project is forecasted to generate approximately 4,892 daily trips, of which 47 would occur in the AM peak-hour and 367 would occur in the PM peak-hour.

For Alternative 2, trip generation was developed for the existing on-site uses to be demolished using ITE rates for Land Uses 820 - "Shopping Center" and 444 - "Movie Theater." As shown in Table 4.J, the demolished uses generate 2,461 daily trips, with 24 trips occurring during the AM peak hour and 191 trips occurring during the PM peak hour. After adjusting these trips, the proposed project is anticipated to generate 2,431 net daily trips, with 23 trips occurring during the AM peak hour and 176 trips occurring during the PM peak hour.

Table 4.J: Trip Generation

Land Use		Size	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Alternative 1									
Shopping Center	Trips/Unit[1]	50,000 square feet	37.75	0.58	0.36	0.94	1.83	1.98	3.81
	Trip Generation		1,888	29	18	47	92	99	191
	Internal Capture[2]		(38)	0	0	0	(4)	(4)	(8)
	Total External Trips		1,850	29	18	47	88	95	183
Multiplex Movie Theater	Trips/Unit[3]	14 Screens	220.00	0.00	0.00	0.00	7.00	6.73	13.73
	Trip Generation		3,080	0	0	0	98	94	192
	Internal Capture[2]		(38)	0	0	0	(4)	(4)	(8)
	Total External Trips		3,042	0	0	0	94	90	184
Total Alternative 1 Trip Generation			**4,892**	**29**	**18**	**47**	**182**	**185**	**367**
Alternative 2									
Proposed Project									
Shopping Center	Trips/Unit[1]	50,000 square feet	37.75	0.58	0.36	0.94	1.83	1.98	3.81
	Trip Generation		1,888	29	18	47	92	99	191
	Internal Capture[2]		(38)	0	0	0	(4)	(4)	(8)
	Total External Trips		1,850	29	18	47	88	95	183
Multiplex Movie Theater	Trips/Unit[3]	14 Screens	220.00	0.00	0.00	0.00	7.00	6.73	13.73
	Trip Generation		3,080	0	0	0	98	94	192
	Internal Capture[2]		(38)	0	0	0	(4)	(4)	(8)
	Total External Trips		3,042	0	0	0	94	90	184
Existing Trip Generation (Uses to Demolished for the New Movie Theater)									
Shopping Center	Trips/Unit[1]	25,420 square feet	37.75	0.58	0.36	0.94	1.83	1.98	3.81
	Trip Generation		959	15	9	24	47	50	97
	Internal Capture[2]		(19)	0	0	0	(2)	(2)	(4)
	Total External Trips		940	15	9	24	45	48	93
Movie Theater	Trips/Unit[4]	7 Screens	220.00	0.00	0.00	0.00	6.42	8.18	14.60
	Trip Generation		1,540	0	0	0	45	57	102
	Internal Capture[2]		(19)	0	0	0	(2)	(2)	(4)
	Total External Trips		1,521	0	0	0	43	55	98
Net New Alternative 2 Trip Generation			**2,431**	**14**	**9**	**23**	**94**	**82**	**176**

Source: *Merced Mall Expansion And Redevelopment Project Draft Traffic Impact Analysis*, LSA (August 2018).

[1] Rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition), Land Use 820 - "Shopping Center", Setting/Location - "General Urban/Suburban."

[2] Internal capture rates obtained using the National Cooperative Highway Research Program (NCHRP 8-51) Internal Trip Capture Estimation Tool.

[3] Rates from the ITE Trip Generation Manual (10th Edition), Land Use 445 - "Multiplex Movie Theater", Setting/Location - "General Urban/Suburban." Since daily rates were not available for this land use, the daily rates for Land Use 444 - "Movie Theater" were used.

[4] Rates from the ITE Trip Generation Manual (10th Edition), Land Use 444 - "Movie Theater", Setting/Location - "General Urban/Suburban."

The distribution of project trips was developed based on the regional roadway network and the locations of residential, employment, and commercial centers in relation to the proposed project. Because the location of the retail component of the project is different from that of the theater, whose location also varies in each alternative, separate trip distributions were considered for the retail and the theater (in each alternative). However, a similar regional distribution was followed in each case. Project trips were distributed 42 percent to the north, 30 percent to the south, 12

percent to the east, and 16 percent to the west. Trip assignment for project trips is the product of the project trip generation and the trip distribution percentages.

As described in the TIA, an intersection LOS analysis was conducted for existing conditions, existing plus project conditions, cumulative (2023) conditions, and cumulative (2023) plus project conditions using the methodologies previously discussed. Under existing conditions, the intersection of Mall Driveway 2 – Pepperwood Lane/West Olive Avenue operates at an unsatisfactory LOS in the PM peak hour under existing without project conditions. All other study intersections operate at a satisfactory LOS. Under existing plus project conditions (Phase I and Phases I and II under both alternatives), the intersection of Mall Driveway 2–Pepperwood Lane/West Olive Avenue is forecast to operate at an unsatisfactory LOS in the PM peak hour under all existing with project conditions (Phase I and Phase II) for both alternatives. All other study intersections operate at a satisfactory LOS. Due to the heavy existing traffic on West Olive Avenue and the built-out area around the intersection, the LOS at this intersection would be considered acceptable. Therefore, the proposed project would not cause a signalized intersection operating at an acceptable LOS to operate at an unacceptable LOS. Therefore, the project would result in a ***less-than-significant*** impact on the study intersections.

In addition, under cumulative (2023) conditions, the intersection of Mall Driveway 2–Pepperwood Lane/West Olive Avenue is forecast to operate at an unsatisfactory LOS in the PM peak hour under all cumulative without project conditions. All other study intersections are forecast to operate at a satisfactory LOS. Under cumulative (2023) plus project conditions (Phase I and Phases I and II under both alternatives), the intersection of Mall Driveway 2–Pepperwood Lane/West Olive Avenue is forecast to operate at an unsatisfactory LOS in the PM peak hour under all existing with project conditions (Phase I and Phase II) for both alternatives. All other study intersections operate at a satisfactory LOS. Due to the heavy existing traffic on West Olive Avenue and the built-out area around the intersection, the LOS at this intersection would be considered acceptable. Therefore, the proposed project would not cause a signalized intersection operating at an acceptable LOS to operate at an unacceptable LOS. Therefore the project would result in a ***less-than-significant*** impact on the study intersections.

Roadway Segment Impacts. A roadway segment LOS analysis was conducted for existing conditions, existing plus project conditions, cumulative (2023) conditions, and cumulative (2023) plus project conditions using the methodologies previously discussed. As discussed in the TIA, under existing conditions, all roadway segments are currently operating at a satisfactory LOS. Under existing plus project conditions (Phase I and Phases I and II under both alternatives), all roadway segments are forecast to operate at a satisfactory LOS under existing plus project conditions. Therefore, the proposed project would not cause a roadway segment operating at an acceptable LOS to operate at an unacceptable LOS. Therefore the project would result in a ***less-than-significant*** impact on the study roadway segments.

In addition, under cumulative (2023) conditions, all roadway segments are currently operating at a satisfactory LOS. Under cumulative (2023) plus project conditions (Phase I and Phases I and II under both alternatives), all roadway segments are forecast to operate at a satisfactory LOS under existing plus project conditions. Therefore, the proposed project would not cause a roadway segment

operating at an acceptable LOS to operate at an unacceptable LOS. Therefore, the project would result in a ***less-than-significant*** impact on the study roadway segments.

Vehicle Miles Traveled. Senate Bill (SB) 743 (Steinberg 2013) was approved by Governor Brown on September 27, 2013, and created a path to revise the definition of transportation impacts according to CEQA. As the guidelines are proposed today, CEQA transportation impacts are determined using LOS of intersections and roadways, which is a measure of congestion. The intent of SB 743 is to align CEQA transportation study methodology with and promote the statewide goals and policies for reducing vehicle miles traveled (VMT) and GHGs. Three objectives of SB 743 related to development are to reduce GHGs, diversify land uses, and focus on creating a multimodal environment. It is hoped that this will spur infill development.

VMT is defined as the product of a number of trips and those trips' lengths. The *Technical Advisory on Evaluating Transportation Impacts in CEQA* (Technical Advisory),[29] circulated by the Governor's Office of Planning and Research (OPR), acknowledges that lead agencies should set criteria and thresholds for VMT and transportation impacts. However, the Technical Advisory provides guidance, as shown in Table 4.K, regarding residential, office, and retail uses, citing these as the most common land uses. Beyond these three land uses, there is no guidance provided for any other land use type.

Table 4.K: Vehicle Miles Traveled Significance Thresholds

Land Use	Significance Thresholds
Residential	15 percent below existing regional or city VMT per capita
Office	15 percent below existing regional VMT per employee
Retail	Net increase in total VMT

Source: *Technical Advisory on Evaluating Transportation Impacts in CEQA,* Office of Planning and Research (April 2018).
VMT = Vehicle Miles Traveled

The Technical Advisory also notes that land uses may have a less-than-significant impact if located within low VMT areas of a region, and suggests the use of screening maps to make a determination.

The first step in preparing a VMT analysis is to establish the baseline average VMT, which requires the definition of a region. The Technical Advisory states that existing VMT may be measured at the regional or city level, but also notes that VMT analyses should not be truncated due to "jurisdictional or other boundaries."

The definition of the region is left to the discretion of the practitioner or the lead agency. The Technical Advisory suggests that, generally, lead agencies should analyze the effects of a retail project by assessing the change in total VMT because retail projects typically re-route travel from other retail destinations. By adding retail opportunities and improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT.

[29] Office of Planning and Research. 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA*. April.

Generally, retail development larger than 50,000 sf could be considered regional serving, but other factors, including but not limited to the following, should also be considered:

> ***Service Area.*** The Merced Mall serves the area residents and surrounding neighborhoods. Although the occasional visitor may originate from outside the Merced vicinity, it is unlikely that the project would attract regular customers from other cities (such as Modesto, Turlock, or Fresno) that already have similar retail opportunities.
>
> ***Existing Use.*** The Merced Mall and a 7-screen movie theater currently exist, and already generate customer demand. Although the proposed project would renovate and provide additional uses on site (i.e., ranging from 24,580 square feet to 50,000 square feet of retail use and 7 to 14 movie screens), the project could be considered an amenity to the existing mall.

As the project is within a defined service area and the project is a modest expansion of an existing use serving an expanding population, it is likely that the project would not add VMT per capita or service population to the region. Therefore, the project would result in a ***less-than-significant*** impact related to VMT.

In the near future, the City may wish to coordinate with the regional agency (MCAG) and develop criteria and thresholds that balance the direction from OPR and the goals of SB 743 with the vision for Merced and economic development, affordable housing, access to goods and services, and overall quality of life.

b. Would the project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

The Merced County Association of Governments (MCAG) adopted the 2018 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)[30] on August 16, 2018. The RTP/SCS is a long range planning document that provides the framework for investments in roads, freeways, public transit, and bikeways around Merced County for the next 25 years. It also helps Merced County comply with State-mandated efforts to reduce GHGs (Senate Bill 375). In addition, the RTP/SCS works to ensure that roadways operate at LOS D on all regionally significant roads.

As discussed above, the TIA included analysis of 11 intersections and 6 roadway segments adjacent to the project site. The following conditions were examined in the TIA: existing, existing plus project Phase I, existing plus project Phases I and II Alternative 1, existing plus project Phases I and II Alternative , cumulative, cumulative plus project Phases I and II Alternative 1, and cumulative plus project Phases I and II Alternative 2. The study intersection of Mall Driveway 2–Pepperwood Lane/West Olive Avenue is forecast to operate at an unsatisfactory LOS in all scenarios. However, the LOS at the intersection of Mall Driveway 2–Pepperwood Lane/West Olive Avenue has been deemed acceptable based on the heavy existing traffic on West Olive Avenue and the built-out area around the intersection. In addition, this intersection is not identified as a regionally significant road in the

[30] Merced County Association of Governments, 2018. *Regional Transportation Plan/Sustainable Communities Strategy for Merced County*. August 16.

RTP/SCS. All other study intersections are forecast to operate at a satisfactory LOS in all scenarios. In addition, all roadway segments under all scenarios would operate at a satisfactory LOS. Therefore, this impact would be considered ***less than significant*** and no mitigation measures are required.

c. Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location which results in substantial safety risks?

The project site is located approximately 2.6 miles northeast of the Merced Regional Airport and 4.8 miles southeast of the Castle Airport. The proposed project would not result in the construction of buildings that would be sufficiently high enough or configured in a way that would affect air traffic patterns. Therefore, the proposed project would not result in a substantial safety risk associated with a change in air traffic patterns. As a result, ***no impact*** would occur.

d. Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The proposed project entails modification of an existing shopping center by adding additional square footage and a movie theater. The project would not alter pedestrian or vehicle access to the project site. Therefore, the project would not substantially increase hazards due to a design feature, and there would be ***no impact***.

e. Would the project result in inadequate emergency access?

The proposed project entails construction within an existing shopping center and would not alter access driveways to the project site. Emergency vehicles would continue to use the 11 existing driveways to access the project site from West Olive Avenue, R Street, Loughborough Drive and Fairfield Drive. Therefore, the impact would be ***less than significant***.

f. Would the project conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

The proposed project would not include any activities or construction of structures that would decrease the performance or safety of public transit, bicycle, or pedestrian facilities. The Bus, Merced's regional transit system, provides transit service to the project site. Six stops along Loughborough Drive between R Street and M Street provide stops for five routes; Merced Routes (M1, M2, M3, and W2) and Livingston Route (L). Two stops along R Street between Loughborough Drive and West Olive Avenue provide stops for the W2 and L Routes. Two other stops along M Street between Loughborough Drive and West Olive Avenue provide stops for the UC Merced Route. Each of these stops are easily accessible within approximately a quarter mile of the project site, and would not be affected by construction or operation of the project.

Existing Class II bikeways (on-street Bike Lanes) are located along either side of both R Street and M Street. Sidewalks allowing pedestrian access to the project site are located at the northwest corner of the project side, adjacent to the existing bus stops on Loughborough Drive, from Fairfield Drive. The project would not alter existing bicycle or pedestrian facilities. As a result, a ***less-than-significant impact*** would occur.

4.17 TRIBAL CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)? Or	☐	☐	☐	☒
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☐	☒

4.17.1 Impact Analysis

a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)? Or

ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

As stated in Section 4.5, Cultural Resources, improvements associated with the project include demolition of portions of the existing shopping center building and construction of new at-grade buildings. The areas of the project subject to demolition and construction facilities are likely to have been subject to ground disturbance in the past. No tribal resources are known to occur or have been identified at the project site or in the vicinity of the project site. However, as noted in Section 4.5, Cultural Resources, implementation of Mitigation Measures CUL-1 and CUL-3 would protect

previously unrecorded or unknown cultural resources, including Native American artifacts and human remains, should these be encountered during project construction.

In addition, Assembly Bill (AB) 52 provides for consultation between lead agencies and Native American tribal organizations during the CEQA process. Since AB 52 was enacted in July 2015, the City has not been contacted by any California Native American tribes requesting that they be notified when projects are proposed in Merced.[31] As a result, the City is not required to notify any tribes of this project, and no tribes have requested consultation pursuant to Public Resources Code section 21080.3.1. Therefore, it is assumed that no Tribal Cultural Resources would be adversely affected by the project. As a result, ***no impact*** would occur.

4.18 UTILITIES AND SERVICE SYSTEMS

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Would the project:				
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g. Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

4.18.1 Impact Analysis

a. Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

As discussed in Section 4.9, Hydrology and Water Quality, water quality in the State of California is regulated by the State Water Resources Control Board (State Water Board) and the nine Regional Water Quality Control Boards. The proposed project is within the jurisdiction of the Central Valley

[31] Espinosa, Kim. 2018. Merced. Planning Manager, City of Merced. Personal communication with LSA. October 30.

Regional Water Quality Control Board (RWQCB). Section 303(d) of the Federal Clean Water Act (CWA) requires that states identify water bodies including bays, rivers, streams, creeks, and coastal areas that do not meet water quality standards and the pollutants that are causing the impairment. Total Maximum Daily Loads (TMDLs) describe the maximum amount of a pollutant that a water body can receive while still meeting established water quality standards. A TMDL requires that all sources of pollution and all aspects of a watershed's drainage system be reviewed and set forth action plans that examine factors and sources adversely affecting water quality and identify specific plans to improve overall water quality and reduce pollutant discharges into impaired water bodies.

The proposed project would include improvements to the existing Merced Mall by increasing leasable retail area and constructing a new movie theater. The project site is located within the City of Merced, which provides wastewater collection and treatment for the Merced urban area. The City's wastewater collection system handles wastewater generated by residential, commercial, and industrial uses in the City. The City Wastewater Treatment Plant (WWTP), located in the southwest part of the City about 2 miles south of the airport, has been periodically expanded and upgraded to meet the needs of the City's growing population and new industry. The City's wastewater treatment facility has a permitted capacity of 10 million gallons per day (mgd), with an average 2008 flow of 8.5 mgd.

The proposed project would generate domestic wastewater associated with sinks and toilets to serve the employees at the proposed project, which would be treated by the WWTP. Planned growth under the General Plan would increase the collection and treatment of wastewater. The project is consistent with the City's General Plan land use designation and does not represent unplanned growth given that the project site would be developed consistent with its land use and zoning designations. Therefore, the City has sufficient capacity to serve the proposed project.

Since the WWTP is considered a publicly-owned treatment facility, operational discharge flows treated at the WWTP would be required to comply with applicable water discharge requirements issued by the RWQCB. Compliance with conditions or permit requirements established by the City as well as water discharge requirements outlined by the RWQCB would ensure that wastewater discharges coming from the project site and treated by the WWTP system would not exceed applicable RWQCB wastewater treatment requirements. Therefore, the project would have a ***less-than-significant*** impact associated with wastewater treatment and no mitigation is required.

b. Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Wastewater Infrastructure. As discussed in Section 4.18.1.a, wastewater treatment for the City of Merced is provided by the WWTP and the wastewater collection system is maintained by the City. A sanitary sewer main between 21 inches and 30 inches in diameter is located within the R Street right-of-way. In addition, a sewer line between 10 inches and 12 inches is located within the project site. The proposed project under both phases would continue to utilize existing service connections. Therefore, the proposed project would not require or result in the construction of new facilities or expansion of existing ones and impacts would be ***less than significant***.

Water Infrastructure. Under the water rights of the Merced Irrigation District (MID), the City of Merced received its water from the Merced River via Lake Yosemite until 1917. Since then, the City has relied on groundwater as its primary water source, but groundwater is recharged almost entirely through agricultural application of surface water from the Merced River.

The City updated its Urban Water Management Plan (UWMP) in 2015,[32] which was adopted in 2017. According to the UWMP, in 2015, City wells produced 17,855 acre-feet and delivered 9,950 acre-feet to metered customers. The remaining demand of 7,905 acre-feet was associated with unmetered customers and water loss within the system. The UWMP also estimates the projected acre-feet of water use for years 2020, 2025, 2030, and 2035, which are projected to increase each year. By 2035, the City's projected water use is expected to be 31,960 acre-feet of potable and raw water and 5,869 acre-feet of recycled water.

Using water consumption data from the Commercial Buildings Energy Consumption Survey (CBECS), the U.S. Energy Information Administration (EIA) estimated that large commercial buildings generate the need for approximately 20 gallons per square foot of water annually.[33] The proposed project would generate the need for approximately 2.44 million gallons or approximately 7.5 acre-feet per year under both alternatives, which comprises less than 0.1 percent of the City's annual water use. In addition, the project is consistent with the General Plan land use designation and does not represent unplanned growth given that the project site would be developed consistent with its land use and zoning designations. In addition, as discussed in the UWMP, the City expects that passive savings, such as the implementation of the City's Water Efficient Landscape Ordinance, Title 20 appliance standards for toilets, urinals, faucets and showerheads and CALGreen Building Code requirement, will help the City reduce per capita water demand in the future. Therefore, the City would have sufficient water supplies to serve the proposed project.

A 16-inch distribution main is located within the right-of-way of M Street and West Olive Avenue. In addition, a 10-inch water line and an 8-inch water line are located within the project site. The proposed project under both phases would continue to utilize existing service connections. Implementation of the proposed project would not require the construction or expansion of a water treatment facility, and the proposed project would have a ***less-than-significant impact*** related to water provision and treatment facilities.

c. Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

The City owns and operates storm drainage facilities that serve all of the residential, commercial, and industrial users within the incorporated City limits. The storm drainage collection system consists of 112 miles of underground storm drain lines, underground storage pipes, and 141 acres of

32 Merced, City of, 2017. *2015 Urban Water Management Plan Final*. November.

33 U.S. Energy Information Administration, 2012. *Commercial Buildings Energy Consumption Survey (CBECS) 2012 Commercial Buildings Energy Consumption Survey: Water Consumption in Large Buildings Summary.* Release date: February 9, 2017. Website: www.eia.gov/consumption/commercial/reports/2012/water (accessed August 2018).

detention ponds. The project site is located within the existing Merced Mall, which is already served by stormwater infrastructure. A 42-inch storm drain is located within the project site and connects to a storm drain within the West Olive Avenue right-of-way. The proposed project under both phases would continue to utilize existing service connections and would not represent an expansion of facilities such that significant environmental effects would occur; therefore, this impact would be ***less than significant***.

d. Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Refer to Section 4.18.1.a and 4.18.1.b above. Implementation of the proposed project would not require new or expanded entitlements. Therefore, the proposed project would have a ***less-than-significant impact*** related to water supplies.

e. Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Please refer to Section 4.1.18.a for a discussion of the project's impacts to wastewater treatment. The proposed project would result in a minor contribution to the daily permitted capacity of the wastewater treatment plant and would not exceed the plant's capacity. Therefore, impacts related to the capacity of the existing wastewater treatment plant would be ***less than significant***.

f. Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Solid wastes within the County of Merced are disposed of at two landfill sites owned and operated by the Merced County Regional Waste Management Authority. The west side of the County is served by the Billy Wright Road landfill, and the east side (including the City of Merced) by the Highway 59 landfill, 1.5 miles north of Old Lake Road. The County of Merced is the contracting agency for landfill operation and maintenance. It is estimated that the remaining capacity of the Highway 59 site will last until the year 2030. The City of Merced provides services for all refuse pick-up within the City limits, including green waste and recycling. Street sweeping services are also offered.

Operation of the proposed project would generate approximately 3,050 pounds of solid waste per day or about 556.6 tons of solid waste per year under both alternatives.[34] Given the available capacity at the landfill, the additional solid waste generated by the proposed project is not anticipated to cause the facility to exceed its daily permitted capacity. In addition, implementation of the City's recycling programs would further reduce solid waste generation and would ensure there is sufficient capacity to accommodate the proposed project at the Highway 59 landfill. As such, the project would be served by a landfill with sufficient capacity to accommodate the project's waste disposal needs, and impacts associated with the disposition of solid waste would be ***less than significant***.

[34] CalRecycle, 2016. *Solid Waste Generation Rates.* Website: www2.calrecycle.ca.gov/WasteCharacterization/General/Rates (accessed August 2018).

g. Would the project comply with federal, state, and local statutes and regulations related to solid waste?

The California Integrated Waste Management Act of 1989 (AB 939) changed the focus of solid waste management from landfill to diversion strategies such as source reduction, recycling, and composting. The purpose of the diversion strategies is to reduce dependence on landfills for solid waste disposal. AB 939 established mandatory diversion goals of 25 percent by 1995 and 50 percent by 2000. The proposed project would be required to comply with all federal, State, and local regulations related to solid waste. Furthermore, the proposed project would be required to comply with all standards related to solid waste diversion, reduction, and recycling during project construction and operation of the project. Therefore, the proposed project is anticipated to result in ***less-than-significant*** impacts related to potential conflicts with federal, State, and local statutes and regulations related to solid waste.

4.19 MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

4.19.1 Impact Analysis

a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Implementation of Mitigation Measures BIO-1 would ensure that potential impacts to special-status species would be reduced to less-than-significant levels. Implementation of Mitigation Measures CUL-1 through CUL-3 would ensure that potential impacts to cultural resources that could be uncovered during construction activities would be reduced to a less-than-significant level.

Therefore, with the incorporation of mitigation measures, development of the proposed project would not: 1) degrade the quality of the environment; 2) substantially reduce the habitat of a fish or wildlife species; 3) cause a fish or wildlife species population to drop below self-sustaining levels; 4) threaten to eliminate a plant or animal community; 5) reduce the number or restrict the range of a rare or endangered plant or animal; or 6) eliminate important examples of the major periods of California history. Therefore, this impact would be ***less than significant***.

b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

The proposed project's impacts would be individually limited and not cumulatively considerable due to the site-specific nature of the potential impacts. The potentially significant impacts that can be reduced to a less-than-significant level with implementation of recommended mitigation measures including the topics of air quality, biological resources, cultural resources, greenhouse gas emissions, hydrology and water quality, and noise. These impacts would primarily be related to construction-period activities, would be temporary in nature, and would not substantially contribute to any potential cumulative impacts associated with these topics.

For the topic of air quality, potentially significant impacts to air quality standards associated with project construction would be reduced to less-than-significant levels with implementation of Mitigation Measure AIR-1. For the topic of biological resources, implementation of Mitigation Measures BIO-1 would ensure that impacts to special status nesting bird species are reduced to a less-than-significant level.

For the topic of cultural resources, potentially significant impacts to archaeological resources and paleontological resources would be reduced to less-than-significant levels with implementation of Mitigation Measures CUL-1, CUL-2, and CUL-3.

For the topic of greenhouse gas emissions, the proposed project's greenhouse gas emissions would not be considered a significant impact if the project would implement BPS strategies. Precise details of project features are not yet available; therefore, Mitigation Measure GHG-1 would require the proposed project to implement applicable BPS strategies and would reduce impacts to a less-than-significant level.

For the topic of hydrology and water quality, implementation of Mitigation Measures HYDRO-1 would address potential impacts related to water quality during construction of the project. Implementation of Mitigation Measure HYDRO-2 would address potential impacts related to water quality during operation of the project. Implementation of Mitigation Measures HYDRO-1 and HYDRO-2 would reduce impacts to less-than-significant levels.

For the topic of noise, implementation of Mitigation Measure NOI-1 would reduce potential construction period noise impacts for sensitive receptors to less-than-significant levels.

For the topics of aesthetics, agriculture and forestry resources, greenhouse gas emissions, hazards and hazardous materials, land use and planning, mineral resources, population and housing, public services, recreation, tribal cultural resources, and utilities and service systems, the project would have no impacts or less-than-significant impacts, and therefore, the project would not substantially contribute to any potential cumulative impacts for these topics. All environmental impacts that could occur as a result of the proposed project would be reduced to a less-than-significant level through the implementation of the mitigation measures recommended in this document.

Implementation of these measures would ensure that the impacts of the project would be below established thresholds of significance and that these impacts would not combine with the impacts of other cumulative projects to result in a cumulatively considerable impact on the environment as a result of project development. Therefore, this impact would be ***less than significant***.

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

The proposed project's potential to result in environmental effects that could directly or indirectly impacts human beings have been evaluated in this Initial Study. With implementation of the recommended mitigation measures, all environmental effects that could adversely affect human beings would be ***less than significant***.

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APPENDIX A

CALEEMOD OUTPUT SHEETS

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Merced Mall - Phase I

San Joaquin Valley Unified APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Regional Shopping Center	50.00	1000sqft	1.15	50,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	328.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity based on 5-year average (2016-2020), PG&E 2015

Land Use -

Construction Phase - Demolition and construction of Phase I is anticipated to occur over approximately 20 months, starting in April 2019 and ending in January 2021.

Grading - Approximately 4,920 cubic yards of construction debris would be collected and off-hauled from the project site.

Vehicle Trips - Trip rates bsaed on project trip generation

Fleet Mix - Truck percentages based on survey for similar shopping center.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	NumDays	200.00	300.00
tblConstructionPhase	NumDays	20.00	30.00
tblConstructionPhase	NumDays	4.00	30.00
tblConstructionPhase	NumDays	10.00	40.00
tblConstructionPhase	NumDays	2.00	30.00
tblFleetMix	HHD	0.11	1.0000e-003
tblFleetMix	LDA	0.50	0.63
tblFleetMix	LHD2	5.6900e-003	2.0000e-003
tblFleetMix	MHD	0.02	4.0000e-003
tblGrading	AcresOfGrading	11.25	1.50
tblGrading	AcresOfGrading	15.00	1.00
tblGrading	MaterialExported	0.00	4,920.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	328.8
tblVehicleTrips	ST_TR	49.97	37.00
tblVehicleTrips	SU_TR	25.24	37.00
tblVehicleTrips	WD_TR	42.70	37.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.2137	1.8809	1.2295	2.4900e-003	0.1669	0.0934	0.2603	0.0859	0.0885	0.1744	0.0000	217.1249	217.1249	0.0430	0.0000	218.2002
2020	0.5632	1.7198	1.5484	2.8100e-003	0.0199	0.0884	0.1083	5.4000e-003	0.0851	0.0905	0.0000	236.5311	236.5311	0.0423	0.0000	237.5884
2021	0.0117	7.7000e-004	9.5000e-004	0.0000	1.0000e-005	5.0000e-005	6.0000e-005	0.0000	5.0000e-005	5.0000e-005	0.0000	0.1381	0.1381	1.0000e-005	0.0000	0.1383
Maximum	**0.5632**	**1.8809**	**1.5484**	**2.8100e-003**	**0.1669**	**0.0934**	**0.2603**	**0.0859**	**0.0885**	**0.1744**	**0.0000**	**236.5311**	**236.5311**	**0.0430**	**0.0000**	**237.5884**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.2137	1.8809	1.2295	2.4900e-003	0.1669	0.0934	0.2603	0.0859	0.0885	0.1744	0.0000	217.1247	217.1247	0.0430	0.0000	218.2000
2020	0.5632	1.7198	1.5484	2.8100e-003	0.0199	0.0884	0.1083	5.4000e-003	0.0851	0.0905	0.0000	236.5308	236.5308	0.0423	0.0000	237.5882
2021	0.0117	7.7000e-004	9.5000e-004	0.0000	1.0000e-005	5.0000e-005	6.0000e-005	0.0000	5.0000e-005	5.0000e-005	0.0000	0.1381	0.1381	1.0000e-005	0.0000	0.1383
Maximum	**0.5632**	**1.8809**	**1.5484**	**2.8100e-003**	**0.1669**	**0.0934**	**0.2603**	**0.0859**	**0.0885**	**0.1744**	**0.0000**	**236.5308**	**236.5308**	**0.0430**	**0.0000**	**237.5882**

Merced Mall - Phase I - San Joaquin Valley Unified APCD Air District, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**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**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**4-1-2019**	**6-30-2019**	0.8256	0.8256
2	**7-1-2019**	**9-30-2019**	0.6168	0.6168
3	**10-1-2019**	**12-31-2019**	0.6405	0.6405
4	**1-1-2020**	**3-31-2020**	0.5832	0.5832
5	**4-1-2020**	**6-30-2020**	0.5827	0.5827
6	**7-1-2020**	**9-30-2020**	0.5738	0.5738
7	**10-1-2020**	**12-31-2020**	0.5389	0.5389
8	**1-1-2021**	**3-31-2021**	0.0089	0.0089
		Highest	0.8256	0.8256

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2301	0.0000	4.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	8.9000e-004	8.9000e-004	0.0000	0.0000	9.5000e-004
Energy	2.8800e-003	0.0262	0.0220	1.6000e-004		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	89.3247	89.3247	5.9100e-003	1.6300e-003	89.9588
Mobile	0.5351	0.9519	5.2470	0.0133	1.2103	0.0123	1.2227	0.3233	0.0115	0.3348	0.0000	1,202.7360	1,202.7360	0.0514	0.0000	1,204.0202
Waste						0.0000	0.0000		0.0000	0.0000	10.6570	0.0000	10.6570	0.6298	0.0000	26.4023
Water						0.0000	0.0000		0.0000	0.0000	1.1750	4.1737	5.3487	0.1211	2.9300e-003	9.2469
Total	**0.7681**	**0.9781**	**5.2695**	**0.0134**	**1.2103**	**0.0143**	**1.2246**	**0.3233**	**0.0135**	**0.3368**	**11.8320**	**1,296.2353**	**1,308.0673**	**0.8081**	**4.5600e-003**	**1,329.6291**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2301	0.0000	4.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	8.9000e-004	8.9000e-004	0.0000	0.0000	9.5000e-004
Energy	2.8800e-003	0.0262	0.0220	1.6000e-004		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	89.3247	89.3247	5.9100e-003	1.6300e-003	89.9588
Mobile	0.5351	0.9519	5.2470	0.0133	1.2103	0.0123	1.2227	0.3233	0.0115	0.3348	0.0000	1,202.7360	1,202.7360	0.0514	0.0000	1,204.0202
Waste						0.0000	0.0000		0.0000	0.0000	10.6570	0.0000	10.6570	0.6298	0.0000	26.4023
Water						0.0000	0.0000		0.0000	0.0000	1.1750	4.1737	5.3487	0.1211	2.9300e-003	9.2469
Total	**0.7681**	**0.9781**	**5.2695**	**0.0134**	**1.2103**	**0.0143**	**1.2246**	**0.3233**	**0.0135**	**0.3368**	**11.8320**	**1,296.2353**	**1,308.0673**	**0.8081**	**4.5600e-003**	**1,329.6291**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**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**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Merced Mall - Phase I - San Joaquin Valley Unified APCD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2019	5/10/2019	5	30	
2	Site Preparation	Site Preparation	5/11/2019	6/21/2019	5	30	
3	Grading	Grading	6/22/2019	8/2/2019	5	30	
4	Building Construction	Building Construction	8/3/2019	9/25/2020	5	300	
5	Paving	Paving	9/26/2020	11/20/2020	5	40	
6	Architectural Coating	Architectural Coating	11/21/2020	1/1/2021	5	30	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 75,000; Non-Residential Outdoor: 25,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Merced Mall - Phase I - San Joaquin Valley Unified APCD Air District, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	615.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	16.00	8.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0344	0.3401	0.2234	3.6000e-004		0.0193	0.0193		0.0180	0.0180	0.0000	32.1241	32.1241	8.1800e-003	0.0000	32.3286
Total	**0.0344**	**0.3401**	**0.2234**	**3.6000e-004**		**0.0193**	**0.0193**		**0.0180**	**0.0180**	**0.0000**	**32.1241**	**32.1241**	**8.1800e-003**	**0.0000**	**32.3286**

3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.1000e-004	6.4000e-004	6.4000e-003	2.0000e-005	1.5600e-003	1.0000e-005	1.5700e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.4447	1.4447	5.0000e-005	0.0000	1.4458
Total	**9.1000e-004**	**6.4000e-004**	**6.4000e-003**	**2.0000e-005**	**1.5600e-003**	**1.0000e-005**	**1.5700e-003**	**4.1000e-004**	**1.0000e-005**	**4.2000e-004**	**0.0000**	**1.4447**	**1.4447**	**5.0000e-005**	**0.0000**	**1.4458**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0344	0.3401	0.2234	3.6000e-004		0.0193	0.0193		0.0180	0.0180	0.0000	32.1241	32.1241	8.1800e-003	0.0000	32.3286
Total	**0.0344**	**0.3401**	**0.2234**	**3.6000e-004**		**0.0193**	**0.0193**		**0.0180**	**0.0180**	**0.0000**	**32.1241**	**32.1241**	**8.1800e-003**	**0.0000**	**32.3286**

3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.1000e-004	6.4000e-004	6.4000e-003	2.0000e-005	1.5600e-003	1.0000e-005	1.5700e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.4447	1.4447	5.0000e-005	0.0000	1.4458
Total	**9.1000e-004**	**6.4000e-004**	**6.4000e-003**	**2.0000e-005**	**1.5600e-003**	**1.0000e-005**	**1.5700e-003**	**4.1000e-004**	**1.0000e-005**	**4.2000e-004**	**0.0000**	**1.4447**	**1.4447**	**5.0000e-005**	**0.0000**	**1.4458**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0799	0.0000	0.0799	0.0436	0.0000	0.0436	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0257	0.2922	0.1183	2.6000e-004		0.0132	0.0132		0.0122	0.0122	0.0000	23.2002	23.2002	7.3400e-003	0.0000	23.3837
Total	**0.0257**	**0.2922**	**0.1183**	**2.6000e-004**	**0.0799**	**0.0132**	**0.0932**	**0.0436**	**0.0122**	**0.0557**	**0.0000**	**23.2002**	**23.2002**	**7.3400e-003**	**0.0000**	**23.3837**

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.6600e-003	0.0918	0.0132	2.5000e-004	5.2600e-003	3.6000e-004	5.6200e-003	1.4500e-003	3.4000e-004	1.7900e-003	0.0000	23.6354	23.6354	1.3700e-003	0.0000	23.6697
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6000e-004	3.9000e-004	3.9400e-003	1.0000e-005	9.6000e-004	1.0000e-005	9.7000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8890	0.8890	3.0000e-005	0.0000	0.8897
Total	**3.2200e-003**	**0.0921**	**0.0172**	**2.6000e-004**	**6.2200e-003**	**3.7000e-004**	**6.5900e-003**	**1.7000e-003**	**3.5000e-004**	**2.0500e-003**	**0.0000**	**24.5244**	**24.5244**	**1.4000e-003**	**0.0000**	**24.5594**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0799	0.0000	0.0799	0.0436	0.0000	0.0436	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0257	0.2922	0.1183	2.6000e-004		0.0132	0.0132		0.0122	0.0122	0.0000	23.2001	23.2001	7.3400e-003	0.0000	23.3836
Total	**0.0257**	**0.2922**	**0.1183**	**2.6000e-004**	**0.0799**	**0.0132**	**0.0932**	**0.0436**	**0.0122**	**0.0557**	**0.0000**	**23.2001**	**23.2001**	**7.3400e-003**	**0.0000**	**23.3836**

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.6600e-003	0.0918	0.0132	2.5000e-004	5.2600e-003	3.6000e-004	5.6200e-003	1.4500e-003	3.4000e-004	1.7900e-003	0.0000	23.6354	23.6354	1.3700e-003	0.0000	23.6697
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6000e-004	3.9000e-004	3.9400e-003	1.0000e-005	9.6000e-004	1.0000e-005	9.7000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8890	0.8890	3.0000e-005	0.0000	0.8897
Total	**3.2200e-003**	**0.0921**	**0.0172**	**2.6000e-004**	**6.2200e-003**	**3.7000e-004**	**6.5900e-003**	**1.7000e-003**	**3.5000e-004**	**2.0500e-003**	**0.0000**	**24.5244**	**24.5244**	**1.4000e-003**	**0.0000**	**24.5594**

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0685	0.0000	0.0685	0.0373	0.0000	0.0373	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0213	0.2405	0.0991	2.1000e-004		0.0111	0.0111		0.0102	0.0102	0.0000	19.0018	19.0018	6.0100e-003	0.0000	19.1521
Total	**0.0213**	**0.2405**	**0.0991**	**2.1000e-004**	**0.0685**	**0.0111**	**0.0796**	**0.0373**	**0.0102**	**0.0475**	**0.0000**	**19.0018**	**19.0018**	**6.0100e-003**	**0.0000**	**19.1521**

3.4 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6000e-004	3.9000e-004	3.9400e-003	1.0000e-005	9.6000e-004	1.0000e-005	9.7000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8890	0.8890	3.0000e-005	0.0000	0.8897
Total	**5.6000e-004**	**3.9000e-004**	**3.9400e-003**	**1.0000e-005**	**9.6000e-004**	**1.0000e-005**	**9.7000e-004**	**2.5000e-004**	**1.0000e-005**	**2.6000e-004**	**0.0000**	**0.8890**	**0.8890**	**3.0000e-005**	**0.0000**	**0.8897**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0685	0.0000	0.0685	0.0373	0.0000	0.0373	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0213	0.2405	0.0991	2.1000e-004		0.0111	0.0111		0.0102	0.0102	0.0000	19.0017	19.0017	6.0100e-003	0.0000	19.1520
Total	**0.0213**	**0.2405**	**0.0991**	**2.1000e-004**	**0.0685**	**0.0111**	**0.0796**	**0.0373**	**0.0102**	**0.0475**	**0.0000**	**19.0017**	**19.0017**	**6.0100e-003**	**0.0000**	**19.1520**

3.4 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6000e-004	3.9000e-004	3.9400e-003	1.0000e-005	9.6000e-004	1.0000e-005	9.7000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8890	0.8890	3.0000e-005	0.0000	0.8897
Total	**5.6000e-004**	**3.9000e-004**	**3.9400e-003**	**1.0000e-005**	**9.6000e-004**	**1.0000e-005**	**9.7000e-004**	**2.5000e-004**	**1.0000e-005**	**2.6000e-004**	**0.0000**	**0.8890**	**0.8890**	**3.0000e-005**	**0.0000**	**0.8897**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1216	0.8549	0.7216	1.1800e-003		0.0490	0.0490		0.0473	0.0473	0.0000	97.9435	97.9435	0.0188	0.0000	98.4142
Total	**0.1216**	**0.8549**	**0.7216**	**1.1800e-003**		**0.0490**	**0.0490**		**0.0473**	**0.0473**	**0.0000**	**97.9435**	**97.9435**	**0.0188**	**0.0000**	**98.4142**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0900e-003	0.0571	0.0115	1.2000e-004	2.8400e-003	4.3000e-004	3.2700e-003	8.2000e-004	4.1000e-004	1.2300e-003	0.0000	11.6555	11.6555	9.7000e-004	0.0000	11.6798
Worker	3.9800e-003	2.7900e-003	0.0281	7.0000e-005	6.8400e-003	5.0000e-005	6.8900e-003	1.8200e-003	5.0000e-005	1.8700e-003	0.0000	6.3418	6.3418	2.0000e-004	0.0000	6.3468
Total	**6.0700e-003**	**0.0599**	**0.0396**	**1.9000e-004**	**9.6800e-003**	**4.8000e-004**	**0.0102**	**2.6400e-003**	**4.6000e-004**	**3.1000e-003**	**0.0000**	**17.9973**	**17.9973**	**1.1700e-003**	**0.0000**	**18.0267**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1216	0.8549	0.7216	1.1800e-003		0.0490	0.0490		0.0473	0.0473	0.0000	97.9434	97.9434	0.0188	0.0000	98.4141
Total	**0.1216**	**0.8549**	**0.7216**	**1.1800e-003**		**0.0490**	**0.0490**		**0.0473**	**0.0473**	**0.0000**	**97.9434**	**97.9434**	**0.0188**	**0.0000**	**98.4141**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0900e-003	0.0571	0.0115	1.2000e-004	2.8400e-003	4.3000e-004	3.2700e-003	8.2000e-004	4.1000e-004	1.2300e-003	0.0000	11.6555	11.6555	9.7000e-004	0.0000	11.6798
Worker	3.9800e-003	2.7900e-003	0.0281	7.0000e-005	6.8400e-003	5.0000e-005	6.8900e-003	1.8200e-003	5.0000e-005	1.8700e-003	0.0000	6.3418	6.3418	2.0000e-004	0.0000	6.3468
Total	**6.0700e-003**	**0.0599**	**0.0396**	**1.9000e-004**	**9.6800e-003**	**4.8000e-004**	**0.0102**	**2.6400e-003**	**4.6000e-004**	**3.1000e-003**	**0.0000**	**17.9973**	**17.9973**	**1.1700e-003**	**0.0000**	**18.0267**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1959	1.4271	1.2727	2.1300e-003		0.0768	0.0768		0.0742	0.0742	0.0000	175.1882	175.1882	0.0325	0.0000	176.0012
Total	**0.1959**	**1.4271**	**1.2727**	**2.1300e-003**		**0.0768**	**0.0768**		**0.0742**	**0.0742**	**0.0000**	**175.1882**	**175.1882**	**0.0325**	**0.0000**	**176.0012**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0600e-003	0.0940	0.0178	2.2000e-004	5.1200e-003	5.2000e-004	5.6400e-003	1.4800e-003	5.0000e-004	1.9700e-003	0.0000	20.8455	20.8455	1.6500e-003	0.0000	20.8867
Worker	6.5300e-003	4.4300e-003	0.0450	1.2000e-004	0.0123	9.0000e-005	0.0124	3.2800e-003	8.0000e-005	3.3600e-003	0.0000	11.0849	11.0849	3.2000e-004	0.0000	11.0928
Total	**9.5900e-003**	**0.0984**	**0.0628**	**3.4000e-004**	**0.0175**	**6.1000e-004**	**0.0181**	**4.7600e-003**	**5.8000e-004**	**5.3300e-003**	**0.0000**	**31.9304**	**31.9304**	**1.9700e-003**	**0.0000**	**31.9795**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1959	1.4271	1.2727	2.1300e-003		0.0768	0.0768		0.0742	0.0742	0.0000	175.1880	175.1880	0.0325	0.0000	176.0010
Total	**0.1959**	**1.4271**	**1.2727**	**2.1300e-003**		**0.0768**	**0.0768**		**0.0742**	**0.0742**	**0.0000**	**175.1880**	**175.1880**	**0.0325**	**0.0000**	**176.0010**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0600e-003	0.0940	0.0178	2.2000e-004	5.1200e-003	5.2000e-004	5.6400e-003	1.4800e-003	5.0000e-004	1.9700e-003	0.0000	20.8455	20.8455	1.6500e-003	0.0000	20.8867
Worker	6.5300e-003	4.4300e-003	0.0450	1.2000e-004	0.0123	9.0000e-005	0.0124	3.2800e-003	8.0000e-005	3.3600e-003	0.0000	11.0849	11.0849	3.2000e-004	0.0000	11.0928
Total	**9.5900e-003**	**0.0984**	**0.0628**	**3.4000e-004**	**0.0175**	**6.1000e-004**	**0.0181**	**4.7600e-003**	**5.8000e-004**	**5.3300e-003**	**0.0000**	**31.9304**	**31.9304**	**1.9700e-003**	**0.0000**	**31.9795**

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0168	0.1690	0.1775	2.7000e-004		9.3900e-003	9.3900e-003		8.6600e-003	8.6600e-003	0.0000	23.5314	23.5314	7.4600e-003	0.0000	23.7179
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0168**	**0.1690**	**0.1775**	**2.7000e-004**		**9.3900e-003**	**9.3900e-003**		**8.6600e-003**	**8.6600e-003**	**0.0000**	**23.5314**	**23.5314**	**7.4600e-003**	**0.0000**	**23.7179**

3.6 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-003	7.5000e-004	7.5800e-003	2.0000e-005	2.0800e-003	1.0000e-005	2.0900e-003	5.5000e-004	1.0000e-005	5.7000e-004	0.0000	1.8666	1.8666	5.0000e-005	0.0000	1.8680
Total	**1.1000e-003**	**7.5000e-004**	**7.5800e-003**	**2.0000e-005**	**2.0800e-003**	**1.0000e-005**	**2.0900e-003**	**5.5000e-004**	**1.0000e-005**	**5.7000e-004**	**0.0000**	**1.8666**	**1.8666**	**5.0000e-005**	**0.0000**	**1.8680**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0168	0.1690	0.1775	2.7000e-004		9.3900e-003	9.3900e-003		8.6600e-003	8.6600e-003	0.0000	23.5314	23.5314	7.4600e-003	0.0000	23.7179
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0168**	**0.1690**	**0.1775**	**2.7000e-004**		**9.3900e-003**	**9.3900e-003**		**8.6600e-003**	**8.6600e-003**	**0.0000**	**23.5314**	**23.5314**	**7.4600e-003**	**0.0000**	**23.7179**

3.6 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-003	7.5000e-004	7.5800e-003	2.0000e-005	2.0800e-003	1.0000e-005	2.0900e-003	5.5000e-004	1.0000e-005	5.7000e-004	0.0000	1.8666	1.8666	5.0000e-005	0.0000	1.8680
Total	**1.1000e-003**	**7.5000e-004**	**7.5800e-003**	**2.0000e-005**	**2.0800e-003**	**1.0000e-005**	**2.0900e-003**	**5.5000e-004**	**1.0000e-005**	**5.7000e-004**	**0.0000**	**1.8666**	**1.8666**	**5.0000e-005**	**0.0000**	**1.8680**

3.7 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3360					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5100e-003	0.0244	0.0266	4.0000e-005		1.6100e-003	1.6100e-003		1.6100e-003	1.6100e-003	0.0000	3.7022	3.7022	2.9000e-004	0.0000	3.7094
Total	**0.3396**	**0.0244**	**0.0266**	**4.0000e-005**		**1.6100e-003**	**1.6100e-003**		**1.6100e-003**	**1.6100e-003**	**0.0000**	**3.7022**	**3.7022**	**2.9000e-004**	**0.0000**	**3.7094**

3.7 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.2000e-004	1.2700e-003	0.0000	3.5000e-004	0.0000	3.5000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3123	0.3123	1.0000e-005	0.0000	0.3125
Total	**1.8000e-004**	**1.2000e-004**	**1.2700e-003**	**0.0000**	**3.5000e-004**	**0.0000**	**3.5000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.3123**	**0.3123**	**1.0000e-005**	**0.0000**	**0.3125**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3360					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5100e-003	0.0244	0.0266	4.0000e-005		1.6100e-003	1.6100e-003		1.6100e-003	1.6100e-003	0.0000	3.7022	3.7022	2.9000e-004	0.0000	3.7094
Total	**0.3396**	**0.0244**	**0.0266**	**4.0000e-005**		**1.6100e-003**	**1.6100e-003**		**1.6100e-003**	**1.6100e-003**	**0.0000**	**3.7022**	**3.7022**	**2.9000e-004**	**0.0000**	**3.7094**

3.7 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.2000e-004	1.2700e-003	0.0000	3.5000e-004	0.0000	3.5000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3123	0.3123	1.0000e-005	0.0000	0.3125
Total	**1.8000e-004**	**1.2000e-004**	**1.2700e-003**	**0.0000**	**3.5000e-004**	**0.0000**	**3.5000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.3123**	**0.3123**	**1.0000e-005**	**0.0000**	**0.3125**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0116					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1000e-004	7.6000e-004	9.1000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.1277	0.1277	1.0000e-005	0.0000	0.1279
Total	**0.0117**	**7.6000e-004**	**9.1000e-004**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.1277**	**0.1277**	**1.0000e-005**	**0.0000**	**0.1279**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	0.0000	4.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0104	0.0104	0.0000	0.0000	0.0104
Total	**1.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0104**	**0.0104**	**0.0000**	**0.0000**	**0.0104**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0116					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1000e-004	7.6000e-004	9.1000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.1277	0.1277	1.0000e-005	0.0000	0.1279
Total	**0.0117**	**7.6000e-004**	**9.1000e-004**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.1277**	**0.1277**	**1.0000e-005**	**0.0000**	**0.1279**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	0.0000	4.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0104	0.0104	0.0000	0.0000	0.0104
Total	**1.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0104**	**0.0104**	**0.0000**	**0.0000**	**0.0104**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5351	0.9519	5.2470	0.0133	1.2103	0.0123	1.2227	0.3233	0.0115	0.3348	0.0000	1,202.7360	1,202.7360	0.0514	0.0000	1,204.0202
Unmitigated	0.5351	0.9519	5.2470	0.0133	1.2103	0.0123	1.2227	0.3233	0.0115	0.3348	0.0000	1,202.7360	1,202.7360	0.0514	0.0000	1,204.0202

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Regional Shopping Center	1,850.00	1,850.00	1850.00	3,243,614	3,243,614
Total	1,850.00	1,850.00	1,850.00	3,243,614	3,243,614

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Regional Shopping Center	0.628534	0.033454	0.168279	0.130431	0.021581	0.002000	0.004000	0.001000	0.001799	0.001690	0.005397	0.000987	0.000848

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	60.7750	60.7750	5.3600e-003	1.1100e-003	61.2395
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	60.7750	60.7750	5.3600e-003	1.1100e-003	61.2395
NaturalGas Mitigated	2.8800e-003	0.0262	0.0220	1.6000e-004		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	28.5496	28.5496	5.5000e-004	5.2000e-004	28.7193
NaturalGas Unmitigated	2.8800e-003	0.0262	0.0220	1.6000e-004		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	28.5496	28.5496	5.5000e-004	5.2000e-004	28.7193

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Regional Shopping Center	535000	2.8800e-003	0.0262	0.0220	1.6000e-004		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	28.5496	28.5496	5.5000e-004	5.2000e-004	28.7193
Total		**2.8800e-003**	**0.0262**	**0.0220**	**1.6000e-004**		**1.9900e-003**	**1.9900e-003**		**1.9900e-003**	**1.9900e-003**	**0.0000**	**28.5496**	**28.5496**	**5.5000e-004**	**5.2000e-004**	**28.7193**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Regional Shopping Center	535000	2.8800e-003	0.0262	0.0220	1.6000e-004		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	28.5496	28.5496	5.5000e-004	5.2000e-004	28.7193
Total		**2.8800e-003**	**0.0262**	**0.0220**	**1.6000e-004**		**1.9900e-003**	**1.9900e-003**		**1.9900e-003**	**1.9900e-003**	**0.0000**	**28.5496**	**28.5496**	**5.5000e-004**	**5.2000e-004**	**28.7193**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Regional Shopping Center	407500	60.7750	5.3600e-003	1.1100e-003	61.2395
Total		**60.7750**	**5.3600e-003**	**1.1100e-003**	**61.2395**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Regional Shopping Center	407500	60.7750	5.3600e-003	1.1100e-003	61.2395
Total		**60.7750**	**5.3600e-003**	**1.1100e-003**	**61.2395**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2301	0.0000	4.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	8.9000e-004	8.9000e-004	0.0000	0.0000	9.5000e-004
Unmitigated	0.2301	0.0000	4.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	8.9000e-004	8.9000e-004	0.0000	0.0000	9.5000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0348					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1953					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	4.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	8.9000e-004	8.9000e-004	0.0000	0.0000	9.5000e-004
Total	**0.2301**	**0.0000**	**4.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**8.9000e-004**	**8.9000e-004**	**0.0000**	**0.0000**	**9.5000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0348					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1953					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	4.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	8.9000e-004	8.9000e-004	0.0000	0.0000	9.5000e-004
Total	**0.2301**	**0.0000**	**4.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**8.9000e-004**	**8.9000e-004**	**0.0000**	**0.0000**	**9.5000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.3487	0.1211	2.9300e-003	9.2469
Unmitigated	5.3487	0.1211	2.9300e-003	9.2469

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Regional Shopping Center	3.70363 / 2.26996	5.3487	0.1211	2.9300e-003	9.2469
Total		**5.3487**	**0.1211**	**2.9300e-003**	**9.2469**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Regional Shopping Center	3.70363 / 2.26996	5.3487	0.1211	2.9300e-003	9.2469
Total		**5.3487**	**0.1211**	**2.9300e-003**	**9.2469**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	10.6570	0.6298	0.0000	26.4023
Unmitigated	10.6570	0.6298	0.0000	26.4023

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Regional Shopping Center	52.5	10.6570	0.6298	0.0000	26.4023
Total		**10.6570**	**0.6298**	**0.0000**	**26.4023**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Regional Shopping Center	52.5	10.6570	0.6298	0.0000	26.4023
Total		**10.6570**	**0.6298**	**0.0000**	**26.4023**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Merced Mall - Phase II Alternative 1

San Joaquin Valley Unified APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Movie Theater (No Matinee)	72.00	1000sqft	1.65	72,000.00	0
Regional Shopping Center	22.68	1000sqft	0.52	22,680.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	328.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity based on 5-year average (2016-2020), PG&E 2015
Start of construction would be dependent on market conditions; therefore this analysis assumes construction would begin in January 2021 following construction of Phase I

Land Use - The existing theater is approximately 22,680 square feet in size and would be demolished and replaced with a building of the same size to be used for retail uses

Construction Phase - Demolition and construction of Phase II Alternative 1 is anticipated to occur over approximately 20 months.

Demolition - The existing theater is approximately 22,680 square feet in size and would be demolished.

Grading - Under Phase II Alternative 1, approximately 5,910 cubic yards of construction debris would be collected and off-hauled from the project site.

Vehicle Trips - Trip rates bsaed on project trip generation

Fleet Mix - Truck percentages based on survey for similar shopping center project.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	NumDays	220.00	300.00
tblConstructionPhase	NumDays	20.00	30.00
tblConstructionPhase	NumDays	6.00	30.00
tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	NumDays	3.00	30.00
tblFleetMix	HHD	0.11	1.0000e-003
tblFleetMix	HHD	0.11	1.0000e-003
tblFleetMix	LDA	0.51	0.64
tblFleetMix	LDA	0.51	0.64
tblFleetMix	LHD2	5.0970e-003	1.0000e-003
tblFleetMix	LHD2	5.0970e-003	1.0000e-003
tblFleetMix	MHD	0.02	3.0000e-003
tblFleetMix	MHD	0.02	3.0000e-003
tblGrading	AcresOfGrading	15.00	3.00
tblGrading	AcresOfGrading	45.00	4.50
tblGrading	MaterialExported	0.00	5,910.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	328.8
tblVehicleTrips	ST_TR	99.28	42.25
tblVehicleTrips	ST_TR	49.97	0.00
tblVehicleTrips	SU_TR	81.90	42.25
tblVehicleTrips	SU_TR	25.24	0.00
tblVehicleTrips	WD_TR	78.06	42.25
tblVehicleTrips	WD_TR	42.70	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.2774	2.5114	1.9122	4.1800e-003	0.1521	0.1107	0.2628	0.0644	0.1048	0.1691	0.0000	362.5263	362.5263	0.0674	0.0000	364.2124
2022	0.8083	1.2172	1.2150	2.4200e-003	0.0292	0.0543	0.0835	7.9200e-003	0.0518	0.0597	0.0000	207.0825	207.0825	0.0360	0.0000	207.9814
Maximum	**0.8083**	**2.5114**	**1.9122**	**4.1800e-003**	**0.1521**	**0.1107**	**0.2628**	**0.0644**	**0.1048**	**0.1691**	**0.0000**	**362.5263**	**362.5263**	**0.0674**	**0.0000**	**364.2124**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.2774	2.5114	1.9122	4.1800e-003	0.1521	0.1107	0.2628	0.0644	0.1048	0.1691	0.0000	362.5260	362.5260	0.0674	0.0000	364.2121
2022	0.8083	1.2172	1.2150	2.4200e-003	0.0292	0.0543	0.0835	7.9200e-003	0.0518	0.0597	0.0000	207.0823	207.0823	0.0360	0.0000	207.9812
Maximum	**0.8083**	**2.5114**	**1.9122**	**4.1800e-003**	**0.1521**	**0.1107**	**0.2628**	**0.0644**	**0.1048**	**0.1691**	**0.0000**	**362.5260**	**362.5260**	**0.0674**	**0.0000**	**364.2121**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**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**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2021	3-31-2021	0.7836	0.7836
2	4-1-2021	6-30-2021	0.6795	0.6795
3	7-1-2021	9-30-2021	0.6612	0.6612
4	10-1-2021	12-31-2021	0.6620	0.6620
5	1-1-2022	3-31-2022	0.5919	0.5919
6	4-1-2022	6-30-2022	0.5978	0.5978
7	7-1-2022	9-30-2022	0.8387	0.8387
		Highest	0.8387	0.8387

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.4357	1.0000e-005	8.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6900e-003	1.6900e-003	0.0000	0.0000	1.8000e-003
Energy	9.4100e-003	0.0856	0.0719	5.1000e-004		6.5000e-003	6.5000e-003		6.5000e-003	6.5000e-003	0.0000	215.4149	215.4149	0.0126	3.9400e-003	216.9029
Mobile	0.7494	1.2832	7.4672	0.0215	2.1349	0.0185	2.1534	0.5698	0.0172	0.5871	0.0000	1,948.4579	1,948.4579	0.0743	0.0000	1,950.3153
Waste						0.0000	0.0000		0.0000	0.0000	88.1407	0.0000	88.1407	5.2090	0.0000	218.3649
Water						0.0000	0.0000		0.0000	0.0000	9.7065	26.1914	35.8978	0.9993	0.0240	68.0366
Total	**1.1945**	**1.3687**	**7.5399**	**0.0220**	**2.1349**	**0.0250**	**2.1599**	**0.5698**	**0.0237**	**0.5936**	**97.8472**	**2,190.0658**	**2,287.9130**	**6.2951**	**0.0280**	**2,453.6215**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.4357	1.0000e-005	8.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6900e-003	1.6900e-003	0.0000	0.0000	1.8000e-003
Energy	9.4100e-003	0.0856	0.0719	5.1000e-004		6.5000e-003	6.5000e-003		6.5000e-003	6.5000e-003	0.0000	215.4149	215.4149	0.0126	3.9400e-003	216.9029
Mobile	0.7494	1.2832	7.4672	0.0215	2.1349	0.0185	2.1534	0.5698	0.0172	0.5871	0.0000	1,948.4579	1,948.4579	0.0743	0.0000	1,950.3153
Waste						0.0000	0.0000		0.0000	0.0000	88.1407	0.0000	88.1407	5.2090	0.0000	218.3649
Water						0.0000	0.0000		0.0000	0.0000	9.7065	26.1914	35.8978	0.9993	0.0240	68.0366
Total	**1.1945**	**1.3687**	**7.5399**	**0.0220**	**2.1349**	**0.0250**	**2.1599**	**0.5698**	**0.0237**	**0.5936**	**97.8472**	**2,190.0658**	**2,287.9130**	**6.2951**	**0.0280**	**2,453.6215**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**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**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Merced Mall - Phase II Alternative 1 - San Joaquin Valley Unified APCD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2021	2/11/2021	5	30	
2	Site Preparation	Site Preparation	2/12/2021	3/25/2021	5	30	
3	Grading	Grading	3/26/2021	5/6/2021	5	30	
4	Building Construction	Building Construction	5/7/2021	6/30/2022	5	300	
5	Paving	Paving	7/1/2022	8/11/2022	5	30	
6	Architectural Coating	Architectural Coating	8/12/2022	9/22/2022	5	30	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 3

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 142,020; Non-Residential Outdoor: 47,340; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Merced Mall - Phase II Alternative 1 - San Joaquin Valley Unified APCD Air District, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	103.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	739.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	38.00	16.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0113	0.0000	0.0113	1.7200e-003	0.0000	1.7200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0299	0.2955	0.2174	3.6000e-004		0.0156	0.0156		0.0146	0.0146	0.0000	31.6070	31.6070	8.0800e-003	0.0000	31.8091
Total	**0.0299**	**0.2955**	**0.2174**	**3.6000e-004**	**0.0113**	**0.0156**	**0.0270**	**1.7200e-003**	**0.0146**	**0.0163**	**0.0000**	**31.6070**	**31.6070**	**8.0800e-003**	**0.0000**	**31.8091**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.9000e-004	0.0132	2.0000e-003	4.0000e-005	8.8000e-004	4.0000e-005	9.2000e-004	2.4000e-004	4.0000e-005	2.8000e-004	0.0000	3.8658	3.8658	2.1000e-004	0.0000	3.8711
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.6000e-004	5.0000e-004	5.1600e-003	1.0000e-005	1.5600e-003	1.0000e-005	1.5700e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.3513	1.3513	4.0000e-005	0.0000	1.3522
Total	**1.1500e-003**	**0.0137**	**7.1600e-003**	**5.0000e-005**	**2.4400e-003**	**5.0000e-005**	**2.4900e-003**	**6.5000e-004**	**5.0000e-005**	**7.0000e-004**	**0.0000**	**5.2171**	**5.2171**	**2.5000e-004**	**0.0000**	**5.2232**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0113	0.0000	0.0113	1.7200e-003	0.0000	1.7200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0299	0.2955	0.2174	3.6000e-004		0.0156	0.0156		0.0146	0.0146	0.0000	31.6070	31.6070	8.0800e-003	0.0000	31.8090
Total	**0.0299**	**0.2955**	**0.2174**	**3.6000e-004**	**0.0113**	**0.0156**	**0.0270**	**1.7200e-003**	**0.0146**	**0.0163**	**0.0000**	**31.6070**	**31.6070**	**8.0800e-003**	**0.0000**	**31.8090**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.9000e-004	0.0132	2.0000e-003	4.0000e-005	8.8000e-004	4.0000e-005	9.2000e-004	2.4000e-004	4.0000e-005	2.8000e-004	0.0000	3.8658	3.8658	2.1000e-004	0.0000	3.8711
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.6000e-004	5.0000e-004	5.1600e-003	1.0000e-005	1.5600e-003	1.0000e-005	1.5700e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.3513	1.3513	4.0000e-005	0.0000	1.3522
Total	**1.1500e-003**	**0.0137**	**7.1600e-003**	**5.0000e-005**	**2.4400e-003**	**5.0000e-005**	**2.4900e-003**	**6.5000e-004**	**5.0000e-005**	**7.0000e-004**	**0.0000**	**5.2171**	**5.2171**	**2.5000e-004**	**0.0000**	**5.2232**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.8200e-003	0.0000	2.8200e-003	3.2000e-004	0.0000	3.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0232	0.2743	0.1612	3.7000e-004		0.0105	0.0105		9.6900e-003	9.6900e-003	0.0000	32.2897	32.2897	0.0104	0.0000	32.5507
Total	**0.0232**	**0.2743**	**0.1612**	**3.7000e-004**	**2.8200e-003**	**0.0105**	**0.0134**	**3.2000e-004**	**9.6900e-003**	**0.0100**	**0.0000**	**32.2897**	**32.2897**	**0.0104**	**0.0000**	**32.5507**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.7700e-003	0.0946	0.0143	2.9000e-004	6.3200e-003	3.1000e-004	6.6300e-003	1.7400e-003	3.0000e-004	2.0300e-003	0.0000	27.7358	27.7358	1.5200e-003	0.0000	27.7739
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	3.1000e-004	3.1700e-003	1.0000e-005	9.6000e-004	1.0000e-005	9.7000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8316	0.8316	2.0000e-005	0.0000	0.8321
Total	**3.2400e-003**	**0.0949**	**0.0175**	**3.0000e-004**	**7.2800e-003**	**3.2000e-004**	**7.6000e-003**	**1.9900e-003**	**3.1000e-004**	**2.2900e-003**	**0.0000**	**28.5674**	**28.5674**	**1.5400e-003**	**0.0000**	**28.6060**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.8200e-003	0.0000	2.8200e-003	3.2000e-004	0.0000	3.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0232	0.2743	0.1612	3.7000e-004		0.0105	0.0105		9.6900e-003	9.6900e-003	0.0000	32.2896	32.2896	0.0104	0.0000	32.5507
Total	**0.0232**	**0.2743**	**0.1612**	**3.7000e-004**	**2.8200e-003**	**0.0105**	**0.0134**	**3.2000e-004**	**9.6900e-003**	**0.0100**	**0.0000**	**32.2896**	**32.2896**	**0.0104**	**0.0000**	**32.5507**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.7700e-003	0.0946	0.0143	2.9000e-004	6.3200e-003	3.1000e-004	6.6300e-003	1.7400e-003	3.0000e-004	2.0300e-003	0.0000	27.7358	27.7358	1.5200e-003	0.0000	27.7739
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	3.1000e-004	3.1700e-003	1.0000e-005	9.6000e-004	1.0000e-005	9.7000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8316	0.8316	2.0000e-005	0.0000	0.8321
Total	**3.2400e-003**	**0.0949**	**0.0175**	**3.0000e-004**	**7.2800e-003**	**3.2000e-004**	**7.6000e-003**	**1.9900e-003**	**3.1000e-004**	**2.2900e-003**	**0.0000**	**28.5674**	**28.5674**	**1.5400e-003**	**0.0000**	**28.6060**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0919	0.0000	0.0919	0.0498	0.0000	0.0498	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0274	0.3032	0.1464	3.1000e-004		0.0137	0.0137		0.0126	0.0126	0.0000	27.1558	27.1558	8.7800e-003	0.0000	27.3754
Total	**0.0274**	**0.3032**	**0.1464**	**3.1000e-004**	**0.0919**	**0.0137**	**0.1057**	**0.0498**	**0.0126**	**0.0625**	**0.0000**	**27.1558**	**27.1558**	**8.7800e-003**	**0.0000**	**27.3754**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8000e-004	3.8000e-004	3.9700e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0395	1.0395	3.0000e-005	0.0000	1.0402
Total	**5.8000e-004**	**3.8000e-004**	**3.9700e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0395**	**1.0395**	**3.0000e-005**	**0.0000**	**1.0402**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0919	0.0000	0.0919	0.0498	0.0000	0.0498	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0274	0.3032	0.1464	3.1000e-004		0.0137	0.0137		0.0126	0.0126	0.0000	27.1558	27.1558	8.7800e-003	0.0000	27.3754
Total	**0.0274**	**0.3032**	**0.1464**	**3.1000e-004**	**0.0919**	**0.0137**	**0.1057**	**0.0498**	**0.0126**	**0.0625**	**0.0000**	**27.1558**	**27.1558**	**8.7800e-003**	**0.0000**	**27.3754**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8000e-004	3.8000e-004	3.9700e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0395	1.0395	3.0000e-005	0.0000	1.0402
Total	**5.8000e-004**	**3.8000e-004**	**3.9700e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0395**	**1.0395**	**3.0000e-005**	**0.0000**	**1.0402**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1749	1.3704	1.2451	2.1400e-003		0.0699	0.0699		0.0670	0.0670	0.0000	177.5397	177.5397	0.0349	0.0000	178.4129
Total	**0.1749**	**1.3704**	**1.2451**	**2.1400e-003**		**0.0699**	**0.0699**		**0.0670**	**0.0670**	**0.0000**	**177.5397**	**177.5397**	**0.0349**	**0.0000**	**178.4129**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.4100e-003	0.1508	0.0275	3.9000e-004	9.0700e-003	4.2000e-004	9.4900e-003	2.6200e-003	4.1000e-004	3.0300e-003	0.0000	36.5955	36.5955	2.7900e-003	0.0000	36.6654
Worker	0.0127	8.2900e-003	0.0859	2.5000e-004	0.0260	1.8000e-004	0.0262	6.9000e-003	1.6000e-004	7.0700e-003	0.0000	22.5147	22.5147	5.9000e-004	0.0000	22.5296
Total	**0.0171**	**0.1591**	**0.1135**	**6.4000e-004**	**0.0350**	**6.0000e-004**	**0.0356**	**9.5200e-003**	**5.7000e-004**	**0.0101**	**0.0000**	**59.1102**	**59.1102**	**3.3800e-003**	**0.0000**	**59.1950**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1749	1.3704	1.2451	2.1400e-003		0.0699	0.0699		0.0670	0.0670	0.0000	177.5395	177.5395	0.0349	0.0000	178.4127
Total	**0.1749**	**1.3704**	**1.2451**	**2.1400e-003**		**0.0699**	**0.0699**		**0.0670**	**0.0670**	**0.0000**	**177.5395**	**177.5395**	**0.0349**	**0.0000**	**178.4127**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.4100e-003	0.1508	0.0275	3.9000e-004	9.0700e-003	4.2000e-004	9.4900e-003	2.6200e-003	4.1000e-004	3.0300e-003	0.0000	36.5955	36.5955	2.7900e-003	0.0000	36.6654
Worker	0.0127	8.2900e-003	0.0859	2.5000e-004	0.0260	1.8000e-004	0.0262	6.9000e-003	1.6000e-004	7.0700e-003	0.0000	22.5147	22.5147	5.9000e-004	0.0000	22.5296
Total	**0.0171**	**0.1591**	**0.1135**	**6.4000e-004**	**0.0350**	**6.0000e-004**	**0.0356**	**9.5200e-003**	**5.7000e-004**	**0.0101**	**0.0000**	**59.1102**	**59.1102**	**3.3800e-003**	**0.0000**	**59.1950**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1197	0.9420	0.9258	1.6100e-003		0.0453	0.0453		0.0434	0.0434	0.0000	133.9537	133.9537	0.0258	0.0000	134.5998
Total	**0.1197**	**0.9420**	**0.9258**	**1.6100e-003**		**0.0453**	**0.0453**		**0.0434**	**0.0434**	**0.0000**	**133.9537**	**133.9537**	**0.0258**	**0.0000**	**134.5998**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0900e-003	0.1078	0.0192	2.9000e-004	6.8400e-003	2.8000e-004	7.1200e-003	1.9800e-003	2.7000e-004	2.2400e-003	0.0000	27.3508	27.3508	2.0300e-003	0.0000	27.4016
Worker	8.8400e-003	5.5800e-003	0.0591	1.8000e-004	0.0196	1.3000e-004	0.0197	5.2100e-003	1.2000e-004	5.3300e-003	0.0000	16.3778	16.3778	4.0000e-004	0.0000	16.3878
Total	**0.0119**	**0.1134**	**0.0782**	**4.7000e-004**	**0.0264**	**4.1000e-004**	**0.0269**	**7.1900e-003**	**3.9000e-004**	**7.5700e-003**	**0.0000**	**43.7286**	**43.7286**	**2.4300e-003**	**0.0000**	**43.7894**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1197	0.9420	0.9258	1.6100e-003		0.0453	0.0453		0.0434	0.0434	0.0000	133.9535	133.9535	0.0258	0.0000	134.5996
Total	**0.1197**	**0.9420**	**0.9258**	**1.6100e-003**		**0.0453**	**0.0453**		**0.0434**	**0.0434**	**0.0000**	**133.9535**	**133.9535**	**0.0258**	**0.0000**	**134.5996**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0900e-003	0.1078	0.0192	2.9000e-004	6.8400e-003	2.8000e-004	7.1200e-003	1.9800e-003	2.7000e-004	2.2400e-003	0.0000	27.3508	27.3508	2.0300e-003	0.0000	27.4016
Worker	8.8400e-003	5.5800e-003	0.0591	1.8000e-004	0.0196	1.3000e-004	0.0197	5.2100e-003	1.2000e-004	5.3300e-003	0.0000	16.3778	16.3778	4.0000e-004	0.0000	16.3878
Total	**0.0119**	**0.1134**	**0.0782**	**4.7000e-004**	**0.0264**	**4.1000e-004**	**0.0269**	**7.1900e-003**	**3.9000e-004**	**7.5700e-003**	**0.0000**	**43.7286**	**43.7286**	**2.4300e-003**	**0.0000**	**43.7894**

3.6 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0141	0.1400	0.1755	2.7000e-004		7.3200e-003	7.3200e-003		6.7500e-003	6.7500e-003	0.0000	23.2651	23.2651	7.3700e-003	0.0000	23.4494
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0141**	**0.1400**	**0.1755**	**2.7000e-004**		**7.3200e-003**	**7.3200e-003**		**6.7500e-003**	**6.7500e-003**	**0.0000**	**23.2651**	**23.2651**	**7.3700e-003**	**0.0000**	**23.4494**

3.6 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.1000e-004	5.1000e-004	5.4200e-003	2.0000e-005	1.8000e-003	1.0000e-005	1.8100e-003	4.8000e-004	1.0000e-005	4.9000e-004	0.0000	1.5035	1.5035	4.0000e-005	0.0000	1.5044
Total	**8.1000e-004**	**5.1000e-004**	**5.4200e-003**	**2.0000e-005**	**1.8000e-003**	**1.0000e-005**	**1.8100e-003**	**4.8000e-004**	**1.0000e-005**	**4.9000e-004**	**0.0000**	**1.5035**	**1.5035**	**4.0000e-005**	**0.0000**	**1.5044**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0141	0.1400	0.1755	2.7000e-004		7.3200e-003	7.3200e-003		6.7500e-003	6.7500e-003	0.0000	23.2650	23.2650	7.3700e-003	0.0000	23.4494
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0141**	**0.1400**	**0.1755**	**2.7000e-004**		**7.3200e-003**	**7.3200e-003**		**6.7500e-003**	**6.7500e-003**	**0.0000**	**23.2650**	**23.2650**	**7.3700e-003**	**0.0000**	**23.4494**

3.6 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.1000e-004	5.1000e-004	5.4200e-003	2.0000e-005	1.8000e-003	1.0000e-005	1.8100e-003	4.8000e-004	1.0000e-005	4.9000e-004	0.0000	1.5035	1.5035	4.0000e-005	0.0000	1.5044
Total	**8.1000e-004**	**5.1000e-004**	**5.4200e-003**	**2.0000e-005**	**1.8000e-003**	**1.0000e-005**	**1.8100e-003**	**4.8000e-004**	**1.0000e-005**	**4.9000e-004**	**0.0000**	**1.5035**	**1.5035**	**4.0000e-005**	**0.0000**	**1.5044**

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6583					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0700e-003	0.0211	0.0272	4.0000e-005		1.2300e-003	1.2300e-003		1.2300e-003	1.2300e-003	0.0000	3.8299	3.8299	2.5000e-004	0.0000	3.8361
Total	**0.6613**	**0.0211**	**0.0272**	**4.0000e-005**		**1.2300e-003**	**1.2300e-003**		**1.2300e-003**	**1.2300e-003**	**0.0000**	**3.8299**	**3.8299**	**2.5000e-004**	**0.0000**	**3.8361**

3.7 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	2.7000e-004	2.8900e-003	1.0000e-005	9.6000e-004	1.0000e-005	9.7000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8019	0.8019	2.0000e-005	0.0000	0.8023
Total	**4.3000e-004**	**2.7000e-004**	**2.8900e-003**	**1.0000e-005**	**9.6000e-004**	**1.0000e-005**	**9.7000e-004**	**2.5000e-004**	**1.0000e-005**	**2.6000e-004**	**0.0000**	**0.8019**	**0.8019**	**2.0000e-005**	**0.0000**	**0.8023**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6583					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0700e-003	0.0211	0.0272	4.0000e-005		1.2300e-003	1.2300e-003		1.2300e-003	1.2300e-003	0.0000	3.8299	3.8299	2.5000e-004	0.0000	3.8361
Total	**0.6613**	**0.0211**	**0.0272**	**4.0000e-005**		**1.2300e-003**	**1.2300e-003**		**1.2300e-003**	**1.2300e-003**	**0.0000**	**3.8299**	**3.8299**	**2.5000e-004**	**0.0000**	**3.8361**

3.7 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.3000e-004	2.7000e-004	2.8900e-003	1.0000e-005	9.6000e-004	1.0000e-005	9.7000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8019	0.8019	2.0000e-005	0.0000	0.8023
Total	**4.3000e-004**	**2.7000e-004**	**2.8900e-003**	**1.0000e-005**	**9.6000e-004**	**1.0000e-005**	**9.7000e-004**	**2.5000e-004**	**1.0000e-005**	**2.6000e-004**	**0.0000**	**0.8019**	**0.8019**	**2.0000e-005**	**0.0000**	**0.8023**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7494	1.2832	7.4672	0.0215	2.1349	0.0185	2.1534	0.5698	0.0172	0.5871	0.0000	1,948.4579	1,948.4579	0.0743	0.0000	1,950.3153
Unmitigated	0.7494	1.2832	7.4672	0.0215	2.1349	0.0185	2.1534	0.5698	0.0172	0.5871	0.0000	1,948.4579	1,948.4579	0.0743	0.0000	1,950.3153

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Movie Theater (No Matinee)	3,042.00	3,042.00	3042.00	5,728,077	5,728,077
Regional Shopping Center	0.00	0.00	0.00		
Total	3,042.00	3,042.00	3,042.00	5,728,077	5,728,077

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Movie Theater (No Matinee)	9.50	7.30	7.30	1.80	79.20	19.00	66	17	17
Regional Shopping Center	9.50	7.30	7.30	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Movie Theater (No Matinee)	0.644860	0.031902	0.170344	0.119204	0.018408	0.001000	0.003000	0.001000	0.001794	0.001564	0.005229	0.000954	0.000741
Regional Shopping Center	0.644860	0.031902	0.170344	0.119204	0.018408	0.001000	0.003000	0.001000	0.001794	0.001564	0.005229	0.000954	0.000741

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	122.2782	122.2782	0.0108	2.2300e-003	123.2127
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	122.2782	122.2782	0.0108	2.2300e-003	123.2127
NaturalGas Mitigated	9.4100e-003	0.0856	0.0719	5.1000e-004		6.5000e-003	6.5000e-003		6.5000e-003	6.5000e-003	0.0000	93.1367	93.1367	1.7900e-003	1.7100e-003	93.6902
NaturalGas Unmitigated	9.4100e-003	0.0856	0.0719	5.1000e-004		6.5000e-003	6.5000e-003		6.5000e-003	6.5000e-003	0.0000	93.1367	93.1367	1.7900e-003	1.7100e-003	93.6902

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Movie Theater (No Matinee)	1.50264e+006	8.1000e-003	0.0737	0.0619	4.4000e-004		5.6000e-003	5.6000e-003		5.6000e-003	5.6000e-003	0.0000	80.1866	80.1866	1.5400e-003	1.4700e-003	80.6631
Regional Shopping Center	242676	1.3100e-003	0.0119	9.9900e-003	7.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	12.9501	12.9501	2.5000e-004	2.4000e-004	13.0271
Total		**9.4100e-003**	**0.0856**	**0.0719**	**5.1000e-004**		**6.5000e-003**	**6.5000e-003**		**6.5000e-003**	**6.5000e-003**	**0.0000**	**93.1367**	**93.1367**	**1.7900e-003**	**1.7100e-003**	**93.6902**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Movie Theater (No Matinee)	1.50264e+006	8.1000e-003	0.0737	0.0619	4.4000e-004		5.6000e-003	5.6000e-003		5.6000e-003	5.6000e-003	0.0000	80.1866	80.1866	1.5400e-003	1.4700e-003	80.6631
Regional Shopping Center	242676	1.3100e-003	0.0119	9.9900e-003	7.0000e-005		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	12.9501	12.9501	2.5000e-004	2.4000e-004	13.0271
Total		**9.4100e-003**	**0.0856**	**0.0719**	**5.1000e-004**		**6.5000e-003**	**6.5000e-003**		**6.5000e-003**	**6.5000e-003**	**0.0000**	**93.1367**	**93.1367**	**1.7900e-003**	**1.7100e-003**	**93.6902**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Movie Theater (No Matinee)	635040	94.7106	8.3500e-003	1.7300e-003	95.4345
Regional Shopping Center	184842	27.5676	2.4300e-003	5.0000e-004	27.7783
Total		**122.2782**	**0.0108**	**2.2300e-003**	**123.2127**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Movie Theater (No Matinee)	635040	94.7106	8.3500e-003	1.7300e-003	95.4345
Regional Shopping Center	184842	27.5676	2.4300e-003	5.0000e-004	27.7783
Total		**122.2782**	**0.0108**	**2.2300e-003**	**123.2127**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4357	1.0000e-005	8.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6900e-003	1.6900e-003	0.0000	0.0000	1.8000e-003
Unmitigated	0.4357	1.0000e-005	8.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6900e-003	1.6900e-003	0.0000	0.0000	1.8000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0658					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3698					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.0000e-005	1.0000e-005	8.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6900e-003	1.6900e-003	0.0000	0.0000	1.8000e-003
Total	**0.4357**	**1.0000e-005**	**8.7000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.6900e-003**	**1.6900e-003**	**0.0000**	**0.0000**	**1.8000e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0658					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3698					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.0000e-005	1.0000e-005	8.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6900e-003	1.6900e-003	0.0000	0.0000	1.8000e-003
Total	**0.4357**	**1.0000e-005**	**8.7000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.6900e-003**	**1.6900e-003**	**0.0000**	**0.0000**	**1.8000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	35.8978	0.9993	0.0240	68.0366
Unmitigated	35.8978	0.9993	0.0240	68.0366

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Movie Theater (No Matinee)	28.9153 / 1.84566	33.4717	0.9444	0.0227	63.8423
Regional Shopping Center	1.67996 / 1.02966	2.4262	0.0549	1.3300e-003	4.1944
Total		**35.8978**	**0.9993**	**0.0240**	**68.0366**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Movie Theater (No Matinee)	28.9153 / 1.84566	33.4717	0.9444	0.0227	63.8423
Regional Shopping Center	1.67996 / 1.02966	2.4262	0.0549	1.3300e-003	4.1944
Total		**35.8978**	**0.9993**	**0.0240**	**68.0366**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	88.1407	5.2090	0.0000	218.3649
Unmitigated	88.1407	5.2090	0.0000	218.3649

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Movie Theater (No Matinee)	410.4	83.3075	4.9233	0.0000	206.3908
Regional Shopping Center	23.81	4.8332	0.2856	0.0000	11.9741
Total		**88.1407**	**5.2090**	**0.0000**	**218.3649**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Movie Theater (No Matinee)	410.4	83.3075	4.9233	0.0000	206.3908
Regional Shopping Center	23.81	4.8332	0.2856	0.0000	11.9741
Total		**88.1407**	**5.2090**	**0.0000**	**218.3649**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Merced Mall - Phase II Alternative 2

San Joaquin Valley Unified APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Movie Theater (No Matinee)	72.00	1000sqft	1.65	72,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	328.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity based on 5-year average (2016-2020), PG&E 2015
The timing of the construction of the selected Phase II alternative would be dependent on market conditions.

Land Use -

Construction Phase - Demolition and construction of Phase II Alternative 2 is anticipated to occur over approximately 24 months.

Demolition - Phase II Alternative 2 would demolish the existing United Artists Theater and two retail stores. The existing theater is approximately 22,680 square feet in size, and the existing retail stores are approximately 25,416 square feet in size.

Grading - Under Phase II Alternative 2, approximately 4,200 cubic yards of construction debris would be collected and off-hauled from the project site.

Vehicle Trips - Trip rates bsaed on project trip generation

Fleet Mix - Truck percentages based on survey for similar shopping center project.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	60.00
tblConstructionPhase	NumDays	2.00	40.00
tblConstructionPhase	NumDays	4.00	30.00
tblConstructionPhase	NumDays	200.00	320.00
tblConstructionPhase	NumDays	10.00	40.00
tblConstructionPhase	NumDays	10.00	40.00
tblFleetMix	HHD	0.11	6.0000e-003
tblFleetMix	LDA	0.52	0.63
tblFleetMix	LHD2	4.8400e-003	7.0000e-003
tblFleetMix	MHD	0.02	0.16
tblGrading	AcresOfGrading	11.25	1.50
tblGrading	AcresOfGrading	20.00	1.00
tblGrading	MaterialExported	0.00	4,200.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	328.8
tblVehicleTrips	ST_TR	99.28	8.07
tblVehicleTrips	SU_TR	81.90	8.07
tblVehicleTrips	WD_TR	78.06	8.07

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.2445	2.2360	1.6258	3.4400e-003	0.2315	0.1016	0.3331	0.1079	0.0960	0.2038	0.0000	298.1497	298.1497	0.0568	0.0000	299.5697
2022	0.5756	1.4646	1.5048	2.9500e-003	0.0330	0.0643	0.0973	8.9500e-003	0.0619	0.0708	0.0000	250.4435	250.4435	0.0404	0.0000	251.4525
2023	0.1136	5.9200e-003	8.7400e-003	2.0000e-005	2.2000e-004	3.2000e-004	5.4000e-004	6.0000e-005	3.2000e-004	3.8000e-004	0.0000	1.3227	1.3227	7.0000e-005	0.0000	1.3245
Maximum	**0.5756**	**2.2360**	**1.6258**	**3.4400e-003**	**0.2315**	**0.1016**	**0.3331**	**0.1079**	**0.0960**	**0.2038**	**0.0000**	**298.1497**	**298.1497**	**0.0568**	**0.0000**	**299.5697**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.2445	2.2360	1.6258	3.4400e-003	0.2315	0.1016	0.3331	0.1079	0.0960	0.2038	0.0000	298.1494	298.1494	0.0568	0.0000	299.5694
2022	0.5756	1.4646	1.5048	2.9500e-003	0.0330	0.0643	0.0973	8.9500e-003	0.0619	0.0708	0.0000	250.4433	250.4433	0.0404	0.0000	251.4523
2023	0.1136	5.9200e-003	8.7400e-003	2.0000e-005	2.2000e-004	3.2000e-004	5.4000e-004	6.0000e-005	3.2000e-004	3.8000e-004	0.0000	1.3227	1.3227	7.0000e-005	0.0000	1.3245
Maximum	**0.5756**	**2.2360**	**1.6258**	**3.4400e-003**	**0.2315**	**0.1016**	**0.3331**	**0.1079**	**0.0960**	**0.2038**	**0.0000**	**298.1494**	**298.1494**	**0.0568**	**0.0000**	**299.5694**

Merced Mall - Phase II Alternative 2 - San Joaquin Valley Unified APCD Air District, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**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**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2021**	**3-31-2021**	0.7305	0.7305
2	**4-1-2021**	**6-30-2021**	0.6297	0.6297
3	**7-1-2021**	**9-30-2021**	0.5580	0.5580
4	**10-1-2021**	**12-31-2021**	0.5591	0.5591
5	**1-1-2022**	**3-31-2022**	0.5023	0.5023
6	**4-1-2022**	**6-30-2022**	0.5074	0.5074
7	**7-1-2022**	**9-30-2022**	0.4899	0.4899
8	**10-1-2022**	**12-31-2022**	0.5486	0.5486
9	**1-1-2023**	**3-31-2023**	0.1138	0.1138
		Highest	0.7305	0.7305

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3313	1.0000e-005	6.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2900e-003	1.2900e-003	0.0000	0.0000	1.3700e-003
Energy	8.1000e-003	0.0737	0.0619	4.4000e-004		5.6000e-003	5.6000e-003		5.6000e-003	5.6000e-003	0.0000	174.8972	174.8972	9.8900e-003	3.2000e-003	176.0976
Mobile	0.1531	1.0470	1.5265	6.3000e-003	0.4346	4.1000e-003	0.4387	0.1199	3.8300e-003	0.1238	0.0000	581.7520	581.7520	0.0171	0.0000	582.1801
Waste						0.0000	0.0000		0.0000	0.0000	83.3075	0.0000	83.3075	4.9233	0.0000	206.3908
Water						0.0000	0.0000		0.0000	0.0000	9.1735	24.2982	33.4717	0.9444	0.0227	63.8423
Total	**0.4925**	**1.1206**	**1.5891**	**6.7400e-003**	**0.4346**	**9.7000e-003**	**0.4443**	**0.1199**	**9.4300e-003**	**0.1294**	**92.4810**	**780.9486**	**873.4296**	**5.8947**	**0.0259**	**1,028.5120**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3313	1.0000e-005	6.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2900e-003	1.2900e-003	0.0000	0.0000	1.3700e-003
Energy	8.1000e-003	0.0737	0.0619	4.4000e-004		5.6000e-003	5.6000e-003		5.6000e-003	5.6000e-003	0.0000	174.8972	174.8972	9.8900e-003	3.2000e-003	176.0976
Mobile	0.1531	1.0470	1.5265	6.3000e-003	0.4346	4.1000e-003	0.4387	0.1199	3.8300e-003	0.1238	0.0000	581.7520	581.7520	0.0171	0.0000	582.1801
Waste						0.0000	0.0000		0.0000	0.0000	83.3075	0.0000	83.3075	4.9233	0.0000	206.3908
Water						0.0000	0.0000		0.0000	0.0000	9.1735	24.2982	33.4717	0.9444	0.0227	63.8423
Total	**0.4925**	**1.1206**	**1.5891**	**6.7400e-003**	**0.4346**	**9.7000e-003**	**0.4443**	**0.1199**	**9.4300e-003**	**0.1294**	**92.4810**	**780.9486**	**873.4296**	**5.8947**	**0.0259**	**1,028.5120**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**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**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Merced Mall - Phase II Alternative 2 - San Joaquin Valley Unified APCD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2021	3/25/2021	5	60	
2	Site Preparation	Site Preparation	3/26/2021	5/20/2021	5	40	
3	Grading	Grading	5/21/2021	7/1/2021	5	30	
4	Building Construction	Building Construction	7/2/2021	9/22/2022	5	320	
5	Paving	Paving	9/23/2022	11/17/2022	5	40	
6	Architectural Coating	Architectural Coating	11/18/2022	1/12/2023	5	40	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 108,000; Non-Residential Outdoor: 36,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Merced Mall - Phase II Alternative 2 - San Joaquin Valley Unified APCD Air District, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	219.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	525.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	30.00	12.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	6.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0240	0.0000	0.0240	3.6400e-003	0.0000	3.6400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0598	0.5909	0.4348	7.2000e-004		0.0312	0.0312		0.0291	0.0291	0.0000	63.2140	63.2140	0.0162	0.0000	63.6181
Total	**0.0598**	**0.5909**	**0.4348**	**7.2000e-004**	**0.0240**	**0.0312**	**0.0553**	**3.6400e-003**	**0.0291**	**0.0328**	**0.0000**	**63.2140**	**63.2140**	**0.0162**	**0.0000**	**63.6181**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.2000e-004	0.0280	4.2400e-003	9.0000e-005	1.8700e-003	9.0000e-005	1.9700e-003	5.2000e-004	9.0000e-005	6.0000e-004	0.0000	8.2194	8.2194	4.5000e-004	0.0000	8.2307
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5200e-003	9.9000e-004	0.0103	3.0000e-005	3.1200e-003	2.0000e-005	3.1400e-003	8.3000e-004	2.0000e-005	8.5000e-004	0.0000	2.7026	2.7026	7.0000e-005	0.0000	2.7044
Total	**2.3400e-003**	**0.0290**	**0.0146**	**1.2000e-004**	**4.9900e-003**	**1.1000e-004**	**5.1100e-003**	**1.3500e-003**	**1.1000e-004**	**1.4500e-003**	**0.0000**	**10.9220**	**10.9220**	**5.2000e-004**	**0.0000**	**10.9351**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0240	0.0000	0.0240	3.6400e-003	0.0000	3.6400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0598	0.5909	0.4348	7.2000e-004		0.0312	0.0312		0.0291	0.0291	0.0000	63.2139	63.2139	0.0162	0.0000	63.6180
Total	**0.0598**	**0.5909**	**0.4348**	**7.2000e-004**	**0.0240**	**0.0312**	**0.0553**	**3.6400e-003**	**0.0291**	**0.0328**	**0.0000**	**63.2139**	**63.2139**	**0.0162**	**0.0000**	**63.6180**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.2000e-004	0.0280	4.2400e-003	9.0000e-005	1.8700e-003	9.0000e-005	1.9700e-003	5.2000e-004	9.0000e-005	6.0000e-004	0.0000	8.2194	8.2194	4.5000e-004	0.0000	8.2307
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5200e-003	9.9000e-004	0.0103	3.0000e-005	3.1200e-003	2.0000e-005	3.1400e-003	8.3000e-004	2.0000e-005	8.5000e-004	0.0000	2.7026	2.7026	7.0000e-005	0.0000	2.7044
Total	**2.3400e-003**	**0.0290**	**0.0146**	**1.2000e-004**	**4.9900e-003**	**1.1000e-004**	**5.1100e-003**	**1.3500e-003**	**1.1000e-004**	**1.4500e-003**	**0.0000**	**10.9220**	**10.9220**	**5.2000e-004**	**0.0000**	**10.9351**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1062	0.0000	0.1062	0.0580	0.0000	0.0580	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0311	0.3484	0.1512	3.4000e-004		0.0153	0.0153		0.0141	0.0141	0.0000	30.2368	30.2368	9.7800e-003	0.0000	30.4813
Total	**0.0311**	**0.3484**	**0.1512**	**3.4000e-004**	**0.1062**	**0.0153**	**0.1215**	**0.0580**	**0.0141**	**0.0721**	**0.0000**	**30.2368**	**30.2368**	**9.7800e-003**	**0.0000**	**30.4813**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9700e-003	0.0672	0.0102	2.1000e-004	4.4900e-003	2.2000e-004	4.7100e-003	1.2300e-003	2.1000e-004	1.4400e-003	0.0000	19.7041	19.7041	1.0800e-003	0.0000	19.7311
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2000e-004	4.1000e-004	4.2300e-003	1.0000e-005	1.2800e-003	1.0000e-005	1.2900e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.1088	1.1088	3.0000e-005	0.0000	1.1095
Total	**2.5900e-003**	**0.0676**	**0.0144**	**2.2000e-004**	**5.7700e-003**	**2.3000e-004**	**6.0000e-003**	**1.5700e-003**	**2.2000e-004**	**1.7900e-003**	**0.0000**	**20.8128**	**20.8128**	**1.1100e-003**	**0.0000**	**20.8406**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1062	0.0000	0.1062	0.0580	0.0000	0.0580	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0311	0.3484	0.1512	3.4000e-004		0.0153	0.0153		0.0141	0.0141	0.0000	30.2368	30.2368	9.7800e-003	0.0000	30.4812
Total	**0.0311**	**0.3484**	**0.1512**	**3.4000e-004**	**0.1062**	**0.0153**	**0.1215**	**0.0580**	**0.0141**	**0.0721**	**0.0000**	**30.2368**	**30.2368**	**9.7800e-003**	**0.0000**	**30.4812**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9700e-003	0.0672	0.0102	2.1000e-004	4.4900e-003	2.2000e-004	4.7100e-003	1.2300e-003	2.1000e-004	1.4400e-003	0.0000	19.7041	19.7041	1.0800e-003	0.0000	19.7311
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2000e-004	4.1000e-004	4.2300e-003	1.0000e-005	1.2800e-003	1.0000e-005	1.2900e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.1088	1.1088	3.0000e-005	0.0000	1.1095
Total	**2.5900e-003**	**0.0676**	**0.0144**	**2.2000e-004**	**5.7700e-003**	**2.3000e-004**	**6.0000e-003**	**1.5700e-003**	**2.2000e-004**	**1.7900e-003**	**0.0000**	**20.8128**	**20.8128**	**1.1100e-003**	**0.0000**	**20.8406**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0685	0.0000	0.0685	0.0373	0.0000	0.0373	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0193	0.2150	0.0950	2.1000e-004		9.5700e-003	9.5700e-003		8.8000e-003	8.8000e-003	0.0000	18.5755	18.5755	6.0100e-003	0.0000	18.7257
Total	**0.0193**	**0.2150**	**0.0950**	**2.1000e-004**	**0.0685**	**9.5700e-003**	**0.0781**	**0.0373**	**8.8000e-003**	**0.0461**	**0.0000**	**18.5755**	**18.5755**	**6.0100e-003**	**0.0000**	**18.7257**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	3.1000e-004	3.1700e-003	1.0000e-005	9.6000e-004	1.0000e-005	9.7000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8316	0.8316	2.0000e-005	0.0000	0.8321
Total	**4.7000e-004**	**3.1000e-004**	**3.1700e-003**	**1.0000e-005**	**9.6000e-004**	**1.0000e-005**	**9.7000e-004**	**2.5000e-004**	**1.0000e-005**	**2.6000e-004**	**0.0000**	**0.8316**	**0.8316**	**2.0000e-005**	**0.0000**	**0.8321**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0685	0.0000	0.0685	0.0373	0.0000	0.0373	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0193	0.2150	0.0950	2.1000e-004		9.5700e-003	9.5700e-003		8.8000e-003	8.8000e-003	0.0000	18.5755	18.5755	6.0100e-003	0.0000	18.7257
Total	**0.0193**	**0.2150**	**0.0950**	**2.1000e-004**	**0.0685**	**9.5700e-003**	**0.0781**	**0.0373**	**8.8000e-003**	**0.0461**	**0.0000**	**18.5755**	**18.5755**	**6.0100e-003**	**0.0000**	**18.7257**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	3.1000e-004	3.1700e-003	1.0000e-005	9.6000e-004	1.0000e-005	9.7000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8316	0.8316	2.0000e-005	0.0000	0.8321
Total	**4.7000e-004**	**3.1000e-004**	**3.1700e-003**	**1.0000e-005**	**9.6000e-004**	**1.0000e-005**	**9.7000e-004**	**2.5000e-004**	**1.0000e-005**	**2.6000e-004**	**0.0000**	**0.8316**	**0.8316**	**2.0000e-005**	**0.0000**	**0.8321**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1187	0.8932	0.8449	1.4400e-003		0.0448	0.0448		0.0433	0.0433	0.0000	118.9137	118.9137	0.0212	0.0000	119.4444
Total	**0.1187**	**0.8932**	**0.8449**	**1.4400e-003**		**0.0448**	**0.0448**		**0.0433**	**0.0433**	**0.0000**	**118.9137**	**118.9137**	**0.0212**	**0.0000**	**119.4444**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.5300e-003	0.0867	0.0158	2.2000e-004	5.2100e-003	2.4000e-004	5.4500e-003	1.5100e-003	2.3000e-004	1.7400e-003	0.0000	21.0264	21.0264	1.6100e-003	0.0000	21.0665
Worker	7.6500e-003	5.0100e-003	0.0520	1.5000e-004	0.0157	1.1000e-004	0.0158	4.1800e-003	1.0000e-004	4.2800e-003	0.0000	13.6169	13.6169	3.6000e-004	0.0000	13.6259
Total	**0.0102**	**0.0917**	**0.0678**	**3.7000e-004**	**0.0209**	**3.5000e-004**	**0.0213**	**5.6900e-003**	**3.3000e-004**	**6.0200e-003**	**0.0000**	**34.6433**	**34.6433**	**1.9700e-003**	**0.0000**	**34.6924**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1187	0.8932	0.8449	1.4400e-003		0.0448	0.0448		0.0433	0.0433	0.0000	118.9136	118.9136	0.0212	0.0000	119.4443
Total	**0.1187**	**0.8932**	**0.8449**	**1.4400e-003**		**0.0448**	**0.0448**		**0.0433**	**0.0433**	**0.0000**	**118.9136**	**118.9136**	**0.0212**	**0.0000**	**119.4443**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.5300e-003	0.0867	0.0158	2.2000e-004	5.2100e-003	2.4000e-004	5.4500e-003	1.5100e-003	2.3000e-004	1.7400e-003	0.0000	21.0264	21.0264	1.6100e-003	0.0000	21.0665
Worker	7.6500e-003	5.0100e-003	0.0520	1.5000e-004	0.0157	1.1000e-004	0.0158	4.1800e-003	1.0000e-004	4.2800e-003	0.0000	13.6169	13.6169	3.6000e-004	0.0000	13.6259
Total	**0.0102**	**0.0917**	**0.0678**	**3.7000e-004**	**0.0209**	**3.5000e-004**	**0.0213**	**5.6900e-003**	**3.3000e-004**	**6.0200e-003**	**0.0000**	**34.6433**	**34.6433**	**1.9700e-003**	**0.0000**	**34.6924**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1558	1.1815	1.2027	2.0800e-003		0.0557	0.0557		0.0538	0.0538	0.0000	171.5902	171.5902	0.0299	0.0000	172.3373
Total	**0.1558**	**1.1815**	**1.2027**	**2.0800e-003**		**0.0557**	**0.0557**		**0.0538**	**0.0538**	**0.0000**	**171.5902**	**171.5902**	**0.0299**	**0.0000**	**172.3373**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.4000e-003	0.1185	0.0210	3.2000e-004	7.5200e-003	3.0000e-004	7.8200e-003	2.1700e-003	2.9000e-004	2.4600e-003	0.0000	30.0541	30.0541	2.2300e-003	0.0000	30.1099
Worker	0.0102	6.4600e-003	0.0683	2.1000e-004	0.0227	1.5000e-004	0.0228	6.0200e-003	1.4000e-004	6.1600e-003	0.0000	18.9437	18.9437	4.6000e-004	0.0000	18.9553
Total	**0.0136**	**0.1249**	**0.0894**	**5.3000e-004**	**0.0302**	**4.5000e-004**	**0.0306**	**8.1900e-003**	**4.3000e-004**	**8.6200e-003**	**0.0000**	**48.9978**	**48.9978**	**2.6900e-003**	**0.0000**	**49.0652**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1558	1.1815	1.2027	2.0800e-003		0.0557	0.0557		0.0538	0.0538	0.0000	171.5900	171.5900	0.0299	0.0000	172.3371
Total	**0.1558**	**1.1815**	**1.2027**	**2.0800e-003**		**0.0557**	**0.0557**		**0.0538**	**0.0538**	**0.0000**	**171.5900**	**171.5900**	**0.0299**	**0.0000**	**172.3371**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.4000e-003	0.1185	0.0210	3.2000e-004	7.5200e-003	3.0000e-004	7.8200e-003	2.1700e-003	2.9000e-004	2.4600e-003	0.0000	30.0541	30.0541	2.2300e-003	0.0000	30.1099
Worker	0.0102	6.4600e-003	0.0683	2.1000e-004	0.0227	1.5000e-004	0.0228	6.0200e-003	1.4000e-004	6.1600e-003	0.0000	18.9437	18.9437	4.6000e-004	0.0000	18.9553
Total	**0.0136**	**0.1249**	**0.0894**	**5.3000e-004**	**0.0302**	**4.5000e-004**	**0.0306**	**8.1900e-003**	**4.3000e-004**	**8.6200e-003**	**0.0000**	**48.9978**	**48.9978**	**2.6900e-003**	**0.0000**	**49.0652**

3.6 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0138	0.1355	0.1761	2.7000e-004		6.9500e-003	6.9500e-003		6.4100e-003	6.4100e-003	0.0000	23.5393	23.5393	7.4600e-003	0.0000	23.7258
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0138**	**0.1355**	**0.1761**	**2.7000e-004**		**6.9500e-003**	**6.9500e-003**		**6.4100e-003**	**6.4100e-003**	**0.0000**	**23.5393**	**23.5393**	**7.4600e-003**	**0.0000**	**23.7258**

3.6 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.4000e-004	5.9000e-004	6.2700e-003	2.0000e-005	2.0800e-003	1.0000e-005	2.0900e-003	5.5000e-004	1.0000e-005	5.7000e-004	0.0000	1.7373	1.7373	4.0000e-005	0.0000	1.7384
Total	**9.4000e-004**	**5.9000e-004**	**6.2700e-003**	**2.0000e-005**	**2.0800e-003**	**1.0000e-005**	**2.0900e-003**	**5.5000e-004**	**1.0000e-005**	**5.7000e-004**	**0.0000**	**1.7373**	**1.7373**	**4.0000e-005**	**0.0000**	**1.7384**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0138	0.1355	0.1761	2.7000e-004		6.9500e-003	6.9500e-003		6.4100e-003	6.4100e-003	0.0000	23.5392	23.5392	7.4600e-003	0.0000	23.7258
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0138**	**0.1355**	**0.1761**	**2.7000e-004**		**6.9500e-003**	**6.9500e-003**		**6.4100e-003**	**6.4100e-003**	**0.0000**	**23.5392**	**23.5392**	**7.4600e-003**	**0.0000**	**23.7258**

3.6 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.4000e-004	5.9000e-004	6.2700e-003	2.0000e-005	2.0800e-003	1.0000e-005	2.0900e-003	5.5000e-004	1.0000e-005	5.7000e-004	0.0000	1.7373	1.7373	4.0000e-005	0.0000	1.7384
Total	**9.4000e-004**	**5.9000e-004**	**6.2700e-003**	**2.0000e-005**	**2.0800e-003**	**1.0000e-005**	**2.0900e-003**	**5.5000e-004**	**1.0000e-005**	**5.7000e-004**	**0.0000**	**1.7373**	**1.7373**	**4.0000e-005**	**0.0000**	**1.7384**

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3880					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1700e-003	0.0218	0.0281	5.0000e-005		1.2700e-003	1.2700e-003		1.2700e-003	1.2700e-003	0.0000	3.9575	3.9575	2.6000e-004	0.0000	3.9640
Total	**0.3911**	**0.0218**	**0.0281**	**5.0000e-005**		**1.2700e-003**	**1.2700e-003**		**1.2700e-003**	**1.2700e-003**	**0.0000**	**3.9575**	**3.9575**	**2.6000e-004**	**0.0000**	**3.9640**

3.7 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	2.1000e-004	2.2400e-003	1.0000e-005	7.4000e-004	0.0000	7.5000e-004	2.0000e-004	0.0000	2.0000e-004	0.0000	0.6214	0.6214	2.0000e-005	0.0000	0.6218
Total	**3.4000e-004**	**2.1000e-004**	**2.2400e-003**	**1.0000e-005**	**7.4000e-004**	**0.0000**	**7.5000e-004**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.6214**	**0.6214**	**2.0000e-005**	**0.0000**	**0.6218**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3880					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1700e-003	0.0218	0.0281	5.0000e-005		1.2700e-003	1.2700e-003		1.2700e-003	1.2700e-003	0.0000	3.9575	3.9575	2.6000e-004	0.0000	3.9640
Total	**0.3911**	**0.0218**	**0.0281**	**5.0000e-005**		**1.2700e-003**	**1.2700e-003**		**1.2700e-003**	**1.2700e-003**	**0.0000**	**3.9575**	**3.9575**	**2.6000e-004**	**0.0000**	**3.9640**

3.7 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	2.1000e-004	2.2400e-003	1.0000e-005	7.4000e-004	0.0000	7.5000e-004	2.0000e-004	0.0000	2.0000e-004	0.0000	0.6214	0.6214	2.0000e-005	0.0000	0.6218
Total	**3.4000e-004**	**2.1000e-004**	**2.2400e-003**	**1.0000e-005**	**7.4000e-004**	**0.0000**	**7.5000e-004**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.6214**	**0.6214**	**2.0000e-005**	**0.0000**	**0.6218**

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1126					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.6000e-004	5.8600e-003	8.1500e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	1.1490	1.1490	7.0000e-005	0.0000	1.1507
Total	**0.1135**	**5.8600e-003**	**8.1500e-003**	**1.0000e-005**		**3.2000e-004**	**3.2000e-004**		**3.2000e-004**	**3.2000e-004**	**0.0000**	**1.1490**	**1.1490**	**7.0000e-005**	**0.0000**	**1.1507**

3.7 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	6.0000e-005	5.9000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1737	0.1737	0.0000	0.0000	0.1738
Total	**9.0000e-005**	**6.0000e-005**	**5.9000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.1737**	**0.1737**	**0.0000**	**0.0000**	**0.1738**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1126					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.6000e-004	5.8600e-003	8.1500e-003	1.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	1.1490	1.1490	7.0000e-005	0.0000	1.1507
Total	**0.1135**	**5.8600e-003**	**8.1500e-003**	**1.0000e-005**		**3.2000e-004**	**3.2000e-004**		**3.2000e-004**	**3.2000e-004**	**0.0000**	**1.1490**	**1.1490**	**7.0000e-005**	**0.0000**	**1.1507**

3.7 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	6.0000e-005	5.9000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1737	0.1737	0.0000	0.0000	0.1738
Total	**9.0000e-005**	**6.0000e-005**	**5.9000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.1737**	**0.1737**	**0.0000**	**0.0000**	**0.1738**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1531	1.0470	1.5265	6.3000e-003	0.4346	4.1000e-003	0.4387	0.1199	3.8300e-003	0.1238	0.0000	581.7520	581.7520	0.0171	0.0000	582.1801
Unmitigated	0.1531	1.0470	1.5265	6.3000e-003	0.4346	4.1000e-003	0.4387	0.1199	3.8300e-003	0.1238	0.0000	581.7520	581.7520	0.0171	0.0000	582.1801

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Movie Theater (No Matinee)	581.04	581.04	581.04	1,094,097	1,094,097
Total	581.04	581.04	581.04	1,094,097	1,094,097

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Movie Theater (No Matinee)	9.50	7.30	7.30	1.80	79.20	19.00	66	17	17

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Movie Theater (No Matinee)	0.626736	0.031316	0.171418	0.114437	0.017015	0.007000	0.160000	0.006000	0.001792	0.001507	0.005146	0.000939	0.000694

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	94.7106	94.7106	8.3500e-003	1.7300e-003	95.4345
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	94.7106	94.7106	8.3500e-003	1.7300e-003	95.4345
NaturalGas Mitigated	8.1000e-003	0.0737	0.0619	4.4000e-004		5.6000e-003	5.6000e-003		5.6000e-003	5.6000e-003	0.0000	80.1866	80.1866	1.5400e-003	1.4700e-003	80.6631
NaturalGas Unmitigated	8.1000e-003	0.0737	0.0619	4.4000e-004		5.6000e-003	5.6000e-003		5.6000e-003	5.6000e-003	0.0000	80.1866	80.1866	1.5400e-003	1.4700e-003	80.6631

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Movie Theater (No Matinee)	1.50264e+006	8.1000e-003	0.0737	0.0619	4.4000e-004		5.6000e-003	5.6000e-003		5.6000e-003	5.6000e-003	0.0000	80.1866	80.1866	1.5400e-003	1.4700e-003	80.6631
Total		**8.1000e-003**	**0.0737**	**0.0619**	**4.4000e-004**		**5.6000e-003**	**5.6000e-003**		**5.6000e-003**	**5.6000e-003**	**0.0000**	**80.1866**	**80.1866**	**1.5400e-003**	**1.4700e-003**	**80.6631**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Movie Theater (No Matinee)	1.50264e+006	8.1000e-003	0.0737	0.0619	4.4000e-004		5.6000e-003	5.6000e-003		5.6000e-003	5.6000e-003	0.0000	80.1866	80.1866	1.5400e-003	1.4700e-003	80.6631
Total		**8.1000e-003**	**0.0737**	**0.0619**	**4.4000e-004**		**5.6000e-003**	**5.6000e-003**		**5.6000e-003**	**5.6000e-003**	**0.0000**	**80.1866**	**80.1866**	**1.5400e-003**	**1.4700e-003**	**80.6631**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Movie Theater (No Matinee)	635040	94.7106	8.3500e-003	1.7300e-003	95.4345
Total		**94.7106**	**8.3500e-003**	**1.7300e-003**	**95.4345**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Movie Theater (No Matinee)	635040	94.7106	8.3500e-003	1.7300e-003	95.4345
Total		**94.7106**	**8.3500e-003**	**1.7300e-003**	**95.4345**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3313	1.0000e-005	6.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2900e-003	1.2900e-003	0.0000	0.0000	1.3700e-003
Unmitigated	0.3313	1.0000e-005	6.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2900e-003	1.2900e-003	0.0000	0.0000	1.3700e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0501					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2812					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.0000e-005	1.0000e-005	6.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2900e-003	1.2900e-003	0.0000	0.0000	1.3700e-003
Total	**0.3313**	**1.0000e-005**	**6.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.2900e-003**	**1.2900e-003**	**0.0000**	**0.0000**	**1.3700e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0501					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2812					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.0000e-005	1.0000e-005	6.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2900e-003	1.2900e-003	0.0000	0.0000	1.3700e-003
Total	**0.3313**	**1.0000e-005**	**6.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.2900e-003**	**1.2900e-003**	**0.0000**	**0.0000**	**1.3700e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	33.4717	0.9444	0.0227	63.8423
Unmitigated	33.4717	0.9444	0.0227	63.8423

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Movie Theater (No Matinee)	28.9153 / 1.84566	33.4717	0.9444	0.0227	63.8423
Total		**33.4717**	**0.9444**	**0.0227**	**63.8423**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Movie Theater (No Matinee)	28.9153 / 1.84566	33.4717	0.9444	0.0227	63.8423
Total		**33.4717**	**0.9444**	**0.0227**	**63.8423**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	83.3075	4.9233	0.0000	206.3908
Unmitigated	83.3075	4.9233	0.0000	206.3908

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Movie Theater (No Matinee)	410.4	83.3075	4.9233	0.0000	206.3908
Total		**83.3075**	**4.9233**	**0.0000**	**206.3908**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Movie Theater (No Matinee)	410.4	83.3075	4.9233	0.0000	206.3908
Total		**83.3075**	**4.9233**	**0.0000**	**206.3908**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX B

CULTURAL RESOURCES REVIEW

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CARLSBAD
FRESNO
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

MEMORANDUM

DATE: July 26, 2018

TO: Kim Espinosa, Planning Manager, City of Merced

FROM: Mariko Falke, Cultural Resources Analyst

SUBJECT: Cultural Resources Review for the Merced Mall Expansion Project, in the City of Merced, Merced County, California

This memorandum summarizes the methods and results of a cultural resources study conducted by LSA for the Merced Mall Expansion Project (project) in the City of Merced, Merced County, California. This memorandum was prepared to address the requirements of the California Environmental Quality Act (CEQA).

The study included an archival records search at the Central California Information Center (CCaIC), a review of the Sacred Lands File at the Native American Heritage Commission (NAHC), and consultation outreach with the Merced County Historical Society. A field survey was not completed for this project since the ground visibility has been severely reduced by prior development, parking lot pavement, and landscaping. In addition, relevant environmental and archaeological literature was reviewed for background information and to assess the potential for subsurface archaeological deposits in the vicinity of the proposed project. The results of this research are summarized below.

Ms. Mariko Falke, B.A., prepared this memorandum under the direction of Katie Vallaire, M.A., RPA, Senior Cultural Resources Manager.

PROJECT DESCRIPTION

The project site (Attachment A: Figures 1 and 2) consists of approximately 56 acres and is located at 851 Olive Avenue in Merced, Merced County, California. The project site is generally level and consists of six parcels (Assessor's Parcel Numbers [APN) 236-220-022, -029, -030, -031, -032, -038) and portions of four parcels (APNs 236-310-007 and 236-220-014, -015, -016). The project site is currently developed with an existing shopping center and three additional buildings containing restaurants, small retail spaces, offices, and a movie theater. The project would be constructed in two phases.

201 Creekside Ridge Court, Suite 250, Roseville, California 95678 916.772.7450 www.lsa.net

Phase I

Phase I of the proposed project would expand the buildings located along the southern elevation of the shopping center south towards West Olive Avenue by an additional 80 feet. The vacant retail space located to the east of the main mall entrance (previously occupied by CVS) would be reconfigured and leased to new retailers and restaurants, some of which would have storefronts facing the parking lot adjacent to West Olive Avenue. The southern parking lot would be reconfigured, repaved, restriped, and re-landscaped. Phase I of the project would include a reader board sign on West Olive Avenue, south of the central entrance to the shopping center, at the approximate location of the existing sign.

Phase II

Phase II of the proposed project would include construction of a 72,000-square-foot movie theater containing up to 3,000 seats. The project applicant has proposed two alternatives under Phase II which would result in the location of a new movie theater at one of two locations within the project site.

Alternative 1

Alternative 1 would add an at-grade 72,000-square-foot theater between the existing JC Penny and Kohl's stores in the main shopping center building. The design and height of the movie theater addition would be integrated into the existing shopping center building and would be consistent with the exterior additions completed under Phase I.

Alternative 2

Alternative 2 would demolish the existing United Artists Theater and two retail stores located along the eastern boundary of the project site, and would construct a 72,000-square-foot at-grade theater at that location. The design and height of the movie theater would be consistent with the exterior additions completed under Phase I. Construction of Alternative 2 would include reconfigured parking for the theater.

Open Space and Landscaping

The proposed project would upgrade the perimeter landscaping to include new vegetation and drought-tolerant plantings. As a result of the expansion under Phase I, 14 trees would be removed in order to accommodate development. In addition, 10 trees would be removed under Phase II Alternative 1, and 13 trees would be removed under Phase II Alternative 2.

Access, Circulation, and Parking

The current configuration of vehicle driveways and pedestrian access would not be altered as a result of the proposed project. The project site currently has 11 vehicle ingress/egress driveways providing access to and from West Olive Avenue, R Street, Loughborough Drive, and Fairfield Drive. As noted above, the parking lot facing West Olive Avenue would be reconfigured, repaved, and restriped.

Utilities and Infrastructure

The project site is located in an urban area with existing utilities and infrastructure. The proposed project would be required to utilize the following utility connections to the satisfaction of the applicable utility providers: water, wastewater, storm water drainage, and power.

CCAIC RECORDS SEARCH

LSA requested a records search through the CCaIC on July 16, 2018, for the proposed project. The records search consisted of a review of cultural resource records and previous investigations within the project site and a 0.25-mile radius. The CCaIC, an affiliate of the State of California Office of Historic Preservation, is the official State repository of cultural resources records and reports for Merced County.

The CCaIC records search did not identify cultural resources or previous investigations within the project site. The project is located within the Merced Irrigation District (P-24-001909), though no component of this district has been recorded within the project site or the surrounding 0.25-mile radius. One built environment resource (P-24-001935) was identified within the 150 feet of the project site. The extent and summary of these resources are described below.

P-24-001909

This built environment resource consists of the Merced Irrigation District. This district includes the City of Merced and extends northeast to Snelling, south to Le Grande, southwest to Stevinson, and west to the San Luis National Wildlife Refuge. This district, with various water conveyance features and associated structures constructed from 1870 to 1922, is associated with water conveyance and development in California's Central Valley (Bunse and Melvin 2007; Dice 2010; and Loftus 2011).

P-24-001909 appears eligible for inclusion in the National Register of Historic Places (NRHP) eligibility under Criterion A in which it reflects water conveyance development in response to the growing needs of California's agricultural landscape in the 20th Century; Criterion C as the District is unique to the Central Valley's history; and Criterion D as components of the District have the potential to yield information and as such these elements qualify as a historical resource as defined under CEQA Guidelines Section 15064.5(a). Therefore, portions of the District, considered its contributing elements, would likely be eligible for inclusion in the California Register of Historical Resources (CRHR), as well, and qualify as historical resources, as defined under California Public Resources Code Section 21084.1. Upon evaluation, many elements of the District have been found ineligible for the CRHR and NRHP.

P-24-001935

This built environment resource consisted of two 3-story commercial buildings which form the Park Olive Plaza. The buildings were constructed sometime between 1963 and 1978 based on historic topographic maps and aerial imagery. They were comprised of a Modernist design and when recorded in 2012, they were not listed in the 2014 Historic Property Data File provided by the CCaIC (CCaIC File No. 1776I). The eligibility of this resource was not reviewed since this resource has been demolished based on Google Earth Aerial and Street View Imagery from May 2017.

NAHC SACRED LANDS FILE

On July 9, 2018, LSA submitted a request to the NAHC to review its Sacred Lands File for the proposed project. The NAHC is the official State repository of Native American sacred site location records in California. In a July 23, 2018 response letter (Attachment B), Sharaya Souza, Staff Services Analyst with the NAHC, stated that the results of the Sacred Lands File search were negative. She further suggested contacting those on the Native American Consultation List for specific knowledge regarding the area.

MERCED HISTORICAL SOCIETY

LSA contacted the Merced Historical Society on July 10, 2018, and spoke with Ms. Sarah Lim, Director of the Merced County Museum and head of the historical society for any information or concerns regarding historic-period cultural resources within the project site. During the conversation, Ms. Lim stated that the project site consisted of farmland before construction of the Merced Mall. She recalled a railroad spur that operated nearby the project site to service a cannery operation, but did not have any knowledge or concerns regarding the presence of historic-period cultural resources in the project site.

BURIED ARCHAEOLOGICAL SITE POTENTIAL

Assessing the potential for buried archaeological deposits in and adjacent to the project site requires an understanding of landform age and overlying soils. Fundamentally, there is an inverse relationship between landform age and the potential for buried archaeological deposits. Some landforms predate human occupation of the region (e.g., Pleistocene alluvial fan deposits) and, as such, archaeological deposits on these landforms, if present, would be located at or near the surface. In contrast, those landforms that were formed during the Holocene (circa 11,700 years ago to the present) have a potential for containing buried surfaces (paleosols) that would have been available for human habitation during prehistory. Paleosols associated with Holocene landforms, therefore, may contain buried archaeological deposits (Meyer and Rosenthal 2004).

The project site is situated on late Pleistocene to middle Holocene (approximately 20,000 to 4,000 years old) deposition consistent with the upper Modesto Formation in the Northern San Joaquin Valley. During the last major event of aggradation on the eastern portion of the San Joaquin Valley, an amalgamation of sand, silt, and gravel was deposited forming alluvial fans which extended from the drainage of the Kern River in the south to the tributaries of the Sacramento River in the north. The Modesto Formation is divided into an older, lower member (40,000 to 20,000 years old) overlain by the upper member (approximately 20,000 to 9,000 years old). Lower Modesto deposits formed expansive alluvial fans derived from the Sierra. Upper Modesto deposits are composed of four depositional phases which form fans or terraces; each phase corresponds to an associated glacial outwash period in which melting glaciers and a moister climate caused increased runoff in active channels. Modesto deposits overlay Pleistocene-aged Riverbank deposits and are incised or capped near modern drainages by post-Modesto sediment (Marchand and Allwardt 1981; Meyer and Rosenthal 2004). Post-Modesto soils are associated with early-to-middle Holocene eolian sand dunes, which tend to overlie the upper Modesto terraces and fans in Merced County and are sensitive for buried Holocene-aged archaeological deposits. The project site is situated on a drainage channel of Black Rascal Creek, a tributary to Bear Creek, which once consisted of Holocene-aged

toeslope and floodplain deposits prior to development. As such, there is a potential for buried archaeological deposits within the project site that, if present, would have had little to no surface manifestation prior to development. Additionally, previous development of the project site does not preclude the presence of buried archaeological deposits (Meyer and Rosenthal 2004).

SUMMARY

The project site is within the boundary of P-24-001909, the Merced Irrigation District. Elements of the District qualify for the NRHP under Criterion A in which it reflects water conveyance development in response to the growing needs of California's agricultural landscape in the 20th Century; Criterion C as the District is unique to the Central Valley's history; and Criterion D as components of the District have the potential to yield information and as such these elements qualify as a historical resource as defined under CEQA Guidelines Section 15064.5(a). However, no specific elements of this district have been identified within the project site. In addition, one built environment resource, which has since been demolished, was identified within 150 feet of the project site.

Based on Holocene landforms with the potential to contain buried archaeological deposits, the project is situated in an area with a high potential to encounter significant archaeological deposits.

REFERENCES

Bunse, M. and J. Melvin
2007 DPR Resource Record of the Merced Irrigation District (P-24-001909). On file, Central California Information Center of the California Historical Resources Information System, California State University, Stanislaus.

Dice, Michael
2010 DPR Resource Record of the Merced Irrigation District (P-24-001909). On file, Central California Information Center of the California Historical Resources Information System, California State University, Stanislaus.

Loftus, Shannon
2011 DPR Resource Record of the Merced Irrigation District (P-24-001909). On file, Central California Information Center of the California Historical Resources Information System, California State University, Stanislaus.

Marchand, Denis E. and Alan Allwardt
1981 Late Cenozoic Stratigraphic Units, Northeastern San Joaquin Valley, California. U.S. Geological Bulletin 1470. United States Government Printing Office, Washington, D.C.

Meyer, Jack and Jeffrey Rosenthal
2004 Cultural Resources Inventory of Caltrans District 10 Rural Conventional Highways, Volume III: Geoarchaeological Study, Landscape Evolution and the Archaeological Record of Central California. Far Western Anthropological Research Group, Inc., Davis, California.

Attachment A: Figure 1: Regional Location
Figure 2: Project Vicinity

Attachment B: NAHC Sacred Lands File Results and Native American Consultation List

ATTACHMENT A

Figure 1: Regional Location

Figure 2: Project Vicinity



LSA

LEGEND

Project Location

FIGURE 1

N

0 2.5 5

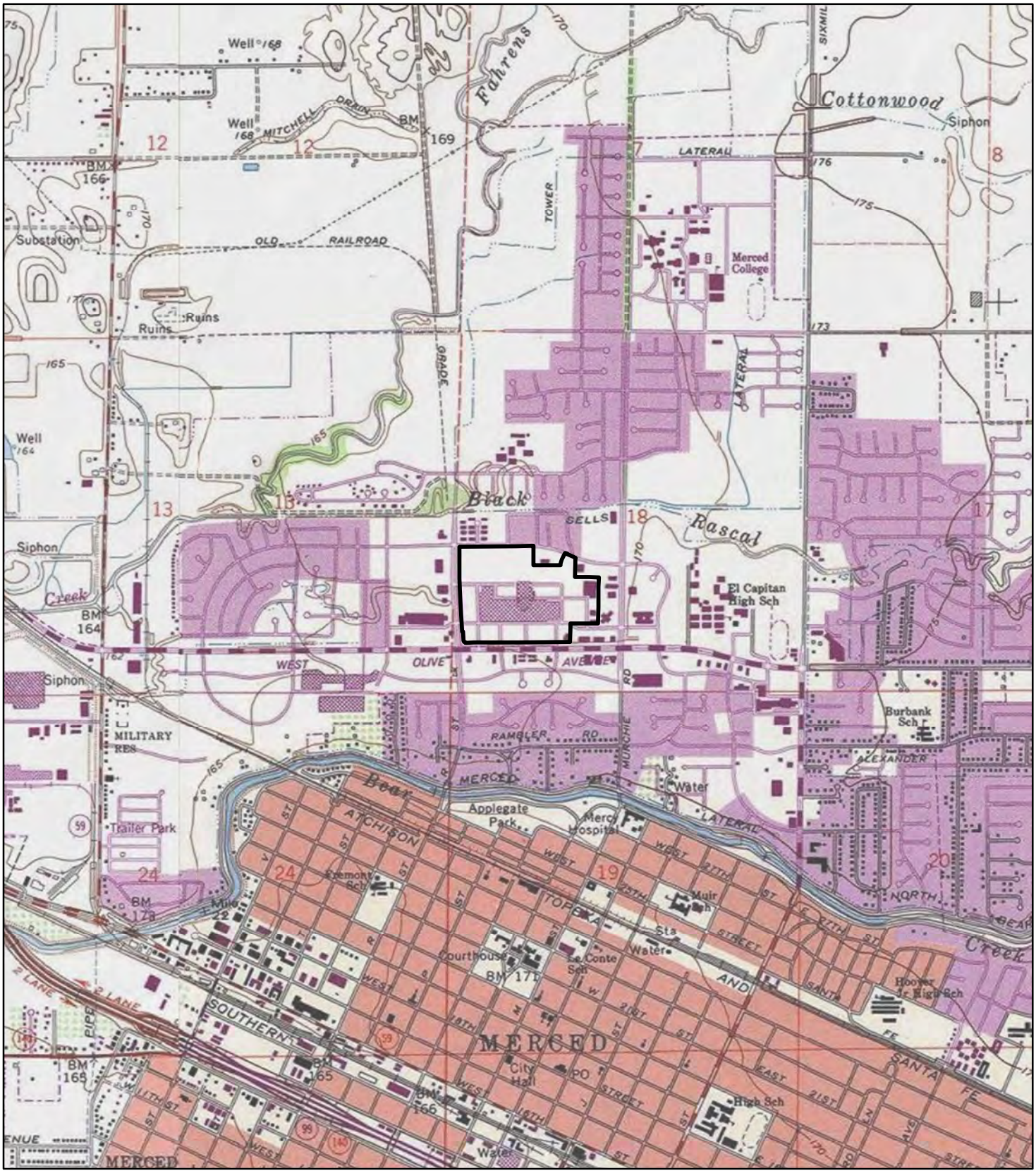
Miles

Merced Mall Expansion Project
Merced County, California
LSA Project No. MED1801

Regional Location

SOURCE: ESRI World Street Map (6/2018)

I:\MED1801\GIS\Reports\Figure_1_Regional.mxd (7/9/2018)



LSA

LEGEND

Project Area - (56.8 ac)

FIGURE 2

N

0 1000 2000

FEET

Merced Mall Expansion Project
Merced County, California
LSA Project No. MED1801

Project Vicinity

SOURCE: USGS 7.5-minute topographic quadrangle Merced, Calif (1961, ed. 1987)

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ATTACHMENT B

NAHC Sacred Lands File Results and Native American Consultation List

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710

July 23, 2018

Mariko Falke
LSA Associates, Inc

Sent by Email: Mario.falke@lsa.net
Number of Pages: 2

RE: Merced Mall Expansion, Merced, Merced County

Dear Mr. Falke:

A record search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed for the area of potential project effect (APE) referenced above with negative results**. Please note that the absence of specific site information in the *Sacred Lands File* does not indicate the absence of Native American cultural resources in any APE.**

I suggest you contact all of those listed, if they cannot supply information, they might recommend others with specific knowledge. The list should provide a starting place to locate areas of potential adverse impact within the APE. **By contacting all those on the list, your organization will be better able to respond to claims of failure to consult**. If a response has not been received within two weeks of notification, the NAHC requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact via email: Sharaya.Souza@nahc.ca.gov.

Sincerely,

Sharaya Souza
Staff Services Analyst
(916) 573-0168

Native American Heritage Commission
Native American Consultation List
7/23/2018

Amah Mutsun Tribal Band
Valentin Lopez, Chairperson
P.O. Box 5272
Galt , CA 95632
vlopez@amahmutsun.org
(916) 743-5833

Ohlone/Costanoan
Northern Valley Yokuts

Dumna Wo-Wah Tribal Goverment
Robert Ledger SR., Chairperson
2191 West Pico Ave.
Fresno , CA 93705
ledgerrobert@ymail.com
(559) 540-6346

Dumna/Foothill Yokuts
Mono

North Valley Yokuts Tribe
Katherine Erolinda Perez, Chairperson
P.O. Box 717
Linden , CA 95236
canutes@verizon.net
(209) 887-3415

Ohlone/Costanoan
Northern Valley Yokuts
Bay Miwok

Southern Sierra Miwuk Nation
Bill Leonard, Chairperson
P.O. Box 186
Mariposa , CA 95338
(209) 628-8603 Office

Miwok
Pauite
Northern Valley Yokut

This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produced.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Code, or Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native American Tribes for the proposed:
Merced Mall Expansion, Merced, Merced County.

APPENDIX C

TRAFFIC IMPACT ANALYSIS

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TRAFFIC IMPACT ANALYSIS

MERCED MALL EXPANSION AND REDEVELOPMENT PROJECT

CITY OF MERCED

MERCED COUNTY, CALIFORNIA

LSA

September 2018

TRAFFIC IMPACT ANALYSIS

MERCED MALL EXPANSION AND REDEVELOPMENT PROJECT

CITY OF MERCED

MERCED COUNTY, CALIFORNIA

Prepared for:

City of Merced
678 West 18th Street
Merced, California 95340

Prepared by:

LSA Associates, Inc.
7086 North Maple Avenue
Suite 104
Fresno, California 93720
(559) 490-1210

Project No. MED1801

LSA

September 2018

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1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

This Traffic Impact Analysis (TIA) has been prepared to assess the potential circulation impacts associated with the proposed Merced Mall Expansion and Redevelopment Project in the City of Merced (City).

The approximately 52-acre project site is located at 851 West Olive Avenue. The site is bounded by Olive Avenue to the south, R Street to the west, Loughborough Drive, office buildings, and Merced Fire Station 53 to the north, and M Street and office buildings to the east.

Regional vehicular access to the project site is provided via Olive Avenue, while local access is provided via R Street, M Street, and Loughborough Drive. In addition, State Route (SR-59) is located to the west of the project site and SR-99 is located to the south and east of the project site. Figure 1-1 illustrates the regional and project location. (Figures and tables are located at the end of each chapter.)

Merced Mall is a single-level enclosed shopping center with Sears, JC Penney, and Kohl's department stores. In addition, a Target store is located near the northeast corner of the project site. A seven-screen United Artists Theater currently exists on the east side of the project site, which is not attached to the main shopping center building. A Michael's Arts and Crafts store is located adjacent to the theater within the project site.

The project applicant proposes to improve the project site by increasing leasable retail area and constructing a new movie theater at one of two possible locations within the project site. Both movie theater locations are described below and, upon further consideration, the project applicant will select one alternative to construct and operate.

1.1.1 Building Program

Phase I

Phase I of the proposed project would expand the buildings located along the southern elevation of the shopping center south toward West Olive Avenue by an additional 80 feet. This would increase the gross leasable area (GLA) of the project site by approximately 50,000 square feet. The vacant retail space east of the main mall entrance (previously occupied by CVS) would be reconfigured and leased to new retailers and restaurants, some of which would have storefronts facing the parking lot adjacent to West Olive Avenue. The southern parking lot would be reconfigured, repaved, restriped, and relandscaped. As a result of the increase in GLA and reconfigured parking, the total parking within the project site under Phase I would decrease by 232 parking spaces for a total of 2,867 parking spaces. Figure 1-2 shows the proposed expansion site plan for Phase I.

Phase II

Phase II of the proposed project would include construction of a 72,000-square foot movie theater with 14 screens and containing up to 3,000 seats. The project applicant has proposed two

alternatives under Phase II, which would result in the location of the new movie theater at one of two locations within the project site.

Alternative I. Phase II Alternative I (Alternative I) would add an at-grade 72,000-square foot theater between the existing JC Penny and Kohl's stores in the main shopping center building. In addition, this phase would remove the enclosed mall roof between JC Penney and Kohl's, and would result in a pedestrian mall and open courtyard in front of the new theater.

As with the completion of Phase I, the total number of parking spaces within the project site will be 2,867. Figure 1-3 shows the proposed expansion site plan for Phase II Alternative I.

Alternative II. Phase II Alternative II (Alternative II) would demolish the existing United Artists Theater and two retail stores located along the eastern boundary of the project site, and would construct a 72,000-square foot at-grade theater at that location. The existing theater is approximately 22,680 square feet (with seven screens) and the existing retail stores are approximately 25,416 square feet.

Construction of Alternative II would include reconfigured parking for the theater. The existing 3,099 parking spaces would decrease by 124 parking spaces under Alternative II, resulting in a total of 2,975 parking spaces under Alternative II buildout. Figure 1-4 shows the proposed expansion site plan for Alternative II.

1.2 TRAFFIC STUDY SCOPE

This report is intended to satisfy the requirements established by the City of Merced guidelines, as well as the requirements for the disclosure of potential impacts and mitigation measures pursuant to the California Environmental Quality Act (CEQA). The scope of work for this TIA, including study area and analysis methodologies have been approved by City staff.

This study examines traffic operations in the vicinity of the proposed project under the following seven scenarios:

- Existing conditions;
- Existing with project Phase I conditions;
- Existing with project Phase I and Phase II conditions Alternative I;
- Existing with project Phase I and Phase II conditions Alternative II;
- Cumulative (future short-term year, corresponding to project opening) without project conditions;
- Cumulative with project Phase I and Phase II conditions Alternative I; and
- Cumulative with project Phase I and Phase II conditions Alternative II.

Traffic conditions were examined for the weekday daily, a.m., and p.m. peak hour conditions. The a.m. peak hour is defined as the one hour of highest traffic volumes occurring between 7:00 and

9:00 a.m. The p.m. peak hour is the one hour of highest traffic volumes occurring between 4:00 and 6:00 p.m.

1.3 STUDY AREA

The analysis addresses the operations of 11 study intersections, as directed by City staff. The study area consists of the following intersections:

1.3.1 Study Intersections

1. R Street/Loughborough Drive;
2. R Street/99 Cents Stores Driveway–Mall Driveway 1;
3. R Street/Olive Avenue;
4. R Street/Olivewood Drive;
5. Mall Driveway 2–Pepperwood Lane/Olive Avenue;
6. Laurel Glenn Apartments Driveway–Mall Driveway 3/Loughborough Drive;
7. Mall Driveway 4–Applewood Lane/Olive Avenue;
8. M Street/Loughborough Drive–Collins Drive;
9. M Street/Fairfield Drive;
10. M Street/Olive Avenue; and
11. M Street/Olivewood Drive.

Figure 1-5 illustrates the locations of all analysis intersections.

1.3.2 Roadway Segments

The study area includes the following roadway segments identified by City staff:

Olivewood Drive

1. Between Meadows Avenue and R Street; and
2. Between R Street and M Street.

R Street

3. Between Loughborough Drive and Olive Avenue.

Loughborough Drive

4. Between R Street and M Street.

Olive Avenue

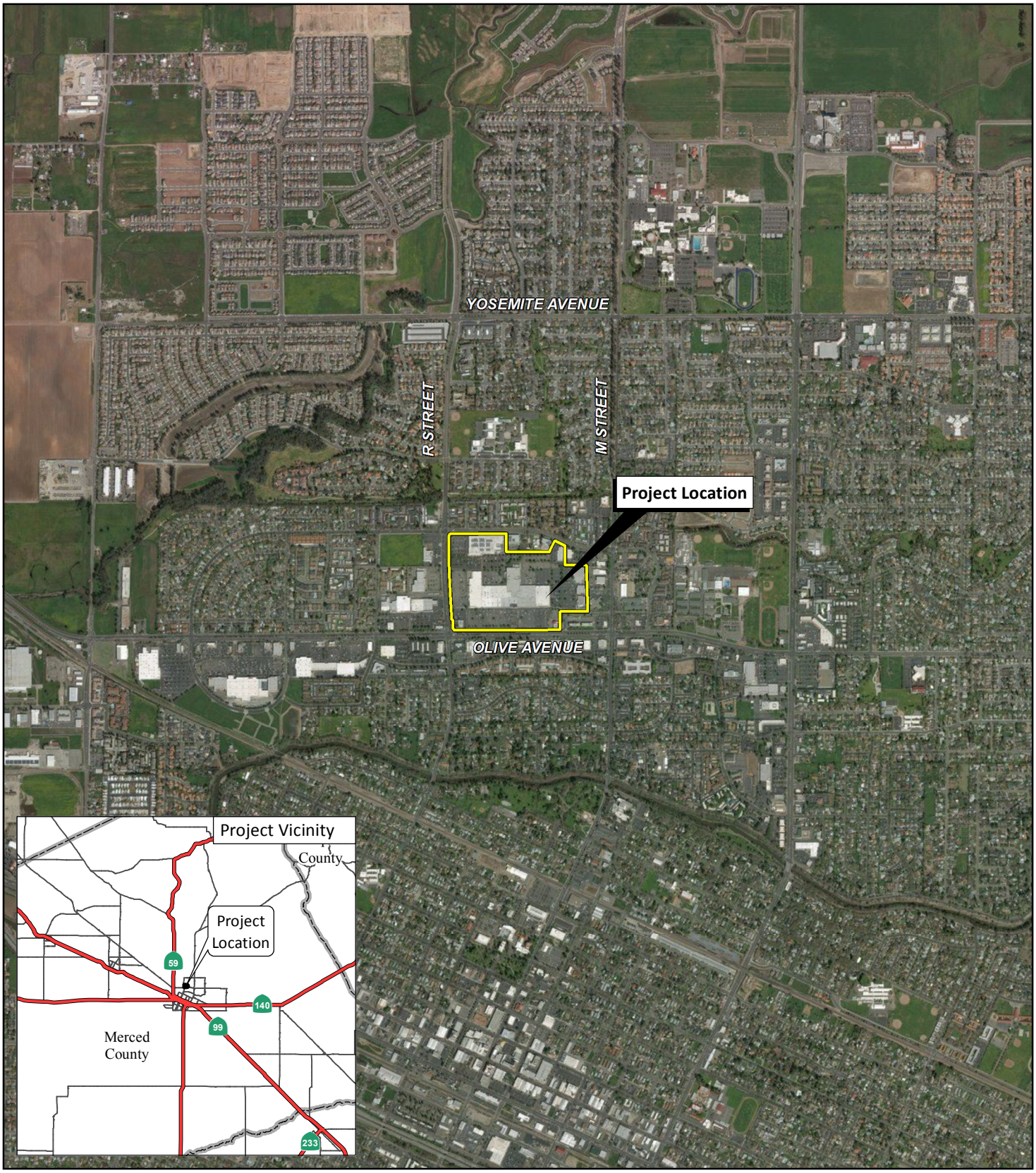
5. Between R Street and M Street.

M Street

6. Between Loughborough Drive/Collins Drive and Olive Avenue.

1.4 LIST OF CHAPTER 1.0 FIGURES

- Figure 1-1: Regional and Project Location
- Figure 1-2: Phase I Expansion Site Plan
- Figure 1-3: Phase II Alternative I Expansion Site Plan
- Figure 1-4: Phase II Alternative II Expansion Site Plan
- Figure 1-5: Study Area Intersections



LSA

FIGURE 1-1

N

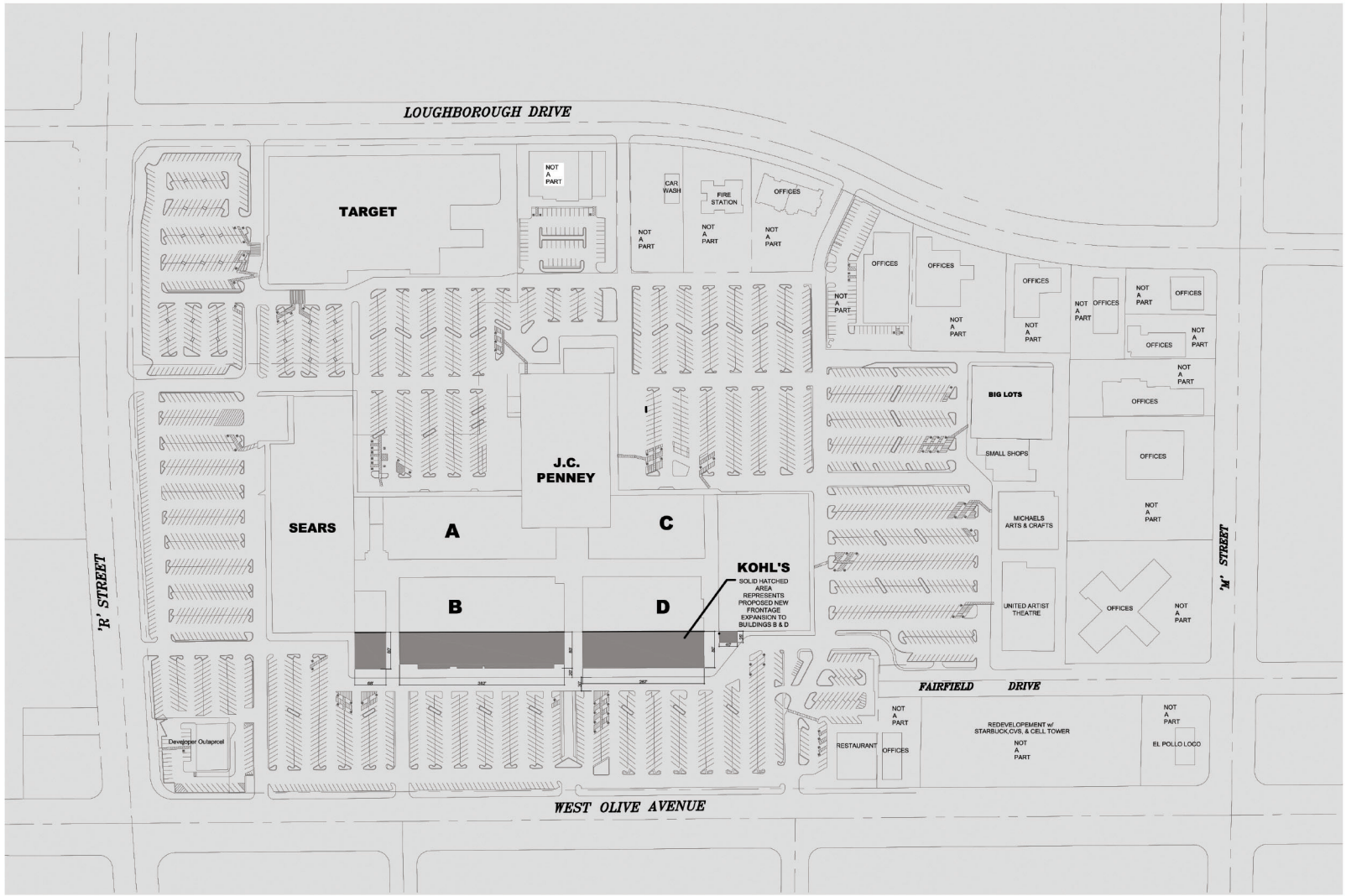
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Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

Regional and Project Location

SOURCE: Bing Aerial, 2017; ESRI Streetmap, 2013.

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LSA

FIGURE 1-2

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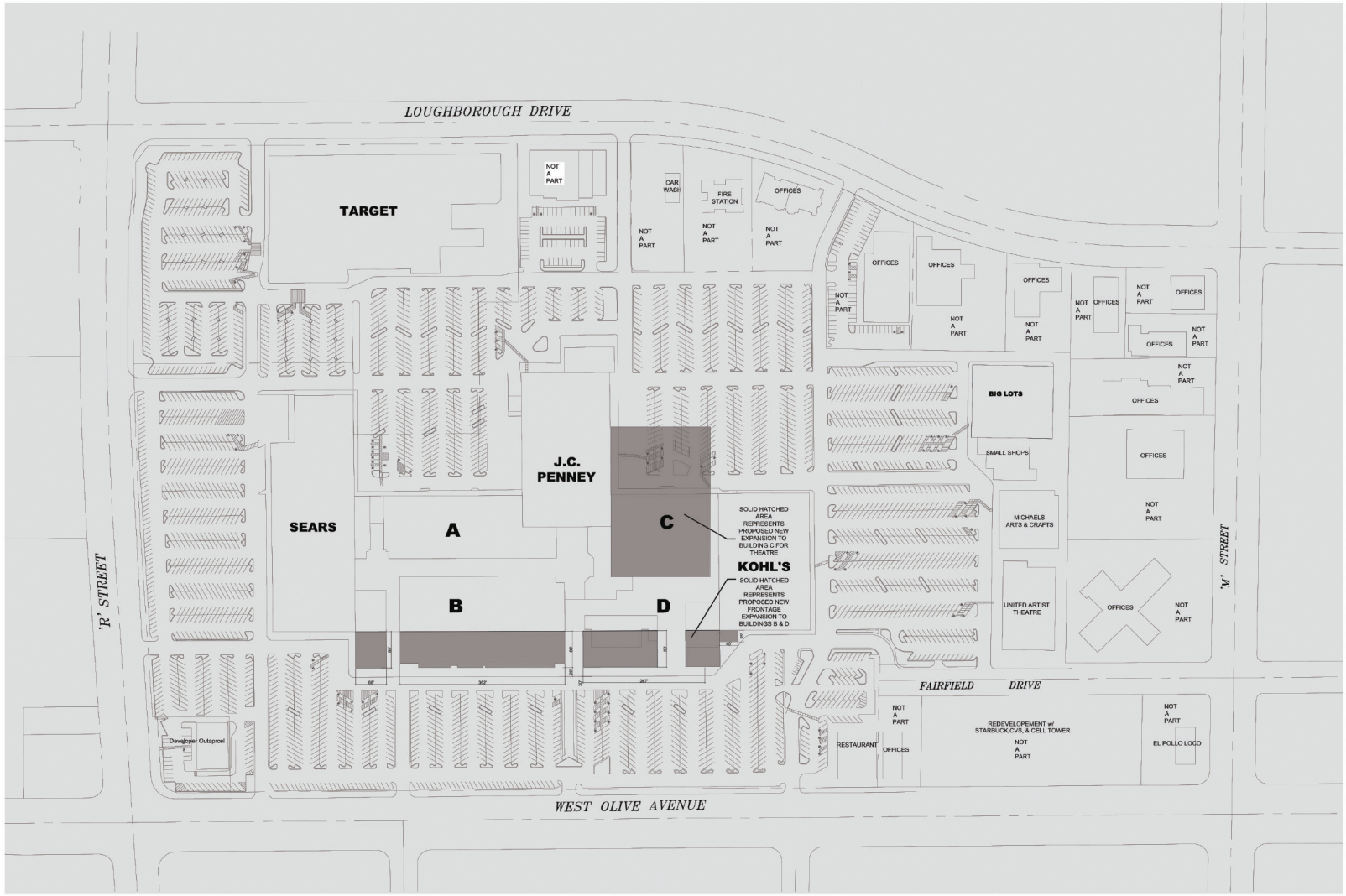
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SOURCE: Codding

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Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

Phase I Expansion Site Plan



LSA

FIGURE 1-3

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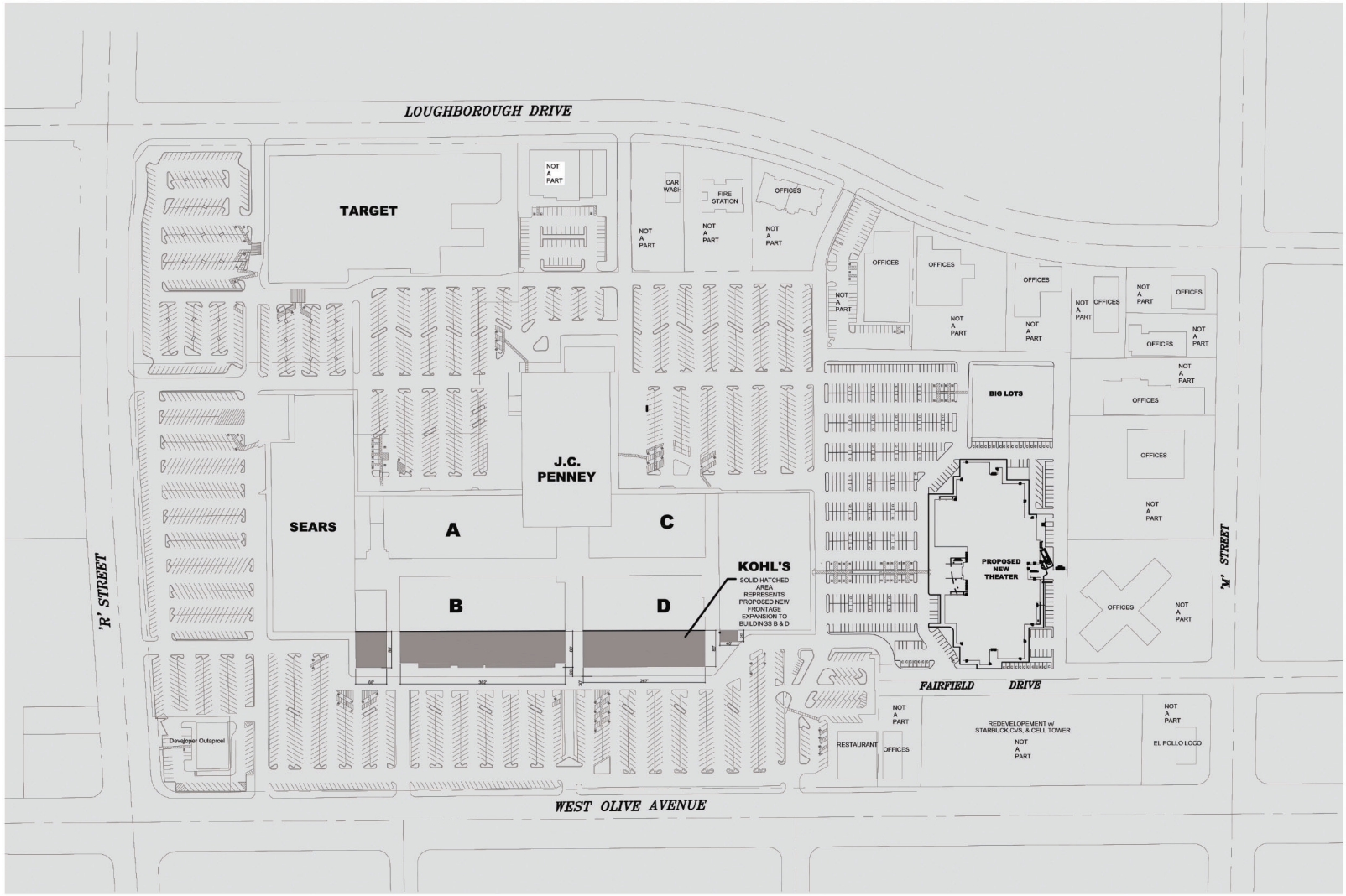
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Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

Phase II Alternative I Expansion Site Plan



LSA

FIGURE 1-4

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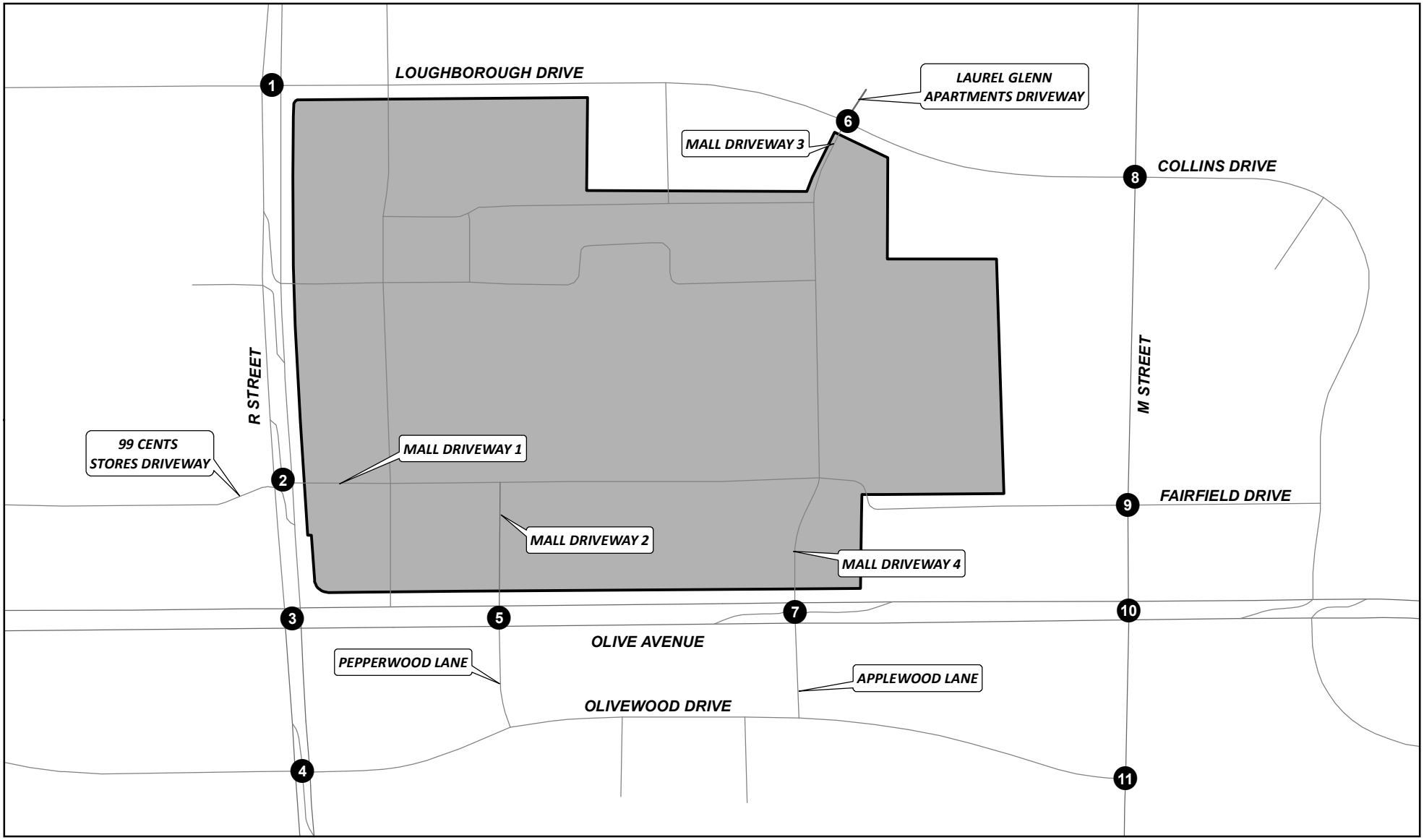
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Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

Phase II Alternative II Expansion Site Plan



LSA

LEGEND

Merced Mall

Study Intersections

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SOURCE: ESRI Streetmap, 2013.

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FIGURE 1-5

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

Study Area Intersections

2.0 ANALYSIS METHODOLOGY

2.1 LEVEL OF SERVICE DEFINITIONS AND PROCEDURES

Roadway operations and the relationship between capacity and traffic volumes are generally expressed in terms of levels of service (which are defined using the letter grades A through F). These levels recognize that, while an absolute limit exists as to the amount of traffic traveling through a given intersection (the absolute capacity), the conditions that motorists experience rapidly deteriorate as traffic approaches the absolute capacity. Under such conditions, congestion is experienced. There is general instability in the traffic flow, which means that relatively small incidents (e.g., a momentary engine stall) can cause considerable fluctuations in speeds and delays. This near-capacity situation is labeled Level of Service (LOS) E. Beyond LOS E, capacity has been exceeded, and arriving traffic will exceed the ability of the intersection to accommodate it. An upstream queue will then form and continue to expand in length until the demand volume again declines.

A complete description of the meaning of level of service can be found in the Transportation Research Board Special Report 209, *Highway Capacity Manual* (HCM).[1] The HCM establishes levels of service A through F for intersections and roadways as shown in Tables 2-A and 2-B, respectively. Table 2-C shows the level of service criteria for unsignalized and signalized intersections.

For all study area intersections (except the intersections of Mall Driveway 2–Pepperwood Lane/Olive Avenue, and Mall Driveway 4–Applewood Lane/Olive Avenue), the *Highway Capacity Manual 6* (HCM 6)[2] analysis methodologies were used to determine intersection levels of service. Intersection LOS was calculated using the Synchro 10 software, which uses HCM 6 methodologies.

For the intersections of Mall Driveway 2–Pepperwood Lane/Olive Avenue, and Mall Driveway 4–Applewood Lane/Olive Avenue, there are more than three through lanes on the major street approaches. Synchro does not generate a LOS for such intersections, as they cannot be analyzed using HCM 6 analysis methodologies. Therefore, these two intersections were analyzed using the Traffix software, which uses HCM 2000 methodologies.

As for roadway segments, the *Merced Vision 2030 General Plan* (General Plan),[3] adopted January 2012, presents daily traffic volume LOS thresholds that can be employed on a planning level basis. These values are illustrated in Table 2-D.

2.2 SIGNIFICANCE STANDARDS

All study intersections and roadway segments are under the jurisdiction of the City of Merced. At study intersections under the jurisdiction of the City, the determination of a significant circulation impact is based on the criteria contained in the General Plan.

---

1 Transportation Research Board. *Transportation Research Board Special Report 209: Highway Capacity Manual, 3rd Edition.*

2 Transportation Research Board. *Highway Capacity Manual, Sixth Edition: A Guide for Multimodal Mobility Analysis..*

3 City of Merced, January 2012. *Merced Vision 2030 General Plan.*

Action T-1.8.b of the City's General Plan establishes LOS D as the acceptable level of service standard for intersections and roadways. Action T-1.8.b states:

> *Use peak-hour Level of Service "D" ("Tolerable Delays") as the design standard for new streets and intersections in new growth areas.*
>
> *The preferred LOS levels are typically "C" and "D," particularly for larger roads and major intersections. With LOS C, the road provides stable operation but is still underutilized to some degree. LOS D represents a fine balance between the relatively large number of vehicles served and the generally acceptable level of service provided. It is the intent of the City's standards and policies for new and most upgraded intersections and road segments to be designed and built so as not to drop below LOS D ("tolerable delay") during peak traffic periods.*[1]

However, in certain cases, deviations are allowed as stated in Action T-1.8.c of the General Plan. Action T-1.8.c states:

> *Establish minimum Level of Service standards for existing roadways and intersections that reflect the special circumstances of the surrounding area. For example, in the downtown area or adjacent to interchanges in build-out areas, LOS E or F would be acceptable if roadway widening conflicts with other General Plan policies or significant right-of-way acquisition, which would be severely disruptive to adjacent development, is required.*
>
> *Maintaining a LOS D on existing roadways and intersections is not always feasible, appropriate, or necessary. People may expect and tolerate varying levels of congestion depending on location (e.g. central Merced) and time of day. Heavier traffic can also be a reason to encourage greater pedestrian activity and heavier transit use in such areas. Other factors may make higher levels of service infeasible. In Central Merced, for example, widening existing streets could create great disruption to stable, older neighborhoods. In these areas, "significant delays" (LOS E) or even LOS F may have to be acceptable at peak hours. Special studies may be necessary to determine the appropriate LOS standards in such areas.*[2]

Therefore, in this TIA, it has been considered that a significant project impact occurs at study intersections or roadway segments when the peak hour LOS falls below the City's LOS standard, LOS D (to E or F), or the project contributes to an existing or forecast deficiency. However, based on discussions with City staff and the policy stated in Action T-1.8.c of the General Plan, LOS E and F have also been considered to be acceptable for some study intersections and roadway segments, as the area around Merced Mall is dense with heavy existing traffic, making road widening and other mitigations difficult.

2.3 LIST OF CHAPTER 2.0 TABLES

- Table 2-A: Level of Service Definitions for Intersections
- Table 2-B: Level of Service Definitions for Roadway Segments
- Table 2-C: Level of Service Criteria for Unsignalized and Signalized Intersections

1 Ibid.
2 Ibid.

- Table 2-D: Level of Service Thresholds for Roadway Segments

Table 2-A: Level of Service Definitions for Intersections

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

Table 2-B: Level of Service Definitions for Roadway Segments

LOS	Description
A	Describes primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control Delay at the boundary intersection is minimal. The travel speed exceeds 85% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
B	Describes reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted, and control delay at the boundary is not significant. The travel speed is between 67% and 85% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
C	Describes stable operation. The ability to maneuver and change lanes at mid-segment locations may be more restricted than at LOS B. Longer queues at the boundary intersection may contribute to lower travel speeds. The travel speed is between 50% and 67% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
D	Indicates a less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volume, or inappropriate signal timing at the boundary intersection. The travel speed is between 40% and 50% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
E	Characterized by unstable operation and significant delay. Such operations may be due to some combination of adverse progression, high volume, and inappropriate signal timing at the boundary intersection. The travel speed is between 30% and 40% of the base free-flow speed, and the volume-to-capacity ratio is no greater than 1.0.
F	Characterized by flow at extremely low speed. Congestion is likely occurring at the boundary intersection, as indicated by high delay and extensive queuing. The travel speed is between 30% or less of the base free-flow speed, and the volume-to-capacity ratio is greater than 1.0.

Table 2-C: Level of Service Criteria for Unsignalized and Signalized Intersections

Level of Service	Unsignalized Intersection Average Delay per Vehicle (sec.)	Signalized Intersection Average Delay per Vehicle (sec.)
A	≤ 10	≤ 10
B	> 10 and ≤ 15	> 10 and ≤ 20
C	> 15 and ≤ 25	> 20 and ≤ 35
D	> 25 and ≤ 35	> 35 and ≤ 55
E	> 35 and ≤ 50	> 55 and ≤ 80
F	> 50	> 80

Table 2-D: Level of Service Thresholds for Roadways Segments

Functional Classification	LOS A Threshold	LOS B Threshold	LOS C Threshold	LOS D Threshold	LOS E Threshold
2-Lane Expressway	—	—	16,800	23,200	24,400
4-Lane Expressway	—	3,000	27,800	36,000	37,800
6-Lane Expressway	—	5,900	38,900	48,900	51,300
8-Lane Expressway	—	9,600	60,600	73,500	77,100
2-Lane Highway	2,300	7,600	14,200	20,000	27,400
4-Lane Highway	20,500	33,200	48,000	62,200	70,600
2-Lane County Road	—	—	7,700	15,000	16,100
4-Lane County Road	—	—	18,000	32,200	34,000
2-Lane Arterial	—	—	11,600	16,000	16,800
4-Lane Arterial	—	4,100	26,800	33,700	35,400
6-Lane Arterial	—	6,600	41,800	50,700	53,200
2-Lane Collector	—	—	4,800	10,300	13,200
4-Lane Collector	—	—	11,300	22,200	26,400

Source: *Merced Vision 2030 General Plan*, January 2012

3.0 CIRCULATION NETWORK SETTING

3.1 EXISTING ROADWAY SETTING

Figure 3-1 illustrates existing study intersection geometrics and traffic control. Table 3-A summarizes the classifications and the number of mid-block arterial lanes on major roadways in the study area. Following is a brief description of major roadways within the TIA study area:

- R Street: Based on the City's General Plan, R Street is designated as a Minor Arterial within the study area. Between Loughborough Drive and Olive Avenue, R Street is a four-lane divided road with a raised median. Bicycle lanes are present on both sides of the segment.
- Loughborough Drive: Based on the City's General Plan, Loughborough Drive is designated as a Collector Street within the study area. Between R Street and M Street, Loughborough Drive is a two-lane divided street with a two-way left-turn lane. There is provision for on-street parking on both sides of the segment.
- Olive Avenue: Based on the City's General Plan, Olive Avenue is designated as a Divided Arterial. Within the study area, Olive Avenue is a seven-lane divided road (four westbound lanes and three eastbound lanes) with a raised median.
- M Street: Based on the City's General Plan, M Street is designated as a Minor Arterial within the study area. Between Loughborough Drive and Olive Avenue, M Street is a four-lane divided road, with a two-way left-turn lane in the northern part of the segment and a raised median in the southern part. Bicycle lanes are present on both sides of the segment.

3.2 ALTERNATIVE TRANSPORTATION MODES

3.2.1 Pedestrians

Sidewalks are present all along the Merced Mall perimeter (R Street, Olive Avenue, M Street, and Loughborough Drive), making it easily accessible for pedestrians.

3.2.2 Transit

The Bus, Merced's regional transit system, provides transit service to the project site. Six stops along Loughborough Drive between R Street and M Street provide stops for five routes; Merced Routes (M1, M2, M3, and W2) and Livingston Route (L). Two stops along R Street between Loughborough Drive and Olive Avenue provide stops for the W2 and L Routes. Two other stops along M Street between Loughborough Drive and Olive Avenue provide stops for the UC Merced Route. All these stops are easily accessible within approximately a quarter mile of the project.

3.2.3 Bicycles

The City's General Plan includes the Bicycle Transportation Plan, which identifies existing and proposed bikeways. While off-street bikeways are classified as Class I (Bike Paths or Bike Trails), on-street bikeways are classified as either Class II (Bike Lanes) or Class III (Bike Routes). At present, Bike Lanes exist along either side of both R Street and M Street.

3.3 LIST OF CHAPTER 3.0 FIGURES AND TABLES

- Figure 3-1: Study Intersection Geometrics and Traffic Control
- Table 3-A: Roadway Segment Classification

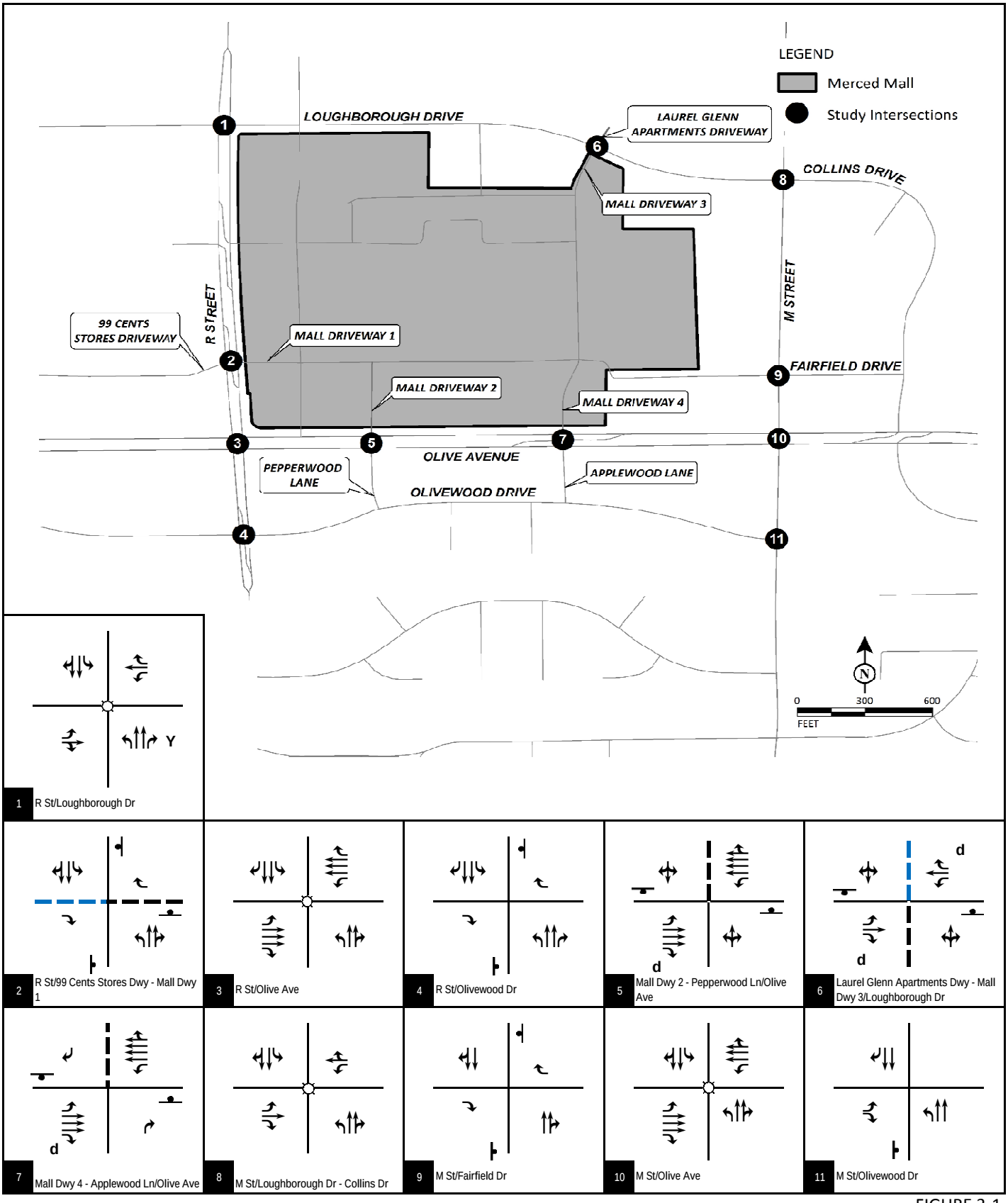


FIGURE 3-1

LSA

Legend

- Signal
- Stop Sign
- d Defacto Right Turn
- Merced Mall Driveway
- Other Driveway
- Y Yield

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

Study Intersection Geometrics and Traffic Control

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LSA

Table 3-A - Roadway Segment Classification

Roadway	#	Segment	Existing Condition Number of Lanes	Functional Classification[1]
Olivewood Drive	**1**	Olivewood Drive, between Meadows Avenue and R Street	2	2-Lane Local Street
	2	Olivewood Drive, between R Street and M Street	2	2-Lane Local Street
R Street	**3**	R Street, between Loughborough Drive and Olive Avenue	4	4-Lane Minor Arterial
Loughborough Drive	**4**	Loughborough Drive, between R Street and M Street	2	2-Lane Collector Street
Olive Avenue	**5**	Olive Avenue, between R Street and M Street	7	7-Lane Divided Arterial
M Street	**6**	M Street, between Loughborough Drive/Collins Drive and Olive Avenue	4	4-Lane Minor Arterial

Notes:

[1]Functional Classification obtained from the *Merced Vision 2030 General Plan* , dated January 2012.

4.0 TRAFFIC VOLUMES WITHOUT PROJECT SCENARIOS

4.1 EXISTING TRAFFIC VOLUMES

Existing roadway and intersection traffic volumes are based on counts collected by National Data and Surveying Services. Daily tube counts were collected for roadway segments while a.m. and p.m. peak hour turning movement counts were collected at study intersections. All counts were conducted on Tuesday, June 5, 2018, when elementary, middle, and high schools were in session. There were no adverse weather conditions, construction activities, or accidents/incidents that would have altered the traffic conditions or volumes in the project vicinity during the day of the counts. Detailed count sheets are contained in Appendix A.

Figure 4-1 illustrates existing peak hour traffic volumes at study intersections. Table 4-A summarizes the existing daily traffic volumes.

4.2 CUMULATIVE (2023) WITHOUT PROJECT TRAFFIC VOLUMES

According to the project applicant, the first phase of the project will be open by the year 2021, while the second phase will be open by the year 2023. To present a cumulative (2023) traffic condition, a regional ambient growth rate of 1 percent per annum was identified by City staff and traffic volumes from approved/pending projects were developed, both of which were added to the existing traffic counts.

City Planning staff provided information for cumulative projects in the vicinity of the proposed project. Table 4-B lists the cumulative projects included in this analysis. Figure 4-2 illustrates the cumulative project locations. The trip generation for cumulative projects was developed using rates from the Institute of Transportation Engineers (ITE).[1] As shown in Table 4-B, cumulative projects are expected to generate 3,399 daily trips, with 237 trips occurring during the a.m. peak hour and 277 trips occurring during the p.m. peak hour. Project trips for these cumulative projects were assigned to the roadway network based on their location in relation to surrounding land uses and regional arterials. Figure 4-3 illustrates peak hour cumulative project trips at study area intersections. Figure 4-4 illustrates peak hour traffic volumes at study intersections under cumulative without project conditions. Table 4-C summarizes the cumulative without project daily volumes for study area roadway segments.

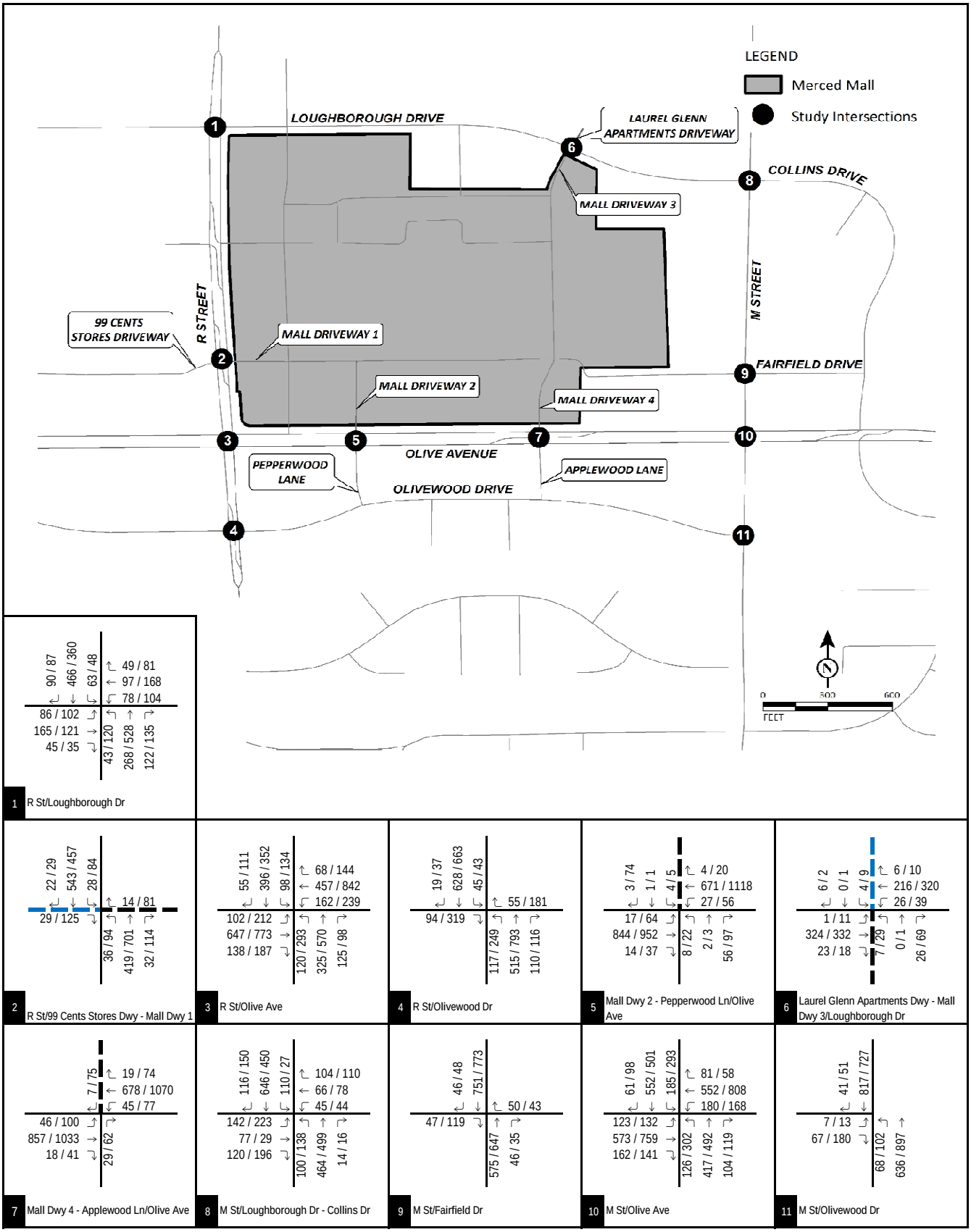
Detailed volume development worksheets are included in Appendix B.

4.3 LIST OF CHAPTER 4.0 FIGURES AND TABLES

- Figure 4-1: Existing Peak Hour Traffic Volumes
- Figure 4-2: Cumulative Project Locations
- Figure 4-3: Cumulative Project Trips
- Figure 4-4: Cumulative (2023) without Project Peak Hour Traffic Volumes

[1] Institute of Transportation Engineers (ITE), September 2017. *Trip Generation Manual*, 10th Edition.

- Table 4-A: Existing Daily Traffic Volumes
- Table 4-B: Cumulative Projects Trip Generation
- Table 4-C: Cumulative (2023) Daily Traffic Volumes



LSA

FIGURE 4-1

XXXX / YYYY
AM / PM Peak Hour Traffic Volumes
---- Merced Mall Driveway
---- Other Driveway

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis
Existing Peak Hour Traffic Volumes

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LEGEND

Merced Mall

Cumulative Project

N

0 750 1500

FEET

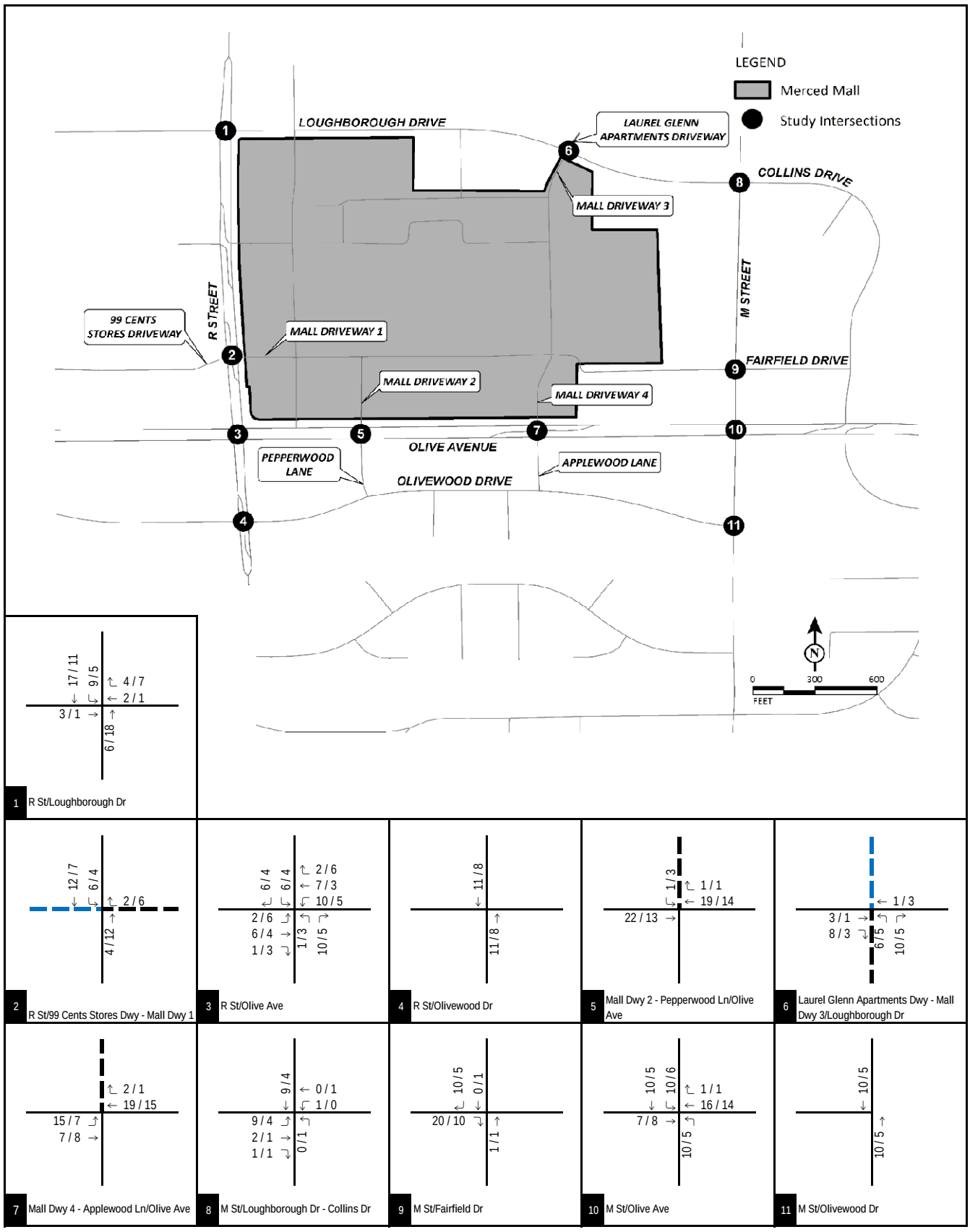
SOURCE: Bing Aerial, 2017; ESRI Streetmap, 2013.

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FIGURE 4-2

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

Cumulative Project Locations



LSA

FIGURE 4-3

XX / YY
AM / PM Peak Hour Traffic Volumes
---- Merced Mall Driveway
---- Other Driveway

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis
Cumulative Project Trips

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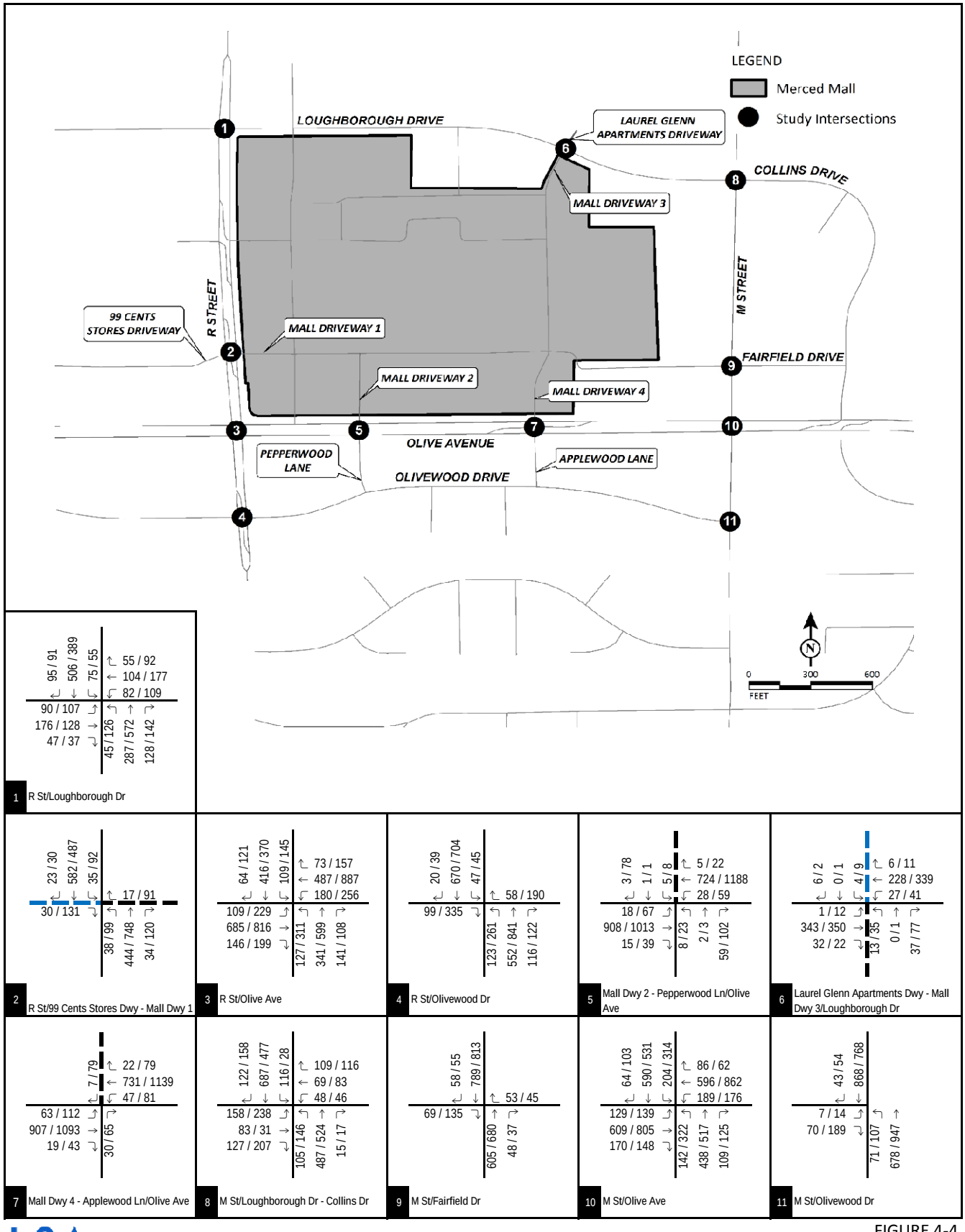


FIGURE 4-4

LSA

XXXX / YYYY
AM / PM Peak Hour Traffic Volumes
---- Merced Mall Driveway
---- Other Driveway

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis
Cumulative (2023) without Project Peak Hour Traffic Volumes

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Table 4-A - Existing Daily Traffic Volumes

Roadway	#	Segment	Existing ADT
Olivewood Drive	**1**	Olivewood Drive, between Meadows Avenue and R Street	6,216
	2	Olivewood Drive, between R Street and M Street	3,640
R Street	**3**	R Street, between Loughborough Drive and Olive Avenue	18,843
Loughborough Drive	**4**	Loughborough Drive, between R Street and M Street	8,377
Olive Avenue	**5**	Olive Avenue, between R Street and M Street	28,460
M Street	**6**	M Street, between Loughborough Drive/Collins Drive and Olive Avenue	18,226

LSA

Table 4-B - Cumulative Projects Trip Generation

Project	Units	A.M. Peak Hour In	A.M. Peak Hour Out	A.M. Peak Hour Total	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour Total	Daily
1. Bianchi/Norcal Cajun Annexation	42.00 TSF							
Trips/Unit[1]		0.58	0.36	0.94	1.83	1.98	3.81	37.75
Trip Generation		24	15	39	77	83	160	1,586
Pass-by Trips[2]		0	0	0	(26)	(28)	(54)	(539)
Net Trip Generation		24	15	39	51	55	106	1,047
2. Shadow Creek at Compass Point (Remaining Lots)	20 DU							
Trips/Unit[3]		0.19	0.55	0.74	0.62	0.37	0.99	9.44
Trip Generation		4	11	15	12	7	19	189
3. Compass Pointe II Apartments	136 DU							
Trips/Unit[4]		0.11	0.35	0.46	0.35	0.21	0.56	7.32
Trip Generation		15	48	63	48	29	77	996
4. Starbucks	2.20 TSF							
Trips/Unit[5]		45.38	43.61	88.99	21.69	21.69	43.38	820.38
Trip Generation		100	96	196	48	48	96	1,805
Pass-by Trips[6]		(49)	(47)	(96)	(24)	(24)	(48)	(893)
Net Trip Generation		51	49	100	24	24	48	912
5. Campus Vista Unit 2 (Remaining Lots)	27 DU							
Trips/Unit[3]		0.19	0.55	0.74	0.62	0.37	0.99	9.44
Trip Generation		5	15	20	17	10	27	255
Total Trip Generation		99	138	237	152	125	277	3,399

Notes:

TSF = Thousand Square Feet; DU = Dwelling Units

[1] Rates based on the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th edition) for Land Use 820 – "Shopping Center", Setting/Location - "General Urban/Suburban."

[2] Pass-by rates from the ITE *Trip Generation Handbook* (3rd Edition) for Land Use 820 - "Shopping Center." A pass-by rate of 34% was used for the p.m. peak hour. No a.m. peak hour and daily pass-by rates are provided; therefore, the p.m. peak hour pass-by rate was used as the daily pass-by rate.

[3] Rates based on the ITE *Trip Generation Manual* (10th Edition) for Land Use 210 – "Single-Family Detached Housing", Setting/Location - "General Urban/Suburban."

[4] Rates based on the ITE *Trip Generation Manual* (10th Edition) for Land Use 220 – "Multifamily Housing (Low-Rise)", Setting/Location - "General Urban/Suburban."

[5] Rates based on the ITE *Trip Generation Manual* (10th Edition) for Land Use 937 – "Coffee/Donut Shop with Drive-Through Window", Setting/Location - "General Urban/Suburban."

[6] Pass-by rates for Land Use 937 – "Coffee/Donut Shop with Drive-Through Window" are not available in the ITE*Trip Generation Handbook* (3rd Edition). Hence, the pass-by rates for Land Use 934 - "Fast-Food Restaurant with Drive-Through Window" were used. A pass-by rate of 49% was used for the a.m. peak hour and a pass-by rate of 50% was used for the p.m. peak hour. No daily pass-by rates are provided; therefore, an average of the a.m. and p.m. peak hour pass-by rates was used as the daily pass-by rate.

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Table 4-C - Cumulative (2023) Daily Traffic Volumes

Roadway	#	Segment	Year 2023 Background Volumes	Cumulative Project Trips	Cumulative Without Project
Olivewood Drive	**1**	Olivewood Drive, between Meadows Avenue and R Street	6,527	0	6,527
	2	Olivewood Drive, between R Street and M Street	3,822	0	3,822
R Street	**3**	R Street, between Loughborough Drive and Olive Avenue	19,785	356	20,141
Loughborough Drive	**4**	Loughborough Drive, between R Street and M Street	8,796	212	9,008
Olive Avenue	**5**	Olive Avenue, between R Street and M Street	29,883	443	30,326
M Street	**6**	M Street, between Loughborough Drive/Collins Drive and Olive Avenue	19,137	194	19,331

5.0 PROJECT TRAFFIC

5.1 PROJECT TRIP GENERATION

The trip generation for the proposed project was developed using ITE rates for Land Uses 820 - "Shopping Center" and 445 - "Multiplex Movie Theater."[1]

Since the project is a mixed-use development, it is estimated that a certain percentage of trips between the land uses will be made within the site and these internal trips do not utilize the major street system. The internal trips can be made either by walking or by vehicles using internal roadways without using external streets. The internal capture rates have been estimated using the Internal Trip Capture Estimation Tool developed by the National Cooperative Highway Research Program (NCHRP).[2] The step-by-step estimation procedure has been illustrated in the spreadsheets provided in Appendix C. The internal capture rate estimated for each land use has been applied to its respective trip generation to determine the number of internal trips. Further, the internal trips have been subtracted from the trip generation to establish the total external trips for each land use.

As for Alternative II, trip generation was developed for the existing on-site uses to be demolished using ITE rates for Land Uses 820 - "Shopping Center" and 444 - "Movie Theater."[3] As shown in Table 5-B, the demolished uses generate 2,461 daily trips, with 24 trips occurring during the a.m. peak hour and 191 trips occurring during the p.m. peak hour. After adjusting these trips, the proposed project is anticipated to generate 2,431 net daily trips, with 23 trips occurring during the a.m. peak hour and 176 trips occurring during the p.m. peak hour.

5.2 PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

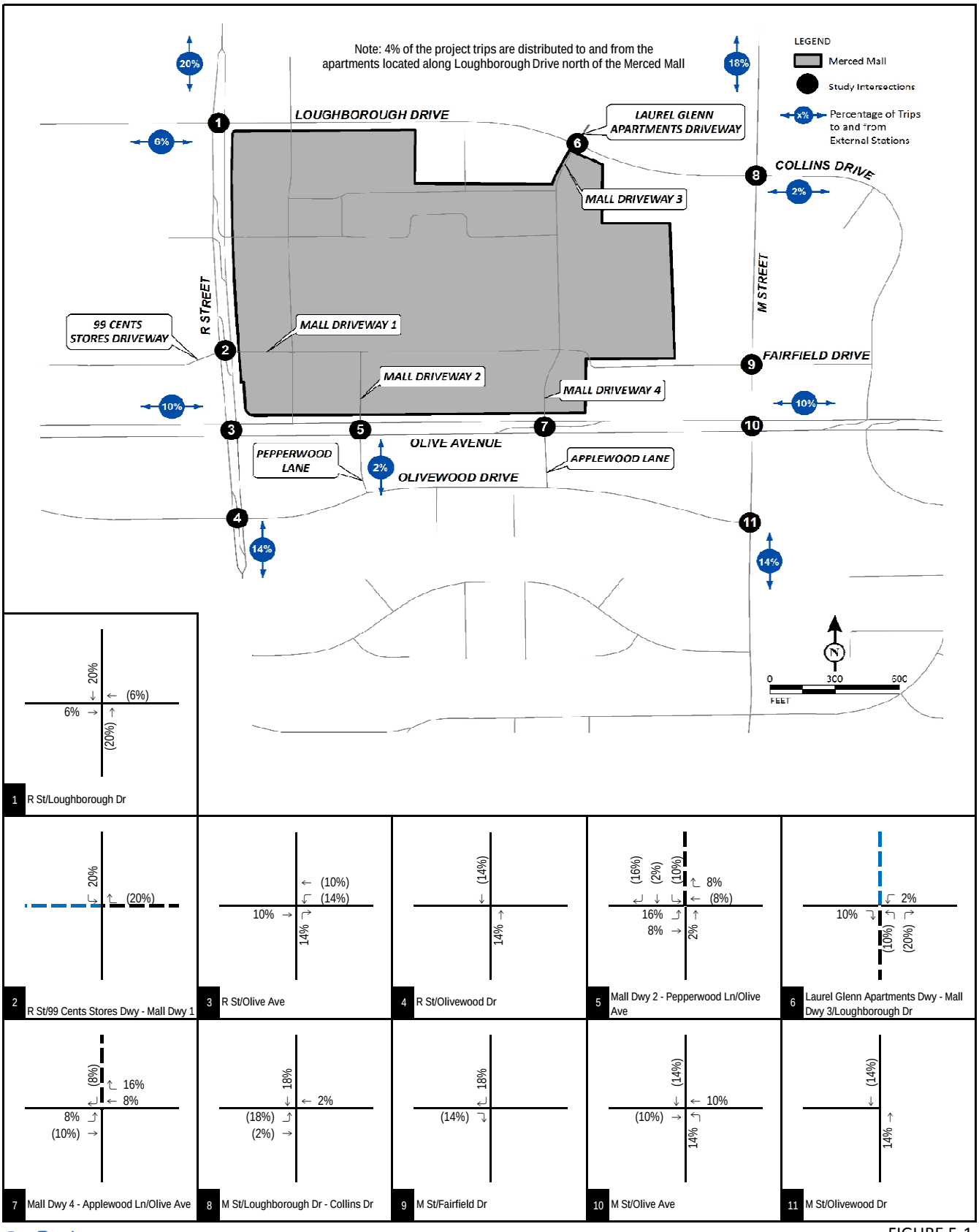
The distribution of project trips was developed based on the regional roadway network and the locations of residential, employment, and commercial centers in relation to the proposed project. Because the location of the retail component of the project is different from that of the theater, whose location also varies in each alternative, separate trip distributions were considered for the retail and the theater (in each alternative). However, a similar regional distribution was followed in each case. Project trips were distributed 42 percent to the north, 30 percent to the south, 12 percent to the east, and 16 percent to the west. Figures 5-1, 5-2, and 5-3 illustrate the trip distributions for the retail and the theater under Alternatives I and II, respectively. Trip assignment for project trips is the product of the project trip generation and the trip distribution percentages. Figures 5-4, 5-5, and 5-6 illustrate the trip assignments for the retail and the theater under Alternatives I and II, respectively. Figures 5-7 and 5-8 illustrate the total trip assignments for Alternatives I and II, respectively.

5.3 LIST OF CHAPTER 5.0 FIGURES AND TABLES

- Figure 5-1: Project Trip Distribution–Retail

1 Institute of Transportation Engineers (ITE), September 2017. *Trip Generation Manual*, 10th Edition.
2 Transportation Research Board. *National Cooperative Highway Research Program Report 684: Enhancing Internal Trip Capture Estimation for Mixed-Use Developments*.
3 Institute of Transportation Engineers (ITE), September 2017. *Trip Generation Manual*, 10th Edition.

- Figure 5-2: Project Trip Distribution–Theater (Alternative I)
- Figure 5-3: Project Trip Distribution–Theater (Alternative II)
- Figure 5-4: Project Trip Assignment–Retail
- Figure 5-5: Project Trip Assignment–Theater (Alternative I)
- Figure 5-6: Project Trip Assignment–Theater (Alternative II)
- Figure 5-7: Phases I and II Total Project Trip Assignment (Alternative I)
- Figure 5-8: Phases I and II Total Project Trip Assignment (Alternative II)
- Table 5-A: Project Trip Generation (Alternative I)
- Table 5-B: Project Trip Generation (Alternative II)



LSA

FIGURE 5-1

XX% (YY%)
Inbound (Outbound) Trip Distribution
---- Merced Mall Driveway
---- Other Driveway

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis
Project Trip Distribution - Retail

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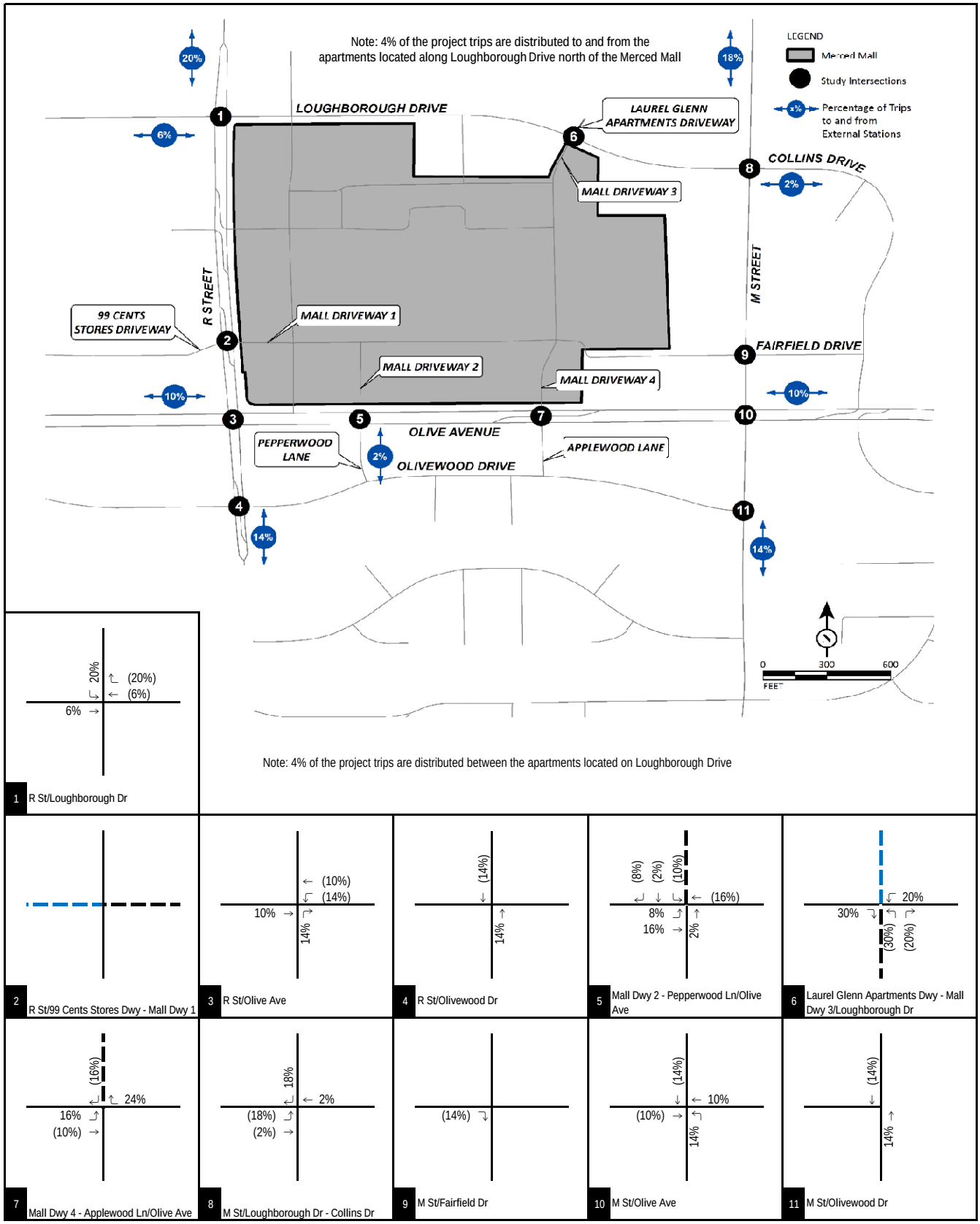


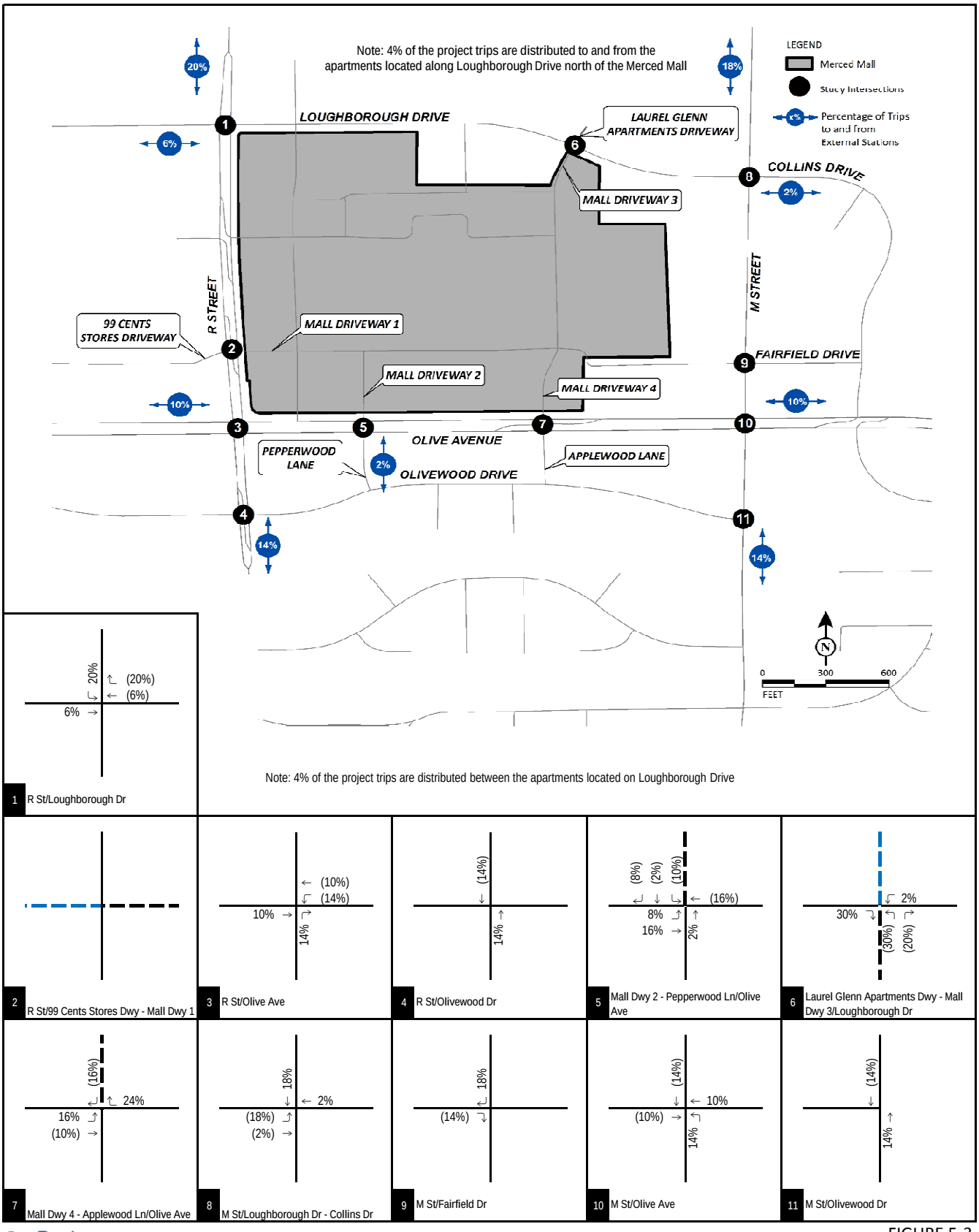
FIGURE 5-2

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XX% (YY%)
Inbound (Outbound) Trip Distribution
---- Merced Mall Driveway
---- Other Driveway

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis
Project Trip Distribution - Theater (Alternative I)

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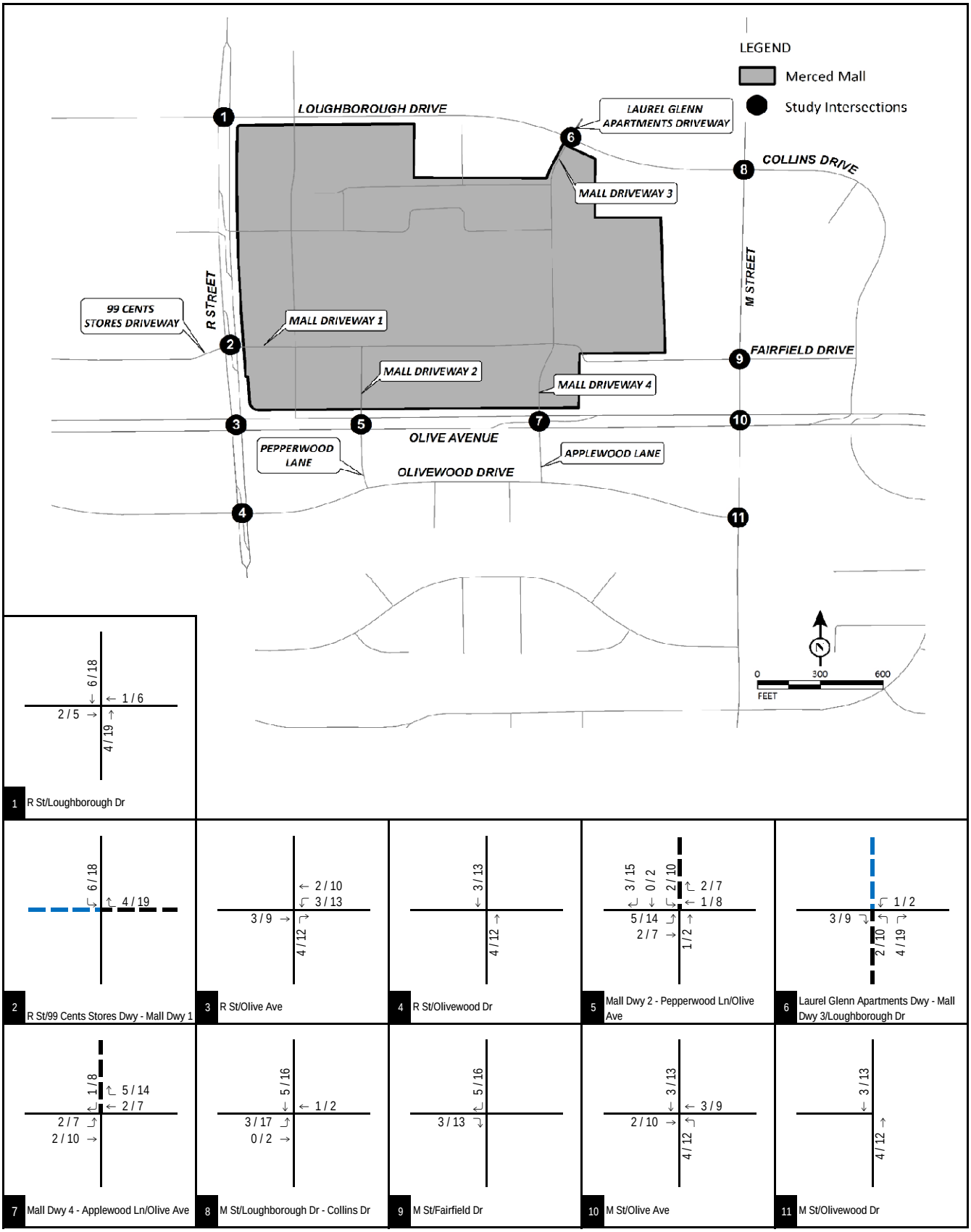
LSA

FIGURE 5-3

XX% (YY%)
Inbound (Outbound) Trip Distribution
---- Merced Mall Driveway
---- Other Driveway

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis
Project Trip Distribution - Theater (Alternative II)

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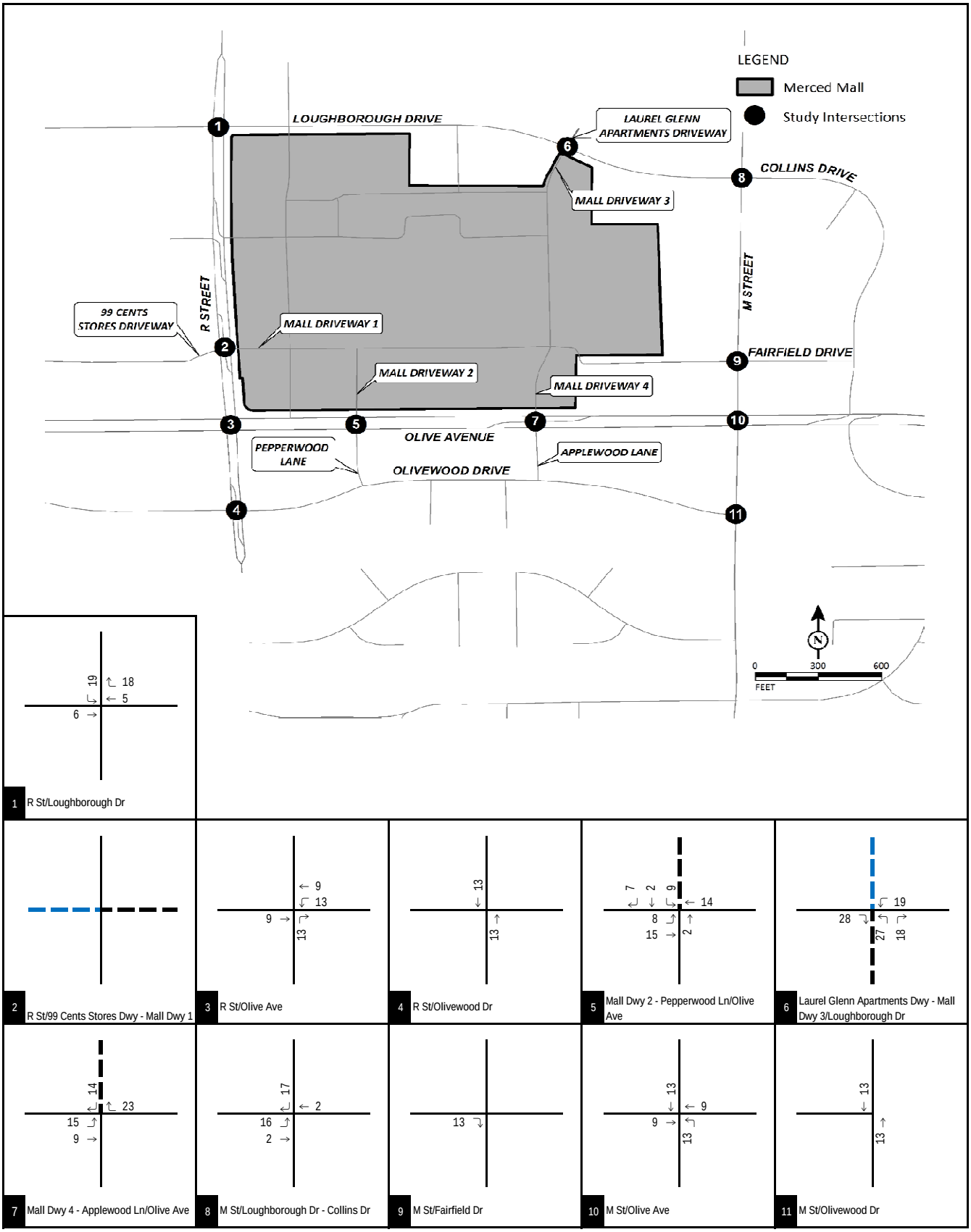
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FIGURE 5-4

XX / YY
AM / PM Peak Hour Traffic Volumes
---- Merced Mall Driveway
---- Other Driveway

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis
Project Trip Assignment - Retail

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FIGURE 5-5

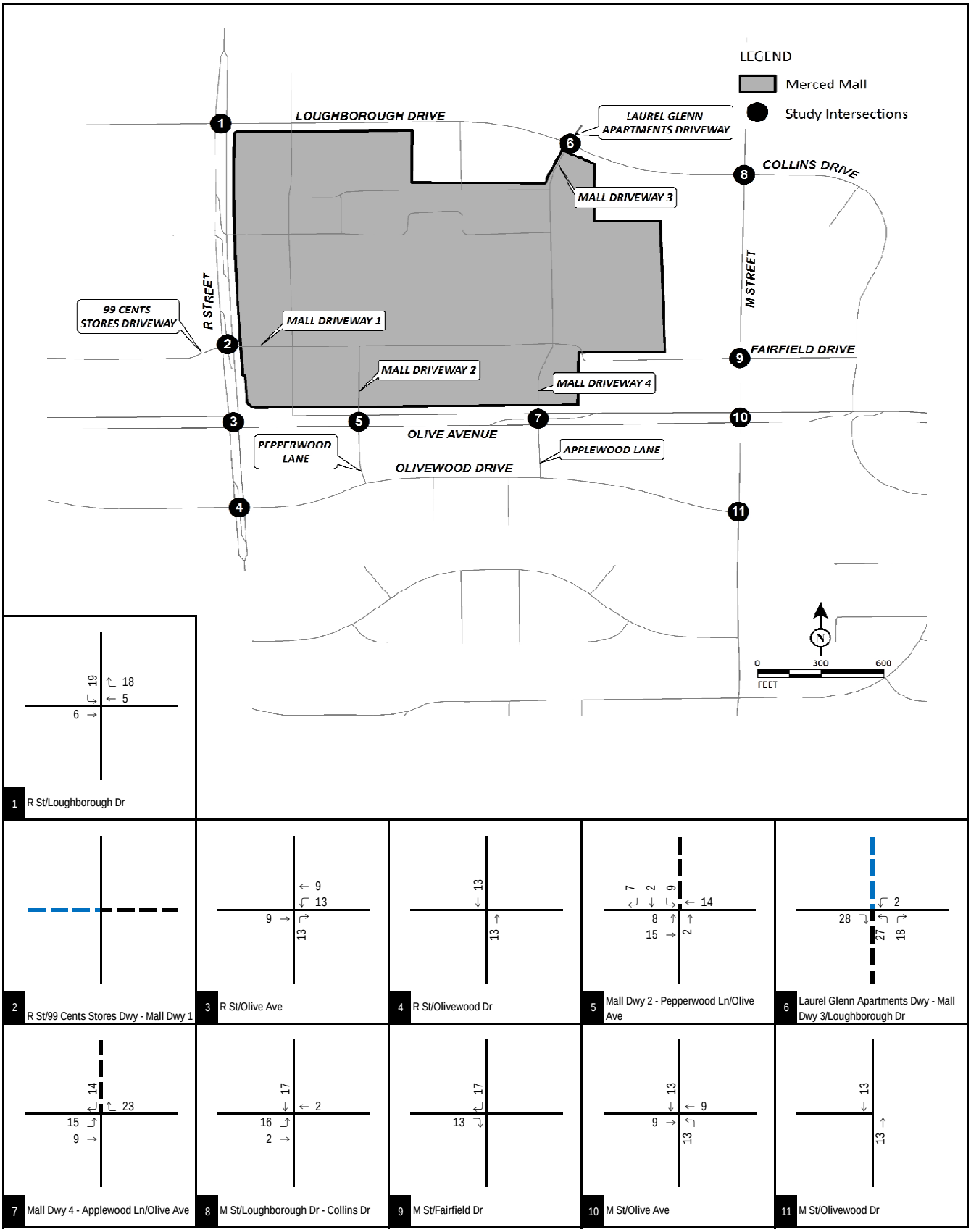
XX
PM Peak Hour Traffic Volumes
---- Merced Mall Driveway
---- Other Driveway

Note: Theater does not have AM Peak Hour Trips

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

Project Trip Assignment - Theater (Alternative I)

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FIGURE 5-6

XX

PM Peak Hour Traffic Volumes

---- Merced Mall Driveway

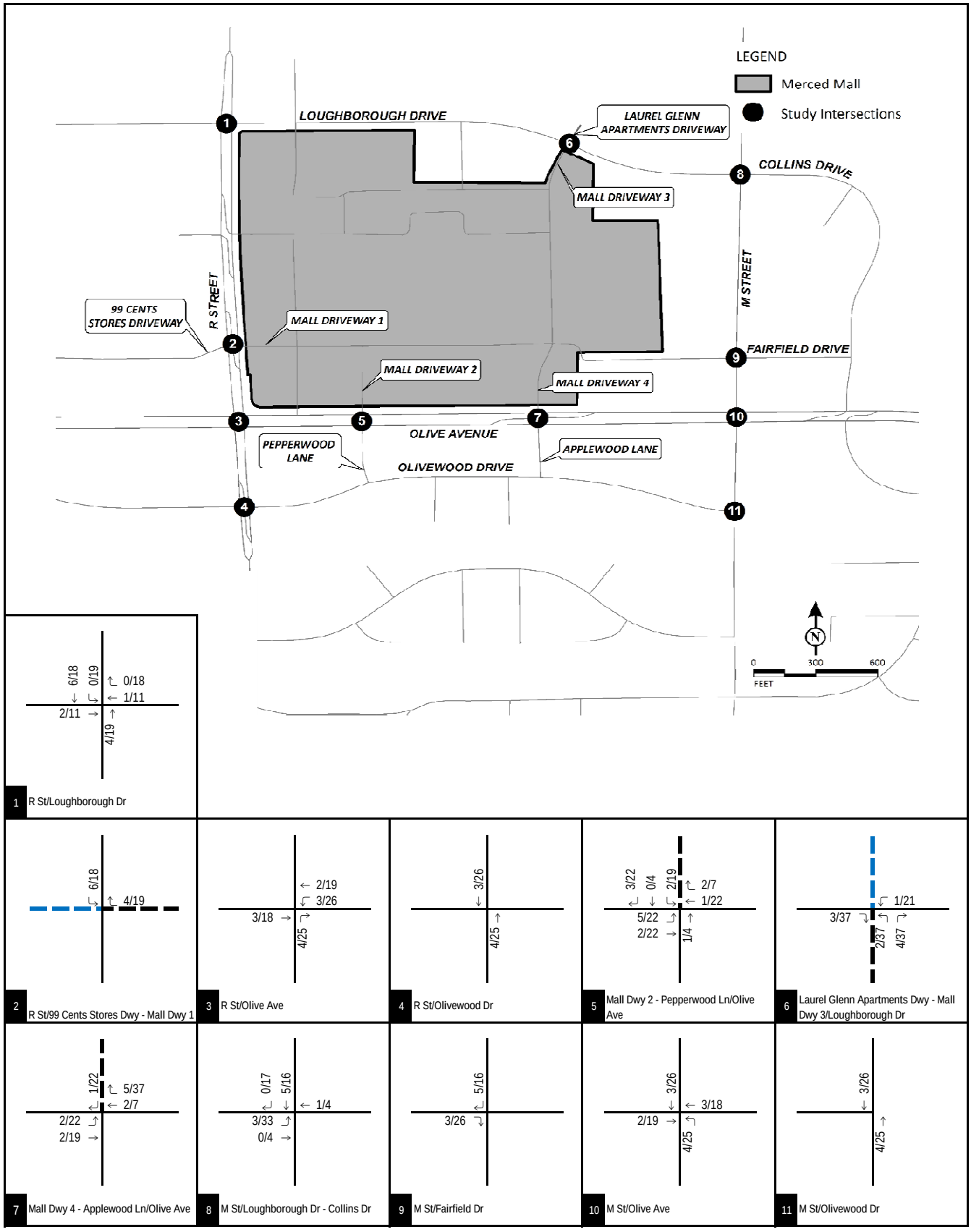
---- Other Driveway

Note: Theater does not have AM Peak Hour Trips

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

Project Trip Assignment - Theater (Alternative II)

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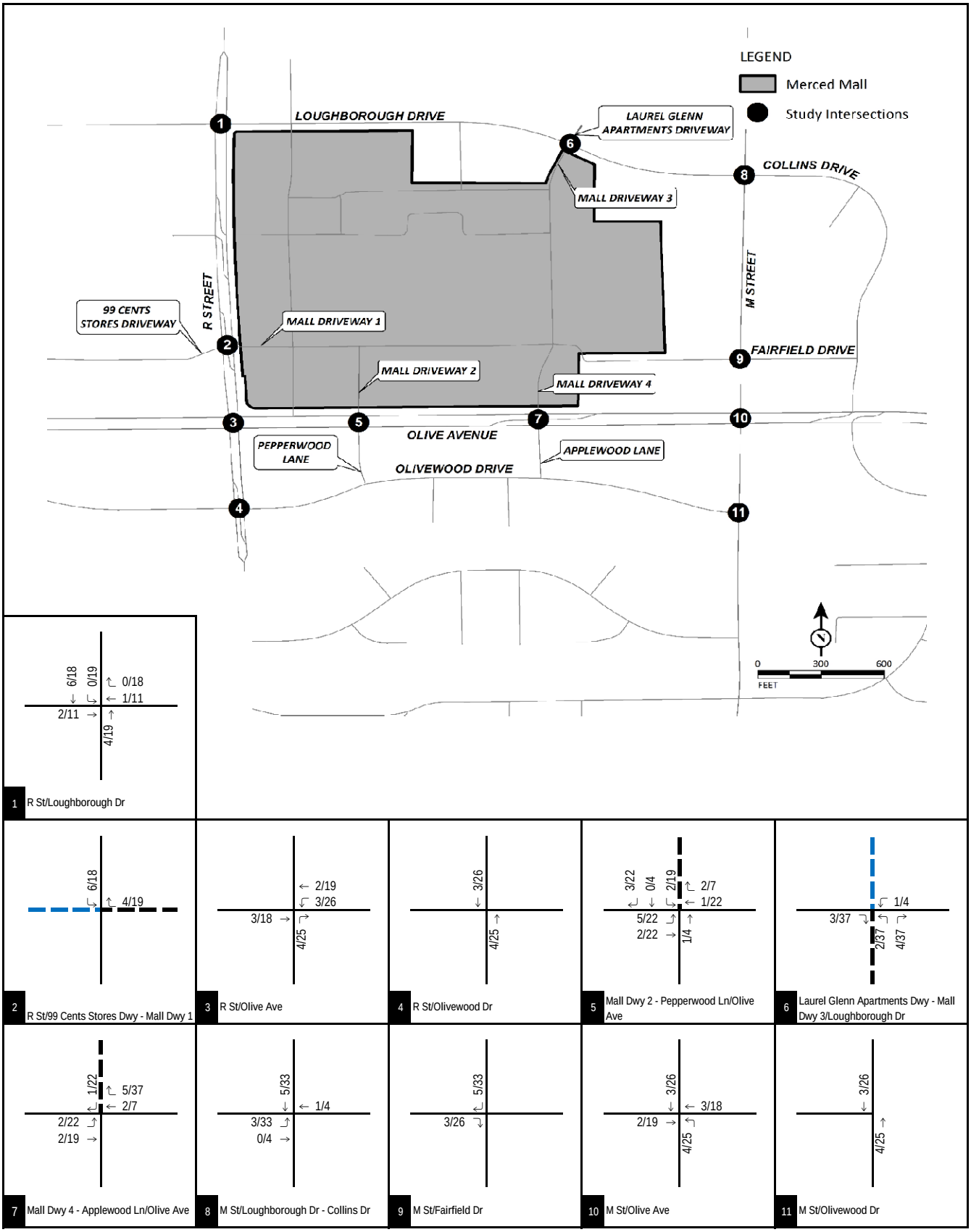
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FIGURE 5-7

XX/YY
AM/PM Peak Hour Traffic Volumes
---- Merced Mall Driveway
---- Other Driveway

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis
Phases I and II Total Project Trip Assignment (Alternative I)

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FIGURE 5-8

XX/YY
AM/PM Peak Hour Traffic Volumes
---- Merced Mall Driveway
---- Other Driveway

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

Phases I and II Total Project Trip Assignment (Alternative II)

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Table 5-A - Project Trip Generation (Alternative I)

Land Use	Units	A.M. Peak Hour In	A.M. Peak Hour Out	A.M. Peak Hour Total	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour Total	Daily
Shopping Center	50.00 TSF							
Trips/Unit[1]		0.58	0.36	0.94	1.83	1.98	3.81	37.75
Trip Generation		29	18	47	92	99	191	1,888
Internal Capture[2]		0	0	0	(4)	(4)	(8)	(38)
Total External Trips		29	18	47	88	95	183	1,850
Multiplex Movie Theater	14 Screens							
Trips/Unit[3]		0.00	0.00	0.00	7.00	6.73	13.73	220.00
Trip Generation		0	0	0	98	94	192	3,080
Internal Capture[2]		0	0	0	(4)	(4)	(8)	(38)
Total External Trips		0	0	0	94	90	184	3,042
	Total Trip Generation	**29**	**18**	**47**	**182**	**185**	**367**	**4,892**

Note:

TSF = Thousand Square Feet

[1] Rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition), Land Use 820 - "Shopping Center", Setting/Location - "General Urban/Suburban."

[2] Internal capture rates obtained using the National Cooperative Highway Research Program (NCHRP 8-51) Internal Trip Capture Estimation Tool.

[3] Rates from the ITE *Trip Generation Manual* (10th Edition), Land Use 445 - "Multiplex Movie Theater", Setting/Location - "General Urban/Suburban." Since daily rates were not available for this land use, the daily rates for Land Use 444 - "Movie Theater" were used.

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Table 5-B - Project Trip Generation (Alternative II)

Land Use	Units	A.M. Peak Hour In	A.M. Peak Hour Out	A.M. Peak Hour Total	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour Total	Daily
Proposed Project								
Shopping Center	50.00 TSF							
Trips/Unit[1]		0.58	0.36	0.94	1.83	1.98	3.81	37.75
Trip Generation		29	18	47	92	99	191	1,888
Internal Capture[2]		0	0	0	(4)	(4)	(8)	(38)
Total External Trips		29	18	47	88	95	183	1,850
Multiplex Movie Theater	14 Screens							
Trips/Unit[3]		0.00	0.00	0.00	7.00	6.73	13.73	220.00
Trip Generation		0	0	0	98	94	192	3,080
Internal Capture[2]		0	0	0	(4)	(4)	(8)	(38)
Total External Trips		0	0	0	94	90	184	3,042
Total Trip Generation (Proposed Project)		**29**	**18**	**47**	**182**	**185**	**367**	**4,892**
Existing Uses (to Demolished to Build the New Movie Theater)								
Shopping Center	25.42 TSF							
Trips/Unit[1]		0.58	0.36	0.94	1.83	1.98	3.81	37.75
Trip Generation		15	9	24	47	50	97	959
Internal Capture[2]		0	0	0	(2)	(2)	(4)	(19)
Total External Trips		15	9	24	45	48	93	940
Movie Theater	7 Screens							
Trips/Unit[4]		0.00	0.00	0.00	6.42	8.18	14.60	220.00
Trip Generation		0	0	0	45	57	102	1,540
Internal Capture[2]		0	0	0	(2)	(2)	(4)	(19)
Total External Trips		0	0	0	43	55	98	1,521
Total Trip Generation (Existing Uses)		**15**	**9**	**24**	**88**	**103**	**191**	**2,461**
Net Trip Generation (Proposed Project - Existing Uses)		**14**	**9**	**23**	**94**	**82**	**176**	**2,431**

Note:

TSF = Thousand Square Feet

[1] Rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition), Land Use 820 - "Shopping Center", Setting/Location - "General Urban/Suburban."

[2] Internal capture rates obtained using the National Cooperative Highway Research Program (NCHRP 8-51) Internal Trip Capture Estimation Tool.

[3] Rates from the ITE *Trip Generation Manual* (10th Edition), Land Use 445 - "Multiplex Movie Theater", Setting/Location - "General Urban/Suburban." Since daily rates were not available for this land use, the daily rates for Land Use 444 - "Movie Theater" were used.

[4] Rates from the ITE *Trip Generation Manual* (10th Edition), Land Use 444 - "Movie Theater", Setting/Location - "General Urban/Suburban."

6.0 TRAFFIC VOLUMES WITH PROJECT SCENARIOS

Existing with project traffic volumes (for Phase I and Phases I and II under Alternative I) were developed by adding corresponding project traffic to the respective without project scenarios. Figure 6-1 illustrates existing with project Phase I peak hour traffic volumes at study intersections. Figure 6-2 illustrates existing with project Phases I and II peak hour traffic volumes at study intersections for Alternative I. Table 6-A illustrates the existing with project daily traffic volumes for Alternative I.

As for Alternative II, a trip distribution and assignment were developed for the existing on-site uses to be demolished. The assignment was carried out following a similar distribution as that for the proposed theater in the alternative. Figure 6-3 illustrates the trip assignment for the demolished uses at the study intersections. These trips were then subtracted from the existing counts and the project traffic for the full project under Alternative II was added to obtain the existing with project traffic volumes for Phases I and II for this alternative. Figure 6-4 illustrates existing with project Phases I and II peak hour traffic volumes at study intersections for Alternative II. Table 6-B illustrates the existing with project daily traffic volumes for Alternative II.

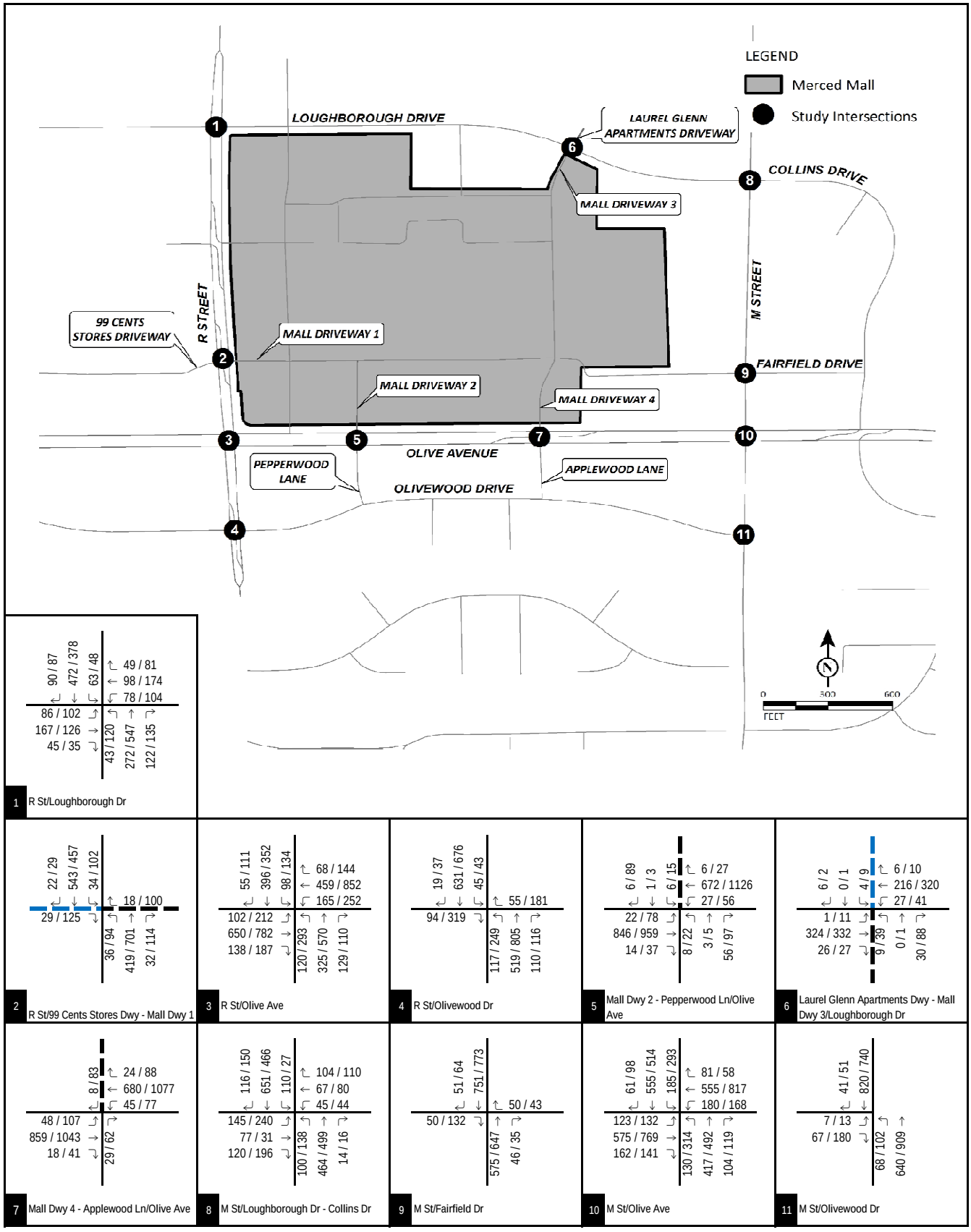
For Alternative I, cumulative with project traffic volumes (for Phases I and II) were developed by adding corresponding project traffic to the without project scenario. For Alternative II, cumulative with project traffic volumes (for Phases I and II) were developed by adding corresponding project traffic to the without project scenario after making necessary adjustments for the traffic from the demolished uses. Figure 6-5 illustrates cumulative with project Phases I and II peak hour traffic volumes at study intersections for Alternative I. Table 6-C illustrates the cumulative with project daily traffic volumes for Alternative I. Figure 6-6 illustrates cumulative with project Phases I and II peak hour traffic volumes at study intersections for Alternative II. Table 6-D illustrates the cumulative with project daily traffic volumes for Alternative II.

Detailed volume development worksheets are included in Appendix B.

6.1 LIST OF CHAPTER 6.0 FIGURES AND TABLES

- Figure 6-1: Existing with Project Phase I Peak Hour Traffic Volumes
- Figure 6-2: Existing with Project Phases I and II Peak Hour Traffic Volumes (Alternative I)
- Figure 6-3: Trip Assignment for Demolished Uses
- Figure 6-4: Existing with Project Phases I and II Peak Hour Traffic Volumes (Alternative II)
- Figure 6-5: Cumulative (2023) with Project Phases I and II Peak Hour Traffic Volumes (Alternative I)
- Figure 6-6: Cumulative (2023) with Project Phases I and II Alternative I Peak Hour Traffic Volumes (Alternative II)
- Table 6-A: Existing with Project Daily Traffic Volumes (Alternative I)
- Table 6-B: Existing with Project Daily Traffic Volumes (Alternative II)

- Table 6-C: Cumulative (2023) with Project Daily Traffic Volumes (Alternative I)
- Table 6-D: Cumulative (2023) with Project Daily Traffic Volumes (Alternative II)



LSA

FIGURE 6-1

XXXX / YYYY
AM / PM Peak Hour Traffic Volumes
---- Merced Mall Driveway
---- Other Driveway

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis
Existing with Project Phase I Peak Hour Traffic Volumes

R:\MED1801\Traffic\XLS\z30_Vol_Exist_P_Ph I.xlsx\Figure (8/7/2018)

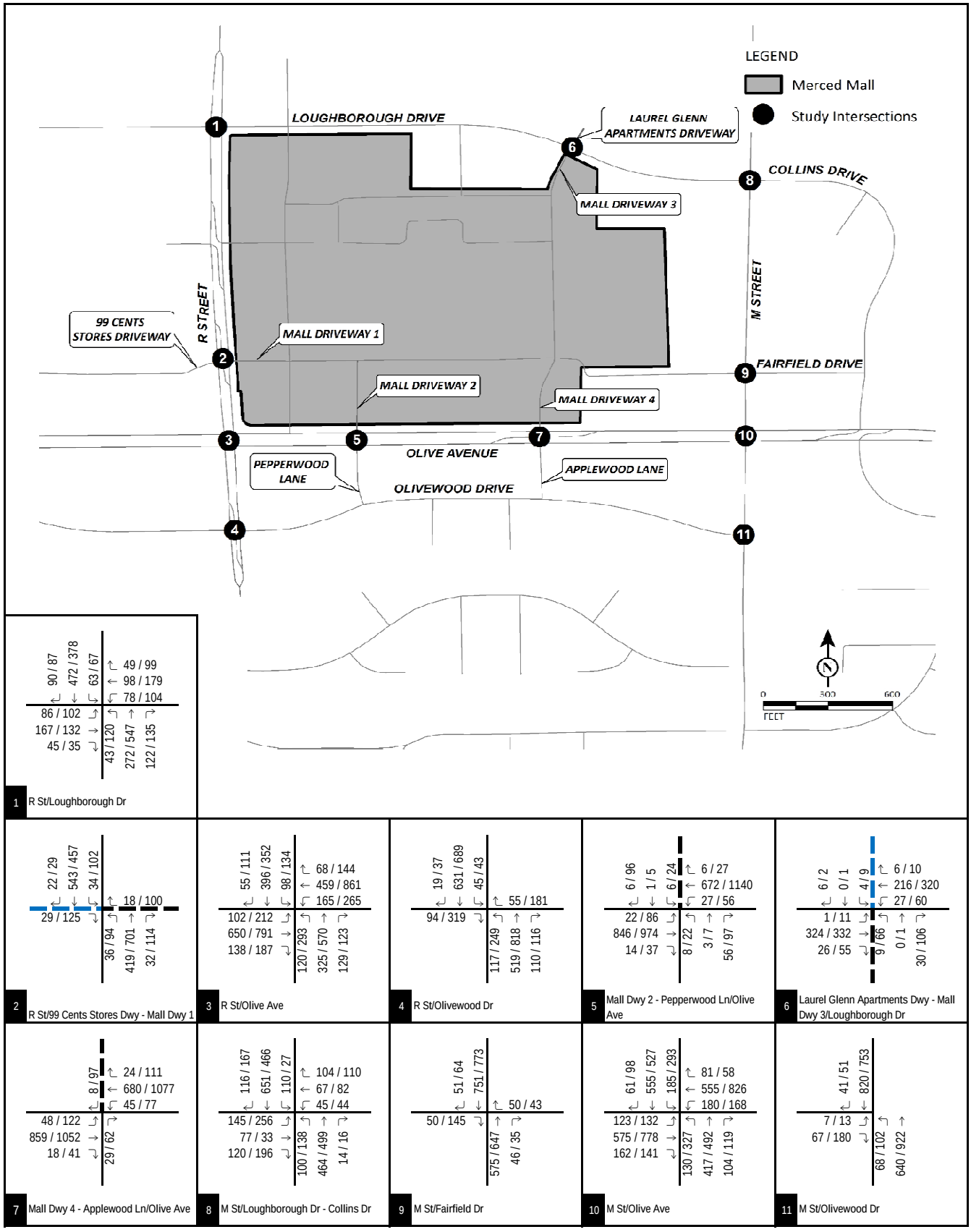


FIGURE 6-2

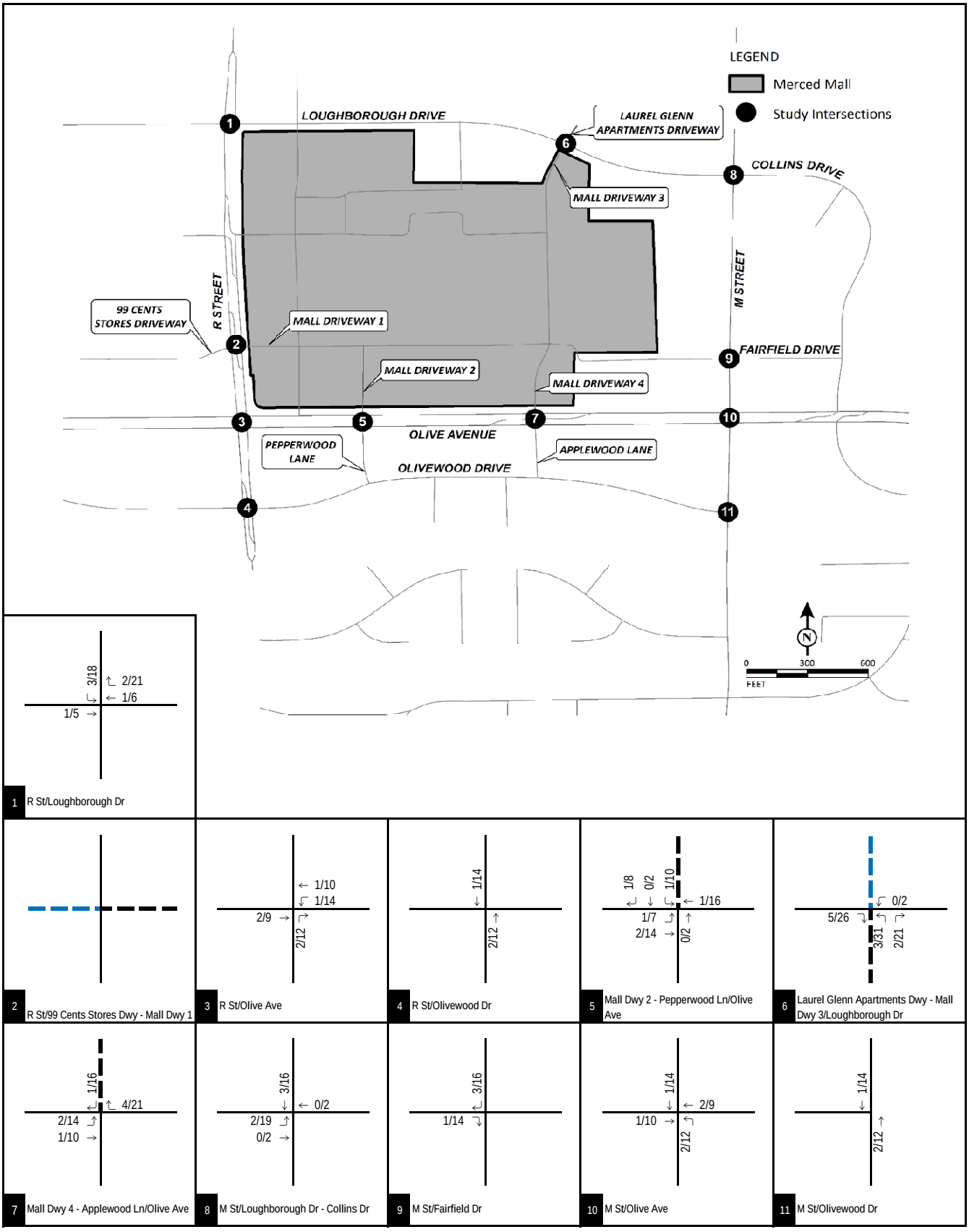
LSA

XXXX / YYYY
AM / PM Peak Hour Traffic Volumes
---- Merced Mall Driveway
---- Other Driveway

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

Existing with Project Phases I and II Peak Hour Traffic Volumes (Alternative I)

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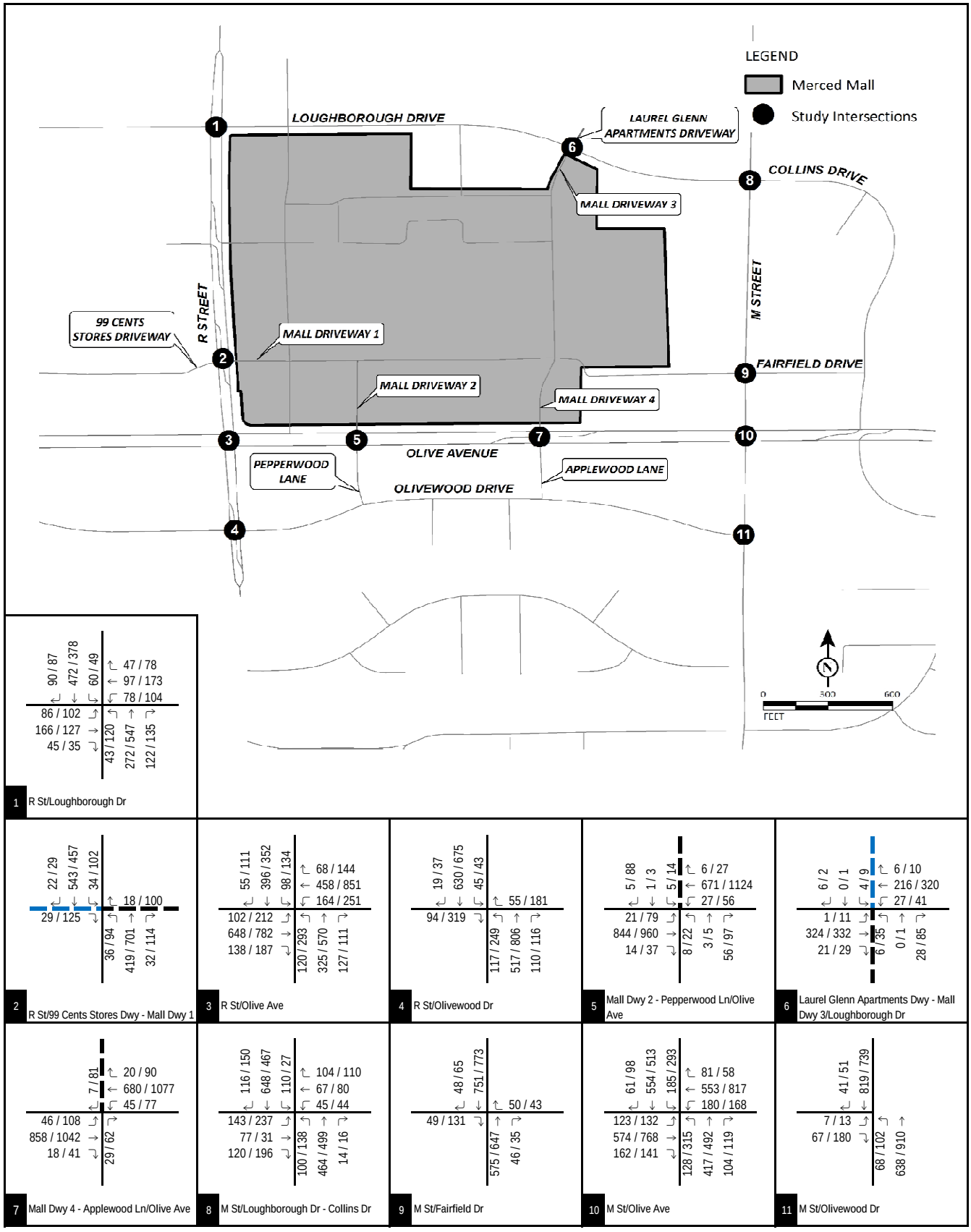
LSA

FIGURE 6-3

XX/YY
AM/PM Peak Hour Traffic Volumes
---- Merced Mall Driveway
---- Other Driveway

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis
Trip Assignment for Demolished Uses

R:\MED1801\Traffic\XLS\z30_Vol_Assign_Demolished.xlsx\Figure (8/7/2018)



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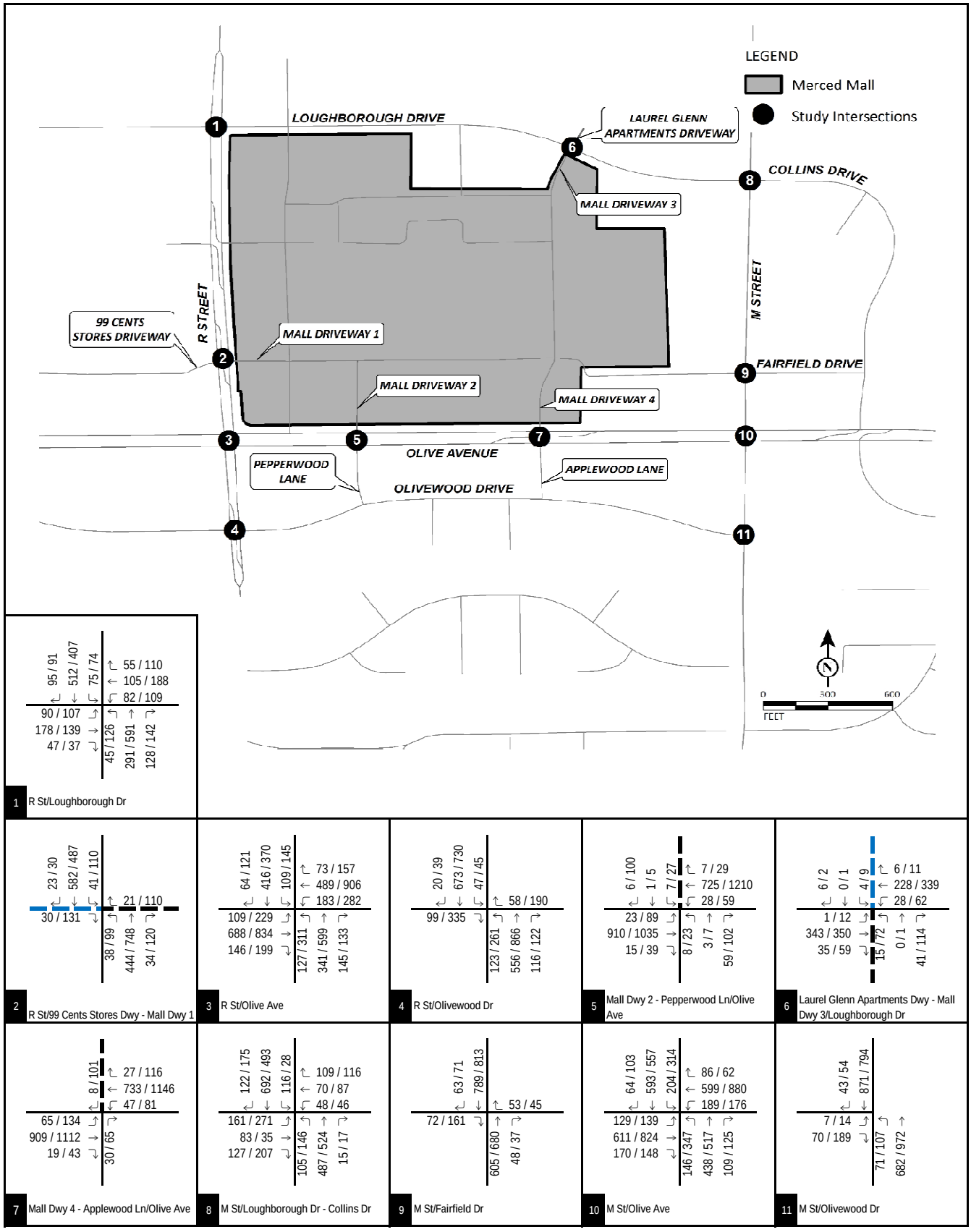
FIGURE 6-4

XXXX / YYYY
AM / PM Peak Hour Traffic Volumes
---- Merced Mall Driveway
---- Other Driveway

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

Existing with Project Phases I and II Peak Hour Traffic Volumes (Alternative II)

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LSA

FIGURE 6-5

XXXX / YYYY
AM / PM Peak Hour Traffic Volumes
---- Merced Mall Driveway
---- Other Driveway

Merced Mall Expansion and Redevelopment Project
Traffic Impact Analysis

Cumulative (2023) with Project Phases I and II Peak Hour Traffic Volumes (Alternative I)

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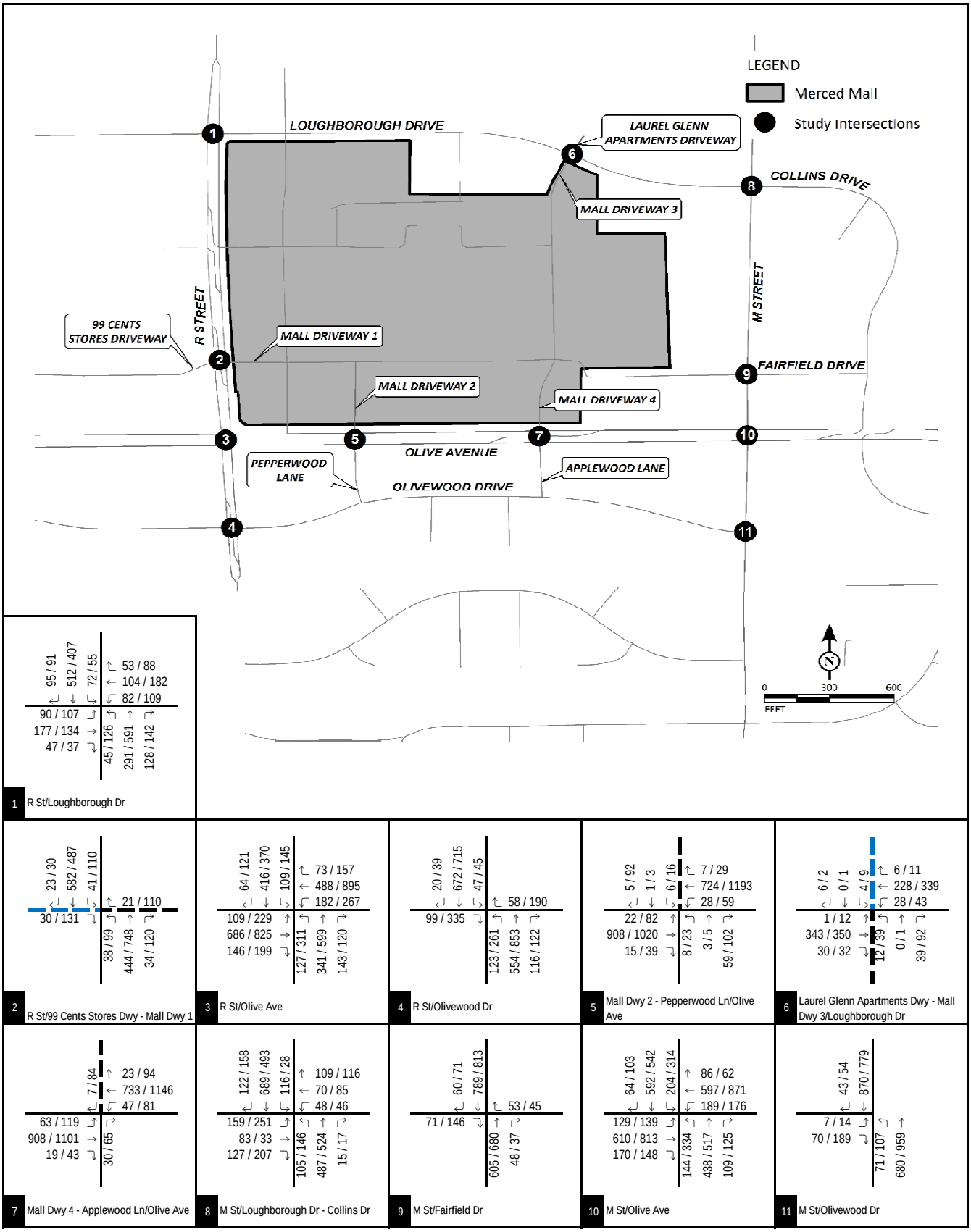


FIGURE 6-6

LSA

XXXX / YYYY

AM / PM Peak Hour Traffic Volumes

---- Merced Mall Driveway

---- Other Driveway

Merced Mall Expansion and Redevelopment Project

Traffic Impact Analysis

Cumulative (2023) with Project Phases I and II Peak Hour Traffic Volumes (Alternative II)

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LSA

Table 6-A - Existing with Project Daily Traffic Volumes (Alternative I)

Roadway	#	Segment	Existing ADT	Phase I Project Trips	Existing With Project Phase I ADT	Phase II Project Trips	Existing With Project Phases I + II ADT
Olivewood Drive	**1**	Olivewood Drive, between Meadows Avenue and R Street	6,216	0	6,216	0	6,216
	2	Olivewood Drive, between R Street and M Street	3,640	0	3,640	0	3,640
R Street	**3**	R Street, between Loughborough Drive and Olive Avenue	18,843	370	19,213	0	19,213
Loughborough Drive	**4**	Loughborough Drive, between R Street and M Street	8,377	205	8,582	912	9,494
Olive Avenue	**5**	Olive Avenue, between R Street and M Street	28,460	446	28,906	730	29,636
M Street	**6**	M Street, between Loughborough Drive/Collins Drive and Olive Avenue	18,226	167	18,393	213	18,606

LSA

Table 6-B - Existing with Project Daily Traffic Volumes (Alternative II)

Roadway	#	Segment	Existing ADT	Phase I Project Trips	Existing With Project Phase I ADT	Phase II Project Project Trips	Demolished Uses Trip Adjustment	Existing With Project Phases I + II ADT
Olivewood Drive	**1**	Olivewood Drive, between Meadows Avenue and R Street	6,216	0	6,216	0	0	6,216
	2	Olivewood Drive, between R Street and M Street	3,640	0	3,640	0	0	3,640
R Street	**3**	R Street, between Loughborough Drive and Olive Avenue	18,843	370	19,213	0	0	19,213
Loughborough Drive	**4**	Loughborough Drive, between R Street and M Street	8,377	205	8,582	912	(271)	9,223
Olive Avenue	**5**	Olive Avenue, between R Street and M Street	28,460	446	28,906	730	(418)	29,218
M Street	**6**	M Street, between Loughborough Drive/Collins Drive and Olive Avenue	18,226	167	18,393	274	(172)	18,495

LSA

Table 6-C - Cumulative (2023) with Project Daily Traffic Volumes (Alternative I)

Roadway	#	Segment	Cumulative Without Project	Phases I + II Project Trips	Cumulative With Project Phases I + II
Olivewood Drive	**1**	Olivewood Drive, between Meadows Avenue and R Street	6,527	0	6,527
	2	Olivewood Drive, between R Street and M Street	3,822	0	3,822
R Street	**3**	R Street, between Loughborough Drive and Olive Avenue	20,141	370	20,511
Loughborough Drive	**4**	Loughborough Drive, between R Street and M Street	9,008	1,117	10,125
Olive Avenue	**5**	Olive Avenue, between R Street and M Street	30,326	1,176	31,502
M Street	**6**	M Street, between Loughborough Drive/Collins Drive and Olive Avenue	19,331	380	19,711

LSA

Table 6-D - Cumulative (2023) with Project Daily Traffic Volumes (Alternative II)

Roadway	#	Segment	Cumulative Without Project	Demolished Uses Trip Adjustment	Phases I + II Project Trips	Cumulative With Project Phases I + II
Olivewood Drive	**1**	Olivewood Drive, between Meadows Avenue and R Street	6,527	0	0	6,527
	2	Olivewood Drive, between R Street and M Street	3,822	0	0	3,822
R Street	**3**	R Street, between Loughborough Drive and Olive Avenue	20,141	0	370	20,511
Loughborough Drive	**4**	Loughborough Drive, between R Street and M Street	9,008	(285)	1,117	9,840
Olive Avenue	**5**	Olive Avenue, between R Street and M Street	30,326	(439)	1,176	31,063
M Street	**6**	M Street, between Loughborough Drive/Collins Drive and Olive Avenue	19,331	(181)	441	19,592

7.0 INTERSECTION AND ROADWAY SEGMENT LEVELS OF SERVICE

7.1 EXISTING LEVELS OF SERVICE

Previously referenced Figure 3-1 illustrates existing geometrics and traffic control. An intersection LOS analysis was conducted for existing conditions using the methodologies previously discussed. Table 7-A summarizes the results of this analysis and shows that the intersection of Mall Driveway 2 – Pepperwood Lane/Olive Avenue operates at an unsatisfactory LOS in the p.m. peak hour under existing without project conditions. All other study intersections operate at a satisfactory LOS and there is no significant delay at any of the signalized intersections.

Action T-1.8.c of the General Plan[1] stated in the "Analysis Methodology" section of this report is intended for signalized intersections. The intersection of Mall Driveway 2–Pepperwood Lane/Olive Avenue is an unsignalized intersection. The unsatisfactory LOS at this intersection is a result of the delays on the stop-controlled minor street (Mall Driveway 2 and Pepperwood Lane) approaches. The traffic on the major street (Olive Avenue) is unobstructed and unaffected by changes to either minor street approach. The minor street contributes less than 10 percent of the total traffic at this intersection in the p.m. peak hour. The minor street traffic can be diverted to other routes such as R Street if the delay is excessive, which possibly occurs today. Because the major street has unimpeded through movements and low delays, the impact at the intersection of Mall Driveway 2 – Pepperwood Lane/Olive Avenue would not be considered a significant CEQA impact.

A roadway segment LOS analysis was conducted using the methodologies previously discussed. The levels of service were calculated using the criteria contained in the "Analysis Methodology" section of this report. Table 7-B summarizes the results of this analysis and shows that all roadway segments are currently operating at a satisfactory LOS under existing without project conditions.

Detailed Level of Service Worksheets are included in Appendix D.

7.2 EXISTING WITH PROJECT LEVELS OF SERVICE

Analysis of the existing with project scenario is provided for CEQA compliance to identify direct project impacts if the project were to be built and in operation today. This scenario does not include traffic from ambient growth or other cumulative projects.

An intersection level of service analysis was conducted for existing with project conditions (Phase I, and Phases I and II under both alternatives) to determine intersection performance. Tables 7-A and 7-C summarize the results of the analysis for existing with project Phase I and existing with project Phases I and II (for both alternatives), respectively. As shown in Tables 7-A and 7-C, the intersection of Mall Driveway 2–Pepperwood Lane/Olive Avenue is forecast to operate at an unsatisfactory LOS in the p.m. peak hour under all existing with project conditions. As stated above, since the major street has unimpeded through movements and low delays, the impact at this intersection would not be considered a significant CEQA impact. All other study intersections operate at a satisfactory LOS and no significant delay is forecast at any of the signalized intersections.

[1] City of Merced, January 2012. *Merced Vision 2030 General Plan.*

A roadway segment LOS analysis was conducted using the methodologies previously discussed. Tables 7-B and 7-D summarize the results of the analysis for existing with project Phase I and existing with project Phases I and II (for both alternatives), respectively. As shown in Tables 7-B and 7-D, all roadway segments are forecast to operate at a satisfactory LOS under existing with project conditions (Phase I, and Phases I and II under both alternatives).

Detailed LOS worksheets are included in Appendix D.

7.3 CUMULATIVE (2023) WITHOUT PROJECT LEVELS OF SERVICE

An intersection level of service analysis was conducted for cumulative without project conditions using the previously discussed methodologies. Table 7-E summarizes the results of this analysis and shows that the intersection of Mall Driveway 2–Pepperwood Lane/Olive Avenue is forecast to operate at an unsatisfactory LOS in the p.m. peak hour under all cumulative without project conditions. As stated above, since the major street has unimpeded through movements and low delays, the project contribution to the impact at this intersection would not be considered a significant CEQA impact. All other study intersections operate at a satisfactory LOS and no significant delay is forecast at any of the signalized intersections.

A roadway segment LOS analysis was conducted using the methodologies previously discussed. Table 7-F summarizes the results of the analysis and shows that all roadway segments are forecast to operate at a satisfactory LOS under cumulative without conditions.

Detailed LOS worksheets are included in Appendix D.

7.4 CUMULATIVE (2023) WITH PROJECT LEVELS OF SERVICE

An intersection level of service analysis was conducted for cumulative with project conditions (Phases I and II under both alternatives) using the previously discussed methodologies. Table 7-E summarizes the results of this analysis and shows that the intersection of Mall Driveway 2–Pepperwood Lane/Olive Avenue is forecast to operate at an unsatisfactory LOS in the p.m. peak hour under cumulative with project conditions (Phases I and II) for both alternatives. As stated above, since the major street has unimpeded through movements and low delays, the project contribution to the impact at this intersection would not be considered a significant CEQA impact. All other study intersections operate at a satisfactory LOS and no significant delay is forecast at any of the signalized intersections.

A roadway segment LOS analysis was conducted using the methodologies previously discussed. Table 7-F summarizes the results of the analysis and shows that all roadway segments are forecast to operate at a satisfactory LOS under cumulative with project conditions (Phases I and II under both alternatives).

Detailed LOS worksheets are included in Appendix D.

7.5 LIST OF CHAPTER 7.0 TABLES

- Table 7-A: Existing Intersection Levels of Service (Project Phase I)

- Table 7-B: Existing Roadway Segment Levels of Service (Project Phase I)
- Table 7-C: Existing Intersection Levels of Service (Project Alternatives I and II)
- Table 7-D: Existing Roadway Segment Levels of Service (Project Alternatives I and II)
- Table 7-E: Cumulative (2023) Intersection Levels of Service (Project Alternatives I and II)
- Table 7-F: Cumulative (2023) Roadway Segment Levels of Service (Project Alternatives I and II)

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Table 7-A - Existing Intersection Levels of Service (Project Phase I)

Intersection	Control	Without Project				With Project Phase I				Significant Impact
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		
		Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	
1 . R Street/Loughborough Drive	Signal	30.2	C	32.8	C	30.3	C	33.0	C	No
2 . R Street/99 Cents Stores Driveway - Mall Driveway 1	TWSC	9.2	A	10.1	B	9.2	A	10.2	B	No
3 . R Street/Olive Avenue	Signal	30.0	C	38.1	D	30.1	C	38.5	D	No
4 . R Street/Olivewood Drive	TWSC	10.8	B	13.9	B	10.9	B	14.0	B	No
5 . Mall Driveway 2 - Pepperwood Lane/Olive Avenue	TWSC	27.2	D	63.5	F	25.3	D	>100	F	No
6 . Laurel Glenn Apartments Driveway - Mall Driveway 3/Loughborough Drive	TWSC	12.7	B	18.3	C	12.8	B	19.2	C	No
7 . Mall Driveway 4 - Applewood Lane/Olive Avenue	TWSC	10.5	B	12.4	B	10.5	B	12.7	B	No
8 . M Street/Loughborough Drive - Collins Drive	Signal	25.3	C	28.0	C	25.6	C	29.0	C	No
9 . M Street/Fairfield Drive	TWSC	11.9	B	11.3	B	11.9	B	11.3	B	No
10 . M Street/Olive Avenue	Signal	37.1	D	42.8	D	37.2	D	43.7	D	No
11 . M Street/Olivewood Drive	OWSC	26.0	D	27.8	D	26.4	D	28.9	D	No

Notes:

OWSC = One-Way Stop Control; TWSC = Two-Way Stop Control

Delay = Average control delay in seconds (For OWSC and TWSC intersections, reported delay is for worst-case movement).

LOS = Level of Service

For intersections 5 and 7, Synchro did not report an LOS, as HCM 6 does not recognize more than three through lanes on major street approaches for TWSC. Hence, these two intersections were analyzed using Traffix, using HCM 2000 methodologies.

For the intersection of Mall Driveway 2- Pepperwood Lane/Olive Avenue, the unsatisfactory LOS is a result of the delays on the stop-controlled minor street (Mall Driveway 2 and Pepperwood Lane) approaches. The minor streets contribute less than 10 percent of the total traffic at the intersection in the p.m. peak hour. The minor street traffic can be diverted to other routes such as R Street if the delay is excessive, which possibly occurs today. Since the major street (Olive Avenue) has unimpeded through movements and low delays, the impact at this intersection is not considered a significant CEQA impact.

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Table 7-B - Existing Roadway Segment Levels of Service (Project Phase I)

Roadway	#	Segment	Existing Condition Number of Lanes	Functional Classification[1]	Roadway Capacity[2]	Without Project Conditions		With Project Phase I Conditions	
						Daily Volume	LOS	Daily Volume	LOS
Olivewood Drive	**1**	Olivewood Drive, between Meadows Avenue and R Street	2	2-Lane Local Street	13,200	6,220	D	6,220	D
	2	Olivewood Drive, between R Street and M Street	2	2-Lane Local Street	13,200	3,640	C	3,640	C
R Street	**3**	R Street, between Loughborough Drive and Olive Avenue	4	4-Lane Minor Arterial	35,400	18,850	C	19,220	C
Loughborough Drive	**4**	Loughborough Drive, between R Street and M Street	2	2-Lane Collector Street	13,200	8,380	D	8,590	D
Olive Avenue	**5**	Olive Avenue, between R Street and M Street	7	7-Lane Divided Arterial	62,100	28,460	C	28,910	C
M Street	**6**	M Street, between Loughborough Drive/Collins Drive and Olive Avenue	4	4-Lane Minor Arterial	35,400	18,230	C	18,400	C

Notes:

LOS = Level of Service

[1]Functional Classification obtained from the Merced Vision 2030 General Plan, dated January 2012.

[2]Roadway Capacity obtained from the Merced Vision 2030 General Plan, dated January 2012; since no capacities were available for Local Streets, the capacities for Collectors were used instead. For both Minor and Divided Arterials, capacities for Arterials were used since capacities for these two functional classifications are not available.

LSA

Table 7-C - Existing Intersection Levels of Service (Project Alternatives I and II)

Intersection	Control	Without Project				With Project Phases I+II (Alternative I)				With Project Phases I+II (Alternative II)				Significant Impact
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		
		Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	
1 . R Street/Loughborough Drive	Signal	30.2	C	32.8	C	30.3	C	32.8	C	30.7	C	31.7	C	No
2 . R Street/99 Cents Stores Driveway - Mall Driveway 1	TWSC	9.2	A	10.1	B	9.2	A	10.2	B	9.2	A	10.2	B	No
3 . R Street/Olive Avenue	Signal	30.0	C	38.1	D	30.1	C	38.9	D	28.9	C	35.3	D	No
4 . R Street/Olivewood Drive	TWSC	10.8	B	13.9	B	10.9	B	14.1	B	10.9	B	14.0	B	No
5 . Mall Driveway 2 - Pepperwood Lane/Olive Avenue	TWSC	27.2	D	63.5	F	25.3	D	>100	F	25.4	D	>100	F	No
6 . Laurel Glenn Apartments Driveway - Mall Driveway 3/Loughborough Drive	TWSC	12.7	B	18.3	C	12.8	B	22.0	C	12.8	B	19.5	C	No
7 . Mall Driveway 4 - Applewood Lane/Olive Avenue	TWSC	10.5	B	12.4	B	10.5	B	13.2	B	10.5	B	12.7	B	No
8 . M Street/Loughborough Drive - Collins Drive	Signal	25.3	C	28.0	C	25.6	C	29.9	C	34.4	C	37.2	D	No
9 . M Street/Fairfield Drive	TWSC	11.9	B	11.3	B	11.9	B	11.3	B	11.9	B	11.3	B	No
10 . M Street/Olive Avenue	Signal	37.1	D	42.8	D	37.2	D	43.9	D	37.0	D	40.1	D	No
11 . M Street/Olivewood Drive	OWSC	26.0	D	27.8	D	26.4	D	30.0	D	26.2	D	29.2	D	No

Notes:

OWSC = One-Way Stop Control; TWSC = Two-Way Stop Control

Delay = Average control delay in seconds (For OWSC and TWSC intersections, reported delay is for worst-case movement).

LOS = Level of Service

For intersections 5 and 7, Synchro did not report an LOS, as HCM 6 does not recognize more than three through lanes on major street approaches for TWSC. Hence, these two intersections were analyzed using Traffix, using HCM 2000 methodologies.

For the intersection of Mall Driveway 2- Pepperwood Lane/Olive Avenue, the unsatisfactory LOS is a result of the delays on the stop-controlled minor street (Mall Driveway 2 and Pepperwood Lane) approaches. The minor streets contribute less than 10 percent of the total traffic at the intersection in the p.m. peak hour. The minor street traffic can be diverted to other routes such as R Street if the delay is excessive, which possibly occurs today. Since the major street (Olive Avenue) has unimpeded through movements and low delays, the impact at this intersection is not considered a significant CEQA impact.

LSA

Table 7-D - Existing Roadway Segment Levels of Service (Project Alternatives I and II)

Roadway	#	Segment	Existing Condition Number of Lanes	Functional Classification[1]	Roadway Capacity[2]	With Project Phase I Conditions		With Project Phases I + II Conditions - Alternative I		With Project Phases I + II Conditions - Alternative II	
						Daily Volume	LOS	Daily Volume	LOS	Daily Volume	LOS
Olivewood Drive	**1**	Olivewood Drive, between Meadows Avenue and R Street	2	2-Lane Local Street	13,200	6,220	D	6,220	D	6,220	D
	2	Olivewood Drive, between R Street and M Street	2	2-Lane Local Street	13,200	3,640	C	3,640	C	3,640	C
R Street	**3**	R Street, between Loughborough Drive and Olive Avenue	4	4-Lane Minor Arterial	35,400	19,220	C	19,220	C	19,220	C
Loughborough Drive	**4**	Loughborough Drive, between R Street and M Street	2	2-Lane Collector Street	13,200	8,590	D	9,500	D	9,230	D
Olive Avenue	**5**	Olive Avenue, between R Street and M Street	7	7-Lane Divided Arterial	62,100	28,910	C	29,640	C	29,220	C
M Street	**6**	M Street, between Loughborough Drive/Collins Drive and Olive Avenue	4	4-Lane Minor Arterial	35,400	18,400	C	18,610	C	18,500	C

Notes:

LOS = Level of Service

[1]Functional Classification obtained from the Merced Vision 2030 General Plan, dated January 2012.

[2]Roadway Capacity obtained from the Merced Vision 2030 General Plan, dated January 2012; since no capacities were available for Local Streets, the capacities for Collectors were used instead. For both Minor and Divided Arterials, capacities for Arterials were used since capacities for these two functional classifications are not available.

LSA

Table 7-E - Cumulative Intersection Levels of Service (Project Alternatives I and II)

Intersection	Control	Without Project				With Project Phases I+II (Alternative I)				With Project Phases I+II (Alternative II)				Significant Impact
		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		
		Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	
1 . R Street/Loughborough Drive	Signal	30.7	C	33.0	C	30.8	C	33.0	C	31.5	C	31.7	C	No
2 . R Street/99 Cents Stores Driveway - Mall Driveway 1	TWSC	9.2	A	10.1	B	9.2	A	10.3	B	9.2	A	10.3	B	No
3 . R Street/Olive Avenue	Signal	30.7	C	39.6	D	30.8	C	40.3	D	30.0	C	37.2	D	No
4 . R Street/Olivewood Drive	TWSC	11.1	B	14.6	B	11.1	B	14.9	B	11.1	B	14.7	B	No
5 . Mall Driveway 2 - Pepperwood Lane/Olive Avenue	TWSC	32.6	D	>100	F	30.4	D	>100	F	30.5	D	>100	F	No
6 . Laurel Glenn Apartments Driveway - Mall Driveway 3/Loughborough Drive	TWSC	13.7	B	20.0	C	13.9	B	24.4	C	13.6	B	20.9	C	No
7 . Mall Driveway 4 - Applewood Lane/Olive Avenue	TWSC	10.7	B	13.2	B	10.7	B	14.2	B	10.7	B	13.6	B	No
8 . M Street/Loughborough Drive - Collins Drive	Signal	27.7	C	28.1	C	28.0	C	30.0	C	36.9	D	37.3	D	No
9 . M Street/Fairfield Drive	TWSC	12.2	B	11.4	B	12.2	B	11.4	B	12.2	B	11.4	B	No
10 . M Street/Olive Avenue	Signal	38.4	D	44.8	D	38.6	D	47.2	D	38.9	D	43.3	D	No
11 . M Street/Olivewood Drive	OWSC	28.4	D	30.2	D	28.6	D	32.9	D	28.6	D	31.3	D	No

Notes:

OWSC = One-Way Stop Control; TWSC = Two-Way Stop Control

Delay = Average control delay in seconds (For OWSC and TWSC intersections, reported delay is for worst-case movement).

LOS = Level of Service

For intersections 5 and 7, Synchro did not report an LOS, as HCM 6 does not recognize more than three through lanes on major street approaches for TWSC. Hence, these two intersections were analyzed using Traffix, using HCM 2000 methodologies.

For the intersection of Mall Driveway 2- Pepperwood Lane/Olive Avenue, the unsatisfactory LOS is a result of the delays on the stop-controlled minor street (Mall Driveway 2 and Pepperwood Lane) approaches. The minor streets contribute less than 10 percent of the total traffic at the intersection in the p.m. peak hour. The minor street traffic can be diverted to other routes such as R Street if the delay is excessive, which possibly occurs today. Since the major street (Olive Avenue) has unimpeded through movements and low delays, the impact at this intersection is not considered a significant CEQA impact.

LSA

Table 7-F - Cumulative (2023) Roadway Segment Levels of Service (Project Alternatives I and II)

Roadway	#	Segment	Existing Condition Number of Lanes	Functional Classification[1]	Roadway Capacity[2]	With Project Phases I + II Conditions - Alternative I		With Project Phases I + II Conditions - Alternative II	
						Daily Volume	LOS	Daily Volume	LOS
Olivewood Drive	**1**	Olivewood Drive, between Meadows Avenue and R Street	2	2-Lane Local Street	13,200	6,530	D	6,530	D
	2	Olivewood Drive, between R Street and M Street	2	2-Lane Local Street	13,200	3,830	C	3,830	C
R Street	**3**	R Street, between Loughborough Drive and Olive Avenue	4	4-Lane Minor Arterial	35,400	20,520	C	20,520	C
Loughborough Drive	**4**	Loughborough Drive, between R Street and M Street	2	2-Lane Collector Street	13,200	10,130	D	9,850	D
Olive Avenue	**5**	Olive Avenue, between R Street and M Street	7	7-Lane Divided Arterial	62,100	31,510	C	31,070	C
M Street	**6**	M Street, between Loughborough Drive/Collins Drive and Olive Avenue	4	4-Lane Minor Arterial	35,400	19,720	C	19,600	C

Notes:

LOS = Level of Service

[1]Functional Classification obtained from the Merced Vision 2030 General Plan, dated January 2012.

[2]Roadway Capacity obtained from the Merced Vision 2030 General Plan, dated January 2012; since no capacities were available for Local Streets, the capacities for Collectors were used instead. For both Minor and Divided Arterials, capacities for Arterials were used since capacities for these two functional classifications are not available.

8.0 VMT EVALUATION

8.1 BACKGROUND

Senate Bill (SB) 743 (Steinberg 2013) was approved by Governor Brown on September 27, 2013. SB 743 created a path to revise the definition of transportation impacts according to CEQA. As the guidelines are proposed today, CEQA transportation impacts are determined using LOS of intersections and roadways, which is a measure of congestion. The intent of SB 743 is to align CEQA transportation study methodology with and promote the statewide goals and policies for reducing vehicle miles traveled (VMT) and greenhouse gases (GHG). Three objectives of SB 743 related to development are to reduce GHG, diversify land uses, and focus on creating a multimodal environment. It is hoped that this will spur infill development.

The *Technical Advisory on Evaluating Transportation Impacts in CEQA* (Technical Advisory; dated April 2018), circulated by the Governor's Office of Planning and Research (OPR), acknowledges that lead agencies should set criteria and thresholds for VMT and transportation impacts. However, the Technical Advisory provides guidance below to residential, office, and retail uses, citing these as the most common land uses. Beyond these three land uses, there is no guidance provided for any other land use type.

Land Use	Significance Threshold
Residential	15% below existing regional or city VMT per capita
Office	15% below existing regional VMT per employee
Retail	Net increase in total VMT

Figure 1: Source: Office of Planning and Research. 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA.* April.
Figure 2: VMT = vehicle miles traveled

The Technical Advisory also notes that land uses may have a less-than-significant impact if located within low VMT areas of a region. Screening maps are suggested for this determination.

8.2 EVALUATION

VMT is simply the product of a number of trips and those trips' lengths. The first step in a VMT analysis is to establish the baseline average VMT, which requires the definition of a region. The Technical Advisory states that existing VMT may be measured at the regional or city level. On the contrary, the Technical Advisory also notes that VMT analyses should not be truncated due to "jurisdictional or other boundaries."

The definition of the region is left to the discretion of the practitioner or the lead agency. The Technical Advisory suggests that, generally, lead agencies should analyze the effects of a retail project by assessing the change in total VMT because retail projects typically re-route travel from other retail destinations. By adding retail opportunities and improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT.

Generally, retail development larger than 50,000 sf could be considered regional serving, but other factors, including but not limited to the following, should also be considered:

- Service Area – The Merced Mall serves the area residents and surrounding neighborhoods. Although the occasional visitor may originate from outside the Merced vicinity, it is unlikely that the project would attract regular customers from other cities (such as Modesto, Turlock, or Fresno) that already have similar retail opportunities.
- Existing Use – The Merced Mall (and a 7-screen movie theater) currently exists and already generates customer demand. Although the proposed project would renovate and provide additional use on site (i.e., ranging from 24,580 sf to 50,000 sf of retail use and 7 to 14 movie screens), the project could be considered an amenity to the existing mall.

As the project is within a defined service area and the project is a modest expansion of an existing use serving an expanding population, it is likely that the project would not add VMT per capita or service population to the region.

In the near future, the City may wish to coordinate with the regional agency (MCAG) and develop criteria and thresholds that balance the direction from OPR and the goals of SB 743 with the vision for Merced and economic development, affordable housing, access to goods and services, and overall quality of life.

9.0 SUMMARY AND CONCLUSIONS

The proposed Merced Mall Expansion and Redevelopment Project includes an increase of the leasable retail area on the project site by 50,000 square feet in Phase I and the development of an at-grade 72,000-square foot new movie theater at one of two possible on-site locations in Phase II. In Alternative I, the theater would be added to an existing shopping center building. In Alternative II, the theater would be added by demolishing an existing theater and two retail stores located along the eastern boundary of the project site. When complete, the proposed project is forecast to generate a total of 4,892 daily trips with 47 trips occurring in the a.m. peak hour and 367 trips occurring in the p.m. peak hour. However, for Alternative II, adjustments were made for the trips generated by the existing uses. As such, under this alternative, the project is anticipated to generate 2,431 net daily trips, with 23 trips occurring during the a.m. peak hour and 176 trips occurring during the p.m. peak hour.

The TIA included analysis of 11 intersections and six roadway segments adjacent to the project site. Seven conditions were examined in the TIA: existing, existing plus project Phase I, existing plus project Phases I and II Alternative I, existing plus project Phases I and II Alternative II, cumulative, cumulative plus project Phases I and II Alternative I, and cumulative plus project Phases I and II Alternative II. The study intersection of Mall Driveway 2–Pepperwood Lane/Olive Avenue is forecast to operate at an unsatisfactory LOS in all scenarios. However, since the major street (Olive Avenue) at this intersection has unimpeded through movements and low delays, the impact at this intersection would not be considered a significant CEQA impact. All other study intersections are forecast to operate at a satisfactory LOS in all scenarios and no significant delay is forecast at any of the signalized intersections. Therefore, no mitigation measures are required.

Based on the existing mall location and its defined service area, it is likely that the project would not add VMT per capita to the region, The City could coordinate with MCAG on the future development of VMT criteria and thresholds that balance the visions and goals of both Merced and SB 743.

APPENDIX A:

TRAFFIC COUNT SHEETS

National Data & Surveying Services

Intersection Turning Movement Count

Location: R St & Loughborough Dr
City: Merced
Control: Signalized

Project ID: 18-07228-002
Date: 6/5/2018

Total

NS/EW Streets:	R St				R St				Loughborough Dr				Loughborough Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	3	41	7	3	3	56	8	0	17	17	6	0	6	10	13	0	190
7:15 AM	1	56	9	0	11	94	28	0	40	25	7	0	16	24	10	0	321
7:30 AM	4	62	33	2	15	130	29	0	31	43	11	0	28	24	10	0	422
7:45 AM	7	74	37	3	21	130	18	2	21	62	19	0	16	27	16	0	453
8:00 AM	13	60	16	3	14	100	18	1	15	34	3	0	17	23	12	0	329
8:15 AM	8	68	34	2	7	106	25	3	19	26	12	0	17	23	11	0	361
8:30 AM	10	59	22	2	14	85	15	0	21	23	8	0	25	29	9	0	322
8:45 AM	5	69	26	3	19	88	15	2	18	22	15	0	16	15	18	0	331
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	51	489	184	18	104	789	156	8	182	252	81	0	141	175	99	0	2729
APPROACH %'s :	6.87%	65.90%	24.80%	2.43%	9.84%	74.65%	14.76%	0.76%	35.34%	48.93%	15.73%	0.00%	33.98%	42.17%	23.86%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	32	264	120	10	57	466	90	6	86	165	45	0	78	97	49	0	1565
PEAK HR FACTOR :	0.615	0.892	0.811	0.833	0.679	0.896	0.776	0.500	0.694	0.665	0.592	0.000	0.696	0.898	0.766	0.000	0.864
	0.880				0.889				0.725				0.903				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	0	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	21	109	32	6	10	94	28	0	24	20	14	0	36	38	22	0	454
4:15 PM	23	94	24	5	13	95	19	1	24	30	13	0	19	30	18	0	408
4:30 PM	26	109	41	7	14	87	20	3	22	30	11	0	20	45	11	0	446
4:45 PM	21	130	27	6	8	78	18	0	32	34	6	0	21	32	19	0	432
5:00 PM	17	147	25	10	13	93	24	0	24	33	14	0	33	53	30	0	516
5:15 PM	22	120	36	6	9	102	25	1	24	24	4	0	30	38	21	0	462
5:30 PM	15	96	23	2	13	75	19	0	26	34	9	0	20	23	28	0	383
5:45 PM	18	105	24	5	13	105	26	3	37	35	14	0	18	30	23	0	456
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	163	910	232	47	93	729	179	8	213	240	85	0	197	289	172	0	3557
APPROACH %'s :	12.06%	67.31%	17.16%	3.48%	9.22%	72.25%	17.74%	0.79%	39.59%	44.61%	15.80%	0.00%	29.94%	43.92%	26.14%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	86	506	129	29	44	360	87	4	102	121	35	0	104	168	81	0	1856
PEAK HR FACTOR :	0.827	0.861	0.787	0.725	0.786	0.882	0.870	0.333	0.797	0.890	0.625	0.000	0.788	0.792	0.675	0.000	0.899
	0.942				0.903				0.896				0.761				

National Data & Surveying Services

Intersection Turning Movement Count

Location: R St & Right-In/Right-out/Left-In Mall Dwy
City: Merced
Control: 1-Way Stop (WB)

Project ID: 18-07228-003
Date: 6/5/2018

Total

NS/EW Streets:	R St				R St				Right-In/Right-out/Left-In Mall Dwy				Right-In/Right-out/Left-In Mall Dwy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	48	5	2	0	64	3	3	0	0	7	0	0	0	1	0	134
7:15 AM	2	63	3	0	6	110	1	0	0	0	2	0	0	0	4	0	191
7:30 AM	3	104	10	0	5	150	4	1	0	0	9	0	0	0	3	0	289
7:45 AM	6	114	7	1	3	163	6	1	0	0	8	0	0	0	5	0	314
8:00 AM	9	100	8	2	1	103	4	6	0	0	8	0	0	0	4	0	245
8:15 AM	13	101	7	2	3	127	8	8	0	0	4	0	0	0	2	0	275
8:30 AM	8	91	7	2	4	104	12	6	0	0	18	0	0	0	9	0	261
8:45 AM	10	97	12	1	4	104	9	10	0	0	12	0	0	0	3	0	262
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	52	718	59	10	26	925	47	35	0	0	68	0	0	0	31	0	1971
APPROACH %'s :	6.20%	85.58%	7.03%	1.19%	2.52%	89.55%	4.55%	3.39%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	31	419	32	5	12	543	22	16	0	0	29	0	0	0	14	0	1123
PEAK HR FACTOR :	0.596	0.919	0.800	0.625	0.600	0.833	0.688	0.500	0.000	0.000	0.806	0.000	0.000	0.000	0.700	0.000	0.894
	0.951				0.857				0.806				0.700				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	12	146	23	0	9	127	13	6	0	0	32	0	0	0	19	0	387
4:15 PM	8	135	32	1	11	121	14	9	0	0	24	0	0	0	11	0	366
4:30 PM	21	181	27	2	13	112	6	10	0	0	35	0	0	0	20	0	427
4:45 PM	26	158	35	0	8	93	4	17	0	0	30	0	0	0	17	0	388
5:00 PM	21	187	34	5	10	135	6	11	0	0	33	0	0	0	23	0	465
5:15 PM	14	175	18	5	9	117	13	6	0	0	27	0	0	0	21	0	405
5:30 PM	15	123	24	1	9	92	8	12	0	0	29	0	0	0	10	0	323
5:45 PM	16	152	29	5	2	124	9	5	0	0	24	0	0	0	19	0	385
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	133	1257	222	19	71	921	73	76	0	0	234	0	0	0	140	0	3146
APPROACH %'s :	8.15%	77.07%	13.61%	1.16%	6.22%	80.72%	6.40%	6.66%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	82	701	114	12	40	457	29	44	0	0	125	0	0	0	81	0	1685
PEAK HR FACTOR :	0.788	0.937	0.814	0.600	0.769	0.846	0.558	0.647	0.000	0.000	0.893	0.000	0.000	0.000	0.880	0.000	0.906
	0.920				0.880				0.893				0.880				

National Data & Surveying Services

Intersection Turning Movement Count

Location: R St & Olive Ave
City: Merced
Control: Signalized

Project ID: 18-07228-004
Date: 6/5/2018

Total

NS/EW Streets:	R St				R St				Olive Ave				Olive Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	1	0	1	3	1	0	1	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	14	32	9	0	19	41	11	0	13	80	5	3	30	78	9	0	344
7:15 AM	22	51	12	0	29	73	10	0	7	105	20	0	30	79	14	3	455
7:30 AM	24	79	31	0	24	106	15	1	26	130	34	2	33	106	13	1	625
7:45 AM	35	81	43	0	24	126	17	1	31	195	42	1	45	117	14	2	774
8:00 AM	35	76	24	0	23	84	7	0	23	157	29	1	47	114	24	2	646
8:15 AM	26	89	27	0	25	80	16	0	15	165	33	3	32	120	17	0	648
8:30 AM	42	78	15	0	38	70	24	0	16	105	26	5	20	107	21	2	569
8:45 AM	45	67	18	0	26	65	20	0	23	156	30	3	21	111	21	1	607
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	243	553	179	0	208	645	120	2	154	1093	219	18	258	832	133	11	4668
APPROACH %'s :	24.92%	56.72%	18.36%	0.00%	21.33%	66.15%	12.31%	0.21%	10.38%	73.65%	14.76%	1.21%	20.91%	67.42%	10.78%	0.89%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	120	325	125	0	96	396	55	2	95	647	138	7	157	457	68	5	2693
PEAK HR FACTOR :	0.857	0.913	0.727	0.000	0.960	0.786	0.809	0.500	0.766	0.829	0.821	0.583	0.835	0.952	0.708	0.625	0.870
	0.896				0.817				0.824				0.918				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	1	0	1	3	1	0	1	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	53	120	28	0	39	90	30	1	39	173	41	5	62	180	24	2	887
4:15 PM	75	109	21	0	39	71	27	1	35	208	42	4	59	190	28	4	913
4:30 PM	80	149	25	0	24	96	35	1	48	184	45	4	50	201	35	4	981
4:45 PM	87	135	25	0	40	72	17	0	51	228	54	6	50	218	43	6	1032
5:00 PM	53	141	26	0	33	90	31	1	54	183	49	7	61	246	38	1	1014
5:15 PM	73	145	22	0	31	94	28	4	37	178	39	5	64	177	28	3	928
5:30 PM	71	94	17	0	26	72	21	2	39	177	37	2	49	233	33	3	876
5:45 PM	56	115	31	0	24	89	35	2	46	164	52	4	50	198	37	1	904
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	548	1008	195	0	256	674	224	12	349	1495	359	37	445	1643	266	24	7535
APPROACH %'s :	31.30%	57.57%	11.14%	0.00%	21.96%	57.80%	19.21%	1.03%	15.58%	66.74%	16.03%	1.65%	18.71%	69.09%	11.19%	1.01%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	293	570	98	0	128	352	111	6	190	773	187	22	225	842	144	14	3955
PEAK HR FACTOR :	0.842	0.956	0.942	0.000	0.800	0.917	0.793	0.375	0.880	0.848	0.866	0.786	0.879	0.856	0.837	0.583	0.958
	0.946				0.951				0.864				0.885				

National Data & Surveying Services

Intersection Turning Movement Count

Location: R St & Olivewood Dr
City: Merced
Control: 2-Way Stop (EB/WB)

Project ID: 18-07228-005
Date: 6/5/2018

Total

NS/EW Streets:	R St				R St				Olivewood Dr				Olivewood Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	1	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	19	48	9	0	4	74	2	1	0	0	15	0	0	0	12	0	184
7:15 AM	14	73	6	0	4	105	3	0	0	0	18	0	0	0	6	0	229
7:30 AM	19	129	18	0	6	146	6	0	0	0	22	0	0	0	10	0	356
7:45 AM	32	157	33	0	15	209	4	0	0	0	29	0	0	0	12	0	491
8:00 AM	26	105	44	0	8	148	3	0	0	0	16	0	0	0	14	0	364
8:15 AM	40	124	15	0	15	125	6	1	0	0	27	0	0	0	19	0	372
8:30 AM	26	102	13	0	8	95	5	0	0	0	23	0	0	0	19	0	291
8:45 AM	40	118	14	0	10	101	7	1	0	0	23	0	0	0	20	0	334
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	216	856	152	0	70	1003	36	3	0	0	173	0	0	0	112	0	2621
APPROACH %'s :	17.65%	69.93%	12.42%	0.00%	6.29%	90.20%	3.24%	0.27%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	117	515	110	0	44	628	19	1	0	0	94	0	0	0	55	0	1583
PEAK HR FACTOR :	0.731	0.820	0.625	0.000	0.733	0.751	0.792	0.250	0.000	0.000	0.810	0.000	0.000	0.000	0.724	0.000	0.806
	0.836				0.759				0.810				0.724				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	1	0	1	2	1	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	53	166	27	0	10	173	10	0	0	0	72	0	0	0	31	0	542
4:15 PM	59	170	37	0	4	157	15	0	0	0	66	0	0	0	47	0	555
4:30 PM	60	195	28	0	19	152	4	0	0	0	80	0	0	0	41	0	579
4:45 PM	66	192	33	0	5	158	10	0	0	0	83	0	0	0	56	0	603
5:00 PM	67	215	23	0	10	180	15	0	0	0	69	0	0	0	45	0	624
5:15 PM	56	191	32	0	9	173	8	0	0	0	87	0	0	0	39	0	595
5:30 PM	51	158	8	0	3	156	10	2	0	0	84	0	0	0	29	0	501
5:45 PM	49	168	13	0	9	162	11	0	0	0	71	0	0	0	40	0	523
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	461	1455	201	0	69	1311	83	2	0	0	612	0	0	0	328	0	4522
APPROACH %'s :	21.78%	68.73%	9.49%	0.00%	4.71%	89.49%	5.67%	0.14%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	249	793	116	0	43	663	37	0	0	0	319	0	0	0	181	0	2401
PEAK HR FACTOR :	0.929	0.922	0.879	0.000	0.566	0.921	0.617	0.000	0.000	0.000	0.917	0.000	0.000	0.000	0.808	0.000	0.962
	0.949				0.906				0.917				0.808				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Pepperwood Ln/Mall Dwy & Olive Ave
City: Merced
Control: 2-Way Stop (NB/SB)

Project ID: 18-07228-006
Date: 6/5/2018

Total

NS/EW Streets:	Pepperwood Ln/Mall Dwy				Pepperwood Ln/Mall Dwy				Olive Ave				Olive Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	3	0	0	1	4	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	0	2	0	1	0	1	0	1	101	2	2	0	106	0	0	218
7:15 AM	0	0	4	0	0	0	1	0	0	143	4	3	2	125	0	0	282
7:30 AM	2	1	16	0	1	0	0	0	1	186	3	2	4	151	1	0	368
7:45 AM	4	0	14	0	2	0	1	0	5	253	3	1	5	165	1	1	455
8:00 AM	1	1	18	0	1	1	1	0	2	204	4	2	9	204	2	0	450
8:15 AM	1	0	8	0	0	0	1	0	3	201	4	1	8	151	0	0	378
8:30 AM	3	0	13	0	0	0	2	0	2	146	8	2	10	143	2	0	331
8:45 AM	3	0	11	0	0	0	1	0	2	189	5	1	12	142	1	1	368
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	16	2	86	0	5	1	8	0	16	1423	33	14	50	1187	7	2	2850
APPROACH %'s :	15.38%	1.92%	82.69%	0.00%	35.71%	7.14%	57.14%	0.00%	1.08%	95.76%	2.22%	0.94%	4.01%	95.26%	0.56%	0.16%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	8	2	56	0	4	1	3	0	11	844	14	6	26	671	4	1	1651
PEAK HR FACTOR :	0.500	0.500	0.778	0.000	0.500	0.250	0.750	0.000	0.550	0.834	0.875	0.750	0.722	0.822	0.500	0.250	0.907
	0.825				0.667				0.835				0.816				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	3	0	0	1	4	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	4	1	26	0	1	0	14	0	10	249	13	5	21	254	3	4	605
4:15 PM	0	0	35	0	2	0	21	0	10	255	12	2	13	243	2	6	601
4:30 PM	6	1	16	0	2	1	13	0	12	224	6	4	18	273	7	5	588
4:45 PM	5	1	25	0	1	0	18	0	11	269	22	3	9	279	6	5	654
5:00 PM	4	0	29	0	0	0	24	0	12	203	6	4	5	298	1	3	589
5:15 PM	7	1	27	0	2	0	19	0	12	256	3	6	7	268	6	4	618
5:30 PM	1	1	13	0	2	0	19	0	14	196	5	2	6	258	2	4	523
5:45 PM	2	1	7	0	2	1	14	0	8	186	4	4	4	267	1	1	502
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	29	6	178	0	12	2	142	0	89	1838	71	30	83	2140	28	32	4680
APPROACH %'s :	13.62%	2.82%	83.57%	0.00%	7.69%	1.28%	91.03%	0.00%	4.39%	90.63%	3.50%	1.48%	3.64%	93.74%	1.23%	1.40%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	22	3	97	0	5	1	74	0	47	952	37	17	39	1118	20	17	2449
PEAK HR FACTOR :	0.786	0.750	0.836	0.000	0.625	0.250	0.771	0.000	0.979	0.885	0.420	0.708	0.542	0.938	0.714	0.850	0.936
	0.871				0.833				0.863				0.972				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mall Dwy & Loughborough Dr
City: Merced
Control: 1-Way Stop (NB)

Project ID: 18-07228-008
Date: 6/5/2018

Total

NS/EW Streets:	Mall Dwy				Mall Dwy				Loughborough Dr				Loughborough Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	0	4	0	1	0	1	0	0	30	0	0	1	22	1	0	62
7:15 AM	1	0	2	0	1	0	1	0	2	32	1	0	1	45	1	0	87
7:30 AM	3	0	4	0	2	0	2	0	1	80	5	0	6	52	1	0	156
7:45 AM	0	0	9	0	0	0	2	0	0	112	12	0	11	58	4	0	208
8:00 AM	2	0	8	0	2	0	1	0	0	65	5	0	7	63	0	0	153
8:15 AM	2	0	5	0	0	0	1	0	0	67	1	0	2	43	1	0	122
8:30 AM	1	0	4	0	1	0	3	0	1	53	4	0	2	56	0	0	125
8:45 AM	3	0	5	0	0	0	2	0	1	69	2	0	7	50	0	0	139
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	14	0	41	0	7	0	13	0	5	508	30	0	37	389	8	0	1052
APPROACH %'s :	25.45%	0.00%	74.55%	0.00%	35.00%	0.00%	65.00%	0.00%	0.92%	93.55%	5.52%	0.00%	8.53%	89.63%	1.84%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	7	0	26	0	4	0	6	0	1	324	23	0	26	216	6	0	639
PEAK HR FACTOR :	0.583	0.000	0.722	0.000	0.500	0.000	0.750	0.000	0.250	0.723	0.479	0.000	0.591	0.857	0.375	0.000	0.768
	0.825				0.625				0.702				0.849				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	6	0	18	0	3	0	2	0	2	83	5	0	8	93	1	0	221
4:15 PM	6	1	24	0	0	0	0	0	5	77	3	0	6	49	0	0	171
4:30 PM	7	0	20	0	3	0	0	0	6	98	3	0	13	78	2	0	230
4:45 PM	7	0	15	0	2	0	2	0	2	72	6	1	9	65	1	0	182
5:00 PM	9	0	17	0	3	0	0	0	1	77	5	0	6	100	4	0	222
5:15 PM	6	1	17	0	1	1	0	0	1	85	4	0	11	77	3	0	207
5:30 PM	10	2	21	0	1	0	1	0	1	83	5	0	11	49	3	0	187
5:45 PM	6	0	18	0	1	0	3	0	4	73	5	0	5	64	2	0	181
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	57	4	150	0	14	1	8	0	22	648	36	1	69	575	16	0	1601
APPROACH %'s :	27.01%	1.90%	71.09%	0.00%	60.87%	4.35%	34.78%	0.00%	3.11%	91.65%	5.09%	0.14%	10.45%	87.12%	2.42%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	29	1	69	0	9	1	2	0	10	332	18	1	39	320	10	0	841
PEAK HR FACTOR :	0.806	0.250	0.863	0.000	0.750	0.250	0.250	0.000	0.417	0.847	0.750	0.250	0.750	0.800	0.625	0.000	0.914
	0.917				0.750				0.843				0.839				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Applewood Ln/RIROLI Mall Dwy & Olive Ave
City: Merced
Control: 2-Way Stop (NB/SB)

Project ID: 18-07228-007
Date: 6/5/2018

Total

NS/EW Streets:	Applewood Ln/RIROLI Mall Dwy				Applewood Ln/RIROLI Mall Dwy				Olive Ave				Olive Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	1	0	0	1	0	0	1	3	0	0	1	4	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	5	0	0	0	0	0	7	101	1	1	5	104	0	2	226
7:15 AM	0	0	2	0	0	0	1	0	8	140	3	2	4	125	2	2	289
7:30 AM	0	0	5	0	0	0	2	0	10	189	6	0	2	152	4	3	373
7:45 AM	0	0	9	0	0	0	1	0	12	263	3	3	8	160	4	1	464
8:00 AM	0	0	5	0	0	0	0	0	14	206	3	1	14	216	9	5	473
8:15 AM	0	0	10	0	0	0	4	0	4	199	6	2	10	150	2	2	389
8:30 AM	0	0	3	0	0	0	5	0	9	150	7	3	9	149	3	6	344
8:45 AM	0	0	4	0	0	0	5	0	11	186	11	1	6	149	7	4	384
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	43	0	0	0	18	0	75	1434	40	13	58	1205	31	25	2942
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	4.80%	91.81%	2.56%	0.83%	4.40%	91.36%	2.35%	1.90%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	29	0	0	0	7	0	40	857	18	6	34	678	19	11	1699
PEAK HR FACTOR :	0.000	0.000	0.725	0.000	0.000	0.000	0.438	0.000	0.714	0.815	0.750	0.500	0.607	0.785	0.528	0.550	0.898
	0.725				0.438				0.819				0.760				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	1	0	0	1	0	0	1	3	0	0	1	4	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	13	0	0	0	18	0	19	260	8	10	14	271	18	5	636
4:15 PM	0	0	13	0	0	0	19	0	10	287	10	8	22	231	25	2	627
4:30 PM	0	0	12	0	0	0	14	0	21	219	11	5	15	290	18	3	608
4:45 PM	0	0	24	0	0	0	24	0	19	267	12	8	13	278	13	3	661
5:00 PM	0	0	9	0	0	0	22	0	20	207	8	8	10	257	22	1	564
5:15 PM	0	0	11	0	0	0	21	0	21	261	11	5	9	262	22	4	627
5:30 PM	0	0	11	0	0	0	18	0	23	203	6	5	13	267	18	3	567
5:45 PM	0	0	7	0	0	0	12	0	10	187	3	6	13	239	18	1	496
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	100	0	0	0	148	0	143	1891	69	55	109	2095	154	22	4786
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	6.63%	87.63%	3.20%	2.55%	4.58%	88.03%	6.47%	0.92%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	62	0	0	0	75	0	69	1033	41	31	64	1070	74	13	2532
PEAK HR FACTOR :	0.000	0.000	0.646	0.000	0.000	0.000	0.781	0.000	0.821	0.900	0.854	0.775	0.727	0.922	0.740	0.650	0.958
	0.646				0.781				0.932				0.936				

National Data & Surveying Services

Intersection Turning Movement Count

Location: M St & Loughborough Dr/Collins Dr
City: Merced
Control: Signalized

Project ID: 18-07228-009
Date: 6/5/2018

Total

NS/EW Streets:	M St				M St				Loughborough Dr/Collins Dr				Loughborough Dr/Collins Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1.5	0.5	0	1	1.5	0.5	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	8	54	0	0	5	83	14	0	13	2	13	0	5	4	11	0	212
7:15 AM	7	73	1	0	17	124	34	0	14	5	15	0	9	11	20	0	330
7:30 AM	17	111	3	0	29	143	32	0	38	12	34	0	6	14	27	0	466
7:45 AM	42	161	3	1	36	217	25	0	45	38	33	0	9	20	26	0	656
8:00 AM	19	93	3	0	33	157	33	0	27	17	23	0	20	24	32	0	481
8:15 AM	21	99	5	0	12	129	26	0	32	10	30	0	10	8	19	0	401
8:30 AM	23	63	3	0	11	110	26	0	25	7	26	0	7	11	17	0	329
8:45 AM	25	70	1	0	9	113	33	0	35	8	24	0	10	9	6	0	343
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	162	724	19	1	152	1076	223	0	229	99	198	0	76	101	158	0	3218
APPROACH %'s :	17.88%	79.91%	2.10%	0.11%	10.48%	74.16%	15.37%	0.00%	43.54%	18.82%	37.64%	0.00%	22.69%	30.15%	47.16%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	99	464	14	1	110	646	116	0	142	77	120	0	45	66	104	0	2004
PEAK HR FACTOR :	0.589	0.720	0.700	0.250	0.764	0.744	0.879	0.000	0.789	0.507	0.882	0.000	0.563	0.688	0.813	0.000	0.764
		0.698				0.784				0.731				0.707			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1.5	0.5	0	1	1.5	0.5	0	1	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	22	101	9	0	19	120	43	0	60	12	48	0	8	24	29	0	495
4:15 PM	14	98	4	0	10	115	29	0	51	8	49	0	16	12	17	0	423
4:30 PM	40	105	4	0	8	133	33	0	58	9	63	0	13	15	25	0	506
4:45 PM	25	110	3	0	6	105	33	0	60	3	43	0	7	15	27	0	437
5:00 PM	27	159	5	1	5	123	44	0	54	10	46	0	15	35	37	0	561
5:15 PM	45	125	4	0	8	89	40	0	51	7	44	0	9	13	21	0	456
5:30 PM	22	87	4	0	12	107	25	0	67	8	43	0	8	9	20	0	412
5:45 PM	25	94	3	0	8	82	26	1	56	10	35	0	8	15	15	0	378
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	220	879	36	1	76	874	273	1	457	67	371	0	84	138	191	0	3668
APPROACH %'s :	19.37%	77.38%	3.17%	0.09%	6.21%	71.41%	22.30%	0.08%	51.06%	7.49%	41.45%	0.00%	20.34%	33.41%	46.25%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	137	499	16	1	27	450	150	0	223	29	196	0	44	78	110	0	1960
PEAK HR FACTOR :	0.761	0.785	0.800	0.250	0.844	0.846	0.852	0.000	0.929	0.725	0.778	0.000	0.733	0.557	0.743	0.000	0.873
		0.850				0.901				0.862				0.667			

National Data & Surveying Services

Intersection Turning Movement Count

Location: M St & Fairfield Dr
City: Merced
Control: 2-Way Stop (EB/WB)

Project ID: 18-07228-010
Date: 6/5/2018

Total

NS/EW Streets:	M St				M St				Fairfield Dr				Fairfield Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	3	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	60	3	0	0	93	5	0	0	0	10	0	0	0	4	0	175
7:15 AM	0	94	5	0	0	134	8	0	0	0	4	0	0	0	5	0	250
7:30 AM	0	125	12	0	0	157	16	0	0	0	10	0	0	0	6	0	326
7:45 AM	0	203	13	0	0	244	11	0	0	0	12	0	0	0	25	0	508
8:00 AM	0	117	15	0	0	191	9	0	0	0	13	0	0	0	10	0	355
8:15 AM	0	124	5	0	0	159	10	0	0	0	12	0	0	0	9	0	319
8:30 AM	0	100	8	0	0	135	14	0	0	0	9	0	0	0	5	0	271
8:45 AM	0	98	7	0	0	136	10	0	0	0	4	0	0	0	8	0	263
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	921	68	0	0	1249	83	0	0	0	74	0	0	0	72	0	2467
APPROACH %'s :	0.00%	93.12%	6.88%	0.00%	0.00%	93.77%	6.23%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	569	45	0	0	751	46	0	0	0	47	0	0	0	50	0	1508
PEAK HR FACTOR :	0.000	0.701	0.750	0.000	0.000	0.769	0.719	0.000	0.000	0.000	0.904	0.000	0.000	0.000	0.500	0.000	0.742
		0.711				0.781				0.904				0.500			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	3	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	149	9	0	0	179	8	0	0	0	30	0	0	0	10	0	385
4:15 PM	0	125	8	0	0	184	15	0	0	0	18	0	0	0	11	0	361
4:30 PM	0	133	3	0	0	239	7	0	0	0	33	0	0	0	12	0	427
4:45 PM	0	140	11	0	0	164	16	0	0	0	36	0	0	0	9	0	376
5:00 PM	0	193	10	0	0	202	10	0	0	0	35	0	0	0	11	0	461
5:15 PM	0	148	13	0	0	139	13	0	0	0	34	0	0	0	9	0	356
5:30 PM	0	114	9	0	0	155	12	0	0	0	48	0	0	0	8	0	346
5:45 PM	0	112	7	0	0	116	14	0	0	0	31	0	0	0	7	0	287
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1114	70	0	0	1378	95	0	0	0	265	0	0	0	77	0	2999
APPROACH %'s :	0.00%	94.09%	5.91%	0.00%	0.00%	93.55%	6.45%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	0	591	32	0	0	789	48	0	0	0	122	0	0	0	43	0	1625
PEAK HR FACTOR :	0.000	0.766	0.727	0.000	0.000	0.825	0.750	0.000	0.000	0.000	0.847	0.000	0.000	0.000	0.896	0.000	0.881
		0.767				0.851				0.847				0.896			

National Data & Surveying Services

Intersection Turning Movement Count

Location: M St & Olive Ave
City: Merced
Control: Signalized

Project ID: 18-07228-011
Date: 6/5/2018

Total

NS/EW Streets:	M St				M St				Olive Ave				Olive Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	1.5	0.5	0	1	3	1	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	23	40	19	0	28	66	7	0	5	68	17	3	17	83	17	0	393
7:15 AM	25	68	12	0	27	84	11	0	18	91	31	3	19	96	15	2	502
7:30 AM	35	106	22	0	41	131	8	0	21	105	54	4	26	113	10	5	681
7:45 AM	21	155	33	0	53	175	18	0	35	171	33	2	44	134	28	9	911
8:00 AM	38	71	31	0	42	129	19	0	33	163	35	2	46	182	25	13	829
8:15 AM	32	85	18	0	49	117	16	0	23	134	40	3	34	123	18	3	695
8:30 AM	26	67	10	0	24	97	17	0	12	111	32	1	25	125	27	3	577
8:45 AM	36	65	22	0	40	92	18	0	19	129	25	1	14	113	22	5	601
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	236	657	167	0	304	891	114	0	166	972	267	19	225	969	162	40	5189
APPROACH %'s :	22.26%	61.98%	15.75%	0.00%	23.22%	68.07%	8.71%	0.00%	11.66%	68.26%	18.75%	1.33%	16.12%	69.41%	11.60%	2.87%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	126	417	104	0	185	552	61	0	112	573	162	11	150	552	81	30	3116
PEAK HR FACTOR :	0.829	0.673	0.788	0.000	0.873	0.789	0.803	0.000	0.800	0.838	0.750	0.688	0.815	0.758	0.723	0.577	0.855
	0.774				0.811				0.890				0.764				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	1.5	0.5	0	1	3	1	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	53	97	22	0	61	107	28	0	36	205	45	11	33	227	17	8	950
4:15 PM	59	86	21	0	45	111	42	0	27	188	45	8	26	189	17	3	867
4:30 PM	74	101	28	0	97	155	30	0	21	199	32	6	41	213	15	8	1020
4:45 PM	59	103	32	0	48	119	21	0	32	202	39	12	24	225	14	8	938
5:00 PM	89	171	29	0	84	143	28	0	22	146	34	5	33	169	9	8	970
5:15 PM	80	117	30	0	64	84	19	0	24	212	36	10	39	201	20	7	943
5:30 PM	64	91	25	0	64	128	14	0	12	161	31	7	25	203	20	2	847
5:45 PM	56	95	12	0	59	76	22	0	8	158	27	6	19	172	12	6	728
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	534	861	199	0	522	923	204	0	182	1471	289	65	240	1599	124	50	7263
APPROACH %'s :	33.50%	54.02%	12.48%	0.00%	31.66%	55.97%	12.37%	0.00%	9.07%	73.29%	14.40%	3.24%	11.92%	79.43%	6.16%	2.48%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	302	492	119	0	293	501	98	0	99	759	141	33	137	808	58	31	3871
PEAK HR FACTOR :	0.848	0.719	0.930	0.000	0.755	0.808	0.817	0.000	0.773	0.895	0.904	0.688	0.835	0.898	0.725	0.969	0.949
	0.790				0.791				0.905				0.933				

National Data & Surveying Services

Intersection Turning Movement Count

Location: M St & Olivewood Dr
City: Merced
Control: 1-Way Stop (EB)

Project ID: 18-07228-012
Date: 6/5/2018

Total

NS/EW Streets:	M St				M St				Olivewood Dr				Olivewood Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	1	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	81	0	0	0	92	2	0	1	0	6	0	0	0	0	0	183
7:15 AM	11	107	0	0	0	134	4	0	1	0	21	0	0	0	0	0	278
7:30 AM	10	160	0	0	0	203	9	0	1	0	14	0	0	0	0	0	397
7:45 AM	14	206	0	0	0	243	13	0	1	0	15	0	0	0	0	0	492
8:00 AM	19	147	0	0	0	197	12	0	3	0	15	0	0	0	0	0	393
8:15 AM	25	123	0	0	0	174	7	0	2	0	23	0	0	0	0	0	354
8:30 AM	27	114	0	0	0	140	15	0	3	0	15	0	0	0	0	0	314
8:45 AM	32	108	0	0	0	117	8	0	2	0	25	0	0	0	0	0	292
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	139	1046	0	0	0	1300	70	0	14	0	134	0	0	0	0	0	2703
APPROACH %'s :	11.73%	88.27%	0.00%	0.00%	0.00%	94.89%	5.11%	0.00%	9.46%	0.00%	90.54%	0.00%					
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	68	636	0	0	0	817	41	0	7	0	67	0	0	0	0	0	1636
PEAK HR FACTOR :	0.680	0.772	0.000	0.000	0.000	0.841	0.788	0.000	0.583	0.000	0.728	0.000	0.000	0.000	0.000	0.000	0.831
	0.800				0.838				0.740								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	0	2	1	0	1	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	38	178	0	0	0	177	18	0	4	0	42	0	0	0	0	0	457
4:15 PM	31	164	0	0	0	173	10	0	2	0	48	0	0	0	0	0	428
4:30 PM	35	201	0	0	0	207	20	0	5	0	42	0	0	0	0	0	510
4:45 PM	20	213	0	0	0	176	7	0	2	0	44	0	0	0	0	0	462
5:00 PM	29	250	0	0	0	193	11	1	3	0	50	0	0	0	0	0	537
5:15 PM	18	233	0	0	0	151	13	0	3	0	44	0	0	0	0	0	462
5:30 PM	21	171	0	0	0	177	9	0	4	0	31	0	0	0	0	0	413
5:45 PM	14	150	0	0	0	100	4	2	0	0	26	0	0	0	0	0	296
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	206	1560	0	0	0	1354	92	3	23	0	327	0	0	0	0	0	3565
APPROACH %'s :	11.66%	88.34%	0.00%	0.00%	0.00%	93.44%	6.35%	0.21%	6.57%	0.00%	93.43%	0.00%					
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	102	897	0	0	0	727	51	1	13	0	180	0	0	0	0	0	1971
PEAK HR FACTOR :	0.729	0.897	0.000	0.000	0.000	0.878	0.638	0.250	0.650	0.000	0.900	0.000	0.000	0.000	0.000	0.000	0.918
	0.895				0.858				0.910								

Prepared by NDS/ATD

VOLUME

Olivewood Dr Bet. Meadows Ave & R St

Day: Tuesday
Date: 6/5/2018

City: Merced
Project #: CA18_7229_007

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,165	3,051	6,216

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			1		0		1		12:00			58		66		124	
00:15			4		1		5		12:15			61		67		128	
00:30			4		1		5		12:30			68		41		109	
00:45			7	16	3	5	10	21	12:45			83	270	54	228	137	498
01:00			1		0		1		13:00			59		69		128	
01:15			0		2		2		13:15			51		53		104	
01:30			3		2		5		13:30			70		60		130	
01:45			2	6	6	10	8	16	13:45			63	243	65	247	128	490
02:00			1		0		1		14:00			66		57		123	
02:15			2		0		2		14:15			52		70		122	
02:30			1		2		3		14:30			55		67		122	
02:45			0	4	0	2	0	6	14:45			55	228	55	249	110	477
03:00			1		1		2		15:00			66		56		122	
03:15			3		0		3		15:15			67		61		128	
03:30			3		2		5		15:30			67		55		122	
03:45			0	7	5	8	5	15	15:45			63	263	77	249	140	512
04:00			1		1		2		16:00			71		64		135	
04:15			0		0		0		16:15			59		67		126	
04:30			0		0		0		16:30			75		60		135	
04:45			3	4	4	5	7	9	16:45			81	286	82	273	163	559
05:00			2		2		4		17:00			56		77		133	
05:15			3		3		6		17:15			83		63		146	
05:30			3		4		7		17:30			72		68		140	
05:45			2	10	8	17	10	27	17:45			69	280	57	265	126	545
06:00			6		2		8		18:00			59		50		109	
06:15			7		5		12		18:15			45		53		98	
06:30			10		6		16		18:30			50		38		88	
06:45			12	35	19	32	31	67	18:45			47	201	53	194	100	395
07:00			15		18		33		19:00			55		59		114	
07:15			20		14		34		19:15			57		44		101	
07:30			22		23		45		19:30			46		38		84	
07:45			29	86	28	83	57	169	19:45			45	203	35	176	80	379
08:00			17		22		39		20:00			46		42		88	
08:15			27		34		61		20:15			44		26		70	
08:30			24		29		53		20:30			30		22		52	
08:45			26	94	35	120	61	214	20:45			38	158	18	108	56	266
09:00			41		39		80		21:00			31		21		52	
09:15			35		41		76		21:15			38		18		56	
09:30			25		49		74		21:30			23		11		34	
09:45			28	129	58	187	86	316	21:45			18	110	14	64	32	174
10:00			53		61		114		22:00			27		10		37	
10:15			54		44		98		22:15			16		10		26	
10:30			48		56		104		22:30			19		6		25	
10:45			62	217	61	222	123	439	22:45			15	77	7	33	22	110
11:00			46		66		112		23:00			18		6		24	
11:15			46		68		114		23:15			8		3		11	
11:30			48		58		106		23:30			12		2		14	
11:45			56	196	68	260	124	456	23:45			4	42	3	14	7	56
TOTALS				804		951		**1755**	**TOTALS**				2361		2100		**4461**
SPLIT %				45.8%		54.2%		**28.2%**	**SPLIT %**				52.9%		47.1%		**71.8%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,165	3,051	6,216

AM Peak Hour			11:45	11:00	**11:45**	**PM Peak Hour**			16:30	16:45	**16:45**
AM Pk Volume			243	260	**485**	**PM Pk Volume**			295	290	**582**
Pk Hr Factor			0.893	0.956	**0.947**	**Pk Hr Factor**			0.889	0.884	**0.893**
7 - 9 Volume	0	0	180	203	**383**	**4 - 6 Volume**	0	0	566	538	**1104**
7 - 9 Peak Hour			07:45	08:00	**08:00**	**4 - 6 Peak Hour**			16:30	16:45	**16:45**
7 - 9 Pk Volume	0	0	97	120	**214**	**4 - 6 Pk Volume**	0	0	295	290	**582**
Pk Hr Factor	0.000	0.000	0.836	0.857	**0.877**	**Pk Hr Factor**	0.000	0.000	0.889	0.884	**0.893**

Prepared by NDS/ATD

VOLUME

Olivewood Dr Bet. R St & M St

Day: Tuesday
Date: 6/5/2018

City: Merced
Project #: CA18_7229_008

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,677	1,963	3,640

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			1		0		1		12:00			43		53		96	
00:15			1		0		1		12:15			44		51		95	
00:30			1		1		2		12:30			41		54		95	
00:45			0	3	2	3	2	6	12:45			40	168	40	198	80	366
01:00			1		0		1		13:00			36		48		84	
01:15			1		2		3		13:15			31		50		81	
01:30			1		0		1		13:30			44		34		78	
01:45			0	3	0	2	0	5	13:45			34	145	48	180	82	325
02:00			0		1		1		14:00			36		46		82	
02:15			1		1		2		14:15			37		39		76	
02:30			0		0		0		14:30			34		42		76	
02:45			0	1	1	3	1	4	14:45			36	143	35	162	71	305
03:00			1		0		1		15:00			42		42		84	
03:15			0		2		2		15:15			43		51		94	
03:30			0		0		0		15:30			44		46		90	
03:45			1	2	4	6	5	8	15:45			39	168	44	183	83	351
04:00			1		1		2		16:00			37		40		77	
04:15			1		0		1		16:15			48		52		100	
04:30			1		1		2		16:30			34		48		82	
04:45			0	3	2	4	2	7	16:45			41	160	51	191	92	351
05:00			1		4		5		17:00			41		42		83	
05:15			1		4		5		17:15			37		25		62	
05:30			2		1		3		17:30			21		19		40	
05:45			1	5	0	9	1	14	17:45			21	120	30	116	51	236
06:00			5		2		7		18:00			24		35		59	
06:15			4		3		7		18:15			20		19		39	
06:30			7		6		13		18:30			15		17		32	
06:45			5	21	6	17	11	38	18:45			12	71	19	90	31	161
07:00			10		8		18		19:00			16		16		32	
07:15			17		9		26		19:15			14		9		23	
07:30			11		16		27		19:30			15		18		33	
07:45			26	64	22	55	48	119	19:45			17	62	19	62	36	124
08:00			15		32		47		20:00			21		11		32	
08:15			24		28		52		20:15			8		10		18	
08:30			18		28		46		20:30			5		8		13	
08:45			21	78	25	113	46	191	20:45			9	43	8	37	17	80
09:00			26		30		56		21:00			12		13		25	
09:15			30		44		74		21:15			6		4		10	
09:30			29		35		64		21:30			6		2		8	
09:45			30	115	54	163	84	278	21:45			9	33	13	32	22	65
10:00			23		30		53		22:00			5		3		8	
10:15			38		32		70		22:15			3		4		7	
10:30			31		36		67		22:30			4		4		8	
10:45			35	127	43	141	78	268	22:45			0	12	4	15	4	27
11:00			27		35		62		23:00			3		4		7	
11:15			40		48		88		23:15			1		2		3	
11:30			22		50		72		23:30			2		1		3	
11:45			34	123	39	172	73	295	23:45			1	7	2	9	3	16
TOTALS				545		688		**1233**	**TOTALS**				1132		1275		**2407**
SPLIT %				44.2%		55.8%		**33.9%**	**SPLIT %**				47.0%		53.0%		**66.1%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,677	1,963	3,640

AM Peak Hour			11:45	11:45	**11:45**	**PM Peak Hour**			12:00	12:00	**12:00**
AM Pk Volume			162	197	**359**	**PM Pk Volume**			168	198	**366**
Pk Hr Factor			0.920	0.912	**0.935**	**Pk Hr Factor**			0.955	0.917	**0.953**
7 - 9 Volume	0	0	142	168	**310**	**4 - 6 Volume**	0	0	280	307	**587**
7 - 9 Peak Hour			07:45	08:00	**07:45**	**4 - 6 Peak Hour**			16:15	16:15	**16:15**
7 - 9 Pk Volume	0	0	83	113	**193**	**4 - 6 Pk Volume**	0	0	164	193	**357**
Pk Hr Factor	0.000	0.000	0.798	0.883	**0.928**	**Pk Hr Factor**	0.000	0.000	0.854	0.928	**0.893**

Prepared by NDS/ATD

VOLUME

R St Bet. Loughborough Dr & Olive Ave

Day: Tuesday
Date: 6/5/2018

City: Merced
Project #: CA18_7229_001

DAILY TOTALS	NB	SB	EB	WB	Total
	9,625	9,218	0	0	18,843

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	26		11				37		12:00	187		128				315	
00:15	13		6				19		12:15	171		161				332	
00:30	12		10				22		12:30	184		191				375	
00:45	12	63	2	29			14	92	12:45	198	740	173	653			371	1393
01:00	11		6				17		13:00	198		155				353	
01:15	6		7				13		13:15	175		144				319	
01:30	13		4				17		13:30	173		139				312	
01:45	10	40	5	22			15	62	13:45	174	720	162	600			336	1320
02:00	5		3				8		14:00	167		170				337	
02:15	12		3				15		14:15	204		196				400	
02:30	6		1				7		14:30	169		159				328	
02:45	6	29	7	14			13	43	14:45	194	734	175	700			369	1434
03:00	8		2				10		15:00	201		163				364	
03:15	9		7				16		15:15	211		170				381	
03:30	3		8				11		15:30	206		149				355	
03:45	18	38	9	26			27	64	15:45	240	858	224	706			464	1564
04:00	9		5				14		16:00	164		150				314	
04:15	11		6				17		16:15	166		151				317	
04:30	9		15				24		16:30	192		151				343	
04:45	13	42	15	41			28	83	16:45	187	709	126	578			313	1287
05:00	17		19				36		17:00	231		165				396	
05:15	18		21				39		17:15	196		137				333	
05:30	24		47				71		17:30	150		130				280	
05:45	43	102	52	139			95	241	17:45	165	742	133	565			298	1307
06:00	53		49				102		18:00	168		131				299	
06:15	36		69				105		18:15	153		135				288	
06:30	33		86				119		18:30	160		141				301	
06:45	53	175	72	276			125	451	18:45	140	621	126	533			266	1154
07:00	59		76				135		19:00	138		114				252	
07:15	69		116				185		19:15	138		136				274	
07:30	111		156				267		19:30	129		90				219	
07:45	128	367	180	528			308	895	19:45	136	541	126	466			262	1007
08:00	94		126				220		20:00	121		106				227	
08:15	123		154				277		20:15	128		115				243	
08:30	100		131				231		20:30	122		126				248	
08:45	111	428	132	543			243	971	20:45	105	476	123	470			228	946
09:00	86		118				204		21:00	118		120				238	
09:15	121		108				229		21:15	102		97				199	
09:30	85		99				184		21:30	82		87				169	
09:45	121	413	144	469			265	882	21:45	83	385	72	376			155	761
10:00	105		124				229		22:00	63		53				116	
10:15	113		122				235		22:15	48		62				110	
10:30	115		165				280		22:30	55		38				93	
10:45	111	444	138	549			249	993	22:45	33	199	29	182			62	381
11:00	157		164				321		23:00	43		39				82	
11:15	128		174				302		23:15	39		25				64	
11:30	173		161				334		23:30	27		13				40	
11:45	174	632	167	666			341	1298	23:45	18	127	10	87			28	214
TOTALS		2773		3302				6075	TOTALS		6852		5916				12768
SPLIT %		45.6%		54.4%				32.2%	SPLIT %		53.7%		46.3%				67.8%

DAILY TOTALS	NB	SB	EB	WB	Total
	9,625	9,218	0	0	18,843

AM Peak Hour	11:45	11:00			11:45	PM Peak Hour	15:00	15:00			15:00
AM Pk Volume	716	666			1363	PM Pk Volume	858	706			1564
Pk Hr Factor	0.957	0.957			0.909	Pk Hr Factor	0.894	0.788			0.843
7 - 9 Volume	795	1071	0	0	1866	4 - 6 Volume	1451	1143	0	0	2594
7 - 9 Peak Hour	07:30	07:30			07:30	4 - 6 Peak Hour	16:30	16:15			16:30
7 - 9 Pk Volume	456	616	0	0	1072	4 - 6 Pk Volume	806	593	0	0	1385
Pk Hr Factor	0.891	0.856	0.000	0.000	0.870	Pk Hr Factor	0.872	0.898	0.000	0.000	0.874

Prepared by NDS/ATD

VOLUME

Loughborough Dr Bet. R St & M St

Day: Tuesday
Date: 6/5/2018

City: Merced
Project #: CA18_7229_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	4,384	3,993	8,377

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			9		5		14		12:00			76		73		149	
00:15			11		4		15		12:15			61		67		128	
00:30			8		4		12		12:30			90		96		186	
00:45			5	33	4	17	9	50	12:45			86	313	73	309	159	622
01:00			6		5		11		13:00			85		80		165	
01:15			2		3		5		13:15			91		77		168	
01:30			3		3		6		13:30			87		53		140	
01:45			3	14	3	14	6	28	13:45			102	365	70	280	172	645
02:00			3		4		7		14:00			69		74		143	
02:15			2		0		2		14:15			70		86		156	
02:30			4		0		4		14:30			94		67		161	
02:45			4	13	2	6	6	19	14:45			91	324	69	296	160	620
03:00			1		2		3		15:00			115		84		199	
03:15			0		0		0		15:15			89		111		200	
03:30			1		3		4		15:30			96		86		182	
03:45			2	4	4	9	6	13	15:45			77	377	70	351	147	728
04:00			1		2		3		16:00			79		96		175	
04:15			3		1		4		16:15			69		61		130	
04:30			4		4		8		16:30			89		87		176	
04:45			6	14	5	12	11	26	16:45			76	313	69	313	145	626
05:00			2		5		7		17:00			73		109		182	
05:15			3		5		8		17:15			67		85		152	
05:30			7		9		16		17:30			68		61		129	
05:45			10	22	11	30	21	52	17:45			74	282	69	324	143	606
06:00			14		13		27		18:00			65		66		131	
06:15			16		12		28		18:15			63		62		125	
06:30			12		19		31		18:30			65		45		110	
06:45			29	71	19	63	48	134	18:45			52	245	56	229	108	474
07:00			28		25		53		19:00			67		46		113	
07:15			38		49		87		19:15			50		50		100	
07:30			87		58		145		19:30			64		56		120	
07:45			119	272	55	187	174	459	19:45			50	231	53	205	103	436
08:00			69		59		128		20:00			51		54		105	
08:15			59		44		103		20:15			40		37		77	
08:30			62		59		121		20:30			34		43		77	
08:45			75	265	46	208	121	473	20:45			46	171	42	176	88	347
09:00			52		41		93		21:00			50		45		95	
09:15			49		36		85		21:15			39		37		76	
09:30			53		42		95		21:30			52		35		87	
09:45			54	208	48	167	102	375	21:45			38	179	24	141	62	320
10:00			68		61		129		22:00			29		30		59	
10:15			58		52		110		22:15			17		27		44	
10:30			76		52		128		22:30			23		17		40	
10:45			61	263	72	237	133	500	22:45			21	90	13	87	34	177
11:00			75		80		155		23:00			15		13		28	
11:15			58		71		129		23:15			7		8		15	
11:30			70		65		135		23:30			9		9		18	
11:45			71	274	82	298	153	572	23:45			10	41	4	34	14	75
TOTALS				1453		1248		2701	TOTALS				2931		2745		5676
SPLIT %				53.8%		46.2%		32.2%	SPLIT %				51.6%		48.4%		67.8%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	4,384	3,993	8,377

AM Peak Hour			07:30	11:45	11:45	PM Peak Hour			14:45	15:15	14:45
AM Pk Volume			334	318	616	PM Pk Volume			391	363	741
Pk Hr Factor			0.702	0.828	0.828	Pk Hr Factor			0.850	0.818	0.926
7 - 9 Volume	0	0	537	395	932	4 - 6 Volume	0	0	595	637	1232
7 - 9 Peak Hour			07:30	07:15	07:30	4 - 6 Peak Hour			16:00	16:30	16:30
7 - 9 Pk Volume	0	0	334	221	550	4 - 6 Pk Volume	0	0	313	350	655
Pk Hr Factor	0.000	0.000	0.702	0.936	0.790	Pk Hr Factor	0.000	0.000	0.879	0.803	0.900

Prepared by NDS/ATD

VOLUME

Olive Ave Bet. R St & M St

Day: Tuesday
Date: 6/5/2018

City: Merced
Project #: CA18_7229_004

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	14,020	14,440	28,460

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			16		27		43		12:00			263		278		541	
00:15			25		20		45		12:15			255		279		534	
00:30			20		25		45		12:30			251		277		528	
00:45			15	76	21	93	36	169	12:45			266	1035	274	1108	540	2143
01:00			15		15		30		13:00			278		258		536	
01:15			11		13		24		13:15			237		253		490	
01:30			14		11		25		13:30			276		254		530	
01:45			10	50	6	45	16	95	13:45			268	1059	233	998	501	2057
02:00			10		14		24		14:00			255		259		514	
02:15			7		11		18		14:15			217		274		491	
02:30			9		11		20		14:30			279		249		528	
02:45			13	39	13	49	26	88	14:45			249	1000	266	1048	515	2048
03:00			8		9		17		15:00			287		272		559	
03:15			8		14		22		15:15			282		343		625	
03:30			9		18		27		15:30			269		279		548	
03:45			8	33	12	53	20	86	15:45			257	1095	285	1179	542	2274
04:00			10		15		25		16:00			277		285		562	
04:15			14		20		34		16:15			276		261		537	
04:30			14		28		42		16:30			252		295		547	
04:45			14	52	51	114	65	166	16:45			286	1091	282	1123	568	2214
05:00			18		32		50		17:00			229		302		531	
05:15			29		45		74		17:15			275		276		551	
05:30			39		45		84		17:30			206		269		475	
05:45			49	135	73	195	122	330	17:45			201	911	266	1113	467	2024
06:00			46		53		99		18:00			199		235		434	
06:15			64		63		127		18:15			212		208		420	
06:30			71		81		152		18:30			184		206		390	
06:45			108	289	88	285	196	574	18:45			210	805	183	832	393	1637
07:00			101		108		209		19:00			161		186		347	
07:15			151		123		274		19:15			184		158		342	
07:30			198		154		352		19:30			149		191		340	
07:45			259	709	168	553	427	1262	19:45			165	659	153	688	318	1347
08:00			229		209		438		20:00			147		163		310	
08:15			210		154		364		20:15			157		151		308	
08:30			160		155		315		20:30			159		171		330	
08:45			195	794	153	671	348	1465	20:45			146	609	153	638	299	1247
09:00			163		157		320		21:00			143		176		319	
09:15			194		153		347		21:15			126		157		283	
09:30			215		205		420		21:30			104		118		222	
09:45			212	784	211	726	423	1510	21:45			104	477	80	531	184	1008
10:00			216		230		446		22:00			105		109		214	
10:15			218		207		425		22:15			71		83		154	
10:30			195		230		425		22:30			67		66		133	
10:45			247	876	233	900	480	1776	22:45			62	305	56	314	118	619
11:00			211		277		488		23:00			63		64		127	
11:15			252		242		494		23:15			40		43		83	
11:30			253		246		499		23:30			27		26		53	
11:45			253	969	261	1026	514	1995	23:45			38	168	25	158	63	326
TOTALS				4806		4710		9516	TOTALS				9214		9730		18944
SPLIT %				50.5%		49.5%		33.4%	SPLIT %				48.6%		51.4%		66.6%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	14,020	14,440	28,460

AM Peak Hour			11:30	11:45	11:45	PM Peak Hour			14:30	15:15	15:15
AM Pk Volume			1024	1095	2117	PM Pk Volume			1097	1192	2277
Pk Hr Factor			0.973	0.981	0.978	Pk Hr Factor			0.956	0.869	0.911
7 - 9 Volume	0	0	1503	1224	2727	4 - 6 Volume	0	0	2002	2236	4238
7 - 9 Peak Hour			07:30	07:45	07:30	4 - 6 Peak Hour			16:00	16:30	16:00
7 - 9 Pk Volume	0	0	896	686	1581	4 - 6 Pk Volume	0	0	1091	1155	2214
Pk Hr Factor	0.000	0.000	0.865	0.821	0.902	Pk Hr Factor	0.000	0.000	0.954	0.956	0.974

Prepared by NDS/ATD

VOLUME

M St Bet. Loughborough Dr & Olive Ave

Day: Tuesday
Date: 6/5/2018

City: Merced
Project #: CA18_7229_006

DAILY TOTALS	NB	SB	EB	WB	Total
	8,296	9,930	0	0	18,226

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	14		9				23		12:00	192		199				391	
00:15	22		13				35		12:15	182		207				389	
00:30	10		9				19		12:30	165		231				396	
00:45	6	52	6	37			12	89	12:45	146	685	203	840			349	1525
01:00	6		3				9		13:00	139		222				361	
01:15	11		5				16		13:15	185		205				390	
01:30	11		2				13		13:30	165		142				307	
01:45	11	39	5	15			16	54	13:45	191	680	188	757			379	1437
02:00	9		4				13		14:00	165		174				339	
02:15	4		2				6		14:15	157		169				326	
02:30	6		5				11		14:30	166		218				384	
02:45	4	23	3	14			7	37	14:45	156	644	203	764			359	1408
03:00	7		7				14		15:00	177		192				369	
03:15	3		3				6		15:15	221		213				434	
03:30	4		6				10		15:30	156		203				359	
03:45	6	20	8	24			14	44	15:45	156	710	218	826			374	1536
04:00	8		7				15		16:00	168		170				338	
04:15	5		3				8		16:15	138		179				317	
04:30	6		12				18		16:30	145		224				369	
04:45	12	31	11	33			23	64	16:45	149	600	165	738			314	1338
05:00	13		16				29		17:00	177		206				383	
05:15	17		18				35		17:15	169		144				313	
05:30	15		20				35		17:30	113		168				281	
05:45	24	69	41	95			65	164	17:45	112	571	125	643			237	1214
06:00	34		41				75		18:00	91		150				241	
06:15	44		44				88		18:15	98		125				223	
06:30	36		77				113		18:30	88		105				193	
06:45	46	160	79	241			125	401	18:45	91	368	116	496			207	864
07:00	61		96				157		19:00	88		118				206	
07:15	103		140				243		19:15	68		73				141	
07:30	131		175				306		19:30	91		109				200	
07:45	215	510	243	654			458	1164	19:45	69	316	84	384			153	700
08:00	141		199				340		20:00	76		79				155	
08:15	132		165				297		20:15	60		84				144	
08:30	107		140				247		20:30	57		91				148	
08:45	103	483	141	645			244	1128	20:45	55	248	89	343			144	591
09:00	105		144				249		21:00	85		82				167	
09:15	86		116				202		21:15	61		77				138	
09:30	106		135				241		21:30	48		74				122	
09:45	135	432	166	561			301	993	21:45	54	248	49	282			103	530
10:00	117		144				261		22:00	45		52				97	
10:15	140		154				294		22:15	47		34				81	
10:30	148		165				313		22:30	44		20				64	
10:45	139	544	193	656			332	1200	22:45	36	172	24	130			60	302
11:00	160		171				331		23:00	25		25				50	
11:15	139		160				299		23:15	28		16				44	
11:30	119		162				281		23:30	24		19				43	
11:45	172	590	182	675			354	1265	23:45	24	101	17	77			41	178
TOTALS		2953		3650				6603	TOTALS		5343		6280				11623
SPLIT %		44.7%		55.3%				36.2%	SPLIT %		46.0%		54.0%				63.8%

DAILY TOTALS	NB	SB	EB	WB	Total
	8,296	9,930	0	0	18,226

AM Peak Hour	11:45	11:45			11:45	PM Peak Hour	14:30	12:15			14:30
AM Pk Volume	711	819			1530	PM Pk Volume	720	863			1546
Pk Hr Factor	0.926	0.886			0.966	Pk Hr Factor	0.814	0.934			0.891
7 - 9 Volume	993	1299	0	0	2292	4 - 6 Volume	1171	1381	0	0	2552
7 - 9 Peak Hour	07:30	07:30			07:30	4 - 6 Peak Hour	16:30	16:15			16:15
7 - 9 Pk Volume	619	782	0	0	1401	4 - 6 Pk Volume	640	774	0	0	1383
Pk Hr Factor	0.720	0.805	0.000	0.000	0.765	Pk Hr Factor	0.904	0.864	0.000	0.000	0.903

APPENDIX B:

VOLUME DEVELOPMENT WORKSHEETS

LSA

Table B-1 - Existing Peak Hour Volume Summary

	A.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
1 R Street/Loughborough Drive								
NBL	43	0	43	0	43	0	0	43
NBT	268	4	272	0	272	0	0	272
NBR	122	0	122	0	122	0	0	122
SBL	63	0	63	0	63	0	3	60
SBT	466	6	472	0	472	0	0	472
SBR	90	0	90	0	90	0	0	90
EBL	86	0	86	0	86	0	0	86
EBT	165	2	167	0	167	0	1	166
EBR	45	0	45	0	45	0	0	45
WBL	78	0	78	0	78	0	0	78
WBT	97	1	98	0	98	0	1	97
WBR	49	0	49	0	49	0	2	47
North Leg								
Approach	619	6	625	0	625	0	3	622
Departure	403	4	407	0	407	0	2	405
Total	1,022	10	1,032	0	1,032	0	5	1,027
South Leg								
Approach	433	4	437	0	437	0	0	437
Departure	589	6	595	0	595	0	0	595
Total	1,022	10	1,032	0	1,032	0	0	1,032
East Leg								
Approach	224	1	225	0	225	0	3	222
Departure	350	2	352	0	352	0	4	348
Total	574	3	577	0	577	0	7	570
West Leg								
Approach	296	2	298	0	298	0	1	297
Departure	230	1	231	0	231	0	1	230
Total	526	3	529	0	529	0	2	527
Total Approaches								
Approach	1,572	13	1,585	0	1,585	0	7	1,578
Departure	1,572	13	1,585	0	1,585	0	7	1,578
Total	3,144	26	3,170	0	3,170	0	14	3,156

LSA

Table B-1 - Existing Peak Hour Volume Summary

	A.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
2 R Street/99 Cents Stores Driveway - Mall Driveway 1								
NBL	36	0	36	0	36	0	0	36
NBT	419	0	419	0	419	0	0	419
NBR	32	0	32	0	32	0	0	32
SBL	28	6	34	0	34	0	0	34
SBT	543	0	543	0	543	0	0	543
SBR	22	0	22	0	22	0	0	22
EBL	0	0	0	0	0	0	0	0
EBT	0	0	0	0	0	0	0	0
EBR	29	0	29	0	29	0	0	29
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	14	4	18	0	18	0	0	18
North Leg								
Approach	593	6	599	0	599	0	0	599
Departure	433	4	437	0	437	0	0	437
Total	1,026	10	1,036	0	1,036	0	0	1,036
South Leg								
Approach	487	0	487	0	487	0	0	487
Departure	572	0	572	0	572	0	0	572
Total	1,059	0	1,059	0	1,059	0	0	1,059
East Leg								
Approach	14	4	18	0	18	0	0	18
Departure	60	6	66	0	66	0	0	66
Total	74	10	84	0	84	0	0	84
West Leg								
Approach	29	0	29	0	29	0	0	29
Departure	58	0	58	0	58	0	0	58
Total	87	0	87	0	87	0	0	87
Total Approaches								
Approach	1,123	10	1,133	0	1,133	0	0	1,133
Departure	1,123	10	1,133	0	1,133	0	0	1,133
Total	2,246	20	2,266	0	2,266	0	0	2,266

LSA

Table B-1 - Existing Peak Hour Volume Summary

	A.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
3 R Street/Olive Avenue								
NBL	120	0	120	0	120	0	0	120
NBT	325	0	325	0	325	0	0	325
NBR	125	4	129	0	129	0	2	127
SBL	98	0	98	0	98	0	0	98
SBT	396	0	396	0	396	0	0	396
SBR	55	0	55	0	55	0	0	55
EBL	102	0	102	0	102	0	0	102
EBT	647	3	650	0	650	0	2	648
EBR	138	0	138	0	138	0	0	138
WBL	162	3	165	0	165	0	1	164
WBT	457	2	459	0	459	0	1	458
WBR	68	0	68	0	68	0	0	68
North Leg								
Approach	549	0	549	0	549	0	0	549
Departure	495	0	495	0	495	0	0	495
Total	1,044	0	1,044	0	1,044	0	0	1,044
South Leg								
Approach	570	4	574	0	574	0	2	572
Departure	696	3	699	0	699	0	1	698
Total	1,266	7	1,273	0	1,273	0	3	1,270
East Leg								
Approach	687	5	692	0	692	0	2	690
Departure	870	7	877	0	877	0	4	873
Total	1,557	12	1,569	0	1,569	0	6	1,563
West Leg								
Approach	887	3	890	0	890	0	2	888
Departure	632	2	634	0	634	0	1	633
Total	1,519	5	1,524	0	1,524	0	3	1,521
Total Approaches								
Approach	2,693	12	2,705	0	2,705	0	6	2,699
Departure	2,693	12	2,705	0	2,705	0	6	2,699
Total	5,386	24	5,410	0	5,410	0	12	5,398

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Table B-1 - Existing Peak Hour Volume Summary

	A.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
4 R Street/Olivewood Drive								
NBL	117	0	117	0	117	0	0	117
NBT	515	4	519	0	519	0	2	517
NBR	110	0	110	0	110	0	0	110
SBL	45	0	45	0	45	0	0	45
SBT	628	3	631	0	631	0	1	630
SBR	19	0	19	0	19	0	0	19
EBL	0	0	0	0	0	0	0	0
EBT	0	0	0	0	0	0	0	0
EBR	94	0	94	0	94	0	0	94
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	55	0	55	0	55	0	0	55
North Leg								
Approach	692	3	695	0	695	0	1	694
Departure	570	4	574	0	574	0	2	572
Total	1,262	7	1,269	0	1,269	0	3	1,266
South Leg								
Approach	742	4	746	0	746	0	2	744
Departure	722	3	725	0	725	0	1	724
Total	1,464	7	1,471	0	1,471	0	3	1,468
East Leg								
Approach	55	0	55	0	55	0	0	55
Departure	155	0	155	0	155	0	0	155
Total	210	0	210	0	210	0	0	210
West Leg								
Approach	94	0	94	0	94	0	0	94
Departure	136	0	136	0	136	0	0	136
Total	230	0	230	0	230	0	0	230
Total Approaches								
Approach	1,583	7	1,590	0	1,590	0	3	1,587
Departure	1,583	7	1,590	0	1,590	0	3	1,587
Total	3,166	14	3,180	0	3,180	0	6	3,174

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Table B-1 - Existing Peak Hour Volume Summary

	A.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
5 Mall Driveway 2 - Pepperwood Lane/Olive Avenue								
NBL	8	0	8	0	8	0	0	8
NBT	2	1	3	0	3	0	0	3
NBR	56	0	56	0	56	0	0	56
SBL	4	2	6	0	6	0	1	5
SBT	1	0	1	0	1	0	0	1
SBR	3	3	6	0	6	0	1	5
EBL	17	5	22	0	22	0	1	21
EBT	844	2	846	0	846	0	2	844
EBR	14	0	14	0	14	0	0	14
WBL	27	0	27	0	27	0	0	27
WBT	671	1	672	0	672	0	1	671
WBR	4	2	6	0	6	0	0	6
North Leg								
Approach	8	5	13	0	13	0	2	11
Departure	23	8	31	0	31	0	1	30
Total	31	13	44	0	44	0	3	41
South Leg								
Approach	66	1	67	0	67	0	0	67
Departure	42	0	42	0	42	0	0	42
Total	108	1	109	0	109	0	0	109
East Leg								
Approach	702	3	705	0	705	0	1	704
Departure	904	4	908	0	908	0	3	905
Total	1,606	7	1,613	0	1,613	0	4	1,609
West Leg								
Approach	875	7	882	0	882	0	3	879
Departure	682	4	686	0	686	0	2	684
Total	1,557	11	1,568	0	1,568	0	5	1,563
Total Approaches								
Approach	1,651	16	1,667	0	1,667	0	6	1,661
Departure	1,651	16	1,667	0	1,667	0	6	1,661
Total	3,302	32	3,334	0	3,334	0	12	3,322

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Table B-1 - Existing Peak Hour Volume Summary

	A.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
6 Laurel Glenn Apartments Driveway - Mall Driveway 3/Loughborough Drive								
NBL	7	2	9	0	9	0	3	6
NBT	0	0	0	0	0	0	0	0
NBR	26	4	30	0	30	0	2	28
SBL	4	0	4	0	4	0	0	4
SBT	0	0	0	0	0	0	0	0
SBR	6	0	6	0	6	0	0	6
EBL	1	0	1	0	1	0	0	1
EBT	324	0	324	0	324	0	0	324
EBR	23	3	26	0	26	0	5	21
WBL	26	1	27	0	27	0	0	27
WBT	216	0	216	0	216	0	0	216
WBR	6	0	6	0	6	0	0	6
North Leg								
Approach	10	0	10	0	10	0	0	10
Departure	7	0	7	0	7	0	0	7
Total	17	0	17	0	17	0	0	17
South Leg								
Approach	33	6	39	0	39	0	5	34
Departure	49	4	53	0	53	0	5	48
Total	82	10	92	0	92	0	10	82
East Leg								
Approach	248	1	249	0	249	0	0	249
Departure	354	4	358	0	358	0	2	356
Total	602	5	607	0	607	0	2	605
West Leg								
Approach	348	3	351	0	351	0	5	346
Departure	229	2	231	0	231	0	3	228
Total	577	5	582	0	582	0	8	574
Total Approaches								
Approach	639	10	649	0	649	0	10	639
Departure	639	10	649	0	649	0	10	639
Total	1,278	20	1,298	0	1,298	0	20	1,278

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Table B-1 - Existing Peak Hour Volume Summary

	A.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
7 Mall Driveway 4 - Applewood Lane/Olive Avenue								
NBL	0	0	0	0	0	0	0	0
NBT	0	0	0	0	0	0	0	0
NBR	29	0	29	0	29	0	0	29
SBL	0	0	0	0	0	0	0	0
SBT	0	0	0	0	0	0	0	0
SBR	7	1	8	0	8	0	1	7
EBL	46	2	48	0	48	0	2	46
EBT	857	2	859	0	859	0	1	858
EBR	18	0	18	0	18	0	0	18
WBL	45	0	45	0	45	0	0	45
WBT	678	2	680	0	680	0	0	680
WBR	19	5	24	0	24	0	4	20
North Leg								
Approach	7	1	8	0	8	0	1	7
Departure	65	7	72	0	72	0	6	66
Total	72	8	80	0	80	0	7	73
South Leg								
Approach	29	0	29	0	29	0	0	29
Departure	63	0	63	0	63	0	0	63
Total	92	0	92	0	92	0	0	92
East Leg								
Approach	742	7	749	0	749	0	4	745
Departure	886	2	888	0	888	0	1	887
Total	1,628	9	1,637	0	1,637	0	5	1,632
West Leg								
Approach	921	4	925	0	925	0	3	922
Departure	685	3	688	0	688	0	1	687
Total	1,606	7	1,613	0	1,613	0	4	1,609
Total Approaches								
Approach	1,699	12	1,711	0	1,711	0	8	1,703
Departure	1,699	12	1,711	0	1,711	0	8	1,703
Total	3,398	24	3,422	0	3,422	0	16	3,406

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Table B-1 - Existing Peak Hour Volume Summary

	A.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
8 M Street/Loughborough Drive - Collins Drive								
NBL	100	0	100	0	100	0	0	100
NBT	464	0	464	0	464	0	0	464
NBR	14	0	14	0	14	0	0	14
SBL	110	0	110	0	110	0	0	110
SBT	646	5	651	0	651	0	3	648
SBR	116	0	116	0	116	0	0	116
EBL	142	3	145	0	145	0	2	143
EBT	77	0	77	0	77	0	0	77
EBR	120	0	120	0	120	0	0	120
WBL	45	0	45	0	45	0	0	45
WBT	66	1	67	0	67	0	0	67
WBR	104	0	104	0	104	0	0	104
North Leg								
Approach	872	5	877	0	877	0	3	874
Departure	710	3	713	0	713	0	2	711
Total	1,582	8	1,590	0	1,590	0	5	1,585
South Leg								
Approach	578	0	578	0	578	0	0	578
Departure	811	5	816	0	816	0	3	813
Total	1,389	5	1,394	0	1,394	0	3	1,391
East Leg								
Approach	215	1	216	0	216	0	0	216
Departure	201	0	201	0	201	0	0	201
Total	416	1	417	0	417	0	0	417
West Leg								
Approach	339	3	342	0	342	0	2	340
Departure	282	1	283	0	283	0	0	283
Total	621	4	625	0	625	0	2	623
Total Approaches								
Approach	2,004	9	2,013	0	2,013	0	5	2,008
Departure	2,004	9	2,013	0	2,013	0	5	2,008
Total	4,008	18	4,026	0	4,026	0	10	4,016

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Table B-1 - Existing Peak Hour Volume Summary

	A.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
9 M Street/Fairfield Drive								
NBL	0	0	0	0	0	0	0	0
NBT	575	0	575	0	575	0	0	575
NBR	46	0	46	0	46	0	0	46
SBL	0	0	0	0	0	0	0	0
SBT	751	0	751	0	751	0	0	751
SBR	46	5	51	0	51	0	3	48
EBL	0	0	0	0	0	0	0	0
EBT	0	0	0	0	0	0	0	0
EBR	47	3	50	0	50	0	1	49
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	50	0	50	0	50	0	0	50
North Leg								
Approach	797	5	802	0	802	0	3	799
Departure	625	0	625	0	625	0	0	625
Total	1,422	5	1,427	0	1,427	0	3	1,424
South Leg								
Approach	621	0	621	0	621	0	0	621
Departure	798	3	801	0	801	0	1	800
Total	1,419	3	1,422	0	1,422	0	1	1,421
East Leg								
Approach	50	0	50	0	50	0	0	50
Departure	46	0	46	0	46	0	0	46
Total	96	0	96	0	96	0	0	96
West Leg								
Approach	47	3	50	0	50	0	1	49
Departure	46	5	51	0	51	0	3	48
Total	93	8	101	0	101	0	4	97
Total Approaches								
Approach	1,515	8	1,523	0	1,523	0	4	1,519
Departure	1,515	8	1,523	0	1,523	0	4	1,519
Total	3,030	16	3,046	0	3,046	0	8	3,038

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Table B-1 - Existing Peak Hour Volume Summary

	A.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
10 M Street/Olive Avenue								
NBL	126	4	130	0	130	0	2	128
NBT	417	0	417	0	417	0	0	417
NBR	104	0	104	0	104	0	0	104
SBL	185	0	185	0	185	0	0	185
SBT	552	3	555	0	555	0	1	554
SBR	61	0	61	0	61	0	0	61
EBL	123	0	123	0	123	0	0	123
EBT	573	2	575	0	575	0	1	574
EBR	162	0	162	0	162	0	0	162
WBL	180	0	180	0	180	0	0	180
WBT	552	3	555	0	555	0	2	553
WBR	81	0	81	0	81	0	0	81
North Leg								
Approach	798	3	801	0	801	0	1	800
Departure	621	0	621	0	621	0	0	621
Total	1,419	3	1,422	0	1,422	0	1	1,421
South Leg								
Approach	647	4	651	0	651	0	2	649
Departure	894	3	897	0	897	0	1	896
Total	1,541	7	1,548	0	1,548	0	3	1,545
East Leg								
Approach	813	3	816	0	816	0	2	814
Departure	862	2	864	0	864	0	1	863
Total	1,675	5	1,680	0	1,680	0	3	1,677
West Leg								
Approach	858	2	860	0	860	0	1	859
Departure	739	7	746	0	746	0	4	742
Total	1,597	9	1,606	0	1,606	0	5	1,601
Total Approaches								
Approach	3,116	12	3,128	0	3,128	0	6	3,122
Departure	3,116	12	3,128	0	3,128	0	6	3,122
Total	6,232	24	6,256	0	6,256	0	12	6,244

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Table B-1 - Existing Peak Hour Volume Summary

	A.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
11 M Street/Olivewood Drive								
NBL	68	0	68	0	68	0	0	68
NBT	636	4	640	0	640	0	2	638
NBR	0	0	0	0	0	0	0	0
SBL	0	0	0	0	0	0	0	0
SBT	817	3	820	0	820	0	1	819
SBR	41	0	41	0	41	0	0	41
EBL	7	0	7	0	7	0	0	7
EBT	0	0	0	0	0	0	0	0
EBR	67	0	67	0	67	0	0	67
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	0	0	0	0	0	0	0	0
North Leg								
Approach	858	3	861	0	861	0	1	860
Departure	643	4	647	0	647	0	2	645
Total	1,501	7	1,508	0	1,508	0	3	1,505
South Leg								
Approach	704	4	708	0	708	0	2	706
Departure	884	3	887	0	887	0	1	886
Total	1,588	7	1,595	0	1,595	0	3	1,592
East Leg								
Approach	0	0	0	0	0	0	0	0
Departure	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
West Leg								
Approach	74	0	74	0	74	0	0	74
Departure	109	0	109	0	109	0	0	109
Total	183	0	183	0	183	0	0	183
Total Approaches								
Approach	1,636	7	1,643	0	1,643	0	3	1,640
Departure	1,636	7	1,643	0	1,643	0	3	1,640
Total	3,272	14	3,286	0	3,286	0	6	3,280

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Table B-1 - Existing Peak Hour Volume Summary

		P.M. Peak Hour							
		Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
1	**R Street/Loughborough Drive**								
NBL		120	0	120	0	120	0	0	120
NBT		528	19	547	0	547	0	0	547
NBR		135	0	135	0	135	0	0	135
SBL		48	0	48	19	67	19	18	49
SBT		360	18	378	0	378	0	0	378
SBR		87	0	87	0	87	0	0	87
EBL		102	0	102	0	102	0	0	102
EBT		121	5	126	6	132	6	5	127
EBR		35	0	35	0	35	0	0	35
WBL		104	0	104	0	104	0	0	104
WBT		168	6	174	5	179	5	6	173
WBR		81	0	81	18	99	18	21	78
North Leg									
	Approach	495	18	513	19	532	19	18	514
	Departure	711	19	730	18	748	18	21	727
	Total	1,206	37	1,243	37	1,280	37	39	1,241
South Leg									
	Approach	783	19	802	0	802	0	0	802
	Departure	499	18	517	0	517	0	0	517
	Total	1,282	37	1,319	0	1,319	0	0	1,319
East Leg									
	Approach	353	6	359	23	382	23	27	355
	Departure	304	5	309	25	334	25	23	311
	Total	657	11	668	48	716	48	50	666
West Leg									
	Approach	258	5	263	6	269	6	5	264
	Departure	375	6	381	5	386	5	6	380
	Total	633	11	644	11	655	11	11	644
Total Approaches									
	Approach	1,889	48	1,937	48	1,985	48	50	1,935
	Departure	1,889	48	1,937	48	1,985	48	50	1,935
	Total	3,778	96	3,874	96	3,970	96	100	3,870

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Table B-1 - Existing Peak Hour Volume Summary

	P.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
2 R Street/99 Cents Stores Driveway - Mall Driveway 1								
NBL	94	0	94	0	94	0	0	94
NBT	701	0	701	0	701	0	0	701
NBR	114	0	114	0	114	0	0	114
SBL	84	18	102	0	102	0	0	102
SBT	457	0	457	0	457	0	0	457
SBR	29	0	29	0	29	0	0	29
EBL	0	0	0	0	0	0	0	0
EBT	0	0	0	0	0	0	0	0
EBR	125	0	125	0	125	0	0	125
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	81	19	100	0	100	0	0	100
North Leg								
Approach	570	18	588	0	588	0	0	588
Departure	782	19	801	0	801	0	0	801
Total	1,352	37	1,389	0	1,389	0	0	1,389
South Leg								
Approach	909	0	909	0	909	0	0	909
Departure	582	0	582	0	582	0	0	582
Total	1,491	0	1,491	0	1,491	0	0	1,491
East Leg								
Approach	81	19	100	0	100	0	0	100
Departure	198	18	216	0	216	0	0	216
Total	279	37	316	0	316	0	0	316
West Leg								
Approach	125	0	125	0	125	0	0	125
Departure	123	0	123	0	123	0	0	123
Total	248	0	248	0	248	0	0	248
Total Approaches								
Approach	1,685	37	1,722	0	1,722	0	0	1,722
Departure	1,685	37	1,722	0	1,722	0	0	1,722
Total	3,370	74	3,444	0	3,444	0	0	3,444

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Table B-1 - Existing Peak Hour Volume Summary

	P.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
3 R Street/Olive Avenue								
NBL	293	0	293	0	293	0	0	293
NBT	570	0	570	0	570	0	0	570
NBR	98	12	110	13	123	13	12	111
SBL	134	0	134	0	134	0	0	134
SBT	352	0	352	0	352	0	0	352
SBR	111	0	111	0	111	0	0	111
EBL	212	0	212	0	212	0	0	212
EBT	773	9	782	9	791	9	9	782
EBR	187	0	187	0	187	0	0	187
WBL	239	13	252	13	265	13	14	251
WBT	842	10	852	9	861	9	10	851
WBR	144	0	144	0	144	0	0	144
North Leg								
Approach	597	0	597	0	597	0	0	597
Departure	926	0	926	0	926	0	0	926
Total	1,523	0	1,523	0	1,523	0	0	1,523
South Leg								
Approach	961	12	973	13	986	13	12	974
Departure	778	13	791	13	804	13	14	790
Total	1,739	25	1,764	26	1,790	26	26	1,764
East Leg								
Approach	1,225	23	1,248	22	1,270	22	24	1,246
Departure	1,005	21	1,026	22	1,048	22	21	1,027
Total	2,230	44	2,274	44	2,318	44	45	2,273
West Leg								
Approach	1,172	9	1,181	9	1,190	9	9	1,181
Departure	1,246	10	1,256	9	1,265	9	10	1,255
Total	2,418	19	2,437	18	2,455	18	19	2,436
Total Approaches								
Approach	3,955	44	3,999	44	4,043	44	45	3,998
Departure	3,955	44	3,999	44	4,043	44	45	3,998
Total	7,910	88	7,998	88	8,086	88	90	7,996

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Table B-1 - Existing Peak Hour Volume Summary

	P.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
4 R Street/Olivewood Drive								
NBL	249	0	249	0	249	0	0	249
NBT	793	12	805	13	818	13	12	806
NBR	116	0	116	0	116	0	0	116
SBL	43	0	43	0	43	0	0	43
SBT	663	13	676	13	689	13	14	675
SBR	37	0	37	0	37	0	0	37
EBL	0	0	0	0	0	0	0	0
EBT	0	0	0	0	0	0	0	0
EBR	319	0	319	0	319	0	0	319
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	181	0	181	0	181	0	0	181
North Leg								
Approach	743	13	756	13	769	13	14	755
Departure	974	12	986	13	999	13	12	987
Total	1,717	25	1,742	26	1,768	26	26	1,742
South Leg								
Approach	1,158	12	1,170	13	1,183	13	12	1,171
Departure	982	13	995	13	1,008	13	14	994
Total	2,140	25	2,165	26	2,191	26	26	2,165
East Leg								
Approach	181	0	181	0	181	0	0	181
Departure	159	0	159	0	159	0	0	159
Total	340	0	340	0	340	0	0	340
West Leg								
Approach	319	0	319	0	319	0	0	319
Departure	286	0	286	0	286	0	0	286
Total	605	0	605	0	605	0	0	605
Total Approaches								
Approach	2,401	25	2,426	26	2,452	26	26	2,426
Departure	2,401	25	2,426	26	2,452	26	26	2,426
Total	4,802	50	4,852	52	4,904	52	52	4,852

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Table B-1 - Existing Peak Hour Volume Summary

	P.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
5 Mall Driveway 2 - Pepperwood Lane/Olive Avenue								
NBL	22	0	22	0	22	0	0	22
NBT	3	2	5	2	7	2	2	5
NBR	97	0	97	0	97	0	0	97
SBL	5	10	15	9	24	9	10	14
SBT	1	2	3	2	5	2	2	3
SBR	74	15	89	7	96	7	8	88
EBL	64	14	78	8	86	8	7	79
EBT	952	7	959	15	974	15	14	960
EBR	37	0	37	0	37	0	0	37
WBL	56	0	56	0	56	0	0	56
WBT	1,118	8	1,126	14	1,140	14	16	1,124
WBR	20	7	27	0	27	0	0	27
North Leg								
Approach	80	27	107	18	125	18	20	105
Departure	87	23	110	10	120	10	9	111
Total	167	50	217	28	245	28	29	216
South Leg								
Approach	122	2	124	2	126	2	2	124
Departure	94	2	96	2	98	2	2	96
Total	216	4	220	4	224	4	4	220
East Leg								
Approach	1,194	15	1,209	14	1,223	14	16	1,207
Departure	1,054	17	1,071	24	1,095	24	24	1,071
Total	2,248	32	2,280	38	2,318	38	40	2,278
West Leg								
Approach	1,053	21	1,074	23	1,097	23	21	1,076
Departure	1,214	23	1,237	21	1,258	21	24	1,234
Total	2,267	44	2,311	44	2,355	44	45	2,310
Total Approaches								
Approach	2,449	65	2,514	57	2,571	57	59	2,512
Departure	2,449	65	2,514	57	2,571	57	59	2,512
Total	4,898	130	5,028	114	5,142	114	118	5,024

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Table B-1 - Existing Peak Hour Volume Summary

	P.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
6 Laurel Glenn Apartments Driveway - Mall Driveway 3/Loughborough Drive								
NBL	29	10	39	27	66	27	31	35
NBT	1	0	1	0	1	0	0	1
NBR	69	19	88	18	106	18	21	85
SBL	9	0	9	0	9	0	0	9
SBT	1	0	1	0	1	0	0	1
SBR	2	0	2	0	2	0	0	2
EBL	11	0	11	0	11	0	0	11
EBT	332	0	332	0	332	0	0	332
EBR	18	9	27	28	55	28	26	29
WBL	39	2	41	19	60	2	2	41
WBT	320	0	320	0	320	0	0	320
WBR	10	0	10	0	10	0	0	10
North Leg								
Approach	12	0	12	0	12	0	0	12
Departure	22	0	22	0	22	0	0	22
Total	34	0	34	0	34	0	0	34
South Leg								
Approach	99	29	128	45	173	45	52	121
Departure	58	11	69	47	116	30	28	71
Total	157	40	197	92	289	75	80	192
East Leg								
Approach	369	2	371	19	390	2	2	371
Departure	410	19	429	18	447	18	21	426
Total	779	21	800	37	837	20	23	797
West Leg								
Approach	361	9	370	28	398	28	26	372
Departure	351	10	361	27	388	27	31	357
Total	712	19	731	55	786	55	57	729
Total Approaches								
Approach	841	40	881	92	973	75	80	876
Departure	841	40	881	92	973	75	80	876
Total	1,682	80	1,762	184	1,946	150	160	1,752

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Table B-1 - Existing Peak Hour Volume Summary

	P.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
7 Mall Driveway 4 - Applewood Lane/Olive Avenue								
NBL	0	0	0	0	0	0	0	0
NBT	0	0	0	0	0	0	0	0
NBR	62	0	62	0	62	0	0	62
SBL	0	0	0	0	0	0	0	0
SBT	0	0	0	0	0	0	0	0
SBR	75	8	83	14	97	14	16	81
EBL	100	7	107	15	122	15	14	108
EBT	1,033	10	1,043	9	1,052	9	10	1,042
EBR	41	0	41	0	41	0	0	41
WBL	77	0	77	0	77	0	0	77
WBT	1,070	7	1,077	0	1,077	0	0	1,077
WBR	74	14	88	23	111	23	21	90
North Leg								
Approach	75	8	83	14	97	14	16	81
Departure	174	21	195	38	233	38	35	198
Total	249	29	278	52	330	52	51	279
South Leg								
Approach	62	0	62	0	62	0	0	62
Departure	118	0	118	0	118	0	0	118
Total	180	0	180	0	180	0	0	180
East Leg								
Approach	1,221	21	1,242	23	1,265	23	21	1,244
Departure	1,095	10	1,105	9	1,114	9	10	1,104
Total	2,316	31	2,347	32	2,379	32	31	2,348
West Leg								
Approach	1,174	17	1,191	24	1,215	24	24	1,191
Departure	1,145	15	1,160	14	1,174	14	16	1,158
Total	2,319	32	2,351	38	2,389	38	40	2,349
Total Approaches								
Approach	2,532	46	2,578	61	2,639	61	61	2,578
Departure	2,532	46	2,578	61	2,639	61	61	2,578
Total	5,064	92	5,156	122	5,278	122	122	5,156

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Table B-1 - Existing Peak Hour Volume Summary

	P.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
8 M Street/Loughborough Drive - Collins Drive								
NBL	138	0	138	0	138	0	0	138
NBT	499	0	499	0	499	0	0	499
NBR	16	0	16	0	16	0	0	16
SBL	27	0	27	0	27	0	0	27
SBT	450	16	466	0	466	17	16	467
SBR	150	0	150	17	167	0	0	150
EBL	223	17	240	16	256	16	19	237
EBT	29	2	31	2	33	2	2	31
EBR	196	0	196	0	196	0	0	196
WBL	44	0	44	0	44	0	0	44
WBT	78	2	80	2	82	2	2	80
WBR	110	0	110	0	110	0	0	110
North Leg								
Approach	627	16	643	17	660	17	16	644
Departure	832	17	849	16	865	16	19	846
Total	1,459	33	1,492	33	1,525	33	35	1,490
South Leg								
Approach	653	0	653	0	653	0	0	653
Departure	690	16	706	0	706	17	16	707
Total	1,343	16	1,359	0	1,359	17	16	1,360
East Leg								
Approach	232	2	234	2	236	2	2	234
Departure	72	2	74	2	76	2	2	74
Total	304	4	308	4	312	4	4	308
West Leg								
Approach	448	19	467	18	485	18	21	464
Departure	366	2	368	19	387	2	2	368
Total	814	21	835	37	872	20	23	832
Total Approaches								
Approach	1,960	37	1,997	37	2,034	37	39	1,995
Departure	1,960	37	1,997	37	2,034	37	39	1,995
Total	3,920	74	3,994	74	4,068	74	78	3,990

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Table B-1 - Existing Peak Hour Volume Summary

		P.M. Peak Hour							
		Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
9	**M Street/Fairfield Drive**								
NBL		0	0	0	0	0	0	0	0
NBT		647	0	647	0	647	0	0	647
NBR		35	0	35	0	35	0	0	35
SBL		0	0	0	0	0	0	0	0
SBT		773	0	773	0	773	0	0	773
SBR		48	16	64	0	64	17	16	65
EBL		0	0	0	0	0	0	0	0
EBT		0	0	0	0	0	0	0	0
EBR		119	13	132	13	145	13	14	131
WBL		0	0	0	0	0	0	0	0
WBT		0	0	0	0	0	0	0	0
WBR		43	0	43	0	43	0	0	43
North Leg									
	Approach	821	16	837	0	837	17	16	838
	Departure	690	0	690	0	690	0	0	690
	Total	1,511	16	1,527	0	1,527	17	16	1,528
South Leg									
	Approach	682	0	682	0	682	0	0	682
	Departure	892	13	905	13	918	13	14	904
	Total	1,574	13	1,587	13	1,600	13	14	1,586
East Leg									
	Approach	43	0	43	0	43	0	0	43
	Departure	35	0	35	0	35	0	0	35
	Total	78	0	78	0	78	0	0	78
West Leg									
	Approach	119	13	132	13	145	13	14	131
	Departure	48	16	64	0	64	17	16	65
	Total	167	29	196	13	209	30	30	196
Total Approaches									
	Approach	1,665	29	1,694	13	1,707	30	30	1,694
	Departure	1,665	29	1,694	13	1,707	30	30	1,694
	Total	3,330	58	3,388	26	3,414	60	60	3,388

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Table B-1 - Existing Peak Hour Volume Summary

	P.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
10 M Street/Olive Avenue								
NBL	302	12	314	13	327	13	12	315
NBT	492	0	492	0	492	0	0	492
NBR	119	0	119	0	119	0	0	119
SBL	293	0	293	0	293	0	0	293
SBT	501	13	514	13	527	13	14	513
SBR	98	0	98	0	98	0	0	98
EBL	132	0	132	0	132	0	0	132
EBT	759	10	769	9	778	9	10	768
EBR	141	0	141	0	141	0	0	141
WBL	168	0	168	0	168	0	0	168
WBT	808	9	817	9	826	9	9	817
WBR	58	0	58	0	58	0	0	58
North Leg								
Approach	892	13	905	13	918	13	14	904
Departure	682	0	682	0	682	0	0	682
Total	1,574	13	1,587	13	1,600	13	14	1,586
South Leg								
Approach	913	12	925	13	938	13	12	926
Departure	810	13	823	13	836	13	14	822
Total	1,723	25	1,748	26	1,774	26	26	1,748
East Leg								
Approach	1,034	9	1,043	9	1,052	9	9	1,043
Departure	1,171	10	1,181	9	1,190	9	10	1,180
Total	2,205	19	2,224	18	2,242	18	19	2,223
West Leg								
Approach	1,032	10	1,042	9	1,051	9	10	1,041
Departure	1,208	21	1,229	22	1,251	22	21	1,230
Total	2,240	31	2,271	31	2,302	31	31	2,271
Total Approaches								
Approach	3,871	44	3,915	44	3,959	44	45	3,914
Departure	3,871	44	3,915	44	3,959	44	45	3,914
Total	7,742	88	7,830	88	7,918	88	90	7,828

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Table B-1 - Existing Peak Hour Volume Summary

	P.M. Peak Hour							
	Existing Without Project	Phase I Project Trips	Existing With Project Phase I	Phase II Alt I Project Trips	Existing With Project Phases I+II - Alt I	Phase II Alt II Project Trips	Demolished Uses Trips	Existing With Project Phases I+II - Alt II
11 M Street/Olivewood Drive								
NBL	102	0	102	0	102	0	0	102
NBT	897	12	909	13	922	13	12	910
NBR	0	0	0	0	0	0	0	0
SBL	0	0	0	0	0	0	0	0
SBT	727	13	740	13	753	13	14	739
SBR	51	0	51	0	51	0	0	51
EBL	13	0	13	0	13	0	0	13
EBT	0	0	0	0	0	0	0	0
EBR	180	0	180	0	180	0	0	180
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	0	0	0	0	0	0	0	0
North Leg								
Approach	778	13	791	13	804	13	14	790
Departure	910	12	922	13	935	13	12	923
Total	1,688	25	1,713	26	1,739	26	26	1,713
South Leg								
Approach	999	12	1,011	13	1,024	13	12	1,012
Departure	907	13	920	13	933	13	14	919
Total	1,906	25	1,931	26	1,957	26	26	1,931
East Leg								
Approach	0	0	0	0	0	0	0	0
Departure	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
West Leg								
Approach	193	0	193	0	193	0	0	193
Departure	153	0	153	0	153	0	0	153
Total	346	0	346	0	346	0	0	346
Total Approaches								
Approach	1,970	25	1,995	26	2,021	26	26	1,995
Departure	1,970	25	1,995	26	2,021	26	26	1,995
Total	3,940	50	3,990	52	4,042	52	52	3,990

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Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
1 R Street/Loughborough Drive						
NBL	43	2	0	45	0	45
NBT	268	13	6	287	4	291
NBR	122	6	0	128	0	128
SBL	63	3	9	75	0	75
SBT	466	23	17	506	6	512
SBR	90	5	0	95	0	95
EBL	86	4	0	90	0	90
EBT	165	8	3	176	2	178
EBR	45	2	0	47	0	47
WBL	78	4	0	82	0	82
WBT	97	5	2	104	1	105
WBR	49	2	4	55	0	55
North Leg						
Approach	619	31	26	676	6	682
Departure	403	19	10	432	4	436
Total	1,022	50	36	1,108	10	1,118
South Leg						
Approach	433	21	6	460	4	464
Departure	589	29	17	635	6	641
Total	1,022	50	23	1,095	10	1,105
East Leg						
Approach	224	11	6	241	1	242
Departure	350	17	12	379	2	381
Total	574	28	18	620	3	623
West Leg						
Approach	296	14	3	313	2	315
Departure	230	12	2	244	1	245
Total	526	26	5	557	3	560
Total Approaches						
Approach	1,572	77	41	1,690	13	1,703
Departure	1,572	77	41	1,690	13	1,703
Total	3,144	154	82	3,380	26	3,406

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Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
2 R Street/99 Cents Stores Driveway - Mall Driveway 1						
NBL	36	2	0	38	0	38
NBT	419	21	4	444	0	444
NBR	32	2	0	34	0	34
SBL	28	1	6	35	6	41
SBT	543	27	12	582	0	582
SBR	22	1	0	23	0	23
EBL	0	0	0	0	0	0
EBT	0	0	0	0	0	0
EBR	29	1	0	30	0	30
WBL	0	0	0	0	0	0
WBT	0	0	0	0	0	0
WBR	14	1	2	17	4	21
North Leg						
Approach	593	29	18	640	6	646
Departure	433	22	6	461	4	465
Total	1,026	51	24	1,101	10	1,111
South Leg						
Approach	487	25	4	516	0	516
Departure	572	28	12	612	0	612
Total	1,059	53	16	1,128	0	1,128
East Leg						
Approach	14	1	2	17	4	21
Departure	60	3	6	69	6	75
Total	74	4	8	86	10	96
West Leg						
Approach	29	1	0	30	0	30
Departure	58	3	0	61	0	61
Total	87	4	0	91	0	91
Total Approaches						
Approach	1,123	56	24	1,203	10	1,213
Departure	1,123	56	24	1,203	10	1,213
Total	2,246	112	48	2,406	20	2,426

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Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
3 R Street/Olive Avenue						
NBL	120	6	1	127	0	127
NBT	325	16	0	341	0	341
NBR	125	6	10	141	4	145
SBL	98	5	6	109	0	109
SBT	396	20	0	416	0	416
SBR	55	3	6	64	0	64
EBL	102	5	2	109	0	109
EBT	647	32	6	685	3	688
EBR	138	7	1	146	0	146
WBL	162	8	10	180	3	183
WBT	457	23	7	487	2	489
WBR	68	3	2	73	0	73
North Leg						
Approach	549	28	12	589	0	589
Departure	495	24	4	523	0	523
Total	1,044	52	16	1,112	0	1,112
South Leg						
Approach	570	28	11	609	4	613
Departure	696	35	11	742	3	745
Total	1,266	63	22	1,351	7	1,358
East Leg						
Approach	687	34	19	740	5	745
Departure	870	43	22	935	7	942
Total	1,557	77	41	1,675	12	1,687
West Leg						
Approach	887	44	9	940	3	943
Departure	632	32	14	678	2	680
Total	1,519	76	23	1,618	5	1,623
Total Approaches						
Approach	2,693	134	51	2,878	12	2,890
Departure	2,693	134	51	2,878	12	2,890
Total	5,386	268	102	5,756	24	5,780

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Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

		AM Peak Hour					
		Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
4	**R Street/Olivewood Drive**						
NBL		117	6	0	123	0	123
NBT		515	26	11	552	4	556
NBR		110	6	0	116	0	116
SBL		45	2	0	47	0	47
SBT		628	31	11	670	3	673
SBR		19	1	0	20	0	20
EBL		0	0	0	0	0	0
EBT		0	0	0	0	0	0
EBR		94	5	0	99	0	99
WBL		0	0	0	0	0	0
WBT		0	0	0	0	0	0
WBR		55	3	0	58	0	58
North Leg							
	Approach	692	34	11	737	3	740
	Departure	570	29	11	610	4	614
	Total	1,262	63	22	1,347	7	1,354
South Leg							
	Approach	742	38	11	791	4	795
	Departure	722	36	11	769	3	772
	Total	1,464	74	22	1,560	7	1,567
East Leg							
	Approach	55	3	0	58	0	58
	Departure	155	8	0	163	0	163
	Total	210	11	0	221	0	221
West Leg							
	Approach	94	5	0	99	0	99
	Departure	136	7	0	143	0	143
	Total	230	12	0	242	0	242
Total Approaches							
	Approach	1,583	80	22	1,685	7	1,692
	Departure	1,583	80	22	1,685	7	1,692
	Total	3,166	160	44	3,370	14	3,384

LSA

Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
5 Mall Driveway 2 - Pepperwood Lane/Olive Avenue						
NBL	8	0	0	8	0	8
NBT	2	0	0	2	1	3
NBR	56	3	0	59	0	59
SBL	4	0	1	5	2	7
SBT	1	0	0	1	0	1
SBR	3	0	0	3	3	6
EBL	17	1	0	18	5	23
EBT	844	42	22	908	2	910
EBR	14	1	0	15	0	15
WBL	27	1	0	28	0	28
WBT	671	34	19	724	1	725
WBR	4	0	1	5	2	7
North Leg						
Approach	8	0	1	9	5	14
Departure	23	1	1	25	8	33
Total	31	1	2	34	13	47
South Leg						
Approach	66	3	0	69	1	70
Departure	42	2	0	44	0	44
Total	108	5	0	113	1	114
East Leg						
Approach	702	35	20	757	3	760
Departure	904	45	23	972	4	976
Total	1,606	80	43	1,729	7	1,736
West Leg						
Approach	875	44	22	941	7	948
Departure	682	34	19	735	4	739
Total	1,557	78	41	1,676	11	1,687
Total Approaches						
Approach	1,651	82	43	1,776	16	1,792
Departure	1,651	82	43	1,776	16	1,792
Total	3,302	164	86	3,552	32	3,584

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Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
6 Laurel Glenn Apartments Driveway - Mall Driveway 3/Loughborough Drive						
NBL	7	0	6	13	2	15
NBT	0	0	0	0	0	0
NBR	26	1	10	37	4	41
SBL	4	0	0	4	0	4
SBT	0	0	0	0	0	0
SBR	6	0	0	6	0	6
EBL	1	0	0	1	0	1
EBT	324	16	3	343	0	343
EBR	23	1	8	32	3	35
WBL	26	1	0	27	1	28
WBT	216	11	1	228	0	228
WBR	6	0	0	6	0	6
North Leg						
Approach	10	0	0	10	0	10
Departure	7	0	0	7	0	7
Total	17	0	0	17	0	17
South Leg						
Approach	33	1	16	50	6	56
Departure	49	2	8	59	4	63
Total	82	3	24	109	10	119
East Leg						
Approach	248	12	1	261	1	262
Departure	354	17	13	384	4	388
Total	602	29	14	645	5	650
West Leg						
Approach	348	17	11	376	3	379
Departure	229	11	7	247	2	249
Total	577	28	18	623	5	628
Total Approaches						
Approach	639	30	28	697	10	707
Departure	639	30	28	697	10	707
Total	1,278	60	56	1,394	20	1,414

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Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
7 Mall Driveway 4 - Applewood Lane/Olive Avenue						
NBL	0	0	0	0	0	0
NBT	0	0	0	0	0	0
NBR	29	1	0	30	0	30
SBL	0	0	0	0	0	0
SBT	0	0	0	0	0	0
SBR	7	0	0	7	1	8
EBL	46	2	15	63	2	65
EBT	857	43	7	907	2	909
EBR	18	1	0	19	0	19
WBL	45	2	0	47	0	47
WBT	678	34	19	731	2	733
WBR	19	1	2	22	5	27
North Leg						
Approach	7	0	0	7	1	8
Departure	65	3	17	85	7	92
Total	72	3	17	92	8	100
South Leg						
Approach	29	1	0	30	0	30
Departure	63	3	0	66	0	66
Total	92	4	0	96	0	96
East Leg						
Approach	742	37	21	800	7	807
Departure	886	44	7	937	2	939
Total	1,628	81	28	1,737	9	1,746
West Leg						
Approach	921	46	22	989	4	993
Departure	685	34	19	738	3	741
Total	1,606	80	41	1,727	7	1,734
Total Approaches						
Approach	1,699	84	43	1,826	12	1,838
Departure	1,699	84	43	1,826	12	1,838
Total	3,398	168	86	3,652	24	3,676

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Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
8 M Street/Loughborough Drive - Collins Drive						
NBL	100	5	0	105	0	105
NBT	464	23	0	487	0	487
NBR	14	1	0	15	0	15
SBL	110	6	0	116	0	116
SBT	646	32	9	687	5	692
SBR	116	6	0	122	0	122
EBL	142	7	9	158	3	161
EBT	77	4	2	83	0	83
EBR	120	6	1	127	0	127
WBL	45	2	1	48	0	48
WBT	66	3	0	69	1	70
WBR	104	5	0	109	0	109
North Leg						
Approach	872	44	9	925	5	930
Departure	710	35	9	754	3	757
Total	1,582	79	18	1,679	8	1,687
South Leg						
Approach	578	29	0	607	0	607
Departure	811	40	11	862	5	867
Total	1,389	69	11	1,469	5	1,474
East Leg						
Approach	215	10	1	226	1	227
Departure	201	11	2	214	0	214
Total	416	21	3	440	1	441
West Leg						
Approach	339	17	12	368	3	371
Departure	282	14	0	296	1	297
Total	621	31	12	664	4	668
Total Approaches						
Approach	2,004	100	22	2,126	9	2,135
Departure	2,004	100	22	2,126	9	2,135
Total	4,008	200	44	4,252	18	4,270

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Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

		AM Peak Hour					
		Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
9	**M Street/Fairfield Drive**						
NBL		0	0	0	0	0	0
NBT		575	29	1	605	0	605
NBR		46	2	0	48	0	48
SBL		0	0	0	0	0	0
SBT		751	38	0	789	0	789
SBR		46	2	10	58	5	63
EBL		0	0	0	0	0	0
EBT		0	0	0	0	0	0
EBR		47	2	20	69	3	72
WBL		0	0	0	0	0	0
WBT		0	0	0	0	0	0
WBR		50	3	0	53	0	53
North Leg							
	Approach	797	40	10	847	5	852
	Departure	625	32	1	658	0	658
	Total	1,422	72	11	1,505	5	1,510
South Leg							
	Approach	621	31	1	653	0	653
	Departure	798	40	20	858	3	861
	Total	1,419	71	21	1,511	3	1,514
East Leg							
	Approach	50	3	0	53	0	53
	Departure	46	2	0	48	0	48
	Total	96	5	0	101	0	101
West Leg							
	Approach	47	2	20	69	3	72
	Departure	46	2	10	58	5	63
	Total	93	4	30	127	8	135
Total Approaches							
	Approach	1,515	76	31	1,622	8	1,630
	Departure	1,515	76	31	1,622	8	1,630
	Total	3,030	152	62	3,244	16	3,260

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Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
10 M Street/Olive Avenue						
NBL	126	6	10	142	4	146
NBT	417	21	0	438	0	438
NBR	104	5	0	109	0	109
SBL	185	9	10	204	0	204
SBT	552	28	10	590	3	593
SBR	61	3	0	64	0	64
EBL	123	6	0	129	0	129
EBT	573	29	7	609	2	611
EBR	162	8	0	170	0	170
WBL	180	9	0	189	0	189
WBT	552	28	16	596	3	599
WBR	81	4	1	86	0	86
North Leg						
Approach	798	40	20	858	3	861
Departure	621	31	1	653	0	653
Total	1,419	71	21	1,511	3	1,514
South Leg						
Approach	647	32	10	689	4	693
Departure	894	45	10	949	3	952
Total	1,541	77	20	1,638	7	1,645
East Leg						
Approach	813	41	17	871	3	874
Departure	862	43	17	922	2	924
Total	1,675	84	34	1,793	5	1,798
West Leg						
Approach	858	43	7	908	2	910
Departure	739	37	26	802	7	809
Total	1,597	80	33	1,710	9	1,719
Total Approaches						
Approach	3,116	156	54	3,326	12	3,338
Departure	3,116	156	54	3,326	12	3,338
Total	6,232	312	108	6,652	24	6,676

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Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
11 M Street/Olivewood Drive						
NBL	68	3	0	71	0	71
NBT	636	32	10	678	4	682
NBR	0	0	0	0	0	0
SBL	0	0	0	0	0	0
SBT	817	41	10	868	3	871
SBR	41	2	0	43	0	43
EBL	7	0	0	7	0	7
EBT	0	0	0	0	0	0
EBR	67	3	0	70	0	70
WBL	0	0	0	0	0	0
WBT	0	0	0	0	0	0
WBR	0	0	0	0	0	0
North Leg						
Approach	858	43	10	911	3	914
Departure	643	32	10	685	4	689
Total	1,501	75	20	1,596	7	1,603
South Leg						
Approach	704	35	10	749	4	753
Departure	884	44	10	938	3	941
Total	1,588	79	20	1,687	7	1,694
East Leg						
Approach	0	0	0	0	0	0
Departure	0	0	0	0	0	0
Total	0	0	0	0	0	0
West Leg						
Approach	74	3	0	77	0	77
Departure	109	5	0	114	0	114
Total	183	8	0	191	0	191
Total Approaches						
Approach	1,636	81	20	1,737	7	1,744
Departure	1,636	81	20	1,737	7	1,744
Total	3,272	162	40	3,474	14	3,488

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Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
1 R Street/Loughborough Drive						
NBL	120	6	0	126	0	126
NBT	528	26	18	572	19	591
NBR	135	7	0	142	0	142
SBL	48	2	5	55	19	74
SBT	360	18	11	389	18	407
SBR	87	4	0	91	0	91
EBL	102	5	0	107	0	107
EBT	121	6	1	128	11	139
EBR	35	2	0	37	0	37
WBL	104	5	0	109	0	109
WBT	168	8	1	177	11	188
WBR	81	4	7	92	18	110
North Leg						
Approach	495	24	16	535	37	572
Departure	711	35	25	771	37	808
Total	1,206	59	41	1,306	74	1,380
South Leg						
Approach	783	39	18	840	19	859
Departure	499	25	11	535	18	553
Total	1,282	64	29	1,375	37	1,412
East Leg						
Approach	353	17	8	378	29	407
Departure	304	15	6	325	30	355
Total	657	32	14	703	59	762
West Leg						
Approach	258	13	1	272	11	283
Departure	375	18	1	394	11	405
Total	633	31	2	666	22	688
Total Approaches						
Approach	1,889	93	43	2,025	96	2,121
Departure	1,889	93	43	2,025	96	2,121
Total	3,778	186	86	4,050	192	4,242

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Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
2 R Street/99 Cents Stores Driveway - Mall Driveway 1						
NBL	94	5	0	99	0	99
NBT	701	35	12	748	0	748
NBR	114	6	0	120	0	120
SBL	84	4	4	92	18	110
SBT	457	23	7	487	0	487
SBR	29	1	0	30	0	30
EBL	0	0	0	0	0	0
EBT	0	0	0	0	0	0
EBR	125	6	0	131	0	131
WBL	0	0	0	0	0	0
WBT	0	0	0	0	0	0
WBR	81	4	6	91	19	110
North Leg						
Approach	570	28	11	609	18	627
Departure	782	39	18	839	19	858
Total	1,352	67	29	1,448	37	1,485
South Leg						
Approach	909	46	12	967	0	967
Departure	582	29	7	618	0	618
Total	1,491	75	19	1,585	0	1,585
East Leg						
Approach	81	4	6	91	19	110
Departure	198	10	4	212	18	230
Total	279	14	10	303	37	340
West Leg						
Approach	125	6	0	131	0	131
Departure	123	6	0	129	0	129
Total	248	12	0	260	0	260
Total Approaches						
Approach	1,685	84	29	1,798	37	1,835
Departure	1,685	84	29	1,798	37	1,835
Total	3,370	168	58	3,596	74	3,670

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Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
3 R Street/Olive Avenue						
NBL	293	15	3	311	0	311
NBT	570	29	0	599	0	599
NBR	98	5	5	108	25	133
SBL	134	7	4	145	0	145
SBT	352	18	0	370	0	370
SBR	111	6	4	121	0	121
EBL	212	11	6	229	0	229
EBT	773	39	4	816	18	834
EBR	187	9	3	199	0	199
WBL	239	12	5	256	26	282
WBT	842	42	3	887	19	906
WBR	144	7	6	157	0	157
North Leg						
Approach	597	31	8	636	0	636
Departure	926	47	12	985	0	985
Total	1,523	78	20	1,621	0	1,621
South Leg						
Approach	961	49	8	1,018	25	1,043
Departure	778	39	8	825	26	851
Total	1,739	88	16	1,843	51	1,894
East Leg						
Approach	1,225	61	14	1,300	45	1,345
Departure	1,005	51	13	1,069	43	1,112
Total	2,230	112	27	2,369	88	2,457
West Leg						
Approach	1,172	59	13	1,244	18	1,262
Departure	1,246	63	10	1,319	19	1,338
Total	2,418	122	23	2,563	37	2,600
Total Approaches						
Approach	3,955	200	43	4,198	88	4,286
Departure	3,955	200	43	4,198	88	4,286
Total	7,910	400	86	8,396	176	8,572

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Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
4 R Street/Olivewood Drive						
NBL	249	12	0	261	0	261
NBT	793	40	8	841	25	866
NBR	116	6	0	122	0	122
SBL	43	2	0	45	0	45
SBT	663	33	8	704	26	730
SBR	37	2	0	39	0	39
EBL	0	0	0	0	0	0
EBT	0	0	0	0	0	0
EBR	319	16	0	335	0	335
WBL	0	0	0	0	0	0
WBT	0	0	0	0	0	0
WBR	181	9	0	190	0	190
North Leg						
Approach	743	37	8	788	26	814
Departure	974	49	8	1,031	25	1,056
Total	1,717	86	16	1,819	51	1,870
South Leg						
Approach	1,158	58	8	1,224	25	1,249
Departure	982	49	8	1,039	26	1,065
Total	2,140	107	16	2,263	51	2,314
East Leg						
Approach	181	9	0	190	0	190
Departure	159	8	0	167	0	167
Total	340	17	0	357	0	357
West Leg						
Approach	319	16	0	335	0	335
Departure	286	14	0	300	0	300
Total	605	30	0	635	0	635
Total Approaches						
Approach	2,401	120	16	2,537	51	2,588
Departure	2,401	120	16	2,537	51	2,588
Total	4,802	240	32	5,074	102	5,176

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Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
5 Mall Driveway 2 - Pepperwood Lane/Olive Avenue						
NBL	22	1	0	23	0	23
NBT	3	0	0	3	4	7
NBR	97	5	0	102	0	102
SBL	5	0	3	8	19	27
SBT	1	0	0	1	4	5
SBR	74	4	0	78	22	100
EBL	64	3	0	67	22	89
EBT	952	48	13	1013	22	1035
EBR	37	2	0	39	0	39
WBL	56	3	0	59	0	59
WBT	1,118	56	14	1188	22	1210
WBR	20	1	1	22	7	29
North Leg						
Approach	80	4	3	87	45	132
Departure	87	4	1	92	33	125
Total	167	8	4	179	78	257
South Leg						
Approach	122	6	0	128	4	132
Departure	94	5	0	99	4	103
Total	216	11	0	227	8	235
East Leg						
Approach	1,194	60	15	1,269	29	1,298
Departure	1,054	53	16	1,123	41	1,164
Total	2,248	113	31	2,392	70	2,462
West Leg						
Approach	1,053	53	13	1,119	44	1,163
Departure	1,214	61	14	1,289	44	1,333
Total	2,267	114	27	2,408	88	2,496
Total Approaches						
Approach	2,449	123	31	2,603	122	2,725
Departure	2,449	123	31	2,603	122	2,725
Total	4,898	246	62	5,206	244	5,450

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Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
6 Laurel Glenn Apartments Driveway - Mall Driveway 3/Loughborough Drive						
NBL	29	1	5	35	37	72
NBT	1	0	0	1	0	1
NBR	69	3	5	77	37	114
SBL	9	0	0	9	0	9
SBT	1	0	0	1	0	1
SBR	2	0	0	2	0	2
EBL	11	1	0	12	0	12
EBT	332	17	1	350	0	350
EBR	18	1	3	22	37	59
WBL	39	2	0	41	21	62
WBT	320	16	3	339	0	339
WBR	10	1	0	11	0	11
North Leg						
Approach	12	0	0	12	0	12
Departure	22	2	0	24	0	24
Total	34	2	0	36	0	36
South Leg						
Approach	99	4	10	113	74	187
Departure	58	3	3	64	58	122
Total	157	7	13	177	132	309
East Leg						
Approach	369	19	3	391	21	412
Departure	410	20	6	436	37	473
Total	779	39	9	827	58	885
West Leg						
Approach	361	19	4	384	37	421
Departure	351	17	8	376	37	413
Total	712	36	12	760	74	834
Total Approaches						
Approach	841	42	17	900	132	1,032
Departure	841	42	17	900	132	1,032
Total	1,682	84	34	1,800	264	2,064

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Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
7 Mall Driveway 4 - Applewood Lane/Olive Avenue						
NBL	0	0	0	0	0	0
NBT	0	0	0	0	0	0
NBR	62	3	0	65	0	65
SBL	0	0	0	0	0	0
SBT	0	0	0	0	0	0
SBR	75	4	0	79	22	101
EBL	100	5	7	112	22	134
EBT	1,033	52	8	1093	19	1112
EBR	41	2	0	43	0	43
WBL	77	4	0	81	0	81
WBT	1,070	54	15	1139	7	1146
WBR	74	4	1	79	37	116
North Leg						
Approach	75	4	0	79	22	101
Departure	174	9	8	191	59	250
Total	249	13	8	270	81	351
South Leg						
Approach	62	3	0	65	0	65
Departure	118	6	0	124	0	124
Total	180	9	0	189	0	189
East Leg						
Approach	1,221	62	16	1,299	44	1,343
Departure	1,095	55	8	1,158	19	1,177
Total	2,316	117	24	2,457	63	2,520
West Leg						
Approach	1,174	59	15	1,248	41	1,289
Departure	1,145	58	15	1,218	29	1,247
Total	2,319	117	30	2,466	70	2,536
Total Approaches						
Approach	2,532	128	31	2,691	107	2,798
Departure	2,532	128	31	2,691	107	2,798
Total	5,064	256	62	5,382	214	5,596

LSA

Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
8 M Street/Loughborough Drive - Collins Drive						
NBL	138	7	1	146	0	146
NBT	499	25	0	524	0	524
NBR	16	1	0	17	0	17
SBL	27	1	0	28	0	28
SBT	450	23	4	477	16	493
SBR	150	8	0	158	17	175
EBL	223	11	4	238	33	271
EBT	29	1	1	31	4	35
EBR	196	10	1	207	0	207
WBL	44	2	0	46	0	46
WBT	78	4	1	83	4	87
WBR	110	6	0	116	0	116
North Leg						
Approach	627	32	4	663	33	696
Departure	832	42	4	878	33	911
Total	1,459	74	8	1,541	66	1,607
South Leg						
Approach	653	33	1	687	0	687
Departure	690	35	5	730	16	746
Total	1,343	68	6	1,417	16	1,433
East Leg						
Approach	232	12	1	245	4	249
Departure	72	3	1	76	4	80
Total	304	15	2	321	8	329
West Leg						
Approach	448	22	6	476	37	513
Departure	366	19	2	387	21	408
Total	814	41	8	863	58	921
Total Approaches						
Approach	1,960	99	12	2,071	74	2,145
Departure	1,960	99	12	2,071	74	2,145
Total	3,920	198	24	4,142	148	4,290

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Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
9 M Street/Fairfield Drive						
NBL	0	0	0	0	0	0
NBT	647	32	1	680	0	680
NBR	35	2	0	37	0	37
SBL	0	0	0	0	0	0
SBT	773	39	1	813	0	813
SBR	48	2	5	55	16	71
EBL	0	0	0	0	0	0
EBT	0	0	0	0	0	0
EBR	119	6	10	135	26	161
WBL	0	0	0	0	0	0
WBT	0	0	0	0	0	0
WBR	43	2	0	45	0	45
North Leg						
Approach	821	41	6	868	16	884
Departure	690	34	1	725	0	725
Total	1,511	75	7	1,593	16	1,609
South Leg						
Approach	682	34	1	717	0	717
Departure	892	45	11	948	26	974
Total	1,574	79	12	1,665	26	1,691
East Leg						
Approach	43	2	0	45	0	45
Departure	35	2	0	37	0	37
Total	78	4	0	82	0	82
West Leg						
Approach	119	6	10	135	26	161
Departure	48	2	5	55	16	71
Total	167	8	15	190	42	232
Total Approaches						
Approach	1,665	83	17	1,765	42	1,807
Departure	1,665	83	17	1,765	42	1,807
Total	3,330	166	34	3,530	84	3,614

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Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
10 M Street/Olive Avenue						
NBL	302	15	5	322	25	347
NBT	492	25	0	517	0	517
NBR	119	6	0	125	0	125
SBL	293	15	6	314	0	314
SBT	501	25	5	531	26	557
SBR	98	5	0	103	0	103
EBL	132	7	0	139	0	139
EBT	759	38	8	805	19	824
EBR	141	7	0	148	0	148
WBL	168	8	0	176	0	176
WBT	808	40	14	862	18	880
WBR	58	3	1	62	0	62
North Leg						
Approach	892	45	11	948	26	974
Departure	682	35	1	718	0	718
Total	1,574	80	12	1,666	26	1,692
South Leg						
Approach	913	46	5	964	25	989
Departure	810	40	5	855	26	881
Total	1,723	86	10	1,819	51	1,870
East Leg						
Approach	1,034	51	15	1,100	18	1,118
Departure	1,171	59	14	1,244	19	1,263
Total	2,205	110	29	2,344	37	2,381
West Leg						
Approach	1,032	52	8	1,092	19	1,111
Departure	1,208	60	19	1,287	43	1,330
Total	2,240	112	27	2,379	62	2,441
Total Approaches						
Approach	3,871	194	39	4,104	88	4,192
Departure	3,871	194	39	4,104	88	4,192
Total	7,742	388	78	8,208	176	8,384

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Table B-2 - Project Alternative I Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour					
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
11 M Street/Olivewood Drive						
NBL	102	5	0	107	0	107
NBT	897	45	5	947	25	972
NBR	0	0	0	0	0	0
SBL	0	0	0	0	0	0
SBT	727	36	5	768	26	794
SBR	51	3	0	54	0	54
EBL	13	1	0	14	0	14
EBT	0	0	0	0	0	0
EBR	180	9	0	189	0	189
WBL	0	0	0	0	0	0
WBT	0	0	0	0	0	0
WBR	0	0	0	0	0	0
North Leg						
Approach	778	39	5	822	26	848
Departure	910	46	5	961	25	986
Total	1,688	85	10	1,783	51	1,834
South Leg						
Approach	999	50	5	1,054	25	1,079
Departure	907	45	5	957	26	983
Total	1,906	95	10	2,011	51	2,062
East Leg						
Approach	0	0	0	0	0	0
Departure	0	0	0	0	0	0
Total	0	0	0	0	0	0
West Leg						
Approach	193	10	0	203	0	203
Departure	153	8	0	161	0	161
Total	346	18	0	364	0	364
Total Approaches						
Approach	1,970	99	10	2,079	51	2,130
Departure	1,970	99	10	2,079	51	2,130
Total	3,940	198	20	4,158	102	4,260

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Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
1 R Street/Loughborough Drive								
NBL	43	2	0	45	0	0	0	45
NBT	268	13	6	287	0	0	4	291
NBR	122	6	0	128	0	0	0	128
SBL	63	3	9	75	3	-3	0	72
SBT	466	23	17	506	0	0	6	512
SBR	90	5	0	95	0	0	0	95
EBL	86	4	0	90	0	0	0	90
EBT	165	8	3	176	1	-1	2	177
EBR	45	2	0	47	0	0	0	47
WBL	78	4	0	82	0	0	0	82
WBT	97	5	2	104	1	-1	1	104
WBR	49	2	4	55	2	-2	0	53
North Leg								
Approach	619	31	26	676	3	-3	6	679
Departure	403	19	10	432	2	-2	4	434
Total	1,022	50	36	1,108	5	-5	10	1,113
South Leg								
Approach	433	21	6	460	0	0	4	464
Departure	589	29	17	635	0	0	6	641
Total	1,022	50	23	1,095	0	0	10	1,105
East Leg								
Approach	224	11	6	241	3	-3	1	239
Departure	350	17	12	379	4	-4	2	377
Total	574	28	18	620	7	-7	3	616
West Leg								
Approach	296	14	3	313	1	-1	2	314
Departure	230	12	2	244	1	-1	1	244
Total	526	26	5	557	2	-2	3	558
Total Approaches								
Approach	1,572	77	41	1,690	7	-7	13	1,696
Departure	1,572	77	41	1,690	7	-7	13	1,696
Total	3,144	154	82	3,380	14	-14	26	3,392

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Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

		AM Peak Hour							
		Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
2	**R Street/99 Cents Stores Driveway - Mall Driveway 1**								
NBL		36	2	0	38	0	0	0	38
NBT		419	21	4	444	0	0	0	444
NBR		32	2	0	34	0	0	0	34
SBL		28	1	6	35	0	0	6	41
SBT		543	27	12	582	0	0	0	582
SBR		22	1	0	23	0	0	0	23
EBL		0	0	0	0	0	0	0	0
EBT		0	0	0	0	0	0	0	0
EBR		29	1	0	30	0	0	0	30
WBL		0	0	0	0	0	0	0	0
WBT		0	0	0	0	0	0	0	0
WBR		14	1	2	17	0	0	4	21
North Leg									
	Approach	593	29	18	640	0	0	6	646
	Departure	433	22	6	461	0	0	4	465
	Total	1,026	51	24	1,101	0	0	10	1,111
South Leg									
	Approach	487	25	4	516	0	0	0	516
	Departure	572	28	12	612	0	0	0	612
	Total	1,059	53	16	1,128	0	0	0	1,128
East Leg									
	Approach	14	1	2	17	0	0	4	21
	Departure	60	3	6	69	0	0	6	75
	Total	74	4	8	86	0	0	10	96
West Leg									
	Approach	29	1	0	30	0	0	0	30
	Departure	58	3	0	61	0	0	0	61
	Total	87	4	0	91	0	0	0	91
Total Approaches									
	Approach	1,123	56	24	1,203	0	0	10	1,213
	Departure	1,123	56	24	1,203	0	0	10	1,213
	Total	2,246	112	48	2,406	0	0	20	2,426

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Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

		AM Peak Hour							
		Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
3	**R Street/Olive Avenue**								
NBL		120	6	1	127	0	0	0	127
NBT		325	16	0	341	0	0	0	341
NBR		125	6	10	141	2	-2	4	143
SBL		98	5	6	109	0	0	0	109
SBT		396	20	0	416	0	0	0	416
SBR		55	3	6	64	0	0	0	64
EBL		102	5	2	109	0	0	0	109
EBT		647	32	6	685	2	-2	3	686
EBR		138	7	1	146	0	0	0	146
WBL		162	8	10	180	1	-1	3	182
WBT		457	23	7	487	1	-1	2	488
WBR		68	3	2	73	0	0	0	73
North Leg									
	Approach	549	28	12	589	0	0	0	589
	Departure	495	24	4	523	0	0	0	523
	Total	1,044	52	16	1,112	0	0	0	1,112
South Leg									
	Approach	570	28	11	609	2	-2	4	611
	Departure	696	35	11	742	1	-1	3	744
	Total	1,266	63	22	1,351	3	-3	7	1,355
East Leg									
	Approach	687	34	19	740	2	-2	5	743
	Departure	870	43	22	935	4	-4	7	938
	Total	1,557	77	41	1,675	6	-6	12	1,681
West Leg									
	Approach	887	44	9	940	2	-2	3	941
	Departure	632	32	14	678	1	-1	2	679
	Total	1,519	76	23	1,618	3	-3	5	1,620
Total Approaches									
	Approach	2,693	134	51	2,878	6	-6	12	2,884
	Departure	2,693	134	51	2,878	6	-6	12	2,884
	Total	5,386	268	102	5,756	12	-12	24	5,768

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Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

		AM Peak Hour							
		Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
4	**R Street/Olivewood Drive**								
NBL		117	6	0	123	0	0	0	123
NBT		515	26	11	552	2	-2	4	554
NBR		110	6	0	116	0	0	0	116
SBL		45	2	0	47	0	0	0	47
SBT		628	31	11	670	1	-1	3	672
SBR		19	1	0	20	0	0	0	20
EBL		0	0	0	0	0	0	0	0
EBT		0	0	0	0	0	0	0	0
EBR		94	5	0	99	0	0	0	99
WBL		0	0	0	0	0	0	0	0
WBT		0	0	0	0	0	0	0	0
WBR		55	3	0	58	0	0	0	58
North Leg									
	Approach	692	34	11	737	1	-1	3	739
	Departure	570	29	11	610	2	-2	4	612
	Total	1,262	63	22	1,347	3	-3	7	1,351
South Leg									
	Approach	742	38	11	791	2	-2	4	793
	Departure	722	36	11	769	1	-1	3	771
	Total	1,464	74	22	1,560	3	-3	7	1,564
East Leg									
	Approach	55	3	0	58	0	0	0	58
	Departure	155	8	0	163	0	0	0	163
	Total	210	11	0	221	0	0	0	221
West Leg									
	Approach	94	5	0	99	0	0	0	99
	Departure	136	7	0	143	0	0	0	143
	Total	230	12	0	242	0	0	0	242
Total Approaches									
	Approach	1,583	80	22	1,685	3	-3	7	1,689
	Departure	1,583	80	22	1,685	3	-3	7	1,689
	Total	3,166	160	44	3,370	6	-6	14	3,378

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Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
5 Mall Driveway 2 - Pepperwood Lane/Olive Avenue								
NBL	8	0	0	8	0	0	0	8
NBT	2	0	0	2	0	0	1	3
NBR	56	3	0	59	0	0	0	59
SBL	4	0	1	5	1	-1	2	6
SBT	1	0	0	1	0	0	0	1
SBR	3	0	0	3	1	-1	3	5
EBL	17	1	0	18	1	-1	5	22
EBT	844	42	22	908	2	-2	2	908
EBR	14	1	0	15	0	0	0	15
WBL	27	1	0	28	0	0	0	28
WBT	671	34	19	724	1	-1	1	724
WBR	4	0	1	5	0	0	2	7
North Leg								
Approach	8	0	1	9	2	-2	5	12
Departure	23	1	1	25	1	-1	8	32
Total	31	1	2	34	3	-3	13	44
South Leg								
Approach	66	3	0	69	0	0	1	70
Departure	42	2	0	44	0	0	0	44
Total	108	5	0	113	0	0	1	114
East Leg								
Approach	702	35	20	757	1	-1	3	759
Departure	904	45	23	972	3	-3	4	973
Total	1,606	80	43	1,729	4	-4	7	1,732
West Leg								
Approach	875	44	22	941	3	-3	7	945
Departure	682	34	19	735	2	-2	4	737
Total	1,557	78	41	1,676	5	-5	11	1,682
Total Approaches								
Approach	1,651	82	43	1,776	6	-6	16	1,786
Departure	1,651	82	43	1,776	6	-6	16	1,786
Total	3,302	164	86	3,552	12	-12	32	3,572

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Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
6 Laurel Glenn Apartments Driveway - Mall Driveway 3/Loughborough Drive								
NBL	7	0	6	13	3	-3	2	12
NBT	0	0	0	0	0	0	0	0
NBR	26	1	10	37	2	-2	4	39
SBL	4	0	0	4	0	0	0	4
SBT	0	0	0	0	0	0	0	0
SBR	6	0	0	6	0	0	0	6
EBL	1	0	0	1	0	0	0	1
EBT	324	16	3	343	0	0	0	343
EBR	23	1	8	32	5	-5	3	30
WBL	26	1	0	27	0	0	1	28
WBT	216	11	1	228	0	0	0	228
WBR	6	0	0	6	0	0	0	6
North Leg								
Approach	10	0	0	10	0	0	0	10
Departure	7	0	0	7	0	0	0	7
Total	17	0	0	17	0	0	0	17
South Leg								
Approach	33	1	16	50	5	-5	6	51
Departure	49	2	8	59	5	-5	4	58
Total	82	3	24	109	10	-10	10	109
East Leg								
Approach	248	12	1	261	0	0	1	262
Departure	354	17	13	384	2	-2	4	386
Total	602	29	14	645	2	-2	5	648
West Leg								
Approach	348	17	11	376	5	-5	3	374
Departure	229	11	7	247	3	-3	2	246
Total	577	28	18	623	8	-8	5	620
Total Approaches								
Approach	639	30	28	697	10	-10	10	697
Departure	639	30	28	697	10	-10	10	697
Total	1,278	60	56	1,394	20	-20	20	1,394

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Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
7 Mall Driveway 4 - Applewood Lane/Olive Avenue								
NBL	0	0	0	0	0	0	0	0
NBT	0	0	0	0	0	0	0	0
NBR	29	1	0	30	0	0	0	30
SBL	0	0	0	0	0	0	0	0
SBT	0	0	0	0	0	0	0	0
SBR	7	0	0	7	1	-1	1	7
EBL	46	2	15	63	2	-2	2	63
EBT	857	43	7	907	1	-1	2	908
EBR	18	1	0	19	0	0	0	19
WBL	45	2	0	47	0	0	0	47
WBT	678	34	19	731	0	0	2	733
WBR	19	1	2	22	4	-4	5	23
North Leg								
Approach	7	0	0	7	1	-1	1	7
Departure	65	3	17	85	6	-6	7	86
Total	72	3	17	92	7	-7	8	93
South Leg								
Approach	29	1	0	30	0	0	0	30
Departure	63	3	0	66	0	0	0	66
Total	92	4	0	96	0	0	0	96
East Leg								
Approach	742	37	21	800	4	-4	7	803
Departure	886	44	7	937	1	-1	2	938
Total	1,628	81	28	1,737	5	-5	9	1,741
West Leg								
Approach	921	46	22	989	3	-3	4	990
Departure	685	34	19	738	1	-1	3	740
Total	1,606	80	41	1,727	4	-4	7	1,730
Total Approaches								
Approach	1,699	84	43	1,826	8	-8	12	1,830
Departure	1,699	84	43	1,826	8	-8	12	1,830
Total	3,398	168	86	3,652	16	-16	24	3,660

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Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
8 M Street/Loughborough Drive - Collins Drive								
NBL	100	5	0	105	0	0	0	105
NBT	464	23	0	487	0	0	0	487
NBR	14	1	0	15	0	0	0	15
SBL	110	6	0	116	0	0	0	116
SBT	646	32	9	687	3	-3	5	689
SBR	116	6	0	122	0	0	0	122
EBL	142	7	9	158	2	-2	3	159
EBT	77	4	2	83	0	0	0	83
EBR	120	6	1	127	0	0	0	127
WBL	45	2	1	48	0	0	0	48
WBT	66	3	0	69	0	0	1	70
WBR	104	5	0	109	0	0	0	109
North Leg								
Approach	872	44	9	925	3	-3	5	927
Departure	710	35	9	754	2	-2	3	755
Total	1,582	79	18	1,679	5	-5	8	1,682
South Leg								
Approach	578	29	0	607	0	0	0	607
Departure	811	40	11	862	3	-3	5	864
Total	1,389	69	11	1,469	3	-3	5	1,471
East Leg								
Approach	215	10	1	226	0	0	1	227
Departure	201	11	2	214	0	0	0	214
Total	416	21	3	440	0	0	1	441
West Leg								
Approach	339	17	12	368	2	-2	3	369
Departure	282	14	0	296	0	0	1	297
Total	621	31	12	664	2	-2	4	666
Total Approaches								
Approach	2,004	100	22	2,126	5	-5	9	2,130
Departure	2,004	100	22	2,126	5	-5	9	2,130
Total	4,008	200	44	4,252	10	-10	18	4,260

LSA

Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
9 M Street/Fairfield Drive								
NBL	0	0	0	0	0	0	0	0
NBT	575	29	1	605	0	0	0	605
NBR	46	2	0	48	0	0	0	48
SBL	0	0	0	0	0	0	0	0
SBT	751	38	0	789	0	0	0	789
SBR	46	2	10	58	3	-3	5	60
EBL	0	0	0	0	0	0	0	0
EBT	0	0	0	0	0	0	0	0
EBR	47	2	20	69	1	-1	3	71
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	50	3	0	53	0	0	0	53
North Leg								
Approach	797	40	10	847	3	-3	5	849
Departure	625	32	1	658	0	0	0	658
Total	1,422	72	11	1,505	3	-3	5	1,507
South Leg								
Approach	621	31	1	653	0	0	0	653
Departure	798	40	20	858	1	-1	3	860
Total	1,419	71	21	1,511	1	-1	3	1,513
East Leg								
Approach	50	3	0	53	0	0	0	53
Departure	46	2	0	48	0	0	0	48
Total	96	5	0	101	0	0	0	101
West Leg								
Approach	47	2	20	69	1	-1	3	71
Departure	46	2	10	58	3	-3	5	60
Total	93	4	30	127	4	-4	8	131
Total Approaches								
Approach	1,515	76	31	1,622	4	-4	8	1,626
Departure	1,515	76	31	1,622	4	-4	8	1,626
Total	3,030	152	62	3,244	8	-8	16	3,252

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Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
10 M Street/Olive Avenue								
NBL	126	6	10	142	2	-2	4	144
NBT	417	21	0	438	0	0	0	438
NBR	104	5	0	109	0	0	0	109
SBL	185	9	10	204	0	0	0	204
SBT	552	28	10	590	1	-1	3	592
SBR	61	3	0	64	0	0	0	64
EBL	123	6	0	129	0	0	0	129
EBT	573	29	7	609	1	-1	2	610
EBR	162	8	0	170	0	0	0	170
WBL	180	9	0	189	0	0	0	189
WBT	552	28	16	596	2	-2	3	597
WBR	81	4	1	86	0	0	0	86
North Leg								
Approach	798	40	20	858	1	-1	3	860
Departure	621	31	1	653	0	0	0	653
Total	1,419	71	21	1,511	1	-1	3	1,513
South Leg								
Approach	647	32	10	689	2	-2	4	691
Departure	894	45	10	949	1	-1	3	951
Total	1,541	77	20	1,638	3	-3	7	1,642
East Leg								
Approach	813	41	17	871	2	-2	3	872
Departure	862	43	17	922	1	-1	2	923
Total	1,675	84	34	1,793	3	-3	5	1,795
West Leg								
Approach	858	43	7	908	1	-1	2	909
Departure	739	37	26	802	4	-4	7	805
Total	1,597	80	33	1,710	5	-5	9	1,714
Total Approaches								
Approach	3,116	156	54	3,326	6	-6	12	3,332
Departure	3,116	156	54	3,326	6	-6	12	3,332
Total	6,232	312	108	6,652	12	-12	24	6,664

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Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	AM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
11 M Street/Olivewood Drive								
NBL	68	3	0	71	0	0	0	71
NBT	636	32	10	678	2	-2	4	680
NBR	0	0	0	0	0	0	0	0
SBL	0	0	0	0	0	0	0	0
SBT	817	41	10	868	1	-1	3	870
SBR	41	2	0	43	0	0	0	43
EBL	7	0	0	7	0	0	0	7
EBT	0	0	0	0	0	0	0	0
EBR	67	3	0	70	0	0	0	70
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	0	0	0	0	0	0	0	0
North Leg								
Approach	858	43	10	911	1	-1	3	913
Departure	643	32	10	685	2	-2	4	687
Total	1,501	75	20	1,596	3	-3	7	1,600
South Leg								
Approach	704	35	10	749	2	-2	4	751
Departure	884	44	10	938	1	-1	3	940
Total	1,588	79	20	1,687	3	-3	7	1,691
East Leg								
Approach	0	0	0	0	0	0	0	0
Departure	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
West Leg								
Approach	74	3	0	77	0	0	0	77
Departure	109	5	0	114	0	0	0	114
Total	183	8	0	191	0	0	0	191
Total Approaches								
Approach	1,636	81	20	1,737	3	-3	7	1,741
Departure	1,636	81	20	1,737	3	-3	7	1,741
Total	3,272	162	40	3,474	6	-6	14	3,482

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Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
1 R Street/Loughborough Drive								
NBL	120	6	0	126	0	0	0	126
NBT	528	26	18	572	0	0	19	591
NBR	135	7	0	142	0	0	0	142
SBL	48	2	5	55	18	-19	19	55
SBT	360	18	11	389	0	0	18	407
SBR	87	4	0	91	0	0	0	91
EBL	102	5	0	107	0	0	0	107
EBT	121	6	1	128	5	-5	11	134
EBR	35	2	0	37	0	0	0	37
WBL	104	5	0	109	0	0	0	109
WBT	168	8	1	177	6	-6	11	182
WBR	81	4	7	92	21	-22	18	88
North Leg								
Approach	495	24	16	535	18	-19	37	553
Departure	711	35	25	771	21	-22	37	786
Total	1,206	59	41	1,306	39	-41	74	1,339
South Leg								
Approach	783	39	18	840	0	0	19	859
Departure	499	25	11	535	0	0	18	553
Total	1,282	64	29	1,375	0	0	37	1,412
East Leg								
Approach	353	17	8	378	27	-28	29	379
Departure	304	15	6	325	23	-24	30	331
Total	657	32	14	703	50	-52	59	710
West Leg								
Approach	258	13	1	272	5	-5	11	278
Departure	375	18	1	394	6	-6	11	399
Total	633	31	2	666	11	-11	22	677
Total Approaches								
Approach	1,889	93	43	2,025	50	-52	96	2,069
Departure	1,889	93	43	2,025	50	-52	96	2,069
Total	3,778	186	86	4,050	100	-104	192	4,138

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Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
2 R Street/99 Cents Stores Driveway - Mall Driveway 1								
NBL	94	5	0	99	0	0	0	99
NBT	701	35	12	748	0	0	0	748
NBR	114	6	0	120	0	0	0	120
SBL	84	4	4	92	0	0	18	110
SBT	457	23	7	487	0	0	0	487
SBR	29	1	0	30	0	0	0	30
EBL	0	0	0	0	0	0	0	0
EBT	0	0	0	0	0	0	0	0
EBR	125	6	0	131	0	0	0	131
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	81	4	6	91	0	0	19	110
North Leg								
Approach	570	28	11	609	0	0	18	627
Departure	782	39	18	839	0	0	19	858
Total	1,352	67	29	1,448	0	0	37	1,485
South Leg								
Approach	909	46	12	967	0	0	0	967
Departure	582	29	7	618	0	0	0	618
Total	1,491	75	19	1,585	0	0	0	1,585
East Leg								
Approach	81	4	6	91	0	0	19	110
Departure	198	10	4	212	0	0	18	230
Total	279	14	10	303	0	0	37	340
West Leg								
Approach	125	6	0	131	0	0	0	131
Departure	123	6	0	129	0	0	0	129
Total	248	12	0	260	0	0	0	260
Total Approaches								
Approach	1,685	84	29	1,798	0	0	37	1,835
Departure	1,685	84	29	1,798	0	0	37	1,835
Total	3,370	168	58	3,596	0	0	74	3,670

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Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
3 R Street/Olive Avenue								
NBL	293	15	3	311	0	0	0	311
NBT	570	29	0	599	0	0	0	599
NBR	98	5	5	108	12	-13	25	120
SBL	134	7	4	145	0	0	0	145
SBT	352	18	0	370	0	0	0	370
SBR	111	6	4	121	0	0	0	121
EBL	212	11	6	229	0	0	0	229
EBT	773	39	4	816	9	-9	18	825
EBR	187	9	3	199	0	0	0	199
WBL	239	12	5	256	14	-15	26	267
WBT	842	42	3	887	10	-11	19	895
WBR	144	7	6	157	0	0	0	157
North Leg								
Approach	597	31	8	636	0	0	0	636
Departure	926	47	12	985	0	0	0	985
Total	1,523	78	20	1,621	0	0	0	1,621
South Leg								
Approach	961	49	8	1,018	12	-13	25	1,030
Departure	778	39	8	825	14	-15	26	836
Total	1,739	88	16	1,843	26	-28	51	1,866
East Leg								
Approach	1,225	61	14	1,300	24	-26	45	1,319
Departure	1,005	51	13	1,069	21	-22	43	1,090
Total	2,230	112	27	2,369	45	-48	88	2,409
West Leg								
Approach	1,172	59	13	1,244	9	-9	18	1,253
Departure	1,246	63	10	1,319	10	-11	19	1,327
Total	2,418	122	23	2,563	19	-20	37	2,580
Total Approaches								
Approach	3,955	200	43	4,198	45	-48	88	4,238
Departure	3,955	200	43	4,198	45	-48	88	4,238
Total	7,910	400	86	8,396	90	-96	176	8,476

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Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
4 R Street/Olivewood Drive								
NBL	249	12	0	261	0	0	0	261
NBT	793	40	8	841	12	-13	25	853
NBR	116	6	0	122	0	0	0	122
SBL	43	2	0	45	0	0	0	45
SBT	663	33	8	704	14	-15	26	715
SBR	37	2	0	39	0	0	0	39
EBL	0	0	0	0	0	0	0	0
EBT	0	0	0	0	0	0	0	0
EBR	319	16	0	335	0	0	0	335
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	181	9	0	190	0	0	0	190
North Leg								
Approach	743	37	8	788	14	-15	26	799
Departure	974	49	8	1,031	12	-13	25	1,043
Total	1,717	86	16	1,819	26	-28	51	1,842
South Leg								
Approach	1,158	58	8	1,224	12	-13	25	1,236
Departure	982	49	8	1,039	14	-15	26	1,050
Total	2,140	107	16	2,263	26	-28	51	2,286
East Leg								
Approach	181	9	0	190	0	0	0	190
Departure	159	8	0	167	0	0	0	167
Total	340	17	0	357	0	0	0	357
West Leg								
Approach	319	16	0	335	0	0	0	335
Departure	286	14	0	300	0	0	0	300
Total	605	30	0	635	0	0	0	635
Total Approaches								
Approach	2,401	120	16	2,537	26	-28	51	2,560
Departure	2,401	120	16	2,537	26	-28	51	2,560
Total	4,802	240	32	5,074	52	-56	102	5,120

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Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
5 Mall Driveway 2 - Pepperwood Lane/Olive Avenue								
NBL	22	1	0	23	0	0	0	23
NBT	3	0	0	3	2	-2	4	5
NBR	97	5	0	102	0	0	0	102
SBL	5	0	3	8	10	-11	19	16
SBT	1	0	0	1	2	-2	4	3
SBR	74	4	0	78	8	-8	22	92
EBL	64	3	0	67	7	-7	22	82
EBT	952	48	13	1013	14	-15	22	1020
EBR	37	2	0	39	0	0	0	39
WBL	56	3	0	59	0	0	0	59
WBT	1,118	56	14	1188	16	-17	22	1193
WBR	20	1	1	22	0	0	7	29
North Leg								
Approach	80	4	3	87	20	-21	45	111
Departure	87	4	1	92	9	-9	33	116
Total	167	8	4	179	29	-30	78	227
South Leg								
Approach	122	6	0	128	2	-2	4	130
Departure	94	5	0	99	2	-2	4	101
Total	216	11	0	227	4	-4	8	231
East Leg								
Approach	1,194	60	15	1,269	16	-17	29	1,281
Departure	1,054	53	16	1,123	24	-26	41	1,138
Total	2,248	113	31	2,392	40	-43	70	2,419
West Leg								
Approach	1,053	53	13	1,119	21	-22	44	1,141
Departure	1,214	61	14	1,289	24	-25	44	1,308
Total	2,267	114	27	2,408	45	-47	88	2,449
Total Approaches								
Approach	2,449	123	31	2,603	59	-62	122	2,663
Departure	2,449	123	31	2,603	59	-62	122	2,663
Total	4,898	246	62	5,206	118	-124	244	5,326

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Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
6 Laurel Glenn Apartments Driveway - Mall Driveway 3/Loughborough Drive								
NBL	29	1	5	35	31	-33	37	39
NBT	1	0	0	1	0	0	0	1
NBR	69	3	5	77	21	-22	37	92
SBL	9	0	0	9	0	0	0	9
SBT	1	0	0	1	0	0	0	1
SBR	2	0	0	2	0	0	0	2
EBL	11	1	0	12	0	0	0	12
EBT	332	17	1	350	0	0	0	350
EBR	18	1	3	22	26	-27	37	32
WBL	39	2	0	41	2	-2	4	43
WBT	320	16	3	339	0	0	0	339
WBR	10	1	0	11	0	0	0	11
North Leg								
Approach	12	0	0	12	0	0	0	12
Departure	22	2	0	24	0	0	0	24
Total	34	2	0	36	0	0	0	36
South Leg								
Approach	99	4	10	113	52	-55	74	132
Departure	58	3	3	64	28	-29	41	76
Total	157	7	13	177	80	-84	115	208
East Leg								
Approach	369	19	3	391	2	-2	4	393
Departure	410	20	6	436	21	-22	37	451
Total	779	39	9	827	23	-24	41	844
West Leg								
Approach	361	19	4	384	26	-27	37	394
Departure	351	17	8	376	31	-33	37	380
Total	712	36	12	760	57	-60	74	774
Total Approaches								
Approach	841	42	17	900	80	-84	115	931
Departure	841	42	17	900	80	-84	115	931
Total	1,682	84	34	1,800	160	-168	230	1,862

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Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
7 Mall Driveway 4 - Applewood Lane/Olive Avenue								
NBL	0	0	0	0	0	0	0	0
NBT	0	0	0	0	0	0	0	0
NBR	62	3	0	65	0	0	0	65
SBL	0	0	0	0	0	0	0	0
SBT	0	0	0	0	0	0	0	0
SBR	75	4	0	79	16	-17	22	84
EBL	100	5	7	112	14	-15	22	119
EBT	1,033	52	8	1093	10	-11	19	1101
EBR	41	2	0	43	0	0	0	43
WBL	77	4	0	81	0	0	0	81
WBT	1,070	54	15	1139	0	0	7	1146
WBR	74	4	1	79	21	-22	37	94
North Leg								
Approach	75	4	0	79	16	-17	22	84
Departure	174	9	8	191	35	-37	59	213
Total	249	13	8	270	51	-54	81	297
South Leg								
Approach	62	3	0	65	0	0	0	65
Departure	118	6	0	124	0	0	0	124
Total	180	9	0	189	0	0	0	189
East Leg								
Approach	1,221	62	16	1,299	21	-22	44	1,321
Departure	1,095	55	8	1,158	10	-11	19	1,166
Total	2,316	117	24	2,457	31	-33	63	2,487
West Leg								
Approach	1,174	59	15	1,248	24	-26	41	1,263
Departure	1,145	58	15	1,218	16	-17	29	1,230
Total	2,319	117	30	2,466	40	-43	70	2,493
Total Approaches								
Approach	2,532	128	31	2,691	61	-65	107	2,733
Departure	2,532	128	31	2,691	61	-65	107	2,733
Total	5,064	256	62	5,382	122	-130	214	5,466

LSA

Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
8 M Street/Loughborough Drive - Collins Drive								
NBL	138	7	1	146	0	0	0	146
NBT	499	25	0	524	0	0	0	524
NBR	16	1	0	17	0	0	0	17
SBL	27	1	0	28	0	0	0	28
SBT	450	23	4	477	16	-17	33	493
SBR	150	8	0	158	0	0	0	158
EBL	223	11	4	238	19	-20	33	251
EBT	29	1	1	31	2	-2	4	33
EBR	196	10	1	207	0	0	0	207
WBL	44	2	0	46	0	0	0	46
WBT	78	4	1	83	2	-2	4	85
WBR	110	6	0	116	0	0	0	116
North Leg								
Approach	627	32	4	663	16	-17	33	679
Departure	832	42	4	878	19	-20	33	891
Total	1,459	74	8	1,541	35	-37	66	1,570
South Leg								
Approach	653	33	1	687	0	0	0	687
Departure	690	35	5	730	16	-17	33	746
Total	1,343	68	6	1,417	16	-17	33	1,433
East Leg								
Approach	232	12	1	245	2	-2	4	247
Departure	72	3	1	76	2	-2	4	78
Total	304	15	2	321	4	-4	8	325
West Leg								
Approach	448	22	6	476	21	-22	37	491
Departure	366	19	2	387	2	-2	4	389
Total	814	41	8	863	23	-24	41	880
Total Approaches								
Approach	1,960	99	12	2,071	39	-41	74	2,104
Departure	1,960	99	12	2,071	39	-41	74	2,104
Total	3,920	198	24	4,142	78	-82	148	4,208

LSA

Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
9 M Street/Fairfield Drive								
NBL	0	0	0	0	0	0	0	0
NBT	647	32	1	680	0	0	0	680
NBR	35	2	0	37	0	0	0	37
SBL	0	0	0	0	0	0	0	0
SBT	773	39	1	813	0	0	0	813
SBR	48	2	5	55	16	-17	33	71
EBL	0	0	0	0	0	0	0	0
EBT	0	0	0	0	0	0	0	0
EBR	119	6	10	135	14	-15	26	146
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	43	2	0	45	0	0	0	45
North Leg								
Approach	821	41	6	868	16	-17	33	884
Departure	690	34	1	725	0	0	0	725
Total	1,511	75	7	1,593	16	-17	33	1,609
South Leg								
Approach	682	34	1	717	0	0	0	717
Departure	892	45	11	948	14	-15	26	959
Total	1,574	79	12	1,665	14	-15	26	1,676
East Leg								
Approach	43	2	0	45	0	0	0	45
Departure	35	2	0	37	0	0	0	37
Total	78	4	0	82	0	0	0	82
West Leg								
Approach	119	6	10	135	14	-15	26	146
Departure	48	2	5	55	16	-17	33	71
Total	167	8	15	190	30	-32	59	217
Total Approaches								
Approach	1,665	83	17	1,765	30	-32	59	1,792
Departure	1,665	83	17	1,765	30	-32	59	1,792
Total	3,330	166	34	3,530	60	-64	118	3,584

LSA

Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
10 M Street/Olive Avenue								
NBL	302	15	5	322	12	-13	25	334
NBT	492	25	0	517	0	0	0	517
NBR	119	6	0	125	0	0	0	125
SBL	293	15	6	314	0	0	0	314
SBT	501	25	5	531	14	-15	26	542
SBR	98	5	0	103	0	0	0	103
EBL	132	7	0	139	0	0	0	139
EBT	759	38	8	805	10	-11	19	813
EBR	141	7	0	148	0	0	0	148
WBL	168	8	0	176	0	0	0	176
WBT	808	40	14	862	9	-9	18	871
WBR	58	3	1	62	0	0	0	62
North Leg								
Approach	892	45	11	948	14	-15	26	959
Departure	682	35	1	718	0	0	0	718
Total	1,574	80	12	1,666	14	-15	26	1,677
South Leg								
Approach	913	46	5	964	12	-13	25	976
Departure	810	40	5	855	14	-15	26	866
Total	1,723	86	10	1,819	26	-28	51	1,842
East Leg								
Approach	1,034	51	15	1,100	9	-9	18	1,109
Departure	1,171	59	14	1,244	10	-11	19	1,252
Total	2,205	110	29	2,344	19	-20	37	2,361
West Leg								
Approach	1,032	52	8	1,092	10	-11	19	1,100
Departure	1,208	60	19	1,287	21	-22	43	1,308
Total	2,240	112	27	2,379	31	-33	62	2,408
Total Approaches								
Approach	3,871	194	39	4,104	45	-48	88	4,144
Departure	3,871	194	39	4,104	45	-48	88	4,144
Total	7,742	388	78	8,208	90	-96	176	8,288

LSA

Table B-3 - Project Alternative II Cumulative (2023) Peak Hour Volume Summary

	PM Peak Hour							
	Existing Without Project	2018-2023 Growth	Cumulative Project Trips	Cumulative Without Project	Demolished Uses Trips	Demolished Uses Trip Adjustment	Phases I+II Project Trips	Cumulative With Project (Phases I+II)
11 M Street/Olivewood Drive								
NBL	102	5	0	107	0	0	0	107
NBT	897	45	5	947	12	-13	25	959
NBR	0	0	0	0	0	0	0	0
SBL	0	0	0	0	0	0	0	0
SBT	727	36	5	768	14	-15	26	779
SBR	51	3	0	54	0	0	0	54
EBL	13	1	0	14	0	0	0	14
EBT	0	0	0	0	0	0	0	0
EBR	180	9	0	189	0	0	0	189
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	0	0	0	0	0	0	0	0
North Leg								
Approach	778	39	5	822	14	-15	26	833
Departure	910	46	5	961	12	-13	25	973
Total	1,688	85	10	1,783	26	-28	51	1,806
South Leg								
Approach	999	50	5	1,054	12	-13	25	1,066
Departure	907	45	5	957	14	-15	26	968
Total	1,906	95	10	2,011	26	-28	51	2,034
East Leg								
Approach	0	0	0	0	0	0	0	0
Departure	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
West Leg								
Approach	193	10	0	203	0	0	0	203
Departure	153	8	0	161	0	0	0	161
Total	346	18	0	364	0	0	0	364
Total Approaches								
Approach	1,970	99	10	2,079	26	-28	51	2,102
Departure	1,970	99	10	2,079	26	-28	51	2,102
Total	3,940	198	20	4,158	52	-56	102	4,204

APPENDIX C:

INTERNAL CAPTURE ESTIMATION

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	Merced Mall Expansion and Redevelopment Project	**Organization:**	LSA
Project Location:	Merced, CA	**Performed By:**	
Scenario Description:	Proposed Project	**Date:**	
Analysis Year:		**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	820	50	TSF	47	29	18
Restaurant				0		
Cinema/Entertainment	445	14	Screens	0	0	0
Residential				0		
Hotel				0		
All Other Land Uses[2]				0		
Total				47	29	18

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant						
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	47	29	18
Internal Capture Percentage	0%	0%	0%
External Vehicle-Trips[3]	47	29	18
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	0%	0%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Merced Mall Expansion and Redevelopment Project
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	29	29	1.00	18	18
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	0	0	1.00	0	0
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	5		2	0	3	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		9	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	2		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	5	0	0		0
Hotel	0	1	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	0	29	29	29	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	0	18	18	18	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	Merced Mall Expansion and Redevelopment Project	**Organization:**	LSA
Project Location:	Merced, CA	**Performed By:**	
Scenario Description:	Proposed Project	**Date:**	
Analysis Year:		**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	820	50	TSF	191	92	99
Restaurant				0		
Cinema/Entertainment	445	14	Screens	192	98	94
Residential				0		
Hotel				0		
All Other Land Uses[2]				0		
Total				383	190	193

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant						
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	4	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	4	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	383	190	193
Internal Capture Percentage	4%	4%	4%
External Vehicle-Trips[3]	367	182	185
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	4%	4%
Restaurant	N/A	N/A
Cinema/Entertainment	4%	4%
Residential	N/A	N/A
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Merced Mall Expansion and Redevelopment Project
Analysis Period:	**PM Street Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	92	92	1.00	99	99
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	98	98	1.00	94	94
Residential	1.00	0	0	1.00	0	0
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	2		29	4	26	5
Restaurant	0	0		0	0	0
Cinema/Entertainment	2	20	29		8	2
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		7	0	1	0	0
Retail	0		0	25	0	0
Restaurant	0	46		31	0	0
Cinema/Entertainment	0	4	0		0	0
Residential	0	9	0	0		0
Hotel	0	2	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	4	88	92	88	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	4	94	98	94	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	4	95	99	95	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	4	90	94	90	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	Merced Mall Expansion and Redevelopment Project	**Organization:**	LSA
Project Location:	Merced, CA	**Performed By:**	
Scenario Description:	Existing Portion to be Demolished in Phase II	**Date:**	
Analysis Year:		**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	820	25	TSF	24	15	9
Restaurant				0		
Cinema/Entertainment	445	7	Screens	0	0	0
Residential				0		
Hotel				0		
All Other Land Uses[2]				0		
Total				24	15	9

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant						
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	24	15	9
Internal Capture Percentage	0%	0%	0%
External Vehicle-Trips[3]	24	15	9
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	0%	0%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Merced Mall Expansion and Redevelopment Project
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	15	15	1.00	9	9
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	0	0	1.00	0	0
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	3		1	0	1	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		5	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	1		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	3	0	0		0
Hotel	0	1	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	0	15	15	15	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	0	9	9	9	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	Merced Mall Expansion and Redevelopment Project	**Organization:**	LSA
Project Location:	Merced, CA	**Performed By:**	
Scenario Description:	Existing Portion to be Demolished in Phase II	**Date:**	
Analysis Year:		**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	820	25	TSF	97	47	50
Restaurant				0		
Cinema/Entertainment	445	7	Screens	102	45	57
Residential				0		
Hotel				0		
All Other Land Uses[2]				0		
Total				199	92	107

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant						
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	2	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	2	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	199	92	107
Internal Capture Percentage	4%	4%	4%
External Vehicle-Trips[3]	191	88	103
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	4%	4%
Restaurant	N/A	N/A
Cinema/Entertainment	4%	4%
Residential	N/A	N/A
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Merced Mall Expansion and Redevelopment Project
Analysis Period:	**PM Street Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	47	47	1.00	50	50
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	45	45	1.00	57	57
Residential	1.00	0	0	1.00	0	0
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	1		15	2	13	3
Restaurant	0	0		0	0	0
Cinema/Entertainment	1	12	18		5	1
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		4	0	0	0	0
Retail	0		0	12	0	0
Restaurant	0	24		14	0	0
Cinema/Entertainment	0	2	0		0	0
Residential	0	5	0	0		0
Hotel	0	1	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	2	45	47	45	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	2	43	45	43	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	2	48	50	48	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	2	55	57	55	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

APPENDIX D:

LEVEL OF SERVICE WORKSHEETS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	86	165	45	78	97	49	10	33	268	122	6	57
Future Volume (veh/h)	86	165	45	78	97	49	10	33	268	122	6	57
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Work Zone On Approach		No			No				No			
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	100	192	52	91	113	57		38	312	0		66
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		0.86	0.86	0.86		0.86
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	129	236	64	118	300	254		415	1011			481
Arrive On Green	0.07	0.16	0.16	0.07	0.16	0.16		0.15	0.19	0.00		0.27
Sat Flow, veh/h	1810	1440	390	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	100	0	244	91	113	57		38	312	0		66
Grp Sat Flow(s),veh/h/ln	1810	0	1830	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	4.3	0.0	10.3	4.0	4.3	1.4		1.4	6.0	0.0		2.2
Cycle Q Clear(g_c), s	4.3	0.0	10.3	4.0	4.3	1.4		1.4	6.0	0.0		2.2
Prop In Lane	1.00		0.21	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	129	0	300	118	300	254		415	1011			481
V/C Ratio(X)	0.77	0.00	0.81	0.77	0.38	0.22		0.09	0.31			0.14
Avail Cap(c_a), veh/h	238	0	469	219	468	397		415	1011			481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		0.67	0.67	0.67		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	0.00		1.00
Uniform Delay (d), s/veh	36.5	0.0	32.3	36.8	30.2	8.9		26.7	25.8	0.0		22.4
Incr Delay (d2), s/veh	9.4	0.0	6.0	10.1	0.8	0.4		0.1	0.8	0.0		0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	4.9	2.0	2.0	0.9		0.6	2.7	0.0		0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.9	0.0	38.3	46.9	31.0	9.4		26.8	26.6	0.0		22.5
LnGrp LOS	D	A	D	D	C	A		C	C			C
Approach Vol, veh/h		344			261				350	A		
Approach Delay, s/veh		40.5			31.8				26.6			
Approach LOS		D			C				C			

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.8	26.9	9.7	17.6	22.9	29.8	10.2	17.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.4	22.4	9.7	20.5	6.5	25.3	10.5	19.7
Max Q Clear Time (g_c+I1), s	4.2	8.0	6.0	12.3	3.4	14.0	6.3	6.3
Green Ext Time (p_c), s	0.0	1.7	0.1	0.8	0.0	3.1	0.1	0.6

Intersection Summary	
HCM 6th Ctrl Delay	30.2
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	466	90
Future Volume (veh/h)	466	90
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	542	105
Peak Hour Factor	0.86	0.86
Percent Heavy Veh, %	0	0
Cap, veh/h	954	184
Arrive On Green	0.32	0.32
Sat Flow, veh/h	3018	582
Grp Volume(v), veh/h	323	324
Grp Sat Flow(s),veh/h/ln	1805	1795
Q Serve(g_s), s	11.9	12.0
Cycle Q Clear(g_c), s	11.9	12.0
Prop In Lane		0.32
Lane Grp Cap(c), veh/h	571	568
V/C Ratio(X)	0.57	0.57
Avail Cap(c_a), veh/h	571	568
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	22.8	22.8
Incr Delay (d2), s/veh	4.0	4.1
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	5.5
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	26.8	26.9
LnGrp LOS	C	C
Approach Vol, veh/h	713	
Approach Delay, s/veh	26.5	
Approach LOS	C	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	0.8

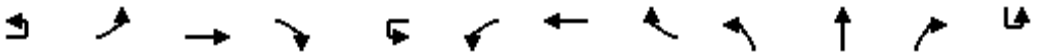
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	0	0	29	0	0	14	5	31	419	32	16	12	543	22
Future Vol, veh/h	0	0	29	0	0	14	5	31	419	32	16	12	543	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	33	0	0	16	6	35	471	36	18	13	610	25

Major/Minor	Minor2			Minor1			Major1				Major2			
Conflicting Flow All	-	-	318	-	-	254	635	635	0	0	507	507	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*881	0	0	*920	1043	1241	-	-	1132	1326	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-
Mov Cap-1 Maneuver	-	-	*881	-	-	*920	1203	1203	-	-	1197	1197	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	9	0.6	0.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1203	-	-	881	920	1197	-	-
HCM Lane V/C Ratio	0.034	-	-	0.037	0.017	0.026	-	-
HCM Control Delay (s)	8.1	-	-	9.2	9	8.1	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0.1	-	-

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



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	7	95	647	138	5	157	457	68	120	325	125	2
Future Volume (veh/h)	7	95	647	138	5	157	457	68	120	325	125	2
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		109	744	159		180	525	78	138	374	144	
Peak Hour Factor		0.87	0.87	0.87		0.87	0.87	0.87	0.87	0.87	0.87	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		436	2009	624		224	1400	435	177	476	181	
Arrive On Green		0.24	0.39	0.39		0.04	0.09	0.09	0.10	0.19	0.19	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	2559	971	
Grp Volume(v), veh/h		109	744	159		180	525	78	138	262	256	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1725	
Q Serve(g_s), s		3.9	8.2	3.5		7.9	7.6	2.7	6.0	11.1	11.3	
Cycle Q Clear(g_c), s		3.9	8.2	3.5		7.9	7.6	2.7	6.0	11.1	11.3	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.56	
Lane Grp Cap(c), veh/h		436	2009	624		224	1400	435	177	336	321	
V/C Ratio(X)		0.25	0.37	0.25		0.80	0.37	0.18	0.78	0.78	0.80	
Avail Cap(c_a), veh/h		436	2009	624		328	1400	435	238	429	410	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh		24.5	17.5	7.2		37.4	30.1	15.4	35.3	31.0	31.1	
Incr Delay (d2), s/veh		0.3	0.5	1.0		8.8	0.8	0.9	11.2	7.0	8.3	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		1.7	3.2	2.0		4.2	3.4	1.5	3.1	5.3	5.3	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		24.8	18.1	8.2		46.2	30.8	16.3	46.5	38.0	39.4	
LnGrp LOS		C	B	A		D	C	B	D	D	D	
Approach Vol, veh/h			1012				783			656		
Approach Delay, s/veh			17.2				32.9			40.3		
Approach LOS			B				C			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.4	35.5	12.3	17.8	23.8	26.1	10.7	19.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	14.5	19.0	10.5	18.0	11.9	21.6	9.5	19.0
Max Q Clear Time (g_c+I1), s	9.9	10.2	8.0	11.6	5.9	9.6	6.8	13.3
Green Ext Time (p_c), s	0.2	3.7	0.1	1.7	0.1	3.0	0.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	30.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	96	396	55
Future Volume (veh/h)	96	396	55
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	110	455	63
Peak Hour Factor	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0
Cap, veh/h	141	601	268
Arrive On Green	0.08	0.17	0.17
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	110	455	63
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	4.8	9.6	2.7
Cycle Q Clear(g_c), s	4.8	9.6	2.7
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	141	601	268
V/C Ratio(X)	0.78	0.76	0.24
Avail Cap(c_a), veh/h	215	812	362
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	31.8	28.9
Incr Delay (d2), s/veh	9.6	2.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	4.3	1.1
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	45.9	34.6	29.4
LnGrp LOS	D	C	C
Approach Vol, veh/h		628	
Approach Delay, s/veh		36.1	
Approach LOS		D	
Timer - Assigned Phs			

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	0	0	94	0	0	55	117	515	110	1	44	628	19
Future Vol, veh/h	0	0	94	0	0	55	117	515	110	1	44	628	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	95	-	70	-	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	116	0	0	68	144	636	136	1	54	775	23

Major/Minor	Minor2			Minor1			Major1			Major2			
Conflicting Flow All	-	-	388	-	-	318	798	0	0	636	772	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*842	0	0	684	1115	-	-	575	852	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-
Platoon blocked, %			1				1	-	-			-	-
Mov Cap-1 Maneuver	-	-	*842	-	-	684	1115	-	-	841	841	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	10.8	1.4	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1115	-	-	842	684	841	-	-
HCM Lane V/C Ratio	0.13	-	-	0.138	0.099	0.066	-	-
HCM Control Delay (s)	8.7	-	-	10	10.8	9.6	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0.5	0.3	0.2	-	-

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

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 1.0 Worst Case Level Of Service: D[27.2]

Street Name:	Mall Driveway 2 - Pepperwood Lane						Olive Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 3 0 1			1 0 3 1 0		
Volume Module: >> Count Date: 5 Jun 2018 <<												
Base Vol:	8	2	56	4	1	3	17	844	14	27	671	4
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	2	56	4	1	3	17	844	14	27	671	4
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
PHF Volume:	9	2	62	4	1	3	19	931	15	30	740	4
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	9	2	62	4	1	3	19	931	15	30	740	4
Critical Gap Module:												
Critical Gp:	7.5	6.5	6.9	7.5	6.5	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1213	1772	310	1150	1785	187	744	xxxx	xxxxx	946	xxxx	xxxxx
Potent Cap.:	140	84	692	156	82	829	873	xxxx	xxxxx	734	xxxx	xxxxx
Move Cap.:	131	79	692	132	77	829	873	xxxx	xxxxx	734	xxxx	xxxxx
Volume/Cap:	0.07	0.03	0.09	0.03	0.01	0.00	0.02	xxxx	xxxx	0.04	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.2	xxxx	xxxxx	10.1	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	B	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	395	xxxxx	xxxx	171	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.7	xxxxx	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	16.2	xxxxx	xxxxx	27.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	D	*	*	*	*	*	*	*
ApproachDel:	16.2			27.2			xxxxxx			xxxxxx		
ApproachLOS:	C			D			*			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

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Intersection #1 Intersection 5

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		

Time Period: 0.25 hour

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Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	324	23	26	216	6	7	0	26	4	0	6
Future Vol, veh/h	1	324	23	26	216	6	7	0	26	4	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	50	50	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	421	30	34	281	8	9	0	34	5	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	289	0	0	451	0	0	780	780	421	804	802	281
Stage 1	-	-	-	-	-	-	423	423	-	349	349	-
Stage 2	-	-	-	-	-	-	357	357	-	455	453	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1308	-	-	1120	-	-	326	331	637	313	320	857
Stage 1	-	-	-	-	-	-	613	591	-	735	664	-
Stage 2	-	-	-	-	-	-	727	658	-	589	573	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	1308	-	-	1120	-	-	315	321	637	289	310	857
Mov Cap-2 Maneuver	-	-	-	-	-	-	315	321	-	289	310	-
Stage 1	-	-	-	-	-	-	612	590	-	735	644	-
Stage 2	-	-	-	-	-	-	698	639	-	557	572	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.9	12.5	12.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	523	1308	-	-	1120	-	-	480
HCM Lane V/C Ratio	0.082	0.001	-	-	0.03	-	-	0.027
HCM Control Delay (s)	12.5	7.8	-	-	8.3	-	-	12.7
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.1

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: B[10.5]

Street Name:	Mall Driveway 4 - Applewood Lane									Olive Avenue								
Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	0	1	0	0	0	0	1	1	0	3	0	1	1	0	3	1	0
Volume Module:																				
Base Vol:	0	0	29	0	0	7	46	857	18	45	678	19								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	0	0	29	0	0	7	46	857	18	45	678	19								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90								
PHF Volume:	0	0	32	0	0	8	51	954	20	50	755	21								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	0	0	32	0	0	8	51	954	20	50	755	21								
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	6.9	xxxxx	xxxx	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	xxxxx	xxxx	3.3	xxxxx	xxxx	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	318	xxxx	xxxx	199	776	xxxx	xxxxx	974	xxxx	xxxxx								
Potent Cap.:	xxxx	xxxx	684	xxxx	xxxx	815	849	xxxx	xxxxx	716	xxxx	xxxxx								
Move Cap.:	xxxx	xxxx	684	xxxx	xxxx	815	849	xxxx	xxxxx	716	xxxx	xxxxx								
Volume/Cap:	xxxx	xxxx	0.05	xxxx	xxxx	0.01	0.06	xxxx	xxxx	0.07	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	0.1	xxxx	xxxx	0.0	0.2	xxxx	xxxxx	0.2	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	10.5	xxxxx	xxxx	9.5	9.5	xxxx	xxxxx	10.4	xxxx	xxxxx								
LOS by Move:	*	*	B	*	*	A	A	*	*	B	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*								
ApproachDel:	10.5			9.5			xxxxxx			xxxxxx										
ApproachLOS:	B			A			*			*										

Note: Queue reported is the number of cars per lane.

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	142	77	120	45	66	104	1	99	464	14	110	646	116
Future Volume (veh/h)	142	77	120	45	66	104	1	99	464	14	110	646	116
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No				No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	187	101	158	59	87	137		130	611	18	145	850	153
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76		0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0	0	0	0
Cap, veh/h	226	216	183	308	106	167		321	1517	45	459	1313	236
Arrive On Green	0.12	0.11	0.11	0.17	0.16	0.16		0.06	0.42	0.42	0.07	0.43	0.43
Sat Flow, veh/h	1810	1900	1610	1810	665	1047		1810	3581	105	1810	3056	550
Grp Volume(v), veh/h	187	101	158	59	0	224		130	308	321	145	502	501
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1712		1810	1805	1881	1810	1805	1801
Q Serve(g_s), s	8.1	4.0	6.2	2.2	0.0	10.1		3.2	9.5	9.5	3.5	17.6	17.6
Cycle Q Clear(g_c), s	8.1	4.0	6.2	2.2	0.0	10.1		3.2	9.5	9.5	3.5	17.6	17.6
Prop In Lane	1.00		1.00	1.00		0.61		1.00		0.06	1.00		0.31
Lane Grp Cap(c), veh/h	226	216	183	308	0	272		321	765	797	459	776	774
V/C Ratio(X)	0.83	0.47	0.86	0.19	0.00	0.82		0.41	0.40	0.40	0.32	0.65	0.65
Avail Cap(c_a), veh/h	260	534	453	308	0	385		334	765	797	513	776	774
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.2	33.2	22.5	28.5	0.0	32.5		13.8	16.0	16.0	11.9	18.0	18.0
Incr Delay (d2), s/veh	17.5	1.6	11.5	0.3	0.0	9.4		0.8	1.6	1.5	0.4	4.2	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	1.9	3.5	1.0	0.0	4.8		1.3	4.0	4.2	1.4	7.7	7.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	51.7	34.8	34.0	28.8	0.0	42.0		14.6	17.6	17.5	12.3	22.2	22.2
LnGrp LOS	D	C	C	C	A	D		B	B	B	B	C	C
Approach Vol, veh/h		446			283				759			1148	
Approach Delay, s/veh		41.6			39.2				17.1			20.9	
Approach LOS		D			D				B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	38.4	18.1	13.6	9.4	38.9	14.5	17.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.8	24.7	7.0	22.5	5.5	27.0	11.5	18.0
Max Q Clear Time (g_c+I1), s	5.5	11.5	4.2	8.2	5.2	19.6	10.1	12.1
Green Ext Time (p_c), s	0.1	3.2	0.0	0.9	0.0	3.7	0.1	0.6

Intersection Summary	
HCM 6th Ctrl Delay	25.3
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	47	0	0	50	0	575	46	0	751	46
Future Vol, veh/h	0	0	47	0	0	50	0	575	46	0	751	46
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	64	0	0	68	0	777	62	0	1015	62

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	539	-	-	420	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	*746	0	0	588	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %			1					-	-		-	-
Mov Cap-1 Maneuver	-	-	*746	-	-	588	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.3	11.9	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	746	588	-	-
HCM Lane V/C Ratio	-	-	0.085	0.115	-	-
HCM Control Delay (s)	-	-	10.3	11.9	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.3	0.4	-	-

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	11	112	573	162	30	150	552	81	126	417	104	185
Future Volume (veh/h)	11	112	573	162	30	150	552	81	126	417	104	185
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		132	674	191		176	649	95	148	491	122	218
Peak Hour Factor		0.85	0.85	0.85		0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		168	1232	382		347	1539	223	201	584	144	257
Arrive On Green		0.03	0.08	0.08		0.19	0.34	0.34	0.11	0.20	0.20	0.14
Sat Flow, veh/h		1810	5187	1610		1810	4577	662	1810	2869	709	1810
Grp Volume(v), veh/h		132	674	191		176	489	255	148	308	305	218
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1781	1810	1805	1772	1810
Q Serve(g_s), s		5.8	10.0	9.1		7.0	8.7	8.9	6.3	13.1	13.3	9.4
Cycle Q Clear(g_c), s		5.8	10.0	9.1		7.0	8.7	8.9	6.3	13.1	13.3	9.4
Prop In Lane		1.00		1.00		1.00		0.37	1.00		0.40	1.00
Lane Grp Cap(c), veh/h		168	1232	382		347	1163	599	201	367	361	257
V/C Ratio(X)		0.78	0.55	0.50		0.51	0.42	0.43	0.74	0.84	0.85	0.85
Avail Cap(c_a), veh/h		222	1232	382		347	1163	599	215	406	399	283
HCM Platoon Ratio		0.33	0.33	0.33		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		38.0	32.7	32.3		28.9	20.5	20.6	34.4	30.6	30.7	33.5
Incr Delay (d2), s/veh		12.6	1.8	4.6		1.2	1.1	2.2	11.6	13.3	14.4	19.4
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.2	4.7	4.3		3.1	3.6	3.9	3.4	6.9	6.9	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		50.6	34.5	36.9		30.1	21.6	22.8	46.0	44.0	45.0	52.8
LnGrp LOS		D	C	D		C	C	C	D	D	D	D
Approach Vol, veh/h			997				920			761		
Approach Delay, s/veh			37.1				23.6			44.8		
Approach LOS			D				C			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.8	23.5	13.4	23.3	11.9	31.4	15.9	20.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.5	19.0	9.5	21.0	9.8	21.7	12.5	18.0
Max Q Clear Time (g_c+I1), s	9.0	12.0	8.3	17.2	7.8	10.9	11.4	15.3
Green Ext Time (p_c), s	0.1	3.0	0.0	1.6	0.1	3.6	0.1	1.0

Intersection Summary	
HCM 6th Ctrl Delay	37.1
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	552	61
Future Volume (veh/h)	552	61
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	649	72
Peak Hour Factor	0.85	0.85
Percent Heavy Veh, %	0	0
Cap, veh/h	768	85
Arrive On Green	0.23	0.23
Sat Flow, veh/h	3277	363
Grp Volume(v), veh/h	357	364
Grp Sat Flow(s),veh/h/ln	1805	1835
Q Serve(g_s), s	15.1	15.2
Cycle Q Clear(g_c), s	15.1	15.2
Prop In Lane		0.20
Lane Grp Cap(c), veh/h	423	430
V/C Ratio(X)	0.84	0.85
Avail Cap(c_a), veh/h	474	482
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	29.2	29.2
Incr Delay (d2), s/veh	12.1	12.1
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	7.9
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	41.3	41.3
LnGrp LOS	D	D
Approach Vol, veh/h	939	
Approach Delay, s/veh	44.0	
Approach LOS	D	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	67	68	636	817	41
Future Vol, veh/h	7	67	68	636	817	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	8	81	82	766	984	49

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1531	492	1033	0	-	0
Stage 1	984	-	-	-	-	-
Stage 2	547	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	196	*763	976	-	-	-
Stage 1	627	-	-	-	-	-
Stage 2	549	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	180	*763	976	-	-	-
Mov Cap-2 Maneuver	180	-	-	-	-	-
Stage 1	574	-	-	-	-	-
Stage 2	549	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.8	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	976	-	180	763	-	-
HCM Lane V/C Ratio	0.084	-	0.047	0.106	-	-
HCM Control Delay (s)	9	-	26	10.3	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.1	0.4	-	-

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	102	121	35	104	168	81	29	91	528	135	4	44
Future Volume (veh/h)	102	121	35	104	168	81	29	91	528	135	4	44
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Work Zone On Approach		No			No				No			
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	113	134	39	116	187	90		101	587	0		49
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90		0.90	0.90	0.90		0.90
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	144	170	50	156	241	204		581	1143			500
Arrive On Green	0.08	0.12	0.12	0.09	0.13	0.13		0.32	0.32	0.00		0.28
Sat Flow, veh/h	1810	1414	412	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	113	0	173	116	187	90		101	587	0		49
Grp Sat Flow(s),veh/h/ln	1810	0	1826	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	5.5	0.0	8.3	5.6	8.6	2.6		3.6	11.9	0.0		1.8
Cycle Q Clear(g_c), s	5.5	0.0	8.3	5.6	8.6	2.6		3.6	11.9	0.0		1.8
Prop In Lane	1.00		0.23	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	144	0	220	156	241	204		581	1143			500
V/C Ratio(X)	0.78	0.00	0.79	0.74	0.78	0.44		0.17	0.51			0.10
Avail Cap(c_a), veh/h	271	0	396	271	412	349		581	1143			500
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	0.00		1.00
Uniform Delay (d), s/veh	40.6	0.0	38.4	40.2	38.0	11.7		22.0	25.1	0.0		24.2
Incr Delay (d2), s/veh	8.9	0.0	6.1	6.8	5.3	1.5		0.1	1.6	0.0		0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	4.0	2.8	4.3	1.8		1.5	5.2	0.0		0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.5	0.0	44.5	47.0	43.3	13.2		22.1	26.7	0.0		24.3
LnGrp LOS	D	A	D	D	D	B		C	C			C
Approach Vol, veh/h		286			393				688	A		
Approach Delay, s/veh		46.5			37.5				26.1			
Approach LOS		D			D				C			

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.4	33.0	12.3	15.3	33.4	29.0	11.7	15.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	28.5	13.5	19.5	14.5	24.5	13.5	19.5
Max Q Clear Time (g_c+I1), s	3.8	13.9	7.6	10.3	5.6	12.7	7.5	10.6
Green Ext Time (p_c), s	0.0	3.4	0.1	0.6	0.1	2.4	0.1	0.8

Intersection Summary	
HCM 6th Ctrl Delay	32.8
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	360	87
Future Volume (veh/h)	360	87
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	400	97
Peak Hour Factor	0.90	0.90
Percent Heavy Veh, %	0	0
Cap, veh/h	786	189
Arrive On Green	0.27	0.27
Sat Flow, veh/h	2887	693
Grp Volume(v), veh/h	249	248
Grp Sat Flow(s),veh/h/ln	1805	1775
Q Serve(g_s), s	10.5	10.7
Cycle Q Clear(g_c), s	10.5	10.7
Prop In Lane		0.39
Lane Grp Cap(c), veh/h	491	483
V/C Ratio(X)	0.51	0.51
Avail Cap(c_a), veh/h	491	483
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	27.6	27.7
Incr Delay (d2), s/veh	3.7	3.9
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	4.9
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	31.3	31.6
LnGrp LOS	C	C
Approach Vol, veh/h	546	
Approach Delay, s/veh	30.8	
Approach LOS	C	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	2.1

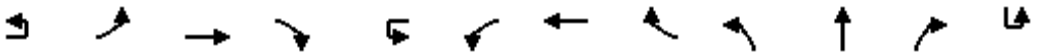
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	0	0	125	0	0	81	12	82	701	114	44	40	457	29
Future Vol, veh/h	0	0	125	0	0	81	12	82	701	114	44	40	457	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	137	0	0	89	13	90	770	125	48	44	502	32

Major/Minor	Minor2			Minor1			Major1				Major2			
Conflicting Flow All	-	-	267	-	-	448	534	534	0	0	896	895	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*904	0	0	*799	1145	1325	-	-	872	1076	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-
Mov Cap-1 Maneuver	-	-	*904	-	-	*799	1270	1270	-	-	900	900	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.7	10.1	0.8	1.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1270	-	-	904	799	900	-	-
HCM Lane V/C Ratio	0.081	-	-	0.152	0.111	0.103	-	-
HCM Control Delay (s)	8.1	-	-	9.7	10.1	9.5	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.5	0.4	0.3	-	-

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



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	22	190	773	187	14	225	842	144	293	570	98	6
Future Volume (veh/h)	22	190	773	187	14	225	842	144	293	570	98	6
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		198	805	195		234	877	150	305	594	102	
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		403	1652	513		275	1285	399	341	730	125	
Arrive On Green		0.22	0.32	0.32		0.05	0.08	0.08	0.19	0.24	0.24	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	3082	528	
Grp Volume(v), veh/h		198	805	195		234	877	150	305	347	349	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1805	
Q Serve(g_s), s		8.6	11.3	4.9		11.5	14.8	5.9	14.8	16.4	16.4	
Cycle Q Clear(g_c), s		8.6	11.3	4.9		11.5	14.8	5.9	14.8	16.4	16.4	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.29	
Lane Grp Cap(c), veh/h		403	1652	513		275	1285	399	341	428	428	
V/C Ratio(X)		0.49	0.49	0.38		0.85	0.68	0.38	0.89	0.81	0.82	
Avail Cap(c_a), veh/h		403	1652	513		332	1285	399	372	531	531	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh		30.5	24.7	7.9		41.7	37.9	19.2	35.6	32.4	32.5	
Incr Delay (d2), s/veh		0.9	1.0	2.1		16.0	2.9	2.7	21.9	7.6	7.8	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		3.8	4.7	3.2		6.8	7.2	3.5	8.5	7.9	7.9	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		31.4	25.8	10.0		57.8	40.8	21.9	57.5	40.1	40.3	
LnGrp LOS		C	C	B		E	D	C	E	D	D	
Approach Vol, veh/h			1198				1261			1001		
Approach Delay, s/veh			24.2				41.7			45.5		
Approach LOS			C				D			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.2	33.2	21.5	17.2	24.6	26.8	12.8	25.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	16.5	18.5	18.5	18.5	12.7	22.3	10.5	26.5
Max Q Clear Time (g_c+I1), s	13.5	13.3	16.8	11.0	10.6	16.8	8.6	18.4
Green Ext Time (p_c), s	0.2	2.7	0.2	1.6	0.1	3.0	0.1	2.7

Intersection Summary	
HCM 6th Ctrl Delay	38.1
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	128	352	111
Future Volume (veh/h)	128	352	111
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	133	367	116
Peak Hour Factor	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0
Cap, veh/h	167	508	227
Arrive On Green	0.03	0.05	0.05
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	133	367	116
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	6.6	9.0	6.3
Cycle Q Clear(g_c), s	6.6	9.0	6.3
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	167	508	227
V/C Ratio(X)	0.80	0.72	0.51
Avail Cap(c_a), veh/h	211	742	331
HCM Platoon Ratio	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.8	41.2	39.9
Incr Delay (d2), s/veh	15.1	2.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	4.4	2.7
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	57.9	43.1	41.7
LnGrp LOS	E	D	D
Approach Vol, veh/h		616	
Approach Delay, s/veh		46.0	
Approach LOS		D	
Timer - Assigned Phs			

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	319	0	0	181	249	793	116	43	663	37
Future Vol, veh/h	0	0	319	0	0	181	249	793	116	43	663	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	95	-	70	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	332	0	0	189	259	826	121	45	691	39

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	346	-	-	413	730	0	0	947	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	*834	0	0	594	1215	-	-	733	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1				1	-	-		-	-
Mov Cap-1 Maneuver	-	-	*834	-	-	594	1215	-	-	733	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.1	13.9	1.9	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1215	-	-	834	594	733	-	-
HCM Lane V/C Ratio	0.213	-	-	0.398	0.317	0.061	-	-
HCM Control Delay (s)	8.8	-	-	12.1	13.9	10.2	-	-
HCM Lane LOS	A	-	-	B	B	B	-	-
HCM 95th %tile Q(veh)	0.8	-	-	1.9	1.4	0.2	-	-

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

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 4.5 Worst Case Level Of Service: F[63.5]

Street Name:	Mall Driveway 2 - Pepperwood Lane						Olive Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 3 0 1			1 0 3 1 0		
Volume Module: >> Count Date: 5 Jun 2018 <<												
Base Vol:	22	3	97	5	1	74	64	952	37	56	1118	20
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	22	3	97	5	1	74	64	952	37	56	1118	20
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	24	3	104	5	1	79	68	1017	40	60	1194	21
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	24	3	104	5	1	79	68	1017	40	60	1194	21
Critical Gap Module:												
Critical Gp:	7.5	6.5	6.9	7.5	6.5	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1573	2489	339	1802	2518	309	1216	xxxx	xxxxx	1057	xxxx	xxxxx
Potent Cap.:	76	30	663	51	28	693	581	xxxx	xxxxx	667	xxxx	xxxxx
Move Cap.:	55	24	663	33	23	693	581	xxxx	xxxxx	667	xxxx	xxxxx
Volume/Cap:	0.43	0.13	0.16	0.16	0.05	0.11	0.12	xxxx	xxxx	0.09	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.4	xxxx	xxxxx	0.3	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	12.0	xxxx	xxxxx	10.9	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	B	*	*	B	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	182	xxxxx	xxxx	264	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	4.5	xxxxx	xxxxx	1.4	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	63.5	xxxxx	xxxxx	25.0	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	F	*	*	C	*	*	*	*	*	*	*
ApproachDel:		63.5			25.0		xxxxxx			xxxxxx		
ApproachLOS:		F			C		*			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												

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Intersection	
Int Delay, s/veh	2.3

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	1	10	332	18	39	320	10	29	1	69	9	1	2
Future Vol, veh/h	1	10	332	18	39	320	10	29	1	69	9	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	50	-	50	50	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	100	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	11	365	20	43	352	11	32	1	69	10	1	2

Major/Minor	Major1				Major2			Minor1			Minor2		
Conflicting Flow All	-	363	0	0	385	0	0	832	838	365	870	847	352
Stage 1	-	-	-	-	-	-	-	387	389	-	438	438	-
Stage 2	-	-	-	-	-	-	-	445	449	-	432	409	-
Critical Hdwy	-	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	-	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	-	1237	-	-	1185	-	-	305	305	685	283	300	834
Stage 1	-	-	-	-	-	-	-	641	612	-	687	617	-
Stage 2	-	-	-	-	-	-	-	679	608	-	606	600	-
Platoon blocked, %		1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	~ -11	~ -11	-	-	1185	-	-	295	294	685	247	290	834
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	295	294	-	247	290	-
Stage 1	-	-	-	-	-	-	-	641	612	-	687	595	-
Stage 2	-	-	-	-	-	-	-	651	586	-	544	600	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		0.9	14.5	18.3
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	480	+	-	-	1185	-	-	284
HCM Lane V/C Ratio	0.212	-	-	-	0.036	-	-	0.046
HCM Control Delay (s)	14.5	-	-	-	8.2	-	-	18.3
HCM Lane LOS	B	-	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.8	-	-	-	0.1	-	-	0.1

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

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 1.4 Worst Case Level Of Service: B[12.4]

Street Name:	Mall Driveway 4 - Applewood Lane								Olive Avenue							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	0	1	0	0	0	0	1	1	0	3	0	1	1	0	3	1	0
Volume Module:																				
Base Vol:	0	0	62			0	0	75			100	1033	41			77	1070	74		
Growth Adj:	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00		
Initial Bse:	0	0	62			0	0	75			100	1033	41			77	1070	74		
User Adj:	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00		
PHF Adj:	0.96	0.96	0.96			0.96	0.96	0.96			0.96	0.96	0.96			0.96	0.96	0.96		
PHF Volume:	0	0	65			0	0	78			104	1078	43			80	1117	77		
Reduct Vol:	0	0	0			0	0	0			0	0	0			0	0	0		
FinalVolume:	0	0	65			0	0	78			104	1078	43			80	1117	77		
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	6.9			xxxxx	xxxx	6.9			4.1	xxxx	xxxxx			4.1	xxxx	xxxxx		
FollowUpTim:	xxxxx	xxxx	3.3			xxxxx	xxxx	3.3			2.2	xxxx	xxxxx			2.2	xxxx	xxxxx		
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	359			xxxx	xxxx	318			1194	xxxx	xxxxx			1121	xxxx	xxxxx		
Potent Cap.:	xxxx	xxxx	643			xxxx	xxxx	684			592	xxxx	xxxxx			630	xxxx	xxxxx		
Move Cap.:	xxxx	xxxx	643			xxxx	xxxx	684			592	xxxx	xxxxx			630	xxxx	xxxxx		
Volume/Cap:	xxxx	xxxx	0.10			xxxx	xxxx	0.11			0.18	xxxx	xxxx			0.13	xxxx	xxxx		
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	0.3			xxxx	xxxx	0.4			0.6	xxxx	xxxxx			0.4	xxxx	xxxxx		
Control Del:	xxxxx	xxxx	11.2			xxxxx	xxxx	10.9			12.4	xxxx	xxxxx			11.5	xxxx	xxxxx		
LOS by Move:	*	*	B			*	*	B			B	*	*			B	*	*		
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx		
SharedQueue:	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shrd ConDel:	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shared LOS:	*	*	*			*	*	*			*	*	*			*	*	*		
ApproachDel:	11.2					10.9					xxxxxx					xxxxxx				
ApproachLOS:	B					B					*					*				

Note: Queue reported is the number of cars per lane.

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	223	29	196	44	78	110	1	137	499	16	27	450	150
Future Volume (veh/h)	223	29	196	44	78	110	1	137	499	16	27	450	150
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No				No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	256	33	225	51	90	126		157	574	18	31	517	172
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87		0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0	0	0	0
Cap, veh/h	299	273	231	310	107	150		415	1626	51	428	1107	366
Arrive On Green	0.17	0.14	0.14	0.17	0.15	0.15		0.07	0.45	0.45	0.03	0.42	0.42
Sat Flow, veh/h	1810	1900	1610	1810	716	1003		1810	3573	112	1810	2664	882
Grp Volume(v), veh/h	256	33	225	51	0	216		157	290	302	31	349	340
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1719		1810	1805	1880	1810	1805	1741
Q Serve(g_s), s	12.4	1.4	10.0	2.2	0.0	11.0		4.3	9.4	9.4	0.9	12.6	12.7
Cycle Q Clear(g_c), s	12.4	1.4	10.0	2.2	0.0	11.0		4.3	9.4	9.4	0.9	12.6	12.7
Prop In Lane	1.00		1.00	1.00		0.58		1.00		0.06	1.00		0.51
Lane Grp Cap(c), veh/h	299	273	231	310	0	258		415	821	855	428	750	723
V/C Ratio(X)	0.86	0.12	0.97	0.16	0.00	0.84		0.38	0.35	0.35	0.07	0.47	0.47
Avail Cap(c_a), veh/h	470	735	623	310	0	346		461	821	855	474	750	723
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.5	33.6	24.7	31.8	0.0	37.2		13.8	15.9	15.9	14.3	19.1	19.1
Incr Delay (d2), s/veh	9.0	0.2	21.6	0.2	0.0	12.6		0.6	1.2	1.1	0.1	2.1	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	0.6	5.1	1.0	0.0	5.4		1.7	4.0	4.1	0.4	5.5	5.4
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	45.6	33.8	46.3	32.0	0.0	49.8		14.4	17.1	17.1	14.4	21.2	21.3
LnGrp LOS	D	C	D	C	A	D		B	B	B	B	C	C
Approach Vol, veh/h		514			267				749			720	
Approach Delay, s/veh		45.1			46.4				16.5			20.9	
Approach LOS		D			D				B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	45.4	19.9	17.4	10.8	41.9	19.4	18.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.6	25.5	6.7	34.8	8.5	22.0	23.4	18.1
Max Q Clear Time (g_c+I1), s	2.9	11.4	4.2	12.0	6.3	14.7	14.4	13.0
Green Ext Time (p_c), s	0.0	3.1	0.0	0.9	0.1	2.5	0.5	0.5

Intersection Summary	
HCM 6th Ctrl Delay	28.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	119	0	0	43	0	647	35	0	773	48
Future Vol, veh/h	0	0	119	0	0	43	0	647	35	0	773	48
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	135	0	0	49	0	735	40	0	878	55

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	467	-	-	388	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	*766	0	0	616	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %			1					-	-		-	-
Mov Cap-1 Maneuver	-	-	*766	-	-	616	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	11.3	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	766	616	-	-
HCM Lane V/C Ratio	-	-	0.177	0.079	-	-
HCM Control Delay (s)	-	-	10.7	11.3	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.6	0.3	-	-

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	33	99	759	141	31	137	808	58	302	492	119	293
Future Volume (veh/h)	33	99	759	141	31	137	808	58	302	492	119	293
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		104	799	148		144	851	61	318	518	125	308
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		134	1181	367		301	1581	113	360	611	147	352
Arrive On Green		0.02	0.08	0.08		0.17	0.32	0.32	0.20	0.21	0.21	0.06
Sat Flow, veh/h		1810	5187	1610		1810	4941	353	1810	2887	693	1810
Grp Volume(v), veh/h		104	799	148		144	595	317	318	323	320	308
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1836	1810	1805	1775	1810
Q Serve(g_s), s		5.1	13.5	4.8		6.5	12.7	12.8	15.4	15.5	15.6	15.2
Cycle Q Clear(g_c), s		5.1	13.5	4.8		6.5	12.7	12.8	15.4	15.5	15.6	15.2
Prop In Lane		1.00		1.00		1.00		0.19	1.00		0.39	1.00
Lane Grp Cap(c), veh/h		134	1181	367		301	1107	588	360	382	376	352
V/C Ratio(X)		0.78	0.68	0.40		0.48	0.54	0.54	0.88	0.85	0.85	0.88
Avail Cap(c_a), veh/h		191	1181	367		301	1107	588	472	431	424	412
HCM Platoon Ratio		0.33	0.33	0.33		1.00	1.00	1.00	1.00	1.00	1.00	0.33
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		43.2	38.4	13.5		34.0	25.1	25.2	35.0	34.1	34.1	41.0
Incr Delay (d2), s/veh		12.0	3.1	3.3		1.2	1.9	3.5	14.6	13.1	14.0	16.7
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.8	6.6	3.4		2.9	5.4	6.0	8.1	8.0	8.0	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		55.1	41.5	16.7		35.2	27.0	28.7	49.6	47.2	48.1	57.8
LnGrp LOS		E	D	B		D	C	C	D	D	D	E
Approach Vol, veh/h			1051				1056			961		
Approach Delay, s/veh			39.4				28.6			48.3		
Approach LOS			D				C			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.5	25.0	22.4	23.2	11.2	33.3	22.0	23.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.5	20.5	23.5	18.5	9.5	20.5	20.5	21.5
Max Q Clear Time (g_c+I1), s	8.5	15.5	17.4	17.6	7.1	14.8	17.2	17.6
Green Ext Time (p_c), s	0.0	2.6	0.5	0.4	0.0	2.8	0.3	1.4

Intersection Summary	
HCM 6th Ctrl Delay	42.8
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	501	98
Future Volume (veh/h)	501	98
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	527	103
Peak Hour Factor	0.95	0.95
Percent Heavy Veh, %	0	0
Cap, veh/h	625	122
Arrive On Green	0.07	0.07
Sat Flow, veh/h	3013	586
Grp Volume(v), veh/h	315	315
Grp Sat Flow(s),veh/h/ln	1805	1794
Q Serve(g_s), s	15.5	15.6
Cycle Q Clear(g_c), s	15.5	15.6
Prop In Lane		0.33
Lane Grp Cap(c), veh/h	374	372
V/C Ratio(X)	0.84	0.85
Avail Cap(c_a), veh/h	374	372
HCM Platoon Ratio	0.33	0.33
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	40.5	40.5
Incr Delay (d2), s/veh	15.7	16.5
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.1	9.2
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	56.2	57.0
LnGrp LOS	E	E
Approach Vol, veh/h	938	
Approach Delay, s/veh	57.0	
Approach LOS	E	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	180	102	897	727	51
Future Vol, veh/h	13	180	102	897	727	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	14	196	111	975	790	55

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1500	395	845	0	-	0
Stage 1	790	-	-	-	-	-
Stage 2	710	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	*190	*799	1138	-	-	-
Stage 1	*754	-	-	-	-	-
Stage 2	*454	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	*172	*799	1138	-	-	-
Mov Cap-2 Maneuver	*172	-	-	-	-	-
Stage 1	*680	-	-	-	-	-
Stage 2	*454	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.1	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1138	-	172	799	-	-
HCM Lane V/C Ratio	0.097	-	0.082	0.245	-	-
HCM Control Delay (s)	8.5	-	27.8	11	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.3	1	-	-

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	86	167	45	78	98	49	10	33	272	122	6	57
Future Volume (veh/h)	86	167	45	78	98	49	10	33	272	122	6	57
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Work Zone On Approach		No			No				No			
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	100	194	52	91	114	57		38	316	0		66
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		0.86	0.86	0.86		0.86
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	129	238	64	118	302	256		413	1011			479
Arrive On Green	0.07	0.17	0.17	0.07	0.16	0.16		0.15	0.19	0.00		0.26
Sat Flow, veh/h	1810	1443	387	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	100	0	246	91	114	57		38	316	0		66
Grp Sat Flow(s),veh/h/ln	1810	0	1830	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	4.3	0.0	10.4	4.0	4.3	1.4		1.4	6.0	0.0		2.2
Cycle Q Clear(g_c), s	4.3	0.0	10.4	4.0	4.3	1.4		1.4	6.0	0.0		2.2
Prop In Lane	1.00		0.21	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	129	0	302	118	302	256		413	1011			479
V/C Ratio(X)	0.77	0.00	0.81	0.77	0.38	0.22		0.09	0.31			0.14
Avail Cap(c_a), veh/h	238	0	469	219	468	397		413	1011			479
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		0.67	0.67	0.67		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	0.00		1.00
Uniform Delay (d), s/veh	36.5	0.0	32.2	36.8	30.1	8.9		26.7	25.9	0.0		22.4
Incr Delay (d2), s/veh	9.4	0.0	6.2	10.1	0.8	0.4		0.1	0.8	0.0		0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	5.0	2.0	2.0	0.9		0.6	2.7	0.0		0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.9	0.0	38.4	46.9	30.9	9.4		26.8	26.7	0.0		22.6
LnGrp LOS	D	A	D	D	C	A		C	C			C
Approach Vol, veh/h		346			262				354	A		
Approach Delay, s/veh		40.6			31.8				26.7			
Approach LOS		D			C				C			

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.7	26.9	9.7	17.7	22.8	29.8	10.2	17.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.4	22.4	9.7	20.5	6.5	25.3	10.5	19.7
Max Q Clear Time (g_c+I1), s	4.2	8.0	6.0	12.4	3.4	14.2	6.3	6.3
Green Ext Time (p_c), s	0.0	1.7	0.1	0.8	0.0	3.1	0.1	0.6

Intersection Summary	
HCM 6th Ctrl Delay	30.3
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	472	90
Future Volume (veh/h)	472	90
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	549	105
Peak Hour Factor	0.86	0.86
Percent Heavy Veh, %	0	0
Cap, veh/h	957	182
Arrive On Green	0.32	0.32
Sat Flow, veh/h	3025	576
Grp Volume(v), veh/h	327	327
Grp Sat Flow(s),veh/h/ln	1805	1796
Q Serve(g_s), s	12.1	12.2
Cycle Q Clear(g_c), s	12.1	12.2
Prop In Lane		0.32
Lane Grp Cap(c), veh/h	571	568
V/C Ratio(X)	0.57	0.58
Avail Cap(c_a), veh/h	571	568
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	22.8	22.9
Incr Delay (d2), s/veh	4.1	4.2
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	5.6
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	27.0	27.1
LnGrp LOS	C	C
Approach Vol, veh/h	720	
Approach Delay, s/veh	26.6	
Approach LOS	C	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	0	0	29	0	0	18	5	31	419	32	16	18	543	22
Future Vol, veh/h	0	0	29	0	0	18	5	31	419	32	16	18	543	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	33	0	0	20	6	35	471	36	18	20	610	25

Major/Minor	Minor2			Minor1			Major1				Major2			
Conflicting Flow All	-	-	318	-	-	254	635	635	0	0	507	507	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*881	0	0	*920	1043	1241	-	-	1132	1326	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-
Mov Cap-1 Maneuver	-	-	*881	-	-	*920	1203	1203	-	-	1215	1215	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	9	0.6	0.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1203	-	-	881	920	1215	-	-
HCM Lane V/C Ratio	0.034	-	-	0.037	0.022	0.031	-	-
HCM Control Delay (s)	8.1	-	-	9.2	9	8.1	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0.1	-	-

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	7	95	650	138	5	160	459	68	120	325	129	2
Future Volume (veh/h)	7	95	650	138	5	160	459	68	120	325	129	2
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		109	747	159		184	528	78	138	374	148	
Peak Hour Factor		0.87	0.87	0.87		0.87	0.87	0.87	0.87	0.87	0.87	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		434	1991	618		228	1400	435	179	475	185	
Arrive On Green		0.24	0.38	0.38		0.04	0.09	0.09	0.10	0.19	0.19	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	2537	990	
Grp Volume(v), veh/h		109	747	159		184	528	78	138	264	258	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1722	
Q Serve(g_s), s		3.9	8.3	3.5		8.1	7.7	2.7	6.0	11.2	11.4	
Cycle Q Clear(g_c), s		3.9	8.3	3.5		8.1	7.7	2.7	6.0	11.2	11.4	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.57	
Lane Grp Cap(c), veh/h		434	1991	618		228	1400	435	179	338	322	
V/C Ratio(X)		0.25	0.38	0.26		0.81	0.38	0.18	0.77	0.78	0.80	
Avail Cap(c_a), veh/h		434	1991	618		328	1400	435	238	429	409	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh		24.6	17.7	7.3		37.4	30.1	15.4	35.2	31.0	31.1	
Incr Delay (d2), s/veh		0.3	0.5	1.0		9.3	0.8	0.9	10.6	7.2	8.5	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		1.7	3.2	2.0		4.3	3.4	1.5	3.1	5.4	5.4	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		24.9	18.3	8.3		46.6	30.9	16.3	45.8	38.1	39.6	
LnGrp LOS		C	B	A		D	C	B	D	D	D	
Approach Vol, veh/h			1015				790			660		
Approach Delay, s/veh			17.4				33.1			40.3		
Approach LOS			B				C			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.6	35.2	12.4	17.8	23.7	26.1	10.7	19.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	14.5	19.0	10.5	18.0	11.9	21.6	9.5	19.0
Max Q Clear Time (g_c+I1), s	10.1	10.3	8.0	11.6	5.9	9.7	6.8	13.4
Green Ext Time (p_c), s	0.2	3.7	0.1	1.7	0.1	3.0	0.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	30.1
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	96	396	55
Future Volume (veh/h)	96	396	55
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	110	455	63
Peak Hour Factor	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0
Cap, veh/h	141	601	268
Arrive On Green	0.08	0.17	0.17
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	110	455	63
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	4.8	9.6	2.7
Cycle Q Clear(g_c), s	4.8	9.6	2.7
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	141	601	268
V/C Ratio(X)	0.78	0.76	0.24
Avail Cap(c_a), veh/h	215	812	362
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	31.8	28.9
Incr Delay (d2), s/veh	9.6	2.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	4.3	1.1
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	45.9	34.6	29.4
LnGrp LOS	D	C	C
Approach Vol, veh/h		628	
Approach Delay, s/veh		36.1	
Approach LOS		D	
Timer - Assigned Phs			

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	0	0	94	0	0	55	117	519	110	1	44	631	19
Future Vol, veh/h	0	0	94	0	0	55	117	519	110	1	44	631	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	95	-	70	-	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	116	0	0	68	144	641	136	1	54	779	23

Major/Minor	Minor2			Minor1			Major1			Major2			
Conflicting Flow All	-	-	390	-	-	321	802	0	0	641	777	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*842	0	0	681	1109	-	-	571	848	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-
Platoon blocked, %			1				1	-	-			-	-
Mov Cap-1 Maneuver	-	-	*842	-	-	681	1109	-	-	837	837	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	10.9	1.4	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1109	-	-	842	681	837	-	-
HCM Lane V/C Ratio	0.13	-	-	0.138	0.1	0.066	-	-
HCM Control Delay (s)	8.7	-	-	10	10.9	9.6	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0.5	0.3	0.2	-	-

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

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: D[25.3]

Street Name:	Mall Driveway 2 - Pepperwood Lane						Olive Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 3 0 1			1 0 3 1 0		
Volume Module: >> Count Date: 5 Jun 2018 <<												
Base Vol:	8	3	56	6	1	6	22	846	14	27	672	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	3	56	6	1	6	22	846	14	27	672	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
PHF Volume:	9	3	62	7	1	7	24	933	15	30	741	7
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	9	3	62	7	1	7	24	933	15	30	741	7
Critical Gap Module:												
Critical Gp:	7.5	6.5	6.9	7.5	6.5	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1227	1788	311	1165	1800	189	748	xxxx	xxxxx	948	xxxx	xxxxx
Potent Cap.:	137	82	691	152	81	828	870	xxxx	xxxxx	732	xxxx	xxxxx
Move Cap.:	127	77	691	127	75	828	870	xxxx	xxxxx	732	xxxx	xxxxx
Volume/Cap:	0.07	0.04	0.09	0.05	0.01	0.01	0.03	xxxx	xxxx	0.04	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.3	xxxx	xxxxx	10.1	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	B	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	366	xxxxx	xxxx	192	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.7	xxxxx	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	17.3	xxxxx	xxxxx	25.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	D	*	*	*	*	*	*	*
ApproachDel:		17.3			25.3		xxxxxx			xxxxxx		
ApproachLOS:		C			D		*			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		

Pedestrian Walk Speed: 4.00 feet/sec

LaneWidth:	12 feet	12 feet	12 feet	12 feet

Time Period: 0.25 hour

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Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	324	26	27	216	6	9	0	30	4	0	6
Future Vol, veh/h	1	324	26	27	216	6	9	0	30	4	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	50	50	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	421	34	35	281	8	12	0	39	5	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	289	0	0	455	0	0	782	782	421	811	808	281
Stage 1	-	-	-	-	-	-	423	423	-	351	351	-
Stage 2	-	-	-	-	-	-	359	359	-	460	457	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1308	-	-	1116	-	-	325	330	637	309	317	857
Stage 1	-	-	-	-	-	-	613	591	-	733	663	-
Stage 2	-	-	-	-	-	-	724	657	-	585	571	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	1308	-	-	1116	-	-	315	320	637	283	307	857
Mov Cap-2 Maneuver	-	-	-	-	-	-	315	320	-	283	307	-
Stage 1	-	-	-	-	-	-	612	590	-	732	642	-
Stage 2	-	-	-	-	-	-	695	636	-	549	570	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.9	12.8	12.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	515	1308	-	-	1116	-	-	473
HCM Lane V/C Ratio	0.098	0.001	-	-	0.031	-	-	0.027
HCM Control Delay (s)	12.8	7.8	-	-	8.3	-	-	12.8
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.1

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: B[10.5]

Street Name:	Mall Driveway 4 - Applewood Lane									Olive Avenue								
Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	0	1	0	0	0	0	1	1	0	3	0	1	1	0	3	1	0
Volume Module:																				
Base Vol:	0	0	29	0	0	8	48	859	18	45	680	24								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	0	0	29	0	0	8	48	859	18	45	680	24								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90								
PHF Volume:	0	0	32	0	0	9	53	957	20	50	757	27								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	0	0	32	0	0	9	53	957	20	50	757	27								
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	6.9	xxxxx	xxxx	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	xxxxx	xxxx	3.3	xxxxx	xxxx	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	319	xxxx	xxxx	203	784	xxxx	xxxxx	977	xxxx	xxxxx								
Potent Cap.:	xxxx	xxxx	683	xxxx	xxxx	811	843	xxxx	xxxxx	715	xxxx	xxxxx								
Move Cap.:	xxxx	xxxx	683	xxxx	xxxx	811	843	xxxx	xxxxx	715	xxxx	xxxxx								
Volume/Cap:	xxxx	xxxx	0.05	xxxx	xxxx	0.01	0.06	xxxx	xxxx	0.07	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	0.1	xxxx	xxxx	0.0	0.2	xxxx	xxxxx	0.2	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	10.5	xxxxx	xxxx	9.5	9.6	xxxx	xxxxx	10.4	xxxx	xxxxx								
LOS by Move:	*	*	B	*	*	A	A	*	*	B	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*								
ApproachDel:	10.5			9.5			xxxxxx			xxxxxx										
ApproachLOS:	B			A			*			*										

Note: Queue reported is the number of cars per lane.

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		

Time Period: 0.25 hour

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	145	77	120	45	67	104	1	99	464	14	110	651	116
Future Volume (veh/h)	145	77	120	45	67	104	1	99	464	14	110	651	116
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No				No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	191	101	158	59	88	137		130	611	18	145	857	153
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76		0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0	0	0	0
Cap, veh/h	230	216	183	313	107	166		317	1506	44	456	1306	233
Arrive On Green	0.13	0.11	0.11	0.17	0.16	0.16		0.06	0.42	0.42	0.07	0.43	0.43
Sat Flow, veh/h	1810	1900	1610	1810	670	1043		1810	3581	105	1810	3060	546
Grp Volume(v), veh/h	191	101	158	59	0	225		130	308	321	145	505	505
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1712		1810	1805	1881	1810	1805	1802
Q Serve(g_s), s	8.2	4.0	6.2	2.2	0.0	10.2		3.2	9.5	9.5	3.6	17.8	17.8
Cycle Q Clear(g_c), s	8.2	4.0	6.2	2.2	0.0	10.2		3.2	9.5	9.5	3.6	17.8	17.8
Prop In Lane	1.00		1.00	1.00		0.61		1.00		0.06	1.00		0.30
Lane Grp Cap(c), veh/h	230	216	183	313	0	273		317	759	791	456	770	769
V/C Ratio(X)	0.83	0.47	0.87	0.19	0.00	0.82		0.41	0.41	0.41	0.32	0.66	0.66
Avail Cap(c_a), veh/h	260	534	453	313	0	385		330	759	791	510	770	769
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.1	33.2	22.5	28.3	0.0	32.5		14.0	16.2	16.2	12.1	18.3	18.3
Incr Delay (d2), s/veh	18.2	1.6	11.5	0.3	0.0	9.5		0.9	1.6	1.5	0.4	4.3	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	1.9	3.5	1.0	0.0	4.8		1.3	4.0	4.2	1.4	7.8	7.8
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	52.2	34.8	34.0	28.6	0.0	42.0		14.8	17.8	17.7	12.5	22.6	22.6
LnGrp LOS	D	C	C	C	A	D		B	B	B	B	C	C
Approach Vol, veh/h		450			284				759			1155	
Approach Delay, s/veh		41.9			39.2				17.3			21.3	
Approach LOS		D			D				B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	38.2	18.4	13.6	9.4	38.6	14.7	17.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.8	24.7	7.0	22.5	5.5	27.0	11.5	18.0
Max Q Clear Time (g_c+I1), s	5.6	11.5	4.2	8.2	5.2	19.8	10.2	12.2
Green Ext Time (p_c), s	0.1	3.2	0.0	0.9	0.0	3.7	0.1	0.6

Intersection Summary	
HCM 6th Ctrl Delay	25.6
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	50	0	0	50	0	575	46	0	751	51
Future Vol, veh/h	0	0	50	0	0	50	0	575	46	0	751	51
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	68	0	0	68	0	777	62	0	1015	69

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	542	-	-	420	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	*746	0	0	588	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %			1					-	-		-	-
Mov Cap-1 Maneuver	-	-	*746	-	-	588	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.3	11.9	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	746	588	-	-
HCM Lane V/C Ratio	-	-	0.091	0.115	-	-
HCM Control Delay (s)	-	-	10.3	11.9	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.3	0.4	-	-

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	11	112	575	162	30	150	555	81	130	417	104	185
Future Volume (veh/h)	11	112	575	162	30	150	555	81	130	417	104	185
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		132	676	191		176	653	95	153	491	122	218
Peak Hour Factor		0.85	0.85	0.85		0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		168	1232	382		347	1541	222	200	584	144	257
Arrive On Green		0.03	0.08	0.08		0.19	0.34	0.34	0.11	0.20	0.20	0.14
Sat Flow, veh/h		1810	5187	1610		1810	4580	659	1810	2869	709	1810
Grp Volume(v), veh/h		132	676	191		176	491	257	153	308	305	218
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1781	1810	1805	1772	1810
Q Serve(g_s), s		5.8	10.0	9.1		7.0	8.8	8.9	6.6	13.1	13.3	9.4
Cycle Q Clear(g_c), s		5.8	10.0	9.1		7.0	8.8	8.9	6.6	13.1	13.3	9.4
Prop In Lane		1.00		1.00		1.00		0.37	1.00		0.40	1.00
Lane Grp Cap(c), veh/h		168	1232	382		347	1163	599	200	367	361	257
V/C Ratio(X)		0.78	0.55	0.50		0.51	0.42	0.43	0.77	0.84	0.85	0.85
Avail Cap(c_a), veh/h		222	1232	382		347	1163	599	215	406	399	283
HCM Platoon Ratio		0.33	0.33	0.33		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		38.0	32.7	32.3		28.9	20.5	20.6	34.6	30.6	30.7	33.5
Incr Delay (d2), s/veh		12.6	1.8	4.6		1.2	1.1	2.2	14.2	13.3	14.4	19.4
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.2	4.7	4.3		3.1	3.6	3.9	3.6	6.9	6.9	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		50.6	34.5	36.9		30.1	21.7	22.8	48.8	44.0	45.0	52.8
LnGrp LOS		D	C	D		C	C	C	D	D	D	D
Approach Vol, veh/h			999				924			766		
Approach Delay, s/veh			37.1				23.6			45.3		
Approach LOS			D				C			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.8	23.5	13.3	23.3	11.9	31.4	15.9	20.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.5	19.0	9.5	21.0	9.8	21.7	12.5	18.0
Max Q Clear Time (g_c+I1), s	9.0	12.0	8.6	17.2	7.8	10.9	11.4	15.3
Green Ext Time (p_c), s	0.1	3.0	0.0	1.6	0.1	3.6	0.1	1.0

Intersection Summary	
HCM 6th Ctrl Delay	37.2
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	555	61
Future Volume (veh/h)	555	61
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	653	72
Peak Hour Factor	0.85	0.85
Percent Heavy Veh, %	0	0
Cap, veh/h	771	85
Arrive On Green	0.24	0.24
Sat Flow, veh/h	3279	361
Grp Volume(v), veh/h	359	366
Grp Sat Flow(s),veh/h/ln	1805	1835
Q Serve(g_s), s	15.2	15.2
Cycle Q Clear(g_c), s	15.2	15.2
Prop In Lane		0.20
Lane Grp Cap(c), veh/h	425	432
V/C Ratio(X)	0.85	0.85
Avail Cap(c_a), veh/h	474	482
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	29.2	29.2
Incr Delay (d2), s/veh	12.3	12.3
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	7.9
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	41.5	41.5
LnGrp LOS	D	D
Approach Vol, veh/h	943	
Approach Delay, s/veh	44.1	
Approach LOS	D	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	67	68	640	820	41
Future Vol, veh/h	7	67	68	640	820	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	8	81	82	771	988	49

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1538	494	1037	0	-	0
Stage 1	988	-	-	-	-	-
Stage 2	550	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	193	*763	971	-	-	-
Stage 1	623	-	-	-	-	-
Stage 2	547	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	177	*763	971	-	-	-
Mov Cap-2 Maneuver	177	-	-	-	-	-
Stage 1	571	-	-	-	-	-
Stage 2	547	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.8	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	971	-	177	763	-	-
HCM Lane V/C Ratio	0.084	-	0.048	0.106	-	-
HCM Control Delay (s)	9	-	26.4	10.3	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.1	0.4	-	-

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	102	126	35	104	174	81	29	91	547	135	4	44
Future Volume (veh/h)	102	126	35	104	174	81	29	91	547	135	4	44
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Work Zone On Approach		No			No				No			
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	113	140	39	116	193	90		101	608	0		49
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90		0.90	0.90	0.90		0.90
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	144	177	49	156	247	210		575	1143			495
Arrive On Green	0.08	0.12	0.12	0.09	0.13	0.13		0.32	0.32	0.00		0.27
Sat Flow, veh/h	1810	1430	398	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	113	0	179	116	193	90		101	608	0		49
Grp Sat Flow(s),veh/h/ln	1810	0	1828	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	5.5	0.0	8.6	5.6	8.9	2.6		3.6	12.5	0.0		1.8
Cycle Q Clear(g_c), s	5.5	0.0	8.6	5.6	8.9	2.6		3.6	12.5	0.0		1.8
Prop In Lane	1.00		0.22	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	144	0	226	156	247	210		575	1143			495
V/C Ratio(X)	0.78	0.00	0.79	0.74	0.78	0.43		0.18	0.53			0.10
Avail Cap(c_a), veh/h	271	0	396	271	412	349		575	1143			495
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	0.00		1.00
Uniform Delay (d), s/veh	40.6	0.0	38.3	40.2	37.9	11.7		22.2	25.3	0.0		24.4
Incr Delay (d2), s/veh	8.9	0.0	6.1	6.8	5.3	1.4		0.1	1.8	0.0		0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	4.2	2.8	4.4	1.8		1.5	5.5	0.0		0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.5	0.0	44.4	47.0	43.2	13.1		22.3	27.0	0.0		24.5
LnGrp LOS	D	A	D	D	D	B		C	C			C
Approach Vol, veh/h		292			399				709	A		
Approach Delay, s/veh		46.4			37.5				26.4			
Approach LOS		D			D				C			

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.1	33.0	12.3	15.6	33.1	29.0	11.7	16.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	28.5	13.5	19.5	14.5	24.5	13.5	19.5
Max Q Clear Time (g_c+I1), s	3.8	14.5	7.6	10.6	5.6	13.1	7.5	10.9
Green Ext Time (p_c), s	0.0	3.5	0.1	0.6	0.1	2.4	0.1	0.9

Intersection Summary	
HCM 6th Ctrl Delay	33.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	378	87
Future Volume (veh/h)	378	87
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	420	97
Peak Hour Factor	0.90	0.90
Percent Heavy Veh, %	0	0
Cap, veh/h	794	182
Arrive On Green	0.27	0.27
Sat Flow, veh/h	2917	668
Grp Volume(v), veh/h	259	258
Grp Sat Flow(s),veh/h/ln	1805	1780
Q Serve(g_s), s	10.9	11.1
Cycle Q Clear(g_c), s	10.9	11.1
Prop In Lane		0.38
Lane Grp Cap(c), veh/h	491	484
V/C Ratio(X)	0.53	0.53
Avail Cap(c_a), veh/h	491	484
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	27.8	27.9
Incr Delay (d2), s/veh	4.0	4.2
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	5.2
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	31.8	32.1
LnGrp LOS	C	C
Approach Vol, veh/h	566	
Approach Delay, s/veh	31.3	
Approach LOS	C	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	0	0	125	0	0	100	12	82	701	114	44	58	457	29
Future Vol, veh/h	0	0	125	0	0	100	12	82	701	114	44	58	457	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	137	0	0	110	13	90	770	125	48	64	502	32

Major/Minor	Minor2			Minor1			Major1				Major2				
Conflicting Flow All	-	-	267	-	-	448	534	534	0	0	896	895	0	0	
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-	
Pot Cap-1 Maneuver	0	0	*904	0	0	*799	1145	1325	-	-	872	1076	-	-	
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-	
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-	
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-	
Mov Cap-1 Maneuver	-	-	*904	-	-	*799	1270	1270	-	-	914	914	-	-	
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.7	10.2	0.8	1.6
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1270	-	-	904	799	914	-	-
HCM Lane V/C Ratio	0.081	-	-	0.152	0.138	0.123	-	-
HCM Control Delay (s)	8.1	-	-	9.7	10.2	9.5	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.5	0.5	0.4	-	-

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	22	190	782	187	14	238	852	144	293	570	110	6
Future Volume (veh/h)	22	190	782	187	14	238	852	144	293	570	110	6
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		198	815	195		248	888	150	305	594	115	
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		399	1602	497		289	1285	399	345	721	139	
Arrive On Green		0.22	0.31	0.31		0.05	0.08	0.08	0.19	0.24	0.24	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	3017	583	
Grp Volume(v), veh/h		198	815	195		248	888	150	305	355	354	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1795	
Q Serve(g_s), s		8.6	11.6	5.0		12.2	15.0	5.9	14.8	16.8	16.8	
Cycle Q Clear(g_c), s		8.6	11.6	5.0		12.2	15.0	5.9	14.8	16.8	16.8	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.32	
Lane Grp Cap(c), veh/h		399	1602	497		289	1285	399	345	432	429	
V/C Ratio(X)		0.50	0.51	0.39		0.86	0.69	0.38	0.88	0.82	0.83	
Avail Cap(c_a), veh/h		399	1602	497		332	1285	399	372	531	529	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh		30.7	25.5	8.2		41.6	38.0	19.2	35.5	32.4	32.5	
Incr Delay (d2), s/veh		1.0	1.2	2.3		17.8	3.1	2.7	20.5	8.4	8.6	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		3.8	4.8	3.3		7.3	7.3	3.5	8.3	8.1	8.1	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		31.6	26.7	10.5		59.4	41.0	21.9	55.9	40.8	41.1	
LnGrp LOS		C	C	B		E	D	C	E	D	D	
Approach Vol, veh/h			1208				1286			1014		
Approach Delay, s/veh			24.9				42.3			45.5		
Approach LOS			C				D			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.9	32.3	21.7	17.2	24.4	26.8	12.8	26.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	16.5	18.5	18.5	18.5	12.7	22.3	10.5	26.5
Max Q Clear Time (g_c+I1), s	14.2	13.6	16.8	11.0	10.6	17.0	8.6	18.8
Green Ext Time (p_c), s	0.2	2.6	0.2	1.6	0.1	2.9	0.1	2.7

Intersection Summary	
HCM 6th Ctrl Delay	38.5
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	128	352	111
Future Volume (veh/h)	128	352	111
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	133	367	116
Peak Hour Factor	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0
Cap, veh/h	167	508	227
Arrive On Green	0.03	0.05	0.05
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	133	367	116
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	6.6	9.0	6.3
Cycle Q Clear(g_c), s	6.6	9.0	6.3
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	167	508	227
V/C Ratio(X)	0.80	0.72	0.51
Avail Cap(c_a), veh/h	211	742	331
HCM Platoon Ratio	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.8	41.2	39.9
Incr Delay (d2), s/veh	15.1	2.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	4.4	2.7
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	57.9	43.1	41.7
LnGrp LOS	E	D	D
Approach Vol, veh/h		616	
Approach Delay, s/veh		46.0	
Approach LOS		D	
Timer - Assigned Phs			

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	319	0	0	181	249	805	116	43	676	37
Future Vol, veh/h	0	0	319	0	0	181	249	805	116	43	676	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	95	-	70	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	332	0	0	189	259	839	121	45	704	39

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	352	-	-	420	743	0	0	960	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	*834	0	0	588	1198	-	-	725	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1				1	-	-		-	-
Mov Cap-1 Maneuver	-	-	*834	-	-	588	1198	-	-	725	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.1	14	1.9	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1198	-	-	834	588	725	-	-
HCM Lane V/C Ratio	0.217	-	-	0.398	0.321	0.062	-	-
HCM Control Delay (s)	8.8	-	-	12.1	14	10.3	-	-
HCM Lane LOS	A	-	-	B	B	B	-	-
HCM 95th %tile Q(veh)	0.8	-	-	1.9	1.4	0.2	-	-

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

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 11.6 Worst Case Level Of Service: F[119.9]

Street Name:	Mall Driveway 2 - Pepperwood Lane						Olive Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 1!	0	0	1 0 3	0	1	1 0 3	1	0
Volume Module: >> Count Date: 5 Jun 2018 <<												
Base Vol:	22	5	97	15	3	89	78	959	37	56	1126	27
Growth Adj:	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00
Initial Bse:	22	5	97	15	3	89	78	959	37	56	1126	27
User Adj:	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00
PHF Adj:	0.94 0.94	0.94	0.94	0.94 0.94	0.94	0.94	0.94 0.94	0.94	0.94	0.94 0.94	0.94	0.94
PHF Volume:	24	5	104	16	3	95	83	1025	40	60	1203	29
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	24	5	104	16	3	95	83	1025	40	60	1203	29
Critical Gap Module:												
Critical Gp:	7.5	6.5	6.9	7.5	6.5	6.9	4.1	xxxx xxxxx		4.1	xxxx xxxxx	
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx xxxxx		2.2	xxxx xxxxx	
Capacity Module:												
Cnflict Vol:	1613	2543	342	1848	2568	315	1232	xxxx xxxxx		1064	xxxx xxxxx	
Potent Cap.:	71	27	660	47	26	687	573	xxxx xxxxx		662	xxxx xxxxx	
Move Cap.:	45	21	660	27	21	687	573	xxxx xxxxx		662	xxxx xxxxx	
Volume/Cap:	0.53	0.25	0.16	0.60	0.16	0.14	0.15	xxxx xxxx		0.09	xxxx xxxx	
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx xxxxx		xxxx	xxxx xxxxx		0.5	xxxx xxxxx		0.3	xxxx xxxxx	
Control Del:	xxxxx	xxxx xxxxx		xxxxx	xxxx xxxxx		12.4	xxxx xxxxx		11.0	xxxx xxxxx	
LOS by Move:	*	*	*	*	*	*	B	*	*	B	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	142	xxxxx	xxxx	128	xxxxx	xxxx	xxxx xxxxx		xxxx	xxxx xxxxx	
SharedQueue:	xxxxx	6.5	xxxxx	xxxxx	5.7	xxxxx	xxxxx	xxxx xxxxx		xxxxx	xxxx xxxxx	
Shrd ConDel:	xxxxx	120	xxxxx	xxxxx	118	xxxxx	xxxxx	xxxx xxxxx		xxxxx	xxxx xxxxx	
Shared LOS:	*	F	*	*	F	*	*	*	*	*	*	*
ApproachDel:	119.9			118.0			xxxxxx			xxxxxx		
ApproachLOS:	F			F			*			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		

Time Period: 0.25 hour

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Intersection	
Int Delay, s/veh	2.8

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	1	10	332	27	41	320	10	39	1	88	9	1	2
Future Vol, veh/h	1	10	332	27	41	320	10	39	1	88	9	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	50	-	50	50	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	100	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	11	365	30	45	352	11	43	1	88	10	1	2

Major/Minor	Major1				Major2			Minor1			Minor2		
Conflicting Flow All	-	363	0	0	395	0	0	836	842	365	889	861	352
Stage 1	-	-	-	-	-	-	-	387	389	-	442	442	-
Stage 2	-	-	-	-	-	-	-	449	453	-	447	419	-
Critical Hdwy	-	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	-	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	-	1237	-	-	1175	-	-	303	303	685	272	293	834
Stage 1	-	-	-	-	-	-	-	641	612	-	682	614	-
Stage 2	-	-	-	-	-	-	-	674	605	-	595	593	-
Platoon blocked, %		1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	~ -11	~ -11	-	-	1175	-	-	292	291	685	230	282	834
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	292	291	-	230	282	-
Stage 1	-	-	-	-	-	-	-	641	612	-	682	590	-
Stage 2	-	-	-	-	-	-	-	646	582	-	518	593	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		0.9	15.5	19.2
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	473	+	-	-	1175	-	-	266
HCM Lane V/C Ratio	0.279	-	-	-	0.038	-	-	0.05
HCM Control Delay (s)	15.5	-	-	-	8.2	-	-	19.2
HCM Lane LOS	C	-	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.1	-	-	-	0.1	-	-	0.2

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

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 1.5 Worst Case Level Of Service: B[12.7]

Street Name:	Mall Driveway 4 - Applewood Lane									Olive Avenue								
Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	0	1	0	0	0	0	1	1	0	3	0	1	1	0	3	1	0
Volume Module:																				
Base Vol:	0	0	62			0	0	83			107	1043		41		77	1077		88	
Growth Adj:	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00		1.00		1.00	1.00		1.00	
Initial Bse:	0	0	62			0	0	83			107	1043		41		77	1077		88	
User Adj:	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00		1.00		1.00	1.00		1.00	
PHF Adj:	0.96	0.96	0.96			0.96	0.96	0.96			0.96	0.96		0.96		0.96	0.96		0.96	
PHF Volume:	0	0	65			0	0	87			112	1089		43		80	1124		92	
Reduct Vol:	0	0	0			0	0	0			0	0		0		0	0		0	
FinalVolume:	0	0	65			0	0	87			112	1089		43		80	1124		92	
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	6.9			xxxxx	xxxx	6.9			4.1	xxxx		xxxxx		4.1	xxxx		xxxxx	
FollowUpTim:	xxxxx	xxxx	3.3			xxxxx	xxxx	3.3			2.2	xxxx		xxxxx		2.2	xxxx		xxxxx	
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	363			xxxx	xxxx	327			1216	xxxx		xxxxx		1132	xxxx		xxxxx	
Potent Cap.:	xxxx	xxxx	640			xxxx	xxxx	675			581	xxxx		xxxxx		625	xxxx		xxxxx	
Move Cap.:	xxxx	xxxx	640			xxxx	xxxx	675			581	xxxx		xxxxx		625	xxxx		xxxxx	
Volume/Cap:	xxxx	xxxx	0.10			xxxx	xxxx	0.13			0.19	xxxx		xxxx		0.13	xxxx		xxxx	
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	0.3			xxxx	xxxx	0.4			0.7	xxxx		xxxxx		0.4	xxxx		xxxxx	
Control Del:	xxxxx	xxxx	11.3			xxxxx	xxxx	11.1			12.7	xxxx		xxxxx		11.6	xxxx		xxxxx	
LOS by Move:	*	*	B			*	*	B			B	*		*		B	*		*	
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx		
SharedQueue:	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shrd ConDel:	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shared LOS:	*	*	*			*	*	*			*	*	*			*	*	*		
ApproachDel:	11.3					11.1					xxxxxx					xxxxxx				
ApproachLOS:	B					B					*					*				

Note: Queue reported is the number of cars per lane.

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		

Time Period: 0.25 hour

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	240	31	196	44	80	110	1	137	499	16	27	466	150
Future Volume (veh/h)	240	31	196	44	80	110	1	137	499	16	27	466	150
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No				No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	276	36	225	51	92	126		157	574	18	31	536	172
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87		0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0	0	0	0
Cap, veh/h	319	273	231	332	110	150		398	1583	50	416	1083	346
Arrive On Green	0.18	0.14	0.14	0.18	0.15	0.15		0.07	0.44	0.44	0.03	0.40	0.40
Sat Flow, veh/h	1810	1900	1610	1810	726	995		1810	3573	112	1810	2690	860
Grp Volume(v), veh/h	276	36	225	51	0	218		157	290	302	31	359	349
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1721		1810	1805	1880	1810	1805	1745
Q Serve(g_s), s	13.3	1.5	10.0	2.1	0.0	11.1		4.4	9.6	9.6	0.9	13.3	13.4
Cycle Q Clear(g_c), s	13.3	1.5	10.0	2.1	0.0	11.1		4.4	9.6	9.6	0.9	13.3	13.4
Prop In Lane	1.00		1.00	1.00		0.58		1.00		0.06	1.00		0.49
Lane Grp Cap(c), veh/h	319	273	231	332	0	260		398	800	833	416	726	702
V/C Ratio(X)	0.87	0.13	0.97	0.15	0.00	0.84		0.39	0.36	0.36	0.07	0.49	0.50
Avail Cap(c_a), veh/h	470	735	623	332	0	346		441	800	833	462	726	702
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.0	33.6	24.6	30.9	0.0	37.1		14.5	16.6	16.6	15.0	20.1	20.1
Incr Delay (d2), s/veh	10.9	0.2	21.6	0.2	0.0	12.8		0.6	1.3	1.2	0.1	2.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	0.7	5.1	0.9	0.0	5.5		1.8	4.1	4.3	0.4	5.9	5.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	47.0	33.8	46.2	31.1	0.0	50.0		15.2	17.9	17.9	15.0	22.5	22.6
LnGrp LOS	D	C	D	C	A	D		B	B	B	B	C	C
Approach Vol, veh/h		537			269				749			739	
Approach Delay, s/veh		45.8			46.4				17.3			22.2	
Approach LOS		D			D				B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	44.4	21.0	17.4	10.8	40.7	20.3	18.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	25.5	6.7	34.8	8.5	22.0	23.4	18.1
Max Q Clear Time (g_c+I1), s	2.9	11.6	4.1	12.0	6.4	15.4	15.3	13.1
Green Ext Time (p_c), s	0.0	3.1	0.0	0.9	0.1	2.4	0.5	0.5

Intersection Summary	
HCM 6th Ctrl Delay	29.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	1.1

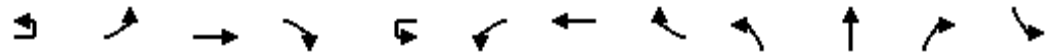
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	132	0	0	43	0	647	35	0	773	64
Future Vol, veh/h	0	0	132	0	0	43	0	647	35	0	773	64
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	150	0	0	49	0	735	40	0	878	73

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	476	-	-	388	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	*766	0	0	616	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %			1					-	-		-	-
Mov Cap-1 Maneuver	-	-	*766	-	-	616	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.8	11.3	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	766	616	-	-
HCM Lane V/C Ratio	-	-	0.196	0.079	-	-
HCM Control Delay (s)	-	-	10.8	11.3	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.7	0.3	-	-

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



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	33	99	769	141	31	137	817	58	314	492	119	293
Future Volume (veh/h)	33	99	769	141	31	137	817	58	314	492	119	293
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		104	809	148		144	860	61	331	518	125	308
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		134	1181	367		297	1572	111	372	617	148	352
Arrive On Green		0.02	0.08	0.08		0.16	0.32	0.32	0.21	0.21	0.21	0.06
Sat Flow, veh/h		1810	5187	1610		1810	4945	350	1810	2887	693	1810
Grp Volume(v), veh/h		104	809	148		144	601	320	331	323	320	308
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1837	1810	1805	1775	1810
Q Serve(g_s), s		5.1	13.7	4.8		6.5	12.9	13.0	16.0	15.4	15.6	15.2
Cycle Q Clear(g_c), s		5.1	13.7	4.8		6.5	12.9	13.0	16.0	15.4	15.6	15.2
Prop In Lane		1.00		1.00		1.00		0.19	1.00		0.39	1.00
Lane Grp Cap(c), veh/h		134	1181	367		297	1099	584	372	386	379	352
V/C Ratio(X)		0.78	0.68	0.40		0.49	0.55	0.55	0.89	0.84	0.84	0.88
Avail Cap(c_a), veh/h		191	1181	367		297	1099	584	472	431	424	412
HCM Platoon Ratio		0.33	0.33	0.33		1.00	1.00	1.00	1.00	1.00	1.00	0.33
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		43.2	38.5	13.1		34.2	25.3	25.4	34.8	33.9	33.9	41.0
Incr Delay (d2), s/veh		12.0	3.2	3.3		1.2	2.0	3.7	15.7	12.4	13.2	16.7
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.8	6.7	3.4		2.9	5.4	6.1	8.5	7.9	7.9	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		55.1	41.7	16.3		35.4	27.3	29.0	50.4	46.3	47.2	57.8
LnGrp LOS		E	D	B		D	C	C	D	D	D	E
Approach Vol, veh/h			1061				1065			974		
Approach Delay, s/veh			39.5				28.9			48.0		
Approach LOS			D				C			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.3	25.0	23.0	22.7	11.2	33.1	22.0	23.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.5	20.5	23.5	18.5	9.5	20.5	20.5	21.5
Max Q Clear Time (g_c+I1), s	8.5	15.7	18.0	18.0	7.1	15.0	17.2	17.6
Green Ext Time (p_c), s	0.0	2.5	0.5	0.2	0.0	2.8	0.3	1.5

Intersection Summary	
HCM 6th Ctrl Delay	43.7
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	514	98
Future Volume (veh/h)	514	98
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	541	103
Peak Hour Factor	0.95	0.95
Percent Heavy Veh, %	0	0
Cap, veh/h	613	116
Arrive On Green	0.07	0.07
Sat Flow, veh/h	3027	574
Grp Volume(v), veh/h	322	322
Grp Sat Flow(s),veh/h/ln	1805	1797
Q Serve(g_s), s	15.9	16.0
Cycle Q Clear(g_c), s	15.9	16.0
Prop In Lane		0.32
Lane Grp Cap(c), veh/h	365	364
V/C Ratio(X)	0.88	0.89
Avail Cap(c_a), veh/h	371	369
HCM Platoon Ratio	0.33	0.33
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	40.9	41.0
Incr Delay (d2), s/veh	20.7	21.6
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.8	9.9
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	61.6	62.6
LnGrp LOS	E	E
Approach Vol, veh/h	952	
Approach Delay, s/veh	60.7	
Approach LOS	E	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	180	102	909	740	51
Future Vol, veh/h	13	180	102	909	740	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	14	196	111	988	804	55

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1520	402	859	0	-	0
Stage 1	804	-	-	-	-	-
Stage 2	716	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	183	*799	1120	-	-	-
Stage 1	747	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	165	*799	1120	-	-	-
Mov Cap-2 Maneuver	165	-	-	-	-	-
Stage 1	673	-	-	-	-	-
Stage 2	450	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.2	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1120	-	165	799	-	-
HCM Lane V/C Ratio	0.099	-	0.086	0.245	-	-
HCM Control Delay (s)	8.6	-	28.9	11	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.3	1	-	-

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	86	167	45	78	98	49	10	33	272	122	6	57
Future Volume (veh/h)	86	167	45	78	98	49	10	33	272	122	6	57
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Work Zone On Approach		No			No				No			
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	100	194	52	91	114	57		38	316	0		66
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		0.86	0.86	0.86		0.86
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	129	238	64	118	302	256		413	1011			479
Arrive On Green	0.07	0.17	0.17	0.07	0.16	0.16		0.15	0.19	0.00		0.26
Sat Flow, veh/h	1810	1443	387	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	100	0	246	91	114	57		38	316	0		66
Grp Sat Flow(s),veh/h/ln	1810	0	1830	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	4.3	0.0	10.4	4.0	4.3	1.4		1.4	6.0	0.0		2.2
Cycle Q Clear(g_c), s	4.3	0.0	10.4	4.0	4.3	1.4		1.4	6.0	0.0		2.2
Prop In Lane	1.00		0.21	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	129	0	302	118	302	256		413	1011			479
V/C Ratio(X)	0.77	0.00	0.81	0.77	0.38	0.22		0.09	0.31			0.14
Avail Cap(c_a), veh/h	238	0	469	219	468	397		413	1011			479
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		0.67	0.67	0.67		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	0.00		1.00
Uniform Delay (d), s/veh	36.5	0.0	32.2	36.8	30.1	8.9		26.7	25.9	0.0		22.4
Incr Delay (d2), s/veh	9.4	0.0	6.2	10.1	0.8	0.4		0.1	0.8	0.0		0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	5.0	2.0	2.0	0.9		0.6	2.7	0.0		0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.9	0.0	38.4	46.9	30.9	9.4		26.8	26.7	0.0		22.6
LnGrp LOS	D	A	D	D	C	A		C	C			C
Approach Vol, veh/h		346			262				354	A		
Approach Delay, s/veh		40.6			31.8				26.7			
Approach LOS		D			C				C			

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.7	26.9	9.7	17.7	22.8	29.8	10.2	17.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.4	22.4	9.7	20.5	6.5	25.3	10.5	19.7
Max Q Clear Time (g_c+I1), s	4.2	8.0	6.0	12.4	3.4	14.2	6.3	6.3
Green Ext Time (p_c), s	0.0	1.7	0.1	0.8	0.0	3.1	0.1	0.6

Intersection Summary	
HCM 6th Ctrl Delay	30.3
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	472	90
Future Volume (veh/h)	472	90
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	549	105
Peak Hour Factor	0.86	0.86
Percent Heavy Veh, %	0	0
Cap, veh/h	957	182
Arrive On Green	0.32	0.32
Sat Flow, veh/h	3025	576
Grp Volume(v), veh/h	327	327
Grp Sat Flow(s),veh/h/ln	1805	1796
Q Serve(g_s), s	12.1	12.2
Cycle Q Clear(g_c), s	12.1	12.2
Prop In Lane		0.32
Lane Grp Cap(c), veh/h	571	568
V/C Ratio(X)	0.57	0.58
Avail Cap(c_a), veh/h	571	568
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	22.8	22.9
Incr Delay (d2), s/veh	4.1	4.2
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	5.6
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	27.0	27.1
LnGrp LOS	C	C
Approach Vol, veh/h	720	
Approach Delay, s/veh	26.6	
Approach LOS	C	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	0	0	29	0	0	18	5	31	419	32	16	18	543	22
Future Vol, veh/h	0	0	29	0	0	18	5	31	419	32	16	18	543	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	33	0	0	20	6	35	471	36	18	20	610	25

Major/Minor	Minor2		Minor1			Major1					Major2			
Conflicting Flow All	-	-	318	-	-	254	635	635	0	0	507	507	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*881	0	0	*920	1043	1241	-	-	1132	1326	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-
Mov Cap-1 Maneuver	-	-	*881	-	-	*920	1203	1203	-	-	1215	1215	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	9	0.6	0.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1203	-	-	881	920	1215	-	-
HCM Lane V/C Ratio	0.034	-	-	0.037	0.022	0.031	-	-
HCM Control Delay (s)	8.1	-	-	9.2	9	8.1	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0.1	-	-

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	7	95	650	138	5	160	459	68	120	325	129	2
Future Volume (veh/h)	7	95	650	138	5	160	459	68	120	325	129	2
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		109	747	159		184	528	78	138	374	148	
Peak Hour Factor		0.87	0.87	0.87		0.87	0.87	0.87	0.87	0.87	0.87	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		434	1991	618		228	1400	435	179	475	185	
Arrive On Green		0.24	0.38	0.38		0.04	0.09	0.09	0.10	0.19	0.19	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	2537	990	
Grp Volume(v), veh/h		109	747	159		184	528	78	138	264	258	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1722	
Q Serve(g_s), s		3.9	8.3	3.5		8.1	7.7	2.7	6.0	11.2	11.4	
Cycle Q Clear(g_c), s		3.9	8.3	3.5		8.1	7.7	2.7	6.0	11.2	11.4	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.57	
Lane Grp Cap(c), veh/h		434	1991	618		228	1400	435	179	338	322	
V/C Ratio(X)		0.25	0.38	0.26		0.81	0.38	0.18	0.77	0.78	0.80	
Avail Cap(c_a), veh/h		434	1991	618		328	1400	435	238	429	409	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh		24.6	17.7	7.3		37.4	30.1	15.4	35.2	31.0	31.1	
Incr Delay (d2), s/veh		0.3	0.5	1.0		9.3	0.8	0.9	10.6	7.2	8.5	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		1.7	3.2	2.0		4.3	3.4	1.5	3.1	5.4	5.4	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		24.9	18.3	8.3		46.6	30.9	16.3	45.8	38.1	39.6	
LnGrp LOS		C	B	A		D	C	B	D	D	D	
Approach Vol, veh/h			1015				790			660		
Approach Delay, s/veh			17.4				33.1			40.3		
Approach LOS			B				C			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.6	35.2	12.4	17.8	23.7	26.1	10.7	19.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	14.5	19.0	10.5	18.0	11.9	21.6	9.5	19.0
Max Q Clear Time (g_c+I1), s	10.1	10.3	8.0	11.6	5.9	9.7	6.8	13.4
Green Ext Time (p_c), s	0.2	3.7	0.1	1.7	0.1	3.0	0.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	30.1
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	96	396	55
Future Volume (veh/h)	96	396	55
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	110	455	63
Peak Hour Factor	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0
Cap, veh/h	141	601	268
Arrive On Green	0.08	0.17	0.17
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	110	455	63
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	4.8	9.6	2.7
Cycle Q Clear(g_c), s	4.8	9.6	2.7
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	141	601	268
V/C Ratio(X)	0.78	0.76	0.24
Avail Cap(c_a), veh/h	215	812	362
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	31.8	28.9
Incr Delay (d2), s/veh	9.6	2.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	4.3	1.1
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	45.9	34.6	29.4
LnGrp LOS	D	C	C
Approach Vol, veh/h		628	
Approach Delay, s/veh		36.1	
Approach LOS		D	
Timer - Assigned Phs			

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	0	0	94	0	0	55	117	519	110	1	44	631	19
Future Vol, veh/h	0	0	94	0	0	55	117	519	110	1	44	631	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	95	-	70	-	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	116	0	0	68	144	641	136	1	54	779	23

Major/Minor	Minor2			Minor1			Major1			Major2			
Conflicting Flow All	-	-	390	-	-	321	802	0	0	641	777	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*842	0	0	681	1109	-	-	571	848	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-
Platoon blocked, %			1				1	-	-			-	-
Mov Cap-1 Maneuver	-	-	*842	-	-	681	1109	-	-	837	837	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	10.9	1.4	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1109	-	-	842	681	837	-	-
HCM Lane V/C Ratio	0.13	-	-	0.138	0.1	0.066	-	-
HCM Control Delay (s)	8.7	-	-	10	10.9	9.6	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0.5	0.3	0.2	-	-

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

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: D[25.3]

Street Name:	Mall Driveway 2 - Pepperwood Lane						Olive Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 3 0 1			1 0 3 1 0		
Volume Module: >> Count Date: 5 Jun 2018 <<												
Base Vol:	8	3	56	6	1	6	22	846	14	27	672	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	3	56	6	1	6	22	846	14	27	672	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
PHF Volume:	9	3	62	7	1	7	24	933	15	30	741	7
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	9	3	62	7	1	7	24	933	15	30	741	7
Critical Gap Module:												
Critical Gp:	7.5	6.5	6.9	7.5	6.5	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1227	1788	311	1165	1800	189	748	xxxx	xxxxx	948	xxxx	xxxxx
Potent Cap.:	137	82	691	152	81	828	870	xxxx	xxxxx	732	xxxx	xxxxx
Move Cap.:	127	77	691	127	75	828	870	xxxx	xxxxx	732	xxxx	xxxxx
Volume/Cap:	0.07	0.04	0.09	0.05	0.01	0.01	0.03	xxxx	xxxx	0.04	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.3	xxxx	xxxxx	10.1	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	B	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	366	xxxxx	xxxx	192	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.7	xxxxx	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	17.3	xxxxx	xxxxx	25.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	D	*	*	*	*	*	*	*
ApproachDel:		17.3			25.3		xxxxxx			xxxxxx		
ApproachLOS:		C			D		*			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

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Intersection #1 Intersection 5

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Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
LaneWidth:	12 feet			12 feet			12 feet			12 feet		

Pedestrian Walk Speed: 4.00 feet/sec
Time Period: 0.25 hour

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	324	26	27	216	6	9	0	30	4	0	6
Future Vol, veh/h	1	324	26	27	216	6	9	0	30	4	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	50	50	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	421	34	35	281	8	12	0	39	5	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	289	0	0	455	0	0	782	782	421	811	808	281
Stage 1	-	-	-	-	-	-	423	423	-	351	351	-
Stage 2	-	-	-	-	-	-	359	359	-	460	457	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1308	-	-	1116	-	-	325	330	637	309	317	857
Stage 1	-	-	-	-	-	-	613	591	-	733	663	-
Stage 2	-	-	-	-	-	-	724	657	-	585	571	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	1308	-	-	1116	-	-	315	320	637	283	307	857
Mov Cap-2 Maneuver	-	-	-	-	-	-	315	320	-	283	307	-
Stage 1	-	-	-	-	-	-	612	590	-	732	642	-
Stage 2	-	-	-	-	-	-	695	636	-	549	570	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.9	12.8	12.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	515	1308	-	-	1116	-	-	473
HCM Lane V/C Ratio	0.098	0.001	-	-	0.031	-	-	0.027
HCM Control Delay (s)	12.8	7.8	-	-	8.3	-	-	12.8
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.1

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: B[10.5]

Street Name:	Mall Driveway 4 - Applewood Lane									Olive Avenue								
Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	0	1	0	0	0	0	1	1	0	3	0	1	1	0	3	1	0
Volume Module:																				
Base Vol:	0	0	29	0	0	8	48	859	18	45	680	24								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	0	0	29	0	0	8	48	859	18	45	680	24								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90								
PHF Volume:	0	0	32	0	0	9	53	957	20	50	757	27								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	0	0	32	0	0	9	53	957	20	50	757	27								
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	6.9	xxxxx	xxxx	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	xxxxx	xxxx	3.3	xxxxx	xxxx	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	319	xxxx	xxxx	203	784	xxxx	xxxxx	977	xxxx	xxxxx								
Potent Cap.:	xxxx	xxxx	683	xxxx	xxxx	811	843	xxxx	xxxxx	715	xxxx	xxxxx								
Move Cap.:	xxxx	xxxx	683	xxxx	xxxx	811	843	xxxx	xxxxx	715	xxxx	xxxxx								
Volume/Cap:	xxxx	xxxx	0.05	xxxx	xxxx	0.01	0.06	xxxx	xxxx	0.07	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	0.1	xxxx	xxxx	0.0	0.2	xxxx	xxxxx	0.2	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	10.5	xxxxx	xxxx	9.5	9.6	xxxx	xxxxx	10.4	xxxx	xxxxx								
LOS by Move:	*	*	B	*	*	A	A	*	*	B	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*								
ApproachDel:	10.5			9.5			xxxxxx			xxxxxx										
ApproachLOS:	B			A			*			*										

Note: Queue reported is the number of cars per lane.

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

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Intersection #2 Intersection 7

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		

Pedestrian Walk Speed: 4.00 feet/sec

LaneWidth:	12 feet	12 feet	12 feet	12 feet

Time Period: 0.25 hour

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	145	77	120	45	67	104	1	99	464	14	110	651	116
Future Volume (veh/h)	145	77	120	45	67	104	1	99	464	14	110	651	116
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No				No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	191	101	158	59	88	137		130	611	18	145	857	153
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76		0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0	0	0	0
Cap, veh/h	230	216	183	313	107	166		317	1506	44	456	1306	233
Arrive On Green	0.13	0.11	0.11	0.17	0.16	0.16		0.06	0.42	0.42	0.07	0.43	0.43
Sat Flow, veh/h	1810	1900	1610	1810	670	1043		1810	3581	105	1810	3060	546
Grp Volume(v), veh/h	191	101	158	59	0	225		130	308	321	145	505	505
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1712		1810	1805	1881	1810	1805	1802
Q Serve(g_s), s	8.2	4.0	6.2	2.2	0.0	10.2		3.2	9.5	9.5	3.6	17.8	17.8
Cycle Q Clear(g_c), s	8.2	4.0	6.2	2.2	0.0	10.2		3.2	9.5	9.5	3.6	17.8	17.8
Prop In Lane	1.00		1.00	1.00		0.61		1.00		0.06	1.00		0.30
Lane Grp Cap(c), veh/h	230	216	183	313	0	273		317	759	791	456	770	769
V/C Ratio(X)	0.83	0.47	0.87	0.19	0.00	0.82		0.41	0.41	0.41	0.32	0.66	0.66
Avail Cap(c_a), veh/h	260	534	453	313	0	385		330	759	791	510	770	769
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.1	33.2	22.5	28.3	0.0	32.5		14.0	16.2	16.2	12.1	18.3	18.3
Incr Delay (d2), s/veh	18.2	1.6	11.5	0.3	0.0	9.5		0.9	1.6	1.5	0.4	4.3	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	1.9	3.5	1.0	0.0	4.8		1.3	4.0	4.2	1.4	7.8	7.8
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	52.2	34.8	34.0	28.6	0.0	42.0		14.8	17.8	17.7	12.5	22.6	22.6
LnGrp LOS	D	C	C	C	A	D		B	B	B	B	C	C
Approach Vol, veh/h		450			284				759			1155	
Approach Delay, s/veh		41.9			39.2				17.3			21.3	
Approach LOS		D			D				B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	38.2	18.4	13.6	9.4	38.6	14.7	17.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.8	24.7	7.0	22.5	5.5	27.0	11.5	18.0
Max Q Clear Time (g_c+I1), s	5.6	11.5	4.2	8.2	5.2	19.8	10.2	12.2
Green Ext Time (p_c), s	0.1	3.2	0.0	0.9	0.0	3.7	0.1	0.6

Intersection Summary	
HCM 6th Ctrl Delay	25.6
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	50	0	0	50	0	575	46	0	751	51
Future Vol, veh/h	0	0	50	0	0	50	0	575	46	0	751	51
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	68	0	0	68	0	777	62	0	1015	69

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	542	-	-	420	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	*746	0	0	588	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %			1					-	-		-	-
Mov Cap-1 Maneuver	-	-	*746	-	-	588	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.3	11.9	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	746	588	-	-
HCM Lane V/C Ratio	-	-	0.091	0.115	-	-
HCM Control Delay (s)	-	-	10.3	11.9	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.3	0.4	-	-

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	11	112	575	162	30	150	555	81	130	417	104	185
Future Volume (veh/h)	11	112	575	162	30	150	555	81	130	417	104	185
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		132	676	191		176	653	95	153	491	122	218
Peak Hour Factor		0.85	0.85	0.85		0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		168	1232	382		347	1541	222	200	584	144	257
Arrive On Green		0.03	0.08	0.08		0.19	0.34	0.34	0.11	0.20	0.20	0.14
Sat Flow, veh/h		1810	5187	1610		1810	4580	659	1810	2869	709	1810
Grp Volume(v), veh/h		132	676	191		176	491	257	153	308	305	218
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1781	1810	1805	1772	1810
Q Serve(g_s), s		5.8	10.0	9.1		7.0	8.8	8.9	6.6	13.1	13.3	9.4
Cycle Q Clear(g_c), s		5.8	10.0	9.1		7.0	8.8	8.9	6.6	13.1	13.3	9.4
Prop In Lane		1.00		1.00		1.00		0.37	1.00		0.40	1.00
Lane Grp Cap(c), veh/h		168	1232	382		347	1163	599	200	367	361	257
V/C Ratio(X)		0.78	0.55	0.50		0.51	0.42	0.43	0.77	0.84	0.85	0.85
Avail Cap(c_a), veh/h		222	1232	382		347	1163	599	215	406	399	283
HCM Platoon Ratio		0.33	0.33	0.33		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		38.0	32.7	32.3		28.9	20.5	20.6	34.6	30.6	30.7	33.5
Incr Delay (d2), s/veh		12.6	1.8	4.6		1.2	1.1	2.2	14.2	13.3	14.4	19.4
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.2	4.7	4.3		3.1	3.6	3.9	3.6	6.9	6.9	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		50.6	34.5	36.9		30.1	21.7	22.8	48.8	44.0	45.0	52.8
LnGrp LOS		D	C	D		C	C	C	D	D	D	D
Approach Vol, veh/h			999				924			766		
Approach Delay, s/veh			37.1				23.6			45.3		
Approach LOS			D				C			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.8	23.5	13.3	23.3	11.9	31.4	15.9	20.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.5	19.0	9.5	21.0	9.8	21.7	12.5	18.0
Max Q Clear Time (g_c+I1), s	9.0	12.0	8.6	17.2	7.8	10.9	11.4	15.3
Green Ext Time (p_c), s	0.1	3.0	0.0	1.6	0.1	3.6	0.1	1.0

Intersection Summary	
HCM 6th Ctrl Delay	37.2
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	555	61
Future Volume (veh/h)	555	61
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	653	72
Peak Hour Factor	0.85	0.85
Percent Heavy Veh, %	0	0
Cap, veh/h	771	85
Arrive On Green	0.24	0.24
Sat Flow, veh/h	3279	361
Grp Volume(v), veh/h	359	366
Grp Sat Flow(s),veh/h/ln	1805	1835
Q Serve(g_s), s	15.2	15.2
Cycle Q Clear(g_c), s	15.2	15.2
Prop In Lane		0.20
Lane Grp Cap(c), veh/h	425	432
V/C Ratio(X)	0.85	0.85
Avail Cap(c_a), veh/h	474	482
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	29.2	29.2
Incr Delay (d2), s/veh	12.3	12.3
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	7.9
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	41.5	41.5
LnGrp LOS	D	D
Approach Vol, veh/h	943	
Approach Delay, s/veh	44.1	
Approach LOS	D	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	67	68	640	820	41
Future Vol, veh/h	7	67	68	640	820	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	8	81	82	771	988	49

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1538	494	1037	0	-	0
Stage 1	988	-	-	-	-	-
Stage 2	550	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	193	*763	971	-	-	-
Stage 1	623	-	-	-	-	-
Stage 2	547	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	177	*763	971	-	-	-
Mov Cap-2 Maneuver	177	-	-	-	-	-
Stage 1	571	-	-	-	-	-
Stage 2	547	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.8	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	971	-	177	763	-	-
HCM Lane V/C Ratio	0.084	-	0.048	0.106	-	-
HCM Control Delay (s)	9	-	26.4	10.3	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.1	0.4	-	-

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	102	132	35	104	179	99	29	91	547	135	4	63
Future Volume (veh/h)	102	132	35	104	179	99	29	91	547	135	4	63
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Work Zone On Approach		No			No				No			
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	113	147	39	116	199	110		101	608	0		70
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90		0.90	0.90	0.90		0.90
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	144	184	49	156	254	215		569	1143			488
Arrive On Green	0.08	0.13	0.13	0.09	0.13	0.13		0.31	0.32	0.00		0.27
Sat Flow, veh/h	1810	1447	384	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	113	0	186	116	199	110		101	608	0		70
Grp Sat Flow(s),veh/h/ln	1810	0	1831	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	5.5	0.0	8.9	5.6	9.1	3.3		3.6	12.5	0.0		2.6
Cycle Q Clear(g_c), s	5.5	0.0	8.9	5.6	9.1	3.3		3.6	12.5	0.0		2.6
Prop In Lane	1.00		0.21	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	144	0	233	156	254	215		569	1143			488
V/C Ratio(X)	0.78	0.00	0.80	0.74	0.78	0.51		0.18	0.53			0.14
Avail Cap(c_a), veh/h	271	0	397	271	412	349		569	1143			488
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	0.00		1.00
Uniform Delay (d), s/veh	40.6	0.0	38.1	40.2	37.7	11.9		22.4	25.3	0.0		25.0
Incr Delay (d2), s/veh	8.9	0.0	6.1	6.9	5.2	1.9		0.1	1.8	0.0		0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	4.3	2.8	4.5	2.3		1.5	5.5	0.0		1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.5	0.0	44.3	47.0	42.9	13.8		22.6	27.0	0.0		25.1
LnGrp LOS	D	A	D	D	D	B		C	C			C
Approach Vol, veh/h		299			425				709	A		
Approach Delay, s/veh		46.3			36.5				26.4			
Approach LOS		D			D				C			

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.8	33.0	12.2	16.0	32.8	29.0	11.7	16.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	28.5	13.5	19.5	14.5	24.5	13.5	19.5
Max Q Clear Time (g_c+I1), s	4.6	14.5	7.6	10.9	5.6	13.1	7.5	11.1
Green Ext Time (p_c), s	0.1	3.5	0.1	0.6	0.1	2.4	0.1	0.9

Intersection Summary	
HCM 6th Ctrl Delay	32.8
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	378	87
Future Volume (veh/h)	378	87
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	420	97
Peak Hour Factor	0.90	0.90
Percent Heavy Veh, %	0	0
Cap, veh/h	794	182
Arrive On Green	0.27	0.27
Sat Flow, veh/h	2917	668
Grp Volume(v), veh/h	259	258
Grp Sat Flow(s),veh/h/ln	1805	1780
Q Serve(g_s), s	10.9	11.1
Cycle Q Clear(g_c), s	10.9	11.1
Prop In Lane		0.38
Lane Grp Cap(c), veh/h	491	484
V/C Ratio(X)	0.53	0.53
Avail Cap(c_a), veh/h	491	484
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	27.8	27.9
Incr Delay (d2), s/veh	4.0	4.2
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	5.2
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	31.8	32.1
LnGrp LOS	C	C
Approach Vol, veh/h	587	
Approach Delay, s/veh	31.1	
Approach LOS	C	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	0	0	125	0	0	100	12	82	701	114	44	58	457	29
Future Vol, veh/h	0	0	125	0	0	100	12	82	701	114	44	58	457	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	137	0	0	110	13	90	770	125	48	64	502	32

Major/Minor	Minor2			Minor1			Major1				Major2				
Conflicting Flow All	-	-	267	-	-	448	534	534	0	0	896	895	0	0	
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-	
Pot Cap-1 Maneuver	0	0	*904	0	0	*799	1145	1325	-	-	872	1076	-	-	
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-	
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-	
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-	
Mov Cap-1 Maneuver	-	-	*904	-	-	*799	1270	1270	-	-	914	914	-	-	
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.7	10.2	0.8	1.6
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1270	-	-	904	799	914	-	-
HCM Lane V/C Ratio	0.081	-	-	0.152	0.138	0.123	-	-
HCM Control Delay (s)	8.1	-	-	9.7	10.2	9.5	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.5	0.5	0.4	-	-

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	22	190	791	187	14	251	861	144	293	570	123	6
Future Volume (veh/h)	22	190	791	187	14	251	861	144	293	570	123	6
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		198	824	195		261	897	150	305	594	128	
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		393	1547	480		301	1285	399	352	717	154	
Arrive On Green		0.22	0.30	0.30		0.05	0.08	0.08	0.19	0.24	0.24	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	2955	635	
Grp Volume(v), veh/h		198	824	195		261	897	150	305	362	360	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1786	
Q Serve(g_s), s		8.7	11.9	5.1		12.9	15.2	5.9	14.7	17.1	17.2	
Cycle Q Clear(g_c), s		8.7	11.9	5.1		12.9	15.2	5.9	14.7	17.1	17.2	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.36	
Lane Grp Cap(c), veh/h		393	1547	480		301	1285	399	352	438	433	
V/C Ratio(X)		0.50	0.53	0.41		0.87	0.70	0.38	0.87	0.83	0.83	
Avail Cap(c_a), veh/h		393	1547	480		332	1285	399	372	531	526	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh		31.0	26.3	8.5		41.5	38.0	19.2	35.1	32.3	32.3	
Incr Delay (d2), s/veh		1.0	1.3	2.5		19.4	3.2	2.7	18.4	8.8	9.2	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		3.8	5.0	3.4		7.8	7.4	3.5	8.1	8.3	8.3	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		32.0	27.7	11.0		60.9	41.2	21.9	53.5	41.1	41.5	
LnGrp LOS		C	C	B		E	D	C	D	D	D	
Approach Vol, veh/h			1217				1308			1027		
Approach Delay, s/veh			25.7				42.9			44.9		
Approach LOS			C				D			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.5	31.3	22.0	17.2	24.0	26.8	12.8	26.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	16.5	18.5	18.5	18.5	12.7	22.3	10.5	26.5
Max Q Clear Time (g_c+I1), s	14.9	13.9	16.7	11.0	10.7	17.2	8.6	19.2
Green Ext Time (p_c), s	0.1	2.5	0.2	1.6	0.1	2.9	0.1	2.6

Intersection Summary	
HCM 6th Ctrl Delay	38.9
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	128	352	111
Future Volume (veh/h)	128	352	111
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	133	367	116
Peak Hour Factor	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0
Cap, veh/h	167	508	227
Arrive On Green	0.03	0.05	0.05
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	133	367	116
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	6.6	9.0	6.3
Cycle Q Clear(g_c), s	6.6	9.0	6.3
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	167	508	227
V/C Ratio(X)	0.80	0.72	0.51
Avail Cap(c_a), veh/h	211	742	331
HCM Platoon Ratio	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.8	41.2	39.9
Incr Delay (d2), s/veh	15.1	2.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	4.4	2.7
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	57.9	43.1	41.7
LnGrp LOS	E	D	D
Approach Vol, veh/h		616	
Approach Delay, s/veh		46.0	
Approach LOS		D	
Timer - Assigned Phs			

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	319	0	0	181	249	818	116	43	689	37
Future Vol, veh/h	0	0	319	0	0	181	249	818	116	43	689	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	95	-	70	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	332	0	0	189	259	852	121	45	718	39

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	359	-	-	426	757	0	0	973	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	*799	0	0	582	*1200	-	-	717	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1				1	-	-		-	-
Mov Cap-1 Maneuver	-	-	*799	-	-	582	*1200	-	-	717	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.7	14.1	1.9	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 1200	-	-	799	582	717	-	-
HCM Lane V/C Ratio	0.216	-	-	0.416	0.324	0.062	-	-
HCM Control Delay (s)	8.8	-	-	12.7	14.1	10.4	-	-
HCM Lane LOS	A	-	-	B	B	B	-	-
HCM 95th %tile Q(veh)	0.8	-	-	2.1	1.4	0.2	-	-

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

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 31.7 Worst Case Level Of Service: F[418.3]

Street Name:	Mall Driveway 2 - Pepperwood Lane						Olive Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 3 0 1			1 0 3 1 0		
Volume Module: >> Count Date: 5 Jun 2018 <<												
Base Vol:	22	7	97	24	5	96	86	974	37	56	1140	27
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	22	7	97	24	5	96	86	974	37	56	1140	27
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	24	7	104	26	5	103	92	1041	40	60	1218	29
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	24	7	104	26	5	103	92	1041	40	60	1218	29
Critical Gap Module:												
Critical Gp:	7.5	6.5	6.9	7.5	6.5	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1651	2591	347	1886	2616	319	1247	xxxx	xxxxx	1080	xxxx	xxxxx
Potent Cap.:	66	26	655	44	25	683	565	xxxx	xxxxx	653	xxxx	xxxxx
Move Cap.:	36	19	655	22	19	683	565	xxxx	xxxxx	653	xxxx	xxxxx
Volume/Cap:	0.65	0.39	0.16	1.19	0.29	0.15	0.16	xxxx	xxxx	0.09	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.6	xxxx	xxxxx	0.3	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	12.6	xxxx	xxxxx	11.1	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	B	*	*	B	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	113	xxxxx	xxxx	82	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	8.6	xxxxx	xxxxx	11.0	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	218	xxxxx	xxxxx	418	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	F	*	*	F	*	*	*	*	*	*	*
ApproachDel:	218.4			418.3			xxxxxx			xxxxxx		
ApproachLOS:	F			F			*			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

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Intersection #1 Intersection 5

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		

Pedestrian Walk Speed: 4.00 feet/sec

LaneWidth:	12 feet	12 feet	12 feet	12 feet

Time Period: 0.25 hour

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Intersection	
Int Delay, s/veh	4.2

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	1	10	332	55	60	320	10	66	1	106	9	1	2
Future Vol, veh/h	1	10	332	55	60	320	10	66	1	106	9	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	50	-	50	50	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	100	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	11	365	60	66	352	11	73	1	106	10	1	2

Major/Minor	Major1				Major2			Minor1			Minor2		
Conflicting Flow All	-	363	0	0	425	0	0	878	884	365	955	933	352
Stage 1	-	-	-	-	-	-	-	387	389	-	484	484	-
Stage 2	-	-	-	-	-	-	-	491	495	-	471	449	-
Critical Hdwy	-	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	-	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	-	1237	-	-	1145	-	-	278	282	685	238	259	834
Stage 1	-	-	-	-	-	-	-	641	612	-	638	582	-
Stage 2	-	-	-	-	-	-	-	631	573	-	577	576	-
Platoon blocked, %		1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	~ -11	~ -11	-	-	1145	-	-	264	266	685	192	244	834
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	264	266	-	192	244	-
Stage 1	-	-	-	-	-	-	-	641	612	-	638	548	-
Stage 2	-	-	-	-	-	-	-	591	540	-	487	576	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		1.3	20.2	22
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	414	+	-	-	1145	-	-	225
HCM Lane V/C Ratio	0.434	-	-	-	0.058	-	-	0.059
HCM Control Delay (s)	20.2	-	-	-	8.3	-	-	22
HCM Lane LOS	C	-	-	-	A	-	-	C
HCM 95th %tile Q(veh)	2.1	-	-	-	0.2	-	-	0.2

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

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 1.6 Worst Case Level Of Service: B[13.2]

Street Name:	Mall Driveway 4 - Applewood Lane								Olive Avenue							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	0	0 1	0	0	0	0 1	1	0	3	0 1	1	0	3	1 0
Volume Module:																
Base Vol:	0	0	62		0	0	97		122	1052		41	77	1077		111
Growth Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
Initial Bse:	0	0	62		0	0	97		122	1052		41	77	1077		111
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00
PHF Adj:	0.96	0.96	0.96		0.96	0.96	0.96		0.96	0.96		0.96	0.96	0.96		0.96
PHF Volume:	0	0	65		0	0	101		127	1098		43	80	1124		116
Reduct Vol:	0	0	0		0	0	0		0	0		0	0	0		0
FinalVolume:	0	0	65		0	0	101		127	1098		43	80	1124		116
Critical Gap Module:																
Critical Gp:	xxxxx	xxxx	6.9		xxxxx	xxxx	6.9		4.1	xxxx	xxxxx		4.1	xxxx	xxxxx	
FollowUpTim:	xxxxx	xxxx	3.3		xxxxx	xxxx	3.3		2.2	xxxx	xxxxx		2.2	xxxx	xxxxx	
Capacity Module:																
Cnflict Vol:	xxxx	xxxx	366		xxxx	xxxx	339		1240	xxxx	xxxxx		1141	xxxx	xxxxx	
Potent Cap.:	xxxx	xxxx	637		xxxx	xxxx	663		569	xxxx	xxxxx		620	xxxx	xxxxx	
Move Cap.:	xxxx	xxxx	637		xxxx	xxxx	663		569	xxxx	xxxxx		620	xxxx	xxxxx	
Volume/Cap:	xxxx	xxxx	0.10		xxxx	xxxx	0.15		0.22	xxxx	xxxx		0.13	xxxx	xxxx	
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	0.3		xxxx	xxxx	0.5		0.9	xxxx	xxxxx		0.4	xxxx	xxxxx	
Control Del:	xxxxx	xxxx	11.3		xxxxx	xxxx	11.4		13.2	xxxx	xxxxx		11.7	xxxx	xxxxx	
LOS by Move:	*	*	B		*	*	B		B	*	*		B	*	*	
Movement:	LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT		LT -	LTR -	RT	
Shared Cap.:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	*	*		*	*	*		*	*	*		*	*	*	
ApproachDel:	11.3				11.4				xxxxxx				xxxxxx			
ApproachLOS:	B				B				*				*			

Note: Queue reported is the number of cars per lane.

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

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	256	33	196	44	82	110	1	137	499	16	27	466	167
Future Volume (veh/h)	256	33	196	44	82	110	1	137	499	16	27	466	167
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No				No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	294	38	225	51	94	126		157	574	18	31	536	192
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87		0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0	0	0	0
Cap, veh/h	336	273	231	351	112	150		381	1544	48	405	1019	363
Arrive On Green	0.19	0.14	0.14	0.19	0.15	0.15		0.07	0.43	0.43	0.03	0.39	0.39
Sat Flow, veh/h	1810	1900	1610	1810	736	986		1810	3573	112	1810	2607	930
Grp Volume(v), veh/h	294	38	225	51	0	220		157	290	302	31	370	358
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1722		1810	1805	1880	1810	1805	1733
Q Serve(g_s), s	14.2	1.6	10.0	2.1	0.0	11.2		4.5	9.8	9.8	0.9	14.2	14.3
Cycle Q Clear(g_c), s	14.2	1.6	10.0	2.1	0.0	11.2		4.5	9.8	9.8	0.9	14.2	14.3
Prop In Lane	1.00		1.00	1.00		0.57		1.00		0.06	1.00		0.54
Lane Grp Cap(c), veh/h	336	273	231	351	0	262		381	780	812	405	705	677
V/C Ratio(X)	0.87	0.14	0.97	0.15	0.00	0.84		0.41	0.37	0.37	0.08	0.53	0.53
Avail Cap(c_a), veh/h	470	735	623	351	0	346		422	780	812	452	705	677
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.6	33.7	24.5	30.1	0.0	37.1		15.2	17.3	17.3	15.6	21.0	21.0
Incr Delay (d2), s/veh	12.6	0.2	21.6	0.2	0.0	13.1		0.7	1.4	1.3	0.1	2.8	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	0.7	5.1	0.9	0.0	5.6		1.8	4.2	4.4	0.4	6.3	6.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	48.2	33.9	46.1	30.3	0.0	50.2		15.9	18.6	18.6	15.7	23.8	24.0
LnGrp LOS	D	C	D	C	A	D		B	B	B	B	C	C
Approach Vol, veh/h		557			271				749			759	
Approach Delay, s/veh		46.4			46.4				18.1			23.6	
Approach LOS		D			D				B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	43.4	22.0	17.4	10.9	39.7	21.2	18.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.6	25.5	6.7	34.8	8.5	22.0	23.4	18.1
Max Q Clear Time (g_c+I1), s	2.9	11.8	4.1	12.0	6.5	16.3	16.2	13.2
Green Ext Time (p_c), s	0.0	3.0	0.0	0.9	0.1	2.3	0.5	0.5

Intersection Summary	
HCM 6th Ctrl Delay	29.9
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	145	0	0	43	0	647	35	0	773	64
Future Vol, veh/h	0	0	145	0	0	43	0	647	35	0	773	64
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	165	0	0	49	0	735	40	0	878	73

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	476	-	-	388	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	*766	0	0	616	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %			1					-	-		-	-
Mov Cap-1 Maneuver	-	-	*766	-	-	616	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11	11.3	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	766	616	-	-
HCM Lane V/C Ratio	-	-	0.215	0.079	-	-
HCM Control Delay (s)	-	-	11	11.3	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.8	0.3	-	-

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	33	99	778	141	31	137	826	58	327	492	119	293
Future Volume (veh/h)	33	99	778	141	31	137	826	58	327	492	119	293
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		104	819	148		144	869	61	344	518	125	308
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		134	1181	367		281	1529	107	385	643	154	352
Arrive On Green		0.02	0.08	0.08		0.16	0.31	0.31	0.21	0.22	0.22	0.06
Sat Flow, veh/h		1810	5187	1610		1810	4949	346	1810	2887	693	1810
Grp Volume(v), veh/h		104	819	148		144	606	324	344	323	320	308
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1838	1810	1805	1775	1810
Q Serve(g_s), s		5.1	13.9	4.7		6.6	13.2	13.3	16.6	15.2	15.4	15.2
Cycle Q Clear(g_c), s		5.1	13.9	4.7		6.6	13.2	13.3	16.6	15.2	15.4	15.2
Prop In Lane		1.00		1.00		1.00		0.19	1.00		0.39	1.00
Lane Grp Cap(c), veh/h		134	1181	367		281	1068	568	385	402	395	352
V/C Ratio(X)		0.78	0.69	0.40		0.51	0.57	0.57	0.89	0.80	0.81	0.88
Avail Cap(c_a), veh/h		191	1181	367		281	1068	568	472	431	424	412
HCM Platoon Ratio		0.33	0.33	0.33		1.00	1.00	1.00	1.00	1.00	1.00	0.33
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		43.2	38.5	12.7		34.9	26.1	26.1	34.5	33.1	33.2	41.0
Incr Delay (d2), s/veh		12.0	3.4	3.3		1.6	2.2	4.1	16.8	10.0	10.6	16.7
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.8	6.7	3.4		3.0	5.6	6.3	8.9	7.6	7.6	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		55.1	41.9	16.0		36.5	28.3	30.2	51.3	43.1	43.7	57.8
LnGrp LOS		E	D	B		D	C	C	D	D	D	E
Approach Vol, veh/h			1071				1074			987		
Approach Delay, s/veh			39.6				29.9			46.1		
Approach LOS			D				C			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.5	25.0	23.6	22.9	11.2	32.3	22.0	24.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.5	20.5	23.5	18.5	9.5	20.5	20.5	21.5
Max Q Clear Time (g_c+I1), s	8.6	15.9	18.6	18.4	7.1	15.3	17.2	17.4
Green Ext Time (p_c), s	0.0	2.4	0.5	0.1	0.0	2.7	0.3	1.5

Intersection Summary	
HCM 6th Ctrl Delay	43.9
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	527	98
Future Volume (veh/h)	527	98
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	555	103
Peak Hour Factor	0.95	0.95
Percent Heavy Veh, %	0	0
Cap, veh/h	622	115
Arrive On Green	0.07	0.07
Sat Flow, veh/h	3041	563
Grp Volume(v), veh/h	329	329
Grp Sat Flow(s),veh/h/ln	1805	1799
Q Serve(g_s), s	16.3	16.4
Cycle Q Clear(g_c), s	16.3	16.4
Prop In Lane		0.31
Lane Grp Cap(c), veh/h	369	368
V/C Ratio(X)	0.89	0.89
Avail Cap(c_a), veh/h	371	370
HCM Platoon Ratio	0.33	0.33
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	41.0	41.0
Incr Delay (d2), s/veh	22.3	23.1
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.1	10.2
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	63.2	64.1
LnGrp LOS	E	E
Approach Vol, veh/h	966	
Approach Delay, s/veh	61.8	
Approach LOS	E	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	180	102	922	753	51
Future Vol, veh/h	13	180	102	922	753	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	14	196	111	1002	818	55

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1541	409	873	0	-	0
Stage 1	818	-	-	-	-	-
Stage 2	723	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	175	*799	1103	-	-	-
Stage 1	732	-	-	-	-	-
Stage 2	447	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	158	*799	1103	-	-	-
Mov Cap-2 Maneuver	158	-	-	-	-	-
Stage 1	658	-	-	-	-	-
Stage 2	447	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.3	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1103	-	158	799	-	-
HCM Lane V/C Ratio	0.101	-	0.089	0.245	-	-
HCM Control Delay (s)	8.6	-	30	11	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.3	1	-	-

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	86	166	45	78	97	47	10	33	272	122	6	54
Future Volume (veh/h)	86	166	45	78	97	47	10	33	272	122	6	54
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Work Zone On Approach		No			No				No			
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	100	193	52	91	113	55		38	316	0		63
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		0.86	0.86	0.86		0.86
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	129	237	64	118	301	255		414	1798			85
Arrive On Green	0.07	0.16	0.16	0.07	0.16	0.16		0.08	0.16	0.00		0.05
Sat Flow, veh/h	1810	1442	388	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	100	0	245	91	113	55		38	316	0		63
Grp Sat Flow(s),veh/h/ln	1810	0	1830	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	4.3	0.0	10.3	4.0	4.3	2.4		1.6	6.0	0.0		2.7
Cycle Q Clear(g_c), s	4.3	0.0	10.3	4.0	4.3	2.4		1.6	6.0	0.0		2.7
Prop In Lane	1.00		0.21	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	129	0	301	118	301	255		414	1798			85
V/C Ratio(X)	0.77	0.00	0.81	0.77	0.38	0.22		0.09	0.18			0.74
Avail Cap(c_a), veh/h	238	0	469	219	468	397		414	1798			215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		0.33	0.33	0.33		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	0.00		1.00
Uniform Delay (d), s/veh	36.5	0.0	32.2	36.8	30.1	29.3		29.2	19.3	0.0		37.6
Incr Delay (d2), s/veh	9.4	0.0	6.1	10.1	0.8	0.4		0.1	0.2	0.0		11.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	4.9	2.0	2.0	0.9		0.7	2.6	0.0		1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.9	0.0	38.4	46.9	30.9	29.8		29.3	19.5	0.0		49.4
LnGrp LOS	D	A	D	D	C	C		C	B			D
Approach Vol, veh/h		345			259				354	A		
Approach Delay, s/veh		40.5			36.3				20.6			
Approach LOS		D			D				C			

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	44.4	9.7	17.7	22.8	29.8	10.2	17.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.5	22.3	9.7	20.5	6.5	25.3	10.5	19.7
Max Q Clear Time (g_c+I1), s	4.7	8.0	6.0	12.3	3.6	14.2	6.3	6.3
Green Ext Time (p_c), s	0.0	1.7	0.1	0.8	0.0	3.1	0.1	0.6

Intersection Summary	
HCM 6th Ctrl Delay	30.7
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	472	90
Future Volume (veh/h)	472	90
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	549	105
Peak Hour Factor	0.86	0.86
Percent Heavy Veh, %	0	0
Cap, veh/h	957	182
Arrive On Green	0.32	0.32
Sat Flow, veh/h	3025	576
Grp Volume(v), veh/h	327	327
Grp Sat Flow(s),veh/h/ln	1805	1796
Q Serve(g_s), s	12.1	12.2
Cycle Q Clear(g_c), s	12.1	12.2
Prop In Lane		0.32
Lane Grp Cap(c), veh/h	571	568
V/C Ratio(X)	0.57	0.58
Avail Cap(c_a), veh/h	571	568
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	22.8	22.9
Incr Delay (d2), s/veh	4.1	4.2
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	5.6
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	27.0	27.1
LnGrp LOS	C	C
Approach Vol, veh/h	717	
Approach Delay, s/veh	29.0	
Approach LOS	C	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	0	0	29	0	0	18	5	31	419	32	16	18	543	22
Future Vol, veh/h	0	0	29	0	0	18	5	31	419	32	16	18	543	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	38	-	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	33	0	0	20	6	35	471	36	18	20	610	25

Major/Minor	Minor2			Minor1			Major1				Major2			
Conflicting Flow All	-	-	318	-	-	254	635	635	0	0	507	507	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*881	0	0	*920	1043	1241	-	-	1132	1326	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-
Mov Cap-1 Maneuver	-	-	*881	-	-	*920	1203	1203	-	-	1215	1215	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	9	0.6	0.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1203	-	-	881	920	1215	-	-
HCM Lane V/C Ratio	0.034	-	-	0.037	0.022	0.031	-	-
HCM Control Delay (s)	8.1	-	-	9.2	9	8.1	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0.1	-	-

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	7	95	648	138	5	159	458	68	120	325	127	2
Future Volume (veh/h)	7	95	648	138	5	159	458	68	120	325	127	2
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		109	745	159		183	526	78	138	374	146	
Peak Hour Factor		0.87	0.87	0.87		0.87	0.87	0.87	0.87	0.87	0.87	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		437	2002	621		227	1400	435	185	475	183	
Arrive On Green		0.24	0.39	0.39		0.04	0.09	0.09	0.10	0.19	0.19	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	2548	980	
Grp Volume(v), veh/h		109	745	159		183	526	78	138	263	257	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1724	
Q Serve(g_s), s		3.9	8.2	3.5		8.0	7.6	2.7	5.9	11.1	11.4	
Cycle Q Clear(g_c), s		3.9	8.2	3.5		8.0	7.6	2.7	5.9	11.1	11.4	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.57	
Lane Grp Cap(c), veh/h		437	2002	621		227	1400	435	185	337	322	
V/C Ratio(X)		0.25	0.37	0.26		0.81	0.38	0.18	0.75	0.78	0.80	
Avail Cap(c_a), veh/h		437	2002	621		328	1400	435	238	429	409	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh		24.5	17.6	7.1		37.4	30.1	15.5	34.9	31.0	31.1	
Incr Delay (d2), s/veh		0.3	0.5	1.0		9.1	0.8	0.9	9.1	7.1	8.4	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		1.7	3.2	2.0		4.3	3.4	1.5	3.0	5.3	5.3	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		24.8	18.1	8.1		46.5	30.9	16.4	44.0	38.1	39.5	
LnGrp LOS		C	B	A		D	C	B	D	D	D	
Approach Vol, veh/h			1013				787			658		
Approach Delay, s/veh			17.3				33.1			39.9		
Approach LOS			B				C			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.5	35.4	12.7	17.4	23.8	26.1	10.7	19.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	14.5	19.0	10.5	18.0	11.9	21.6	9.5	19.0
Max Q Clear Time (g_c+I1), s	10.0	10.2	7.9	11.1	5.9	9.6	6.7	13.4
Green Ext Time (p_c), s	0.2	3.7	0.1	1.8	0.1	3.0	0.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	28.9
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	96	396	55
Future Volume (veh/h)	96	396	55
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	110	455	63
Peak Hour Factor	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0
Cap, veh/h	139	583	260
Arrive On Green	0.15	0.32	0.32
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	110	455	63
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	4.7	9.1	2.3
Cycle Q Clear(g_c), s	4.7	9.1	2.3
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	139	583	260
V/C Ratio(X)	0.79	0.78	0.24
Avail Cap(c_a), veh/h	215	812	362
HCM Platoon Ratio	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	25.8	23.5
Incr Delay (d2), s/veh	10.3	3.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	3.5	0.9
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	43.5	29.1	24.0
LnGrp LOS	D	C	C
Approach Vol, veh/h		628	
Approach Delay, s/veh		31.1	
Approach LOS		C	
Timer - Assigned Phs			

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	0	0	94	0	0	55	117	517	110	1	44	630	19
Future Vol, veh/h	0	0	94	0	0	55	117	517	110	1	44	630	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	95	-	70	-	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	116	0	0	68	144	638	136	1	54	778	23

Major/Minor	Minor2			Minor1			Major1			Major2			
Conflicting Flow All	-	-	389	-	-	319	801	0	0	638	774	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*842	0	0	683	1111	-	-	573	851	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-
Platoon blocked, %			1				1	-	-			-	-
Mov Cap-1 Maneuver	-	-	*842	-	-	683	1111	-	-	840	840	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	10.9	1.4	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1111	-	-	842	683	840	-	-
HCM Lane V/C Ratio	0.13	-	-	0.138	0.099	0.066	-	-
HCM Control Delay (s)	8.7	-	-	10	10.9	9.6	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0.5	0.3	0.2	-	-

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

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: D[25.4]

Street Name:	Mall Driveway 2 - Pepperwood Lane						Olive Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 3 0 1			1 0 3 1 0		
Volume Module: >> Count Date: 5 Jun 2018 <<												
Base Vol:	8	3	56	5	1	5	21	844	14	27	671	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	3	56	5	1	5	21	844	14	27	671	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
PHF Volume:	9	3	62	6	1	6	23	931	15	30	740	7
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	9	3	62	6	1	6	23	931	15	30	740	7
Critical Gap Module:												
Critical Gp:	7.5	6.5	6.9	7.5	6.5	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1222	1783	310	1161	1795	188	746	xxxx	xxxxx	946	xxxx	xxxxx
Potent Cap.:	138	83	692	153	81	828	871	xxxx	xxxxx	734	xxxx	xxxxx
Move Cap.:	129	77	692	128	76	828	871	xxxx	xxxxx	734	xxxx	xxxxx
Volume/Cap:	0.07	0.04	0.09	0.04	0.01	0.01	0.03	xxxx	xxxx	0.04	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.2	xxxx	xxxxx	10.1	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	B	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	368	xxxxx	xxxx	189	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.7	xxxxx	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	17.2	xxxxx	xxxxx	25.4	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	D	*	*	*	*	*	*	*
ApproachDel:		17.2			25.4		xxxxxx			xxxxxx		
ApproachLOS:		C			D		*			*		

Note: Queue reported is the number of cars per lane.

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Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												

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Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	324	21	27	216	6	6	0	28	4	0	6
Future Vol, veh/h	1	324	21	27	216	6	6	0	28	4	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	50	50	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	421	27	35	281	8	8	0	36	5	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	289	0	0	448	0	0	782	782	421	806	801	281
Stage 1	-	-	-	-	-	-	423	423	-	351	351	-
Stage 2	-	-	-	-	-	-	359	359	-	455	450	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1308	-	-	1123	-	-	325	330	637	311	320	857
Stage 1	-	-	-	-	-	-	613	591	-	733	663	-
Stage 2	-	-	-	-	-	-	724	657	-	589	575	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	1308	-	-	1123	-	-	315	320	637	286	310	857
Mov Cap-2 Maneuver	-	-	-	-	-	-	315	320	-	286	310	-
Stage 1	-	-	-	-	-	-	612	590	-	732	642	-
Stage 2	-	-	-	-	-	-	695	636	-	555	574	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.9	12.3	12.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	540	1308	-	-	1123	-	-	476
HCM Lane V/C Ratio	0.082	0.001	-	-	0.031	-	-	0.027
HCM Control Delay (s)	12.3	7.8	-	-	8.3	-	-	12.8
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.1

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: B[10.5]

Street Name:	Mall Driveway 4 - Applewood Lane									Olive Avenue								
Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	0	1	0	0	0	0	1	1	0	3	0	1	1	0	3	1	0
Volume Module:																				
Base Vol:	0	0	29	0	0	7	46	858	18	45	680	20								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	0	0	29	0	0	7	46	858	18	45	680	20								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90								
PHF Volume:	0	0	32	0	0	8	51	955	20	50	757	22								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	0	0	32	0	0	8	51	955	20	50	757	22								
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	6.9	xxxxx	xxxx	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	xxxxx	xxxx	3.3	xxxxx	xxxx	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	318	xxxx	xxxx	200	780	xxxx	xxxxx	976	xxxx	xxxxx								
Potent Cap.:	xxxx	xxxx	683	xxxx	xxxx	813	847	xxxx	xxxxx	715	xxxx	xxxxx								
Move Cap.:	xxxx	xxxx	683	xxxx	xxxx	813	847	xxxx	xxxxx	715	xxxx	xxxxx								
Volume/Cap:	xxxx	xxxx	0.05	xxxx	xxxx	0.01	0.06	xxxx	xxxx	0.07	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	0.1	xxxx	xxxx	0.0	0.2	xxxx	xxxxx	0.2	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	10.5	xxxxx	xxxx	9.5	9.5	xxxx	xxxxx	10.4	xxxx	xxxxx								
LOS by Move:	*	*	B	*	*	A	A	*	*	B	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*								
ApproachDel:	10.5			9.5			xxxxxx			xxxxxx										
ApproachLOS:	B			A			*			*										

Note: Queue reported is the number of cars per lane.

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

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		

Time Period: 0.25 hour

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	143	77	120	45	67	104	1	99	464	14	110	648	116
Future Volume (veh/h)	143	77	120	45	67	104	1	99	464	14	110	648	116
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No				No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	188	101	158	59	88	137		130	611	18	145	853	153
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76		0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0	0	0	0
Cap, veh/h	227	247	209	280	107	166		397	1110	33	552	1032	185
Arrive On Green	0.13	0.13	0.13	0.15	0.16	0.16		0.15	0.31	0.31	0.18	0.34	0.34
Sat Flow, veh/h	1810	1900	1610	1810	670	1043		1810	3581	105	1810	3058	548
Grp Volume(v), veh/h	188	101	158	59	0	225		130	308	321	145	504	502
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1712		1810	1805	1881	1810	1805	1801
Q Serve(g_s), s	8.1	3.9	7.6	2.3	0.0	10.2		0.0	11.3	11.4	0.0	20.5	20.5
Cycle Q Clear(g_c), s	8.1	3.9	7.6	2.3	0.0	10.2		0.0	11.3	11.4	0.0	20.5	20.5
Prop In Lane	1.00		1.00	1.00		0.61		1.00		0.06	1.00		0.30
Lane Grp Cap(c), veh/h	227	247	209	280	0	273		397	560	583	552	609	608
V/C Ratio(X)	0.83	0.41	0.75	0.21	0.00	0.82		0.33	0.55	0.55	0.26	0.83	0.83
Avail Cap(c_a), veh/h	260	534	453	280	0	385		397	560	583	552	609	608
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.1	32.0	33.6	29.5	0.0	32.5		28.2	23.0	23.0	20.7	24.3	24.3
Incr Delay (d2), s/veh	17.7	1.1	5.4	0.4	0.0	9.5		0.5	3.9	3.7	0.3	12.2	12.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	1.8	3.2	1.0	0.0	4.8		2.1	5.2	5.4	2.1	10.3	10.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	51.8	33.1	39.0	29.9	0.0	42.0		28.7	26.8	26.7	21.0	36.5	36.6
LnGrp LOS	D	C	D	C	A	D		C	C	C	C	D	D
Approach Vol, veh/h		447			284				759			1151	
Approach Delay, s/veh		43.1			39.5				27.1			34.6	
Approach LOS		D			D				C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.9	29.3	16.9	14.9	16.7	31.5	14.5	17.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.3	24.8	7.0	22.5	5.5	27.0	11.5	18.0
Max Q Clear Time (g_c+I1), s	12.0	13.4	4.3	9.6	2.0	22.5	10.1	12.2
Green Ext Time (p_c), s	0.2	3.0	0.0	0.8	0.1	2.5	0.1	0.6

Intersection Summary	
HCM 6th Ctrl Delay	34.4
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	0.7

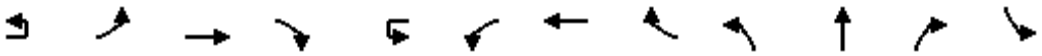
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	49	0	0	50	0	575	46	0	751	48
Future Vol, veh/h	0	0	49	0	0	50	0	575	46	0	751	48
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	66	0	0	68	0	777	62	0	1015	65

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	540	-	-	420	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	*746	0	0	588	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %			1					-	-		-	-
Mov Cap-1 Maneuver	-	-	*746	-	-	588	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.3	11.9	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	746	588	-	-
HCM Lane V/C Ratio	-	-	0.089	0.115	-	-
HCM Control Delay (s)	-	-	10.3	11.9	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.3	0.4	-	-

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



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	11	112	574	162	30	150	553	81	128	417	104	185
Future Volume (veh/h)	11	112	574	162	30	150	553	81	128	417	104	185
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		132	675	191		176	651	95	151	491	122	218
Peak Hour Factor		0.85	0.85	0.85		0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		168	1232	382		347	1540	222	197	584	144	257
Arrive On Green		0.03	0.08	0.08		0.19	0.34	0.34	0.11	0.20	0.20	0.14
Sat Flow, veh/h		1810	5187	1610		1810	4579	661	1810	2869	709	1810
Grp Volume(v), veh/h		132	675	191		176	490	256	151	308	305	218
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1781	1810	1805	1772	1810
Q Serve(g_s), s		5.8	10.0	9.1		7.0	8.8	8.9	6.5	13.1	13.3	9.4
Cycle Q Clear(g_c), s		5.8	10.0	9.1		7.0	8.8	8.9	6.5	13.1	13.3	9.4
Prop In Lane		1.00		1.00		1.00		0.37	1.00		0.40	1.00
Lane Grp Cap(c), veh/h		168	1232	382		347	1163	599	197	367	361	257
V/C Ratio(X)		0.78	0.55	0.50		0.51	0.42	0.43	0.77	0.84	0.85	0.85
Avail Cap(c_a), veh/h		222	1232	382		347	1163	599	204	406	399	283
HCM Platoon Ratio		0.33	0.33	0.33		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		38.0	32.7	32.3		28.9	20.5	20.6	34.7	30.6	30.7	33.5
Incr Delay (d2), s/veh		12.6	1.8	4.6		1.2	1.1	2.2	15.6	13.3	14.4	19.4
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.2	4.7	4.3		3.1	3.6	3.9	3.6	6.9	6.9	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		50.6	34.5	36.9		30.1	21.6	22.8	50.2	44.0	45.0	52.8
LnGrp LOS		D	C	D		C	C	C	D	D	D	D
Approach Vol, veh/h			998				922			764		
Approach Delay, s/veh			37.1				23.6			45.6		
Approach LOS			D				C			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.8	23.5	13.2	23.4	11.9	31.4	15.9	20.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.5	19.0	9.0	21.5	9.8	21.7	12.5	18.0
Max Q Clear Time (g_c+I1), s	9.0	12.0	8.5	17.2	7.8	10.9	11.4	15.3
Green Ext Time (p_c), s	0.1	3.0	0.0	1.8	0.1	3.6	0.1	1.0

Intersection Summary	
HCM 6th Ctrl Delay	37.0
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	554	61
Future Volume (veh/h)	554	61
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	652	72
Peak Hour Factor	0.85	0.85
Percent Heavy Veh, %	0	0
Cap, veh/h	776	86
Arrive On Green	0.24	0.24
Sat Flow, veh/h	3278	362
Grp Volume(v), veh/h	359	365
Grp Sat Flow(s),veh/h/ln	1805	1835
Q Serve(g_s), s	15.1	15.2
Cycle Q Clear(g_c), s	15.1	15.2
Prop In Lane		0.20
Lane Grp Cap(c), veh/h	427	435
V/C Ratio(X)	0.84	0.84
Avail Cap(c_a), veh/h	485	493
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	29.1	29.1
Incr Delay (d2), s/veh	11.2	11.2
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	7.8
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	40.3	40.3
LnGrp LOS	D	D
Approach Vol, veh/h	942	
Approach Delay, s/veh	43.2	
Approach LOS	D	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	67	68	638	819	41
Future Vol, veh/h	7	67	68	638	819	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	8	81	82	769	987	49

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1536	494	1036	0	-	0
Stage 1	987	-	-	-	-	-
Stage 2	549	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	194	*763	972	-	-	-
Stage 1	624	-	-	-	-	-
Stage 2	548	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	178	*763	972	-	-	-
Mov Cap-2 Maneuver	178	-	-	-	-	-
Stage 1	571	-	-	-	-	-
Stage 2	548	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.8	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	972	-	178	763	-	-
HCM Lane V/C Ratio	0.084	-	0.047	0.106	-	-
HCM Control Delay (s)	9	-	26.2	10.3	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.1	0.4	-	-

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	102	127	35	104	173	78	29	91	547	135	4	45
Future Volume (veh/h)	102	127	35	104	173	78	29	91	547	135	4	45
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Work Zone On Approach		No			No				No			
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	113	141	39	116	192	87		101	608	0		50
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90		0.90	0.90	0.90		0.90
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	145	183	51	156	254	215		575	1196			416
Arrive On Green	0.08	0.13	0.13	0.09	0.13	0.13		0.21	0.22	0.00		0.23
Sat Flow, veh/h	1810	1432	396	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	113	0	180	116	192	87		101	608	0		50
Grp Sat Flow(s),veh/h/ln	1810	0	1829	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	4.9	0.0	7.6	5.0	7.8	2.4		3.7	11.8	0.0		1.8
Cycle Q Clear(g_c), s	4.9	0.0	7.6	5.0	7.8	2.4		3.7	11.8	0.0		1.8
Prop In Lane	1.00		0.22	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	145	0	233	156	254	215		575	1196			416
V/C Ratio(X)	0.78	0.00	0.77	0.74	0.76	0.40		0.18	0.51			0.12
Avail Cap(c_a), veh/h	238	0	423	253	456	386		575	1196			416
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		0.67	0.67	0.67		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	0.00		1.00
Uniform Delay (d), s/veh	36.1	0.0	33.8	35.7	33.4	11.6		22.9	25.4	0.0		24.4
Incr Delay (d2), s/veh	8.7	0.0	5.4	6.8	4.6	1.2		0.1	1.5	0.0		0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	3.6	2.5	3.8	1.5		1.6	5.5	0.0		0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.8	0.0	39.1	42.5	38.0	12.8		23.1	27.0	0.0		24.5
LnGrp LOS	D	A	D	D	D	B		C	C			C
Approach Vol, veh/h		293			395				709	A		
Approach Delay, s/veh		41.3			33.8				26.4			
Approach LOS		D			C				C			

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.9	31.0	11.4	14.7	29.9	24.0	10.9	15.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.8	26.5	11.2	18.5	12.8	19.5	10.5	19.2
Max Q Clear Time (g_c+I1), s	3.8	13.8	7.0	9.6	5.7	12.3	6.9	9.8
Green Ext Time (p_c), s	0.0	3.3	0.1	0.6	0.1	1.8	0.1	0.9

Intersection Summary	
HCM 6th Ctrl Delay	31.7
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	378	87
Future Volume (veh/h)	378	87
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	420	97
Peak Hour Factor	0.90	0.90
Percent Heavy Veh, %	0	0
Cap, veh/h	711	163
Arrive On Green	0.24	0.24
Sat Flow, veh/h	2917	668
Grp Volume(v), veh/h	259	258
Grp Sat Flow(s),veh/h/ln	1805	1780
Q Serve(g_s), s	10.1	10.3
Cycle Q Clear(g_c), s	10.1	10.3
Prop In Lane		0.38
Lane Grp Cap(c), veh/h	440	434
V/C Ratio(X)	0.59	0.60
Avail Cap(c_a), veh/h	440	434
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	26.7	26.8
Incr Delay (d2), s/veh	5.7	5.9
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	4.9
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	32.4	32.7
LnGrp LOS	C	C
Approach Vol, veh/h	567	
Approach Delay, s/veh	31.8	
Approach LOS	C	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	0	0	125	0	0	100	12	82	701	114	44	58	457	29
Future Vol, veh/h	0	0	125	0	0	100	12	82	701	114	44	58	457	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	137	0	0	110	13	90	770	125	48	64	502	32

Major/Minor	Minor2			Minor1			Major1				Major2				
Conflicting Flow All	-	-	267	-	-	448	534	534	0	0	896	895	0	0	
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-	
Pot Cap-1 Maneuver	0	0	*920	0	0	*803	1081	1291	-	-	862	1069	-	-	
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-	
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-	
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-	
Mov Cap-1 Maneuver	-	-	*920	-	-	*803	1231	1231	-	-	906	906	-	-	
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.6	10.2	0.8	1.7
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1231	-	-	920	803	906	-	-
HCM Lane V/C Ratio	0.084	-	-	0.149	0.137	0.124	-	-
HCM Control Delay (s)	8.2	-	-	9.6	10.2	9.5	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.5	0.5	0.4	-	-

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	22	190	782	187	14	237	851	144	293	570	111	6
Future Volume (veh/h)	22	190	782	187	14	237	851	144	293	570	111	6
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		198	815	195		247	886	150	305	594	116	
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		365	1525	474		274	1264	392	343	719	140	
Arrive On Green		0.20	0.29	0.29		0.05	0.08	0.08	0.19	0.24	0.24	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	3012	587	
Grp Volume(v), veh/h		198	815	195		247	886	150	305	355	355	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1794	
Q Serve(g_s), s		7.8	10.5	4.5		10.9	13.3	5.2	13.1	14.9	15.0	
Cycle Q Clear(g_c), s		7.8	10.5	4.5		10.9	13.3	5.2	13.1	14.9	15.0	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.33	
Lane Grp Cap(c), veh/h		365	1525	474		274	1264	392	343	431	428	
V/C Ratio(X)		0.54	0.53	0.41		0.90	0.70	0.38	0.89	0.83	0.83	
Avail Cap(c_a), veh/h		365	1525	474		274	1264	392	343	505	502	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh		28.6	23.6	7.4		37.4	33.9	16.6	31.6	28.9	28.9	
Incr Delay (d2), s/veh		1.6	1.3	2.6		30.4	3.3	2.8	23.7	9.4	9.7	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		3.5	4.3	3.0		7.5	6.5	3.1	7.8	7.3	7.4	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		30.3	25.0	10.1		67.9	37.2	19.4	55.3	38.3	38.6	
LnGrp LOS		C	C	B		E	D	B	E	D	D	
Approach Vol, veh/h			1208				1283			1015		
Approach Delay, s/veh			23.4				41.0			43.5		
Approach LOS			C				D			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.6	28.0	19.7	15.7	20.6	24.0	11.8	23.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.1	18.0	13.4	18.5	10.6	19.5	9.5	22.4
Max Q Clear Time (g_c+I1), s	12.9	12.5	15.1	9.3	9.8	15.3	7.6	17.0
Green Ext Time (p_c), s	0.0	2.9	0.0	1.9	0.0	2.4	0.1	2.1

Intersection Summary	
HCM 6th Ctrl Delay	35.3
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	128	352	111
Future Volume (veh/h)	128	352	111
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	133	367	116
Peak Hour Factor	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0
Cap, veh/h	165	506	226
Arrive On Green	0.18	0.28	0.28
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	133	367	116
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	5.6	7.3	4.8
Cycle Q Clear(g_c), s	5.6	7.3	4.8
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	165	506	226
V/C Ratio(X)	0.81	0.72	0.51
Avail Cap(c_a), veh/h	215	835	372
HCM Platoon Ratio	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	27.4	26.5
Incr Delay (d2), s/veh	15.5	2.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	2.9	1.8
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	47.6	29.4	28.3
LnGrp LOS	D	C	C
Approach Vol, veh/h		616	
Approach Delay, s/veh		33.1	
Approach LOS		C	
Timer - Assigned Phs			

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	319	0	0	181	249	806	116	43	675	37
Future Vol, veh/h	0	0	319	0	0	181	249	806	116	43	675	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	95	-	70	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	332	0	0	189	259	840	121	45	703	39

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	352	-	-	420	742	0	0	961	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	*803	0	0	588	*1205	-	-	724	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1				1	-	-		-	-
Mov Cap-1 Maneuver	-	-	*803	-	-	588	*1205	-	-	724	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.6	14	1.9	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 1205	-	-	803	588	724	-	-
HCM Lane V/C Ratio	0.215	-	-	0.414	0.321	0.062	-	-
HCM Control Delay (s)	8.8	-	-	12.6	14	10.3	-	-
HCM Lane LOS	A	-	-	B	B	B	-	-
HCM 95th %tile Q(veh)	0.8	-	-	2	1.4	0.2	-	-

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

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 11.1 Worst Case Level Of Service: F[121.0]

Street Name:	Mall Driveway 2 - Pepperwood Lane						Olive Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 1!	0	0	1 0 3	0	1	1 0 3	1	0
Volume Module: >> Count Date: 5 Jun 2018 <<												
Base Vol:	22	5	97	14	3	88	79	960	37	56	1124	27
Growth Adj:	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00
Initial Bse:	22	5	97	14	3	88	79	960	37	56	1124	27
User Adj:	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00
PHF Adj:	0.94 0.94	0.94	0.94	0.94 0.94	0.94	0.94	0.94 0.94	0.94	0.94	0.94 0.94	0.94	0.94
PHF Volume:	24	5	104	15	3	94	84	1026	40	60	1201	29
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	24	5	104	15	3	94	84	1026	40	60	1201	29
Critical Gap Module:												
Critical Gp:	7.5	6.5	6.9	7.5	6.5	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1616	2544	342	1848	2569	315	1230	xxxx	xxxxx	1065	xxxx	xxxxx
Potent Cap.:	70	27	660	47	26	687	574	xxxx	xxxxx	662	xxxx	xxxxx
Move Cap.:	44	21	660	27	20	687	574	xxxx	xxxxx	662	xxxx	xxxxx
Volume/Cap:	0.53	0.25	0.16	0.56	0.16	0.14	0.15	xxxx	xxxx	0.09	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.5	xxxx	xxxxx	0.3	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	12.4	xxxx	xxxxx	11.0	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	B	*	*	B	*	*
Movement:	LT - LTR	-	RT	LT - LTR	-	RT	LT - LTR	-	RT	LT - LTR	-	RT
Shared Cap.:	xxxx	141	xxxxx	xxxx	131	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	6.5	xxxxx	xxxxx	5.4	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	121	xxxxx	xxxxx	107	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	F	*	*	F	*	*	*	*	*	*	*
ApproachDel:	121.0			107.2			xxxxxx			xxxxxx		
ApproachLOS:	F			F			*			*		

Note: Queue reported is the number of cars per lane.

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Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		

Time Period: 0.25 hour

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Intersection	
Int Delay, s/veh	2.7

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	1	10	332	29	41	320	10	35	1	85	9	1	2
Future Vol, veh/h	1	10	332	29	41	320	10	35	1	85	9	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	50	-	50	50	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	11	365	32	45	352	11	38	1	93	10	1	2

Major/Minor	Major1				Major2			Minor1			Minor2		
Conflicting Flow All	-	363	0	0	397	0	0	836	842	365	892	863	352
Stage 1	-	-	-	-	-	-	-	387	389	-	442	442	-
Stage 2	-	-	-	-	-	-	-	449	453	-	450	421	-
Critical Hdwy	-	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	-	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	-	1235	-	-	1173	-	-	302	302	685	270	292	827
Stage 1	-	-	-	-	-	-	-	641	612	-	678	612	-
Stage 2	-	-	-	-	-	-	-	670	603	-	592	592	-
Platoon blocked, %		1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	~ -11	~ -11	-	-	1173	-	-	291	291	685	226	281	827
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	291	291	-	226	281	-
Stage 1	-	-	-	-	-	-	-	641	612	-	678	588	-
Stage 2	-	-	-	-	-	-	-	642	580	-	510	592	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		0.9	15.1	19.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	488	+	-	-	1173	-	-	262
HCM Lane V/C Ratio	0.272	-	-	-	0.038	-	-	0.05
HCM Control Delay (s)	15.1	-	-	-	8.2	-	-	19.5
HCM Lane LOS	C	-	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.1	-	-	-	0.1	-	-	0.2

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

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 1.5 Worst Case Level Of Service: B[12.7]

Street Name:	Mall Driveway 4 - Applewood Lane									Olive Avenue								
Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	0	1	0	0	0	0	1	1	0	3	0	1	1	0	3	1	0
Volume Module:																				
Base Vol:	0	0	62			0	0	81			108	1042	41			77	1077	90		
Growth Adj:	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00		
Initial Bse:	0	0	62			0	0	81			108	1042	41			77	1077	90		
User Adj:	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00		
PHF Adj:	0.96	0.96	0.96			0.96	0.96	0.96			0.96	0.96	0.96			0.96	0.96	0.96		
PHF Volume:	0	0	65			0	0	85			113	1088	43			80	1124	94		
Reduct Vol:	0	0	0			0	0	0			0	0	0			0	0	0		
FinalVolume:	0	0	65			0	0	85			113	1088	43			80	1124	94		
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	6.9			xxxxx	xxxx	6.9			4.1	xxxx	xxxxx			4.1	xxxx	xxxxx		
FollowUpTim:	xxxxx	xxxx	3.3			xxxxx	xxxx	3.3			2.2	xxxx	xxxxx			2.2	xxxx	xxxxx		
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	363			xxxx	xxxx	328			1218	xxxx	xxxxx			1130	xxxx	xxxxx		
Potent Cap.:	xxxx	xxxx	640			xxxx	xxxx	674			579	xxxx	xxxxx			625	xxxx	xxxxx		
Move Cap.:	xxxx	xxxx	640			xxxx	xxxx	674			579	xxxx	xxxxx			625	xxxx	xxxxx		
Volume/Cap:	xxxx	xxxx	0.10			xxxx	xxxx	0.13			0.19	xxxx	xxxx			0.13	xxxx	xxxx		
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	0.3			xxxx	xxxx	0.4			0.7	xxxx	xxxxx			0.4	xxxx	xxxxx		
Control Del:	xxxxx	xxxx	11.3			xxxxx	xxxx	11.1			12.7	xxxx	xxxxx			11.6	xxxx	xxxxx		
LOS by Move:	*	*	B			*	*	B			B	*	*			B	*	*		
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx		
SharedQueue:	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shrd ConDel:	xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx			xxxxx	xxxx	xxxxx		
Shared LOS:	*	*	*			*	*	*			*	*	*			*	*	*		
ApproachDel:	11.3					11.1					xxxxxx					xxxxxx				
ApproachLOS:	B					B					*					*				

Note: Queue reported is the number of cars per lane.

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

****

Intersection #2 Intersection 7

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		

Pedestrian Walk Speed: 4.00 feet/sec

LaneWidth:	12 feet	12 feet	12 feet	12 feet

Time Period: 0.25 hour

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	237	31	196	44	80	110	1	137	499	16	27	467	150
Future Volume (veh/h)	237	31	196	44	80	110	1	137	499	16	27	467	150
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No				No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	272	36	225	51	92	126		157	574	18	31	537	172
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87		0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0	0	0	0
Cap, veh/h	314	323	274	287	113	154		492	1005	31	483	673	215
Arrive On Green	0.17	0.17	0.17	0.16	0.16	0.16		0.20	0.28	0.28	0.17	0.25	0.25
Sat Flow, veh/h	1810	1900	1610	1810	726	995		1810	3573	112	1810	2692	859
Grp Volume(v), veh/h	272	36	225	51	0	218		157	290	302	31	359	350
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1721		1810	1805	1880	1810	1805	1745
Q Serve(g_s), s	11.7	1.3	10.8	2.0	0.0	9.8		0.0	11.0	11.0	0.0	14.9	15.0
Cycle Q Clear(g_c), s	11.7	1.3	10.8	2.0	0.0	9.8		0.0	11.0	11.0	0.0	14.9	15.0
Prop In Lane	1.00		1.00	1.00		0.58		1.00		0.06	1.00		0.49
Lane Grp Cap(c), veh/h	314	323	274	287	0	267		492	508	529	483	451	436
V/C Ratio(X)	0.87	0.11	0.82	0.18	0.00	0.82		0.32	0.57	0.57	0.06	0.80	0.80
Avail Cap(c_a), veh/h	373	667	566	287	0	387		492	508	529	483	451	436
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	28.1	32.0	29.1	0.0	32.7		25.1	24.6	24.6	21.7	28.1	28.1
Incr Delay (d2), s/veh	16.6	0.2	6.1	0.3	0.0	8.6		0.4	4.6	4.4	0.1	13.6	14.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	0.6	4.5	0.9	0.0	4.6		2.4	5.2	5.4	0.4	7.9	7.8
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	48.8	28.2	38.2	29.4	0.0	41.3		25.5	29.2	29.1	21.7	41.7	42.5
LnGrp LOS	D	C	D	C	A	D		C	C	C	C	D	D
Approach Vol, veh/h		533			269				749			740	
Approach Delay, s/veh		42.9			39.0				28.4			41.2	
Approach LOS		D			D				C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	27.0	17.2	18.1	20.2	24.5	18.4	16.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.3	22.5	6.4	28.1	7.5	20.0	16.5	18.0
Max Q Clear Time (g_c+I1), s	2.0	13.0	4.0	12.8	2.0	17.0	13.7	11.8
Green Ext Time (p_c), s	0.0	2.5	0.0	0.8	0.2	1.3	0.2	0.6

Intersection Summary	
HCM 6th Ctrl Delay	37.2
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	131	0	0	43	0	647	35	0	773	65
Future Vol, veh/h	0	0	131	0	0	43	0	647	35	0	773	65
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	149	0	0	49	0	735	40	0	878	74

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	476	-	-	388	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	*746	0	0	616	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %			1					-	-		-	-
Mov Cap-1 Maneuver	-	-	*746	-	-	616	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11	11.3	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	746	616	-	-
HCM Lane V/C Ratio	-	-	0.2	0.079	-	-
HCM Control Delay (s)	-	-	11	11.3	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.7	0.3	-	-

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	33	99	768	141	31	137	817	58	315	492	119	293
Future Volume (veh/h)	33	99	768	141	31	137	817	58	315	492	119	293
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		104	808	148		144	860	61	332	518	125	308
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		134	1180	366		244	1424	101	369	640	154	346
Arrive On Green		0.02	0.08	0.08		0.13	0.29	0.29	0.20	0.22	0.22	0.19
Sat Flow, veh/h		1810	5187	1610		1810	4945	350	1810	2887	693	1810
Grp Volume(v), veh/h		104	808	148		144	601	320	332	323	320	308
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1837	1810	1805	1775	1810
Q Serve(g_s), s		4.6	12.2	7.0		6.0	12.0	12.0	14.3	13.6	13.7	13.3
Cycle Q Clear(g_c), s		4.6	12.2	7.0		6.0	12.0	12.0	14.3	13.6	13.7	13.3
Prop In Lane		1.00		1.00		1.00		0.19	1.00		0.39	1.00
Lane Grp Cap(c), veh/h		134	1180	366		244	996	529	369	400	394	346
V/C Ratio(X)		0.77	0.68	0.40		0.59	0.60	0.61	0.90	0.81	0.81	0.89
Avail Cap(c_a), veh/h		170	1180	366		244	996	529	375	431	424	351
HCM Platoon Ratio		0.33	0.33	0.33		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		38.4	34.2	31.8		32.5	24.5	24.6	31.0	29.5	29.6	31.5
Incr Delay (d2), s/veh		15.7	3.2	3.3		3.7	2.7	5.1	23.4	10.2	10.9	23.3
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.6	5.9	3.2		2.8	5.1	5.8	8.4	6.8	6.8	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		54.0	37.4	35.1		36.3	27.2	29.6	54.4	39.7	40.4	54.9
LnGrp LOS		D	D	D		D	C	C	D	D	D	D
Approach Vol, veh/h			1060				1065			975		
Approach Delay, s/veh			38.7				29.2			45.0		
Approach LOS			D				C			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.3	22.7	20.8	21.2	10.4	27.5	19.8	22.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.2	18.2	16.6	18.0	7.5	19.9	15.5	19.1
Max Q Clear Time (g_c+I1), s	8.0	14.2	16.3	15.8	6.6	14.0	15.3	15.7
Green Ext Time (p_c), s	0.0	2.2	0.0	0.9	0.0	2.9	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	40.1
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	513	98
Future Volume (veh/h)	513	98
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	540	103
Peak Hour Factor	0.95	0.95
Percent Heavy Veh, %	0	0
Cap, veh/h	631	120
Arrive On Green	0.21	0.21
Sat Flow, veh/h	3026	575
Grp Volume(v), veh/h	321	322
Grp Sat Flow(s),veh/h/ln	1805	1796
Q Serve(g_s), s	13.7	13.8
Cycle Q Clear(g_c), s	13.7	13.8
Prop In Lane		0.32
Lane Grp Cap(c), veh/h	377	375
V/C Ratio(X)	0.85	0.86
Avail Cap(c_a), veh/h	406	404
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	30.5	30.5
Incr Delay (d2), s/veh	15.2	15.9
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	7.4
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	45.7	46.4
LnGrp LOS	D	D
Approach Vol, veh/h	951	
Approach Delay, s/veh	48.9	
Approach LOS	D	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	180	102	910	739	51
Future Vol, veh/h	13	180	102	910	739	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	14	196	111	989	803	55

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1520	402	858	0	-	0
Stage 1	803	-	-	-	-	-
Stage 2	717	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	181	*803	1115	-	-	-
Stage 1	742	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	163	*803	1115	-	-	-
Mov Cap-2 Maneuver	163	-	-	-	-	-
Stage 1	668	-	-	-	-	-
Stage 2	450	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.1	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1115	-	163	803	-	-
HCM Lane V/C Ratio	0.099	-	0.087	0.244	-	-
HCM Control Delay (s)	8.6	-	29.2	10.9	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.3	1	-	-

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	90	176	47	82	104	55	10	35	287	128	6	69
Future Volume (veh/h)	90	176	47	82	104	55	10	35	287	128	6	69
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Work Zone On Approach		No			No				No			
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	105	205	55	95	121	64		41	334	0		80
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		0.86	0.86	0.86		0.86
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	135	249	67	123	315	267		395	1011			460
Arrive On Green	0.07	0.17	0.17	0.07	0.17	0.17		0.15	0.19	0.00		0.25
Sat Flow, veh/h	1810	1443	387	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	105	0	260	95	121	64		41	334	0		80
Grp Sat Flow(s),veh/h/ln	1810	0	1830	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	4.6	0.0	11.0	4.1	4.5	1.5		1.6	6.4	0.0		2.8
Cycle Q Clear(g_c), s	4.6	0.0	11.0	4.1	4.5	1.5		1.6	6.4	0.0		2.8
Prop In Lane	1.00		0.21	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	135	0	316	123	315	267		395	1011			460
V/C Ratio(X)	0.77	0.00	0.82	0.77	0.38	0.24		0.10	0.33			0.17
Avail Cap(c_a), veh/h	238	0	469	219	468	397		395	1011			460
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		0.67	0.67	0.67		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	0.00		1.00
Uniform Delay (d), s/veh	36.3	0.0	31.9	36.7	29.7	9.1		27.4	26.0	0.0		23.3
Incr Delay (d2), s/veh	9.1	0.0	7.3	9.8	0.8	0.5		0.1	0.9	0.0		0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	5.3	2.1	2.1	1.1		0.7	2.9	0.0		1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.4	0.0	39.2	46.4	30.5	9.6		27.5	26.9	0.0		23.4
LnGrp LOS	D	A	D	D	C	A		C	C			C
Approach Vol, veh/h		365			280				375	A		
Approach Delay, s/veh		41.0			31.1				26.9			
Approach LOS		D			C				C			

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.9	26.9	9.9	18.3	22.0	29.8	10.5	17.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.4	22.4	9.7	20.5	6.5	25.3	10.5	19.7
Max Q Clear Time (g_c+I1), s	4.8	8.4	6.1	13.0	3.6	15.2	6.6	6.5
Green Ext Time (p_c), s	0.1	1.8	0.1	0.8	0.0	3.1	0.1	0.6

Intersection Summary	
HCM 6th Ctrl Delay	30.7
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	506	95
Future Volume (veh/h)	506	95
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	588	110
Peak Hour Factor	0.86	0.86
Percent Heavy Veh, %	0	0
Cap, veh/h	960	179
Arrive On Green	0.32	0.32
Sat Flow, veh/h	3036	567
Grp Volume(v), veh/h	349	349
Grp Sat Flow(s),veh/h/ln	1805	1798
Q Serve(g_s), s	13.1	13.2
Cycle Q Clear(g_c), s	13.1	13.2
Prop In Lane		0.32
Lane Grp Cap(c), veh/h	571	569
V/C Ratio(X)	0.61	0.61
Avail Cap(c_a), veh/h	571	569
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	23.2	23.2
Incr Delay (d2), s/veh	4.8	4.9
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	6.1
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	28.0	28.1
LnGrp LOS	C	C
Approach Vol, veh/h	778	
Approach Delay, s/veh	27.6	
Approach LOS	C	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	0	0	30	0	0	17	5	33	444	34	16	19	582	23
Future Vol, veh/h	0	0	30	0	0	17	5	33	444	34	16	19	582	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	34	0	0	19	6	37	499	38	18	21	654	26

Major/Minor	Minor2		Minor1			Major1					Major2			
Conflicting Flow All	-	-	340	-	-	269	680	680	0	0	537	537	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*881	0	0	*920	963	1185	-	-	1076	1287	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-
Mov Cap-1 Maneuver	-	-	*881	-	-	*920	1144	1144	-	-	1170	1170	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	9	0.6	0.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1144	-	-	881	920	1170	-	-
HCM Lane V/C Ratio	0.037	-	-	0.038	0.021	0.034	-	-
HCM Control Delay (s)	8.3	-	-	9.2	9	8.2	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0.1	-	-

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	7	102	685	146	5	175	487	73	127	341	141	2
Future Volume (veh/h)	7	102	685	146	5	175	487	73	127	341	141	2
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		117	787	168		201	560	84	146	392	162	
Peak Hour Factor		0.87	0.87	0.87		0.87	0.87	0.87	0.87	0.87	0.87	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		405	1856	576		246	1400	435	200	489	199	
Arrive On Green		0.22	0.36	0.36		0.04	0.09	0.09	0.11	0.20	0.20	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	2501	1020	
Grp Volume(v), veh/h		117	787	168		201	560	84	146	281	273	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1716	
Q Serve(g_s), s		4.3	9.2	3.9		8.8	8.2	2.8	6.2	11.9	12.2	
Cycle Q Clear(g_c), s		4.3	9.2	3.9		8.8	8.2	2.8	6.2	11.9	12.2	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.59	
Lane Grp Cap(c), veh/h		405	1856	576		246	1400	435	200	353	335	
V/C Ratio(X)		0.29	0.42	0.29		0.82	0.40	0.19	0.73	0.80	0.81	
Avail Cap(c_a), veh/h		405	1856	576		328	1400	435	238	429	408	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh		25.8	19.4	7.9		37.2	30.3	15.0	34.4	30.7	30.8	
Incr Delay (d2), s/veh		0.4	0.7	1.3		11.3	0.9	1.0	9.0	8.5	10.0	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		1.8	3.6	2.2		4.9	3.7	1.6	3.2	5.8	5.8	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		26.2	20.2	9.1		48.5	31.2	16.0	43.5	39.2	40.8	
LnGrp LOS		C	C	A		D	C	B	D	D	D	
Approach Vol, veh/h			1072				845			700		
Approach Delay, s/veh			19.1				33.8			40.7		
Approach LOS			B				C			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.4	33.1	13.3	18.2	22.4	26.1	11.4	20.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	14.5	19.0	10.5	18.0	11.9	21.6	9.5	19.0
Max Q Clear Time (g_c+I1), s	10.8	11.2	8.2	11.9	6.3	10.2	7.3	14.2
Green Ext Time (p_c), s	0.2	3.6	0.1	1.7	0.1	3.1	0.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	30.7
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	107	416	64
Future Volume (veh/h)	107	416	64
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	123	478	74
Peak Hour Factor	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0
Cap, veh/h	155	617	275
Arrive On Green	0.11	0.23	0.23
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	123	478	74
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	5.3	9.9	3.0
Cycle Q Clear(g_c), s	5.3	9.9	3.0
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	155	617	275
V/C Ratio(X)	0.79	0.77	0.27
Avail Cap(c_a), veh/h	215	812	362
HCM Platoon Ratio	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.7	29.5	26.8
Incr Delay (d2), s/veh	12.7	3.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	4.2	1.2
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	47.5	32.9	27.3
LnGrp LOS	D	C	C
Approach Vol, veh/h		675	
Approach Delay, s/veh		34.9	
Approach LOS		C	
Timer - Assigned Phs			

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	0	0	99	0	0	58	123	552	116	1	46	670	20
Future Vol, veh/h	0	0	99	0	0	58	123	552	116	1	46	670	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	95	-	70	-	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	122	0	0	72	152	681	143	1	57	827	25

Major/Minor	Minor2			Minor1			Major1			Major2			
Conflicting Flow All	-	-	414	-	-	341	852	0	0	681	824	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*842	0	0	661	1051	-	-	539	815	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-
Platoon blocked, %			1				1	-	-			-	-
Mov Cap-1 Maneuver	-	-	*842	-	-	661	1051	-	-	804	804	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	11.1	1.4	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1051	-	-	842	661	804	-	-
HCM Lane V/C Ratio	0.144	-	-	0.145	0.108	0.072	-	-
HCM Control Delay (s)	9	-	-	10	11.1	9.8	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.5	-	-	0.5	0.4	0.2	-	-

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

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: D[32.6]

Street Name:	Mall Driveway 2 - Pepperwood Lane						Olive Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 3 0 1			1 0 3 1 0		
Volume Module: >> Count Date: 5 Jun 2018 <<												
Base Vol:	8	2	59	5	1	3	18	908	15	28	724	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	2	59	5	1	3	18	908	15	28	724	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
PHF Volume:	9	2	65	6	1	3	20	1001	17	31	798	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	9	2	65	6	1	3	20	1001	17	31	798	6
Critical Gap Module:												
Critical Gp:	7.5	6.5	6.9	7.5	6.5	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1303	1906	334	1237	1920	202	804	xxxx	xxxxx	1018	xxxx	xxxxx
Potent Cap.:	120	69	668	134	68	811	829	xxxx	xxxxx	690	xxxx	xxxxx
Move Cap.:	112	65	668	112	63	811	829	xxxx	xxxxx	690	xxxx	xxxxx
Volume/Cap:	0.08	0.03	0.10	0.05	0.02	0.00	0.02	xxxx	xxxx	0.04	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.4	xxxx	xxxxx	10.5	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	B	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	362	xxxxx	xxxx	140	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.8	xxxxx	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	17.6	xxxxx	xxxxx	32.6	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	D	*	*	*	*	*	*	*
ApproachDel:		17.6			32.6		xxxxxx			xxxxxx		
ApproachLOS:		C			D		*			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		

Time Period: 0.25 hour

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Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	343	32	27	228	6	13	0	37	4	0	6
Future Vol, veh/h	1	343	32	27	228	6	13	0	37	4	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	50	50	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	445	42	35	296	8	17	0	48	5	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	304	0	0	487	0	0	821	821	445	858	855	296
Stage 1	-	-	-	-	-	-	447	447	-	366	366	-
Stage 2	-	-	-	-	-	-	374	374	-	492	489	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1288	-	-	1086	-	-	303	310	617	283	294	838
Stage 1	-	-	-	-	-	-	595	577	-	718	652	-
Stage 2	-	-	-	-	-	-	709	645	-	562	553	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	1288	-	-	1086	-	-	292	300	617	255	284	838
Mov Cap-2 Maneuver	-	-	-	-	-	-	292	300	-	255	284	-
Stage 1	-	-	-	-	-	-	594	576	-	717	631	-
Stage 2	-	-	-	-	-	-	680	624	-	518	552	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.9	13.7	13.5
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	479	1288	-	-	1086	-	-	438
HCM Lane V/C Ratio	0.136	0.001	-	-	0.032	-	-	0.03
HCM Control Delay (s)	13.7	7.8	-	-	8.4	-	-	13.5
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	0.1

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: B[10.7]

Street Name:	Mall Driveway 4 - Applewood Lane									Olive Avenue								
Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	0	1	0	0	0	0	1	1	0	3	0	1	1	0	3	1	0
Volume Module:																				
Base Vol:	0	0	30	0	0	7	63	907	19	47	731	22								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	0	0	30	0	0	7	63	907	19	47	731	22								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90								
PHF Volume:	0	0	33	0	0	8	70	1010	21	52	814	24								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	0	0	33	0	0	8	70	1010	21	52	814	24								
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	6.9	xxxxx	xxxx	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	xxxxx	xxxx	3.3	xxxxx	xxxx	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	337	xxxx	xxxx	216	839	xxxx	xxxxx	1031	xxxx	xxxxx								
Potent Cap.:	xxxx	xxxx	665	xxxx	xxxx	795	805	xxxx	xxxxx	682	xxxx	xxxxx								
Move Cap.:	xxxx	xxxx	665	xxxx	xxxx	795	805	xxxx	xxxxx	682	xxxx	xxxxx								
Volume/Cap:	xxxx	xxxx	0.05	xxxx	xxxx	0.01	0.09	xxxx	xxxx	0.08	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	0.2	xxxx	xxxx	0.0	0.3	xxxx	xxxxx	0.2	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	10.7	xxxxx	xxxx	9.6	9.9	xxxx	xxxxx	10.7	xxxx	xxxxx								
LOS by Move:	*	*	B	*	*	A	A	*	*	B	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*								
ApproachDel:	10.7			9.6			xxxxxx			xxxxxx										
ApproachLOS:	B			A			*			*										

Note: Queue reported is the number of cars per lane.

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Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		

Time Period: 0.25 hour

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	158	83	127	48	69	109	1	104	487	15	116	687	122
Future Volume (veh/h)	158	83	127	48	69	109	1	104	487	15	116	687	122
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No				No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	208	109	167	63	91	143		137	641	20	153	904	161
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76		0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0	0	0	0
Cap, veh/h	247	225	190	331	110	172		295	1437	45	433	1251	223
Arrive On Green	0.14	0.12	0.12	0.18	0.16	0.16		0.07	0.40	0.40	0.07	0.41	0.41
Sat Flow, veh/h	1810	1900	1610	1810	666	1046		1810	3574	111	1810	3062	545
Grp Volume(v), veh/h	208	109	167	63	0	234		137	324	337	153	533	532
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1712		1810	1805	1880	1810	1805	1802
Q Serve(g_s), s	9.0	4.3	6.5	2.4	0.0	10.6		3.5	10.4	10.5	3.9	19.8	19.8
Cycle Q Clear(g_c), s	9.0	4.3	6.5	2.4	0.0	10.6		3.5	10.4	10.5	3.9	19.8	19.8
Prop In Lane	1.00		1.00	1.00		0.61		1.00		0.06	1.00		0.30
Lane Grp Cap(c), veh/h	247	225	190	331	0	282		295	726	756	433	738	736
V/C Ratio(X)	0.84	0.49	0.88	0.19	0.00	0.83		0.46	0.45	0.45	0.35	0.72	0.72
Avail Cap(c_a), veh/h	260	534	453	331	0	385		301	726	756	480	738	736
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	33.0	22.1	27.7	0.0	32.3		15.4	17.4	17.4	12.9	19.8	19.9
Incr Delay (d2), s/veh	20.9	1.6	12.0	0.3	0.0	10.5		1.1	2.0	1.9	0.5	6.1	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	2.0	3.0	1.0	0.0	5.1		1.4	4.5	4.7	1.5	9.0	9.0
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	54.6	34.6	34.2	28.0	0.0	42.8		16.5	19.4	19.3	13.4	25.9	25.9
LnGrp LOS	D	C	C	C	A	D		B	B	B	B	C	C
Approach Vol, veh/h		484			297				798			1218	
Approach Delay, s/veh		43.0			39.7				18.9			24.3	
Approach LOS		D			D				B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	36.7	19.1	14.0	9.7	37.2	15.4	17.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.8	24.7	7.0	22.5	5.5	27.0	11.5	18.0
Max Q Clear Time (g_c+I1), s	5.9	12.5	4.4	8.5	5.5	21.8	11.0	12.6
Green Ext Time (p_c), s	0.1	3.3	0.0	0.9	0.0	3.0	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	27.7
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	69	0	0	53	0	605	48	0	789	58
Future Vol, veh/h	0	0	69	0	0	53	0	605	48	0	789	58
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	93	0	0	72	0	818	65	0	1066	78

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	572	-	-	442	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	*746	0	0	569	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %			1					-	-		-	-
Mov Cap-1 Maneuver	-	-	*746	-	-	569	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.5	12.2	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	746	569	-	-
HCM Lane V/C Ratio	-	-	0.125	0.126	-	-
HCM Control Delay (s)	-	-	10.5	12.2	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.4	0.4	-	-

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	11	118	609	170	30	159	596	86	142	438	109	204
Future Volume (veh/h)	11	118	609	170	30	159	596	86	142	438	109	204
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		139	716	200		187	701	101	167	515	128	240
Peak Hour Factor		0.85	0.85	0.85		0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		176	1232	382		317	1446	206	218	601	149	276
Arrive On Green		0.03	0.08	0.08		0.18	0.32	0.32	0.12	0.21	0.21	0.20
Sat Flow, veh/h		1810	5187	1610		1810	4586	654	1810	2868	709	1810
Grp Volume(v), veh/h		139	716	200		187	527	275	167	323	320	240
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1782	1810	1805	1772	1810
Q Serve(g_s), s		6.1	10.7	9.5		7.6	9.8	10.0	7.2	13.8	13.9	10.3
Cycle Q Clear(g_c), s		6.1	10.7	9.5		7.6	9.8	10.0	7.2	13.8	13.9	10.3
Prop In Lane		1.00		1.00		1.00		0.37	1.00		0.40	1.00
Lane Grp Cap(c), veh/h		176	1232	382		317	1091	562	218	378	371	276
V/C Ratio(X)		0.79	0.58	0.52		0.59	0.48	0.49	0.77	0.85	0.86	0.87
Avail Cap(c_a), veh/h		222	1232	382		317	1091	562	218	406	399	283
HCM Platoon Ratio		0.33	0.33	0.33		1.00	1.00	1.00	1.00	1.00	1.00	1.33
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		37.9	33.0	32.5		30.3	22.1	22.2	34.1	30.4	30.5	31.1
Incr Delay (d2), s/veh		13.9	2.0	5.0		2.9	1.5	3.0	15.0	15.4	16.4	23.4
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.5	5.1	4.5		3.5	4.1	4.5	4.0	7.4	7.4	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		51.8	35.0	37.6		33.2	23.7	25.2	49.1	45.8	46.9	54.5
LnGrp LOS		D	D	D		C	C	C	D	D	D	D
Approach Vol, veh/h			1055				989			810		
Approach Delay, s/veh			37.7				25.9			46.9		
Approach LOS			D				C			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.5	23.5	14.1	23.9	12.3	29.7	16.7	21.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.5	19.0	9.5	21.0	9.8	21.7	12.5	18.0
Max Q Clear Time (g_c+I1), s	9.6	12.7	9.2	18.0	8.1	12.0	12.3	15.9
Green Ext Time (p_c), s	0.1	2.9	0.0	1.4	0.1	3.7	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	38.4
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	590	64
Future Volume (veh/h)	590	64
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	694	75
Peak Hour Factor	0.85	0.85
Percent Heavy Veh, %	0	0
Cap, veh/h	795	86
Arrive On Green	0.32	0.32
Sat Flow, veh/h	3286	355
Grp Volume(v), veh/h	381	388
Grp Sat Flow(s),veh/h/ln	1805	1836
Q Serve(g_s), s	15.9	16.0
Cycle Q Clear(g_c), s	15.9	16.0
Prop In Lane		0.19
Lane Grp Cap(c), veh/h	437	444
V/C Ratio(X)	0.87	0.87
Avail Cap(c_a), veh/h	474	482
HCM Platoon Ratio	1.33	1.33
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	26.0	26.0
Incr Delay (d2), s/veh	15.4	15.3
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	8.0
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	41.4	41.3
LnGrp LOS	D	D
Approach Vol, veh/h	1009	
Approach Delay, s/veh	44.5	
Approach LOS	D	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	70	71	678	868	43
Future Vol, veh/h	7	70	71	678	868	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	8	84	86	817	1046	52

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1627	523	1098	0	-	0
Stage 1	1046	-	-	-	-	-
Stage 2	581	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	178	*724	969	-	-	-
Stage 1	638	-	-	-	-	-
Stage 2	528	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	162	*724	969	-	-	-
Mov Cap-2 Maneuver	162	-	-	-	-	-
Stage 1	581	-	-	-	-	-
Stage 2	528	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.2	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	969	-	162	724	-	-
HCM Lane V/C Ratio	0.088	-	0.052	0.116	-	-
HCM Control Delay (s)	9.1	-	28.4	10.6	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.2	0.4	-	-

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	107	128	37	109	177	92	29	97	572	142	4	51
Future Volume (veh/h)	107	128	37	109	177	92	29	97	572	142	4	51
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Work Zone On Approach		No			No				No			
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	116	139	40	118	192	100		105	622	0		55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92		0.92
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	148	176	51	159	247	209		572	1143			492
Arrive On Green	0.08	0.12	0.12	0.09	0.13	0.13		0.32	0.32	0.00		0.27
Sat Flow, veh/h	1810	1418	408	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	116	0	179	118	192	100		105	622	0		55
Grp Sat Flow(s),veh/h/ln	1810	0	1827	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	5.7	0.0	8.6	5.7	8.8	3.0		3.8	12.8	0.0		2.1
Cycle Q Clear(g_c), s	5.7	0.0	8.6	5.7	8.8	3.0		3.8	12.8	0.0		2.1
Prop In Lane	1.00		0.22	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	148	0	226	159	247	209		572	1143			492
V/C Ratio(X)	0.78	0.00	0.79	0.74	0.78	0.48		0.18	0.54			0.11
Avail Cap(c_a), veh/h	271	0	396	271	412	349		572	1143			492
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	0.00		1.00
Uniform Delay (d), s/veh	40.5	0.0	38.3	40.1	37.9	11.9		22.3	25.4	0.0		24.6
Incr Delay (d2), s/veh	8.8	0.0	6.1	6.7	5.3	1.7		0.2	1.9	0.0		0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	4.2	2.8	4.4	2.0		1.6	5.6	0.0		0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.3	0.0	44.4	46.8	43.2	13.6		22.5	27.2	0.0		24.7
LnGrp LOS	D	A	D	D	D	B		C	C			C
Approach Vol, veh/h		295			410				727	A		
Approach Delay, s/veh		46.3			37.0				26.6			
Approach LOS		D			D				C			

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.0	33.0	12.4	15.6	33.0	29.0	11.9	16.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	28.5	13.5	19.5	14.5	24.5	13.5	19.5
Max Q Clear Time (g_c+I1), s	4.1	14.8	7.7	10.6	5.8	13.3	7.7	10.8
Green Ext Time (p_c), s	0.0	3.6	0.1	0.6	0.1	2.4	0.1	0.9

Intersection Summary	
HCM 6th Ctrl Delay	33.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	389	91
Future Volume (veh/h)	389	91
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	423	99
Peak Hour Factor	0.92	0.92
Percent Heavy Veh, %	0	0
Cap, veh/h	792	184
Arrive On Green	0.27	0.27
Sat Flow, veh/h	2909	675
Grp Volume(v), veh/h	261	261
Grp Sat Flow(s),veh/h/ln	1805	1779
Q Serve(g_s), s	11.1	11.3
Cycle Q Clear(g_c), s	11.1	11.3
Prop In Lane		0.38
Lane Grp Cap(c), veh/h	491	484
V/C Ratio(X)	0.53	0.54
Avail Cap(c_a), veh/h	491	484
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	27.9	27.9
Incr Delay (d2), s/veh	4.1	4.3
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	5.2
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	31.9	32.2
LnGrp LOS	C	C
Approach Vol, veh/h	577	
Approach Delay, s/veh	31.4	
Approach LOS	C	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	0	0	131	0	0	91	12	87	748	120	44	48	487	30
Future Vol, veh/h	0	0	131	0	0	91	12	87	748	120	44	48	487	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	142	0	0	99	13	95	813	130	48	52	529	33

Major/Minor	Minor2			Minor1			Major1				Major2				
Conflicting Flow All	-	-	281	-	-	472	562	562	0	0	943	943	0	0	
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-	
Pot Cap-1 Maneuver	0	0	*904	0	0	*799	1091	1288	-	-	796	1018	-	-	
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-	
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-	
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-	
Mov Cap-1 Maneuver	-	-	*904	-	-	*799	1231	1231	-	-	840	840	-	-	
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.7	10.1	0.8	1.5
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1231	-	-	904	799	840	-	-
HCM Lane V/C Ratio	0.087	-	-	0.158	0.124	0.119	-	-
HCM Control Delay (s)	8.2	-	-	9.7	10.1	9.9	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.6	0.4	0.4	-	-

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	22	207	816	199	14	242	887	157	311	599	108	6
Future Volume (veh/h)	22	207	816	199	14	242	887	157	311	599	108	6
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		216	850	207		252	924	164	324	624	112	
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		375	1521	472		293	1285	399	360	750	134	
Arrive On Green		0.21	0.29	0.29		0.05	0.08	0.08	0.20	0.25	0.25	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	3058	548	
Grp Volume(v), veh/h		216	850	207		252	924	164	324	368	368	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1801	
Q Serve(g_s), s		9.7	12.5	5.4		12.4	15.6	6.4	15.7	17.4	17.5	
Cycle Q Clear(g_c), s		9.7	12.5	5.4		12.4	15.6	6.4	15.7	17.4	17.5	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.30	
Lane Grp Cap(c), veh/h		375	1521	472		293	1285	399	360	443	442	
V/C Ratio(X)		0.58	0.56	0.44		0.86	0.72	0.41	0.90	0.83	0.83	
Avail Cap(c_a), veh/h		375	1521	472		332	1285	399	372	531	530	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh		32.1	26.9	8.6		41.6	38.3	18.9	35.2	32.2	32.2	
Incr Delay (d2), s/veh		2.2	1.5	2.9		18.3	3.5	3.1	23.6	9.2	9.4	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		4.4	5.2	3.7		7.5	7.6	2.8	9.1	8.5	8.6	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		34.3	28.4	11.5		59.9	41.7	22.0	58.8	41.4	41.6	
LnGrp LOS		C	C	B		E	D	C	E	D	D	
Approach Vol, veh/h			1273				1340			1060		
Approach Delay, s/veh			26.6				42.7			46.8		
Approach LOS			C				D			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.1	30.9	22.4	17.6	23.2	26.8	13.5	26.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	16.5	18.5	18.5	18.5	12.7	22.3	10.5	26.5
Max Q Clear Time (g_c+I1), s	14.4	14.5	17.7	11.5	11.7	17.6	9.2	19.5
Green Ext Time (p_c), s	0.2	2.3	0.1	1.7	0.1	2.7	0.0	2.6

Intersection Summary	
HCM 6th Ctrl Delay	39.6
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	139	370	121
Future Volume (veh/h)	139	370	121
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	145	385	126
Peak Hour Factor	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0
Cap, veh/h	180	527	235
Arrive On Green	0.03	0.05	0.05
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	145	385	126
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	7.2	9.5	6.9
Cycle Q Clear(g_c), s	7.2	9.5	6.9
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	180	527	235
V/C Ratio(X)	0.80	0.73	0.54
Avail Cap(c_a), veh/h	211	742	331
HCM Platoon Ratio	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.7	41.1	39.8
Incr Delay (d2), s/veh	17.5	2.2	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	4.7	3.0
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	60.1	43.3	41.7
LnGrp LOS	E	D	D
Approach Vol, veh/h		656	
Approach Delay, s/veh		46.7	
Approach LOS		D	
Timer - Assigned Phs			

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	335	0	0	190	261	841	122	45	704	39
Future Vol, veh/h	0	0	335	0	0	190	261	841	122	45	704	39
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	95	-	70	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	349	0	0	198	272	876	127	47	733	41

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	367	-	-	438	774	0	0	1003	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	*799	0	0	572	*1200	-	-	698	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1				1	-	-		-	-
Mov Cap-1 Maneuver	-	-	*799	-	-	572	*1200	-	-	698	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13	14.6	1.9	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 1200	-	-	799	572	698	-	-
HCM Lane V/C Ratio	0.227	-	-	0.437	0.346	0.067	-	-
HCM Control Delay (s)	8.9	-	-	13	14.6	10.5	-	-
HCM Lane LOS	A	-	-	B	B	B	-	-
HCM 95th %tile Q(veh)	0.9	-	-	2.2	1.5	0.2	-	-

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

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 7.3 Worst Case Level Of Service: F[104.8]

Street Name:	Mall Driveway 2 - Pepperwood Lane						Olive Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 1!	0	0	1 0 3	0	1	1 0 3	1	0
Volume Module: >> Count Date: 5 Jun 2018 <<												
Base Vol:	23	3	102	8	1	78	67	1013	39	59	1188	22
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	23	3	102	8	1	78	67	1013	39	59	1188	22
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	25	3	109	9	1	83	72	1082	42	63	1269	24
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	25	3	109	9	1	83	72	1082	42	63	1269	24
Critical Gap Module:												
Critical Gp:	7.5	6.5	6.9	7.5	6.5	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1669	2644	361	1913	2674	329	1293	xxxx	xxxxx	1124	xxxx	xxxxx
Potent Cap.:	64	24	642	42	23	673	543	xxxx	xxxxx	629	xxxx	xxxxx
Move Cap.:	45	18	642	25	18	673	543	xxxx	xxxxx	629	xxxx	xxxxx
Volume/Cap:	0.55	0.17	0.17	0.34	0.06	0.12	0.13	xxxx	xxxx	0.10	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.5	xxxx	xxxxx	0.3	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	12.6	xxxx	xxxxx	11.4	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	B	*	*	B	*	*
Movement:	LT - LTR		RT	LT - LTR		RT	LT - LTR		RT	LT - LTR		RT
Shared Cap.:	xxxx	153	xxxxx	xxxx	178	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	6.2	xxxxx	xxxxx	2.6	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	105	xxxxx	xxxxx	45.4	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	F	*	*	E	*	*	*	*	*	*	*
ApproachDel:	104.8			45.4			xxxxxx			xxxxxx		
ApproachLOS:	F			E			*			*		

Note: Queue reported is the number of cars per lane.

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Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		

Time Period: 0.25 hour

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Intersection	
Int Delay, s/veh	2.6

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	1	11	350	22	41	339	11	35	1	77	9	1	2
Future Vol, veh/h	1	11	350	22	41	339	11	35	1	77	9	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	50	-	50	50	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	12	380	24	45	368	12	38	1	84	10	1	2

Major/Minor	Major1				Major2			Minor1			Minor2		
Conflicting Flow All	-	380	0	0	404	0	0	870	876	380	917	888	368
Stage 1	-	-	-	-	-	-	-	404	406	-	458	458	-
Stage 2	-	-	-	-	-	-	-	466	470	-	459	430	-
Critical Hdwy	-	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	-	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	-	1214	-	-	1166	-	-	283	286	671	257	280	812
Stage 1	-	-	-	-	-	-	-	627	601	-	665	601	-
Stage 2	-	-	-	-	-	-	-	657	592	-	586	587	-
Platoon blocked, %		1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	~ -12	~ -12	-	-	1166	-	-	273	275	671	218	269	812
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	273	275	-	218	269	-
Stage 1	-	-	-	-	-	-	-	627	601	-	665	578	-
Stage 2	-	-	-	-	-	-	-	628	569	-	512	587	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		0.9	15.7	20
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	458	+	-	-	1166	-	-	253
HCM Lane V/C Ratio	0.268	-	-	-	0.038	-	-	0.052
HCM Control Delay (s)	15.7	-	-	-	8.2	-	-	20
HCM Lane LOS	C	-	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.1	-	-	-	0.1	-	-	0.2

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

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 1.5 Worst Case Level Of Service: B[13.2]

Street Name:	Mall Driveway 4 - Applewood Lane									Olive Avenue								
Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	0	1	0	0	0	0	1	1	0	3	0	1	1	0	3	1	0
Volume Module:																				
Base Vol:	0	0	65	0	0	79	112	1093	43	81	1139	79								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	0	0	65	0	0	79	112	1093	43	81	1139	79								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96								
PHF Volume:	0	0	68	0	0	82	117	1141	45	85	1189	82								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	0	0	68	0	0	82	117	1141	45	85	1189	82								
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	6.9	xxxxx	xxxx	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	xxxxx	xxxx	3.3	xxxxx	xxxx	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	380	xxxx	xxxx	338	1271	xxxx	xxxxx	1186	xxxx	xxxxx								
Potent Cap.:	xxxx	xxxx	623	xxxx	xxxx	663	553	xxxx	xxxxx	596	xxxx	xxxxx								
Move Cap.:	xxxx	xxxx	623	xxxx	xxxx	663	553	xxxx	xxxxx	596	xxxx	xxxxx								
Volume/Cap:	xxxx	xxxx	0.11	xxxx	xxxx	0.12	0.21	xxxx	xxxx	0.14	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	0.4	xxxx	xxxx	0.4	0.8	xxxx	xxxxx	0.5	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	11.5	xxxxx	xxxx	11.2	13.2	xxxx	xxxxx	12.0	xxxx	xxxxx								
LOS by Move:	*	*	B	*	*	B	B	*	*	B	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*								
ApproachDel:	11.5			11.2			xxxxxx			xxxxxx										
ApproachLOS:	B			B			*			*										

Note: Queue reported is the number of cars per lane.

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Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	238	31	207	46	83	116	1	145	524	17	28	477	158
Future Volume (veh/h)	238	31	207	46	83	116	1	145	524	17	28	477	158
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No				No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	259	34	225	50	90	126		158	570	18	30	518	172
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0	0	0	0
Cap, veh/h	302	273	231	313	107	150		414	1622	51	428	1102	364
Arrive On Green	0.17	0.14	0.14	0.17	0.15	0.15		0.07	0.45	0.45	0.03	0.41	0.41
Sat Flow, veh/h	1810	1900	1610	1810	716	1003		1810	3572	113	1810	2666	881
Grp Volume(v), veh/h	259	34	225	50	0	216		158	288	300	30	350	340
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1719		1810	1805	1880	1810	1805	1741
Q Serve(g_s), s	12.5	1.4	10.0	2.1	0.0	11.0		4.3	9.3	9.3	0.8	12.7	12.8
Cycle Q Clear(g_c), s	12.5	1.4	10.0	2.1	0.0	11.0		4.3	9.3	9.3	0.8	12.7	12.8
Prop In Lane	1.00		1.00	1.00		0.58		1.00		0.06	1.00		0.51
Lane Grp Cap(c), veh/h	302	273	231	313	0	258		414	819	853	428	746	720
V/C Ratio(X)	0.86	0.12	0.97	0.16	0.00	0.84		0.38	0.35	0.35	0.07	0.47	0.47
Avail Cap(c_a), veh/h	470	735	623	313	0	346		458	819	853	475	746	720
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.5	33.6	24.6	31.6	0.0	37.2		13.9	16.0	16.0	14.4	19.2	19.2
Incr Delay (d2), s/veh	9.3	0.2	21.6	0.2	0.0	12.6		0.6	1.2	1.1	0.1	2.1	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	0.7	5.1	0.9	0.0	5.4		1.7	4.0	4.1	0.3	5.6	5.4
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	45.8	33.8	46.3	31.9	0.0	49.8		14.5	17.1	17.1	14.5	21.3	21.5
LnGrp LOS	D	C	D	C	A	D		B	B	B	B	C	C
Approach Vol, veh/h		518			266				746			720	
Approach Delay, s/veh		45.2			46.4				16.6			21.1	
Approach LOS		D			D				B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.1	45.4	20.1	17.4	10.8	41.7	19.5	18.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.6	25.5	6.7	34.8	8.5	22.0	23.4	18.1
Max Q Clear Time (g_c+I1), s	2.8	11.3	4.1	12.0	6.3	14.8	14.5	13.0
Green Ext Time (p_c), s	0.0	3.1	0.0	0.9	0.1	2.5	0.5	0.5

Intersection Summary	
HCM 6th Ctrl Delay	28.1
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	135	0	0	45	0	680	37	0	813	55
Future Vol, veh/h	0	0	135	0	0	45	0	680	37	0	813	55
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	147	0	0	49	0	739	40	0	884	60

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	472	-	-	390	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	*736	0	0	614	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %			1					-	-		-	-
Mov Cap-1 Maneuver	-	-	*736	-	-	614	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.1	11.4	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	736	614	-	-
HCM Lane V/C Ratio	-	-	0.199	0.08	-	-
HCM Control Delay (s)	-	-	11.1	11.4	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.7	0.3	-	-

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	33	106	805	148	31	145	862	62	322	517	125	314
Future Volume (veh/h)	33	106	805	148	31	145	862	62	322	517	125	314
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		112	847	156		153	907	65	339	544	132	331
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		143	1181	367		267	1462	105	380	630	152	373
Arrive On Green		0.03	0.08	0.08		0.15	0.30	0.30	0.21	0.22	0.22	0.07
Sat Flow, veh/h		1810	5187	1610		1810	4941	353	1810	2883	697	1810
Grp Volume(v), veh/h		112	847	156		153	634	338	339	340	336	331
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1836	1810	1805	1775	1810
Q Serve(g_s), s		5.5	14.4	5.0		7.1	14.2	14.3	16.4	16.3	16.4	16.3
Cycle Q Clear(g_c), s		5.5	14.4	5.0		7.1	14.2	14.3	16.4	16.3	16.4	16.3
Prop In Lane		1.00		1.00		1.00		0.19	1.00		0.39	1.00
Lane Grp Cap(c), veh/h		143	1181	367		267	1023	543	380	395	388	373
V/C Ratio(X)		0.78	0.72	0.43		0.57	0.62	0.62	0.89	0.86	0.87	0.89
Avail Cap(c_a), veh/h		191	1181	367		267	1023	543	472	431	424	412
HCM Platoon Ratio		0.33	0.33	0.33		1.00	1.00	1.00	1.00	1.00	1.00	0.33
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		43.1	38.8	12.9		35.7	27.3	27.3	34.6	33.8	33.9	40.9
Incr Delay (d2), s/veh		13.9	3.7	3.6		3.0	2.8	5.3	16.4	15.2	16.0	19.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.1	7.0	3.6		3.3	6.1	6.9	8.8	8.6	8.6	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		57.0	42.5	16.5		38.7	30.1	32.6	51.0	49.0	49.9	59.9
LnGrp LOS		E	D	B		D	C	C	D	D	D	E
Approach Vol, veh/h			1115				1125			1015		
Approach Delay, s/veh			40.3				32.0			50.0		
Approach LOS			D				C			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.8	25.0	23.4	23.9	11.6	31.1	23.1	24.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.5	20.5	23.5	18.5	9.5	20.5	20.5	21.5
Max Q Clear Time (g_c+I1), s	9.1	16.4	18.4	18.5	7.5	16.3	18.3	18.4
Green Ext Time (p_c), s	0.0	2.3	0.5	0.0	0.0	2.3	0.2	1.2

Intersection Summary	
HCM 6th Ctrl Delay	44.8
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	531	103
Future Volume (veh/h)	531	103
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	559	108
Peak Hour Factor	0.95	0.95
Percent Heavy Veh, %	0	0
Cap, veh/h	649	125
Arrive On Green	0.07	0.07
Sat Flow, veh/h	3019	581
Grp Volume(v), veh/h	333	334
Grp Sat Flow(s),veh/h/ln	1805	1795
Q Serve(g_s), s	16.5	16.5
Cycle Q Clear(g_c), s	16.5	16.5
Prop In Lane		0.32
Lane Grp Cap(c), veh/h	388	386
V/C Ratio(X)	0.86	0.86
Avail Cap(c_a), veh/h	388	386
HCM Platoon Ratio	0.33	0.33
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	40.5	40.5
Incr Delay (d2), s/veh	17.3	18.0
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.8	9.8
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	57.8	58.5
LnGrp LOS	E	E
Approach Vol, veh/h	998	
Approach Delay, s/veh	58.7	
Approach LOS	E	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	189	107	947	768	54
Future Vol, veh/h	14	189	107	947	768	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	15	205	116	1029	835	59

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1582	418	894	0	-	0
Stage 1	835	-	-	-	-	-
Stage 2	747	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	*176	*765	1149	-	-	-
Stage 1	*721	-	-	-	-	-
Stage 2	*434	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	*158	*765	1149	-	-	-
Mov Cap-2 Maneuver	*158	-	-	-	-	-
Stage 1	*648	-	-	-	-	-
Stage 2	*434	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.7	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1149	-	158	765	-	-
HCM Lane V/C Ratio	0.101	-	0.096	0.269	-	-
HCM Control Delay (s)	8.5	-	30.2	11.4	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.3	1.1	-	-

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	90	178	47	82	105	55	10	35	291	128	6	69
Future Volume (veh/h)	90	178	47	82	105	55	10	35	291	128	6	69
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Work Zone On Approach		No			No				No			
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	105	207	55	95	122	64		41	338	0		80
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		0.86	0.86	0.86		0.86
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	135	251	67	123	317	268		393	1011			459
Arrive On Green	0.07	0.17	0.17	0.07	0.17	0.17		0.15	0.19	0.00		0.25
Sat Flow, veh/h	1810	1446	384	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	105	0	262	95	122	64		41	338	0		80
Grp Sat Flow(s),veh/h/ln	1810	0	1831	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	4.6	0.0	11.0	4.1	4.6	1.5		1.6	6.5	0.0		2.8
Cycle Q Clear(g_c), s	4.6	0.0	11.0	4.1	4.6	1.5		1.6	6.5	0.0		2.8
Prop In Lane	1.00		0.21	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	135	0	318	123	317	268		393	1011			459
V/C Ratio(X)	0.77	0.00	0.82	0.77	0.39	0.24		0.10	0.33			0.17
Avail Cap(c_a), veh/h	238	0	469	219	468	397		393	1011			459
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		0.67	0.67	0.67		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	0.00		1.00
Uniform Delay (d), s/veh	36.3	0.0	31.9	36.7	29.7	9.1		27.4	26.0	0.0		23.3
Incr Delay (d2), s/veh	9.1	0.0	7.5	9.8	0.8	0.5		0.1	0.9	0.0		0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	5.4	2.1	2.1	1.1		0.7	2.9	0.0		1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.4	0.0	39.4	46.4	30.4	9.6		27.5	26.9	0.0		23.5
LnGrp LOS	D	A	D	D	C	A		C	C			C
Approach Vol, veh/h		367			281				379	A		
Approach Delay, s/veh		41.1			31.1				27.0			
Approach LOS		D			C				C			

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.8	26.9	9.9	18.4	21.9	29.8	10.5	17.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.4	22.4	9.7	20.5	6.5	25.3	10.5	19.7
Max Q Clear Time (g_c+I1), s	4.8	8.5	6.1	13.0	3.6	15.3	6.6	6.6
Green Ext Time (p_c), s	0.1	1.8	0.1	0.8	0.0	3.2	0.1	0.6

Intersection Summary	
HCM 6th Ctrl Delay	30.8
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	512	95
Future Volume (veh/h)	512	95
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	595	110
Peak Hour Factor	0.86	0.86
Percent Heavy Veh, %	0	0
Cap, veh/h	962	177
Arrive On Green	0.32	0.32
Sat Flow, veh/h	3043	561
Grp Volume(v), veh/h	352	353
Grp Sat Flow(s),veh/h/ln	1805	1799
Q Serve(g_s), s	13.3	13.3
Cycle Q Clear(g_c), s	13.3	13.3
Prop In Lane		0.31
Lane Grp Cap(c), veh/h	571	569
V/C Ratio(X)	0.62	0.62
Avail Cap(c_a), veh/h	571	569
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	23.2	23.3
Incr Delay (d2), s/veh	4.9	5.0
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	6.2
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	28.2	28.3
LnGrp LOS	C	C
Approach Vol, veh/h	785	
Approach Delay, s/veh	27.7	
Approach LOS	C	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	0	0	30	0	0	21	5	33	444	34	16	25	582	23
Future Vol, veh/h	0	0	30	0	0	21	5	33	444	34	16	25	582	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	34	0	0	24	6	37	499	38	18	28	654	26

Major/Minor	Minor2		Minor1			Major1					Major2			
Conflicting Flow All	-	-	340	-	-	269	680	680	0	0	537	537	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*881	0	0	*920	963	1185	-	-	1076	1287	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-
Mov Cap-1 Maneuver	-	-	*881	-	-	*920	1144	1144	-	-	1183	1183	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	9	0.6	0.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1144	-	-	881	920	1183	-	-
HCM Lane V/C Ratio	0.037	-	-	0.038	0.026	0.039	-	-
HCM Control Delay (s)	8.3	-	-	9.2	9	8.2	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0.1	-	-

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	7	102	688	146	5	178	489	73	127	341	145	2
Future Volume (veh/h)	7	102	688	146	5	178	489	73	127	341	145	2
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		117	791	168		205	562	84	146	392	167	
Peak Hour Factor		0.87	0.87	0.87		0.87	0.87	0.87	0.87	0.87	0.87	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		402	1837	570		250	1400	435	202	487	205	
Arrive On Green		0.22	0.35	0.35		0.05	0.09	0.09	0.11	0.20	0.20	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	2476	1041	
Grp Volume(v), veh/h		117	791	168		205	562	84	146	284	275	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1713	
Q Serve(g_s), s		4.3	9.3	3.9		9.0	8.2	2.8	6.2	12.0	12.3	
Cycle Q Clear(g_c), s		4.3	9.3	3.9		9.0	8.2	2.8	6.2	12.0	12.3	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.61	
Lane Grp Cap(c), veh/h		402	1837	570		250	1400	435	202	355	337	
V/C Ratio(X)		0.29	0.43	0.29		0.82	0.40	0.19	0.72	0.80	0.82	
Avail Cap(c_a), veh/h		402	1837	570		328	1400	435	238	429	407	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh		25.9	19.7	7.9		37.2	30.3	15.0	34.3	30.6	30.7	
Incr Delay (d2), s/veh		0.4	0.7	1.3		11.8	0.9	1.0	8.6	8.8	10.3	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		1.8	3.7	2.3		5.0	3.7	1.6	3.2	5.9	5.9	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		26.3	20.4	9.3		49.0	31.2	16.0	42.9	39.4	41.0	
LnGrp LOS		C	C	A		D	C	B	D	D	D	
Approach Vol, veh/h			1076				851			705		
Approach Delay, s/veh			19.3				34.0			40.8		
Approach LOS			B				C			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.6	32.8	13.4	18.2	22.3	26.1	11.4	20.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	14.5	19.0	10.5	18.0	11.9	21.6	9.5	19.0
Max Q Clear Time (g_c+I1), s	11.0	11.3	8.2	11.9	6.3	10.2	7.3	14.3
Green Ext Time (p_c), s	0.2	3.6	0.1	1.7	0.1	3.2	0.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	30.8
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	107	416	64
Future Volume (veh/h)	107	416	64
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	123	478	74
Peak Hour Factor	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0
Cap, veh/h	155	617	275
Arrive On Green	0.11	0.23	0.23
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	123	478	74
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	5.3	9.9	3.0
Cycle Q Clear(g_c), s	5.3	9.9	3.0
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	155	617	275
V/C Ratio(X)	0.79	0.77	0.27
Avail Cap(c_a), veh/h	215	812	362
HCM Platoon Ratio	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.7	29.5	26.8
Incr Delay (d2), s/veh	12.7	3.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	4.2	1.2
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	47.5	32.9	27.3
LnGrp LOS	D	C	C
Approach Vol, veh/h		675	
Approach Delay, s/veh		34.9	
Approach LOS		C	
Timer - Assigned Phs			

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	0	0	99	0	0	58	123	556	116	1	46	673	20
Future Vol, veh/h	0	0	99	0	0	58	123	556	116	1	46	673	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	95	-	70	-	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	122	0	0	72	152	686	143	1	57	831	25

Major/Minor	Minor2			Minor1			Major1			Major2			
Conflicting Flow All	-	-	416	-	-	343	856	0	0	686	829	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*842	0	0	659	1047	-	-	535	811	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-
Platoon blocked, %			1				1	-	-			-	-
Mov Cap-1 Maneuver	-	-	*842	-	-	659	1047	-	-	800	800	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	11.1	1.4	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1047	-	-	842	659	800	-	-
HCM Lane V/C Ratio	0.145	-	-	0.145	0.109	0.073	-	-
HCM Control Delay (s)	9	-	-	10	11.1	9.9	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.5	-	-	0.5	0.4	0.2	-	-

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

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 1.3 Worst Case Level Of Service: D[30.4]

Street Name:	Mall Driveway 2 - Pepperwood Lane						Olive Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 3 0 1			1 0 3 1 0		
Volume Module: >> Count Date: 5 Jun 2018 <<												
Base Vol:	8	3	59	7	1	6	23	910	15	28	725	7
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	3	59	7	1	6	23	910	15	28	725	7
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
PHF Volume:	9	3	65	8	1	7	25	1003	17	31	799	8
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	9	3	65	8	1	7	25	1003	17	31	799	8
Critical Gap Module:												
Critical Gp:	7.5	6.5	6.9	7.5	6.5	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1316	1923	334	1252	1936	204	807	xxxx	xxxxx	1020	xxxx	xxxxx
Potent Cap.:	117	68	667	131	67	809	827	xxxx	xxxxx	688	xxxx	xxxxx
Move Cap.:	108	63	667	107	62	809	827	xxxx	xxxxx	688	xxxx	xxxxx
Volume/Cap:	0.08	0.05	0.10	0.07	0.02	0.01	0.03	xxxx	xxxx	0.04	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.5	xxxx	xxxxx	10.5	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	B	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	333	xxxxx	xxxx	157	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.9	xxxxx	xxxxx	0.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	19.0	xxxxx	xxxxx	30.4	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	D	*	*	*	*	*	*	*
ApproachDel:		19.0			30.4		xxxxxx			xxxxxx		
ApproachLOS:		C			D		*			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												

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Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	343	35	28	228	6	15	0	41	4	0	6
Future Vol, veh/h	1	343	35	28	228	6	15	0	41	4	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	50	50	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	445	45	36	296	8	19	0	53	5	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	304	0	0	490	0	0	823	823	445	864	860	296
Stage 1	-	-	-	-	-	-	447	447	-	368	368	-
Stage 2	-	-	-	-	-	-	376	376	-	496	492	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1288	-	-	1084	-	-	302	309	617	280	292	838
Stage 1	-	-	-	-	-	-	595	577	-	715	650	-
Stage 2	-	-	-	-	-	-	707	644	-	559	551	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	1288	-	-	1084	-	-	291	299	617	249	283	838
Mov Cap-2 Maneuver	-	-	-	-	-	-	291	299	-	249	283	-
Stage 1	-	-	-	-	-	-	594	576	-	714	629	-
Stage 2	-	-	-	-	-	-	677	623	-	510	550	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.9	13.9	13.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	475	1288	-	-	1084	-	-	431
HCM Lane V/C Ratio	0.153	0.001	-	-	0.034	-	-	0.03
HCM Control Delay (s)	13.9	7.8	-	-	8.4	-	-	13.6
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	0.1

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: B[10.7]

Street Name:	Mall Driveway 4 - Applewood Lane									Olive Avenue								
Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	0	1	0	0	0	0	1	1	0	3	0	1	1	0	3	1	0
Volume Module:																				
Base Vol:	0	0	30	0	0	8	65	909	19	47	733	27								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	0	0	30	0	0	8	65	909	19	47	733	27								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90								
PHF Volume:	0	0	33	0	0	9	72	1012	21	52	816	30								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	0	0	33	0	0	9	72	1012	21	52	816	30								
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	6.9	xxxxx	xxxx	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	xxxxx	xxxx	3.3	xxxxx	xxxx	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	337	xxxx	xxxx	219	846	xxxx	xxxxx	1033	xxxx	xxxxx								
Potent Cap.:	xxxx	xxxx	664	xxxx	xxxx	791	799	xxxx	xxxxx	680	xxxx	xxxxx								
Move Cap.:	xxxx	xxxx	664	xxxx	xxxx	791	799	xxxx	xxxxx	680	xxxx	xxxxx								
Volume/Cap:	xxxx	xxxx	0.05	xxxx	xxxx	0.01	0.09	xxxx	xxxx	0.08	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	0.2	xxxx	xxxx	0.0	0.3	xxxx	xxxxx	0.2	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	10.7	xxxxx	xxxx	9.6	10.0	xxxx	xxxxx	10.7	xxxx	xxxxx								
LOS by Move:	*	*	B	*	*	A	A	*	*	B	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*								
ApproachDel:	10.7			9.6			xxxxxx			xxxxxx										
ApproachLOS:	B			A			*			*										

Note: Queue reported is the number of cars per lane.

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Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		

Time Period: 0.25 hour

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	161	83	127	48	70	109	1	104	487	15	116	692	122
Future Volume (veh/h)	161	83	127	48	70	109	1	104	487	15	116	692	122
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No				No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	212	109	167	63	92	143		137	641	20	153	911	161
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76		0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0	0	0	0
Cap, veh/h	250	224	190	336	111	172		291	1426	44	431	1244	220
Arrive On Green	0.14	0.12	0.12	0.19	0.17	0.17		0.07	0.40	0.40	0.07	0.41	0.41
Sat Flow, veh/h	1810	1900	1610	1810	670	1042		1810	3574	111	1810	3066	542
Grp Volume(v), veh/h	212	109	167	63	0	235		137	324	337	153	536	536
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1712		1810	1805	1880	1810	1805	1803
Q Serve(g_s), s	9.1	4.3	6.5	2.4	0.0	10.6		3.5	10.5	10.5	3.9	20.1	20.1
Cycle Q Clear(g_c), s	9.1	4.3	6.5	2.4	0.0	10.6		3.5	10.5	10.5	3.9	20.1	20.1
Prop In Lane	1.00		1.00	1.00		0.61		1.00		0.06	1.00		0.30
Lane Grp Cap(c), veh/h	250	224	190	336	0	283		291	721	750	431	732	731
V/C Ratio(X)	0.85	0.49	0.88	0.19	0.00	0.83		0.47	0.45	0.45	0.35	0.73	0.73
Avail Cap(c_a), veh/h	260	534	453	336	0	385		297	721	750	477	732	731
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.6	33.0	22.1	27.5	0.0	32.3		15.6	17.6	17.6	13.1	20.1	20.1
Incr Delay (d2), s/veh	21.5	1.6	12.1	0.3	0.0	10.6		1.2	2.0	1.9	0.5	6.4	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	2.0	3.0	1.0	0.0	5.1		1.4	4.5	4.7	1.5	9.2	9.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	55.1	34.6	34.2	27.8	0.0	42.9		16.8	19.6	19.5	13.6	26.5	26.5
LnGrp LOS	E	C	C	C	A	D		B	B	B	B	C	C
Approach Vol, veh/h		488			298				798			1225	
Approach Delay, s/veh		43.4			39.7				19.1			24.9	
Approach LOS		D			D				B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	36.4	19.3	14.0	9.7	37.0	15.6	17.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.8	24.7	7.0	22.5	5.5	27.0	11.5	18.0
Max Q Clear Time (g_c+I1), s	5.9	12.5	4.4	8.5	5.5	22.1	11.1	12.6
Green Ext Time (p_c), s	0.1	3.2	0.0	0.9	0.0	2.9	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	28.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	0.9

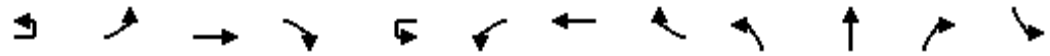
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	72	0	0	53	0	605	48	0	789	63
Future Vol, veh/h	0	0	72	0	0	53	0	605	48	0	789	63
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	97	0	0	72	0	818	65	0	1066	85

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	576	-	-	442	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	*746	0	0	569	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %			1					-	-		-	-
Mov Cap-1 Maneuver	-	-	*746	-	-	569	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.5	12.2	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	746	569	-	-
HCM Lane V/C Ratio	-	-	0.13	0.126	-	-
HCM Control Delay (s)	-	-	10.5	12.2	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.4	0.4	-	-

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



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	11	118	611	170	30	159	599	86	146	438	109	204
Future Volume (veh/h)	11	118	611	170	30	159	599	86	146	438	109	204
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		139	719	200		187	705	101	172	515	128	240
Peak Hour Factor		0.85	0.85	0.85		0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		176	1232	382		317	1447	205	217	601	149	276
Arrive On Green		0.03	0.08	0.08		0.18	0.32	0.32	0.12	0.21	0.21	0.20
Sat Flow, veh/h		1810	5187	1610		1810	4589	651	1810	2868	709	1810
Grp Volume(v), veh/h		139	719	200		187	530	276	172	323	320	240
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1783	1810	1805	1772	1810
Q Serve(g_s), s		6.1	10.7	9.5		7.6	9.9	10.1	7.4	13.8	13.9	10.3
Cycle Q Clear(g_c), s		6.1	10.7	9.5		7.6	9.9	10.1	7.4	13.8	13.9	10.3
Prop In Lane		1.00		1.00		1.00		0.37	1.00		0.40	1.00
Lane Grp Cap(c), veh/h		176	1232	382		317	1091	562	217	378	371	276
V/C Ratio(X)		0.79	0.58	0.52		0.59	0.49	0.49	0.79	0.85	0.86	0.87
Avail Cap(c_a), veh/h		222	1232	382		317	1091	562	217	406	399	283
HCM Platoon Ratio		0.33	0.33	0.33		1.00	1.00	1.00	1.00	1.00	1.00	1.33
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		37.9	33.0	32.5		30.3	22.1	22.2	34.3	30.4	30.5	31.1
Incr Delay (d2), s/veh		13.9	2.0	5.0		2.9	1.5	3.1	18.2	15.4	16.4	23.4
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.5	5.1	4.5		3.5	4.1	4.5	4.3	7.4	7.4	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		51.8	35.1	37.6		33.2	23.7	25.2	52.4	45.8	46.9	54.5
LnGrp LOS		D	D	D		C	C	C	D	D	D	D
Approach Vol, veh/h			1058				993			815		
Approach Delay, s/veh			37.7				25.9			47.7		
Approach LOS			D				C			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.5	23.5	14.1	23.9	12.3	29.7	16.7	21.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.5	19.0	9.5	21.0	9.8	21.7	12.5	18.0
Max Q Clear Time (g_c+I1), s	9.6	12.7	9.4	18.0	8.1	12.1	12.3	15.9
Green Ext Time (p_c), s	0.1	2.9	0.0	1.4	0.1	3.7	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	38.6
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	593	64
Future Volume (veh/h)	593	64
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	698	75
Peak Hour Factor	0.85	0.85
Percent Heavy Veh, %	0	0
Cap, veh/h	798	86
Arrive On Green	0.32	0.32
Sat Flow, veh/h	3288	353
Grp Volume(v), veh/h	383	390
Grp Sat Flow(s),veh/h/ln	1805	1836
Q Serve(g_s), s	16.0	16.0
Cycle Q Clear(g_c), s	16.0	16.0
Prop In Lane		0.19
Lane Grp Cap(c), veh/h	438	446
V/C Ratio(X)	0.87	0.88
Avail Cap(c_a), veh/h	474	482
HCM Platoon Ratio	1.33	1.33
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	25.9	25.9
Incr Delay (d2), s/veh	15.6	15.6
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	8.0
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	41.6	41.5
LnGrp LOS	D	D
Approach Vol, veh/h	1013	
Approach Delay, s/veh	44.6	
Approach LOS	D	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	70	71	682	871	43
Future Vol, veh/h	7	70	71	682	871	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	8	84	86	822	1049	52

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1632	525	1101	0	-	0
Stage 1	1049	-	-	-	-	-
Stage 2	583	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	176	*724	965	-	-	-
Stage 1	635	-	-	-	-	-
Stage 2	527	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	161	*724	965	-	-	-
Mov Cap-2 Maneuver	161	-	-	-	-	-
Stage 1	578	-	-	-	-	-
Stage 2	527	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.2	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	965	-	161	724	-	-
HCM Lane V/C Ratio	0.089	-	0.052	0.116	-	-
HCM Control Delay (s)	9.1	-	28.6	10.6	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.2	0.4	-	-

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	107	139	37	109	188	110	29	97	591	142	4	70
Future Volume (veh/h)	107	139	37	109	188	110	29	97	591	142	4	70
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Work Zone On Approach		No			No				No			
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	116	151	40	118	204	120		105	642	0		76
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92		0.92
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	148	189	50	159	260	220		560	1143			479
Arrive On Green	0.08	0.13	0.13	0.09	0.14	0.14		0.31	0.32	0.00		0.26
Sat Flow, veh/h	1810	1448	383	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	116	0	191	118	204	120		105	642	0		76
Grp Sat Flow(s),veh/h/ln	1810	0	1831	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	5.7	0.0	9.1	5.7	9.3	3.6		3.8	13.3	0.0		2.9
Cycle Q Clear(g_c), s	5.7	0.0	9.1	5.7	9.3	3.6		3.8	13.3	0.0		2.9
Prop In Lane	1.00		0.21	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	148	0	238	159	260	220		560	1143			479
V/C Ratio(X)	0.78	0.00	0.80	0.74	0.79	0.55		0.19	0.56			0.16
Avail Cap(c_a), veh/h	271	0	397	271	412	349		560	1143			479
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	0.00		1.00
Uniform Delay (d), s/veh	40.5	0.0	38.0	40.0	37.6	12.1		22.8	25.6	0.0		25.4
Incr Delay (d2), s/veh	8.8	0.0	6.1	6.6	5.2	2.1		0.2	2.0	0.0		0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	4.4	2.8	4.6	2.5		1.6	5.9	0.0		1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.3	0.0	44.2	46.6	42.8	14.2		22.9	27.6	0.0		25.5
LnGrp LOS	D	A	D	D	D	B		C	C			C
Approach Vol, veh/h		307			442				747	A		
Approach Delay, s/veh		46.1			36.0				26.9			
Approach LOS		D			D				C			

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.3	33.0	12.4	16.2	32.3	29.0	11.9	16.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	28.5	13.5	19.5	14.5	24.5	13.5	19.5
Max Q Clear Time (g_c+I1), s	4.9	15.3	7.7	11.1	5.8	13.7	7.7	11.3
Green Ext Time (p_c), s	0.1	3.6	0.1	0.6	0.1	2.5	0.1	1.0

Intersection Summary	
HCM 6th Ctrl Delay	33.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	407	91
Future Volume (veh/h)	407	91
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	442	99
Peak Hour Factor	0.92	0.92
Percent Heavy Veh, %	0	0
Cap, veh/h	799	178
Arrive On Green	0.27	0.27
Sat Flow, veh/h	2935	652
Grp Volume(v), veh/h	271	270
Grp Sat Flow(s),veh/h/ln	1805	1783
Q Serve(g_s), s	11.5	11.7
Cycle Q Clear(g_c), s	11.5	11.7
Prop In Lane		0.37
Lane Grp Cap(c), veh/h	491	485
V/C Ratio(X)	0.55	0.56
Avail Cap(c_a), veh/h	491	485
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	28.0	28.1
Incr Delay (d2), s/veh	4.4	4.6
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	5.5
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	32.4	32.7
LnGrp LOS	C	C
Approach Vol, veh/h	617	
Approach Delay, s/veh	31.7	
Approach LOS	C	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	0	0	131	0	0	110	12	87	748	120	44	66	487	30
Future Vol, veh/h	0	0	131	0	0	110	12	87	748	120	44	66	487	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	142	0	0	120	13	95	813	130	48	72	529	33

Major/Minor	Minor2			Minor1			Major1				Major2				
Conflicting Flow All	-	-	281	-	-	472	562	562	0	0	943	943	0	0	
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-	
Pot Cap-1 Maneuver	0	0	*904	0	0	*799	1091	1288	-	-	796	1018	-	-	
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-	
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-	
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-	
Mov Cap-1 Maneuver	-	-	*904	-	-	*799	1231	1231	-	-	853	853	-	-	
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.7	10.3	0.8	1.7
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1231	-	-	904	799	853	-	-
HCM Lane V/C Ratio	0.087	-	-	0.158	0.15	0.14	-	-
HCM Control Delay (s)	8.2	-	-	9.7	10.3	9.9	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.6	0.5	0.5	-	-

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	22	207	834	199	14	268	906	157	311	599	133	6
Future Volume (veh/h)	22	207	834	199	14	268	906	157	311	599	133	6
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		216	869	207		279	944	164	324	624	139	
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		362	1411	438		318	1285	399	373	741	165	
Arrive On Green		0.20	0.27	0.27		0.06	0.08	0.08	0.21	0.25	0.25	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	2935	653	
Grp Volume(v), veh/h		216	869	207		279	944	164	324	383	380	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1783	
Q Serve(g_s), s		9.8	13.2	5.6		13.8	16.0	6.4	15.6	18.1	18.2	
Cycle Q Clear(g_c), s		9.8	13.2	5.6		13.8	16.0	6.4	15.6	18.1	18.2	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.37	
Lane Grp Cap(c), veh/h		362	1411	438		318	1285	399	373	456	450	
V/C Ratio(X)		0.60	0.62	0.47		0.88	0.73	0.41	0.87	0.84	0.84	
Avail Cap(c_a), veh/h		362	1411	438		332	1285	399	373	531	525	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh		32.7	28.6	9.2		41.4	38.4	18.9	34.6	31.9	31.9	
Incr Delay (d2), s/veh		2.7	2.0	3.6		21.7	3.8	3.1	19.2	10.3	10.6	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		4.5	5.6	3.8		8.6	7.8	2.8	8.7	9.0	8.9	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		35.4	30.7	12.8		63.1	42.2	22.0	53.8	42.2	42.6	
LnGrp LOS		D	C	B		E	D	C	D	D	D	
Approach Vol, veh/h			1292				1387			1087		
Approach Delay, s/veh			28.6				44.0			45.8		
Approach LOS			C				D			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.3	29.0	23.0	17.6	22.5	26.8	13.5	27.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	16.5	18.5	18.5	18.5	12.7	22.3	10.5	26.5
Max Q Clear Time (g_c+I1), s	15.8	15.2	17.6	11.5	11.8	18.0	9.2	20.2
Green Ext Time (p_c), s	0.1	2.0	0.1	1.7	0.1	2.6	0.0	2.5

Intersection Summary	
HCM 6th Ctrl Delay	40.3
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	139	370	121
Future Volume (veh/h)	139	370	121
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	145	385	126
Peak Hour Factor	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0
Cap, veh/h	180	527	235
Arrive On Green	0.03	0.05	0.05
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	145	385	126
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	7.2	9.5	6.9
Cycle Q Clear(g_c), s	7.2	9.5	6.9
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	180	527	235
V/C Ratio(X)	0.80	0.73	0.54
Avail Cap(c_a), veh/h	211	742	331
HCM Platoon Ratio	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.7	41.1	39.8
Incr Delay (d2), s/veh	17.5	2.2	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	4.7	3.0
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	60.1	43.3	41.7
LnGrp LOS	E	D	D
Approach Vol, veh/h		656	
Approach Delay, s/veh		46.7	
Approach LOS		D	
Timer - Assigned Phs			

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	335	0	0	190	261	866	122	45	730	39
Future Vol, veh/h	0	0	335	0	0	190	261	866	122	45	730	39
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	95	-	70	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	349	0	0	198	272	902	127	47	760	41

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	380	-	-	451	801	0	0	1029	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	*799	0	0	561	1197	-	-	683	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1				1	-	-		-	-
Mov Cap-1 Maneuver	-	-	*799	-	-	561	1197	-	-	683	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13	14.9	1.9	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1197	-	-	799	561	683	-	-
HCM Lane V/C Ratio	0.227	-	-	0.437	0.353	0.069	-	-
HCM Control Delay (s)	8.9	-	-	13	14.9	10.7	-	-
HCM Lane LOS	A	-	-	B	B	B	-	-
HCM 95th %tile Q(veh)	0.9	-	-	2.2	1.6	0.2	-	-

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

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 59.6 Worst Case Level Of Service: F[824.8]

Street Name:	Mall Driveway 2 - Pepperwood Lane						Olive Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 1!	0	0	1 0 3	0	1	1 0 3	1	0
Volume Module: >> Count Date: 5 Jun 2018 <<												
Base Vol:	23	7	102	27	5	100	89	1035	39	59	1210	29
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	23	7	102	27	5	100	89	1035	39	59	1210	29
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	25	7	109	29	5	107	95	1106	42	63	1293	31
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	25	7	109	29	5	107	95	1106	42	63	1293	31
Critical Gap Module:												
Critical Gp:	7.5	6.5	6.9	7.5	6.5	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1748	2746	369	1997	2772	339	1324	xxxx	xxxxx	1147	xxxx	xxxxx
Potent Cap.:	56	20	634	36	19	663	528	xxxx	xxxxx	616	xxxx	xxxxx
Move Cap.:	27	15	634	15	14	663	528	xxxx	xxxxx	616	xxxx	xxxxx
Volume/Cap:	0.91	0.50	0.17	1.94	0.37	0.16	0.18	xxxx	xxxx	0.10	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.7	xxxx	xxxxx	0.3	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	13.3	xxxx	xxxxx	11.5	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	B	*	*	B	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	89	xxxxx	xxxx	57	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	11.2	xxxxx	xxxxx	14.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	391	xxxxx	xxxxx	825	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	F	*	*	F	*	*	*	*	*	*	*
ApproachDel:	390.7			824.8			xxxxxx			xxxxxx		
ApproachLOS:	F			F			*			*		

Note: Queue reported is the number of cars per lane.

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Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												

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Intersection	
Int Delay, s/veh	5

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	1	11	350	59	62	339	11	72	1	114	9	1	2
Future Vol, veh/h	1	11	350	59	62	339	11	72	1	114	9	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	50	-	50	50	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	12	380	64	67	368	12	78	1	124	10	1	2

Major/Minor	Major1				Major2			Minor1			Minor2		
Conflicting Flow All	-	380	0	0	444	0	0	914	920	380	1001	972	368
Stage 1	-	-	-	-	-	-	-	404	406	-	502	502	-
Stage 2	-	-	-	-	-	-	-	510	514	-	499	470	-
Critical Hdwy	-	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	-	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	-	1214	-	-	1127	-	-	259	265	671	217	242	812
Stage 1	-	-	-	-	-	-	-	627	601	-	620	568	-
Stage 2	-	-	-	-	-	-	-	612	559	-	557	563	-
Platoon blocked, %		1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	~ -12	~ -12	-	-	1127	-	-	246	249	671	168	228	812
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	246	249	-	168	228	-
Stage 1	-	-	-	-	-	-	-	627	601	-	620	534	-
Stage 2	-	-	-	-	-	-	-	573	526	-	453	563	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		1.3	22.9	24.4
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	401	+	-	-	1127	-	-	199
HCM Lane V/C Ratio	0.507	-	-	-	0.06	-	-	0.066
HCM Control Delay (s)	22.9	-	-	-	8.4	-	-	24.4
HCM Lane LOS	C	-	-	-	A	-	-	C
HCM 95th %tile Q(veh)	2.8	-	-	-	0.2	-	-	0.2

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

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 1.7 Worst Case Level Of Service: B[14.2]

Street Name:	Mall Driveway 4 - Applewood Lane						Olive Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 1		0 0 0	0 1		1 0 3	0 1		1 0 3	1 0	
Volume Module:												
Base Vol:	0	0	65	0	0	101	134	1112	43	81	1146	116
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	65	0	0	101	134	1112	43	81	1146	116
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
PHF Volume:	0	0	68	0	0	105	140	1161	45	85	1196	121
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	68	0	0	105	140	1161	45	85	1196	121
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	6.9	xxxxx	xxxx	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	3.3	xxxxx	xxxx	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	387	xxxx	xxxx	360	1317	xxxx	xxxxx	1206	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	617	xxxx	xxxx	643	531	xxxx	xxxxx	586	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	617	xxxx	xxxx	643	531	xxxx	xxxxx	586	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	0.11	xxxx	xxxx	0.16	0.26	xxxx	xxxx	0.14	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	0.4	xxxx	xxxx	0.6	1.0	xxxx	xxxxx	0.5	xxxx	xxxxx
Control Del:	xxxxx	xxxx	11.6	xxxxx	xxxx	11.7	14.2	xxxx	xxxxx	12.2	xxxx	xxxxx
LOS by Move:	*	*	B	*	*	B	B	*	*	B	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	11.6			11.7			xxxxxx			xxxxxx		
ApproachLOS:	B			B			*			*		

Note: Queue reported is the number of cars per lane.

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Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		

Time Period: 0.25 hour

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	271	35	207	46	87	116	1	145	524	17	28	493	175
Future Volume (veh/h)	271	35	207	46	87	116	1	145	524	17	28	493	175
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No				No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	295	38	225	50	95	126		158	570	18	30	536	190
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0	0	0	0
Cap, veh/h	337	273	231	353	113	150		381	1542	49	405	1018	359
Arrive On Green	0.19	0.14	0.14	0.20	0.15	0.15		0.07	0.43	0.43	0.03	0.39	0.39
Sat Flow, veh/h	1810	1900	1610	1810	741	982		1810	3572	113	1810	2615	923
Grp Volume(v), veh/h	295	38	225	50	0	221		158	288	300	30	369	357
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1723		1810	1805	1880	1810	1805	1734
Q Serve(g_s), s	14.3	1.6	10.0	2.1	0.0	11.2		4.5	9.7	9.7	0.9	14.1	14.2
Cycle Q Clear(g_c), s	14.3	1.6	10.0	2.1	0.0	11.2		4.5	9.7	9.7	0.9	14.1	14.2
Prop In Lane	1.00		1.00	1.00		0.57		1.00		0.06	1.00		0.53
Lane Grp Cap(c), veh/h	337	273	231	353	0	263		381	779	812	405	703	675
V/C Ratio(X)	0.87	0.14	0.97	0.14	0.00	0.84		0.41	0.37	0.37	0.07	0.53	0.53
Avail Cap(c_a), veh/h	470	735	623	353	0	347		422	779	812	453	703	675
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.6	33.7	24.5	30.0	0.0	37.1		15.3	17.3	17.3	15.7	21.1	21.1
Incr Delay (d2), s/veh	12.6	0.2	21.7	0.2	0.0	13.2		0.7	1.3	1.3	0.1	2.8	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	0.7	5.1	0.9	0.0	5.6		1.8	4.2	4.3	0.4	6.3	6.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	48.2	33.9	46.2	30.2	0.0	50.3		16.0	18.6	18.6	15.7	23.9	24.1
LnGrp LOS	D	C	D	C	A	D		B	B	B	B	C	C
Approach Vol, veh/h		558			271				746			756	
Approach Delay, s/veh		46.4			46.6				18.1			23.7	
Approach LOS		D			D				B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.1	43.4	22.1	17.4	11.0	39.5	21.3	18.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.6	25.5	6.7	34.8	8.5	22.0	23.4	18.1
Max Q Clear Time (g_c+I1), s	2.9	11.7	4.1	12.0	6.5	16.2	16.3	13.2
Green Ext Time (p_c), s	0.0	3.0	0.0	0.9	0.1	2.3	0.5	0.5

Intersection Summary	
HCM 6th Ctrl Delay	30.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	1.3

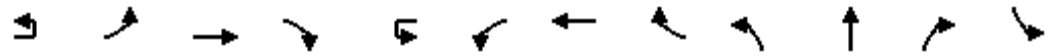
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	161	0	0	45	0	680	37	0	813	71
Future Vol, veh/h	0	0	161	0	0	45	0	680	37	0	813	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	175	0	0	49	0	739	40	0	884	77

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	481	-	-	390	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	*736	0	0	614	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %			1					-	-		-	-
Mov Cap-1 Maneuver	-	-	*736	-	-	614	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.4	11.4	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	736	614	-	-
HCM Lane V/C Ratio	-	-	0.238	0.08	-	-
HCM Control Delay (s)	-	-	11.4	11.4	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.9	0.3	-	-

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



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	33	106	824	148	31	145	880	62	347	517	125	314
Future Volume (veh/h)	33	106	824	148	31	145	880	62	347	517	125	314
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		112	867	156		153	926	65	365	544	132	331
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		143	1181	367		259	1445	101	404	642	155	373
Arrive On Green		0.03	0.08	0.08		0.14	0.29	0.29	0.22	0.22	0.22	0.07
Sat Flow, veh/h		1810	5187	1610		1810	4949	347	1810	2883	697	1810
Grp Volume(v), veh/h		112	867	156		153	646	345	365	340	336	331
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1838	1810	1805	1775	1810
Q Serve(g_s), s		5.5	14.7	4.8		7.1	14.6	14.7	17.7	16.2	16.4	16.3
Cycle Q Clear(g_c), s		5.5	14.7	4.8		7.1	14.6	14.7	17.7	16.2	16.4	16.3
Prop In Lane		1.00		1.00		1.00		0.19	1.00		0.39	1.00
Lane Grp Cap(c), veh/h		143	1181	367		259	1010	536	404	402	395	373
V/C Ratio(X)		0.78	0.73	0.43		0.59	0.64	0.64	0.90	0.85	0.85	0.89
Avail Cap(c_a), veh/h		191	1181	367		259	1010	536	472	431	424	412
HCM Platoon Ratio		0.33	0.33	0.33		1.00	1.00	1.00	1.00	1.00	1.00	0.33
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		43.1	38.9	12.2		36.1	27.7	27.8	34.0	33.5	33.5	40.9
Incr Delay (d2), s/veh		13.9	4.1	3.6		3.5	3.1	5.8	18.7	13.7	14.4	19.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.1	7.2	3.6		3.4	6.3	7.2	9.6	8.5	8.4	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		57.0	43.0	15.7		39.6	30.9	33.6	52.7	47.2	48.0	59.9
LnGrp LOS		E	D	B		D	C	C	D	D	D	E
Approach Vol, veh/h			1135				1144			1041		
Approach Delay, s/veh			40.6				32.8			49.4		
Approach LOS			D				C			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.4	25.0	24.6	23.0	11.6	30.8	23.1	24.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.5	20.5	23.5	18.5	9.5	20.5	20.5	21.5
Max Q Clear Time (g_c+I1), s	9.1	16.7	19.7	19.3	7.5	16.7	18.3	18.4
Green Ext Time (p_c), s	0.0	2.2	0.4	0.0	0.0	2.2	0.2	1.3

Intersection Summary	
HCM 6th Ctrl Delay	47.2
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	557	103
Future Volume (veh/h)	557	103
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	586	108
Peak Hour Factor	0.95	0.95
Percent Heavy Veh, %	0	0
Cap, veh/h	626	115
Arrive On Green	0.07	0.07
Sat Flow, veh/h	3045	560
Grp Volume(v), veh/h	347	347
Grp Sat Flow(s),veh/h/ln	1805	1799
Q Serve(g_s), s	17.2	17.3
Cycle Q Clear(g_c), s	17.2	17.3
Prop In Lane		0.31
Lane Grp Cap(c), veh/h	371	370
V/C Ratio(X)	0.93	0.94
Avail Cap(c_a), veh/h	371	370
HCM Platoon Ratio	0.33	0.33
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	41.3	41.4
Incr Delay (d2), s/veh	30.6	31.5
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.4	11.5
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	71.9	72.9
LnGrp LOS	E	E
Approach Vol, veh/h	1025	
Approach Delay, s/veh	68.4	
Approach LOS	E	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	189	107	972	794	54
Future Vol, veh/h	14	189	107	972	794	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	15	205	116	1057	863	59

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1624	432	922	0	-	0
Stage 1	863	-	-	-	-	-
Stage 2	761	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	*161	*765	1111	-	-	-
Stage 1	*721	-	-	-	-	-
Stage 2	*427	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	*144	*765	1111	-	-	-
Mov Cap-2 Maneuver	*144	-	-	-	-	-
Stage 1	*646	-	-	-	-	-
Stage 2	*427	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.9	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1111	-	144	765	-	-
HCM Lane V/C Ratio	0.105	-	0.106	0.269	-	-
HCM Control Delay (s)	8.6	-	32.9	11.4	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.4	-	0.3	1.1	-	-

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	90	177	47	82	104	53	10	35	291	128	6	66
Future Volume (veh/h)	90	177	47	82	104	53	10	35	291	128	6	66
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Work Zone On Approach		No			No				No			
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	105	206	55	95	121	62		41	338	0		77
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		0.86	0.86	0.86		0.86
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	135	250	67	123	316	268		394	1728			100
Arrive On Green	0.07	0.17	0.17	0.07	0.17	0.17		0.07	0.16	0.00		0.06
Sat Flow, veh/h	1810	1445	386	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	105	0	261	95	121	62		41	338	0		77
Grp Sat Flow(s),veh/h/ln	1810	0	1831	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	4.6	0.0	11.0	4.1	4.5	2.7		1.7	6.5	0.0		3.4
Cycle Q Clear(g_c), s	4.6	0.0	11.0	4.1	4.5	2.7		1.7	6.5	0.0		3.4
Prop In Lane	1.00		0.21	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	135	0	317	123	316	268		394	1728			100
V/C Ratio(X)	0.77	0.00	0.82	0.77	0.38	0.23		0.10	0.20			0.77
Avail Cap(c_a), veh/h	238	0	469	219	468	397		394	1728			215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		0.33	0.33	0.33		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	0.00		1.00
Uniform Delay (d), s/veh	36.3	0.0	31.9	36.7	29.7	28.9		29.8	20.3	0.0		37.3
Incr Delay (d2), s/veh	9.1	0.0	7.4	9.8	0.8	0.4		0.1	0.3	0.0		11.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	5.4	2.1	2.1	1.0		0.7	2.9	0.0		1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.4	0.0	39.3	46.4	30.5	29.4		29.9	20.6	0.0		48.9
LnGrp LOS	D	A	D	D	C	C		C	C			D
Approach Vol, veh/h		366			278				379	A		
Approach Delay, s/veh		41.1			35.7				21.6			
Approach LOS		D			D				C			

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	42.8	9.9	18.3	21.9	29.8	10.5	17.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.5	22.3	9.7	20.5	6.5	25.3	10.5	19.7
Max Q Clear Time (g_c+I1), s	5.4	8.5	6.1	13.0	3.7	15.3	6.6	6.5
Green Ext Time (p_c), s	0.0	1.8	0.1	0.8	0.0	3.2	0.1	0.6

Intersection Summary	
HCM 6th Ctrl Delay	31.5
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	512	95
Future Volume (veh/h)	512	95
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	595	110
Peak Hour Factor	0.86	0.86
Percent Heavy Veh, %	0	0
Cap, veh/h	962	177
Arrive On Green	0.32	0.32
Sat Flow, veh/h	3043	561
Grp Volume(v), veh/h	352	353
Grp Sat Flow(s),veh/h/ln	1805	1799
Q Serve(g_s), s	13.3	13.3
Cycle Q Clear(g_c), s	13.3	13.3
Prop In Lane		0.31
Lane Grp Cap(c), veh/h	571	569
V/C Ratio(X)	0.62	0.62
Avail Cap(c_a), veh/h	571	569
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	23.2	23.3
Incr Delay (d2), s/veh	4.9	5.0
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	6.2
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	28.2	28.3
LnGrp LOS	C	C
Approach Vol, veh/h	782	
Approach Delay, s/veh	30.3	
Approach LOS	C	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	0	0	30	0	0	21	5	33	444	34	16	25	582	23
Future Vol, veh/h	0	0	30	0	0	21	5	33	444	34	16	25	582	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	34	0	0	24	6	37	499	38	18	28	654	26

Major/Minor	Minor2		Minor1			Major1					Major2			
Conflicting Flow All	-	-	340	-	-	269	680	680	0	0	537	537	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*881	0	0	*920	963	1185	-	-	1076	1287	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-
Mov Cap-1 Maneuver	-	-	*881	-	-	*920	1144	1144	-	-	1183	1183	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	9	0.6	0.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1144	-	-	881	920	1183	-	-
HCM Lane V/C Ratio	0.037	-	-	0.038	0.026	0.039	-	-
HCM Control Delay (s)	8.3	-	-	9.2	9	8.2	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0.1	-	-

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	7	102	686	146	5	177	488	73	127	341	143	2
Future Volume (veh/h)	7	102	686	146	5	177	488	73	127	341	143	2
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		117	789	168		203	561	84	146	392	164	
Peak Hour Factor		0.87	0.87	0.87		0.87	0.87	0.87	0.87	0.87	0.87	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		405	1852	575		248	1400	435	205	488	202	
Arrive On Green		0.22	0.36	0.36		0.05	0.09	0.09	0.11	0.20	0.20	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	2491	1029	
Grp Volume(v), veh/h		117	789	168		203	561	84	146	283	273	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1715	
Q Serve(g_s), s		4.3	9.2	3.9		8.9	8.2	2.8	6.2	11.9	12.2	
Cycle Q Clear(g_c), s		4.3	9.2	3.9		8.9	8.2	2.8	6.2	11.9	12.2	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.60	
Lane Grp Cap(c), veh/h		405	1852	575		248	1400	435	205	354	336	
V/C Ratio(X)		0.29	0.43	0.29		0.82	0.40	0.19	0.71	0.80	0.81	
Avail Cap(c_a), veh/h		405	1852	575		328	1400	435	238	429	407	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh		25.8	19.5	7.8		37.2	30.3	15.1	34.2	30.7	30.8	
Incr Delay (d2), s/veh		0.4	0.7	1.3		11.6	0.9	1.0	8.0	8.6	10.1	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		1.8	3.7	2.2		5.0	3.7	1.6	3.1	5.9	5.8	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		26.1	20.2	9.1		48.8	31.2	16.1	42.2	39.3	40.9	
LnGrp LOS		C	C	A		D	C	B	D	D	D	
Approach Vol, veh/h			1074				848			702		
Approach Delay, s/veh			19.1				33.9			40.5		
Approach LOS			B				C			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.5	33.1	13.6	17.9	22.4	26.1	11.3	20.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	14.5	19.0	10.5	18.0	11.9	21.6	9.5	19.0
Max Q Clear Time (g_c+I1), s	10.9	11.2	8.2	11.6	6.3	10.2	7.2	14.2
Green Ext Time (p_c), s	0.2	3.6	0.1	1.8	0.1	3.1	0.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	30.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	107	416	64
Future Volume (veh/h)	107	416	64
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	123	478	74
Peak Hour Factor	0.87	0.87	0.87
Percent Heavy Veh, %	0	0	0
Cap, veh/h	154	605	270
Arrive On Green	0.17	0.33	0.33
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	123	478	74
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	5.2	9.6	2.7
Cycle Q Clear(g_c), s	5.2	9.6	2.7
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	154	605	270
V/C Ratio(X)	0.80	0.79	0.27
Avail Cap(c_a), veh/h	215	812	362
HCM Platoon Ratio	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	25.3	23.0
Incr Delay (d2), s/veh	13.3	3.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	3.7	1.0
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	45.9	29.2	23.6
LnGrp LOS	D	C	C
Approach Vol, veh/h		675	
Approach Delay, s/veh		31.6	
Approach LOS		C	
Timer - Assigned Phs			

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	0	0	99	0	0	58	123	554	116	1	46	672	20
Future Vol, veh/h	0	0	99	0	0	58	123	554	116	1	46	672	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	95	-	70	-	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	122	0	0	72	152	684	143	1	57	830	25

Major/Minor	Minor2			Minor1			Major1			Major2			
Conflicting Flow All	-	-	415	-	-	342	855	0	0	684	827	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	6.4	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.5	2.2	-	-
Pot Cap-1 Maneuver	0	0	*842	0	0	660	1048	-	-	536	813	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-
Platoon blocked, %			1				1	-	-			-	-
Mov Cap-1 Maneuver	-	-	*842	-	-	660	1048	-	-	802	802	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	11.1	1.4	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1048	-	-	842	660	802	-	-
HCM Lane V/C Ratio	0.145	-	-	0.145	0.108	0.072	-	-
HCM Control Delay (s)	9	-	-	10	11.1	9.8	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.5	-	-	0.5	0.4	0.2	-	-

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

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 1.2 Worst Case Level Of Service: D[30.5]

Street Name:	Mall Driveway 2 - Pepperwood Lane						Olive Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 3 0 1			1 0 3 1 0		
Volume Module: >> Count Date: 5 Jun 2018 <<												
Base Vol:	8	3	59	6	1	5	22	908	15	28	724	7
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	3	59	6	1	5	22	908	15	28	724	7
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
PHF Volume:	9	3	65	7	1	6	24	1001	17	31	798	8
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	9	3	65	7	1	6	24	1001	17	31	798	8
Critical Gap Module:												
Critical Gp:	7.5	6.5	6.9	7.5	6.5	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1311	1917	334	1248	1930	203	806	xxxx	xxxxx	1018	xxxx	xxxxx
Potent Cap.:	118	68	668	132	67	810	828	xxxx	xxxxx	690	xxxx	xxxxx
Move Cap.:	110	63	668	108	62	810	828	xxxx	xxxxx	690	xxxx	xxxxx
Volume/Cap:	0.08	0.05	0.10	0.06	0.02	0.01	0.03	xxxx	xxxx	0.04	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.5	xxxx	xxxxx	10.5	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	B	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	335	xxxxx	xxxx	154	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.9	xxxxx	xxxxx	0.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	18.9	xxxxx	xxxxx	30.5	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	D	*	*	*	*	*	*	*
ApproachDel:		18.9			30.5		xxxxxx			xxxxxx		
ApproachLOS:		C			D		*			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		

Time Period: 0.25 hour

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Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	343	30	28	228	6	12	0	39	4	0	6
Future Vol, veh/h	1	343	30	28	228	6	12	0	39	4	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	50	50	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	445	39	36	296	8	16	0	51	5	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	304	0	0	484	0	0	823	823	445	860	854	296
Stage 1	-	-	-	-	-	-	447	447	-	368	368	-
Stage 2	-	-	-	-	-	-	376	376	-	492	486	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1288	-	-	1089	-	-	302	309	617	282	295	838
Stage 1	-	-	-	-	-	-	595	577	-	715	650	-
Stage 2	-	-	-	-	-	-	707	644	-	562	554	-
Platoon blocked, %	1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	1288	-	-	1089	-	-	291	299	617	252	285	838
Mov Cap-2 Maneuver	-	-	-	-	-	-	291	299	-	252	285	-
Stage 1	-	-	-	-	-	-	594	576	-	714	629	-
Stage 2	-	-	-	-	-	-	677	623	-	515	553	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.9	13.5	13.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	488	1288	-	-	1089	-	-	434
HCM Lane V/C Ratio	0.136	0.001	-	-	0.033	-	-	0.03
HCM Control Delay (s)	13.5	7.8	-	-	8.4	-	-	13.6
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	0.1

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: B[10.7]

Street Name:	Mall Driveway 4 - Applewood Lane									Olive Avenue								
Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	0	1	0	0	0	0	1	1	0	3	0	1	1	0	3	1	0
Volume Module:																				
Base Vol:	0	0	30	0	0	7	63	908	19	47	733	23								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	0	0	30	0	0	7	63	908	19	47	733	23								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90								
PHF Volume:	0	0	33	0	0	8	70	1011	21	52	816	26								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	0	0	33	0	0	8	70	1011	21	52	816	26								
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	6.9	xxxxx	xxxx	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	xxxxx	xxxx	3.3	xxxxx	xxxx	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	337	xxxx	xxxx	217	842	xxxx	xxxxx	1032	xxxx	xxxxx								
Potent Cap.:	xxxx	xxxx	665	xxxx	xxxx	794	802	xxxx	xxxxx	681	xxxx	xxxxx								
Move Cap.:	xxxx	xxxx	665	xxxx	xxxx	794	802	xxxx	xxxxx	681	xxxx	xxxxx								
Volume/Cap:	xxxx	xxxx	0.05	xxxx	xxxx	0.01	0.09	xxxx	xxxx	0.08	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	0.2	xxxx	xxxx	0.0	0.3	xxxx	xxxxx	0.2	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	10.7	xxxxx	xxxx	9.6	9.9	xxxx	xxxxx	10.7	xxxx	xxxxx								
LOS by Move:	*	*	B	*	*	A	A	*	*	B	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*								
ApproachDel:	10.7			9.6			xxxxxx			xxxxxx										
ApproachLOS:	B			A			*			*										

Note: Queue reported is the number of cars per lane.

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Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		

Time Period: 0.25 hour

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	159	83	127	48	70	109	1	104	487	15	116	689	122
Future Volume (veh/h)	159	83	127	48	70	109	1	104	487	15	116	689	122
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No				No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	209	109	167	63	92	143		137	641	20	153	907	161
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76		0.76	0.76	0.76	0.76	0.76	0.76
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0	0	0	0
Cap, veh/h	247	259	219	300	111	172		352	1108	35	510	1034	183
Arrive On Green	0.14	0.14	0.14	0.17	0.17	0.17		0.14	0.31	0.31	0.16	0.34	0.34
Sat Flow, veh/h	1810	1900	1610	1810	670	1042		1810	3574	111	1810	3064	544
Grp Volume(v), veh/h	209	109	167	63	0	235		137	324	337	153	534	534
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1712		1810	1805	1880	1810	1805	1802
Q Serve(g_s), s	9.0	4.2	8.0	2.4	0.0	10.6		0.6	12.1	12.1	0.0	22.3	22.3
Cycle Q Clear(g_c), s	9.0	4.2	8.0	2.4	0.0	10.6		0.6	12.1	12.1	0.0	22.3	22.3
Prop In Lane	1.00		1.00	1.00		0.61		1.00		0.06	1.00		0.30
Lane Grp Cap(c), veh/h	247	259	219	300	0	283		352	560	583	510	609	608
V/C Ratio(X)	0.84	0.42	0.76	0.21	0.00	0.83		0.39	0.58	0.58	0.30	0.88	0.88
Avail Cap(c_a), veh/h	260	534	453	300	0	385		352	560	583	510	609	608
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	31.7	33.3	28.8	0.0	32.3		29.8	23.2	23.2	22.8	24.9	24.9
Incr Delay (d2), s/veh	21.0	1.1	5.4	0.3	0.0	10.6		0.7	4.3	4.2	0.3	16.3	16.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	2.0	3.4	1.1	0.0	5.1		2.3	5.6	5.8	2.4	11.7	11.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	54.7	32.8	38.7	29.2	0.0	42.9		30.5	27.5	27.4	23.2	41.2	41.3
LnGrp LOS	D	C	D	C	A	D		C	C	C	C	D	D
Approach Vol, veh/h		485			298				798			1221	
Approach Delay, s/veh		44.3			40.0				28.0			39.0	
Approach LOS		D			D				C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.5	29.3	17.8	15.4	15.3	31.5	15.4	17.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.3	24.8	7.0	22.5	5.5	27.0	11.5	18.0
Max Q Clear Time (g_c+I1), s	12.0	14.1	4.4	10.0	2.6	24.3	11.0	12.6
Green Ext Time (p_c), s	0.2	3.0	0.0	0.9	0.1	1.7	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	36.9
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	0.9

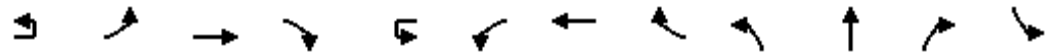
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	71	0	0	53	0	605	48	0	789	60
Future Vol, veh/h	0	0	71	0	0	53	0	605	48	0	789	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	96	0	0	72	0	818	65	0	1066	81

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	574	-	-	442	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	*746	0	0	569	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %			1					-	-		-	-
Mov Cap-1 Maneuver	-	-	*746	-	-	569	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.5	12.2	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	746	569	-	-
HCM Lane V/C Ratio	-	-	0.129	0.126	-	-
HCM Control Delay (s)	-	-	10.5	12.2	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.4	0.4	-	-

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



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	11	118	610	170	30	159	597	86	144	438	109	204
Future Volume (veh/h)	11	118	610	170	30	159	597	86	144	438	109	204
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		139	718	200		187	702	101	169	515	128	240
Peak Hour Factor		0.85	0.85	0.85		0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		176	1232	382		315	1442	206	212	601	149	278
Arrive On Green		0.03	0.08	0.08		0.17	0.31	0.31	0.12	0.21	0.21	0.15
Sat Flow, veh/h		1810	5187	1610		1810	4587	654	1810	2868	709	1810
Grp Volume(v), veh/h		139	718	200		187	528	275	169	323	320	240
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1782	1810	1805	1772	1810
Q Serve(g_s), s		6.1	10.7	9.5		7.6	9.9	10.0	7.3	13.8	13.9	10.4
Cycle Q Clear(g_c), s		6.1	10.7	9.5		7.6	9.9	10.0	7.3	13.8	13.9	10.4
Prop In Lane		1.00		1.00		1.00		0.37	1.00		0.40	1.00
Lane Grp Cap(c), veh/h		176	1232	382		315	1087	560	212	378	371	278
V/C Ratio(X)		0.79	0.58	0.52		0.59	0.49	0.49	0.80	0.85	0.86	0.86
Avail Cap(c_a), veh/h		222	1232	382		315	1087	560	212	406	399	283
HCM Platoon Ratio		0.33	0.33	0.33		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		37.9	33.0	32.5		30.4	22.2	22.2	34.4	30.4	30.5	33.0
Incr Delay (d2), s/veh		13.9	2.0	5.0		3.0	1.6	3.1	19.1	15.4	16.4	22.6
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.5	5.1	4.5		3.5	4.1	4.5	4.2	7.4	7.4	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		51.8	35.1	37.6		33.4	23.7	25.3	53.5	45.8	46.9	55.7
LnGrp LOS		D	D	D		C	C	C	D	D	D	E
Approach Vol, veh/h			1057				990			812		
Approach Delay, s/veh			37.7				26.0			47.9		
Approach LOS			D				C			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.4	23.5	13.9	24.2	12.3	29.7	16.8	21.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.5	19.0	9.0	21.5	9.8	21.7	12.5	18.0
Max Q Clear Time (g_c+I1), s	9.6	12.7	9.3	18.2	8.1	12.0	12.4	15.9
Green Ext Time (p_c), s	0.1	2.9	0.0	1.5	0.1	3.7	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	38.9
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	592	64
Future Volume (veh/h)	592	64
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	696	75
Peak Hour Factor	0.85	0.85
Percent Heavy Veh, %	0	0
Cap, veh/h	810	87
Arrive On Green	0.25	0.25
Sat Flow, veh/h	3287	354
Grp Volume(v), veh/h	382	389
Grp Sat Flow(s),veh/h/ln	1805	1836
Q Serve(g_s), s	16.2	16.2
Cycle Q Clear(g_c), s	16.2	16.2
Prop In Lane		0.19
Lane Grp Cap(c), veh/h	445	452
V/C Ratio(X)	0.86	0.86
Avail Cap(c_a), veh/h	485	494
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	28.8	28.8
Incr Delay (d2), s/veh	13.5	13.5
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	8.5
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	42.3	42.3
LnGrp LOS	D	D
Approach Vol, veh/h	1011	
Approach Delay, s/veh	45.5	
Approach LOS	D	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	70	71	680	870	43
Future Vol, veh/h	7	70	71	680	870	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	8	84	86	819	1048	52

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1630	524	1100	0	-	0
Stage 1	1048	-	-	-	-	-
Stage 2	582	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	177	*724	966	-	-	-
Stage 1	636	-	-	-	-	-
Stage 2	527	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	161	*724	966	-	-	-
Mov Cap-2 Maneuver	161	-	-	-	-	-
Stage 1	580	-	-	-	-	-
Stage 2	527	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.2	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	966	-	161	724	-	-
HCM Lane V/C Ratio	0.089	-	0.052	0.116	-	-
HCM Control Delay (s)	9.1	-	28.6	10.6	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.2	0.4	-	-

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	107	134	37	109	182	88	29	97	591	142	4	51
Future Volume (veh/h)	107	134	37	109	182	88	29	97	591	142	4	51
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Work Zone On Approach		No			No				No			
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900		1900
Adj Flow Rate, veh/h	116	146	40	118	198	96		105	642	0		55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92		0.92
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0		0
Cap, veh/h	149	191	52	155	259	219		588	1196			407
Arrive On Green	0.08	0.13	0.13	0.09	0.14	0.14		0.33	0.33	0.00		0.23
Sat Flow, veh/h	1810	1436	393	1810	1900	1610		1810	3610	1610		1810
Grp Volume(v), veh/h	116	0	186	118	198	96		105	642	0		55
Grp Sat Flow(s),veh/h/ln	1810	0	1829	1810	1900	1610		1810	1805	1610		1810
Q Serve(g_s), s	5.0	0.0	7.9	5.1	8.0	2.7		3.3	11.6	0.0		1.9
Cycle Q Clear(g_c), s	5.0	0.0	7.9	5.1	8.0	2.7		3.3	11.6	0.0		1.9
Prop In Lane	1.00		0.22	1.00		1.00		1.00		1.00		1.00
Lane Grp Cap(c), veh/h	149	0	243	155	259	219		588	1196			407
V/C Ratio(X)	0.78	0.00	0.77	0.76	0.76	0.44		0.18	0.54			0.13
Avail Cap(c_a), veh/h	260	0	514	163	432	366		588	1196			407
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	0.00		1.00
Uniform Delay (d), s/veh	36.0	0.0	33.5	35.8	33.3	11.8		19.3	21.8	0.0		24.8
Incr Delay (d2), s/veh	8.5	0.0	5.0	17.8	4.7	1.4		0.1	1.7	0.0		0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	3.7	3.0	3.9	1.7		1.4	5.0	0.0		0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.5	0.0	38.5	53.6	38.0	13.1		19.5	23.5	0.0		24.9
LnGrp LOS	D	A	D	D	D	B		B	C			C
Approach Vol, veh/h		302			412				747	A		
Approach Delay, s/veh		40.8			36.7				22.9			
Approach LOS		D			D				C			

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.5	31.0	11.4	15.1	30.5	23.0	11.1	15.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.8	26.5	7.2	22.5	13.8	18.5	11.5	18.2
Max Q Clear Time (g_c+I1), s	3.9	13.6	7.1	9.9	5.3	13.0	7.0	10.0
Green Ext Time (p_c), s	0.0	3.6	0.0	0.8	0.1	1.6	0.1	0.9

Intersection Summary	
HCM 6th Ctrl Delay	31.7
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	407	91
Future Volume (veh/h)	407	91
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	442	99
Peak Hour Factor	0.92	0.92
Percent Heavy Veh, %	0	0
Cap, veh/h	679	151
Arrive On Green	0.23	0.23
Sat Flow, veh/h	2935	652
Grp Volume(v), veh/h	271	270
Grp Sat Flow(s),veh/h/ln	1805	1783
Q Serve(g_s), s	10.8	11.0
Cycle Q Clear(g_c), s	10.8	11.0
Prop In Lane		0.37
Lane Grp Cap(c), veh/h	417	412
V/C Ratio(X)	0.65	0.66
Avail Cap(c_a), veh/h	417	412
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	27.8	27.9
Incr Delay (d2), s/veh	7.6	7.9
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	5.4
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	35.4	35.8
LnGrp LOS	D	D
Approach Vol, veh/h	596	
Approach Delay, s/veh	34.6	
Approach LOS	C	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	0	0	131	0	0	110	12	87	748	120	44	66	487	30
Future Vol, veh/h	0	0	131	0	0	110	12	87	748	120	44	66	487	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	-	None	-	-	-	None
Storage Length	-	-	0	-	-	0	-	35	-	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Grade, %	-	0	-	-	0	-	-	-	0	-	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	142	0	0	120	13	95	813	130	48	72	529	33

Major/Minor	Minor2			Minor1			Major1				Major2				
Conflicting Flow All	-	-	281	-	-	472	562	562	0	0	943	943	0	0	
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Critical Hdwy	-	-	6.9	-	-	6.9	6.4	4.1	-	-	6.4	4.1	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.5	2.2	-	-	2.5	2.2	-	-	
Pot Cap-1 Maneuver	0	0	*920	0	0	*803	1031	1256	-	-	786	1013	-	-	
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	-	-	
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	-	-	
Platoon blocked, %			1			1	1	1	-	-	1	1	-	-	
Mov Cap-1 Maneuver	-	-	*920	-	-	*803	1195	1195	-	-	846	846	-	-	
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.6	10.3	0.9	1.7
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1195	-	-	920	803	846	-	-
HCM Lane V/C Ratio	0.09	-	-	0.155	0.149	0.141	-	-
HCM Control Delay (s)	8.3	-	-	9.6	10.3	10	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.5	0.5	0.5	-	-

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	22	207	825	199	14	253	895	157	311	599	120	6
Future Volume (veh/h)	22	207	825	199	14	253	895	157	311	599	120	6
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h		216	859	207		264	932	164	324	624	125	
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	
Cap, veh/h		336	1444	448		274	1264	392	362	741	148	
Arrive On Green		0.19	0.28	0.28		0.05	0.08	0.08	0.20	0.25	0.25	
Sat Flow, veh/h		1810	5187	1610		1810	5187	1610	1810	2998	599	
Grp Volume(v), veh/h		216	859	207		264	932	164	324	375	374	
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1610	1810	1805	1792	
Q Serve(g_s), s		8.8	11.5	4.8		11.6	14.1	5.6	14.0	15.8	15.9	
Cycle Q Clear(g_c), s		8.8	11.5	4.8		11.6	14.1	5.6	14.0	15.8	15.9	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.33	
Lane Grp Cap(c), veh/h		336	1444	448		274	1264	392	362	446	443	
V/C Ratio(X)		0.64	0.60	0.46		0.96	0.74	0.42	0.90	0.84	0.84	
Avail Cap(c_a), veh/h		336	1444	448		274	1264	392	362	505	502	
HCM Platoon Ratio		1.00	1.00	1.00		0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh		30.1	25.0	7.7		37.8	34.3	16.3	31.2	28.6	28.6	
Incr Delay (d2), s/veh		4.1	1.8	3.4		44.6	3.9	3.3	23.6	11.0	11.3	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		4.1	4.8	3.3		9.0	6.9	3.4	8.2	7.9	7.9	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		34.2	26.8	11.1		82.4	38.1	19.6	54.8	39.6	39.9	
LnGrp LOS		C	C	B		F	D	B	D	D	D	
Approach Vol, veh/h			1282				1360			1073		
Approach Delay, s/veh			25.5				44.5			44.3		
Approach LOS			C				D			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.6	26.8	20.5	16.1	19.4	24.0	12.4	24.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	12.1	18.0	13.4	18.5	10.6	19.5	9.5	22.4
Max Q Clear Time (g_c+I1), s	13.6	13.5	16.0	9.7	10.8	16.1	8.1	17.9
Green Ext Time (p_c), s	0.0	2.6	0.0	1.9	0.0	2.1	0.0	1.9

Intersection Summary	
HCM 6th Ctrl Delay	37.2
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	139	370	121
Future Volume (veh/h)	139	370	121
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	145	385	126
Peak Hour Factor	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0
Cap, veh/h	178	525	234
Arrive On Green	0.20	0.29	0.29
Sat Flow, veh/h	1810	3610	1610
Grp Volume(v), veh/h	145	385	126
Grp Sat Flow(s),veh/h/ln	1810	1805	1610
Q Serve(g_s), s	6.1	7.7	5.3
Cycle Q Clear(g_c), s	6.1	7.7	5.3
Prop In Lane	1.00		1.00
Lane Grp Cap(c), veh/h	178	525	234
V/C Ratio(X)	0.82	0.73	0.54
Avail Cap(c_a), veh/h	215	835	372
HCM Platoon Ratio	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	27.0	26.1
Incr Delay (d2), s/veh	18.1	2.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	3.0	1.9
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	49.5	29.0	28.0
LnGrp LOS	D	C	C
Approach Vol, veh/h		656	
Approach Delay, s/veh		33.3	
Approach LOS		C	
Timer - Assigned Phs			

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	335	0	0	190	261	853	122	45	715	39
Future Vol, veh/h	0	0	335	0	0	190	261	853	122	45	715	39
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	95	-	70	40	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	349	0	0	198	272	889	127	47	745	41

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	373	-	-	445	786	0	0	1016	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	*803	0	0	566	*1205	-	-	691	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1				1	-	-		-	-
Mov Cap-1 Maneuver	-	-	*803	-	-	566	*1205	-	-	691	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.9	14.7	1.9	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 1205	-	-	803	566	691	-	-
HCM Lane V/C Ratio	0.226	-	-	0.435	0.35	0.068	-	-
HCM Control Delay (s)	8.9	-	-	12.9	14.7	10.6	-	-
HCM Lane LOS	A	-	-	B	B	B	-	-
HCM 95th %tile Q(veh)	0.9	-	-	2.2	1.6	0.2	-	-

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

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Intersection 5

Average Delay (sec/veh): 21.2 Worst Case Level Of Service: F[239.5]

Street Name:	Mall Driveway 2 - Pepperwood Lane						Olive Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 1!	0	0	1 0 3	0	1	1 0 3	1	0
Volume Module: >> Count Date: 5 Jun 2018 <<												
Base Vol:	23	5	102	16	3	92	82	1020	39	59	1193	29
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	23	5	102	16	3	92	82	1020	39	59	1193	29
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	25	5	109	17	3	98	88	1090	42	63	1275	31
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	25	5	109	17	3	98	88	1090	42	63	1275	31
Critical Gap Module:												
Critical Gp:	7.5	6.5	6.9	7.5	6.5	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1711	2697	363	1957	2723	334	1306	xxxx	xxxxx	1131	xxxx	xxxxx
Potent Cap.:	60	22	639	39	21	668	537	xxxx	xxxxx	625	xxxx	xxxxx
Move Cap.:	35	16	639	20	16	668	537	xxxx	xxxxx	625	xxxx	xxxxx
Volume/Cap:	0.70	0.33	0.17	0.86	0.20	0.15	0.16	xxxx	xxxx	0.10	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.6	xxxx	xxxxx	0.3	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	13.0	xxxx	xxxxx	11.4	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	B	*	*	B	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	116	xxxxx	xxxx	98	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	8.8	xxxxx	xxxxx	8.1	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	217	xxxxx	xxxxx	240	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	F	*	*	F	*	*	*	*	*	*	*
ApproachDel:	217.2			239.5			xxxxxx			xxxxxx		
ApproachLOS:	F			F			*			*		

Note: Queue reported is the number of cars per lane.

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #1 Intersection 5

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												

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Intersection	
Int Delay, s/veh	2.9

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Vol, veh/h	1	11	350	32	43	339	11	39	1	92	9	1	2
Future Vol, veh/h	1	11	350	32	43	339	11	39	1	92	9	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	50	-	50	50	-	50	-	-	-	-	-	-
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	1	12	380	35	47	368	12	42	1	100	10	1	2

Major/Minor	Major1				Major2			Minor1			Minor2		
Conflicting Flow All	-	380	0	0	415	0	0	874	880	380	934	903	368
Stage 1	-	-	-	-	-	-	-	404	406	-	462	462	-
Stage 2	-	-	-	-	-	-	-	470	474	-	472	441	-
Critical Hdwy	-	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	-	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	-	*1205	-	-	1155	-	-	284	284	671	250	273	*803
Stage 1	-	-	-	-	-	-	-	627	601	-	679	607	-
Stage 2	-	-	-	-	-	-	-	669	597	-	576	580	-
Platoon blocked, %		1	-	-		-	-	1	1		1	1	1
Mov Cap-1 Maneuver	~ -12	*~ -12	-	-	1155	-	-	273	273	671	205	262	*803
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	273	273	-	205	262	-
Stage 1	-	-	-	-	-	-	-	627	601	-	679	582	-
Stage 2	-	-	-	-	-	-	-	639	572	-	489	580	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		0.9	16.2	20.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	465	+	-	-	1155	-	-	239
HCM Lane V/C Ratio	0.309	-	-	-	0.04	-	-	0.055
HCM Control Delay (s)	16.2	-	-	-	8.2	-	-	20.9
HCM Lane LOS	C	-	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.3	-	-	-	0.1	-	-	0.2

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

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Intersection 7

Average Delay (sec/veh): 1.6 Worst Case Level Of Service: B[13.6]

Street Name:	Mall Driveway 4 - Applewood Lane									Olive Avenue								
Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	0	1	0	0	0	0	1	1	0	3	0	1	1	0	3	1	0
Volume Module:																				
Base Vol:	0	0	65	0	0	84	119	1101	43	81	1146	94								
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
Initial Bse:	0	0	65	0	0	84	119	1101	43	81	1146	94								
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00								
PHF Adj:	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96								
PHF Volume:	0	0	68	0	0	88	124	1149	45	85	1196	98								
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0								
FinalVolume:	0	0	68	0	0	88	124	1149	45	85	1196	98								
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	6.9	xxxxx	xxxx	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx								
FollowUpTim:	xxxxx	xxxx	3.3	xxxxx	xxxx	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx								
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	383	xxxx	xxxx	348	1294	xxxx	xxxxx	1194	xxxx	xxxxx								
Potent Cap.:	xxxx	xxxx	621	xxxx	xxxx	654	542	xxxx	xxxxx	592	xxxx	xxxxx								
Move Cap.:	xxxx	xxxx	621	xxxx	xxxx	654	542	xxxx	xxxxx	592	xxxx	xxxxx								
Volume/Cap:	xxxx	xxxx	0.11	xxxx	xxxx	0.13	0.23	xxxx	xxxx	0.14	xxxx	xxxx								
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	0.4	xxxx	xxxx	0.5	0.9	xxxx	xxxxx	0.5	xxxx	xxxxx								
Control Del:	xxxxx	xxxx	11.5	xxxxx	xxxx	11.4	13.6	xxxx	xxxxx	12.1	xxxx	xxxxx								
LOS by Move:	*	*	B	*	*	B	B	*	*	B	*	*								
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx								
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx								
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*								
ApproachDel:	11.5			11.4			xxxxxx			xxxxxx										
ApproachLOS:	B			B			*			*										

Note: Queue reported is the number of cars per lane.

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #2 Intersection 7

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	251	33	207	46	85	116	1	145	524	17	28	493	158
Future Volume (veh/h)	251	33	207	46	85	116	1	145	524	17	28	493	158
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No				No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	273	36	225	50	92	126		158	570	18	30	536	172
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0		0	0	0	0	0	0
Cap, veh/h	314	323	273	288	113	154		492	1005	32	484	673	215
Arrive On Green	0.17	0.17	0.17	0.16	0.16	0.16		0.20	0.28	0.28	0.16	0.25	0.25
Sat Flow, veh/h	1810	1900	1610	1810	726	995		1810	3572	113	1810	2690	860
Grp Volume(v), veh/h	273	36	225	50	0	218		158	288	300	30	359	349
Grp Sat Flow(s),veh/h/ln	1810	1900	1610	1810	0	1721		1810	1805	1880	1810	1805	1745
Q Serve(g_s), s	11.7	1.3	10.8	1.9	0.0	9.8		0.0	10.9	10.9	0.0	14.9	15.0
Cycle Q Clear(g_c), s	11.7	1.3	10.8	1.9	0.0	9.8		0.0	10.9	10.9	0.0	14.9	15.0
Prop In Lane	1.00		1.00	1.00		0.58		1.00		0.06	1.00		0.49
Lane Grp Cap(c), veh/h	314	323	273	288	0	267		492	508	529	484	451	436
V/C Ratio(X)	0.87	0.11	0.82	0.17	0.00	0.82		0.32	0.57	0.57	0.06	0.80	0.80
Avail Cap(c_a), veh/h	362	656	556	288	0	387		492	508	529	484	451	436
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	28.1	32.1	29.1	0.0	32.7		25.1	24.6	24.6	21.6	28.1	28.1
Incr Delay (d2), s/veh	17.8	0.2	6.2	0.3	0.0	8.6		0.4	4.5	4.4	0.1	13.5	14.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	0.6	4.5	0.8	0.0	4.6		2.4	5.1	5.3	0.4	7.9	7.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	50.0	28.3	38.2	29.4	0.0	41.3		25.5	29.1	29.0	21.7	41.6	42.4
LnGrp LOS	D	C	D	C	A	D		C	C	C	C	D	D
Approach Vol, veh/h		534			268				746			738	
Approach Delay, s/veh		43.6			39.1				28.3			41.2	
Approach LOS		D			D				C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	27.0	17.2	18.1	20.2	24.5	18.4	16.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	22.5	6.4	27.6	8.0	20.0	16.0	18.0
Max Q Clear Time (g_c+I1), s	12.0	12.9	3.9	12.8	2.0	17.0	13.7	11.8
Green Ext Time (p_c), s	0.0	2.5	0.0	0.8	0.2	1.3	0.2	0.6

Intersection Summary	
HCM 6th Ctrl Delay	37.3
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	146	0	0	45	0	680	37	0	813	71
Future Vol, veh/h	0	0	146	0	0	45	0	680	37	0	813	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	159	0	0	49	0	739	40	0	884	77

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	481	-	-	390	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	6.9	-	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.9	-	-	3.3	-	-	-	-	-	-
Pot Cap-1 Maneuver	0	0	*746	0	0	614	0	-	-	0	-	-
Stage 1	0	0	-	0	0	-	0	-	-	0	-	-
Stage 2	0	0	-	0	0	-	0	-	-	0	-	-
Platoon blocked, %			1					-	-		-	-
Mov Cap-1 Maneuver	-	-	*746	-	-	614	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.1	11.4	0	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBT	SBR
Capacity (veh/h)	-	-	746	614	-	-
HCM Lane V/C Ratio	-	-	0.213	0.08	-	-
HCM Control Delay (s)	-	-	11.1	11.4	-	-
HCM Lane LOS	-	-	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.8	0.3	-	-

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

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	33	106	813	148	31	145	871	62	334	517	125	314
Future Volume (veh/h)	33	106	813	148	31	145	871	62	334	517	125	314
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		112	856	156		153	917	65	352	544	132	331
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		0	0	0		0	0	0	0	0	0	0
Cap, veh/h		144	1180	366		226	1348	95	375	660	160	351
Arrive On Green		0.03	0.08	0.08		0.12	0.27	0.27	0.21	0.23	0.23	0.19
Sat Flow, veh/h		1810	5187	1610		1810	4945	350	1810	2883	697	1810
Grp Volume(v), veh/h		112	856	156		153	641	341	352	340	336	331
Grp Sat Flow(s),veh/h/ln		1810	1729	1610		1810	1729	1837	1810	1805	1775	1810
Q Serve(g_s), s		4.9	12.9	7.4		6.5	13.2	13.3	15.3	14.3	14.4	14.4
Cycle Q Clear(g_c), s		4.9	12.9	7.4		6.5	13.2	13.3	15.3	14.3	14.4	14.4
Prop In Lane		1.00		1.00		1.00		0.19	1.00		0.39	1.00
Lane Grp Cap(c), veh/h		144	1180	366		226	943	501	375	414	407	351
V/C Ratio(X)		0.78	0.73	0.43		0.68	0.68	0.68	0.94	0.82	0.83	0.94
Avail Cap(c_a), veh/h		170	1180	366		226	943	501	375	431	424	351
HCM Platoon Ratio		0.33	0.33	0.33		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		38.3	34.6	32.0		33.5	26.0	26.0	31.2	29.3	29.3	31.8
Incr Delay (d2), s/veh		17.5	3.9	3.6		7.9	3.9	7.3	30.9	11.7	12.3	33.8
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.9	6.3	3.4		3.3	5.7	6.6	9.6	7.3	7.3	9.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		55.7	38.5	35.6		41.4	29.9	33.3	62.1	41.0	41.7	65.6
LnGrp LOS		E	D	D		D	C	C	E	D	D	E
Approach Vol, veh/h			1124				1135			1028		
Approach Delay, s/veh			39.8				32.5			48.4		
Approach LOS			D				C			D		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.5	22.7	21.1	21.7	10.9	26.3	20.0	22.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.2	18.2	16.6	18.0	7.5	19.9	15.5	19.1
Max Q Clear Time (g_c+I1), s	8.5	14.9	17.3	16.6	6.9	15.3	16.4	16.4
Green Ext Time (p_c), s	0.0	1.9	0.0	0.6	0.0	2.5	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	43.3
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	542	103
Future Volume (veh/h)	542	103
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1900	1900
Adj Flow Rate, veh/h	571	108
Peak Hour Factor	0.95	0.95
Percent Heavy Veh, %	0	0
Cap, veh/h	653	123
Arrive On Green	0.22	0.22
Sat Flow, veh/h	3031	572
Grp Volume(v), veh/h	339	340
Grp Sat Flow(s),veh/h/ln	1805	1797
Q Serve(g_s), s	14.5	14.6
Cycle Q Clear(g_c), s	14.5	14.6
Prop In Lane		0.32
Lane Grp Cap(c), veh/h	389	387
V/C Ratio(X)	0.87	0.88
Avail Cap(c_a), veh/h	406	404
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	30.3	30.4
Incr Delay (d2), s/veh	18.0	18.6
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	8.1
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	48.3	49.0
LnGrp LOS	D	D
Approach Vol, veh/h	1010	
Approach Delay, s/veh	54.2	
Approach LOS	D	
Timer - Assigned Phs		

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	189	107	959	779	54
Future Vol, veh/h	14	189	107	959	779	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	75	70	-	-	285
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	15	205	116	1042	847	59

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1600	424	906	0	-	0
Stage 1	847	-	-	-	-	-
Stage 2	753	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	*170	*763	1135	-	-	-
Stage 1	*720	-	-	-	-	-
Stage 2	*431	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	*152	*763	1135	-	-	-
Mov Cap-2 Maneuver	*152	-	-	-	-	-
Stage 1	*646	-	-	-	-	-
Stage 2	*431	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.8	0.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1135	-	152	763	-	-
HCM Lane V/C Ratio	0.102	-	0.1	0.269	-	-
HCM Control Delay (s)	8.5	-	31.3	11.4	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.3	1.1	-	-

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