# APPENDIX A

NOTICE OF PREPARATION AND RESPONSES

# MONTEREY COUNTY
## AIRPORT LAND USE COMMISSION

Monterey County ALUC Staff
C/O RMA - Planning Department
1441 Schilling Place, 2nd Floor
Salinas, CA 93901

Phone: (831) 755-5025
FAX: (831) 757-9516
Joe Sidor: (831) 755-5262
Shelley Glennon: (831) 755-5173

June 27, 2019

Delivered via mail and email at:
maguilar@kingcity.com

City of King City
Attn: Doreen Liberto Blanck
Community Development Director
212 South Vanderhurst Avenue
King City, CA 93930

**Subject: Notice of Preparation of the King City Downtown Addition Specific Plan 2019 Amendments (Supplemental EIR); Certified EIR SCH Number: 2006041150**

Ms. Blanck:

Your project was reviewed by the Monterey County Airport Land Use Commission (ALUC) Staff. The following comments on the Notice of Preparation have been provided:

Airport Land Use Commission Review Required

1. The project is subject to the adopted Comprehensive Land Use Plan for Mesa del Rey Airport (CLUP) by Resolution No. 72-4 on May 1972, in accordance with Article 3.5 of the Public Utilities Code (Airport Land Use Commission Law). According to the Mesa del Rey CLUP, the project shall be referred to the ALUC for review prior to final approval due to the following:
    a. The project site is located beneath the Mesa del Rey Airport Runway ll-29 Horizontal Surfaces. The proposed Workforce Housing Development and Seasonal Farm Workers Housing development will produce light emissions, either directly or by reflection within the horizontal surfaces, which could impair an aviator's visibility;
    b. The proposed construction of the development might exceed the height allowed within the Horizontal Surfaces; and
    c. Noise Compatibility. It is unclear if the project site is located within the 60 CNEL noise level contours.
    (see attached Mesa del Rey CLUP)
2. Caltrans Division of Aeronautics has created a preliminary Safety Compatibility Map for the Mesa del Rey Runway in accordance with the 2011 California

Airport Land Use Planning Handbook. According to the Map, the project site is located within the Traffic Pattern Zone/Airport Influence Area and would need to be referred to the ALUC for review. (see attached Caltrans Preliminary Safety Compatibility Map).

Should you have any questions, please feel free to contact me at (831) 755-5173.

Sincerely,

Shelley Glennon, ALUC Staff

**Attached:** Notice of Preparation received on May 28, 2019
Mesa del Rey CLUP
Caltrans Division of Aeronautics Preliminary Safety Compatibility Map

RECEIVED
MAY 28 2019
MONTEREY COUNTY
RESOURCE MANAGEMENT AGENCY
LAND USE DIVISION

# Notice of Preparation

To: Distribution List

(Address)

From: Doreen Liberto, Community Development Director
212 South Vanderhurst Ave
King City, CA 93930
(Address)

**Subject: Notice of Preparation of a Supplemental Environmental Impact Report**

The City of King City will be the Lead Agency and will prepare a supplemental environmental impact report for the project identified below. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project.

The project description, location, and the potential environmental effects are contained in the attached materials. A copy of the Initial Study ( □ is ✓is not ) attached.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but not later than **thirty (30)** days after receipt of this notice.

Please send your response to Doreen Liberto at the address shown above. We will need the name for a contact person in your agency.

**Project Title:** King City Downtown Addition Specific Plan 2019 Amendments (Supplemental EIR); Certified EIR SCH Number: 2006041150

**Project Applicant, if any:** Fresh Foods, Inc.

**Attachments:** Project Description, Location Map, Specific Plan – Areas Removed Map, Development Sites Map

Date: 22 May, 2019

Signature: Doreen Liberto

Title: Community Development Director

Telephone: 831-385-3281

**Reference:** California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375.

RESOLUTION NO. 78-3
MONTEREY COUNTY AIRPORT LAND USE COMMISSION
STATE OF CALIFORNIA

WHEREAS, This Commission adopted the Comprehensive Land Use Plan for Mesa del Rey Airport by Resolution No. 72-4 on May 18, 1972, in accordance with Article 3.5 of the Public Utilities Code (Airport Land Use Commission Law); and

WHEREAS, the City of King adopted the Master Plan for Mesa del Rey Airport, updating the airport plan upon which the Commission's plan is based; and

WHEREAS, this Commission's review of the City's revised plan finds that the proposed redesignation of certain land from Agriculture to Industrial Reserve on the northeast side of the airport is in the best interests of the airport and the area surrounding it; and

WHEREAS, this Commission adopted the City's Final EIR for Mesa del Rey Airport as its own EIR for the Comprehensive Land Use Plan for Mesa del Rey Airport;

NOW THEREFORE BE IT RESOLVED, the Monterey County Airport Land Use Commission adopts the Master Plan for Mesa del Rey Airport as the Amended Comprehensive Land Use Plan for Mesa del Rey Airport, to the extent that its policies and recommendation don't exceed the Commission's authority;

AND BE IT FURTHER RESOLVED, the Commission's Interim Referral Policy adopted October 21, 1976, as amended, is adopted as a part of the Commission's plan and shall be used in matters pertaining to the plan's implementation.

Regularly passed and adopted by the Airport Land Use Commission of the County of Monterey, State of California, on the 16th day of February 1978, by the following vote:

AYES: Homen, Stentz, Walker, Weiser (proxy for Sappok)

NOES: None

ATTEST:

Ernest J. Franco, Secretary

Donald A. Stentz, Chairman

RESOLUTION NO. 78-2
MONTEREY COUNTY AIRPORT LAND USE COMMISSION
STATE OF CALIFORNIA

WHEREAS, an environmental impact report (EIR) was prepared for the Master Plan for Mesa del Rey Airport, and certified as complete by the city of King; and

WHEREAS, this Commission is considering adopting said master plan as the comprehensive land use plan required for the airport by the Airport Land Use Commission Law; and

WHEREAS, this Commission has reviewed said EIR and finds it to be complete;

NOW, THEREFORE BE IT RESOLVED, this Commission adopts the city's Final EIR for the Master Plan for Mesa Del Rey Airport, as its own EIR for the Comprehensive Land Use Plan for Mesa del Rey Airport.

Regularly passed and adopted by the Airport Land Use Commission of the County of Monterey, State of California, on the 16th day of February, 1978 by the following vote:

AYES: Homen, Stentz, Walker, Weiser (proxy for Sappok)

NOES: None

ATTEST:

Ernest J. Franco, Secretary

Donald A. Stentz, Chairman

# MONTEREY COUNTY AIRPORT LAND USE COMMISSION
## INTERIM REFERRAL POLICY

The basic guideline for referring proposed land uses, within the airport area of influence or the adopted plan area, to the Airport Land Use Commission is that the Commission is not interested in the daily operations of the cities' and the county's planning function, but rather in certain uses which influence or are influenced by the presence of the airport. It is anticipated that proposed uses will be reviewed from points of view of the effects of noise, potential safety problems, and heights of structures.

Within the Area of Influence or the adopted plan area, the Commission recognizes a graduation of degree of concern for the location of proposed uses in relation to the airport operations area. The airport operations area is defined as the area used, or intended for use, for the landing and takeoff of aircraft, or used or intended for use for purposes related to aircraft operations. Any use which could not be located elsewhere, but at an airport, is considered to be located in the airport operations area.

The Commission's mandate is to achieve compatibility between airports and the surrounding communities through the comprehensive planning process and implementation of the comprehensive land use plan at the lowest level of authority in a manner which could be hopefully of mutual benefit to all of the agencies involved.

The Commission stands available to review and report on aviation related matters for all agencies and interested groups and persons, on a voluntary basis. The actual presentation of the issue is the responsibility of the applicant, or his representative, not necessarily of the agency which will ultimately grant the request.

### Clear Zone and Approach Areas

In the Clear Zone and Approach Areas, within the Area of Influence or the adopted plan area, the following types of uses shall be referred to the Commission if, not being accounted for in the adopted comprehensive land use plan, they:

1. Have residential characteristics exceeding plan designations;
2. Have high labor intensity;
3. Involve use or storage of explosive, fire, toxic corrosive, or other hazardous materials;
4. Promote population concentration;
5. Involve utilities and services, required for area wide population, whose disruption would have an unusually large impact;
6. Concentrate people such as children, the elderly, the handicapped, etc;

7. Promote extended duration of population concentration;

8. Otherwise pose hazards to aircraft operations or to safety of persons or property on the ground.

Specific Hazards

Until an ordinance compatible with Airport Approaches Zoning Ordinance #1856, or its successor, is adopted by a local agency, proposed uses beneath the imaginary surfaces described in said ordinance shall be referred to the Commission for review and report if they may:

1. Release steam, dust, smoke, or other matter which could impair an aviator's visibility;

2. Produce light emissions, either direct or by reflection, which could impair an aviator's visibility;

3. Produce electrical emissions which could interfere with communication or navigation aids.

Heights

New construction shall be referred to the Commission if the heights of the structures exceed the allowable heights of Airport Approaches Zoning Ordinance #1856, or its successor, and the local agency does not have a similar or compatible ordinance.

Noise

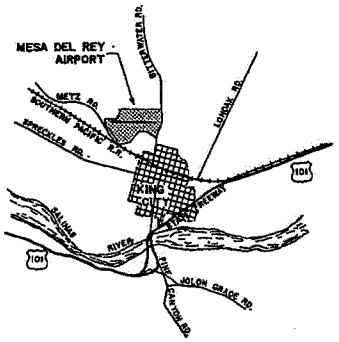
New construction shall be referred to the ALUC if it is proposed within the comprehensive land use plan's 1995 60 CNEL noise level contour and the local agency has not adopted a procedure to determine if noise insulation is required.

Commission Action

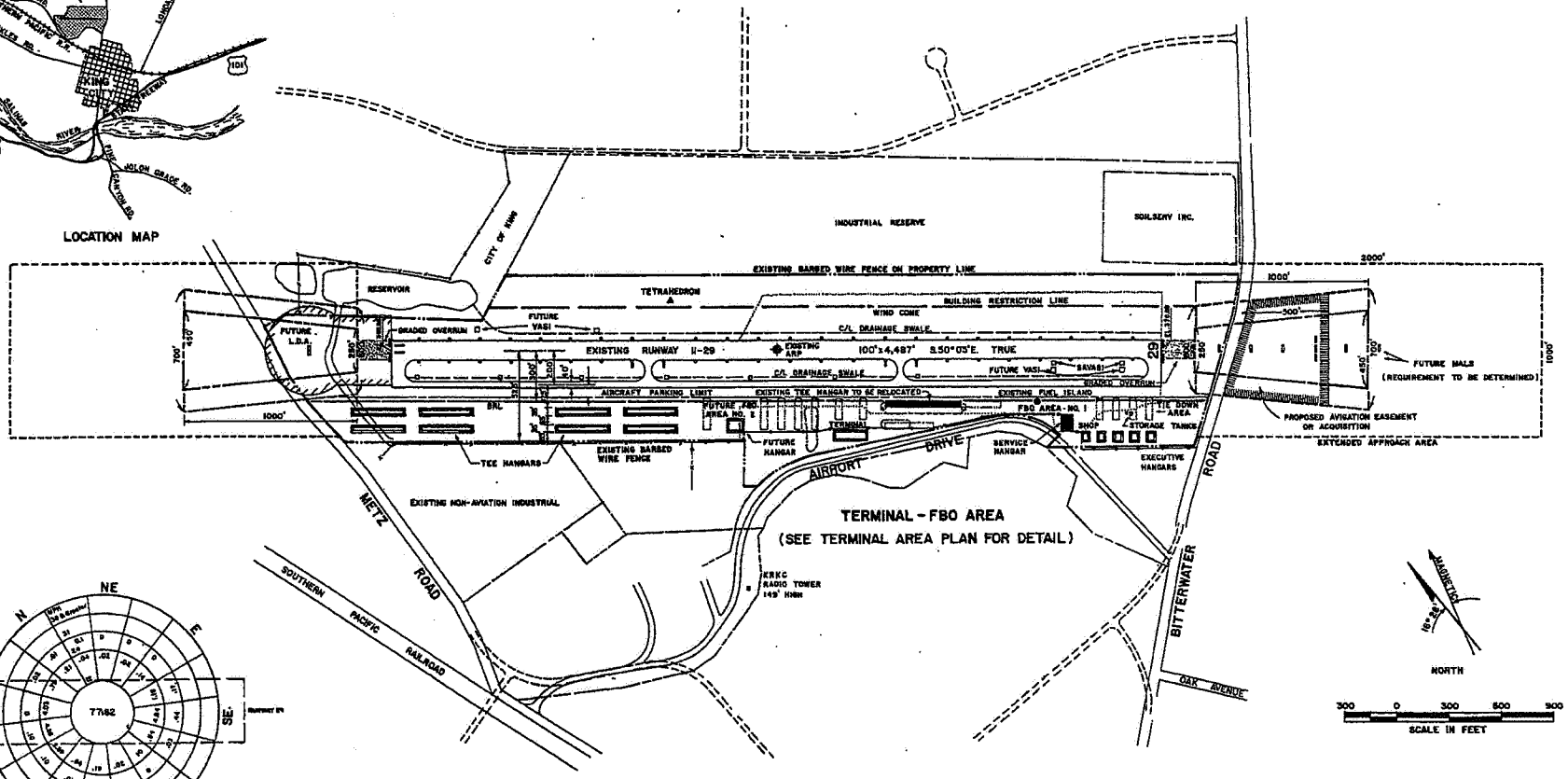
The Commission will react to actions taken by local agencies; within the Area of Influence or the adopted plan area, when requested by staff, airport management, or any group or person interested in or affected by the action. The Commission will notify the local agency and set a public hearing to determine if the local agency's action is in the best interests of the airport and the adjacent area.

The above policy was adopted by the Monterey County Airport Land Use Commission at a regular meeting held on October 21, 1976.

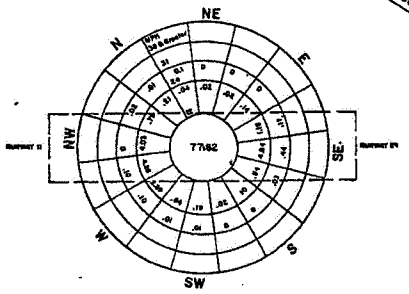
John L. McAtee, Chairman




LOCATION MAP




TERMINAL - FBO AREA
(SEE TERMINAL AREA PLAN FOR DETAIL)




WIND DATA AT SALINAS, CALIFORNIA

from U.S. Department of Commerce,
Weather Bureau.
Total observations 28,775
taken January thru July 1942, 1943, 1944
and August thru December 1941, 1942, 1943, 1944

WIND COVERAGE

(12 M.P.H.) 11-29 RUNWAY = 97.44%
(calms and 0-3 = 20.20%)
(4-12 M.P.H. = 57.62%)

**BASIC DATA TABLE**
**RUNWAY DATA**

| | RUNWAY 11-29 | |
|---|---|---|
| | EXISTING | ULTIMATE |
| EFFECTIVE GRADIENT (IN %) | 0.40 | SAME |
| % WIND COVERAGE (12 M.P.H.) | 97.44% | SAME |
| WIDTH<br>LENGTH | 100'<br>4487' | SAME<br>SAME |
| PAVEMENT STRENGTH | 40K | 60K |
| APPROACH SURFACES | 20:1 | SAME |
| RUNWAY LIGHTING | MIRL | MIRL |
| RUNWAY MARKING | SAME | SAME |

**BASIC DATA TABLE**
**AIRPORT DATA**

| | EXISTING | ULTIMATE |
|---|---|---|
| AIRPORT ELEVATION | 378.00 | 378.00 |
| AIRPORT REFERENCE POINT (ARP) COORDINATES | LAT. 36° 13'34"<br>LONG. 121° 07'18" | LAT. SAME<br>LONG. SAME |
| MEAN MAX. TEMP. OF HOTTEST MONTH | 86°F | 86°F |
| AIRPORT AND TERMINAL BEACONS | SAMES/FBO | VASI-2/11-29<br>LOCALIZER/11<br>MALS/29 |
| MISCELLANEOUS FACILITIES | LIGHTED WIND TEE AND WIND CONE | |
| BASED AIRCRAFT | [illegible] | 60 |
| TEE HANGARS | [illegible] | 30 |
| TIEDOWNS | [illegible] | 70 |
| CRITICAL AIRCRAFT | [illegible] AIR | SAME |

**LEGEND**

| EXISTING | PROPOSED | |
|---|---|---|
| | | BUILDING |
| | | VEHICLE PAVEMENT |
| | | AIRFIELD PAVEMENT |
| | | CLEAR ZONE |
| | | BUILDING RESTRICTION LINE |
| | | FENCE |
| | | RUNWAY LIGHT |
| | | CONTOURS |
| | | AIRPORT BOUNDARY |
| | | FAA EXTENDED APPROACH AREA |
| | | PERCOLATION POND |
| | | PLANNED ROAD SYSTEM |

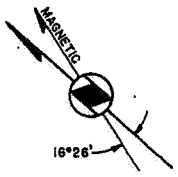
| NO. | REVISIONS | BY | APPR. | DATE |
|---|---|---|---|---|
| APPROVED ... CITY OF KING | | | | |
| BY _____ | DATE _____ | | | |

**MESA DEL REY AIRPORT**
CITY OF KING, CALIFORNIA

**AIRPORT LAYOUT PLAN**

R. DIXON SPEAS ASSOCIATES

| SCALE | DESIGNED | DRAWN | JOB NO. | DWG. NO. |
|---|---|---|---|---|
| 1" = 300' | R.O.K. | J.R.H. | 4470 | KC-3 |
| | DRAFTED R.O.K. | DATE JULY 1975 | | |




2000 0 2000 4000 6000
SCALE IN FEET

| NO. | REVISION | BY | APPR. | DATE |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |

APPROVED --- CITY OF KING

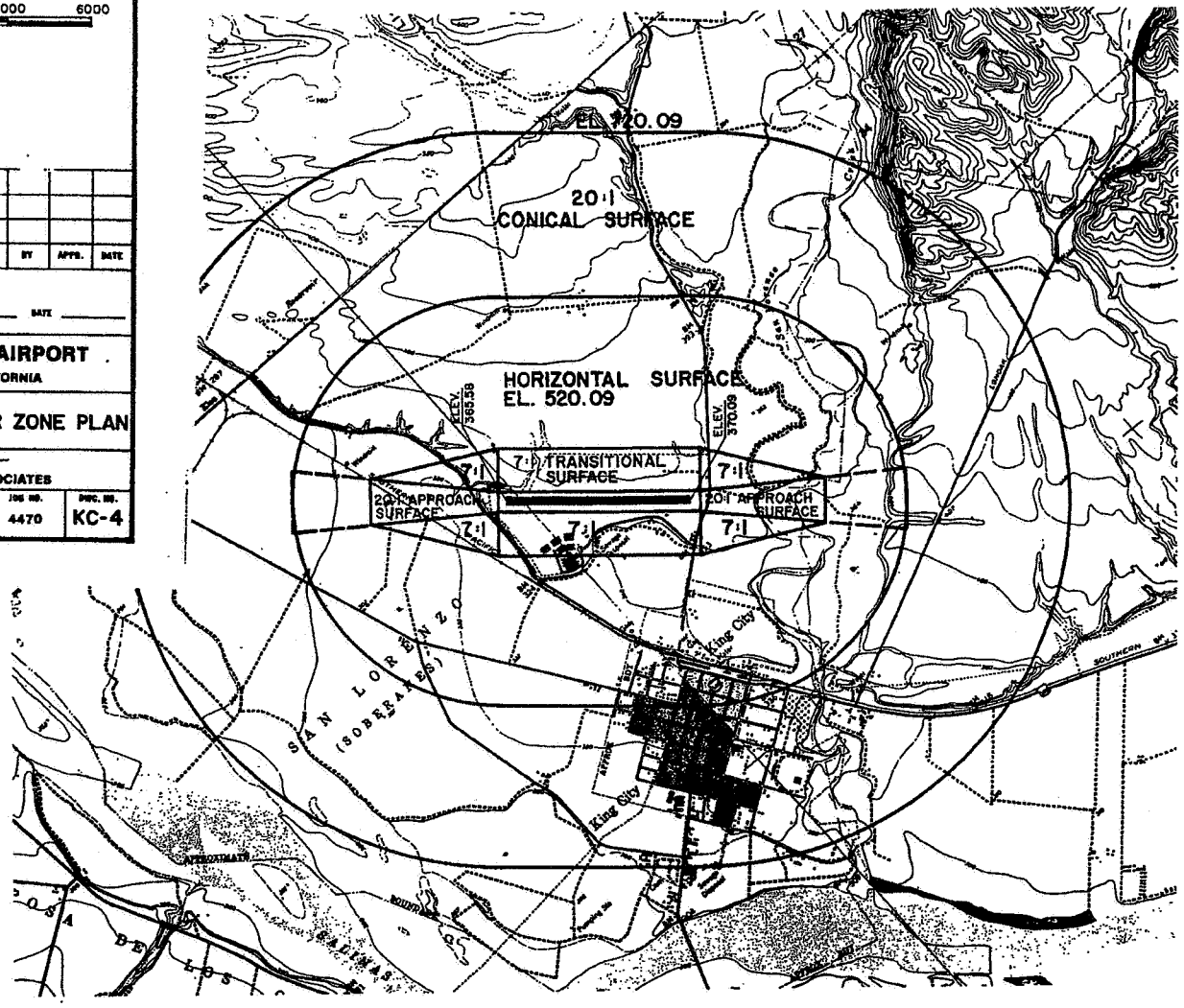
BY _____ DATE _____

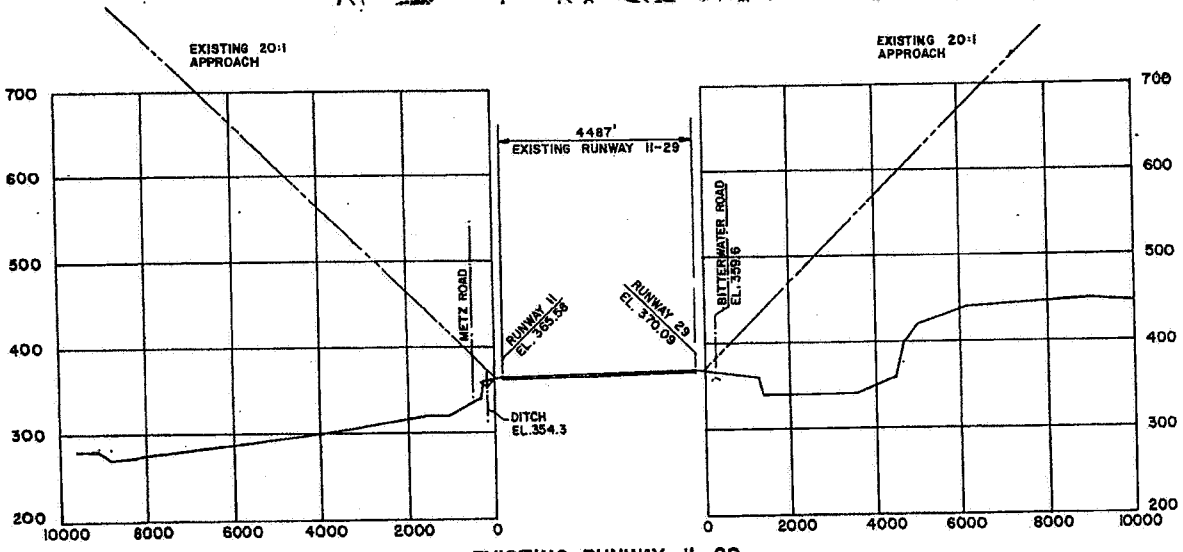
**MESA DEL REY AIRPORT**
CITY OF KING, CALIFORNIA

**APPROACH AND CLEAR ZONE PLAN**

R. DIXON SPEAS ASSOCIATES

| SCALE | DESIGNED | A.E.S. | DRAWN | A.E.S. | JOB NO. | DWG. NO. |
|---|---|---|---|---|---|---|
| 1" = 2,000' | CHECKED | R.O.K. | DATE JULY 1976 | | 4470 | KC-4 |

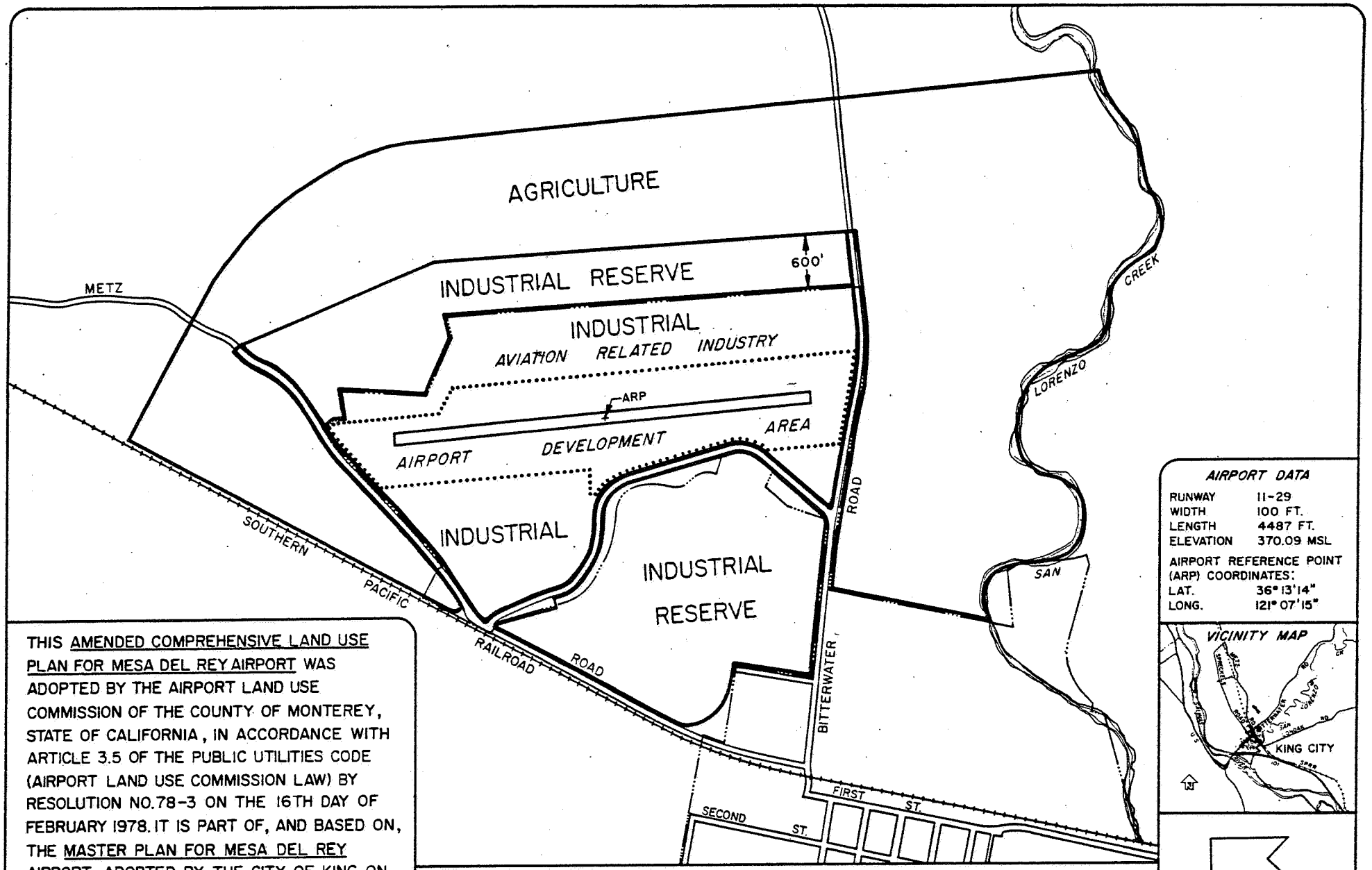



**APPROACH PROFILE**

SCALE HORIZ. : 1" = 2000'
VERT. : 1" = 100'

NOTE : GROUND PROFILES ARE A COMPOSITE OF HIGHEST ELEVATION ACROSS THE WIDTH OF THE APPROACH.

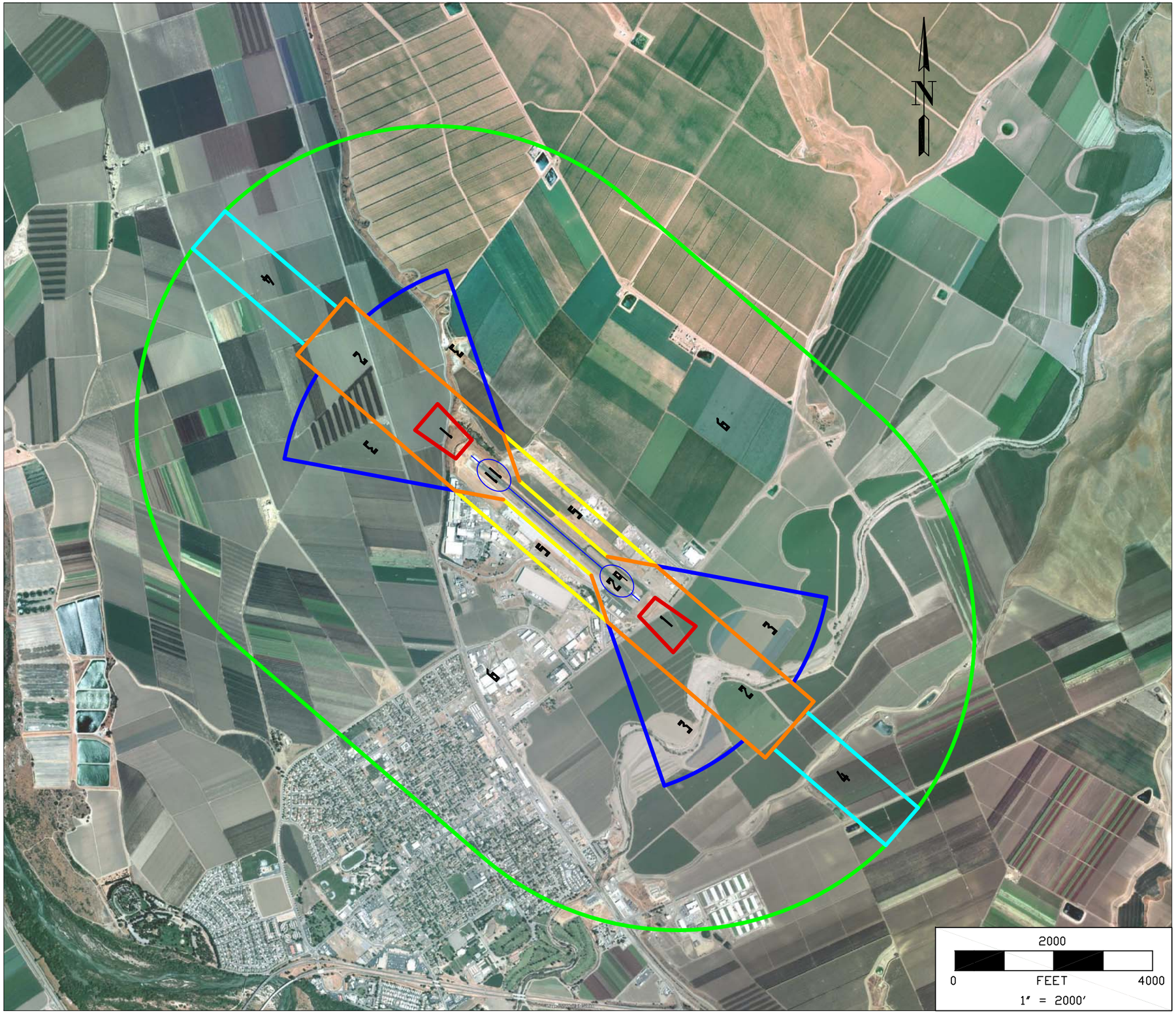



THIS AMENDED COMPREHENSIVE LAND USE PLAN FOR MESA DEL REY AIRPORT WAS ADOPTED BY THE AIRPORT LAND USE COMMISSION OF THE COUNTY OF MONTEREY, STATE OF CALIFORNIA, IN ACCORDANCE WITH ARTICLE 3.5 OF THE PUBLIC UTILITIES CODE (AIRPORT LAND USE COMMISSION LAW) BY RESOLUTION NO. 78-3 ON THE 16TH DAY OF FEBRUARY 1978. IT IS PART OF, AND BASED ON, THE MASTER PLAN FOR MESA DEL REY AIRPORT, ADOPTED BY THE CITY OF KING ON JANUARY 11, 1978 BY RESOLUTION NO. 1474.

CHAIRMAN

SECRETARY

# AMENDED COMPREHENSIVE LAND USE PLAN FOR MESA DEL REY AIRPORT




# Mesa Del Rey Airport (KIC)

## Medium General Aviation Runway 11/29

Length: 4,485'

RWY 11: Approach Visibility - Visual
Runway Protection Zone: 500' x 700' x 1000'
RWY 29: Approach Visibility - Visual
Runway Protection Zone: '500' x 700' x 1000'

1 Runway Protection Zone
2 Inner Approach/Departuer Zone
3 Inner Turning Zone
4 Outer Approach/Departure Zone
5 Sideline Safety Zone
6 Traffic Pattern Zone
Runway Center Line
Dashed Lines: non-traffic pattern side

Notes:
Monterey County
36-13- 42.3000N 121-07-16.7000W
Drawing based on: California Airport Land Use Planning Handbook and Google Earth Pro Imagery
AutoCad Map 3D 2009
4 August, 2010

This map is for planning purpose only. Not an official document.

# Notice of Preparation

To: Distribution List

(Address)

From: Doreen Liberto, Community Development Director
212 South Vanderhurst Ave
King City, CA 93930
(Address)

**Subject: Notice of Preparation of a Supplemental Environmental Impact Report**

The City of King City will be the Lead Agency and will prepare a supplemental environmental impact report for the project identified below. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project.

The project description, location, and the potential environmental effects are contained in the attached materials. A copy of the Initial Study ( □ is ✓is not ) attached.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but not later than **thirty (30)** days after receipt of this notice.

Please send your response to Doreen Liberto at the address shown above. We will need the name for a contact person in your agency.

**Project Title:** King City Downtown Addition Specific Plan 2019 Amendments (Supplemental EIR): Certified EIR SCH Number: 2006041150

**Project Applicant, if any:** Fresh Foods, Inc.

**Attachments:** Project Description, Location Map, Specific Plan – Areas Removed Map, Development Sites Map

Date: 22 May, 2019

Signature:

Title: Community Development Director

Telephone: 831-385-3281

**Reference:** California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375.

# King City Downtown Addition Specific Plan 2019 Amendments and CEQA Documentation (Supplemental EIR) Project Description

## SUMMARY PROJECT DESCRIPTION

### PROJECT BACKGROUND:

#### Adopted Specific Plan and Certified EIR

The specific plan boundary covers an area of 110.18 acres within the City limits bounded by the Union Pacific Railroad to the west, Bitterwater Road to the north, San Lorenzo Creek to the southeast, and agricultural fields to the northeast. The approved specific plan includes development of up to 650 residential units, up to 190,060 square feet of commercial building floor area (including live-work space) and approximately twenty-four (24) acres of open space and parks. The specific plan includes five (5) land use districts. Mixed commercial and residential uses are located in the core area near the railroad tracks and along Broadway Street, and primarily residential and open space uses are located to the northern and eastern edges of the plan area. The specific plan includes 22.62 acres of public open spaces and existing and planned streets cover 30.70 acres. The specific plan was adopted on June 14, 2011 and amended on January 28, 2014. Specific Plan. The Project is in close proximity to a proposed multimodal transit center and the City's historic downtown area.

The original Environmental Impact Report (EIR) was certified on May 24th, 2011. *(REFERENCE: SCH No. 2006041150.)*

#### 2019 Amendments

The proposed project consists of general plan amendment and rezoning of five (5) parcels, amendments to King City's *Downtown Addition Specific Plan* ("specific plan"), and construction of housing developments on the Bitterwater Road site (Bitterwater Road at Metz Road) and the Jayne Street site (Jayne Street at Pearl Street).

The following general plan and zoning amendments would be made:

1. Two parcels comprising the Jayne Street site would have general plan designation amended from Specific Plan (SP) to Planned Development (PD); and rezoned from Downtown Addition Specific Plan Neighborhood Center (NC) and Neighborhood General 3 (NG-3) to Multiple Family Residential and Professional Offices (R-4) District and Seasonal Employee Housing Standards/Dual Land Use Designation; and

2. Three parcels outside the specific plan, south of and adjacent to the Jayne Street site, would have general plan designation amended from Specific Plan (SP) to Planned Development (PD); and rezoned from Specific Plan Neighborhood Center (NC) and Specific Plan Neighborhood General 3 (NG-3) to Multiple Family Residential and Professional Offices (R-4) District and Seasonal Employee Housing Standards/Dual Land Use Designation.

The following amendments to the specific plan would be made:

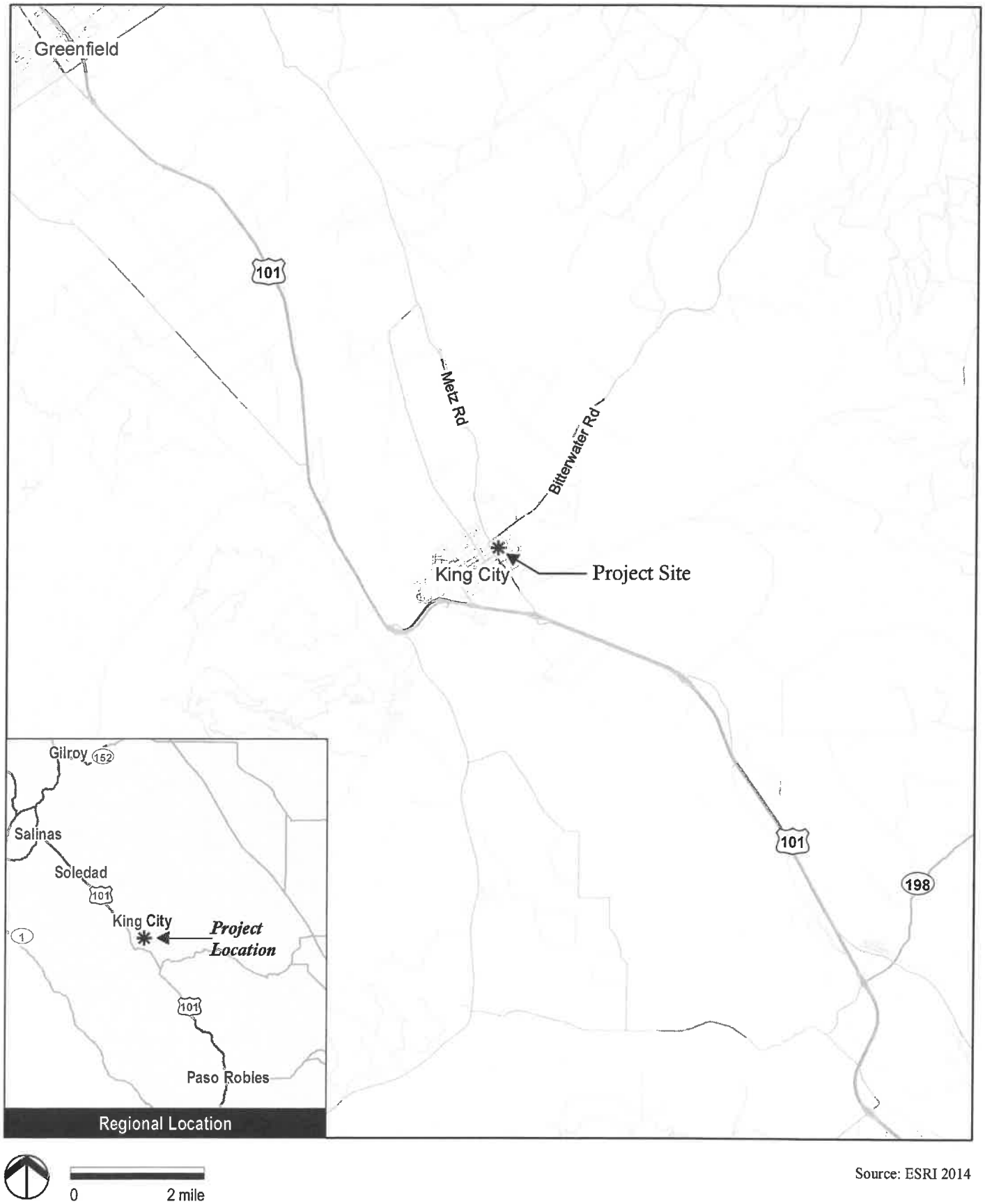
1. Removal of the Jayne Street site from the specific plan boundaries;
2. Increase in specific plan development capacity by 60 residential units (from 650 units to 710 units) with corresponding decrease in commercial development capacity of 42,000 square feet (from 190,000 square feet to 148,060 square feet);
3. Removal of the planned Metz Road extension and portion of planned Ellis Street right-of-way reservation;
4. Exclusive residential use of the Bitterwater Road site within the Specific Plan Neighborhood Center (NC) district;
5. Modification of height limits in specific plan Appendix E to allow three-story buildings up to 40 feet in height within the Bitterwater Road site;
6. Removal of references to fiscal neutrality from specific plan conditions of approval for the Bitterwater Road project.
7. Amendment of specific plan Appendix D to remove requirement for submittal of Bitterwater Road project to Neighborhood Builder/Developer.
8. Other miscellaneous minor text and graphic amendments, including, but not limited to, the following:
    - Section 3.3.3 *Additional City Approval Requirements* — Conditional Use Permit requirement for three-story buildings deleted and replaced with requirement for Design Review approval, plus corresponding changes in various other sections for internal consistency;
    - Section 3.10 *Parking Standards* – Reference to maximum buildout potential in NC Zone deleted;
    - Section 3.12 *Fence Standards* – Standards for sound attenuation walls added;
    - Table 4.2 in Section 4.2 *Schools* – Revised estimates of student generation provided;
    - Table 5.1 in Section 5.4 *Infrastructure and Public Facilities* – Revised estimates of phasing provided; and

- Table 5.3 in Section 5.4 *Infrastructure and Public Facilities* – Revised estimates of fee revenues provided.

The following two housing developments are proposed:

1. A workforce housing development consisting of 118 units of attached housing and on-site resident amenities in six buildings on a 5.2 acre site at Bitterwater Road and the south end of Metz Road, to be constructed in two or three phases; and
2. An agricultural guest worker/seasonal employee housing project (up to 66 dormitory or apartment units) accommodating up to 528 workers/beds in multiple buildings on the 2.9-acre Jayne Street site (removed from within the specific plan boundary), with the potential for limited office or commercial use.

The net change for the S-EIR analysis will be an increase of 60 multifamily residential units, 528 dormitory workers/beds, and a decrease of 42,000 square feet of commercial space.




Source: ESRI 2014

# Location Map

King City Downtown Addition Specific Plan NOP

0 500 feet

Source: Smith-Monterey KC, LLC 2014
New Urban Realty Advisors, Inc. 2014

E M C

# Specific Plan Boundary and Area Removed

King City Downtown Addition Specific Plan NOP

Source: Smith-Monterey KC, LLC 2014
New Urban Realty Advisors, Inc. 2014

E M C

# Development Sites

King City Downtown Addition Specific Plan NOP

# APPENDIX B

CALEEMOD RESULTS

## Operational Criteria air pollutants

| ROG | NOx | CO | SOx | $PM_{10}$ |
|---|---|---|---|---|
| *Bitterwater Winter* | | | | |
| +4.54 | +8.12 | +27.52 | +0.06 | +5 |
| -3.48 | -12.55 | -25.65 | -0.07 | -5.65 |
| **+1.06** | **-4.43** | **+1.87** | **-0.01** | **-0.65** |
| *Jayne Winter* | | | | |
| +2.59 | +4.46 | +14.94 | +0.03 | +2.97 |
| -2.30 | -4.55 | -13.62 | -0.03 | -2.82 |
| **+0.29** | **-0.09** | **+1.32** | **0** | **+0.15** |
| *Net Winter* | | | | |
| **+1.35** | **-4.52** | **+3.19** | **-0.01** | **-0.50** |
| *Bitterwater Summer* | | | | |
| +4.66 | +7.72 | +26.93 | +0.06 | +5 |
| -3.74 | -12.12 | -23.43 | -0.08 | -5.65 |
| **+0.92** | **-4.4** | **+3.5** | **-0.02** | **-0.65** |
| *Jayne Summer* | | | | |
| +2.66 | +4.27 | +14.64 | +0.04 | +2.97 |
| -2.38 | -4.37 | -13.22 | -0.03 | -2.82 |
| **+0.28** | **-0.1** | **+1.42** | **+0.01** | **+0.15** |
| *Net Summer* | | | | |
| **+1.2** | **-4.50** | **+4.92** | **-0.01** | **-0.50** |

## Construction Criteria air pollutants (Maximum daily)

| | $PM_{10}$ |
|---|---|
| Bitterwater Increase | +20.41 |
| Bitterwater Decrease | -1.30 |
| *Net Bitterwater* | +19.11 |
| Jayne Increase | +7.63 |
| Jayne Decrease | -7.63 |
| *Net Jayne* | *0* |
| **Net Project** | **+19.11** |

## Construction GHG

| | GHG MT CO2e | Amortized GHG MT CO2e per year |
|---|---|---|
| Bitterwater Increase | +477.15 | |
| Bitterwater Decrease | -73.60 | |
| *Net Bitterwater* | +403.55 | |
| Jayne Increase | +329.96 | |
| Jayne Decrease | -318.92 | |
| *Net Jayne* | +11.04 | |
| **Net Project** | **+414.59** | **+13.82** |

## Operational GHG

| | GHG MT CO2e per year |
|---|---|
| Bitterwater Increase | +700.49 |
| Bitterwater Decrease | -1,199.78 |
| *Net Bitterwater* | -499.29 |
| Jayne Increase | +398.97 |
| Jayne Decrease | -578.50 |
| *Net Jayne* | -179.53 |
| **Net Project** | **-678.82** |

## GHG Emissions Summary

| | GHG MT CO2e per year |
|---|---|
| Operational | -678.82 |
| Amortized Construction | +13.82 |
| **Total Project GHG Emissions** | **-665** |

# DASP_Bitterwater Road_Decrease

**Monterey Bay Unified APCD Air District, Summer**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Strip Mall | 38.40 | 1000sqft | 0.88 | 38,400.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.8 | **Precipitation Freq (Days)** | 53 |
| **Climate Zone** | 4 | | | **Operational Year** | 2024 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 290 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E CO2 Intensity Factor for 2020

Land Use - square feet and lot acreage from project description

Construction Phase - .

Grading - no construction

Energy Use -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblProjectCharacteristics | CO2IntensityFactor | 641.35 | 290 |

## 2.0 Emissions Summary

## 2.1 Overall Construction (Maximum Daily Emission)

**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 | lb/day | | | | | | | | | | lb/day | | | | | |
| 2020 | 0.9406 | 9.6358 | 8.0129 | 0.0142 | 0.8349 | 0.5274 | 1.3028 | 0.4356 | 0.4853 | 0.8819 | 0.0000 | 1,389.5697 | 1,389.5697 | 0.3703 | 0.0000 | 1,398.8278 |
| 2021 | 107.0174 | 8.6999 | 7.8258 | 0.0141 | 0.1479 | 0.4504 | 0.5896 | 0.0392 | 0.4144 | 0.4523 | 0.0000 | 1,385.0015 | 1,385.0015 | 0.3696 | 0.0000 | 1,394.2423 |
| **Maximum** | **107.0174** | **9.6358** | **8.0129** | **0.0142** | **0.8349** | **0.5274** | **1.3028** | **0.4356** | **0.4853** | **0.8819** | **0.0000** | **1,389.5697** | **1,389.5697** | **0.3703** | **0.0000** | **1,398.8278** |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 0.9684 | 4.0000e-005 | 3.9100e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | | 8.4000e-003 | 8.4000e-003 | 2.0000e-005 | | 8.9500e-003 |
| Energy | 2.6900e-003 | 0.0244 | 0.0205 | 1.5000e-004 | | 1.8600e-003 | 1.8600e-003 | | 1.8600e-003 | 1.8600e-003 | | 29.3338 | 29.3338 | 5.6000e-004 | 5.4000e-004 | 29.5081 |
| Mobile | 2.7651 | 12.0973 | 23.4063 | 0.0757 | 5.5841 | 0.0602 | 5.6443 | 1.4953 | 0.0562 | 1.5515 | | 7,681.4779 | 7,681.4779 | 0.3864 | | 7,691.1377 |
| **Total** | **3.7362** | **12.1218** | **23.4307** | **0.0758** | **5.5841** | **0.0621** | **5.6461** | **1.4953** | **0.0581** | **1.5533** | | **7,710.8201** | **7,710.8201** | **0.3870** | **5.4000e-004** | **7,720.6548** |

# 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 2.7651 | 12.0973 | 23.4063 | 0.0757 | 5.5841 | 0.0602 | 5.6443 | 1.4953 | 0.0562 | 1.5515 | | 7,681.4779 | 7,681.4779 | 0.3864 | | 7,691.1377 |
| Unmitigated | 2.7651 | 12.0973 | 23.4063 | 0.0757 | 5.5841 | 0.0602 | 5.6443 | 1.4953 | 0.0562 | 1.5515 | | 7,681.4779 | 7,681.4779 | 0.3864 | | 7,691.1377 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Strip Mall | 1,701.89 | 1,614.34 | 784.51 | 2,399,875 | 2,399,875 |
| Total | 1,701.89 | 1,614.34 | 784.51 | 2,399,875 | 2,399,875 |

## 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 |
| Strip Mall | 9.50 | 7.30 | 7.30 | 16.60 | 64.40 | 19.00 | 45 | 40 | 15 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Strip Mall | 0.552293 | 0.026858 | 0.203057 | 0.118966 | 0.019018 | 0.004857 | 0.019364 | 0.041479 | 0.003068 | 0.002366 | 0.006793 | 0.001094 | 0.000786 |

# 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| NaturalGas Mitigated | 2.6900e-003 | 0.0244 | 0.0205 | 1.5000e-004 | | 1.8600e-003 | 1.8600e-003 | | 1.8600e-003 | 1.8600e-003 | | 29.3338 | 29.3338 | 5.6000e-004 | 5.4000e-004 | 29.5081 |
| NaturalGas Unmitigated | 2.6900e-003 | 0.0244 | 0.0205 | 1.5000e-004 | | 1.8600e-003 | 1.8600e-003 | | 1.8600e-003 | 1.8600e-003 | | 29.3338 | 29.3338 | 5.6000e-004 | 5.4000e-004 | 29.5081 |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Strip Mall | 249.337 | 2.6900e-003 | 0.0244 | 0.0205 | 1.5000e-004 | | 1.8600e-003 | 1.8600e-003 | | 1.8600e-003 | 1.8600e-003 | | 29.3338 | 29.3338 | 5.6000e-004 | 5.4000e-004 | 29.5081 |
| **Total** | | **2.6900e-003** | **0.0244** | **0.0205** | **1.5000e-004** | | **1.8600e-003** | **1.8600e-003** | | **1.8600e-003** | **1.8600e-003** | | **29.3338** | **29.3338** | **5.6000e-004** | **5.4000e-004** | **29.5081** |

# 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 0.9684 | 4.0000e-005 | 3.9100e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | | 8.4000e-003 | 8.4000e-003 | 2.0000e-005 | | 8.9500e-003 |
| Unmitigated | 0.9684 | 4.0000e-005 | 3.9100e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | | 8.4000e-003 | 8.4000e-003 | 2.0000e-005 | | 8.9500e-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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.1463 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 0.8218 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 3.6000e-004 | 4.0000e-005 | 3.9100e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | | 8.4000e-003 | 8.4000e-003 | 2.0000e-005 | | 8.9500e-003 |
| **Total** | **0.9684** | **4.0000e-005** | **3.9100e-003** | **0.0000** | | **1.0000e-005** | **1.0000e-005** | | **1.0000e-005** | **1.0000e-005** | | **8.4000e-003** | **8.4000e-003** | **2.0000e-005** | | **8.9500e-003** |

# DASP_Bitterwater Road_Decrease

**Monterey Bay Unified APCD Air District, Winter**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Strip Mall | 38.40 | 1000sqft | 0.88 | 38,400.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.8 | **Precipitation Freq (Days)** | 53 |
| **Climate Zone** | 4 | | | **Operational Year** | 2024 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 290 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E CO2 Intensity Factor for 2020

Land Use - square feet and lot acreage from project description

Construction Phase - .

Grading - no construction

Energy Use -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblProjectCharacteristics | CO2IntensityFactor | 641.35 | 290 |

## 2.0 Emissions Summary

## 2.1 Overall Construction (Maximum Daily Emission)

**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 | lb/day | | | | | | | | | | lb/day | | | | | |
| 2020 | 0.9471 | 9.6528 | 8.0391 | 0.0141 | 0.8349 | 0.5275 | 1.3028 | 0.4356 | 0.4854 | 0.8819 | 0.0000 | 1,377.6190 | 1,377.6190 | 0.3712 | 0.0000 | 1,386.8980 |
| 2021 | 107.0181 | 8.7133 | 7.8484 | 0.0140 | 0.1479 | 0.4505 | 0.5897 | 0.0392 | 0.4145 | 0.4524 | 0.0000 | 1,373.2561 | 1,373.2561 | 0.3705 | 0.0000 | 1,382.5182 |
| **Maximum** | **107.0181** | **9.6528** | **8.0391** | **0.0141** | **0.8349** | **0.5275** | **1.3028** | **0.4356** | **0.4854** | **0.8819** | **0.0000** | **1,377.6190** | **1,377.6190** | **0.3712** | **0.0000** | **1,386.8980** |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 0.9684 | 4.0000e-005 | 3.9100e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | | 8.4000e-003 | 8.4000e-003 | 2.0000e-005 | | 8.9500e-003 |
| Energy | 2.6900e-003 | 0.0244 | 0.0205 | 1.5000e-004 | | 1.8600e-003 | 1.8600e-003 | | 1.8600e-003 | 1.8600e-003 | | 29.3338 | 29.3338 | 5.6000e-004 | 5.4000e-004 | 29.5081 |
| Mobile | 2.5111 | 12.5229 | 25.6227 | 0.0716 | 5.5841 | 0.0607 | 5.6448 | 1.4953 | 0.0567 | 1.5520 | | 7,267.9999 | 7,267.9999 | 0.4093 | | 7,278.2327 |
| **Total** | **3.4822** | **12.5474** | **25.6472** | **0.0718** | **5.5841** | **0.0626** | **5.6466** | **1.4953** | **0.0586** | **1.5538** | | **7,297.3420** | **7,297.3420** | **0.4099** | **5.4000e-004** | **7,307.7497** |

# 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 2.5111 | 12.5229 | 25.6227 | 0.0716 | 5.5841 | 0.0607 | 5.6448 | 1.4953 | 0.0567 | 1.5520 | | 7,267.9999 | 7,267.9999 | 0.4093 | | 7,278.2327 |
| Unmitigated | 2.5111 | 12.5229 | 25.6227 | 0.0716 | 5.5841 | 0.0607 | 5.6448 | 1.4953 | 0.0567 | 1.5520 | | 7,267.9999 | 7,267.9999 | 0.4093 | | 7,278.2327 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Strip Mall | 1,701.89 | 1,614.34 | 784.51 | 2,399,875 | 2,399,875 |
| Total | 1,701.89 | 1,614.34 | 784.51 | 2,399,875 | 2,399,875 |

## 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 |
| Strip Mall | 9.50 | 7.30 | 7.30 | 16.60 | 64.40 | 19.00 | 45 | 40 | 15 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Strip Mall | 0.552293 | 0.026858 | 0.203057 | 0.118966 | 0.019018 | 0.004857 | 0.019364 | 0.041479 | 0.003068 | 0.002366 | 0.006793 | 0.001094 | 0.000786 |

# 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| NaturalGas Mitigated | 2.6900e-003 | 0.0244 | 0.0205 | 1.5000e-004 | | 1.8600e-003 | 1.8600e-003 | | 1.8600e-003 | 1.8600e-003 | | 29.3338 | 29.3338 | 5.6000e-004 | 5.4000e-004 | 29.5081 |
| NaturalGas Unmitigated | 2.6900e-003 | 0.0244 | 0.0205 | 1.5000e-004 | | 1.8600e-003 | 1.8600e-003 | | 1.8600e-003 | 1.8600e-003 | | 29.3338 | 29.3338 | 5.6000e-004 | 5.4000e-004 | 29.5081 |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Strip Mall | 249.337 | 2.6900e-003 | 0.0244 | 0.0205 | 1.5000e-004 | | 1.8600e-003 | 1.8600e-003 | | 1.8600e-003 | 1.8600e-003 | | 29.3338 | 29.3338 | 5.6000e-004 | 5.4000e-004 | 29.5081 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total** | | **2.6900e-003** | **0.0244** | **0.0205** | **1.5000e-004** | | **1.8600e-003** | **1.8600e-003** | | **1.8600e-003** | **1.8600e-003** | | **29.3338** | **29.3338** | **5.6000e-004** | **5.4000e-004** | **29.5081** |

# 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 0.9684 | 4.0000e-005 | 3.9100e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | | 8.4000e-003 | 8.4000e-003 | 2.0000e-005 | | 8.9500e-003 |
| Unmitigated | 0.9684 | 4.0000e-005 | 3.9100e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | | 8.4000e-003 | 8.4000e-003 | 2.0000e-005 | | 8.9500e-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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.1463 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 0.8218 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 3.6000e-004 | 4.0000e-005 | 3.9100e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | | 8.4000e-003 | 8.4000e-003 | 2.0000e-005 | | 8.9500e-003 |
| **Total** | **0.9684** | **4.0000e-005** | **3.9100e-003** | **0.0000** | | **1.0000e-005** | **1.0000e-005** | | **1.0000e-005** | **1.0000e-005** | | **8.4000e-003** | **8.4000e-003** | **2.0000e-005** | | **8.9500e-003** |

# DASP_Bitterwater Road_Decrease

**Monterey Bay Unified APCD Air District, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Strip Mall | 38.40 | 1000sqft | 0.88 | 38,400.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.8 | **Precipitation Freq (Days)** | 53 |
| **Climate Zone** | 4 | | | **Operational Year** | 2024 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 290 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E CO2 Intensity Factor for 2020

Land Use - square feet and lot acreage from project description

Construction Phase - .

Grading - no construction

Energy Use -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblProjectCharacteristics | CO2IntensityFactor | 641.35 | 290 |

## 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 | | | | | |
| 2020 | 0.0510 | 0.5149 | 0.4343 | 7.6000e-004 | 8.0000e-003 | 0.0283 | 0.0363 | 2.3400e-003 | 0.0261 | 0.0285 | 0.0000 | 67.2866 | 67.2866 | 0.0175 | 0.0000 | 67.7235 |
| 2021 | 0.2712 | 0.0382 | 0.0395 | 7.0000e-005 | 6.7000e-004 | 2.0200e-003 | 2.6900e-003 | 1.8000e-004 | 1.8900e-003 | 2.0700e-003 | 0.0000 | 5.8426 | 5.8426 | 1.4100e-003 | 0.0000 | 5.8780 |
| **Maximum** | **0.2712** | **0.5149** | **0.4343** | **7.6000e-004** | **8.0000e-003** | **0.0283** | **0.0363** | **2.3400e-003** | **0.0261** | **0.0285** | **0.0000** | **67.2866** | **67.2866** | **0.0175** | **0.0000** | **67.7235** |

## 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 | 0.1767 | 0.0000 | 4.9000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 9.5000e-004 | 9.5000e-004 | 0.0000 | 0.0000 | 1.0200e-003 |
| Energy | 4.9000e-004 | 4.4600e-003 | 3.7500e-003 | 3.0000e-005 | | 3.4000e-004 | 3.4000e-004 | | 3.4000e-004 | 3.4000e-004 | 0.0000 | 58.8539 | 58.8539 | 5.4900e-003 | 1.2100e-003 | 59.3507 |
| Mobile | 0.4206 | 2.0629 | 3.9725 | 0.0121 | 0.9018 | 0.0101 | 0.9118 | 0.2421 | 9.3900e-003 | 0.2515 | 0.0000 | 1,111.9478 | 1,111.9478 | 0.0594 | 0.0000 | 1,113.4329 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 8.1846 | 0.0000 | 8.1846 | 0.4837 | 0.0000 | 20.2770 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.9024 | 2.8272 | 3.7296 | 0.0930 | 2.2500e-003 | 6.7233 |
| **Total** | **0.5978** | **2.0674** | **3.9767** | **0.0121** | **0.9018** | **0.0104** | **0.9122** | **0.2421** | **9.7300e-003** | **0.2518** | **9.0870** | **1,173.6298** | **1,182.7168** | **0.6416** | **3.4600e-003** | **1,199.7849** |

# 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 | 0.4206 | 2.0629 | 3.9725 | 0.0121 | 0.9018 | 0.0101 | 0.9118 | 0.2421 | 9.3900e-003 | 0.2515 | 0.0000 | 1,111.9478 | 1,111.9478 | 0.0594 | 0.0000 | 1,113.4329 |
| Unmitigated | 0.4206 | 2.0629 | 3.9725 | 0.0121 | 0.9018 | 0.0101 | 0.9118 | 0.2421 | 9.3900e-003 | 0.2515 | 0.0000 | 1,111.9478 | 1,111.9478 | 0.0594 | 0.0000 | 1,113.4329 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Strip Mall | 1,701.89 | 1,614.34 | 784.51 | 2,399,875 | 2,399,875 |
| Total | 1,701.89 | 1,614.34 | 784.51 | 2,399,875 | 2,399,875 |

## 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 |
| Strip Mall | 9.50 | 7.30 | 7.30 | 16.60 | 64.40 | 19.00 | 45 | 40 | 15 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Strip Mall | 0.552293 | 0.026858 | 0.203057 | 0.118966 | 0.019018 | 0.004857 | 0.019364 | 0.041479 | 0.003068 | 0.002366 | 0.006793 | 0.001094 | 0.000786 |

# 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 | 53.9974 | 53.9974 | 5.4000e-003 | 1.1200e-003 | 54.4653 |
| Electricity Unmitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 53.9974 | 53.9974 | 5.4000e-003 | 1.1200e-003 | 54.4653 |
| NaturalGas Mitigated | 4.9000e-004 | 4.4600e-003 | 3.7500e-003 | 3.0000e-005 | | 3.4000e-004 | 3.4000e-004 | | 3.4000e-004 | 3.4000e-004 | 0.0000 | 4.8565 | 4.8565 | 9.0000e-005 | 9.0000e-005 | 4.8854 |
| NaturalGas Unmitigated | 4.9000e-004 | 4.4600e-003 | 3.7500e-003 | 3.0000e-005 | | 3.4000e-004 | 3.4000e-004 | | 3.4000e-004 | 3.4000e-004 | 0.0000 | 4.8565 | 4.8565 | 9.0000e-005 | 9.0000e-005 | 4.8854 |

## 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 | | | | | |
| Strip Mall | 91008 | 4.9000e-004 | 4.4600e-003 | 3.7500e-003 | 3.0000e-005 | | 3.4000e-004 | 3.4000e-004 | | 3.4000e-004 | 3.4000e-004 | 0.0000 | 4.8565 | 4.8565 | 9.0000e-005 | 9.0000e-005 | 4.8854 |
| **Total** | | **4.9000e-004** | **4.4600e-003** | **3.7500e-003** | **3.0000e-005** | | **3.4000e-004** | **3.4000e-004** | | **3.4000e-004** | **3.4000e-004** | **0.0000** | **4.8565** | **4.8565** | **9.0000e-005** | **9.0000e-005** | **4.8854** |

## 5.3 Energy by Land Use - Electricity

**Unmitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Strip Mall | 410496 | 53.9974 | 5.4000e-003 | 1.1200e-003 | 54.4653 |
| **Total** | | **53.9974** | **5.4000e-003** | **1.1200e-003** | **54.4653** |

# 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 | 0.1767 | 0.0000 | 4.9000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 9.5000e-004 | 9.5000e-004 | 0.0000 | 0.0000 | 1.0200e-003 |
| Unmitigated | 0.1767 | 0.0000 | 4.9000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 9.5000e-004 | 9.5000e-004 | 0.0000 | 0.0000 | 1.0200e-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 | 0.0267 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.1500 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 5.0000e-005 | 0.0000 | 4.9000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 9.5000e-004 | 9.5000e-004 | 0.0000 | 0.0000 | 1.0200e-003 |
| **Total** | **0.1767** | **0.0000** | **4.9000e-004** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | **0.0000** | **9.5000e-004** | **9.5000e-004** | **0.0000** | **0.0000** | **1.0200e-003** |

# 7.0 Water Detail

## 7.1 Mitigation Measures Water

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Category | MT/yr | | | |
| Mitigated | 3.7296 | 0.0930 | 2.2500e-003 | 6.7233 |
| Unmitigated | 3.7296 | 0.0930 | 2.2500e-003 | 6.7233 |

## 7.2 Water by Land Use

**Unmitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Strip Mall | 2.84438 / 1.74333 | 3.7296 | 0.0930 | 2.2500e-003 | 6.7233 |
| **Total** | | **3.7296** | **0.0930** | **2.2500e-003** | **6.7233** |

# 8.0 Waste Detail

## 8.1 Mitigation Measures Waste

**Category/Year**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|

| | MT/yr | | | |
|---|---|---|---|---|
| Mitigated | 8.1846 | 0.4837 | 0.0000 | 20.2770 |
| Unmitigated | 8.1846 | 0.4837 | 0.0000 | 20.2770 |

## 8.2 Waste by Land Use

**Unmitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Strip Mall | 40.32 | 8.1846 | 0.4837 | 0.0000 | 20.2770 |
| **Total** | | **8.1846** | **0.4837** | **0.0000** | **20.2770** |

# DASP_Bitterwater Road_Increased Capacity

**Monterey Bay Unified APCD Air District, Summer**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Apartments Low Rise | 111.00 | Dwelling Unit | 5.22 | 111,000.00 | 501 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.8 | **Precipitation Freq (Days)** | 53 |
| **Climate Zone** | 4 | | | **Operational Year** | 2024 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 290 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E CO2 Intensity Factor for 2020

Land Use - lot acreage and population increase from project description

Vehicle Trips - trip rate = 306 daily trips with no employee bussing / 111 units = 2.76

Energy Use -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblLandUse | LotAcreage | 6.94 | 5.22 |
| tblLandUse | Population | 317.00 | 501.00 |
| tblProjectCharacteristics | CO2IntensityFactor | 641.35 | 290 |
| tblVehicleTrips | WD_TR | 6.59 | 2.76 |

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

**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 | lb/day | | | | | | | | | | lb/day | | | | | |
| 2020 | 4.1551 | 42.4798 | 22.3116 | 0.0401 | 18.2141 | 2.1986 | 20.4128 | 9.9699 | 2.0228 | 11.9927 | 0.0000 | 3,877.0762 | 3,877.0762 | 1.1983 | 0.0000 | 3,903.6584 |
| 2021 | 69.7390 | 19.0355 | 19.6012 | 0.0371 | 0.7384 | 0.9680 | 1.7064 | 0.1977 | 0.9101 | 1.1078 | 0.0000 | 3,584.8018 | 3,584.8018 | 0.7186 | 0.0000 | 3,601.2897 |
| **Maximum** | **69.7390** | **42.4798** | **22.3116** | **0.0401** | **18.2141** | **2.1986** | **20.4128** | **9.9699** | **2.0228** | **11.9927** | **0.0000** | **3,877.0762** | **3,877.0762** | **1.1983** | **0.0000** | **3,903.6584** |

### 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 3.0312 | 0.1055 | 9.1538 | 4.8000e-004 | | 0.0507 | 0.0507 | | 0.0507 | 0.0507 | 0.0000 | 16.4893 | 16.4893 | 0.0158 | 0.0000 | 16.8848 |
| Energy | 0.0335 | 0.2858 | 0.1216 | 1.8200e-003 | | 0.0231 | 0.0231 | | 0.0231 | 0.0231 | | 364.8904 | 364.8904 | 6.9900e-003 | 6.6900e-003 | 367.0587 |
| Mobile | 1.5907 | 7.3270 | 17.6511 | 0.0613 | 4.8781 | 0.0486 | 4.9267 | 1.3062 | 0.0454 | 1.3516 | | 6,218.2709 | 6,218.2709 | 0.2717 | | 6,225.0638 |
| **Total** | **4.6554** | **7.7183** | **26.9265** | **0.0636** | **4.8781** | **0.1224** | **5.0005** | **1.3062** | **0.1192** | **1.4255** | **0.0000** | **6,599.6506** | **6,599.6506** | **0.2945** | **6.6900e-003** | **6,609.0074** |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 1.5907 | 7.3270 | 17.6511 | 0.0613 | 4.8781 | 0.0486 | 4.9267 | 1.3062 | 0.0454 | 1.3516 | | 6,218.2709 | 6,218.2709 | 0.2717 | | 6,225.0638 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unmitigated | 1.5907 | 7.3270 | 17.6511 | 0.0613 | 4.8781 | 0.0486 | 4.9267 | 1.3062 | 0.0454 | 1.3516 | | 6,218.2709 | 6,218.2709 | 0.2717 | | 6,225.0638 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Apartments Low Rise | 306.36 | 794.76 | 673.77 | 1,234,802 | 1,234,802 |
| Total | 306.36 | 794.76 | 673.77 | 1,234,802 | 1,234,802 |

## 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 |
| Apartments Low Rise | 10.80 | 7.30 | 7.50 | 44.00 | 18.80 | 37.20 | 86 | 11 | 3 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apartments Low Rise | 0.552293 | 0.026858 | 0.203057 | 0.118966 | 0.019018 | 0.004857 | 0.019364 | 0.041479 | 0.003068 | 0.002366 | 0.006793 | 0.001094 | 0.000786 |

# 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| NaturalGas Mitigated | 0.0335 | 0.2858 | 0.1216 | 1.8200e-003 | | 0.0231 | 0.0231 | | 0.0231 | 0.0231 | | 364.8904 | 364.8904 | 6.9900e-003 | 6.6900e-003 | 367.0587 |
| NaturalGas Unmitigated | 0.0335 | 0.2858 | 0.1216 | 1.8200e-003 | | 0.0231 | 0.0231 | | 0.0231 | 0.0231 | | 364.8904 | 364.8904 | 6.9900e-003 | 6.6900e-003 | 367.0587 |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apartments Low Rise | 3101.57 | 0.0335 | 0.2858 | 0.1216 | 1.8200e-003 | | 0.0231 | 0.0231 | | 0.0231 | 0.0231 | | 364.8904 | 364.8904 | 6.9900e-003 | 6.6900e-003 | 367.0587 |
| **Total** | | **0.0335** | **0.2858** | **0.1216** | **1.8200e-003** | | **0.0231** | **0.0231** | | **0.0231** | **0.0231** | | **364.8904** | **364.8904** | **6.9900e-003** | **6.6900e-003** | **367.0587** |

# 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 3.0312 | 0.1055 | 9.1538 | 4.8000e-004 | | 0.0507 | 0.0507 | | 0.0507 | 0.0507 | 0.0000 | 16.4893 | 16.4893 | 0.0158 | 0.0000 | 16.8848 |
| Unmitigated | 3.0312 | 0.1055 | 9.1538 | 4.8000e-004 | | 0.0507 | 0.0507 | | 0.0507 | 0.0507 | 0.0000 | 16.4893 | 16.4893 | 0.0158 | 0.0000 | 16.8848 |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.3806 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 2.3754 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Hearth | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 0.2752 | 0.1055 | 9.1538 | 4.8000e-004 | | 0.0507 | 0.0507 | | 0.0507 | 0.0507 | | 16.4893 | 16.4893 | 0.0158 | | 16.8848 |
| **Total** | **3.0312** | **0.1055** | **9.1538** | **4.8000e-004** | | **0.0507** | **0.0507** | | **0.0507** | **0.0507** | **0.0000** | **16.4893** | **16.4893** | **0.0158** | **0.0000** | **16.8848** |

# DASP_Bitterwater Road_Increased Capacity

**Monterey Bay Unified APCD Air District, Winter**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Apartments Low Rise | 111.00 | Dwelling Unit | 5.22 | 111,000.00 | 501 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.8 | **Precipitation Freq (Days)** | 53 |
| **Climate Zone** | 4 | | | **Operational Year** | 2024 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 290 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E CO2 Intensity Factor for 2020

Land Use - lot acreage and population increase from project description

Vehicle Trips - trip rate = 306 daily trips with no employee bussing / 111 units = 2.76

Energy Use -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblLandUse | LotAcreage | 6.94 | 5.22 |
| tblLandUse | Population | 317.00 | 501.00 |
| tblProjectCharacteristics | CO2IntensityFactor | 641.35 | 290 |
| tblVehicleTrips | WD_TR | 6.59 | 2.76 |

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

**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 | lb/day | | | | | | | | | | lb/day | | | | | |
| 2020 | 4.1625 | 42.4958 | 22.3086 | 0.0400 | 18.2141 | 2.1986 | 20.4128 | 9.9699 | 2.0228 | 11.9927 | 0.0000 | 3,869.2815 | 3,869.2815 | 1.1980 | 0.0000 | 3,895.8583 |
| 2021 | 69.7451 | 19.1066 | 19.6296 | 0.0366 | 0.7384 | 0.9682 | 1.7066 | 0.1977 | 0.9103 | 1.1080 | 0.0000 | 3,533.1176 | 3,533.1176 | 0.7184 | 0.0000 | 3,549.6289 |
| **Maximum** | **69.7451** | **42.4958** | **22.3086** | **0.0400** | **18.2141** | **2.1986** | **20.4128** | **9.9699** | **2.0228** | **11.9927** | **0.0000** | **3,869.2815** | **3,869.2815** | **1.1980** | **0.0000** | **3,895.8583** |

### 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 3.0312 | 0.1055 | 9.1538 | 4.8000e-004 | | 0.0507 | 0.0507 | | 0.0507 | 0.0507 | 0.0000 | 16.4893 | 16.4893 | 0.0158 | 0.0000 | 16.8848 |
| Energy | 0.0335 | 0.2858 | 0.1216 | 1.8200e-003 | | 0.0231 | 0.0231 | | 0.0231 | 0.0231 | | 364.8904 | 364.8904 | 6.9900e-003 | 6.6900e-003 | 367.0587 |
| Mobile | 1.4710 | 7.7299 | 18.2490 | 0.0583 | 4.8781 | 0.0488 | 4.9269 | 1.3062 | 0.0456 | 1.3518 | | 5,909.6037 | 5,909.6037 | 0.2792 | | 5,916.5824 |
| **Total** | **4.5357** | **8.1212** | **27.5244** | **0.0606** | **4.8781** | **0.1227** | **5.0008** | **1.3062** | **0.1194** | **1.4257** | **0.0000** | **6,290.9834** | **6,290.9834** | **0.3020** | **6.6900e-003** | **6,300.5259** |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mitigated | 1.4710 | 7.7299 | 18.2490 | 0.0583 | 4.8781 | 0.0488 | 4.9269 | 1.3062 | 0.0456 | 1.3518 | | 5,909.6037 | 5,909.6037 | 0.2792 | | 5,916.5824 |
| Unmitigated | 1.4710 | 7.7299 | 18.2490 | 0.0583 | 4.8781 | 0.0488 | 4.9269 | 1.3062 | 0.0456 | 1.3518 | | 5,909.6037 | 5,909.6037 | 0.2792 | | 5,916.5824 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Apartments Low Rise | 306.36 | 794.76 | 673.77 | 1,234,802 | 1,234,802 |
| Total | 306.36 | 794.76 | 673.77 | 1,234,802 | 1,234,802 |

## 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 |
| Apartments Low Rise | 10.80 | 7.30 | 7.50 | 44.00 | 18.80 | 37.20 | 86 | 11 | 3 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apartments Low Rise | 0.552293 | 0.026858 | 0.203057 | 0.118966 | 0.019018 | 0.004857 | 0.019364 | 0.041479 | 0.003068 | 0.002366 | 0.006793 | 0.001094 | 0.000786 |

# 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| NaturalGas Mitigated | 0.0335 | 0.2858 | 0.1216 | 1.8200e-003 | | 0.0231 | 0.0231 | | 0.0231 | 0.0231 | | 364.8904 | 364.8904 | 6.9900e-003 | 6.6900e-003 | 367.0587 |
| NaturalGas Unmitigated | 0.0335 | 0.2858 | 0.1216 | 1.8200e-003 | | 0.0231 | 0.0231 | | 0.0231 | 0.0231 | | 364.8904 | 364.8904 | 6.9900e-003 | 6.6900e-003 | 367.0587 |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apartments Low Rise | 3101.57 | 0.0335 | 0.2858 | 0.1216 | 1.8200e-003 | | 0.0231 | 0.0231 | | 0.0231 | 0.0231 | | 364.8904 | 364.8904 | 6.9900e-003 | 6.6900e-003 | 367.0587 |
| **Total** | | **0.0335** | **0.2858** | **0.1216** | **1.8200e-003** | | **0.0231** | **0.0231** | | **0.0231** | **0.0231** | | **364.8904** | **364.8904** | **6.9900e-003** | **6.6900e-003** | **367.0587** |

# 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 3.0312 | 0.1055 | 9.1538 | 4.8000e-004 | | 0.0507 | 0.0507 | | 0.0507 | 0.0507 | 0.0000 | 16.4893 | 16.4893 | 0.0158 | 0.0000 | 16.8848 |
| Unmitigated | 3.0312 | 0.1055 | 9.1538 | 4.8000e-004 | | 0.0507 | 0.0507 | | 0.0507 | 0.0507 | 0.0000 | 16.4893 | 16.4893 | 0.0158 | 0.0000 | 16.8848 |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.3806 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 2.3754 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Hearth | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 0.2752 | 0.1055 | 9.1538 | 4.8000e-004 | | 0.0507 | 0.0507 | | 0.0507 | 0.0507 | | 16.4893 | 16.4893 | 0.0158 | | 16.8848 |
| **Total** | **3.0312** | **0.1055** | **9.1538** | **4.8000e-004** | | **0.0507** | **0.0507** | | **0.0507** | **0.0507** | **0.0000** | **16.4893** | **16.4893** | **0.0158** | **0.0000** | **16.8848** |

# DASP_Bitterwater Road_Increased Capacity

**Monterey Bay Unified APCD Air District, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Apartments Low Rise | 111.00 | Dwelling Unit | 5.22 | 111,000.00 | 501 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.8 | **Precipitation Freq (Days)** | 53 |
| **Climate Zone** | 4 | | | **Operational Year** | 2024 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 290 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E CO2 Intensity Factor for 2020

Land Use - lot acreage and population increase from project description

Vehicle Trips - trip rate = 306 daily trips with no employee bussing / 111 units = 2.76

Energy Use -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblLandUse | LotAcreage | 6.94 | 5.22 |
| tblLandUse | Population | 317.00 | 501.00 |
| tblProjectCharacteristics | CO2IntensityFactor | 641.35 | 290 |
| tblVehicleTrips | WD_TR | 6.59 | 2.76 |

# 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 | | | | | |
| 2020 | 0.1539 | 1.4291 | 1.0917 | 2.0000e-003 | 0.1801 | 0.0737 | 0.2538 | 0.0898 | 0.0686 | 0.1585 | 0.0000 | 175.0843 | 175.0843 | 0.0415 | 0.0000 | 176.1211 |
| 2021 | 0.9043 | 1.7773 | 1.8417 | 3.4200e-003 | 0.0637 | 0.0905 | 0.1542 | 0.0171 | 0.0850 | 0.1021 | 0.0000 | 299.5809 | 299.5809 | 0.0579 | 0.0000 | 301.0276 |
| **Maximum** | **0.9043** | **1.7773** | **1.8417** | **3.4200e-003** | **0.1801** | **0.0905** | **0.2538** | **0.0898** | **0.0850** | **0.1585** | **0.0000** | **299.5809** | **299.5809** | **0.0579** | **0.0000** | **301.0276** |

## 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 | 0.5374 | 0.0132 | 1.1442 | 6.0000e-005 | | 6.3400e-003 | 6.3400e-003 | | 6.3400e-003 | 6.3400e-003 | 0.0000 | 1.8699 | 1.8699 | 1.7900e-003 | 0.0000 | 1.9147 |
| Energy | 6.1000e-003 | 0.0522 | 0.0222 | 3.3000e-004 | | 4.2200e-003 | 4.2200e-003 | | 4.2200e-003 | 4.2200e-003 | 0.0000 | 123.9091 | 123.9091 | 7.5100e-003 | 2.4200e-003 | 124.8184 |
| Mobile | 0.1447 | 0.7441 | 1.6996 | 5.7600e-003 | 0.4640 | 4.7700e-003 | 0.4688 | 0.1246 | 4.4600e-003 | 0.1290 | 0.0000 | 530.3254 | 530.3254 | 0.0242 | 0.0000 | 530.9297 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 10.3647 | 0.0000 | 10.3647 | 0.6125 | 0.0000 | 25.6782 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 2.2944 | 7.2467 | 9.5411 | 0.2364 | 5.7100e-003 | 17.1536 |
| **Total** | **0.6881** | **0.8095** | **2.8660** | **6.1500e-003** | **0.4640** | **0.0153** | **0.4793** | **0.1246** | **0.0150** | **0.1396** | **12.6591** | **663.3511** | **676.0102** | **0.8824** | **8.1300e-003** | **700.4945** |

# 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 | 0.1447 | 0.7441 | 1.6996 | 5.7600e-003 | 0.4640 | 4.7700e-003 | 0.4688 | 0.1246 | 4.4600e-003 | 0.1290 | 0.0000 | 530.3254 | 530.3254 | 0.0242 | 0.0000 | 530.9297 |
| Unmitigated | 0.1447 | 0.7441 | 1.6996 | 5.7600e-003 | 0.4640 | 4.7700e-003 | 0.4688 | 0.1246 | 4.4600e-003 | 0.1290 | 0.0000 | 530.3254 | 530.3254 | 0.0242 | 0.0000 | 530.9297 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Apartments Low Rise | 306.36 | 794.76 | 673.77 | 1,234,802 | 1,234,802 |
| Total | 306.36 | 794.76 | 673.77 | 1,234,802 | 1,234,802 |

## 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 |
| Apartments Low Rise | 10.80 | 7.30 | 7.50 | 44.00 | 18.80 | 37.20 | 86 | 11 | 3 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apartments Low Rise | 0.552293 | 0.026858 | 0.203057 | 0.118966 | 0.019018 | 0.004857 | 0.019364 | 0.041479 | 0.003068 | 0.002366 | 0.006793 | 0.001094 | 0.000786 |

# 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 | 63.4974 | 63.4974 | 6.3500e-003 | 1.3100e-003 | 64.0477 |
| Electricity Unmitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 63.4974 | 63.4974 | 6.3500e-003 | 1.3100e-003 | 64.0477 |
| NaturalGas Mitigated | 6.1000e-003 | 0.0522 | 0.0222 | 3.3000e-004 | | 4.2200e-003 | 4.2200e-003 | | 4.2200e-003 | 4.2200e-003 | 0.0000 | 60.4117 | 60.4117 | 1.1600e-003 | 1.1100e-003 | 60.7707 |
| NaturalGas Unmitigated | 6.1000e-003 | 0.0522 | 0.0222 | 3.3000e-004 | | 4.2200e-003 | 4.2200e-003 | | 4.2200e-003 | 4.2200e-003 | 0.0000 | 60.4117 | 60.4117 | 1.1600e-003 | 1.1100e-003 | 60.7707 |

## 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 | | | | | |
| Apartments Low Rise | 1.13207e+006 | 6.1000e-003 | 0.0522 | 0.0222 | 3.3000e-004 | | 4.2200e-003 | 4.2200e-003 | | 4.2200e-003 | 4.2200e-003 | 0.0000 | 60.4117 | 60.4117 | 1.1600e-003 | 1.1100e-003 | 60.7707 |
| **Total** | | **6.1000e-003** | **0.0522** | **0.0222** | **3.3000e-004** | | **4.2200e-003** | **4.2200e-003** | | **4.2200e-003** | **4.2200e-003** | **0.0000** | **60.4117** | **60.4117** | **1.1600e-003** | **1.1100e-003** | **60.7707** |

## 5.3 Energy by Land Use - Electricity

**Unmitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Apartments Low Rise | 482717 | 63.4974 | 6.3500e-003 | 1.3100e-003 | 64.0477 |
| **Total** | | **63.4974** | **6.3500e-003** | **1.3100e-003** | **64.0477** |

# 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 | 0.5374 | 0.0132 | 1.1442 | 6.0000e-005 | | 6.3400e-003 | 6.3400e-003 | | 6.3400e-003 | 6.3400e-003 | 0.0000 | 1.8699 | 1.8699 | 1.7900e-003 | 0.0000 | 1.9147 |
| Unmitigated | 0.5374 | 0.0132 | 1.1442 | 6.0000e-005 | | 6.3400e-003 | 6.3400e-003 | | 6.3400e-003 | 6.3400e-003 | 0.0000 | 1.8699 | 1.8699 | 1.7900e-003 | 0.0000 | 1.9147 |

## 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 | 0.0695 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.4335 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Hearth | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 0.0344 | 0.0132 | 1.1442 | 6.0000e-005 | | 6.3400e-003 | 6.3400e-003 | | 6.3400e-003 | 6.3400e-003 | 0.0000 | 1.8699 | 1.8699 | 1.7900e-003 | 0.0000 | 1.9147 |
| **Total** | **0.5374** | **0.0132** | **1.1442** | **6.0000e-005** | | **6.3400e-003** | **6.3400e-003** | | **6.3400e-003** | **6.3400e-003** | **0.0000** | **1.8699** | **1.8699** | **1.7900e-003** | **0.0000** | **1.9147** |

# 7.0 Water Detail

## 7.1 Mitigation Measures Water

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Category | MT/yr | | | |
| Mitigated | 9.5411 | 0.2364 | 5.7100e-003 | 17.1536 |
| Unmitigated | 9.5411 | 0.2364 | 5.7100e-003 | 17.1536 |

## 7.2 Water by Land Use

**Unmitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Apartments Low Rise | 7.2321 / 4.55937 | 9.5411 | 0.2364 | 5.7100e-003 | 17.1536 |
| **Total** | | **9.5411** | **0.2364** | **5.7100e-003** | **17.1536** |

# 8.0 Waste Detail

## 8.1 Mitigation Measures Waste

**Category/Year**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| | MT/yr | | | |
| Mitigated | 10.3647 | 0.6125 | 0.0000 | 25.6782 |
| Unmitigated | 10.3647 | 0.6125 | 0.0000 | 25.6782 |

## 8.2 Waste by Land Use

**Unmitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Apartments Low Rise | 51.06 | 10.3647 | 0.6125 | 0.0000 | 25.6782 |
| **Total** | | **10.3647** | **0.6125** | **0.0000** | **25.6782** |

# Jayne Street_Decrease

**Monterey Bay Unified APCD Air District, Summer**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Apartments Low Rise | 51.00 | Dwelling Unit | 2.85 | 51,000.00 | 230 |
| Strip Mall | 3.60 | 1000sqft | 0.08 | 3,600.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.8 | **Precipitation Freq (Days)** | 53 |
| **Climate Zone** | 4 | | | **Operational Year** | 2026 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 290 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity Factor for 2020

Land Use - lot acreage adjusted based on project description sqaure footage and population from project description
Construction Phase -

Grading - No Construction.

Vehicle Trips -

Energy Use -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|

| | | | |
|---|---|---|---|
| tblLandUse | LotAcreage | 3.19 | 2.85 |
| tblLandUse | Population | 146.00 | 230.00 |
| tblProjectCharacteristics | CO2IntensityFactor | 641.35 | 290 |

# 2.0 Emissions Summary

## 2.1 Overall Construction (Maximum Daily Emission)

**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 | lb/day | | | | | | | | | | lb/day | | | | | |
| 2020 | 2.4803 | 21.3765 | 16.4904 | 0.0300 | 6.6345 | 1.1534 | 7.6253 | 3.3893 | 1.0770 | 4.3009 | 0.0000 | 2,799.7229 | 2,799.7229 | 0.7703 | 0.0000 | 2,811.9078 |
| 2021 | 69.0810 | 16.8230 | 16.0080 | 0.0299 | 0.3528 | 0.8218 | 1.1746 | 0.0945 | 0.7874 | 0.8818 | 0.0000 | 2,787.9450 | 2,787.9450 | 0.5465 | 0.0000 | 2,799.7308 |
| **Maximum** | **69.0810** | **21.3765** | **16.4904** | **0.0300** | **6.6345** | **1.1534** | **7.6253** | **3.3893** | **1.0770** | **4.3009** | **0.0000** | **2,799.7229** | **2,799.7229** | **0.7703** | **0.0000** | **2,811.9078** |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 1.4833 | 0.0484 | 4.2039 | 2.2000e-004 | | 0.0233 | 0.0233 | | 0.0233 | 0.0233 | 0.0000 | 7.5770 | 7.5770 | 7.2600e-003 | 0.0000 | 7.7584 |
| Energy | 0.0156 | 0.1336 | 0.0578 | 8.5000e-004 | | 0.0108 | 0.0108 | | 0.0108 | 0.0108 | | 170.4024 | 170.4024 | 3.2700e-003 | 3.1200e-003 | 171.4150 |
| Mobile | 0.8804 | 4.1902 | 8.9557 | 0.0333 | 2.7638 | 0.0255 | 2.7892 | 0.7399 | 0.0238 | 0.7636 | | 3,378.3563 | 3,378.3563 | 0.1461 | | 3,382.0097 |
| **Total** | **2.3793** | **4.3722** | **13.2175** | **0.0343** | **2.7638** | **0.0596** | **2.8234** | **0.7399** | **0.0579** | **0.7978** | **0.0000** | **3,556.3356** | **3,556.3356** | **0.1567** | **3.1200e-003** | **3,561.1830** |

# 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 0.8804 | 4.1902 | 8.9557 | 0.0333 | 2.7638 | 0.0255 | 2.7892 | 0.7399 | 0.0238 | 0.7636 | | 3,378.3563 | 3,378.3563 | 0.1461 | | 3,382.0097 |
| Unmitigated | 0.8804 | 4.1902 | 8.9557 | 0.0333 | 2.7638 | 0.0255 | 2.7892 | 0.7399 | 0.0238 | 0.7636 | | 3,378.3563 | 3,378.3563 | 0.1461 | | 3,382.0097 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Apartments Low Rise | 336.09 | 365.16 | 309.57 | 969,287 | 969,287 |
| Strip Mall | 159.55 | 151.34 | 73.55 | 224,988 | 224,988 |
| Total | 495.64 | 516.50 | 383.12 | 1,194,276 | 1,194,276 |

## 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 |
| Apartments Low Rise | 10.80 | 7.30 | 7.50 | 44.00 | 18.80 | 37.20 | 86 | 11 | 3 |
| Strip Mall | 9.50 | 7.30 | 7.30 | 16.60 | 64.40 | 19.00 | 45 | 40 | 15 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apartments Low Rise | 0.559548 | 0.025758 | 0.204341 | 0.113388 | 0.016664 | 0.004507 | 0.019663 | 0.042467 | 0.003063 | 0.002194 | 0.006609 | 0.001094 | 0.000703 |
| Strip Mall | 0.559548 | 0.025758 | 0.204341 | 0.113388 | 0.016664 | 0.004507 | 0.019663 | 0.042467 | 0.003063 | 0.002194 | 0.006609 | 0.001094 | 0.000703 |

# 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| NaturalGas Mitigated | 0.0156 | 0.1336 | 0.0578 | 8.5000e-004 | | 0.0108 | 0.0108 | | 0.0108 | 0.0108 | | 170.4024 | 170.4024 | 3.2700e-003 | 3.1200e-003 | 171.4150 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NaturalGas Unmitigated | 0.0156 | 0.1336 | 0.0578 | 8.5000e-004 | | 0.0108 | 0.0108 | | 0.0108 | 0.0108 | | 170.4024 | 170.4024 | 3.2700e-003 | 3.1200e-003 | 171.4150 |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Apartments Low Rise | 1425.04 | 0.0154 | 0.1313 | 0.0559 | 8.4000e-004 | | 0.0106 | 0.0106 | | 0.0106 | 0.0106 | | 167.6523 | 167.6523 | 3.2100e-003 | 3.0700e-003 | 168.6486 |
| Strip Mall | 23.3753 | 2.5000e-004 | 2.2900e-003 | 1.9300e-003 | 1.0000e-005 | | 1.7000e-004 | 1.7000e-004 | | 1.7000e-004 | 1.7000e-004 | | 2.7500 | 2.7500 | 5.0000e-005 | 5.0000e-005 | 2.7664 |
| **Total** | | **0.0156** | **0.1336** | **0.0578** | **8.5000e-004** | | **0.0108** | **0.0108** | | **0.0108** | **0.0108** | | **170.4024** | **170.4024** | **3.2600e-003** | **3.1200e-003** | **171.4150** |

# 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 1.4833 | 0.0484 | 4.2039 | 2.2000e-004 | | 0.0233 | 0.0233 | | 0.0233 | 0.0233 | 0.0000 | 7.5770 | 7.5770 | 7.2600e-003 | 0.0000 | 7.7584 |
| Unmitigated | 1.4833 | 0.0484 | 4.2039 | 2.2000e-004 | | 0.0233 | 0.0233 | | 0.0233 | 0.0233 | 0.0000 | 7.5770 | 7.5770 | 7.2600e-003 | 0.0000 | 7.7584 |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.1886 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 1.1684 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Hearth | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landscaping | 0.1262 | 0.0484 | 4.2039 | 2.2000e-004 | | 0.0233 | 0.0233 | | 0.0233 | 0.0233 | | 7.5770 | 7.5770 | 7.2600e-003 | | 7.7584 |
| **Total** | **1.4833** | **0.0484** | **4.2039** | **2.2000e-004** | | **0.0233** | **0.0233** | | **0.0233** | **0.0233** | **0.0000** | **7.5770** | **7.5770** | **7.2600e-003** | **0.0000** | **7.7584** |

# Jayne Street_Decrease

**Monterey Bay Unified APCD Air District, Winter**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Apartments Low Rise | 51.00 | Dwelling Unit | 2.85 | 51,000.00 | 230 |
| Strip Mall | 3.60 | 1000sqft | 0.08 | 3,600.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.8 | **Precipitation Freq (Days)** | 53 |
| **Climate Zone** | 4 | | | **Operational Year** | 2026 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 290 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity Factor for 2020

Land Use - lot acreage adjusted based on project description sqaure footage and population from project description
Construction Phase -

Grading - No Construction.

Vehicle Trips -

Energy Use -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|

| | | | |
|---|---|---|---|
| tblLandUse | LotAcreage | 3.19 | 2.85 |
| tblLandUse | Population | 146.00 | 230.00 |
| tblProjectCharacteristics | CO2IntensityFactor | 641.35 | 290 |

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

**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 | lb/day | | | | | | | | | | lb/day | | | | | |
| 2020 | 2.4975 | 21.3854 | 16.5114 | 0.0298 | 6.6345 | 1.1534 | 7.6253 | 3.3893 | 1.0770 | 4.3009 | 0.0000 | 2,774.2613 | 2,774.2613 | 0.7702 | 0.0000 | 2,786.4579 |
| 2021 | 69.0840 | 16.8570 | 16.0228 | 0.0297 | 0.3528 | 0.8219 | 1.1747 | 0.0945 | 0.7875 | 0.8819 | 0.0000 | 2,763.1098 | 2,763.1098 | 0.5462 | 0.0000 | 2,774.9080 |
| **Maximum** | **69.0840** | **21.3854** | **16.5114** | **0.0298** | **6.6345** | **1.1534** | **7.6253** | **3.3893** | **1.0770** | **4.3009** | **0.0000** | **2,774.2613** | **2,774.2613** | **0.7702** | **0.0000** | **2,786.4579** |

### 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 1.4833 | 0.0484 | 4.2039 | 2.2000e-004 | | 0.0233 | 0.0233 | | 0.0233 | 0.0233 | 0.0000 | 7.5770 | 7.5770 | 7.2600e-003 | 0.0000 | 7.7584 |
| Energy | 0.0156 | 0.1336 | 0.0578 | 8.5000e-004 | | 0.0108 | 0.0108 | | 0.0108 | 0.0108 | | 170.4024 | 170.4024 | 3.2700e-003 | 3.1200e-003 | 171.4150 |
| Mobile | 0.8045 | 4.3707 | 9.3609 | 0.0316 | 2.7638 | 0.0256 | 2.7894 | 0.7399 | 0.0239 | 0.7638 | | 3,209.0231 | 3,209.0231 | 0.1519 | | 3,212.8207 |
| **Total** | **2.3033** | **4.5528** | **13.6227** | **0.0327** | **2.7638** | **0.0597** | **2.8235** | **0.7399** | **0.0580** | **0.7979** | **0.0000** | **3,387.0024** | **3,387.0024** | **0.1624** | **3.1200e-003** | **3,391.9941** |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 0.8045 | 4.3707 | 9.3609 | 0.0316 | 2.7638 | 0.0256 | 2.7894 | 0.7399 | 0.0239 | 0.7638 | | 3,209.0231 | 3,209.0231 | 0.1519 | | 3,212.8207 |
| Unmitigated | 0.8045 | 4.3707 | 9.3609 | 0.0316 | 2.7638 | 0.0256 | 2.7894 | 0.7399 | 0.0239 | 0.7638 | | 3,209.0231 | 3,209.0231 | 0.1519 | | 3,212.8207 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Apartments Low Rise | 336.09 | 365.16 | 309.57 | 969,287 | 969,287 |
| Strip Mall | 159.55 | 151.34 | 73.55 | 224,988 | 224,988 |
| Total | 495.64 | 516.50 | 383.12 | 1,194,276 | 1,194,276 |

## 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 |
| Apartments Low Rise | 10.80 | 7.30 | 7.50 | 44.00 | 18.80 | 37.20 | 86 | 11 | 3 |
| Strip Mall | 9.50 | 7.30 | 7.30 | 16.60 | 64.40 | 19.00 | 45 | 40 | 15 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apartments Low Rise | 0.559548 | 0.025758 | 0.204341 | 0.113388 | 0.016664 | 0.004507 | 0.019663 | 0.042467 | 0.003063 | 0.002194 | 0.006609 | 0.001094 | 0.000703 |
| Strip Mall | 0.559548 | 0.025758 | 0.204341 | 0.113388 | 0.016664 | 0.004507 | 0.019663 | 0.042467 | 0.003063 | 0.002194 | 0.006609 | 0.001094 | 0.000703 |

# 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| NaturalGas Mitigated | 0.0156 | 0.1336 | 0.0578 | 8.5000e-004 | | 0.0108 | 0.0108 | | 0.0108 | 0.0108 | | 170.4024 | 170.4024 | 3.2700e-003 | 3.1200e-003 | 171.4150 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NaturalGas Unmitigated | 0.0156 | 0.1336 | 0.0578 | 8.5000e-004 | | 0.0108 | 0.0108 | | 0.0108 | 0.0108 | | 170.4024 | 170.4024 | 3.2700e-003 | 3.1200e-003 | 171.4150 |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Apartments Low Rise | 1425.04 | 0.0154 | 0.1313 | 0.0559 | 8.4000e-004 | | 0.0106 | 0.0106 | | 0.0106 | 0.0106 | | 167.6523 | 167.6523 | 3.2100e-003 | 3.0700e-003 | 168.6486 |
| Strip Mall | 23.3753 | 2.5000e-004 | 2.2900e-003 | 1.9300e-003 | 1.0000e-005 | | 1.7000e-004 | 1.7000e-004 | | 1.7000e-004 | 1.7000e-004 | | 2.7500 | 2.7500 | 5.0000e-005 | 5.0000e-005 | 2.7664 |
| **Total** | | **0.0156** | **0.1336** | **0.0578** | **8.5000e-004** | | **0.0108** | **0.0108** | | **0.0108** | **0.0108** | | **170.4024** | **170.4024** | **3.2600e-003** | **3.1200e-003** | **171.4150** |

# 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 1.4833 | 0.0484 | 4.2039 | 2.2000e-004 | | 0.0233 | 0.0233 | | 0.0233 | 0.0233 | 0.0000 | 7.5770 | 7.5770 | 7.2600e-003 | 0.0000 | 7.7584 |
| Unmitigated | 1.4833 | 0.0484 | 4.2039 | 2.2000e-004 | | 0.0233 | 0.0233 | | 0.0233 | 0.0233 | 0.0000 | 7.5770 | 7.5770 | 7.2600e-003 | 0.0000 | 7.7584 |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.1886 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 1.1684 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Hearth | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landscaping | 0.1262 | 0.0484 | 4.2039 | 2.2000e-004 | | 0.0233 | 0.0233 | | 0.0233 | 0.0233 | | 7.5770 | 7.5770 | 7.2600e-003 | | 7.7584 |
| **Total** | **1.4833** | **0.0484** | **4.2039** | **2.2000e-004** | | **0.0233** | **0.0233** | | **0.0233** | **0.0233** | **0.0000** | **7.5770** | **7.5770** | **7.2600e-003** | **0.0000** | **7.7584** |

# Jayne Street_Decrease

**Monterey Bay Unified APCD Air District, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Apartments Low Rise | 51.00 | Dwelling Unit | 2.85 | 51,000.00 | 230 |
| Strip Mall | 3.60 | 1000sqft | 0.08 | 3,600.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.8 | **Precipitation Freq (Days)** | 53 |
| **Climate Zone** | 4 | | | **Operational Year** | 2026 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 290 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity Factor for 2020

Land Use - lot acreage adjusted based on project description
sqaure footage and population from project description
Construction Phase -

Grading - No Construction.

Vehicle Trips -

Energy Use -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|

| | | | |
|---|---|---|---|
| tblLandUse | LotAcreage | 3.19 | 2.85 |
| tblLandUse | Population | 146.00 | 230.00 |
| tblProjectCharacteristics | CO2IntensityFactor | 641.35 | 290 |

# 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 | | | | | |
| 2020 | 0.1295 | 1.0374 | 0.8570 | 1.5500e-003 | 0.0371 | 0.0539 | 0.0910 | 0.0144 | 0.0512 | 0.0656 | 0.0000 | 131.8441 | 131.8441 | 0.0260 | 0.0000 | 132.4928 |
| 2021 | 0.5064 | 1.2405 | 1.1888 | 2.1900e-003 | 0.0249 | 0.0609 | 0.0858 | 6.6700e-003 | 0.0583 | 0.0650 | 0.0000 | 185.6166 | 185.6166 | 0.0325 | 0.0000 | 186.4292 |
| **Maximum** | **0.5064** | **1.2405** | **1.1888** | **2.1900e-003** | **0.0371** | **0.0609** | **0.0910** | **0.0144** | **0.0583** | **0.0656** | **0.0000** | **185.6166** | **185.6166** | **0.0325** | **0.0000** | **186.4292** |

## 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 | 0.2634 | 6.0500e-003 | 0.5255 | 3.0000e-005 | | 2.9200e-003 | 2.9200e-003 | | 2.9200e-003 | 2.9200e-003 | 0.0000 | 0.8592 | 0.8592 | 8.2000e-004 | 0.0000 | 0.8798 |
| Energy | 2.8500e-003 | 0.0244 | 0.0106 | 1.6000e-004 | | 1.9700e-003 | 1.9700e-003 | | 1.9700e-003 | 1.9700e-003 | 0.0000 | 62.4488 | 62.4488 | 3.9600e-003 | 1.2300e-003 | 62.9131 |
| Mobile | 0.1355 | 0.7211 | 1.4819 | 5.3400e-003 | 0.4486 | 4.2700e-003 | 0.4529 | 0.1204 | 3.9800e-003 | 0.1244 | 0.0000 | 491.9352 | 491.9352 | 0.0223 | 0.0000 | 492.4936 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 5.5295 | 0.0000 | 5.5295 | 0.3268 | 0.0000 | 13.6990 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 1.1388 | 3.5946 | 4.7334 | 0.1173 | 2.8400e-003 | 8.5117 |
| **Total** | **0.4018** | **0.7516** | **2.0179** | **5.5300e-003** | **0.4486** | **9.1600e-003** | **0.4577** | **0.1204** | **8.8700e-003** | **0.1293** | **6.6683** | **558.8378** | **565.5061** | **0.4712** | **4.0700e-003** | **578.4972** |

# 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 | 0.1355 | 0.7211 | 1.4819 | 5.3400e-003 | 0.4486 | 4.2700e-003 | 0.4529 | 0.1204 | 3.9800e-003 | 0.1244 | 0.0000 | 491.9352 | 491.9352 | 0.0223 | 0.0000 | 492.4936 |
| Unmitigated | 0.1355 | 0.7211 | 1.4819 | 5.3400e-003 | 0.4486 | 4.2700e-003 | 0.4529 | 0.1204 | 3.9800e-003 | 0.1244 | 0.0000 | 491.9352 | 491.9352 | 0.0223 | 0.0000 | 492.4936 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Apartments Low Rise | 336.09 | 365.16 | 309.57 | 969,287 | 969,287 |
| Strip Mall | 159.55 | 151.34 | 73.55 | 224,988 | 224,988 |
| Total | 495.64 | 516.50 | 383.12 | 1,194,276 | 1,194,276 |

## 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 |
| Apartments Low Rise | 10.80 | 7.30 | 7.50 | 44.00 | 18.80 | 37.20 | 86 | 11 | 3 |
| Strip Mall | 9.50 | 7.30 | 7.30 | 16.60 | 64.40 | 19.00 | 45 | 40 | 15 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apartments Low Rise | 0.559548 | 0.025758 | 0.204341 | 0.113388 | 0.016664 | 0.004507 | 0.019663 | 0.042467 | 0.003063 | 0.002194 | 0.006609 | 0.001094 | 0.000703 |
| Strip Mall | 0.559548 | 0.025758 | 0.204341 | 0.113388 | 0.016664 | 0.004507 | 0.019663 | 0.042467 | 0.003063 | 0.002194 | 0.006609 | 0.001094 | 0.000703 |

# 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 | 34.2368 | 34.2368 | 3.4200e-003 | 7.1000e-004 | 34.5334 |
| Electricity Unmitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 34.2368 | 34.2368 | 3.4200e-003 | 7.1000e-004 | 34.5334 |
| NaturalGas Mitigated | 2.8500e-003 | 0.0244 | 0.0106 | 1.6000e-004 | | 1.9700e-003 | 1.9700e-003 | | 1.9700e-003 | 1.9700e-003 | 0.0000 | 28.2120 | 28.2120 | 5.4000e-004 | 5.2000e-004 | 28.3797 |
| NaturalGas Unmitigated | 2.8500e-003 | 0.0244 | 0.0106 | 1.6000e-004 | | 1.9700e-003 | 1.9700e-003 | | 1.9700e-003 | 1.9700e-003 | 0.0000 | 28.2120 | 28.2120 | 5.4000e-004 | 5.2000e-004 | 28.3797 |

## 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 | | | | | |
| Apartments Low Rise | 520141 | 2.8000e-003 | 0.0240 | 0.0102 | 1.5000e-004 | | 1.9400e-003 | 1.9400e-003 | | 1.9400e-003 | 1.9400e-003 | 0.0000 | 27.7567 | 27.7567 | 5.3000e-004 | 5.1000e-004 | 27.9217 |
| Strip Mall | 8532 | 5.0000e-005 | 4.2000e-004 | 3.5000e-004 | 0.0000 | | 3.0000e-005 | 3.0000e-005 | | 3.0000e-005 | 3.0000e-005 | 0.0000 | 0.4553 | 0.4553 | 1.0000e-005 | 1.0000e-005 | 0.4580 |
| **Total** | | **2.8500e-003** | **0.0244** | **0.0106** | **1.5000e-004** | | **1.9700e-003** | **1.9700e-003** | | **1.9700e-003** | **1.9700e-003** | **0.0000** | **28.2120** | **28.2120** | **5.4000e-004** | **5.2000e-004** | **28.3797** |

## 5.3 Energy by Land Use - Electricity

**Unmitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Apartments Low Rise | 221789 | 29.1745 | 2.9200e-003 | 6.0000e-004 | 29.4273 |
| Strip Mall | 38484 | 5.0623 | 5.1000e-004 | 1.0000e-004 | 5.1061 |
| **Total** | | **34.2368** | **3.4300e-003** | **7.0000e-004** | **34.5334** |

# 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 | 0.2634 | 6.0500e-003 | 0.5255 | 3.0000e-005 | | 2.9200e-003 | 2.9200e-003 | | 2.9200e-003 | 2.9200e-003 | 0.0000 | 0.8592 | 0.8592 | 8.2000e-004 | 0.0000 | 0.8798 |
| Unmitigated | 0.2634 | 6.0500e-003 | 0.5255 | 3.0000e-005 | | 2.9200e-003 | 2.9200e-003 | | 2.9200e-003 | 2.9200e-003 | 0.0000 | 0.8592 | 0.8592 | 8.2000e-004 | 0.0000 | 0.8798 |

## 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 | 0.0344 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.2132 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Hearth | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 0.0158 | 6.0500e-003 | 0.5255 | 3.0000e-005 | | 2.9200e-003 | 2.9200e-003 | | 2.9200e-003 | 2.9200e-003 | 0.0000 | 0.8592 | 0.8592 | 8.2000e-004 | 0.0000 | 0.8798 |
| **Total** | **0.2634** | **6.0500e-003** | **0.5255** | **3.0000e-005** | | **2.9200e-003** | **2.9200e-003** | | **2.9200e-003** | **2.9200e-003** | **0.0000** | **0.8592** | **0.8592** | **8.2000e-004** | **0.0000** | **0.8798** |

# 7.0 Water Detail

## 7.1 Mitigation Measures Water

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Category | MT/yr | | | |
| Mitigated | 4.7334 | 0.1173 | 2.8400e-003 | 8.5117 |
| Unmitigated | 4.7334 | 0.1173 | 2.8400e-003 | 8.5117 |

## 7.2 Water by Land Use

**Unmitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|

| Land Use | Mgal | MT/yr | | | |
|---|---|---|---|---|---|
| Apartments Low Rise | 3.32286 / 2.09484 | 4.3838 | 0.1086 | 2.6300e-003 | 7.8814 |
| Strip Mall | 0.266661 / 0.163437 | 0.3497 | 8.7200e-003 | 2.1000e-004 | 0.6303 |
| **Total** | | **4.7334** | **0.1173** | **2.8400e-003** | **8.5117** |

# 8.0 Waste Detail

## 8.1 Mitigation Measures Waste

### Category/Year

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| | MT/yr | | | |
| Mitigated | 5.5295 | 0.3268 | 0.0000 | 13.6990 |
| Unmitigated | 5.5295 | 0.3268 | 0.0000 | 13.6990 |

## 8.2 Waste by Land Use

### Unmitigated

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Apartments Low Rise | 23.46 | 4.7622 | 0.2814 | 0.0000 | 11.7981 |
| Strip Mall | 3.78 | 0.7673 | 0.0454 | 0.0000 | 1.9010 |
| **Total** | | **5.5295** | **0.3268** | **0.0000** | **13.6990** |

# Jayne Street_Increased Capacity

**Monterey Bay Unified APCD Air District, Summer**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Apartments Low Rise | 66.00 | Dwelling Unit | 2.93 | 66,000.00 | 352 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.8 | **Precipitation Freq (Days)** | 53 |
| **Climate Zone** | 4 | | | **Operational Year** | 2026 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 290 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E CO2 Intensity Factor for 2020

Land Use - from project description

Vehicle Trips - using same trip rate as Bitterwater

Energy Use -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblLandUse | LotAcreage | 4.13 | 2.93 |
| tblLandUse | Population | 189.00 | 352.00 |
| tblProjectCharacteristics | CO2IntensityFactor | 641.35 | 290 |

| | | | |
|---|---|---|---|
| tblVehicleTrips | WD_TR | 6.59 | 2.76 |

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

**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 | lb/day | | | | | | | | | | lb/day | | | | | |
| 2020 | 2.5284 | 21.3765 | 16.8924 | 0.0312 | 6.6345 | 1.1534 | 7.6253 | 3.3893 | 1.0770 | 4.3009 | 0.0000 | 2,916.4862 | 2,916.4862 | 0.7703 | 0.0000 | 2,928.7990 |
| 2021 | 82.8550 | 16.9670 | 16.3734 | 0.0311 | 0.4417 | 0.8228 | 1.2645 | 0.1182 | 0.7883 | 0.9065 | 0.0000 | 2,901.7473 | 2,901.7473 | 0.5465 | 0.0000 | 2,913.6504 |
| **Maximum** | **82.8550** | **21.3765** | **16.8924** | **0.0312** | **6.6345** | **1.1534** | **7.6253** | **3.3893** | **1.0770** | **4.3009** | **0.0000** | **2,916.4862** | **2,916.4862** | **0.7703** | **0.0000** | **2,928.7990** |

### 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 1.8020 | 0.0627 | 5.4399 | 2.9000e-004 | | 0.0302 | 0.0302 | | 0.0302 | 0.0302 | 0.0000 | 9.8045 | 9.8045 | 9.3900e-003 | 0.0000 | 10.0392 |
| Energy | 0.0199 | 0.1700 | 0.0723 | 1.0800e-003 | | 0.0137 | 0.0137 | | 0.0137 | 0.0137 | | 216.9618 | 216.9618 | 4.1600e-003 | 3.9800e-003 | 218.2511 |
| Mobile | 0.8409 | 4.0353 | 9.1275 | 0.0344 | 2.8994 | 0.0263 | 2.9257 | 0.7762 | 0.0245 | 0.8007 | | 3,489.6818 | 3,489.6818 | 0.1461 | | 3,493.3347 |
| **Total** | **2.6628** | **4.2679** | **14.6397** | **0.0358** | **2.8994** | **0.0702** | **2.9696** | **0.7762** | **0.0685** | **0.8446** | **0.0000** | **3,716.4481** | **3,716.4481** | **0.1597** | **3.9800e-003** | **3,721.6250** |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mitigated | 0.8409 | 4.0353 | 9.1275 | 0.0344 | 2.8994 | 0.0263 | 2.9257 | 0.7762 | 0.0245 | 0.8007 | | 3,489.6818 | 3,489.6818 | 0.1461 | | 3,493.3347 |
| Unmitigated | 0.8409 | 4.0353 | 9.1275 | 0.0344 | 2.8994 | 0.0263 | 2.9257 | 0.7762 | 0.0245 | 0.8007 | | 3,489.6818 | 3,489.6818 | 0.1461 | | 3,493.3347 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Apartments Low Rise | 182.16 | 472.56 | 400.62 | 734,207 | 734,207 |
| Total | 182.16 | 472.56 | 400.62 | 734,207 | 734,207 |

## 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 |
| Apartments Low Rise | 10.80 | 7.30 | 7.50 | 44.00 | 18.80 | 37.20 | 86 | 11 | 3 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apartments Low Rise | 0.559548 | 0.025758 | 0.204341 | 0.113388 | 0.016664 | 0.004507 | 0.019663 | 0.042467 | 0.003063 | 0.002194 | 0.006609 | 0.001094 | 0.000703 |

# 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| NaturalGas Mitigated | 0.0199 | 0.1700 | 0.0723 | 1.0800e-003 | | 0.0137 | 0.0137 | | 0.0137 | 0.0137 | | 216.9618 | 216.9618 | 4.1600e-003 | 3.9800e-003 | 218.2511 |
| NaturalGas Unmitigated | 0.0199 | 0.1700 | 0.0723 | 1.0800e-003 | | 0.0137 | 0.0137 | | 0.0137 | 0.0137 | | 216.9618 | 216.9618 | 4.1600e-003 | 3.9800e-003 | 218.2511 |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apartments Low Rise | 1844.18 | 0.0199 | 0.1700 | 0.0723 | 1.0800e-003 | | 0.0137 | 0.0137 | | 0.0137 | 0.0137 | | 216.9618 | 216.9618 | 4.1600e-003 | 3.9800e-003 | 218.2511 |
| **Total** | | **0.0199** | **0.1700** | **0.0723** | **1.0800e-003** | | **0.0137** | **0.0137** | | **0.0137** | **0.0137** | | **216.9618** | **216.9618** | **4.1600e-003** | **3.9800e-003** | **218.2511** |

# 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 1.8020 | 0.0627 | 5.4399 | 2.9000e-004 | | 0.0302 | 0.0302 | | 0.0302 | 0.0302 | 0.0000 | 9.8045 | 9.8045 | 9.3900e-003 | 0.0000 | 10.0392 |
| Unmitigated | 1.8020 | 0.0627 | 5.4399 | 2.9000e-004 | | 0.0302 | 0.0302 | | 0.0302 | 0.0302 | 0.0000 | 9.8045 | 9.8045 | 9.3900e-003 | 0.0000 | 10.0392 |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.2263 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 1.4124 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Hearth | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 0.1633 | 0.0627 | 5.4399 | 2.9000e-004 | | 0.0302 | 0.0302 | | 0.0302 | 0.0302 | | 9.8045 | 9.8045 | 9.3900e-003 | | 10.0392 |
| **Total** | **1.8020** | **0.0627** | **5.4399** | **2.9000e-004** | | **0.0302** | **0.0302** | | **0.0302** | **0.0302** | **0.0000** | **9.8045** | **9.8045** | **9.3900e-003** | **0.0000** | **10.0392** |

# Jayne Street_Increased Capacity

**Monterey Bay Unified APCD Air District, Winter**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Apartments Low Rise | 66.00 | Dwelling Unit | 2.93 | 66,000.00 | 352 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.8 | **Precipitation Freq (Days)** | 53 |
| **Climate Zone** | 4 | | | **Operational Year** | 2026 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 290 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E CO2 Intensity Factor for 2020

Land Use - from project description

Vehicle Trips - using same trip rate as Bitterwater

Energy Use -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblLandUse | LotAcreage | 4.13 | 2.93 |
| tblLandUse | Population | 189.00 | 352.00 |
| tblProjectCharacteristics | CO2IntensityFactor | 641.35 | 290 |
| tblVehicleTrips | WD_TR | 6.59 | 2.76 |

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

**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 | lb/day | | | | | | | | | | lb/day | | | | | |
| 2020 | 2.5499 | 21.3854 | 16.9162 | 0.0309 | 6.6345 | 1.1534 | 7.6253 | 3.3893 | 1.0770 | 4.3009 | 0.0000 | 2,884.8756 | 2,884.8756 | 0.7702 | 0.0000 | 2,897.2007 |
| 2021 | 82.8588 | 17.0095 | 16.3896 | 0.0308 | 0.4417 | 0.8229 | 1.2646 | 0.1182 | 0.7884 | 0.9066 | 0.0000 | 2,870.9269 | 2,870.9269 | 0.5462 | 0.0000 | 2,882.8432 |
| **Maximum** | **82.8588** | **21.3854** | **16.9162** | **0.0309** | **6.6345** | **1.1534** | **7.6253** | **3.3893** | **1.0770** | **4.3009** | **0.0000** | **2,884.8756** | **2,884.8756** | **0.7702** | **0.0000** | **2,897.2007** |

### 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 1.8020 | 0.0627 | 5.4399 | 2.9000e-004 | | 0.0302 | 0.0302 | | 0.0302 | 0.0302 | 0.0000 | 9.8045 | 9.8045 | 9.3900e-003 | 0.0000 | 10.0392 |
| Energy | 0.0199 | 0.1700 | 0.0723 | 1.0800e-003 | | 0.0137 | 0.0137 | | 0.0137 | 0.0137 | | 216.9618 | 216.9618 | 4.1600e-003 | 3.9800e-003 | 218.2511 |
| Mobile | 0.7725 | 4.2292 | 9.4249 | 0.0327 | 2.8994 | 0.0264 | 2.9258 | 0.7762 | 0.0246 | 0.8008 | | 3,317.9378 | 3,317.9378 | 0.1509 | | 3,321.7091 |
| **Total** | **2.5944** | **4.4618** | **14.9372** | **0.0341** | **2.8994** | **0.0703** | **2.9697** | **0.7762** | **0.0686** | **0.8447** | **0.0000** | **3,544.7041** | **3,544.7041** | **0.1644** | **3.9800e-003** | **3,549.9994** |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mitigated | 0.7725 | 4.2292 | 9.4249 | 0.0327 | 2.8994 | 0.0264 | 2.9258 | 0.7762 | 0.0246 | 0.8008 | | 3,317.9378 | 3,317.9378 | 0.1509 | | 3,321.7091 |
| Unmitigated | 0.7725 | 4.2292 | 9.4249 | 0.0327 | 2.8994 | 0.0264 | 2.9258 | 0.7762 | 0.0246 | 0.8008 | | 3,317.9378 | 3,317.9378 | 0.1509 | | 3,321.7091 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Apartments Low Rise | 182.16 | 472.56 | 400.62 | 734,207 | 734,207 |
| Total | 182.16 | 472.56 | 400.62 | 734,207 | 734,207 |

## 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 |
| Apartments Low Rise | 10.80 | 7.30 | 7.50 | 44.00 | 18.80 | 37.20 | 86 | 11 | 3 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apartments Low Rise | 0.559548 | 0.025758 | 0.204341 | 0.113388 | 0.016664 | 0.004507 | 0.019663 | 0.042467 | 0.003063 | 0.002194 | 0.006609 | 0.001094 | 0.000703 |

# 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| NaturalGas Mitigated | 0.0199 | 0.1700 | 0.0723 | 1.0800e-003 | | 0.0137 | 0.0137 | | 0.0137 | 0.0137 | | 216.9618 | 216.9618 | 4.1600e-003 | 3.9800e-003 | 218.2511 |
| NaturalGas Unmitigated | 0.0199 | 0.1700 | 0.0723 | 1.0800e-003 | | 0.0137 | 0.0137 | | 0.0137 | 0.0137 | | 216.9618 | 216.9618 | 4.1600e-003 | 3.9800e-003 | 218.2511 |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apartments Low Rise | 1844.18 | 0.0199 | 0.1700 | 0.0723 | 1.0800e-003 | | 0.0137 | 0.0137 | | 0.0137 | 0.0137 | | 216.9618 | 216.9618 | 4.1600e-003 | 3.9800e-003 | 218.2511 |
| **Total** | | **0.0199** | **0.1700** | **0.0723** | **1.0800e-003** | | **0.0137** | **0.0137** | | **0.0137** | **0.0137** | | **216.9618** | **216.9618** | **4.1600e-003** | **3.9800e-003** | **218.2511** |

# 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 1.8020 | 0.0627 | 5.4399 | 2.9000e-004 | | 0.0302 | 0.0302 | | 0.0302 | 0.0302 | 0.0000 | 9.8045 | 9.8045 | 9.3900e-003 | 0.0000 | 10.0392 |
| Unmitigated | 1.8020 | 0.0627 | 5.4399 | 2.9000e-004 | | 0.0302 | 0.0302 | | 0.0302 | 0.0302 | 0.0000 | 9.8045 | 9.8045 | 9.3900e-003 | 0.0000 | 10.0392 |

## 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 | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.2263 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 1.4124 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Hearth | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 0.1633 | 0.0627 | 5.4399 | 2.9000e-004 | | 0.0302 | 0.0302 | | 0.0302 | 0.0302 | | 9.8045 | 9.8045 | 9.3900e-003 | | 10.0392 |
| **Total** | **1.8020** | **0.0627** | **5.4399** | **2.9000e-004** | | **0.0302** | **0.0302** | | **0.0302** | **0.0302** | **0.0000** | **9.8045** | **9.8045** | **9.3900e-003** | **0.0000** | **10.0392** |

# Jayne Street_Increased Capacity

**Monterey Bay Unified APCD Air District, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Apartments Low Rise | 66.00 | Dwelling Unit | 2.93 | 66,000.00 | 352 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.8 | **Precipitation Freq (Days)** | 53 |
| **Climate Zone** | 4 | | | **Operational Year** | 2026 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 290 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E CO2 Intensity Factor for 2020

Land Use - from project description

Vehicle Trips - using same trip rate as Bitterwater

Energy Use -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblLandUse | LotAcreage | 4.13 | 2.93 |
| tblLandUse | Population | 189.00 | 352.00 |
| tblProjectCharacteristics | CO2IntensityFactor | 641.35 | 290 |
| tblVehicleTrips | WD_TR | 6.59 | 2.76 |

## 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 | | | | | |
| 2020 | 0.1314 | 1.0440 | 0.8725 | 1.5900e-003 | 0.0405 | 0.0539 | 0.0945 | 0.0153 | 0.0512 | 0.0666 | 0.0000 | 135.8918 | 135.8918 | 0.0261 | 0.0000 | 136.5451 |
| 2021 | 0.5783 | 1.2510 | 1.2137 | 2.2700e-003 | 0.0310 | 0.0610 | 0.0920 | 8.3100e-003 | 0.0584 | 0.0667 | 0.0000 | 192.5933 | 192.5933 | 0.0328 | 0.0000 | 193.4133 |
| **Maximum** | **0.5783** | **1.2510** | **1.2137** | **2.2700e-003** | **0.0405** | **0.0610** | **0.0945** | **0.0153** | **0.0584** | **0.0667** | **0.0000** | **192.5933** | **192.5933** | **0.0328** | **0.0000** | **193.4133** |

### 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 | 0.3195 | 7.8300e-003 | 0.6800 | 4.0000e-005 | | 3.7700e-003 | 3.7700e-003 | | 3.7700e-003 | 3.7700e-003 | 0.0000 | 1.1118 | 1.1118 | 1.0600e-003 | 0.0000 | 1.1384 |
| Energy | 3.6300e-003 | 0.0310 | 0.0132 | 2.0000e-004 | | 2.5100e-003 | 2.5100e-003 | | 2.5100e-003 | 2.5100e-003 | 0.0000 | 73.6757 | 73.6757 | 4.4600e-003 | 1.4400e-003 | 74.2163 |
| Mobile | 0.0762 | 0.4083 | 0.8783 | 3.2300e-003 | 0.2758 | 2.5800e-003 | 0.2784 | 0.0740 | 2.4100e-003 | 0.0764 | 0.0000 | 297.8258 | 297.8258 | 0.0130 | 0.0000 | 298.1518 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 6.1628 | 0.0000 | 6.1628 | 0.3642 | 0.0000 | 15.2681 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 1.3642 | 4.3089 | 5.6731 | 0.1406 | 3.4000e-003 | 10.1994 |
| **Total** | **0.3993** | **0.4471** | **1.5715** | **3.4700e-003** | **0.2758** | **8.8600e-003** | **0.2846** | **0.0740** | **8.6900e-003** | **0.0827** | **7.5271** | **376.9222** | **384.4492** | **0.5233** | **4.8400e-003** | **398.9741** |

## 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 | 0.0762 | 0.4083 | 0.8783 | 3.2300e-003 | 0.2758 | 2.5800e-003 | 0.2784 | 0.0740 | 2.4100e-003 | 0.0764 | 0.0000 | 297.8258 | 297.8258 | 0.0130 | 0.0000 | 298.1518 |
| Unmitigated | 0.0762 | 0.4083 | 0.8783 | 3.2300e-003 | 0.2758 | 2.5800e-003 | 0.2784 | 0.0740 | 2.4100e-003 | 0.0764 | 0.0000 | 297.8258 | 297.8258 | 0.0130 | 0.0000 | 298.1518 |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Apartments Low Rise | 182.16 | 472.56 | 400.62 | 734,207 | 734,207 |
| Total | 182.16 | 472.56 | 400.62 | 734,207 | 734,207 |

## 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 |
| Apartments Low Rise | 10.80 | 7.30 | 7.50 | 44.00 | 18.80 | 37.20 | 86 | 11 | 3 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apartments Low Rise | 0.559548 | 0.025758 | 0.204341 | 0.113388 | 0.016664 | 0.004507 | 0.019663 | 0.042467 | 0.003063 | 0.002194 | 0.006609 | 0.001094 | 0.000703 |

# 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 | 37.7552 | 37.7552 | 3.7800e-003 | 7.8000e-004 | 38.0824 |
| Electricity Unmitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 37.7552 | 37.7552 | 3.7800e-003 | 7.8000e-004 | 38.0824 |
| NaturalGas Mitigated | 3.6300e-003 | 0.0310 | 0.0132 | 2.0000e-004 | | 2.5100e-003 | 2.5100e-003 | | 2.5100e-003 | 2.5100e-003 | 0.0000 | 35.9205 | 35.9205 | 6.9000e-004 | 6.6000e-004 | 36.1339 |
| NaturalGas Unmitigated | 3.6300e-003 | 0.0310 | 0.0132 | 2.0000e-004 | | 2.5100e-003 | 2.5100e-003 | | 2.5100e-003 | 2.5100e-003 | 0.0000 | 35.9205 | 35.9205 | 6.9000e-004 | 6.6000e-004 | 36.1339 |

## 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 | | | | | |
| Apartments Low Rise | 673124 | 3.6300e-003 | 0.0310 | 0.0132 | 2.0000e-004 | | 2.5100e-003 | 2.5100e-003 | | 2.5100e-003 | 2.5100e-003 | 0.0000 | 35.9205 | 35.9205 | 6.9000e-004 | 6.6000e-004 | 36.1339 |
| **Total** | | **3.6300e-003** | **0.0310** | **0.0132** | **2.0000e-004** | | **2.5100e-003** | **2.5100e-003** | | **2.5100e-003** | **2.5100e-003** | **0.0000** | **35.9205** | **35.9205** | **6.9000e-004** | **6.6000e-004** | **36.1339** |

## 5.3 Energy by Land Use - Electricity

**Unmitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Apartments Low Rise | 287021 | 37.7552 | 3.7800e-003 | 7.8000e-004 | 38.0824 |
| **Total** | | **37.7552** | **3.7800e-003** | **7.8000e-004** | **38.0824** |

# 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 | 0.3195 | 7.8300e-003 | 0.6800 | 4.0000e-005 | | 3.7700e-003 | 3.7700e-003 | | 3.7700e-003 | 3.7700e-003 | 0.0000 | 1.1118 | 1.1118 | 1.0600e-003 | 0.0000 | 1.1384 |
| Unmitigated | 0.3195 | 7.8300e-003 | 0.6800 | 4.0000e-005 | | 3.7700e-003 | 3.7700e-003 | | 3.7700e-003 | 3.7700e-003 | 0.0000 | 1.1118 | 1.1118 | 1.0600e-003 | 0.0000 | 1.1384 |

## 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 | 0.0413 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 0.2578 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Hearth | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 0.0204 | 7.8300e-003 | 0.6800 | 4.0000e-005 | | 3.7700e-003 | 3.7700e-003 | | 3.7700e-003 | 3.7700e-003 | 0.0000 | 1.1118 | 1.1118 | 1.0600e-003 | 0.0000 | 1.1384 |
| **Total** | **0.3195** | **7.8300e-003** | **0.6800** | **4.0000e-005** | | **3.7700e-003** | **3.7700e-003** | | **3.7700e-003** | **3.7700e-003** | **0.0000** | **1.1118** | **1.1118** | **1.0600e-003** | **0.0000** | **1.1384** |

# 7.0 Water Detail

## 7.1 Mitigation Measures Water

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Category | MT/yr | | | |
| Mitigated | 5.6731 | 0.1406 | 3.4000e-003 | 10.1994 |
| Unmitigated | 5.6731 | 0.1406 | 3.4000e-003 | 10.1994 |

## 7.2 Water by Land Use

**Unmitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Apartments Low Rise | 4.30017 / 2.71097 | 5.6731 | 0.1406 | 3.4000e-003 | 10.1994 |
| **Total** | | **5.6731** | **0.1406** | **3.4000e-003** | **10.1994** |

# 8.0 Waste Detail

## 8.1 Mitigation Measures Waste

**Category/Year**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| | MT/yr | | | |
| Mitigated | 6.1628 | 0.3642 | 0.0000 | 15.2681 |
| Unmitigated | 6.1628 | 0.3642 | 0.0000 | 15.2681 |

## 8.2 Waste by Land Use

**Unmitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Apartments Low Rise | 30.36 | 6.1628 | 0.3642 | 0.0000 | 15.2681 |
| **Total** | | **6.1628** | **0.3642** | **0.0000** | **15.2681** |

# APPENDIX C

CALIFORNIA WATER SERVICE WILL-SERVE LETTER

**CALIFORNIA WATER SERVICE**
**King City District** 1301 Broadway Street, Suite A-3
King City, CA 93930 *Tel:* (831) 385-5486

May 17, 2019

Fresh Foods, Inc.
P.O. Box 1600
King City, CA 93930

**Will Serve Letter**
**Tract or Parcel Map No:** ***See attached list of parcels and referenced drawing file DASP Land with Rava Controlled Parcels***
**Developer:** ***Fresh Foods, Inc.***

Dear Fresh Foods, Inc.:

As a regulated utility, California Water Service Company, King City district ("Cal Water") has an obligation to provide water service in accordance with the rules and regulations of the California Public Utility Commission (CPUC). Assuming you receive all required permits from the city of King City and/or the county of Monterey, Cal Water will provide water service to the above referenced project. Cal Water agrees to operate the water system and provide service in accordance with the rules and regulations of the California Public Utilities Commission (CPUC) and the company's approved tariffs on file with the CPUC. This will serve letter shall remain valid for **two years** from the date of this letter. If construction of the project has not commenced within this **two year** time frame, Cal Water will be under no further obligation to serve the project unless the developer receives an updated letter from Cal Water reconfirming our commitment to serve the above mentioned project. Additionally, Cal Water reserves the right to rescind this letter at any time in the event its water supply is severely reduced by legislative, regulatory or environmental actions.

Cal Water will provide such potable water at such pressure as may be available from time to time as a result of its normal operations per the company's tariffs on file with the CPUC. Installation of facilities through developer funding shall be made in accordance with the current rules and regulations of the CPUC including, among others, Tariff Rules 15 and 16 and General Order 103-A. In order for us to provide adequate water for domestic use as well as fire service protection, it may be necessary for the developer to fund the cost of special facilities, such as, but not limited to, booster pumps, storage tanks and/or water in addition to the cost of mains and services. Developer will also be required to contribute towards Cal Water's water supply by paying facilities fees on a per lot basis as described in Rule 15. Cal Water will provide more specific information regarding special facilities and fees after you provide us with your improvement plans, fire department requirements, and engineering fees for this project.

This letter shall at all times be subject to such changes or modifications by the CPUC as said Commission may, from time to time, require in the exercise of its jurisdiction.

If you have any questions regarding the above, please call me at *(831)385-5486*.

Sincerely,

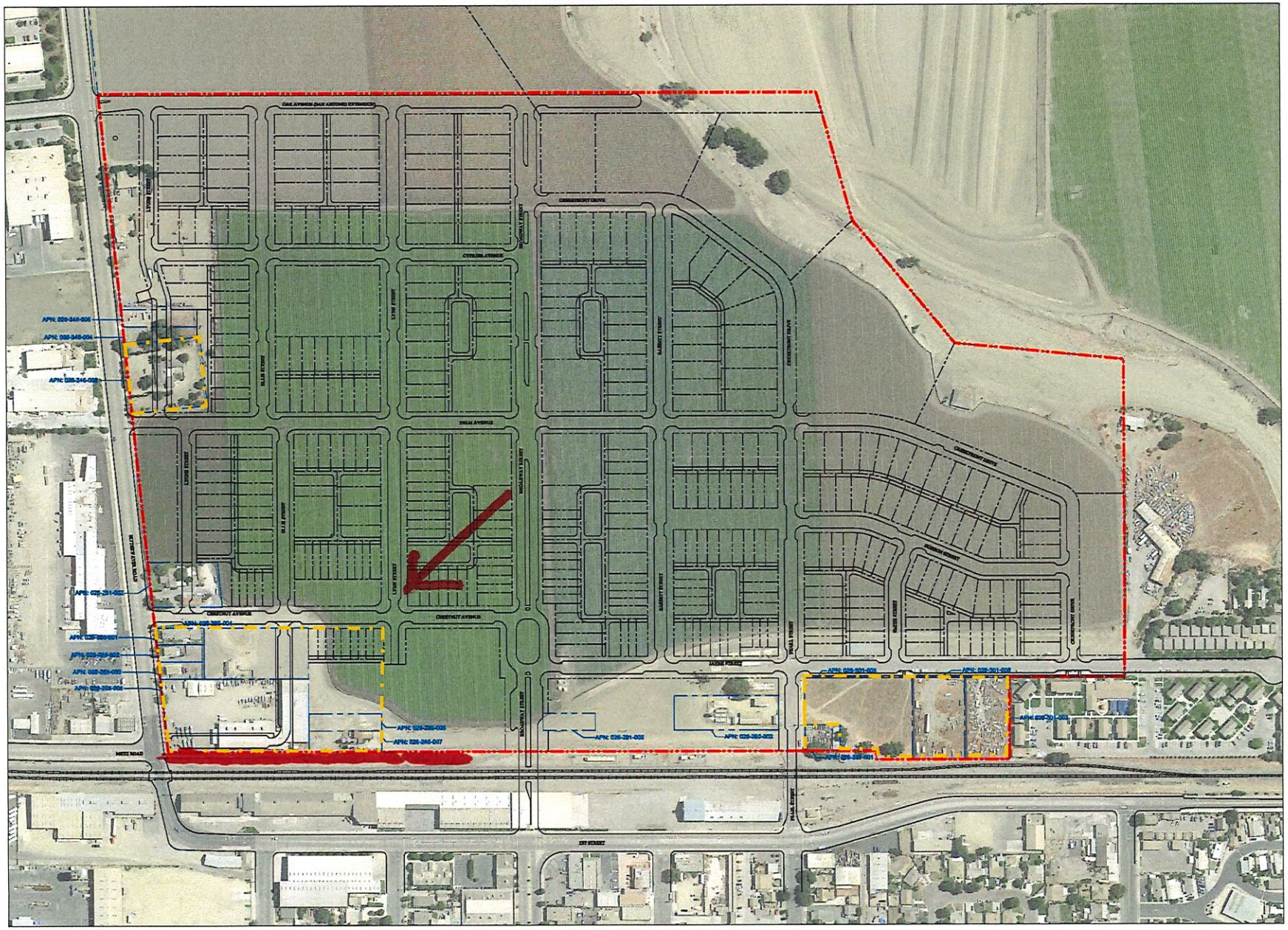
Marc Bloom
Local Manager

cc: Michael Hurley – Cal Water Engineering Dept
File

CALIFORNIA WATER SERVICE

List of Parcels referred to in Will Serve Letter dated May 17, 2019

APN 028-285-001
APN 028-285-002
APN 028-285-003
APN 028-285-004
APN 028-285-006
APN 028-285-007
APN 028-285-008




# Aerial - Outparcels with Approved Tentative Map

Downtown Addition
Smith Northway, LLC, King City, CA

New Urban Realty Advisors, Inc.
September 19, 2017

SARGENT TOWN PLANNING

# APPENDIX D

MOTT MACDONALD TRAFFIC ANALYSIS (MARCH 2018)
RUGGERI JENSEN AZAR TRAFFIC ANALYSIS (NOVEMBER 2019)

MOTT MACDONALD

Octavio Hurtado
Hanna & Brunetti
7651 Eigleberry Street
Gilroy, CA 95020

**Bitterwater Road Employee Housing, King City, California**

March 8, 2018

386217 Letter2.docx

1300 First Street
Suite B
Gilroy CA 95020
United States of America

T +1 (408) 848 3122
F +1 (408) 848 2202
mottmac.com

Dear Octavio:

This letter documents a transportation impact analysis of the proposed employee housing project on Bitterwater Road at Metz Road in King City, California. The project would house 606 agricultural employees with access provided via Chestnut Avenue. Exhibit 1 shows the location of the project site with respect to the local road network including the planned Downtown Addition Specific Plan road network and Exhibit 2 shows the preliminary project site plan.

The proposed project would modify the land use for the project site that was analyzed in the transportation impact study prepared for the King City Downtown Addition Specific Plan that was adopted in 2011. The transportation impact study for the Specific Plan analyzed the development of 30,945 square feet of Neighborhood Commercial development and 7,455 square feet of Live/Work Commercial uses on the project site. The proposed employee housing use is an allowed use in the designated Neighborhood Commercial areas of the specific plan but requires a separate conditional use permit.[1]

In addition to the proposed change in land use, the project proposal includes the removal Ellis Street and Metz Road through the property. The adopted Downtown Addition Specific Plan roadway system is shown on Exhibit 1.

This letter discusses the implications of the proposed land use and circulation change with respect to traffic generation, traffic operations and original traffic related CEAQ findings for the Downtown Addition Specific Plan. Numerical analysis documented in this report utilize the trip generation and traffic volume forecast prepared for the traffic impact analysis for the Downtown Addition Specific Plan Draft Environmental Impact study. The traffic analysis for the “without First Street Bypass” have been updated to reflect the proposed land use and circulation system changes. Implications to the “with First Street Bypass” are qualitatively described.

[1] *Downtown Addition Specific Plan*, Section 3.2.3, Page 3-2.

MOTT MACDONALD

### A. Project Trip Generation Estimate

The trip generation analysis for the project was established based upon trip generation analyses prepared for the following agricultural employee housing projects:

1. Tanimura & Antle Agricultural Employee Housing
2. Potter Road Agricultural Employee Housing
3. Alderete H2A Agricultural Employee Housing

It is not known at this time if private busing will be the primary mode of travel to their jobsite for residents of the employee housing. For this reason, two project trip generation estimates were prepared – one with private busing and one with residents using personal vehicles. Exhibit 3A shows the project trip generation estimate.

With private buses provided to transport the employees to their worksite, the project would generate 106 trips per day, with zero trips generated during the AM peak hour and 22 trips generated during the PM peak hour. Because agriculture workers typically begin work before 6:00 am, the project would not generate any AM peak hour trips. The project's afternoon peak period would occur between 3:00 pm and 6:00 pm. For this analysis, it was assumed 30 percent of the employees would return during the PM peak hour.

With personal private vehicles used to transport the employees to their worksite, the project would generate 306 trips per day, with zero trips generated during the AM peak hour and 56 trips generated during the PM peak hour.

The trip generation estimate for the adopted Downtown Addition Specific Plan as described for the Downtown Addition transportation impact study is shown on Exhibit 3B. The adopted Specific Plan would generate 10,370 trips per day with 486 trips generated during the AM peak hour and 923 trips generated during the PM peak hour. (This trip generation estimate is less than the Specific Plan trip generation estimate documented in the Specific Plan DEIR. The trip generation table has been edited to correct a tabulation error, which result in a lower trip generation estimate than was presented in the DEIR.)

Exhibit 3C shows the Downtown Addition Specific Plan trip generation with project utilizing buses to transport the workers to their job sites. The proposed project will replace 7,455 square feet of live/work space and 30,945 square feet of neighborhood shopping center space. The land uses sizes on Exhibit 3C reflects these changes. In addition, the trip generation for the project with busing is included in the residential trip generation tabulation. With the project with private bus transport, the Downtown Addition Specific Plan would generate 9,565 trips per day with 466 trips generated during the AM peak hour and 866 trips generated during the PM peak hour. The project with commute busing would generate 805 fewer daily trips, 20 fewer AM peak hour trip and 57 fewer PM peak hour trips than the adopted Downtown Addition Specific Plan.

Exhibit 3D shows the Downtown Addition Specific Plan trip generation with project utilizing private personal vehicles to transport the workers to their job sites. The trip generation table includes modifications to the live/work space neighborhood shopping center space as well as the project trip generation with private vehicles used for transport. With the project with private personal vehicles used for commute transport, the Downtown Addition Specific Plan would generate 9,765 trips per day with 466 trips generated during the AM peak hour and 900 trips generated during the PM peak hour. The project with personal vehicles used for commute would generate 605 fewer daily trips, 20 fewer AM peak hour trip and 23 fewer PM peak hour trips than the adopted Downtown Addition Specific Plan.

A comparison of Downtown Addition Specific Plan trip generation with and without the project is shown on Exhibit 3E. With the busing alternative, the proposed project would result in a reduction in the Specific Plan trip generation of 805 trips per day, with 20 fewer trips generated during the AM peak hour and 57 fewer trips generated during the PM peak hour. With the no busing alternative, the proposed project would result in a reduction in the Specific Plan trip generation of 605 trips per day, with 20 fewer trips generated during the AM peak hour and 23 fewer trips generated during the PM peak hour.

With either alternative to transport employees to their workplace, the project would generate fewer trips during the AM and PM peak hours than the adopted Specific Plan. With the proposed project, overall traffic related impacts identified for the adopted Specific Plan would be less than previously identified in the traffic study prepared for the Downtown Addition Specific Plan. However, the transportation mitigation measures would be unchanged for the area-wide intersections analyzed for the Specific Plan transportation impact studies given the relatively small change in trip generation with either transport alternative.

The land use and circulation system change would impact traffic operating conditions identified in the Specific Plan DEIR at the Bitterwater/Metz Road and Bitterwater Road/Chestnut Avenue intersections. In the next section, the impact of removing the Metz Road extension and Ellis Street from the Specific Plan circulation system are analyzed.

### B. Traffic Operations Analysis

The removal of the Metz Road and Ellis Street extensions from the specific plan would affect circulation in the immediate vicinity of the project. The effects on operations of the Metz Road / Bitterwater Road and Chestnut Avenue / Bitterwater Road intersections are analyzed in this section. Operational effects are based on peak hour level of service calculations using the Traffix software and comparisons with prior calculations from the Downtown Addition Specific Plan traffic analyses prepared in 2006-2010 by Higgins Associates/Hatch Mott MacDonald.

The proposed changes to the road network would eliminate access to the Specific Plan area from the Metz Road/Bitterwater Road intersection. This will result in increases in traffic at other Specific Plan area access points. Most, if not all traffic diversion will be to the Bitterwater Road/Chestnut Avenue intersection.

To assess the potential impact of the closure of the Bitterwater Road/Metz Road access to the Specific Plan area, AM and PM peak hour traffic volume projections for the proposed condition were prepared for the Bitterwater Road/Metz Road and Bitterwater Road/Chestnut Avenue intersections for the Short-Term and Long-Term analysis conditions. The traffic volume projections do not include the First Street Bypass. AM and PM peak hour intersection levels of service were calculated for proposed condition and the results compared with the Short-Term and Long-Term intersection levels of service with and without the Downtown Specific Plan as adopted. The traffic volume assignments for the Downtown Addition project were adjusted to account for the following:

1. Elimination of the Metz Road extension and Ellis Street from the project site;
2. Traffic generated by the proposed employee housing project; and
3. Reduction in traffic resulting from the replacement of Neighborhood and Live/Work Commercial space by the proposed employee housing project.

Exhibit 4A shows the Short-Term traffic volume forecasts and Exhibit 4B shows the Long-Term traffic volume forecasts. PM peak hour segment volumes and segment levels of service for Bitterwater Road and Metz Road are shown on Exhibit 5. Intersection levels of service are summarized on Exhibit 6 and recommended mitigation measures are summarized on Exhibit 7. Intersection level of service calculation worksheets are attached to this letter.

All analysis and findings in the following sections do not include the First Street Bypass and proposed project conditions utilize the "no employee busing" trip generation alternative. Following the discussion of Short-Term and Long-Term traffic operations with the proposed project, the implications of "with employee busing" trip generation and the First Street Bypass are discussed qualitatively.

**Short-Term Conditions**

Road Segments

Under all analysis scenarios, the Bitterwater Road segments from west of Metz Road to San Antonio Road analyzed as a two-lane arterial would operate at LOS A during the PM peak hour. The Metz Road segment between Bitterwater Road and San Antonio Road would operate at LOS A during the PM peak hour under all short-term analysis scenarios.

Bitterwater Road/Metz Road Intersection

The transportation impact study for the adopted Specific Plan identified the following improvements at the Bitterwater Road/Metz Road intersection:

1. Signalize the intersection;
2. Add left turn lanes to the eastbound and westbound Bitterwater Road approaches to Metz Road; and
3. Stripe the northbound and southbound Metz Road approaches with one shared left-through lane and one exclusive right turn lane.

With the elimination of the Metz Road extension south of Bitterwater Road into the Specific Plan site, signalization of the Bitterwater Road/Metz Road intersection would not be necessary for the Short-Term condition. However, the addition of a left turn lane is warranted and recommended on the eastbound Bitterwater Road approach to Metz Road.

Bitterwater Road/Chestnut Avenue Intersection

The Bitterwater Road/Chestnut Avenue intersection was not analyzed in the traffic study prepared for the adopted Specific Plan. Based on the analyses prepared for the proposed employee housing project, the Bitterwater Road/Chestnut Avenue intersection would operate at satisfactory levels of service under the Short-Term with proposed project condition as a stop controlled intersection with the following intersection lane geometrics:

1. Eastbound Bitterwater Road approach: one through lane, and one right turn lane;
2. Westbound Bitterwater Road approach: one shared left turn-through lane; and
3. Northbound Chestnut Avenue approach: one shared left turn-right turn lane.

**Long-Term Conditions**

Road Segments

The transportation impact study for the adopted Downtown Addition Specific Plan identified the need to widen Bitterwater Road west of Metz Road to four lanes without the First Street Bypass, with Bitterwater Road east of Metz Road remaining a two-lane road.

With employee housing developed on the project site and the elimination of the Metz Road extension, the segment level of service analysis indicates that Bitterwater Road west of Metz Road and between Metz Road and Chestnut Avenue would require widening to four lanes.

Bitterwater Road/Metz Road Intersection

The transportation impact study for the adopted Downtown Addition Specific Plan identified the following improvements at the Bitterwater Road/Metz Road intersection:

1. Signalize the intersection;
2. Add left turn lanes to the eastbound and westbound Bitterwater Road approaches to Metz Road;
3. Stripe the northbound and southbound Metz Road approaches with one shared left-through lane and one exclusive right turn lane;
4. Add a right turn lane to the westbound Bitterwater Road approach;
5. Add a right turn overlap phase for the southbound Metz Road approach.

With employee housing developed on the project site and the elimination of the Metz Road extension south of Bitterwater Road into the Specific Plan site, the following improvements would be required at the Bitterwater Road/Metz Road intersection for the Long-Term condition:

1. Signalization the intersection;
2. Add a left turn lane to the eastbound Bitterwater Road approach; and
3. Add a right turn overlap phase for the southbound Metz Road approach.

Bitterwater Road/Chestnut Avenue Intersection

The Bitterwater Road/Chestnut Avenue intersection was not analyzed in the traffic study prepared for the adopted Specific Plan.

Under the Long-Term condition with the proposed project, the Caltrans PM peak hour signal warrant would marginally be met. It is recommended that the City plan for the implementation of a traffic signal at this intersection under this analysis scenario. However, a traffic signal should be installed at the intersection only if the need is determined by an engineering analysis of intersection volumes and conditions. The intersection would operate at LOS A during both peak hours with the following intersection geometrics:

1. Northbound approach: 1 left turn lane and 1 right turn lane;
2. Eastbound approach: 1 exclusive through lane and 1 through/right turn lane; and
3. Westbound approach: 2 through lanes and one left turn lane.

**"With Employee Busing" Traffic Conditions**

Because most of the trip generation for the proposed employee housing project occurs during non-peak commute periods, an analysis utilizing the "with employee busing" trip generation alternative would be approximately the same as the "no

busing" alternative presented above. The AM peak hour trip generation with either transport option is the same. Therefore, the AM peak hour analysis would be the same for both alternatives. The PM peak hour trip generation for the "with employee busing" alternative is only slightly lower than the trip generation for the "no employee busing" alternative. Therefore, the PM peak hour conditions and findings described above would also apply to the "with employee busing" alternative.

**With First Street Bypass**

Short-Term Conditions

The First Street Bypass would divert traffic from the Bitterwater Road and Metz Road corridors. The "without First Street Bypass" analysis determined that under short-term conditions with the proposed project, the Bitterwater Road/Metz Road intersection and the Bitterwater Road/Chestnut Avenue intersection could operate satisfactorily as STOP controlled intersections. With the First Street Bypass included in the short-term analysis, both intersections could operate as STOP controlled intersections. A left turn lane would still be warranted on the eastbound Bitterwater Road approach to Metz Road and a right turn lane would be warranted on the eastbound Bitterwater Road approach to Chestnut Avenue.

Long-Term Conditions

With the First Street Bypass included in the analysis, the previously described analysis of Long-Term conditions would be modified as follows:

1. The widening of Bitterwater Road to four lanes would not be required through the study area;
2. The Bitterwater Road/Metz Road intersection would require signalization and a left turn should be provided on the eastbound Bitterwater Road approach to Metz Road.
3. The Bitterwater Road/Chestnut Avenue intersection would not require signalization. A left turn lane would be warranted on the westbound Bitterwater Road approach and a right turn lane would be warranted on the eastbound Bitterwater Road approach.

**Pros/Cons of Removing the Metz Road Southern Extension**

The removal of the Metz Road extension would eliminate a new, fourth intersection leg at the Bitterwater Road/Metz Road intersection. The following are positive factors associated with the elimination of the extension.

1. Elimination of the additional intersection leg will allow the future Bitterwater Road/Metz Road intersection traffic signal to operate more efficiently compared to operations with four intersection legs. Green phase time that would otherwise be allocated to the Metz Road extension leg of the intersection would be allocated to the other three intersection approaches.
2. The removal would reduce the number of conflicting traffic movements that would cross the railroad tracks, thus reducing the potential for vehicles to be stopped on the tracks when a train is approaching.
3. Construction costs for the future signalization this intersection would be reduced.

The potential negatives of the removal of the Metz Road southern extension include the following:

1. The traffic demand at the Bitterwater Road/Chestnut Avenue intersection would be higher, which would necessitate additional travel lanes at the intersection and, potentially, signalization of the intersection.
2. The loss of available off-street parking for the commercial areas of the Downtown Addition Specific Plan. Although no formal location has yet been finalized for an off-street parking area, the specific plan currently designates this area and an adjacent property to the south as potential locations for a surface off-street parking area.[2] With development of the project, the project site would no longer be available as a public parking site.

The preliminary site plan does not conform to building design, parking and internal circulation requirements of the Downtown Addition Specific Plan. It is recommended that the site plan be revised for conform to the design and circulation standards of the Downtown Addition Specific Plan.

### C. Effects on Adopted CEQA Findings

**Short-Term Conditions Without First Street Bypass**

Mitigation Measure TRA-1a of the Downtown Addition Specific Plan Draft EIR requires payment of the City of King's Traffic Impact Fee (TIF) to fund improvements identified to mitigate Short-Term impacts. These improvements include the following improvements at the Bitterwater Road/Metz Road intersection:

1. Signalize intersection;
2. Add eastbound and westbound left turn lanes; and
3. Stripe northbound and southbound Metz Road as one left-through and one right turn lane.

With the Metz Road extension eliminated from the circulation plan and with the Downtown Addition Specific Plan with the proposed employee housing project, payment of the TIF would still be required, but the intersection improvements required at the Bitterwater Road/Metz Road intersection could be reduced in scope. The addition of an eastbound left turn lane is the only intersection improvement required under Short-Term conditions with the revised land use and circulation plan that includes the employee housing project.

The Bitterwater Road/Chestnut Avenue intersection was not analyzed in the Downtown Addition Specific Plan Draft EIR. The addition of a right turn lane on the westbound Bitterwater Road approach to Chestnut Avenue would be warranted under Short-Term without First Street Bypass condition with the revised land use and circulation plan. This improvement should be added to the TIF.

[2] *Downtown Addition Specific Plan,* Section 3.10 and Figure 3-71, Page 3-213.

**Short-Term Conditions With First Street Bypass**

The Downtown Addition Specific Plan Draft EIR did not identify any significant impacts to the Bitterwater Road/Metz Road intersection under Short-Term with First Street Bypass conditions. Under Short-Term with First Street Bypass conditions with the Downtown Specific Plan modified to include the employee housing project and removal of the Metz Road extension, a left turn lane would be warranted on eastbound Bitterwater Road at Metz Road. This is an impact and improvement that was not identified in the Downtown Addition Specific Plan Draft EIR. Including this improvement and payment of the TIF would be warranted as required by Mitigation Measure TRA-1b.

A right turn lane would be warranted on the eastbound Bitterwater Road approach to Chestnut Avenue under Short-Term with First Street Bypass conditions. Payment of the TIF (Mitigation Measure TRA-1b) and inclusion of this improvement in the TIF program would be warranted.

**Long-Term Conditions Without First Street Bypass**

Mitigation Measure TRA-8a of the Downtown Addition Specific Plan Draft EIR requires payment of the City of King's Traffic Impact Fee to fund improvements identified to mitigate Long-Term impacts without the First Street Bypass. These improvements include the following improvements at the Bitterwater Road/Metz Road intersection:

1. Signalize intersection;
2. Add eastbound and westbound left turn lanes;
3. Stripe northbound and southbound Metz Road as one left-through and one right turn lane.
4. Add right turn lane on westbound Bitterwater Road; and
5. Add second through lane on westbound Bitterwater Road and on eastbound Bitterwater Road.

With the Metz Road extension eliminated from the circulation plan and with the Downtown Addition Specific Plan with the proposed employee housing project, payment of the TIF would still be required, but the intersection improvements required at the Bitterwater Road/Metz Road intersection could be reduced in scope for the Long-Term without First Street condition. The improvements required at the Bitterwater Road/Metz Road intersection could be reduced to the following for Long-Term without the First Street Bypass conditions:

1. Signalize intersection;
2. Add eastbound left turn lane; and
3. Add a right turn overlap phase for the southbound Metz Road movement.

The Bitterwater Road/Chestnut Avenue intersection was not analyzed in the Downtown Addition Specific Plan Draft EIR. With the Metz Road extension eliminated from the circulation plan and with the Downtown Specific Plan with the proposed employee housing project, the Long-Term condition without the First Street Bypass would require the following improvements:

1. Signalize intersection;
2. Construct northbound Chestnut Avenue approach with one left turn lane and one right turn lane.
3. Add a second through lane on Bitterwater Road in each direction.
4. Add a left turn lane on the westbound Bitterwater Road approach to Chestnut Avenue.

In addition, four travel lanes should be provided on Bitterwater Road between Metz Road and Chestnut Avenue under Long-Term with the First Street Bypass conditions.

**Long-Term Conditions With First Street Bypass**

The Downtown Addition Specific Plan DEIR identified cumulative significant impacts at the Bitterwater Road/Metz Road intersection and recommended improvements at the intersection under Long-Term with First Street Bypass conditions. With the proposed alternative land use and circulation plan, the Bitterwater Road/Metz Road intersection would be significantly impacted on a cumulative basis, but the scope of improvements required to mitigate the improvement would be less. Payment of the TIF as required by TRA-8b would be appropriate.

With employee housing developed on the project site and the revised circulation plan, the Bitterwater Road/Chestnut Avenue intersection would not require signalization, but a left turn lane would be warranted on the westbound Bitterwater Road approach and a right turn lane would be warranted on the eastbound Bitterwater Road approach. These improvements should be added to the TIF program.

## D. Conclusion

The finding of the analyses documented in this letter are presented below.

1. The proposed employee housing project would slightly reduce the volume of peak commute hour trips generated by the Downtown Addition Specific Plan.
2. The impact of employee housing developed on the project site and proposed change to the Downtown Addition circulation system would be most significant at the Bitterwater Road/Metz Road and Bitterwater Road/Chestnut Avenue intersections.
3. Employee housing developed on the project site and the proposed change to the Downtown Addition circulation system would, generally, result in a lower scope of intersection improvements at the Bitterwater Road/Metz Road intersection.
4. Employee housing developed on the project site and the proposed change to the Downtown Addition circulation system would necessitate lane additions and potentially signalization at the Bitterwater Road/Chestnut Avenue intersection.
5. Eliminating the Metz Road/Ellis Avenue extension between Bitterwater Road and Chestnut Avenue would result in less turning vehicle conflicts at the Bitterwater Road/Metz Road intersection, which would improve overall safety at the intersection, particularly when considered in conjunction with train operations immediately adjacent to the intersection.
6. It is recommended that the employee housing site plan be modified to conform with design standards of the Downtown Addition Specific Plan.
7. The proposed employee housing, which is an allowed use in the Specific Plan area, and the elimination of the Metz Road extension are not substantial changes in the Downtown Addition Specific Plan that would require amending or recirculating the Downtown Specific Plan EIR.

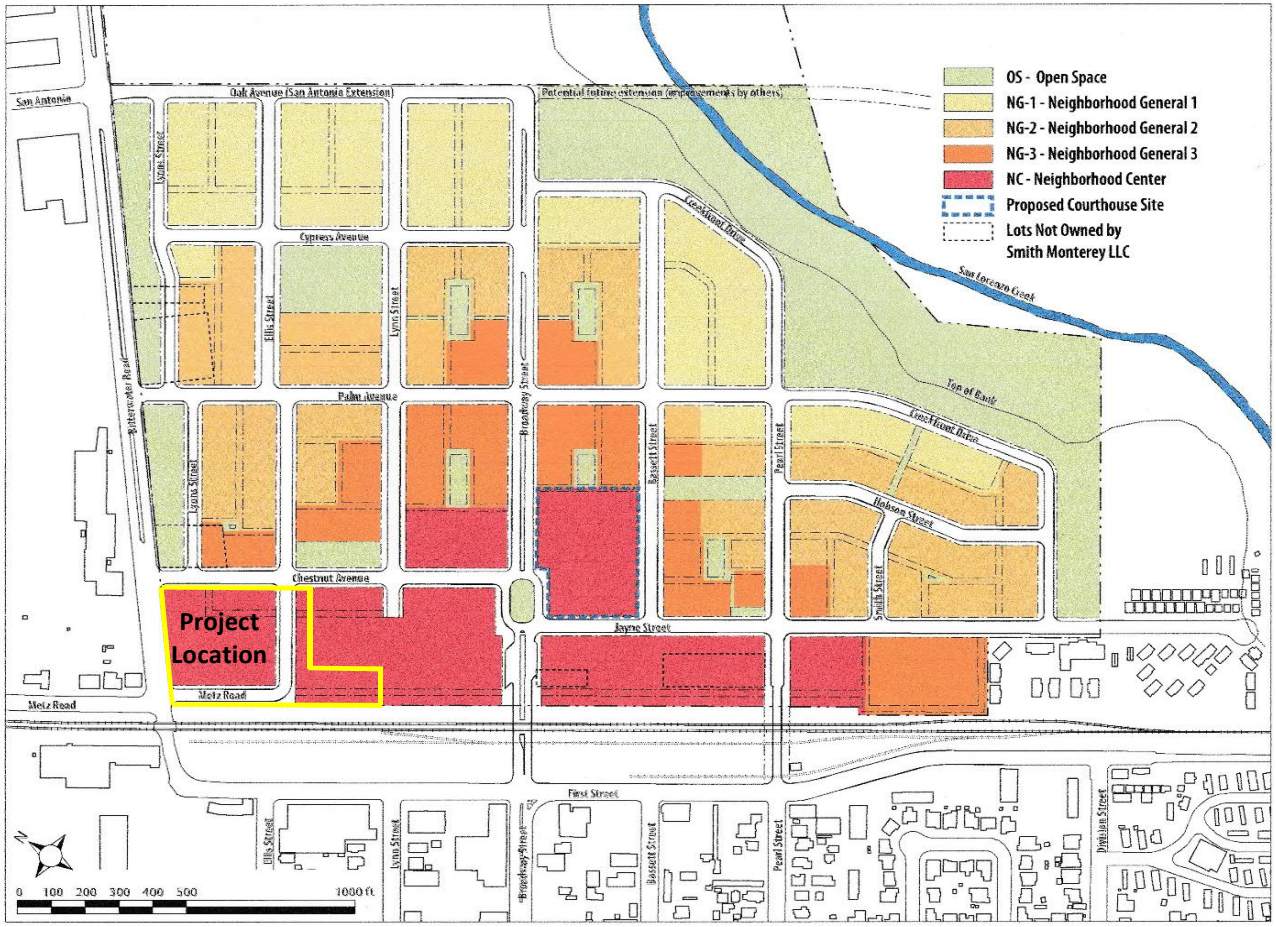
If you have any questions regarding the contents of this letter or need additional information, please contact me. Thank you for the opportunity to assist you with this project.

Respectfully submitted,

Leo Trujillo, PE, TE
Principal Engineer
T D (408) 848 5263 F (408) 848 2202
leo.trujillo@mottmac.com

enclosures

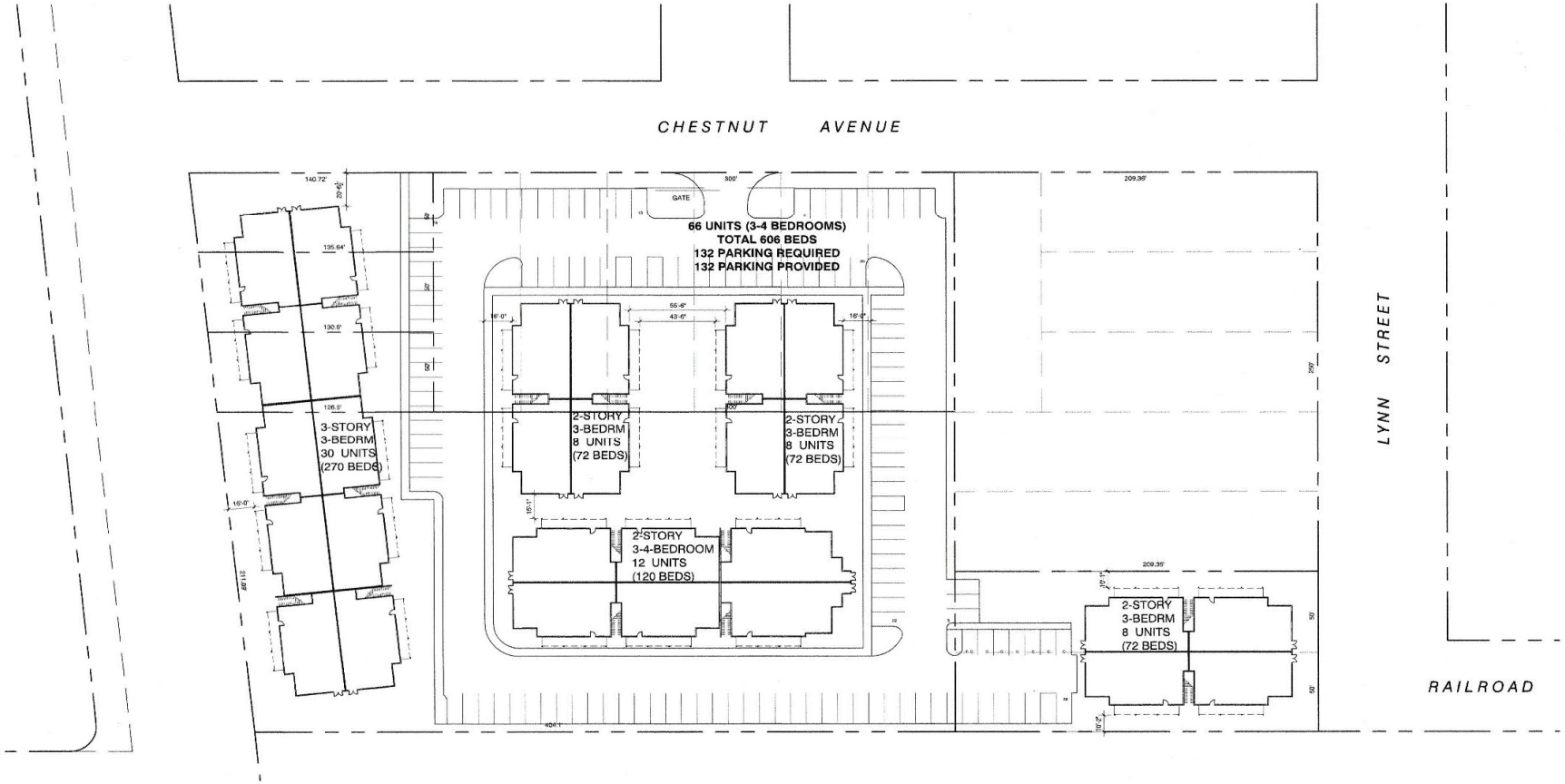
Figure 3-3: Regulating Plan - Courthouse Plan Option B



Project / Owner:

# KING CITY
## APARTMENTS

CHESTNUT STREET
KING CITY, CA 93930




SITE PLAN
SCALE: 1" = 30'-0"

0 7.5 15 30 60
SCALE: 1" = 30'-0"


THE PAUL DAVIS PARTNERSHIP
ARCHITECTS & PLANNERS

The Paul Davis Partnership, LLP
286 Eldorado Street
Monterey, CA 93940
(831) 373-2762 FAX (831) 373-7459
EMAIL: info@pauldavispartnership.com


Drawn By: AC

Drawing Date: 10/12/17

Project Number: 1637

Revisions:


The use of these plans and specifications is restricted to the original site for which they were prepared, and publication thereof is expressly limited to such use. Re-use, reproduction or publication by any method in whole or in part is prohibited. Title to the plans and specifications remains with the architect, and visual contact with them constitutes prima facie evidence of the acceptance of the restrictions.


Sheet Title:
SITE PLAN

Sheet Number:

A1.1F

**EXHIBIT 2**
**PRELIMINARY**
**PROJECT SITE PLAN**

## King City Downtown Addition Agricultural Employee Housing
## Project Trip Generation With Employee Busing

| | Daily | | | AM Peak Hour (Street Peak) | | | | PM Peak Hour (Street Peak) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily Trips | In | Out | Peak Hour Trips | % of ADT | In | Out | Peak Hour Trips | % of ADT | In | Out |
| Commute Trips By Bus (16 buses) | 64 | 32 | 32 | 0 | 0% | 0 | 0 | 10 | 16% | 5 | 5 |
| Miscellaneous Employee Trips | 36 | 18 | 18 | 0 | 0% | 0 | 0 | 12 | 33% | 6 | 6 |
| Other Miscellaneous Trips | 6 | 3 | 3 | 0 | 0% | 0 | 0 | 0 | 0% | 0 | 0 |
| **King City Farm Worker Apartments Project Trip Generation** | **106** | **53** | **53** | **0** | **0%** | **0** | **0** | **22** | **21%** | **11** | **11** |

Notes:
1. Buses assumed to have an average capacity of 40 seats. (606 employees / 40 = 16 buses)
2. Farm workers typically begin the work day prior to 6:00 am. Therefore, the project would not generate any trip during the AM peak commute hour.
3. The project's afternoon peak period, generally between 3:00 pm and 6:00 pm, can vary depending on weather and seasonal harvest conditions. Therefore, some may generate trips during the PM peak commute period (i.e., 4:00 pm to 6:00 pm). It was assumed 30% of the buses would return during the PM peak hour.
4. Buses are assumed to be parked off-site over night.
5. No private vehicle usage for work commute assumed for this scenario.
6. Miscellaneous employee trips include trips for personal errands, healthcare, shopping, etc.
7. Other miscellaneous trips include service/maintenance trips and site managers.

## King City Downtown Addition Agricultural Employee Housing
## Project Trip Generation With No Employee Busing

| | Daily | | | AM Peak Hour (Street Peak) | | | | PM Peak Hour (Street Peak) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Daily Trips | In | Out | Peak Hour Trips | % of ADT | In | Out | Peak Hour Trips | % of ADT | In | Out |
| Commute Trips By Private Vehicle (132 vehicles) | 264 | 132 | 132 | 0 | 0% | 0 | 0 | 44 | 17% | 44 | 0 |
| Miscellaneous Employee Trips | 36 | 18 | 18 | 0 | 0% | 0 | 0 | 12 | 33% | 6 | 6 |
| Other Miscellaneous Trips | 6 | 3 | 3 | 0 | 0% | 0 | 0 | 0 | 0% | 0 | 0 |
| **King City Farm Worker Apartments Project Trip Generation** | **306** | **153** | **153** | **0** | **0%** | **0** | **0** | **56** | **18%** | **50** | **6** |

Notes:
1. 132 vehicles assumed available for commute transport, which equals the number of on-site parking spaces.
2. Farm workers typically begin the work day prior to 6:00 am. Therefore, the project would not generate any trip during the AM peak commute hour.
3. The project's afternoon peak period, generally between 3:00 pm and 6:00 pm, can vary depending on weather and seasonal harvest conditions. Therefore, some may generate trips during the PM peak commute period (i.e., 4:00 pm to 6:00 pm). It was estimated that 30% of the employees would return during the PM peak hour.
4. No bus usage for work commute assumed for this scenario.
5. Miscellaneous employee trips include trips for personal errands, healthcare, shopping, etc.
6. Other miscellaneous trips include service/maintenance trips and site managers.

## DOWNTOWN ADDITION TRIP GENERATION

| | ITE LAND USE CODE | PROJECT SIZE | DAILY TRIPS | AM PEAK HOUR TOTAL PEAK HOUR | AM PEAK HOUR % OF ADT | AM PEAK HOUR IN | AM PEAK HOUR OUT | PM PEAK HOUR TOTAL PEAK HOUR | PM PEAK HOUR % OF ADT | PM PEAK HOUR IN | PM PEAK HOUR OUT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TRIP GENERATION RATES[1] | | | | | | | | | | | |
| Single-Family Detached Housing (per unit) | 210 | | 9.57 | 0.75 | 8% | 25% | 75% | 1.01 | 11% | 63% | 37% |
| Apartment (per unit) | 220 | | 6.72 | 0.51 | 8% | 20% | 80% | 0.62 | 9% | 65% | 35% |
| Residential Condominium/Townhouse (per unit) | 230 | | 5.86 | 0.44 | 8% | 17% | 83% | 0.52 | 9% | 67% | 33% |
| Specialty Retail (per 1,000 sq. ft.)[3,4] | 814 | | 44.32 | 1.33 | 3% | 60% | 40% | 2.74 | 6% | 44% | 56% |
| Shopping Center (per 1,000 sq. ft.)[5] | 820 | | 62.81 | 1.43 | 2% | 61% | 39% | 5.80 | 9% | 48% | 52% |
| COMMERCIAL / RETAIL | | | | | | | | | | | |
| Work/Live Commercial[6] | 814 | 65,060 sq. ft. | 2,883 | 87 | 3% | 52 | 35 | 178 | 6% | 78 | 100 |
| Neighborhood Center (Retail) | 820 | 125,000 sq. ft. | 7,851 | 179 | 2% | 109 | 70 | 725 | 9% | 348 | 377 |
| SUBTOTAL (COMMERCIAL TRIPS) | | | 10,734 | 266 | | 161 | 105 | 903 | | 426 | 477 |
| Internal Retail Reduction (15% of Retail) | | | -1,610 | -40 | | -24 | -16 | -135 | | -64 | -71 |
| SUBTOTAL (NET COMMERCIAL / RETAIL TRIPS) | | | 9,124 | 226 | | 137 | 89 | 768 | | 362 | 406 |
| Internal Retail Passby Reduction (15%) | | | -1,610 | -40 | | -20 | -20 | -135 | | -68 | -67 |
| NET COMMERCIAL / RETAIL TRIPS | | | 7,514 | 186 | | 117 | 69 | 633 | | 294 | 339 |
| RESIDENTIAL | | | | | | | | | | | |
| Single-Family Detached Housing | 210 | 175 Units | 1,675 | 131 | 8% | 33 | 98 | 177 | 11% | 112 | 65 |
| Apartments | 220 | 8 Units | 54 | 4 | 7% | 1 | 3 | 5 | 9% | 3 | 2 |
| Townhomes | 230 | 346 Units | 2,028 | 152 | 7% | 26 | 126 | 180 | 9% | 121 | 59 |
| Condominiums | 230 | 121 Units | 709 | 53 | 8% | 9 | 44 | 63 | 9% | 42 | 21 |
| SUBTOTAL (RESIDENTIAL TRIPS) | | | 4,466 | 340 | | 69 | 271 | 425 | | 278 | 147 |
| Internal Retail Reduction (15% of Retail) | | | -1,610 | -40 | | -16 | -24 | -135 | | -71 | -64 |
| NET RESIDENTIAL TRIPS | | | 2,856 | 300 | | 53 | 247 | 290 | | 207 | 83 |
| TOTAL | | | | | | | | | | | |
| NET EXTERNAL TRIPS (ADOPTED PLAN) | | | 10,370 | 486 | | 170 | 316 | 923 | | 501 | 422 |

Notes:
1. sq. ft. = square feet
2. Trip generation rates published by Institute of Transportation Engineers (ITE), "Trip Generation," 7th Edition, 2003, except where otherwise noted.
3. Regression equation used in calculation of PM peak hour trip generation. PM peak trip rate cited here is equivalent rate for this size of development.
4. ITE does not provide a trip generation rate during the AM street peak hour for the "Specialty Retail" land use. Rate used here taken from *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, San Diego Association of Governments, April 2002.
5. Regression equation used in calculations for daily and peak hour trip generation. Trip rates cited here are equivalent rates for this size of development.
6. "Work/Live Commercial" is defined as commercial space where the proprietor and/or employees both live and work within the project site.

**EXHIBIT 3B**
**ADOPTED DOWNTOWN ADDITION SPECIFIC PLAN**
**TRIP GENERATION**

## DOWNTOWN ADDITION TRIP GENERATION
## WITH EMPLOYEE HOUSING PROJECT WITH BUSING

| | ITE LAND USE CODE | PROJECT SIZE | DAILY TRIPS | AM PEAK HOUR TOTAL PEAK HOUR | AM PEAK HOUR % OF ADT | AM PEAK HOUR IN | AM PEAK HOUR OUT | PM PEAK HOUR TOTAL PEAK HOUR | PM PEAK HOUR % OF ADT | PM PEAK HOUR IN | PM PEAK HOUR OUT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TRIP GENERATION RATES[1] | | | | | | | | | | | |
| Single-Family Detached Housing (per unit) | 210 | | 9.57 | 0.75 | 8% | 25% | 75% | 1.01 | 11% | 63% | 37% |
| Apartment (per unit) | 220 | | 6.72 | 0.51 | 8% | 20% | 80% | 0.62 | 9% | 65% | 35% |
| Residential Condominium/Townhouse (per unit) | 230 | | 5.86 | 0.44 | 8% | 17% | 83% | 0.52 | 9% | 67% | 33% |
| Specialty Retail (per 1,000 sq. ft.)[3,4] | 814 | | 44.32 | 1.33 | 3% | 60% | 40% | 2.78 | 6% | 44% | 56% |
| Shopping Center (per 1,000 sq. ft.)[5] | 820 | | 69.38 | 1.61 | 2% | 61% | 39% | 6.39 | 9% | 48% | 52% |
| COMMERCIAL / RETAIL | | | | | | | | | | | |
| Work/Live Commercial[6] | 814 | 57,605 sq. ft. | 2,553 | 77 | 3% | 46 | 31 | 160 | 6% | 70 | 90 |
| Neighborhood Center (Retail) | 820 | 94,055 sq. ft. | 6,526 | 151 | 2% | 92 | 59 | 601 | 9% | 288 | 313 |
| SUBTOTAL (COMMERCIAL TRIPS) | | | 9,079 | 228 | | 138 | 90 | 761 | | 358 | 403 |
| Internal Retail Reduction (15% of Retail) | | | -1,362 | -34 | | -21 | -14 | -114 | | -54 | -60 |
| SUBTOTAL (NET COMMERCIAL / RETAIL TRIPS) | | | 7,717 | 194 | | 117 | 76 | 647 | | 304 | 343 |
| Internal Retail Passby Reduction (15%) | | | -1,362 | -34 | | -17 | -17 | -114 | | -57 | -57 |
| NET COMMERCIAL / RETAIL TRIPS | | | 6,355 | 160 | | 100 | 59 | 533 | | 247 | 286 |
| RESIDENTIAL | | | | | | | | | | | |
| Single-Family Detached Housing | 210 | 175 Units | 1,675 | 131 | 8% | 33 | 98 | 177 | 11% | 112 | 65 |
| Apartments | 220 | 8 Units | 54 | 4 | 7% | 1 | 3 | 5 | 9% | 3 | 2 |
| Townhomes | 230 | 346 Units | 2,028 | 152 | 7% | 26 | 126 | 180 | 9% | 121 | 59 |
| Condominiums | 230 | 121 Units | 709 | 53 | 8% | 9 | 44 | 63 | 9% | 42 | 21 |
| Employee Housing | | 606 Beds | 106 | 0 | 0% | 0 | 0 | 22 | 21% | 11 | 11 |
| SUBTOTAL (RESIDENTIAL TRIPS) | | | 4,572 | 340 | | 69 | 271 | 447 | | 289 | 158 |
| Internal Retail Reduction (15% of Retail) | | | -1,362 | -34 | | -14 | -21 | -114 | | -60 | -54 |
| NET RESIDENTIAL TRIPS | | | 3,210 | 306 | | 55 | 250 | 333 | | 229 | 104 |
| TOTAL | | | | | | | | | | | |
| NET EXTERNAL TRIPS (WITH PROPOSED CHANGE) | | | 9,565 | 466 | | 155 | 309 | 866 | | 476 | 390 |

Notes:
1. sq. ft. = square feet
2. Trip generation rates published by Institute of Transportation Engineers (ITE), "Trip Generation," 7th Edition, 2003, except where otherwise noted.
3. Regression equation used in calculation of PM peak hour trip generation. PM peak trip rate cited here is equivalent rate for this size of development.
4. ITE does not provide a trip generation rate during the AM street peak hour for the "Specialty Retail" land use. Rate used here taken from *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, San Diego Association of Governments, April 2002.
5. Regression equation used in calculations for daily and peak hour trip generation. Trip rates cited here are equivalent rates for this size of development.
6. "Work/Live Commercial" is defined as commercial space where the proprietor and/or employees both live and work within the project site.

**EXHIBIT 3C**
**DOWNTOWN ADDITION**
**TRIP GENERATION**
**WITH PROJECT**
**WITH BUSING**

## DOWNTOWN ADDITION TRIP GENERATION
## WITH EMPLOYEE HOUSING PROJECT WITHOUT BUSING

| | ITE LAND USE CODE | PROJECT SIZE | DAILY TRIPS | AM PEAK HOUR TOTAL PEAK HOUR | AM PEAK HOUR % OF ADT | AM PEAK HOUR IN | AM PEAK HOUR OUT | PM PEAK HOUR TOTAL PEAK HOUR | PM PEAK HOUR % OF ADT | PM PEAK HOUR IN | PM PEAK HOUR OUT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TRIP GENERATION RATES[1] | | | | | | | | | | | |
| Single-Family Detached Housing (per unit) | 210 | | 9.57 | 0.75 | 8% | 25% | 75% | 1.01 | 11% | 63% | 37% |
| Apartment (per unit) | 220 | | 6.72 | 0.51 | 8% | 20% | 80% | 0.62 | 9% | 65% | 35% |
| Residential Condominium/Townhouse (per unit) | 230 | | 5.86 | 0.44 | 8% | 17% | 83% | 0.52 | 9% | 67% | 33% |
| Specialty Retail (per 1,000 sq. ft.)[3,4] | 814 | | 44.32 | 1.33 | 3% | 60% | 40% | 2.78 | 6% | 44% | 56% |
| Shopping Center (per 1,000 sq. ft.)[5] | 820 | | 69.38 | 1.61 | 2% | 61% | 39% | 6.39 | 9% | 48% | 52% |
| COMMERCIAL / RETAIL | | | | | | | | | | | |
| Work/Live Commercial[6] | 814 | 57,605 sq. ft. | 2,553 | 77 | 3% | 46 | 31 | 160 | 6% | 70 | 90 |
| Neighborhood Center (Retail) | 820 | 94,055 sq. ft. | 6,526 | 151 | 2% | 92 | 59 | 601 | 9% | 288 | 313 |
| SUBTOTAL (COMMERCIAL TRIPS) | | | 9,079 | 228 | | 138 | 90 | 761 | | 358 | 403 |
| Internal Retail Reduction (15% of Retail) | | | -1,362 | -34 | | -21 | -14 | -114 | | -54 | -60 |
| SUBTOTAL (NET COMMERCIAL / RETAIL TRIPS) | | | 7,717 | 194 | | 117 | 76 | 647 | | 304 | 343 |
| Internal Retail Passby Reduction (15%) | | | -1,362 | -34 | | -17 | -17 | -114 | | -57 | -57 |
| NET COMMERCIAL / RETAIL TRIPS | | | 6,355 | 160 | | 100 | 59 | 533 | | 247 | 286 |
| RESIDENTIAL | | | | | | | | | | | |
| Single-Family Detached Housing | 210 | 175 Units | 1,675 | 131 | 8% | 33 | 98 | 177 | 11% | 112 | 65 |
| Apartments | 220 | 8 Units | 54 | 4 | 7% | 1 | 3 | 5 | 9% | 3 | 2 |
| Townhomes | 230 | 346 Units | 2,028 | 152 | 7% | 26 | 126 | 180 | 9% | 121 | 59 |
| Condominiums | 230 | 121 Units | 709 | 53 | 8% | 9 | 44 | 63 | 9% | 42 | 21 |
| Employee Housing | | 606 Beds | 306 | 0 | 0% | 0 | 0 | 56 | 18% | 50 | 6 |
| SUBTOTAL (RESIDENTIAL TRIPS) | | | 4,772 | 340 | | 69 | 271 | 481 | | 328 | 153 |
| Internal Retail Reduction (15% of Retail) | | | -1,362 | -34 | | -14 | -21 | -114 | | -60 | -54 |
| NET RESIDENTIAL TRIPS | | | 3,410 | 306 | | 55 | 250 | 367 | | 268 | 99 |
| TOTAL | | | | | | | | | | | |
| NET EXTERNAL TRIPS (WITH PROPOSED CHANGE) | | | 9,765 | 466 | | 155 | 309 | 900 | | 515 | 385 |

Notes:
1. sq. ft. = square feet
2. Trip generation rates published by Institute of Transportation Engineers (ITE), "Trip Generation," 7th Edition, 2003, except where otherwise noted.
3. Regression equation used in calculation of PM peak hour trip generation. PM peak trip rate cited here is equivalent rate for this size of development.
4. ITE does not provide a trip generation rate during the AM street peak hour for the "Specialty Retail" land use. Rate used here taken from *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, San Diego Association of Governments, April 2002.
5. Regression equation used in calculations for daily and peak hour trip generation. Trip rates cited here are equivalent rates for this size of development.
6. "Work/Live Commercial" is defined as commercial space where the proprietor and/or employees both live and work within the project site.

**EXHIBIT 3D**
**DOWNTOWN ADDITION**
**TRIP GENERATION**
**WITH PROJECT**
**WITHOUT BUSING**

## DOWNTOWN ADDITION SPECIFIC PLAN TRIP GENERATION COMPARISON
## ADOPTED SPECIFIC PLAN VERSUS SPECIFIC PLAN WITH PROJECT

**TRIP GENERATION COMPARISON WITH PROJECT (WITH BUSING)**

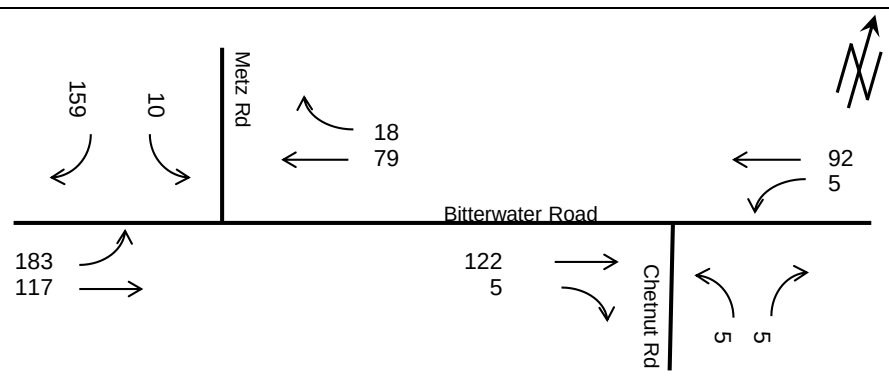
| | | | AM PEAK HOUR | | | | PM PEAK HOUR | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | DAILY TRIPS | TOTAL PEAK HOUR | % OF ADT | IN | OUT | TOTAL PEAK HOUR | % OF ADT | IN | OUT |
| ADOPTED DOWNTOWN ADDITION TRIP GENERATION | | | | | | | | | | |
| Commercial | | 7,514 | 186 | 2% | 117 | 69 | 633 | 8% | 294 | 339 |
| Residential | | 2,856 | 300 | 11% | 53 | 247 | 290 | 10% | 207 | 83 |
| NET EXTERNAL TRIPS | | 10,370 | 486 | | 170 | 316 | 923 | | 501 | 422 |
| DOWNTOWN ADDITION TRIP GENERATION WITH PROJECT BUSING | | | | | | | | | | |
| Commercial | | 6,355 | 160 | 3% | 100 | 59 | 533 | 8% | 247 | 286 |
| Residential | | 3,210 | 306 | 10% | 55 | 250 | 333 | 10% | 229 | 104 |
| NET EXTERNAL TRIPS | | 9,565 | 466 | | 155 | 309 | 866 | | 476 | 390 |
| NET CHANGE WITH PROJECT (WITH BUSING) | | -805 | -20 | | -15 | -7 | -57 | | -25 | -32 |

**TRIP GENERATION COMPARISON WITH PROJECT (NO BUSING)**

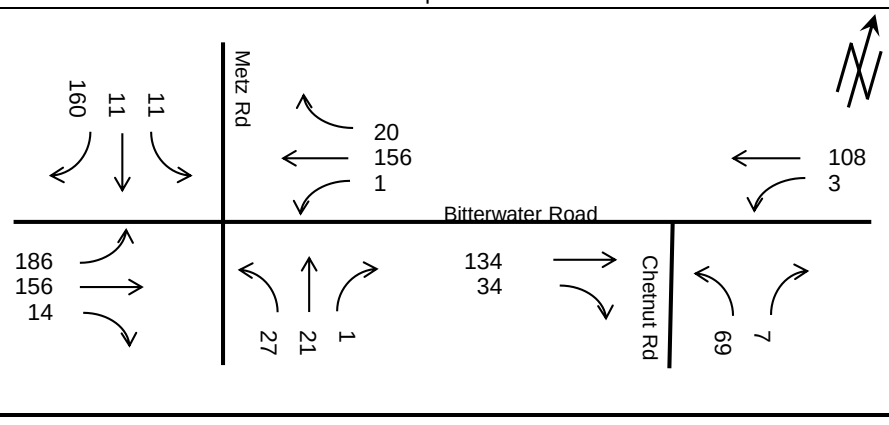
| | | | AM PEAK HOUR | | | | PM PEAK HOUR | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | DAILY TRIPS | TOTAL PEAK HOUR | % OF ADT | IN | OUT | TOTAL PEAK HOUR | % OF ADT | IN | OUT |
| ADOPTED DOWNTOWN ADDITION TRIP GENERATION | | | | | | | | | | |
| Commercial | | 7,514 | 186 | 2% | 117 | 69 | 633 | 8% | 294 | 339 |
| Residential | | 2,856 | 300 | 11% | 53 | 247 | 290 | 10% | 207 | 83 |
| NET EXTERNAL TRIPS | | 10,370 | 486 | | 170 | 316 | 923 | | 501 | 422 |
| DOWNTOWN ADDITION TRIP GENERATION WITHOUT PROJECT BUSING | | | | | | | | | | |
| Commercial | | 6,355 | 160 | 3% | 100 | 59 | 533 | 8% | 247 | 286 |
| Residential | | 3,410 | 306 | 9% | 55 | 250 | 367 | 11% | 268 | 99 |
| NET EXTERNAL TRIPS | | 9,765 | 466 | | 155 | 309 | 900 | | 515 | 385 |
| NET CHANGE WITH PROJECT (NO BUSING) | | -605 | -20 | | -15 | -7 | -23 | | 14 | -37 |

## AM PEAK HOUR

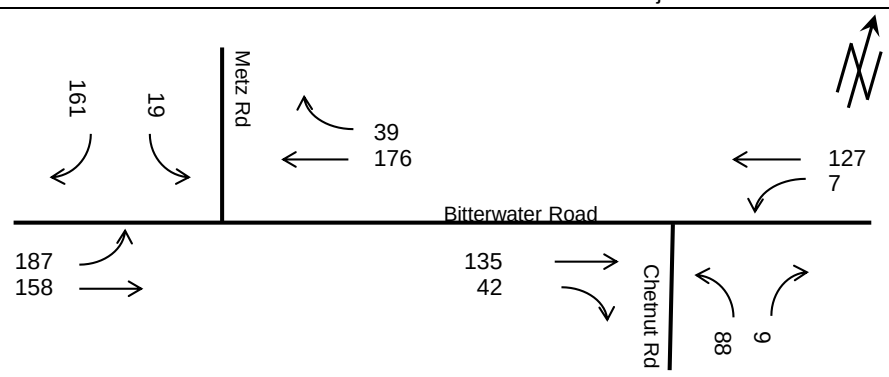
Short Term Without Downtown Addition




Short Term With Adopted Downtown Addition

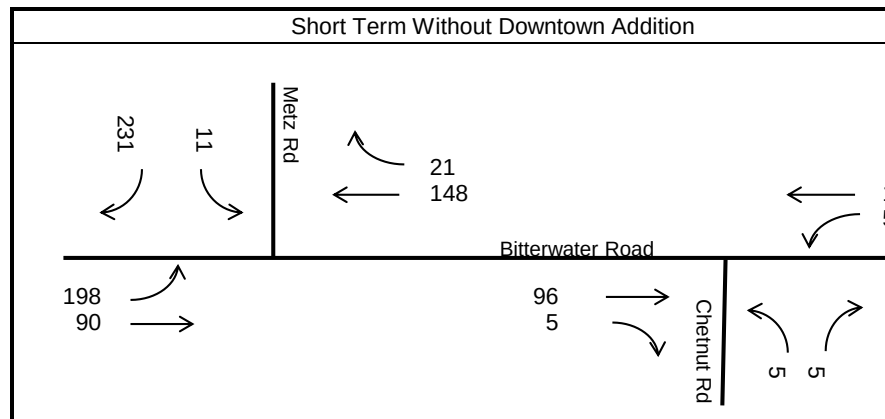



Short Term With Downtown Addition With Project

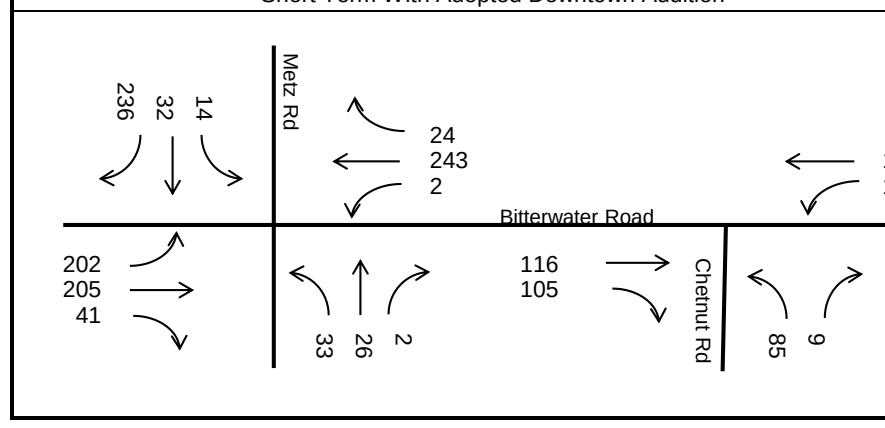



## PM PEAK HOUR

Short Term Without Downtown Addition




Short Term With Adopted Downtown Addition




Short Term With Downtown Addition With Project

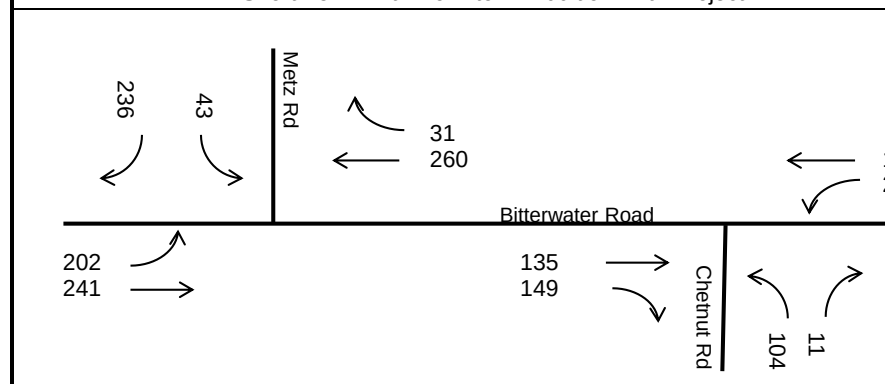
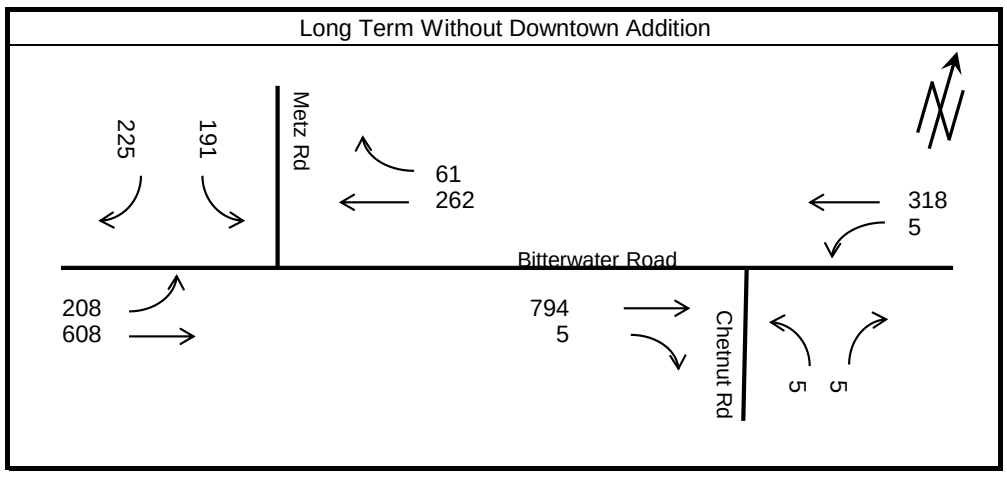


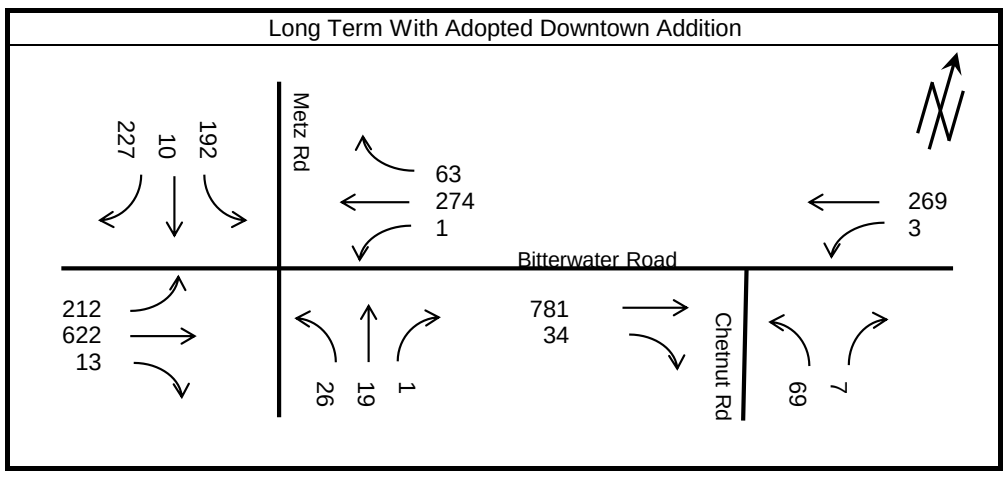

**EXHIBIT 4A**
**SHORT-TERM CONDITION**
**TRAFFIC VOLUMES**

## AM PEAK HOUR

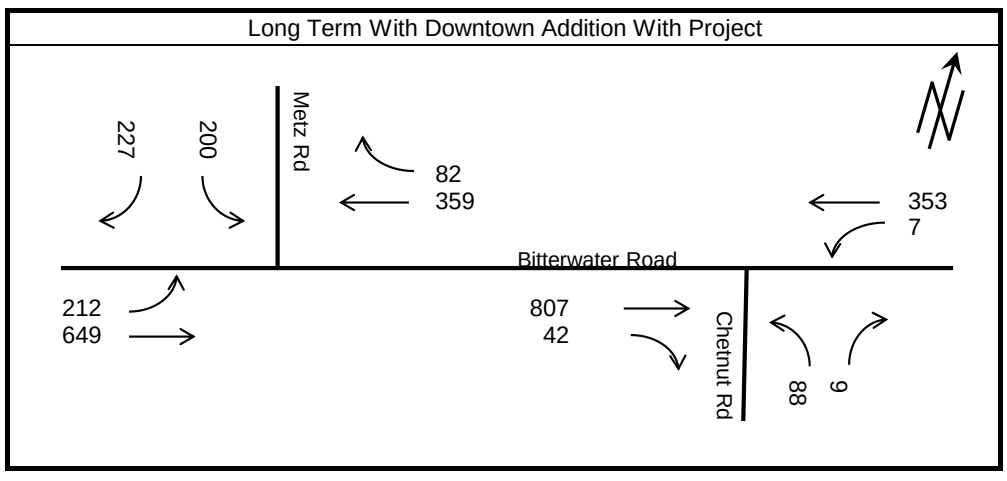
Long Term Without Downtown Addition




Long Term With Adopted Downtown Addition

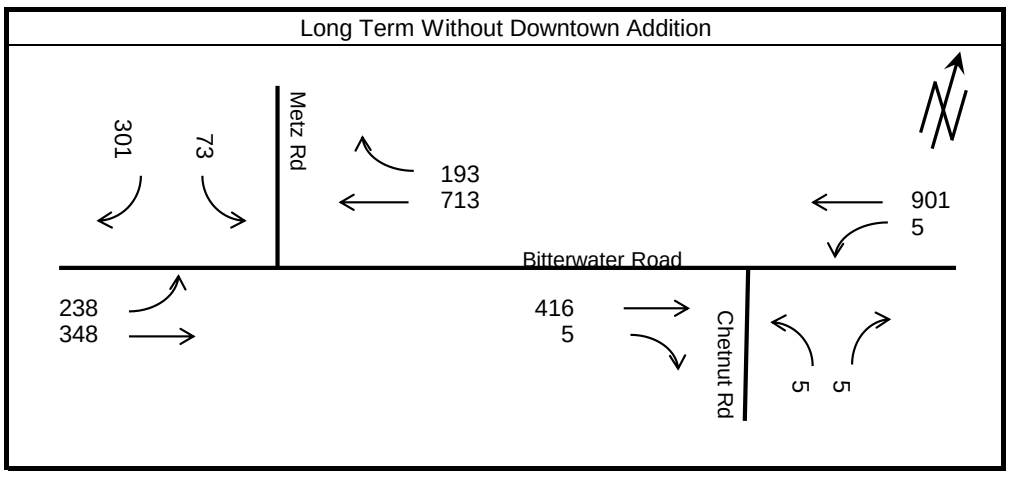



Long Term With Downtown Addition With Project

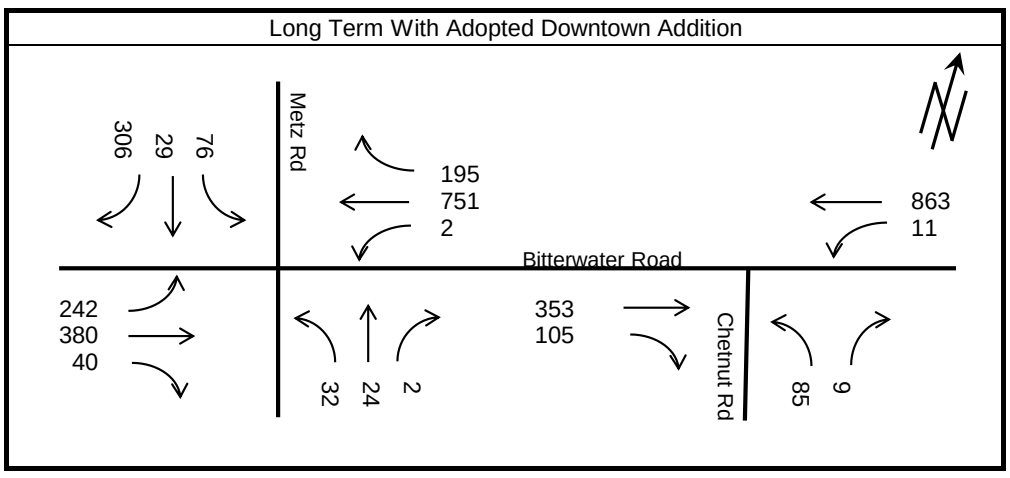



## PM PEAK HOUR

Long Term Without Downtown Addition




Long Term With Adopted Downtown Addition




Long Term With Downtown Addition With Project

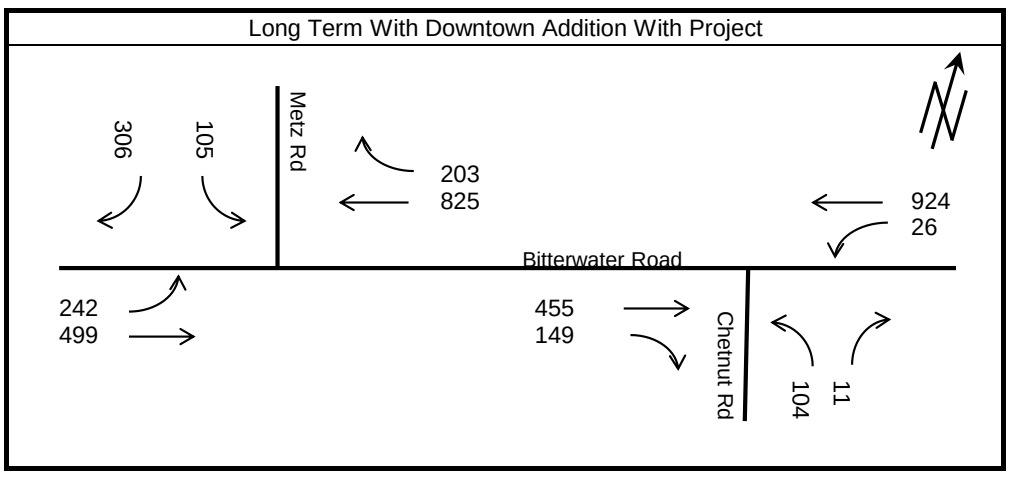



**EXHIBIT 4B**
**LONG-TERM CONDITION**
**TRAFFIC VOLUMES**

| Segment | Location | Description | Short-Term | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Without Downtown Addition | | | With Adopted Downtown Addition | | | With Downtown Addition With Project | | |
| | | | PM Peak Hour | | | PM Peak Hour | | | PM Peak Hour | | |
| | | | Volume | LOS | Mitigation/LOS | Volume | LOS | Mitigation/LOS | Volume | LOS | Mitigation/LOS |
| Bitterwater Road | First-Metz | 2-Lane Arterial | 667 | A | - | 960 | A | - | 939 | A | - |
| | Metz - Chestnut | 2-Lane Arterial | 270 | A | - | 490 | A | - | 575 | A | - |
| | Chestnut-Palm | 2-Lane Arterial | 270 | A | - | 320 | A | - | 359 | A | - |
| | Palm-San Antonio | 2-Lane Arterial | 239 | A | - | 289 | A | - | 328 | A | - |
| Metz Road | San Antonio-Bitterwater | 2-Lane Arterial | 461 | A | - | 541 | A | - | 512 | A | - |

| Segment | Location | Description | Long-Term | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Without Downtown Addition | | | With Adopted Downtown Addition | | | With Downtown Addition With Project | | |
| | | | PM Peak Hour | | | PM Peak Hour | | | PM Peak Hour | | |
| | | | Volume | LOS | Mitigation/LOS | Volume | LOS | Mitigation/LOS | Volume | LOS | Mitigation/LOS |
| Bitterwater Road | First-Metz | 2-Lane Arterial | 1600 | D | 4-LDA / A | 1751 | E | 4-LDA / A | 1872 | F | 4-LDA / A |
| | Metz - Chestnut | 2-Lane Arterial | 1327 | C | - | 1406 | C | - | 1632 | E | 4-LDA / A |
| | Chestnut-Palm | 2-Lane Arterial | 1327 | C | - | 1236 | B | - | 1416 | C | - |
| | Palm-San Antonio | 2-Lane Arterial | 1296 | C | - | 1205 | B | - | 1385 | C | - |
| Metz Road | San Antonio-Bitterwater | 2-Lane Arterial | 805 | A | - | 872 | A | - | 856 | A | - |

Notes:
1. LOS: Level of Service
2. 4-LDA: 4-Lane Divided Arterial
3. Traffic volumes without First Street Bypass

**EXHIBIT 5**
**ROADWAY SEGMENT**
**VOLUMES AND LEVEL OF SERVICE**
**(WITHOUT FIRST STREET BYPASS)**

| | N-S Street | E-W Street | Existing Lane Configuration | Existing Intersection Control | LOS Standard | Short-Term Without Downtown Addition SP | | | | Short-Term With Adopted Downtown Addition SP (With Land Use Modeled In Original TIA) | | | | Short-Term With Downtown Addition SP With Proposed Project (Employee Housing & No Metz Road Extension) | | | | Long-Term Without Downtown Addition SP | | | | Long-Term With Adopted Downtown Addition SP With Land Use Modeled In Original TIA | | | | Long-Term With Downtown Addition SP With Proposed Project (Employee Housing & No Metz Road Extension) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | AM Peak Hr | | PM Peak Hr | | AM Peak Hr | | PM Peak Hr | | AM Peak Hr | | PM Peak Hr | | AM Peak Hr | | PM Peak Hr | | AM Peak Hr | | PM Peak Hr | | AM Peak Hr | | PM Peak Hr | |
| | | | | | | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS | Delay (sec) | LOS |
| 1 | Chestnut Road | Bitterwater Road | NB 1-L, 1-T<br>SB 1-T/R<br>EB 1-L/T/R | Stop Sign (Overall)<br>(Worst Approach) | **C**<br>**(E)**<br>*Mitigation* | 0.2<br>**9.3** | A<br>**A** | 0.5<br>**9.4** | A<br>**A** | 2.3<br>**10.4** | A<br>**B** | 2.3<br>**11.5** | A<br>**B** | 2.7<br>**10.9** | A<br>**B** | 2.7<br>**12.7** | A<br>**B** | 0.2<br>**18.0** | A<br>**C** | 0.2<br>**18.8** | A<br>**C** | 1.7<br>**25.1** | A<br>**D** | 2.7<br>**39.8** | A<br>**E** | 2.6<br>**34.7**<br>***5.2*** | A<br>**D**<br>***A*** | 6.5<br>**92.2**<br>***5.9*** | A<br>**F**<br>***A*** |
| 2 | Metz Road | Bitterwater Road | SB 1-L, 1-R<br>EB 1-L/T<br>WB 1-T/R | Stop Sign (Overall)<br>(Worst Approach) | **C**<br>**(E)**<br>*Mitigation* | 5.4<br>**9.7** | A<br>**A** | 6.0<br>**10.7** | A<br>**B** | 6.6<br>**28.2**<br>***15.3*** | A<br>**D**<br>***B*** | 10.7<br>**83.0**<br>***16.5*** | B<br>**F**<br>***B*** | 4.7<br>**10.9**<br>***4.7***<br>***10.9*** | A<br>**B**<br>***A***<br>***B*** | 5.4<br>**13.4**<br>***5.4***<br>***13.4*** | A<br>**B**<br>***A***<br>***B*** | 64.5<br>**236.6**<br>***14.4*** | F<br>**F**<br>***B*** | 37.6<br>**178.7**<br>***19.8*** | E<br>**F**<br>***B*** | 169.6<br>**622.5**<br>***20.4*** | F<br>**F**<br>***C*** | *<br>*<br>***22.8*** | F<br>**F**<br>***C*** | 52.7<br>**208.8**<br>***12.8*** | F<br>**F**<br>***B*** | 45.0<br>**231.0**<br>***23.8*** | E<br>**F**<br>***C*** |

NOTES:
1. L, T, R = Left, Through, Right.
2. NB, SB, EB, WB = Northbound, Southbound, Eastbound, Westbound.
3. Overall level of service standard for the City of King is LOS C.
4. Worst approach level of service standard is generally LOS E. Level of service "F" is the level of service at which improvements would be required.
5. Levels of service cited under *Mitigations* use recommended improvements shown on Exhibit 7.
6. * = Delay is over 300 seconds (5 minutes)



**EXHIBIT 6**
**INTERSECTION LEVELS OF SERVICE**

| N-S Street | E-W Street | Existing Lane Configuration | Existing Intersection Control | Short-Term Without Downtown Addition SP | Short-Term With Adopted Downtown Addition SP (With Land Use Modeled In Original TIA) | Short-Term With Downtown Addition SP With Proposed Project (Employee Housing & No Metz Road Extension) | Long-Term Without Downtown Addition SP | Long-Term With Adopted Downtown Addition SP With Land Use Modeled In Original TIA | Long-Term With Downtown Addition SP With Proposed Project (Employee Housing & No Metz Road Extension) |
|---|---|---|---|---|---|---|---|---|---|
| Chestnut Road | Bitterwater Road | NB 1-L/R<br>EB 1-T/R<br>WB 1-L/T | Stop Sign | **x--x** | **x--x** | **x--x** | **x--x** | **x--x** | **1. Signalize Intersection<br>2. NB Approach: 1-L, 1-R<br>3. EB Approach: 1-T, 1-T/R<br>4. WB Approach: 1-L, 2-T** |
| Metz Road | Bitterwater Road | SB 1-L, 1-R<br>EB 1-L/T<br>WB 1-T/R | Stop Sign | **x--x** | **1. Signalize Intersection<br>2. Add EB L, WB L<br>3. Restripe NB & SB Metz as 1-L/T, 1-R** | **1. Add EB L** | **1. Signalize Intersection<br>2. Add EB L<br>3. Add 2nd EB T, 2nd WB T** | **1. Signalize Intersection<br>2. Add EB L, WB L<br>3. Restripe NB & SB Metz as 1-L/T, 1-R<br>4. Add WB R<br>5. Add SB Right Turn Overlap Signal Phase** | **1. Signalize Intersection<br>2. Add EB L<br>3. Add SB Right Turn Overlap Signal Phase** |

NOTES:
1. L, T, R = Left, Through, Right.
2. NB, SB, EB, WB = Northbound, Southbound, Eastbound, Westbound.
3. "x--x" = No improvement required at this location under this scenario.

**EXHIBIT 7**
**INTERSECTION MITIGATION IMPROVEMENTS**

Attachment 1

Intersection
Level of Service
Calculations

Metz Road / Bitterwater Road

No Project

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #624 Metz_Rd/Bitterwater_Rd

Average Delay (sec/veh): 5.4 Worst Case Level Of Service: A[ 9.7]

| 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 0 | | | 1 0 0 0 1 | | | 0 1 0 0 0 | | | 0 0 0 1 0 | | |
| Volume Module: | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | 10 | 0 | 159 | 183 | 117 | 0 | 0 | 79 | 18 |
| 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 | 0 | 10 | 0 | 159 | 183 | 117 | 0 | 0 | 79 | 18 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 0 | 0 | 0 | 10 | 0 | 159 | 183 | 117 | 0 | 0 | 79 | 18 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 0 | 0 | 0 | 10 | 0 | 159 | 183 | 117 | 0 | 0 | 79 | 18 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | 6.4 | xxxx | 6.2 | 4.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| FollowUpTim: | xxxxx | xxxx | xxxxx | 3.5 | xxxx | 3.3 | 2.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | 571 | xxxx | 88 | 97 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Potent Cap.: | xxxx | xxxx | xxxxx | 479 | xxxx | 965 | 1484 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Move Cap.: | xxxx | xxxx | xxxxx | 429 | xxxx | 965 | 1484 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Volume/Cap: | xxxx | xxxx | xxxx | 0.02 | xxxx | 0.16 | 0.12 | xxxx | xxxx | xxxx | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | 0.1 | xxxx | 0.6 | 0.4 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | 13.6 | xxxx | 9.5 | 7.8 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| LOS by Move: | * | * | * | B | * | A | A | * | * | * | * | * |
| 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 | 0.4 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 7.8 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shared LOS: | * | * | * | * | * | * | A | * | * | * | * | * |
| ApproachDel: | xxxxxx | | | 9.7 | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | * | | | A | | | * | | | * | | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #624 Metz_Rd/Bitterwater_Rd

Average Delay (sec/veh): 6.0 Worst Case Level Of Service: B[ 10.7]

| 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 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Volume Module: | | | | | | | | | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | | | 11 | 0 | | 231 | | 198 | 90 | 0 | | | 0 | 148 | | 21 | |
| 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 | 0 | | | 11 | 0 | | 231 | | 198 | 90 | 0 | | | 0 | 148 | | 21 | |
| User Adj: | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | |
| PHF Adj: | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | |
| PHF Volume: | 0 | 0 | 0 | | | 11 | 0 | | 231 | | 198 | 90 | 0 | | | 0 | 148 | | 21 | |
| Reduct Vol: | 0 | 0 | 0 | | | 0 | 0 | | 0 | | 0 | 0 | 0 | | | 0 | 0 | | 0 | |
| FinalVolume: | 0 | 0 | 0 | | | 11 | 0 | | 231 | | 198 | 90 | 0 | | | 0 | 148 | | 21 | |
| Critical Gap Module: | | | | | | | | | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | | | 6.4 | xxxx | | 6.2 | | 4.1 | xxxx | xxxxx | | | xxxxx | xxxx | | xxxxx | |
| FollowUpTim: | xxxxx | xxxx | xxxxx | | | 3.5 | xxxx | | 3.3 | | 2.2 | xxxx | xxxxx | | | xxxxx | xxxx | | xxxxx | |
| Capacity Module: | | | | | | | | | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | | | 645 | xxxx | | 159 | | 169 | xxxx | xxxxx | | | xxxx | xxxx | | xxxxx | |
| Potent Cap.: | xxxx | xxxx | xxxxx | | | 434 | xxxx | | 882 | | 1396 | xxxx | xxxxx | | | xxxx | xxxx | | xxxxx | |
| Move Cap.: | xxxx | xxxx | xxxxx | | | 381 | xxxx | | 882 | | 1396 | xxxx | xxxxx | | | xxxx | xxxx | | xxxxx | |
| Volume/Cap: | xxxx | xxxx | xxxx | | | 0.03 | xxxx | | 0.26 | | 0.14 | xxxx | xxxx | | | xxxx | xxxx | | xxxx | |
| Level Of Service Module: | | | | | | | | | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | | | 0.1 | xxxx | | 1.1 | | 0.5 | xxxx | xxxxx | | | xxxx | xxxx | | xxxxx | |
| Control Del: | xxxxx | xxxx | xxxxx | | | 14.7 | xxxx | | 10.5 | | 8.0 | xxxx | xxxxx | | | xxxxx | xxxx | | xxxxx | |
| LOS by Move: | * | * | * | | | B | * | | B | | A | * | * | | | * | * | | * | |
| 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 | | 0.5 | xxxx | xxxxx | | | xxxxx | xxxx | | xxxxx | |
| Shrd ConDel: | xxxxx | xxxx | xxxxx | | | xxxxx | xxxx | | xxxxx | | 8.0 | xxxx | xxxxx | | | xxxxx | xxxx | | xxxxx | |
| Shared LOS: | * | * | * | | | * | * | | * | | A | * | * | | | * | * | | * | |
| ApproachDel: | xxxxxx | | | | | 10.7 | | | | | xxxxxx | | | | | xxxxxx | | | | |
| ApproachLOS: | * | | | | | B | | | | | * | | | | | * | | | | |

Note: Queue reported is the number of cars per lane.

Original Adopted SP

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #624 Metz_Rd/Bitterwater_Rd

Average Delay (sec/veh): 6.6 Worst Case Level Of Service: D[ 28.2]

| 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 1 0 0 1 | | | 0 0 1! 0 0 | | | 0 0 1! 0 0 | | |
| Volume Module: 7:30 - 8:30 AM | | | | | | | | | | | | |
| Base Vol: | 27 | 21 | 1 | 11 | 11 | 160 | 186 | 156 | 14 | 1 | 156 | 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: | 27 | 21 | 1 | 11 | 11 | 160 | 186 | 156 | 14 | 1 | 156 | 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: | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| PHF Volume: | 30 | 24 | 1 | 12 | 12 | 180 | 209 | 175 | 16 | 1 | 175 | 22 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 30 | 24 | 1 | 12 | 12 | 180 | 209 | 175 | 16 | 1 | 175 | 22 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 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: | 886 | 801 | 183 | 802 | 798 | 187 | 198 | xxxx | xxxxx | 191 | xxxx | xxxxx |
| Potent Cap.: | 267 | 320 | 864 | 300 | 317 | 850 | 1363 | xxxx | xxxxx | 1365 | xxxx | xxxxx |
| Move Cap.: | 176 | 264 | 864 | 242 | 262 | 850 | 1363 | xxxx | xxxxx | 1365 | xxxx | xxxxx |
| Volume/Cap: | 0.17 | 0.09 | 0.00 | 0.05 | 0.05 | 0.21 | 0.15 | xxxx | xxxx | 0.00 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | 0.8 | 0.5 | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | 10.4 | 8.1 | xxxx | xxxxx | 7.6 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | B | A | * | * | A | * | * |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | |
| Shared Cap.: | xxxx | 210 | xxxxx | 251 | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 1.0 | xxxxx | 0.3 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 28.2 | xxxxx | 20.9 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shared LOS: | * | D | * | C | * | * | * | * | * | * | * | * |
| ApproachDel: | 28.2 | | | 11.6 | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | D | | | B | | | * | | | * | | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #624 Metz_Rd/Bitterwater_Rd

Average Delay (sec/veh): 10.7 Worst Case Level Of Service: F[ 83.0]

| 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 | 1 | 0 | 0 | 1 | | 0 | 0 | 1! | 0 | 0 | | 0 | 0 | 1! | 0 | 0 | |
| Volume Module:4:30 - 5:30 PM | | | | | | | | | | | | | | | | | | | | | | | | |
| Base Vol: | 33 | | 26 | | 2 | | 14 | | 32 | | 236 | | 202 | | 205 | | 41 | | 2 | | 243 | | 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: | 33 | | 26 | | 2 | | 14 | | 32 | | 236 | | 202 | | 205 | | 41 | | 2 | | 243 | | 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: | 0.88 | | 0.88 | | 0.88 | | 0.88 | | 0.88 | | 0.88 | | 0.88 | | 0.88 | | 0.88 | | 0.88 | | 0.88 | | 0.88 | |
| PHF Volume: | 38 | | 30 | | 2 | | 16 | | 36 | | 268 | | 230 | | 233 | | 47 | | 2 | | 276 | | 27 | |
| Reduct Vol: | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| FinalVolume: | 38 | | 30 | | 2 | | 16 | | 36 | | 268 | | 230 | | 233 | | 47 | | 2 | | 276 | | 27 | |
| Critical Gap Module: | | | | | | | | | | | | | | | | | | | | | | | | |
| Critical Gp: | 7.1 | | 6.5 | | 6.2 | | 7.1 | | 6.5 | | 6.2 | | 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: | 1162 | | 1023 | | 256 | | 1026 | | 1033 | | 290 | | 303 | | xxxx | | xxxxx | | 280 | | xxxx | | xxxxx | |
| Potent Cap.: | 174 | | 237 | | 787 | | 211 | | 231 | | 745 | | 1246 | | xxxx | | xxxxx | | 1266 | | xxxx | | xxxxx | |
| Move Cap.: | 79 | | 187 | | 787 | | 156 | | 182 | | 745 | | 1246 | | xxxx | | xxxxx | | 1266 | | xxxx | | xxxxx | |
| Volume/Cap: | 0.47 | | 0.16 | | 0.00 | | 0.10 | | 0.20 | | 0.36 | | 0.18 | | xxxx | | xxxx | | 0.00 | | xxxx | | xxxx | |
| Level Of Service Module: | | | | | | | | | | | | | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | | xxxx | | xxxxx | | xxxx | | xxxx | | 1.6 | | 0.7 | | xxxx | | xxxxx | | 0.0 | | xxxx | | xxxxx | |
| Control Del: | xxxxx | | xxxx | | xxxxx | | xxxxx | | xxxx | | 12.5 | | 8.5 | | xxxx | | xxxxx | | 7.8 | | xxxx | | xxxxx | |
| LOS by Move: | * | | * | | * | | * | | * | | B | | A | | * | | * | | A | | * | | * | |
| Movement: | LT | - | LTR | - | RT | | LT | - | LTR | - | RT | | LT | - | LTR | - | RT | | LT | - | LTR | - | RT | |
| Shared Cap.: | xxxx | | 109 | | xxxxx | | 173 | | xxxx | | xxxxx | | xxxx | | xxxx | | xxxxx | | xxxx | | xxxx | | xxxxx | |
| SharedQueue: | xxxxx | | 3.2 | | xxxxx | | 1.2 | | xxxx | | xxxxx | | xxxxx | | xxxx | | xxxxx | | xxxxx | | xxxx | | xxxxx | |
| Shrd ConDel: | xxxxx | | 83.0 | | xxxxx | | 34.6 | | xxxx | | xxxxx | | xxxxx | | xxxx | | xxxxx | | xxxxx | | xxxx | | xxxxx | |
| Shared LOS: | * | | F | | * | | D | | * | | * | | * | | * | | * | | * | | * | | * | |
| ApproachDel: | | | 83.0 | | | | | | 16.1 | | | | | | xxxxxx | | | | | | xxxxxx | | | |
| ApproachLOS: | | | F | | | | | | C | | | | | | * | | | | | | * | | | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #624 Metz_Rd/Bitterwater_Rd

| | | | |
|---|---|---|---|
| Cycle (sec): | 60 | Critical Vol./Cap.(X): | 0.409 |
| Loss Time (sec): | 9 | Average Delay (sec/veh): | 15.3 |
| Optimal Cycle: | 28 | Level Of Service: | B |

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Permitted | | | Permitted | | | Protected | | | Protected | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Y+R: | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lanes: | 0 1 | 0 0 | 1 | 0 1 | 0 0 | 1 | 1 0 | 0 1 | 0 | 1 0 | 0 1 | 0 |
| Volume Module: 7:30 - 8:30 AM | | | | | | | | | | | | |
| Base Vol: | 27 | 21 | 1 | 11 | 11 | 160 | 186 | 156 | 14 | 1 | 156 | 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: | 27 | 21 | 1 | 11 | 11 | 160 | 186 | 156 | 14 | 1 | 156 | 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: | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| PHF Volume: | 30 | 24 | 1 | 12 | 12 | 180 | 209 | 175 | 16 | 1 | 175 | 22 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 30 | 24 | 1 | 12 | 12 | 180 | 209 | 175 | 16 | 1 | 175 | 22 |
| PCE Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 30 | 24 | 1 | 12 | 12 | 180 | 209 | 175 | 16 | 1 | 175 | 22 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.88 | 0.88 | 0.85 | 0.87 | 0.87 | 0.82 | 0.91 | 0.95 | 0.95 | 0.90 | 0.94 | 0.94 |
| Lanes: | 0.56 | 0.44 | 1.00 | 0.50 | 0.50 | 1.00 | 1.00 | 0.92 | 0.08 | 1.00 | 0.89 | 0.11 |
| Final Sat.: | 936 | 728 | 1615 | 831 | 831 | 1554 | 1736 | 1657 | 149 | 1718 | 1576 | 202 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.03 | 0.03 | 0.00 | 0.01 | 0.01 | 0.12 | 0.12 | 0.11 | 0.11 | 0.00 | 0.11 | 0.11 |
| Crit Moves: | | | | | | **** | **** | | | | **** | |
| Green/Cycle: | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.29 | 0.56 | 0.56 | 0.00 | 0.27 | 0.27 |
| Volume/Cap: | 0.11 | 0.11 | 0.00 | 0.05 | 0.05 | 0.41 | 0.41 | 0.19 | 0.19 | 0.19 | 0.41 | 0.41 |
| Uniform Del: | 15.9 | 15.9 | 15.4 | 15.6 | 15.6 | 17.4 | 17.0 | 6.4 | 6.4 | 29.8 | 17.9 | 17.9 |
| IncremntDel: | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.6 | 0.5 | 0.1 | 0.1 | 14.7 | 0.6 | 0.6 |
| InitQueuDel: | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Delay 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 |
| Delay/Veh: | 16.0 | 16.0 | 15.4 | 15.7 | 15.7 | 18.1 | 17.5 | 6.5 | 6.5 | 44.5 | 18.4 | 18.4 |
| User DelAdj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh: | 16.0 | 16.0 | 15.4 | 15.7 | 15.7 | 18.1 | 17.5 | 6.5 | 6.5 | 44.5 | 18.4 | 18.4 |
| LOS by Move: | B | B | B | B | B | B | B | A | A | D | B | B |
| HCM2kAvgQ: | 1 | 1 | 0 | 0 | 0 | 3 | 3 | 2 | 2 | 0 | 3 | 3 |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #624 Metz_Rd/Bitterwater_Rd

| | | | |
|---|---|---|---|
| Cycle (sec): | 60 | Critical Vol./Cap.(X): | 0.559 |
| Loss Time (sec): | 9 | Average Delay (sec/veh): | 16.5 |
| Optimal Cycle: | 35 | Level Of Service: | B |

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Permitted | | | Permitted | | | Protected | | | Protected | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Y+R: | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lanes: | 0 1 | 0 0 | 1 | 0 1 | 0 0 | 1 | 1 0 | 0 1 | 0 | 1 0 | 0 1 | 0 |
| Volume Module: 4:30 - 5:30 PM | | | | | | | | | | | | |
| Base Vol: | 33 | 26 | 2 | 14 | 32 | 236 | 202 | 205 | 41 | 2 | 243 | 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: | 33 | 26 | 2 | 14 | 32 | 236 | 202 | 205 | 41 | 2 | 243 | 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: | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| PHF Volume: | 38 | 30 | 2 | 16 | 36 | 268 | 230 | 233 | 47 | 2 | 276 | 27 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 38 | 30 | 2 | 16 | 36 | 268 | 230 | 233 | 47 | 2 | 276 | 27 |
| PCE Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 38 | 30 | 2 | 16 | 36 | 268 | 230 | 233 | 47 | 2 | 276 | 27 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.86 | 0.86 | 0.85 | 0.90 | 0.90 | 0.82 | 0.91 | 0.94 | 0.94 | 0.90 | 0.94 | 0.94 |
| Lanes: | 0.56 | 0.44 | 1.00 | 0.30 | 0.70 | 1.00 | 1.00 | 0.83 | 0.17 | 1.00 | 0.91 | 0.09 |
| Final Sat.: | 915 | 721 | 1615 | 521 | 1190 | 1554 | 1736 | 1485 | 297 | 1718 | 1625 | 160 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.04 | 0.04 | 0.00 | 0.03 | 0.03 | 0.17 | 0.13 | 0.16 | 0.16 | 0.00 | 0.17 | 0.17 |
| Crit Moves: | | | | | | **** | **** | | | | **** | |
| Green/Cycle: | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.24 | 0.54 | 0.54 | 0.00 | 0.30 | 0.30 |
| Volume/Cap: | 0.13 | 0.13 | 0.00 | 0.10 | 0.10 | 0.56 | 0.56 | 0.29 | 0.29 | 0.29 | 0.56 | 0.56 |
| Uniform Del: | 14.9 | 14.9 | 14.3 | 14.8 | 14.8 | 17.3 | 20.1 | 7.6 | 7.6 | 29.8 | 17.5 | 17.5 |
| IncremntDel: | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 | 1.5 | 1.7 | 0.2 | 0.2 | 19.8 | 1.3 | 1.3 |
| InitQueuDel: | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Delay 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 |
| Delay/Veh: | 15.1 | 15.1 | 14.3 | 14.9 | 14.9 | 18.8 | 21.9 | 7.8 | 7.8 | 49.6 | 18.8 | 18.8 |
| User DelAdj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh: | 15.1 | 15.1 | 14.3 | 14.9 | 14.9 | 18.8 | 21.9 | 7.8 | 7.8 | 49.6 | 18.8 | 18.8 |
| LOS by Move: | B | B | B | B | B | B | C | A | A | D | B | B |
| HCM2kAvgQ: | 1 | 1 | 0 | 1 | 1 | 5 | 5 | 3 | 3 | 0 | 5 | 5 |

Note: Queue reported is the number of cars per lane.

w/Proposed Project

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #624 Metz_Rd/Bitterwater_Rd

Average Delay (sec/veh): 4.7 Worst Case Level Of Service: B[ 10.9]

| 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 0 | | | 1 0 0 0 1 | | | 0 1 0 0 0 | | | 0 0 0 1 0 | | |
| **Volume Module:** | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | 19 | 0 | 161 | 187 | 158 | 0 | 0 | 176 | 39 |
| 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 | 0 | 19 | 0 | 161 | 187 | 158 | 0 | 0 | 176 | 39 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 0 | 0 | 0 | 19 | 0 | 161 | 187 | 158 | 0 | 0 | 176 | 39 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 0 | 0 | 0 | 19 | 0 | 161 | 187 | 158 | 0 | 0 | 176 | 39 |
| **Critical Gap Module:** | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | 6.4 | xxxx | 6.2 | 4.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| FollowUpTim: | xxxxx | xxxx | xxxxx | 3.5 | xxxx | 3.3 | 2.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| **Capacity Module:** | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | 728 | xxxx | 196 | 215 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Potent Cap.: | xxxx | xxxx | xxxxx | 388 | xxxx | 841 | 1343 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Move Cap.: | xxxx | xxxx | xxxxx | 342 | xxxx | 841 | 1343 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Volume/Cap: | xxxx | xxxx | xxxx | 0.06 | xxxx | 0.19 | 0.14 | xxxx | xxxx | xxxx | xxxx | xxxx |
| **Level Of Service Module:** | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | 0.2 | xxxx | 0.7 | 0.5 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | 16.2 | xxxx | 10.3 | 8.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| LOS by Move: | * | * | * | C | * | B | A | * | * | * | * | * |
| 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 | 0.5 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 8.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shared LOS: | * | * | * | * | * | * | A | * | * | * | * | * |
| ApproachDel: | xxxxxx | | | 10.9 | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | * | | | B | | | * | | | * | | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #624 Metz_Rd/Bitterwater_Rd

Average Delay (sec/veh): 5.4 Worst Case Level Of Service: B[ 13.4]

| 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 | 0 | 1 0 | 0 0 | 1 | 0 1 | 0 0 | 0 | 0 0 | 0 1 | 0 |
| **Volume Module:** | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | 43 | 0 | 236 | 202 | 241 | 0 | 0 | 260 | 31 |
| 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 | 0 | 43 | 0 | 236 | 202 | 241 | 0 | 0 | 260 | 31 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 0 | 0 | 0 | 43 | 0 | 236 | 202 | 241 | 0 | 0 | 260 | 31 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 0 | 0 | 0 | 43 | 0 | 236 | 202 | 241 | 0 | 0 | 260 | 31 |
| **Critical Gap Module:** | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | 6.4 | xxxx | 6.2 | 4.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| FollowUpTim: | xxxxx | xxxx | xxxxx | 3.5 | xxxx | 3.3 | 2.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| **Capacity Module:** | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | 921 | xxxx | 276 | 291 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Potent Cap.: | xxxx | xxxx | xxxxx | 298 | xxxx | 758 | 1259 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Move Cap.: | xxxx | xxxx | xxxxx | 257 | xxxx | 758 | 1259 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Volume/Cap: | xxxx | xxxx | xxxx | 0.17 | xxxx | 0.31 | 0.16 | xxxx | xxxx | xxxx | xxxx | xxxx |
| **Level Of Service Module:** | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | 0.6 | xxxx | 1.3 | 0.6 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | 21.8 | xxxx | 11.9 | 8.4 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| LOS by Move: | * | * | * | C | * | B | A | * | * | * | * | * |
| 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 | 0.6 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 8.4 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shared LOS: | * | * | * | * | * | * | A | * | * | * | * | * |
| ApproachDel: | xxxxxx | | | 13.4 | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | * | | | B | | | * | | | * | | |

Note: Queue reported is the number of cars per lane.

with Improvement

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #624 Metz_Rd/Bitterwater_Rd

Average Delay (sec/veh): 4.7 Worst Case Level Of Service: B[ 10.9]

| 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 0 | | | 1 0 0 0 1 | | | 1 0 1 0 0 | | | 0 0 0 1 0 | | |
| Volume Module: | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | 19 | 0 | 161 | 187 | 158 | 0 | 0 | 176 | 39 |
| 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 | 0 | 19 | 0 | 161 | 187 | 158 | 0 | 0 | 176 | 39 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 0 | 0 | 0 | 19 | 0 | 161 | 187 | 158 | 0 | 0 | 176 | 39 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 0 | 0 | 0 | 19 | 0 | 161 | 187 | 158 | 0 | 0 | 176 | 39 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | 6.4 | xxxx | 6.2 | 4.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| FollowUpTim: | xxxxx | xxxx | xxxxx | 3.5 | xxxx | 3.3 | 2.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | 728 | xxxx | 196 | 215 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Potent Cap.: | xxxx | xxxx | xxxxx | 388 | xxxx | 841 | 1343 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Move Cap.: | xxxx | xxxx | xxxxx | 346 | xxxx | 841 | 1343 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Volume/Cap: | xxxx | xxxx | xxxx | 0.05 | xxxx | 0.19 | 0.14 | xxxx | xxxx | xxxx | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | 0.2 | xxxx | 0.7 | 0.5 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | 16.0 | xxxx | 10.3 | 8.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| LOS by Move: | * | * | * | C | * | B | A | * | * | * | * | * |
| 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: | xxxxxx | | | 10.9 | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | * | | | B | | | * | | | * | | |

Note: Queue reported is the number of cars per lane.

with Improvement

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #624 Metz_Rd/Bitterwater_Rd

Average Delay (sec/veh): 5.4 Worst Case Level Of Service: B[ 13.4]

| 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 0 | | | 1 0 0 0 1 | | | 1 0 1 0 0 | | | 0 0 0 1 0 | | |
| **Volume Module:** | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | 43 | 0 | 236 | 202 | 241 | 0 | 0 | 260 | 31 |
| 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 | 0 | 43 | 0 | 236 | 202 | 241 | 0 | 0 | 260 | 31 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 0 | 0 | 0 | 43 | 0 | 236 | 202 | 241 | 0 | 0 | 260 | 31 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 0 | 0 | 0 | 43 | 0 | 236 | 202 | 241 | 0 | 0 | 260 | 31 |
| **Critical Gap Module:** | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | 6.4 | xxxx | 6.2 | 4.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| FollowUpTim: | xxxxx | xxxx | xxxxx | 3.5 | xxxx | 3.3 | 2.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| **Capacity Module:** | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | 921 | xxxx | 276 | 291 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Potent Cap.: | xxxx | xxxx | xxxxx | 298 | xxxx | 758 | 1259 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Move Cap.: | xxxx | xxxx | xxxxx | 261 | xxxx | 758 | 1259 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Volume/Cap: | xxxx | xxxx | xxxx | 0.16 | xxxx | 0.31 | 0.16 | xxxx | xxxx | xxxx | xxxx | xxxx |
| **Level Of Service Module:** | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | 0.6 | xxxx | 1.3 | 0.6 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | 21.5 | xxxx | 11.9 | 8.4 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| LOS by Move: | * | * | * | C | * | B | A | * | * | * | * | * |
| 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: | xxxxxx | | | 13.4 | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | * | | | B | | | * | | | * | | |

Note: Queue reported is the number of cars per lane.

No Project

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #624 Metz_Rd/Bitterwater_Rd

Average Delay (sec/veh): 64.5 Worst Case Level Of Service: F[236.6]

| 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 0 | | | 1 0 0 0 1 | | | 0 1 0 0 0 | | | 0 0 0 1 0 | | |
| Volume Module:7:30 - 8:30 AM | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | 191 | 0 | 225 | 208 | 608 | 0 | 0 | 262 | 61 |
| 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 | 0 | 191 | 0 | 225 | 208 | 608 | 0 | 0 | 262 | 61 |
| 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: | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| PHF Volume: | 0 | 0 | 0 | 215 | 0 | 253 | 234 | 683 | 0 | 0 | 294 | 69 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 0 | 0 | 0 | 215 | 0 | 253 | 234 | 683 | 0 | 0 | 294 | 69 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | 6.4 | xxxx | 6.2 | 4.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| FollowUpTim: | xxxxx | xxxx | xxxxx | 3.5 | xxxx | 3.3 | 2.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | 1479 | xxxx | 329 | 363 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Potent Cap.: | xxxx | xxxx | xxxxx | 137 | xxxx | 708 | 1185 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Move Cap.: | xxxx | xxxx | xxxxx | 113 | xxxx | 708 | 1185 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Volume/Cap: | xxxx | xxxx | xxxx | 1.90 | xxxx | 0.36 | 0.20 | xxxx | xxxx | xxxx | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | 17.3 | xxxx | 1.6 | 0.7 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | 500.1 | xxxx | 12.9 | 8.8 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| LOS by Move: | * | * | * | F | * | B | A | * | * | * | * | * |
| 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 | 0.7 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 8.8 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shared LOS: | * | * | * | * | * | * | A | * | * | * | * | * |
| ApproachDel: | xxxxxx | | | 236.6 | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | * | | | F | | | * | | | * | | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #624 Metz_Rd/Bitterwater_Rd

Average Delay (sec/veh): 37.6 Worst Case Level Of Service: F[178.7]

| 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 0 | | 1 0 0 | 0 1 | | 0 1 0 | 0 0 | | 0 0 0 | 1 0 | |
| Volume Module: 4:30 - 5:30 PM | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | 73 | 0 | 301 | 238 | 348 | 0 | 0 | 713 | 193 |
| Growth Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse: | 0 | 0 | 0 | 73 | 0 | 301 | 238 | 348 | 0 | 0 | 713 | 193 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| PHF Volume: | 0 | 0 | 0 | 83 | 0 | 342 | 270 | 395 | 0 | 0 | 810 | 219 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 0 | 0 | 0 | 83 | 0 | 342 | 270 | 395 | 0 | 0 | 810 | 219 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | 6.4 | xxxx | 6.2 | 4.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| FollowUpTim: | xxxxx | xxxx | xxxxx | 3.5 | xxxx | 3.3 | 2.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | 1856 | xxxx | 920 | 1030 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Potent Cap.: | xxxx | xxxx | xxxxx | 80 | xxxx | 326 | 667 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Move Cap.: | xxxx | xxxx | xxxxx | 50 | xxxx | 326 | 667 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Volume/Cap: | xxxx | xxxx | xxxx | 1.66 | xxxx | 1.05 | 0.41 | xxxx | xxxx | xxxx | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | 8.0 | xxxx | 12.4 | 2.0 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | 500.3 | xxxx | 100.6 | 14.0 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| LOS by Move: | * | * | * | F | * | F | 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 | 2.0 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 14.0 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shared LOS: | * | * | * | * | * | * | B | * | * | * | * | * |
| ApproachDel: | xxxxxx | | | 178.7 | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | * | | | F | | | * | | | * | | |

Note: Queue reported is the number of cars per lane.

with Improvement

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #624 Metz_Rd/Bitterwater_Rd

| | | | |
|---|---|---|---|
| Cycle (sec): | 60 | Critical Vol./Cap.(X): | 0.458 |
| Loss Time (sec): | 9 | Average Delay (sec/veh): | 14.4 |
| Optimal Cycle: | 30 | Level Of Service: | B |

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | - T | - R | L | - T | - R | L | - T | - R | L | - T | - R |
| Control: | Split Phase | | | Split Phase | | | Protected | | | Protected | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Y+R: | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lanes: | 0 0 | 0 0 | 0 | 1 0 | 0 0 | 1 | 1 0 | 2 0 | 0 | 0 0 | 1 1 | 0 |
| Volume Module:7:30 - 8:30 AM | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | 191 | 0 | 225 | 208 | 608 | 0 | 0 | 262 | 61 |
| 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 | 0 | 191 | 0 | 225 | 208 | 608 | 0 | 0 | 262 | 61 |
| 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: | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| PHF Volume: | 0 | 0 | 0 | 215 | 0 | 253 | 234 | 683 | 0 | 0 | 294 | 69 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 0 | 0 | 0 | 215 | 0 | 253 | 234 | 683 | 0 | 0 | 294 | 69 |
| PCE Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 0 | 0 | 0 | 215 | 0 | 253 | 234 | 683 | 0 | 0 | 294 | 69 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.85 | 0.95 | 0.95 | 1.00 | 1.00 | 0.92 | 0.92 |
| Lanes: | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 2.00 | 0.00 | 0.00 | 1.62 | 0.38 |
| Final Sat.: | 0 | 0 | 0 | 1805 | 0 | 1615 | 1805 | 3610 | 0 | 0 | 2846 | 663 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.00 | 0.00 | 0.00 | 0.12 | 0.00 | 0.16 | 0.13 | 0.19 | 0.00 | 0.00 | 0.10 | 0.10 |
| Crit Moves: | | | | | | **** | **** | | | | **** | |
| Green/Cycle: | 0.00 | 0.00 | 0.00 | 0.34 | 0.00 | 0.34 | 0.28 | 0.51 | 0.00 | 0.00 | 0.23 | 0.23 |
| Volume/Cap: | 0.00 | 0.00 | 0.00 | 0.35 | 0.00 | 0.46 | 0.46 | 0.37 | 0.00 | 0.00 | 0.46 | 0.46 |
| Uniform Del: | 0.0 | 0.0 | 0.0 | 14.8 | 0.0 | 15.4 | 17.7 | 8.9 | 0.0 | 0.0 | 20.1 | 20.1 |
| IncremntDel: | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.6 | 0.7 | 0.1 | 0.0 | 0.0 | 0.4 | 0.4 |
| InitQueuDel: | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Delay Adj: | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 |
| Delay/Veh: | 0.0 | 0.0 | 0.0 | 15.1 | 0.0 | 16.0 | 18.4 | 9.1 | 0.0 | 0.0 | 20.5 | 20.5 |
| User DelAdj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh: | 0.0 | 0.0 | 0.0 | 15.1 | 0.0 | 16.0 | 18.4 | 9.1 | 0.0 | 0.0 | 20.5 | 20.5 |
| LOS by Move: | A | A | A | B | A | B | B | A | A | A | C | C |
| HCM2kAvgQ: | 0 | 0 | 0 | 3 | 0 | 4 | 4 | 4 | 0 | 0 | 3 | 3 |

Note: Queue reported is the number of cars per lane.

with Improvement

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #624 Metz_Rd/Bitterwater_Rd

| | | | |
|---|---|---|---|
| Cycle (sec): | 60 | Critical Vol./Cap.(X): | 0.772 |
| Loss Time (sec): | 9 | Average Delay (sec/veh): | 19.8 |
| Optimal Cycle: | 54 | Level Of Service: | B |

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Split Phase | | | Split Phase | | | Protected | | | Protected | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Y+R: | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lanes: | 0 0 | 0 0 | 0 | 1 0 | 0 0 | 1 | 1 0 | 2 0 | 0 | 0 0 | 1 1 | 0 |
| Volume Module: 4:30 - 5:30 PM | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | 73 | 0 | 301 | 238 | 348 | 0 | 0 | 713 | 193 |
| Growth Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse: | 0 | 0 | 0 | 73 | 0 | 301 | 238 | 348 | 0 | 0 | 713 | 193 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| PHF Volume: | 0 | 0 | 0 | 83 | 0 | 342 | 270 | 395 | 0 | 0 | 810 | 219 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 0 | 0 | 0 | 83 | 0 | 342 | 270 | 395 | 0 | 0 | 810 | 219 |
| PCE Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 0 | 0 | 0 | 83 | 0 | 342 | 270 | 395 | 0 | 0 | 810 | 219 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.85 | 0.95 | 0.95 | 1.00 | 1.00 | 0.92 | 0.92 |
| Lanes: | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 2.00 | 0.00 | 0.00 | 1.57 | 0.43 |
| Final Sat.: | 0 | 0 | 0 | 1805 | 0 | 1615 | 1805 | 3610 | 0 | 0 | 2750 | 744 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 0.21 | 0.15 | 0.11 | 0.00 | 0.00 | 0.29 | 0.29 |
| Crit Moves: | | | | | | **** | **** | | | | **** | |
| Green/Cycle: | 0.00 | 0.00 | 0.00 | 0.27 | 0.00 | 0.27 | 0.19 | 0.58 | 0.00 | 0.00 | 0.38 | 0.38 |
| Volume/Cap: | 0.00 | 0.00 | 0.00 | 0.17 | 0.00 | 0.77 | 0.77 | 0.19 | 0.00 | 0.00 | 0.77 | 0.77 |
| Uniform Del: | 0.0 | 0.0 | 0.0 | 16.6 | 0.0 | 20.0 | 22.9 | 6.1 | 0.0 | 0.0 | 16.3 | 16.3 |
| IncremntDel: | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 8.2 | 10.1 | 0.0 | 0.0 | 0.0 | 2.9 | 2.9 |
| InitQueuDel: | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Delay Adj: | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 |
| Delay/Veh: | 0.0 | 0.0 | 0.0 | 16.7 | 0.0 | 28.2 | 33.1 | 6.1 | 0.0 | 0.0 | 19.1 | 19.1 |
| User DelAdj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh: | 0.0 | 0.0 | 0.0 | 16.7 | 0.0 | 28.2 | 33.1 | 6.1 | 0.0 | 0.0 | 19.1 | 19.1 |
| LOS by Move: | A | A | A | B | A | C | C | A | A | A | B | B |
| HCM2kAvgQ: | 0 | 0 | 0 | 1 | 0 | 8 | 7 | 2 | 0 | 0 | 9 | 9 |

Note: Queue reported is the number of cars per lane.

w/original adopted Project

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #624 Metz_Rd/Bitterwater_Rd

Average Delay (sec/veh): 169.6 Worst Case Level Of Service: F[622.5]

| 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 1 0 0 1 | | | 0 0 1! 0 0 | | | 0 0 1! 0 0 | | |
| Volume Module:7:30 - 8:30 AM | | | | | | | | | | | | |
| Base Vol: | 26 | 19 | 1 | 192 | 10 | 227 | 212 | 622 | 13 | 1 | 274 | 63 |
| 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: | 26 | 19 | 1 | 192 | 10 | 227 | 212 | 622 | 13 | 1 | 274 | 63 |
| 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: | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| PHF Volume: | 29 | 21 | 1 | 216 | 11 | 255 | 238 | 699 | 15 | 1 | 308 | 71 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 29 | 21 | 1 | 216 | 11 | 255 | 238 | 699 | 15 | 1 | 308 | 71 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 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: | 1661 | 1563 | 706 | 1539 | 1535 | 343 | 379 | xxxx | xxxxx | 713 | xxxx | xxxxx |
| Potent Cap.: | 78 | 113 | 439 | 93 | 115 | 695 | 1169 | xxxx | xxxxx | 873 | xxxx | xxxxx |
| Move Cap.: | 37 | 86 | 439 | 62 | 88 | 695 | 1169 | xxxx | xxxxx | 873 | xxxx | xxxxx |
| Volume/Cap: | 0.80 | 0.25 | 0.00 | 3.47 | 0.13 | 0.37 | 0.20 | xxxx | xxxx | 0.00 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | 1.7 | 0.8 | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | 13.2 | 8.9 | xxxx | xxxxx | 9.1 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | B | A | * | * | A | * | * |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | |
| Shared Cap.: | xxxx | 49 | xxxxx | 63 | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 4.5 | xxxxx | 24.0 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 273 | xxxxx | 1307 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shared LOS: | * | F | * | F | * | * | * | * | * | * | * | * |
| ApproachDel: | 273.4 | | | 622.5 | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | F | | | F | | | * | | | * | | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #624 Metz_Rd/Bitterwater_Rd

Average Delay (sec/veh): OVERFLOW Worst Case Level Of Service: F[xxxxx]

| 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 1 0 0 1 | | | 0 0 1! 0 0 | | | 0 0 1! 0 0 | | |
| Volume Module: 4:30 - 5:30 PM | | | | | | | | | | | | |
| Base Vol: | 32 | 24 | 2 | 76 | 29 | 306 | 242 | 380 | 40 | 2 | 751 | 195 |
| 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: | 32 | 24 | 2 | 76 | 29 | 306 | 242 | 380 | 40 | 2 | 751 | 195 |
| 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: | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| PHF Volume: | 36 | 27 | 2 | 86 | 33 | 348 | 275 | 432 | 45 | 2 | 853 | 222 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 36 | 27 | 2 | 86 | 33 | 348 | 275 | 432 | 45 | 2 | 853 | 222 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 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: | 2164 | 2084 | 455 | 1988 | 1996 | 964 | 1075 | xxxx | xxxxx | 477 | xxxx | xxxxx |
| Potent Cap.: | 35 | 54 | 610 | 45 | 59 | 307 | 641 | xxxx | xxxxx | 1069 | xxxx | xxxxx |
| Move Cap.: | 0 | 26 | 610 | 0 | 29 | 307 | 641 | xxxx | xxxxx | 1069 | xxxx | xxxxx |
| Volume/Cap: | xxxx | 1.03 | 0.00 | xxxx | 1.12 | 1.13 | 0.43 | xxxx | xxxx | 0.00 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | 14.3 | 2.2 | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | 129.7 | 14.8 | xxxx | xxxxx | 8.4 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | F | B | * | * | A | * | * |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | |
| Shared Cap.: | xxxx | 0 | xxxxx | 0 | 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: | xxxxxx | | | +Inf | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | F | | | F | | | * | | | * | | |

Note: Queue reported is the number of cars per lane.

w/Improvement

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #624 Metz_Rd/Bitterwater_Rd

| | | | |
|---|---|---|---|
| Cycle (sec): | 100 | Critical Vol./Cap.(X): | 0.605 |
| Loss Time (sec): | 9 | Average Delay (sec/veh): | 20.4 |
| Optimal Cycle: | 41 | Level Of Service: | C |

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Permitted | | | Permitted | | | Protected | | | Protected | | |
| Rights: | Include | | | Ovl | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Y+R: | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lanes: | 0 1 | 0 0 | 1 | 0 1 | 0 0 | 1 | 1 0 | 0 1 | 0 | 1 0 | 1 0 | 1 |
| Volume Module:7:30 - 8:30 AM | | | | | | | | | | | | |
| Base Vol: | 26 | 19 | 1 | 192 | 10 | 227 | 212 | 622 | 13 | 1 | 274 | 63 |
| 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: | 26 | 19 | 1 | 192 | 10 | 227 | 212 | 622 | 13 | 1 | 274 | 63 |
| 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: | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| PHF Volume: | 29 | 21 | 1 | 216 | 11 | 255 | 238 | 699 | 15 | 1 | 308 | 71 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 29 | 21 | 1 | 216 | 11 | 255 | 238 | 699 | 15 | 1 | 308 | 71 |
| PCE Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 29 | 21 | 1 | 216 | 11 | 255 | 238 | 699 | 15 | 1 | 308 | 71 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.80 | 0.80 | 0.85 | 0.69 | 0.69 | 0.85 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.85 |
| Lanes: | 0.58 | 0.42 | 1.00 | 0.95 | 0.05 | 1.00 | 1.00 | 0.98 | 0.02 | 1.00 | 1.00 | 1.00 |
| Final Sat.: | 879 | 643 | 1615 | 1242 | 65 | 1615 | 1805 | 1856 | 39 | 1805 | 1900 | 1615 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.03 | 0.03 | 0.00 | 0.17 | 0.17 | 0.16 | 0.13 | 0.38 | 0.38 | 0.00 | 0.16 | 0.04 |
| Crit Moves: | | | | | **** | | | **** | | **** | | |
| Green/Cycle: | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.57 | 0.28 | 0.62 | 0.62 | 0.00 | 0.34 | 0.34 |
| Volume/Cap: | 0.12 | 0.12 | 0.00 | 0.61 | 0.61 | 0.28 | 0.47 | 0.61 | 0.61 | 0.61 | 0.47 | 0.13 |
| Uniform Del: | 26.3 | 26.3 | 25.4 | 30.8 | 30.8 | 11.2 | 29.9 | 11.5 | 11.5 | 49.9 | 25.7 | 22.5 |
| IncremntDel: | 0.1 | 0.1 | 0.0 | 2.8 | 2.8 | 0.2 | 0.7 | 0.9 | 0.9 | 243.7 | 0.5 | 0.1 |
| InitQueuDel: | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Delay 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 |
| Delay/Veh: | 26.4 | 26.4 | 25.5 | 33.6 | 33.6 | 11.3 | 30.6 | 12.4 | 12.4 | 293.6 | 26.3 | 22.6 |
| User DelAdj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh: | 26.4 | 26.4 | 25.5 | 33.6 | 33.6 | 11.3 | 30.6 | 12.4 | 12.4 | 293.6 | 26.3 | 22.6 |
| LOS by Move: | C | C | C | C | C | B | C | B | B | F | C | C |
| HCM2kAvgQ: | 1 | 1 | 0 | 7 | 7 | 4 | 6 | 14 | 14 | 0 | 7 | 1 |

Note: Queue reported is the number of cars per lane.

with Improvement

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #624 Metz_Rd/Bitterwater_Rd

| | | | |
|---|---|---|---|
| Cycle (sec): | 100 | Critical Vol./Cap.(X): | 0.757 |
| Loss Time (sec): | 9 | Average Delay (sec/veh): | 22.8 |
| Optimal Cycle: | 60 | Level Of Service: | C |

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Permitted | | | Permitted | | | Protected | | | Protected | | |
| Rights: | Include | | | Ovl | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Y+R: | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lanes: | 0 1 | 0 0 | 1 | 0 1 | 0 0 | 1 | 1 0 | 0 1 | 0 | 1 0 | 1 0 | 1 |
| Volume Module: 4:30 - 5:30 PM | | | | | | | | | | | | |
| Base Vol: | 32 | 24 | 2 | 76 | 29 | 306 | 242 | 380 | 40 | 2 | 751 | 195 |
| 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: | 32 | 24 | 2 | 76 | 29 | 306 | 242 | 380 | 40 | 2 | 751 | 195 |
| 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: | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| PHF Volume: | 36 | 27 | 2 | 86 | 33 | 348 | 275 | 432 | 45 | 2 | 853 | 222 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 36 | 27 | 2 | 86 | 33 | 348 | 275 | 432 | 45 | 2 | 853 | 222 |
| PCE Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 36 | 27 | 2 | 86 | 33 | 348 | 275 | 432 | 45 | 2 | 853 | 222 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.66 | 0.66 | 0.85 | 0.72 | 0.72 | 0.85 | 0.95 | 0.99 | 0.99 | 0.95 | 1.00 | 0.85 |
| Lanes: | 0.57 | 0.43 | 1.00 | 0.72 | 0.28 | 1.00 | 1.00 | 0.90 | 0.10 | 1.00 | 1.00 | 1.00 |
| Final Sat.: | 711 | 533 | 1615 | 990 | 378 | 1615 | 1805 | 1695 | 178 | 1805 | 1900 | 1615 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.05 | 0.05 | 0.00 | 0.09 | 0.09 | 0.22 | 0.15 | 0.25 | 0.25 | 0.00 | 0.45 | 0.14 |
| Crit Moves: | | | | | **** | | **** | | | | **** | |
| Green/Cycle: | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.32 | 0.20 | 0.79 | 0.79 | 0.00 | 0.59 | 0.59 |
| Volume/Cap: | 0.44 | 0.44 | 0.01 | 0.76 | 0.76 | 0.68 | 0.76 | 0.32 | 0.32 | 0.32 | 0.76 | 0.23 |
| Uniform Del: | 41.2 | 41.2 | 39.2 | 42.9 | 42.9 | 29.8 | 37.6 | 2.9 | 2.9 | 49.7 | 15.0 | 9.6 |
| IncremntDel: | 2.2 | 2.2 | 0.0 | 18.8 | 18.8 | 3.7 | 8.8 | 0.1 | 0.1 | 24.7 | 3.0 | 0.1 |
| InitQueuDel: | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Delay 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 |
| Delay/Veh: | 43.4 | 43.4 | 39.2 | 61.7 | 61.7 | 33.5 | 46.5 | 3.1 | 3.1 | 74.4 | 18.0 | 9.7 |
| User DelAdj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh: | 43.4 | 43.4 | 39.2 | 61.7 | 61.7 | 33.5 | 46.5 | 3.1 | 3.1 | 74.4 | 18.0 | 9.7 |
| LOS by Move: | D | D | D | E | E | C | D | A | A | E | B | A |
| HCM2kAvgQ: | 2 | 2 | 0 | 5 | 5 | 10 | 10 | 4 | 4 | 0 | 19 | 3 |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #624 Metz_Rd/Bitterwater_Rd

Average Delay (sec/veh): 52.7 Worst Case Level Of Service: F[208.8]

| 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 0 | | | 1 0 0 0 1 | | | 0 1 0 0 0 | | | 0 0 0 1 0 | | |
| Volume Module: | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | 200 | 0 | 227 | 212 | 649 | 0 | 0 | 359 | 82 |
| 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 | 0 | 200 | 0 | 227 | 212 | 649 | 0 | 0 | 359 | 82 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 0 | 0 | 0 | 200 | 0 | 227 | 212 | 649 | 0 | 0 | 359 | 82 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 0 | 0 | 0 | 200 | 0 | 227 | 212 | 649 | 0 | 0 | 359 | 82 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | 6.4 | xxxx | 6.2 | 4.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| FollowUpTim: | xxxxx | xxxx | xxxxx | 3.5 | xxxx | 3.3 | 2.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | 1473 | xxxx | 400 | 441 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Potent Cap.: | xxxx | xxxx | xxxxx | 138 | xxxx | 646 | 1108 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Move Cap.: | xxxx | xxxx | xxxxx | 115 | xxxx | 646 | 1108 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Volume/Cap: | xxxx | xxxx | xxxx | 1.74 | xxxx | 0.35 | 0.19 | xxxx | xxxx | xxxx | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | 15.5 | xxxx | 1.6 | 0.7 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | 430.4 | xxxx | 13.6 | 9.0 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| LOS by Move: | * | * | * | F | * | B | A | * | * | * | * | * |
| 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 | 0.7 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 9.0 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shared LOS: | * | * | * | * | * | * | A | * | * | * | * | * |
| ApproachDel: | xxxxxx | | | 208.8 | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | * | | | F | | | * | | | * | | |

Note: Queue reported is the number of cars per lane.

w/ Proposed Project

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #624 Metz_Rd/Bitterwater_Rd

Average Delay (sec/veh): 45.0 Worst Case Level Of Service: F[231.0]

| 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 0 | | | 1 0 0 0 1 | | | 0 1 0 0 0 | | | 0 0 0 1 0 | | |
| **Volume Module:** | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | 105 | 0 | 306 | 242 | 499 | 0 | 0 | 825 | 203 |
| 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 | 0 | 105 | 0 | 306 | 242 | 499 | 0 | 0 | 825 | 203 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 0 | 0 | 0 | 105 | 0 | 306 | 242 | 499 | 0 | 0 | 825 | 203 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 0 | 0 | 0 | 105 | 0 | 306 | 242 | 499 | 0 | 0 | 825 | 203 |
| **Critical Gap Module:** | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | 6.4 | xxxx | 6.2 | 4.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| FollowUpTim: | xxxxx | xxxx | xxxxx | 3.5 | xxxx | 3.3 | 2.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| **Capacity Module:** | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | 1910 | xxxx | 927 | 1028 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Potent Cap.: | xxxx | xxxx | xxxxx | 74 | xxxx | 323 | 668 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Move Cap.: | xxxx | xxxx | xxxxx | 50 | xxxx | 323 | 668 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Volume/Cap: | xxxx | xxxx | xxxx | 2.11 | xxxx | 0.95 | 0.36 | xxxx | xxxx | xxxx | xxxx | xxxx |
| **Level Of Service Module:** | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | 10.6 | xxxx | 9.7 | 1.7 | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | 687.1 | xxxx | 74.5 | 13.4 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| LOS by Move: | * | * | * | F | * | F | 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 | 1.7 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 13.4 | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shared LOS: | * | * | * | * | * | * | B | * | * | * | * | * |
| ApproachDel: | xxxxxx | | | 231.0 | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | * | | | F | | | * | | | * | | |

Note: Queue reported is the number of cars per lane.

w/ Improvement

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #624 Metz_Rd/Bitterwater_Rd

| | | | |
|---|---|---|---|
| Cycle (sec): | 60 | Critical Vol./Cap.(X): | 0.549 |
| Loss Time (sec): | 9 | Average Delay (sec/veh): | 12.8 |
| Optimal Cycle: | 35 | Level Of Service: | B |

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Split Phase | | | Split Phase | | | Protected | | | Protected | | |
| Rights: | Include | | | Ovl | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Y+R: | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lanes: | 0 0 | 0 | 0 | 1 0 | 0 | 0 1 | 1 0 | 1 | 0 0 | 0 0 | 0 | 1 0 |
| Volume Module: | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | 200 | 0 | 227 | 212 | 649 | 0 | 0 | 359 | 82 |
| 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 | 0 | 200 | 0 | 227 | 212 | 649 | 0 | 0 | 359 | 82 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 0 | 0 | 0 | 200 | 0 | 227 | 212 | 649 | 0 | 0 | 359 | 82 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 0 | 0 | 0 | 200 | 0 | 227 | 212 | 649 | 0 | 0 | 359 | 82 |
| PCE Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 0 | 0 | 0 | 200 | 0 | 227 | 212 | 649 | 0 | 0 | 359 | 82 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.85 | 0.95 | 1.00 | 1.00 | 1.00 | 0.98 | 0.98 |
| Lanes: | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 0.81 | 0.19 |
| Final Sat.: | 0 | 0 | 0 | 1805 | 0 | 1615 | 1805 | 1900 | 0 | 0 | 1508 | 344 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 | 0.14 | 0.12 | 0.34 | 0.00 | 0.00 | 0.24 | 0.24 |
| Crit Moves: | | | | **** | | | **** | | | | **** | |
| Green/Cycle: | 0.00 | 0.00 | 0.00 | 0.20 | 0.00 | 0.42 | 0.21 | 0.65 | 0.00 | 0.00 | 0.43 | 0.43 |
| Volume/Cap: | 0.00 | 0.00 | 0.00 | 0.55 | 0.00 | 0.34 | 0.55 | 0.53 | 0.00 | 0.00 | 0.55 | 0.55 |
| Uniform Del: | 0.0 | 0.0 | 0.0 | 21.5 | 0.0 | 11.9 | 21.0 | 5.6 | 0.0 | 0.0 | 12.6 | 12.6 |
| IncremntDel: | 0.0 | 0.0 | 0.0 | 1.8 | 0.0 | 0.3 | 1.7 | 0.4 | 0.0 | 0.0 | 0.8 | 0.8 |
| InitQueuDel: | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Delay Adj: | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 |
| Delay/Veh: | 0.0 | 0.0 | 0.0 | 23.3 | 0.0 | 12.2 | 22.7 | 6.1 | 0.0 | 0.0 | 13.4 | 13.4 |
| User DelAdj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh: | 0.0 | 0.0 | 0.0 | 23.3 | 0.0 | 12.2 | 22.7 | 6.1 | 0.0 | 0.0 | 13.4 | 13.4 |
| LOS by Move: | A | A | A | C | A | B | C | A | A | A | B | B |
| HCM2kAvgQ: | 0 | 0 | 0 | 4 | 0 | 3 | 4 | 7 | 0 | 0 | 6 | 6 |

Note: Queue reported is the number of cars per lane.

w/ Improvement

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

**********

Intersection #2039 Bitterwater / Chestnut

**********

| | | | |
|---|---|---|---|
| Cycle (sec): | 60 | Critical Vol./Cap.(X): | 0.341 |
| Loss Time (sec): | 9 | Average Delay (sec/veh): | 5.2 |
| Optimal Cycle: | 26 | Level Of Service: | A |

**********

| Street Name: | Chestnut | | | | | | Bitterwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Split Phase | | | Split Phase | | | Protected | | | Protected | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Y+R: | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lanes: | 1 0 | 0 0 | 1 | 0 0 | 0 0 | | 0 0 | 1 1 | 0 | 1 0 | 2 0 | 0 |
| Volume Module: | | | | | | | | | | | | |
| Base Vol: | 88 | 0 | 9 | 0 | 0 | 0 | 0 | 807 | 42 | 7 | 353 | 0 |
| 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: | 88 | 0 | 9 | 0 | 0 | 0 | 0 | 807 | 42 | 7 | 353 | 0 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 88 | 0 | 9 | 0 | 0 | 0 | 0 | 807 | 42 | 7 | 353 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 88 | 0 | 9 | 0 | 0 | 0 | 0 | 807 | 42 | 7 | 353 | 0 |
| PCE Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 88 | 0 | 9 | 0 | 0 | 0 | 0 | 807 | 42 | 7 | 353 | 0 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.95 | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 1.00 | 0.94 | 0.94 | 0.95 | 0.95 | 1.00 |
| Lanes: | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.90 | 0.10 | 1.00 | 2.00 | 0.00 |
| Final Sat.: | 1805 | 0 | 1615 | 0 | 0 | 0 | 0 | 3407 | 177 | 1805 | 3610 | 0 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.05 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.24 | 0.24 | 0.00 | 0.10 | 0.00 |
| Crit Moves: | **** | | | | | | | **** | | **** | | |
| Green/Cycle: | 0.14 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.70 | 0.70 | 0.01 | 0.71 | 0.00 |
| Volume/Cap: | 0.34 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.34 | 0.34 | 0.34 | 0.14 | 0.00 |
| Uniform Del: | 23.2 | 0.0 | 22.1 | 0.0 | 0.0 | 0.0 | 0.0 | 3.6 | 3.6 | 29.4 | 2.9 | 0.0 |
| IncremntDel: | 0.8 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 9.6 | 0.0 | 0.0 |
| InitQueuDel: | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Delay Adj: | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Delay/Veh: | 23.9 | 0.0 | 22.2 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 3.7 | 39.1 | 2.9 | 0.0 |
| User DelAdj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh: | 23.9 | 0.0 | 22.2 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 3.7 | 39.1 | 2.9 | 0.0 |
| LOS by Move: | C | A | C | A | A | A | A | A | A | D | A | A |
| HCM2kAvgQ: | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 1 | 0 |

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Note: Queue reported is the number of cars per lane.

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Attachment 2

Intersection
Level of Service
Calculations

Chestnut Avenue / Bitterwater Road

No project

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2039 Bitterwater / Chestnut

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: A[ 9.3]

| Street Name: | Chestnut | | | | | | Bitterwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 0 0 0 | | | 0 0 0 1 0 | | | 0 1 0 0 0 | | |
| Volume Module: | | | | | | | | | | | | |
| Base Vol: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 122 | 5 | 5 | 92 | 0 |
| 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: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 122 | 5 | 5 | 92 | 0 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 122 | 5 | 5 | 92 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 122 | 5 | 5 | 92 | 0 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 6.4 | 6.5 | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | 227 | 227 | 125 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 127 | xxxx | xxxxx |
| Potent Cap.: | 766 | 676 | 932 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1472 | xxxx | xxxxx |
| Move Cap.: | 764 | 674 | 932 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1472 | xxxx | xxxxx |
| Volume/Cap: | 0.01 | 0.00 | 0.01 | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | 0.00 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 7.5 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | * | * | * | * | A | * | * |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | |
| Shared Cap.: | xxxx | 840 | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 0.0 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 9.3 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 7.5 | xxxx | xxxxx |
| Shared LOS: | * | A | * | * | * | * | * | * | * | A | * | * |
| ApproachDel: | | 9.3 | | | xxxxxx | | | xxxxxx | | | xxxxxx | |
| ApproachLOS: | | A | | | * | | | * | | | * | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2039 Bitterwater / Chestnut

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: A[ 9.4]

| Street Name: | Chestnut | | | | | | Bitterwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 0 0 0 | | | 0 0 0 1 0 | | | 0 1 0 0 0 | | |
| Volume Module: | | | | | | | | | | | | |
| Base Vol: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 96 | 5 | 5 | 164 | 0 |
| 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: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 96 | 5 | 5 | 164 | 0 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 96 | 5 | 5 | 164 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 96 | 5 | 5 | 164 | 0 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 6.4 | 6.5 | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | 273 | 273 | 99 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 101 | xxxx | xxxxx |
| Potent Cap.: | 721 | 638 | 963 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1504 | xxxx | xxxxx |
| Move Cap.: | 719 | 636 | 963 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1504 | xxxx | xxxxx |
| Volume/Cap: | 0.01 | 0.00 | 0.01 | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | 0.00 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 7.4 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | * | * | * | * | A | * | * |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | |
| Shared Cap.: | xxxx | 824 | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 0.0 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 9.4 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 7.4 | xxxx | xxxxx |
| Shared LOS: | * | A | * | * | * | * | * | * | * | A | * | * |
| ApproachDel: | | 9.4 | | | xxxxxx | | | xxxxxx | | | xxxxxx | |
| ApproachLOS: | | A | | | * | | | * | | | * | |

Note: Queue reported is the number of cars per lane.

Original Adopted SP

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2039 Bitterwater / Chestnut

Average Delay (sec/veh): 2.3 Worst Case Level Of Service: B[ 10.4]

| Street Name: | Chestnut | | | | | | Bitterwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 0 0 0 | | | 0 0 0 1 0 | | | 0 1 0 0 0 | | |
| **Volume Module:** | | | | | | | | | | | | |
| Base Vol: | 69 | 0 | 7 | 0 | 0 | 0 | 0 | 134 | 34 | 3 | 108 | 0 |
| 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: | 69 | 0 | 7 | 0 | 0 | 0 | 0 | 134 | 34 | 3 | 108 | 0 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 69 | 0 | 7 | 0 | 0 | 0 | 0 | 134 | 34 | 3 | 108 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 69 | 0 | 7 | 0 | 0 | 0 | 0 | 134 | 34 | 3 | 108 | 0 |
| **Critical Gap Module:** | | | | | | | | | | | | |
| Critical Gp: | 6.4 | 6.5 | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx |
| **Capacity Module:** | | | | | | | | | | | | |
| Cnflict Vol: | 265 | 265 | 151 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 168 | xxxx | xxxxx |
| Potent Cap.: | 728 | 644 | 901 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1422 | xxxx | xxxxx |
| Move Cap.: | 727 | 643 | 901 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1422 | xxxx | xxxxx |
| Volume/Cap: | 0.09 | 0.00 | 0.01 | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | 0.00 | xxxx | xxxx |
| **Level Of Service Module:** | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 7.5 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | * | * | * | * | A | * | * |
| Movement: | LT | LTR | RT | LT | LTR | RT | LT | LTR | RT | LT | LTR | RT |
| Shared Cap.: | xxxx | 740 | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 0.3 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 10.4 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 7.5 | xxxx | xxxxx |
| Shared LOS: | * | B | * | * | * | * | * | * | * | A | * | * |
| ApproachDel: | | 10.4 | | xxxxxx | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | | B | | | * | | | * | | | * | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2039 Bitterwater / Chestnut

Average Delay (sec/veh): 2.3 Worst Case Level Of Service: B[ 11.5]

| Street Name: | Chestnut | | | | | | Bitterwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 0 0 0 | | | 0 0 0 1 0 | | | 0 1 0 0 0 | | |
| Volume Module: | | | | | | | | | | | | |
| Base Vol: | 85 | 0 | 9 | 0 | 0 | 0 | 0 | 116 | 105 | 11 | 184 | 0 |
| 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: | 85 | 0 | 9 | 0 | 0 | 0 | 0 | 116 | 105 | 11 | 184 | 0 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 85 | 0 | 9 | 0 | 0 | 0 | 0 | 116 | 105 | 11 | 184 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 85 | 0 | 9 | 0 | 0 | 0 | 0 | 116 | 105 | 11 | 184 | 0 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 6.4 | 6.5 | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | 375 | 375 | 169 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 221 | xxxx | xxxxx |
| Potent Cap.: | 631 | 560 | 881 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1360 | xxxx | xxxxx |
| Move Cap.: | 627 | 555 | 881 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1360 | xxxx | xxxxx |
| Volume/Cap: | 0.14 | 0.00 | 0.01 | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | 0.01 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 7.7 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | * | * | * | * | A | * | * |
| Movement: | LT - | LTR - | RT | LT - | LTR - | RT | LT - | LTR - | RT | LT - | LTR - | RT |
| Shared Cap.: | xxxx | 644 | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 0.5 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 11.5 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 7.7 | xxxx | xxxxx |
| Shared LOS: | * | B | * | * | * | * | * | * | * | A | * | * |
| ApproachDel: | | 11.5 | | | xxxxxx | | | xxxxxx | | | xxxxxx | |
| ApproachLOS: | | B | | | * | | | * | | | * | |

Note: Queue reported is the number of cars per lane.

w/ Proposed Project

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2039 Bitterwater / Chestnut

Average Delay (sec/veh): 2.7 Worst Case Level Of Service: B[ 10.9]

| Street Name: | Chestnut | | | | | | Bitterwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 0 0 0 | | | 0 0 0 1 0 | | | 0 1 0 0 0 | | |
| **Volume Module:** | | | | | | | | | | | | |
| Base Vol: | 88 | 0 | 9 | 0 | 0 | 0 | 0 | 135 | 42 | 7 | 127 | 0 |
| 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: | 88 | 0 | 9 | 0 | 0 | 0 | 0 | 135 | 42 | 7 | 127 | 0 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 88 | 0 | 9 | 0 | 0 | 0 | 0 | 135 | 42 | 7 | 127 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 88 | 0 | 9 | 0 | 0 | 0 | 0 | 135 | 42 | 7 | 127 | 0 |
| **Critical Gap Module:** | | | | | | | | | | | | |
| Critical Gp: | 6.4 | 6.5 | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx |
| **Capacity Module:** | | | | | | | | | | | | |
| Cnflict Vol: | 297 | 297 | 156 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 177 | xxxx | xxxxx |
| Potent Cap.: | 698 | 618 | 895 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1411 | xxxx | xxxxx |
| Move Cap.: | 696 | 615 | 895 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1411 | xxxx | xxxxx |
| Volume/Cap: | 0.13 | 0.00 | 0.01 | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | 0.00 | xxxx | xxxx |
| **Level Of Service Module:** | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 7.6 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | * | * | * | * | A | * | * |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | |
| Shared Cap.: | xxxx | 710 | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 0.5 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 10.9 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 7.6 | xxxx | xxxxx |
| Shared LOS: | * | B | * | * | * | * | * | * | * | A | * | * |
| ApproachDel: | | 10.9 | | xxxxxx | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | | B | | | * | | | * | | | * | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2039 Bitterwater / Chestnut

Average Delay (sec/veh): 2.7 Worst Case Level Of Service: B[ 12.7]

| Street Name: | Chestnut | | | | | | Bitterwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 0 0 0 | | | 0 0 0 1 0 | | | 0 1 0 0 0 | | |
| Volume Module: | | | | | | | | | | | | |
| Base Vol: | 104 | 0 | 11 | 0 | 0 | 0 | 0 | 135 | 149 | 26 | 187 | 0 |
| 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: | 104 | 0 | 11 | 0 | 0 | 0 | 0 | 135 | 149 | 26 | 187 | 0 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 104 | 0 | 11 | 0 | 0 | 0 | 0 | 135 | 149 | 26 | 187 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 104 | 0 | 11 | 0 | 0 | 0 | 0 | 135 | 149 | 26 | 187 | 0 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 6.4 | 6.5 | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | 449 | 449 | 210 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 284 | xxxx | xxxxx |
| Potent Cap.: | 572 | 508 | 836 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1290 | xxxx | xxxxx |
| Move Cap.: | 563 | 498 | 836 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1290 | xxxx | xxxxx |
| Volume/Cap: | 0.18 | 0.00 | 0.01 | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | 0.02 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 0.1 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 7.8 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | * | * | * | * | A | * | * |
| Movement: | LT | LTR | RT | LT | LTR | RT | LT | LTR | RT | LT | LTR | RT |
| Shared Cap.: | xxxx | 581 | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 0.7 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 0.1 | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 12.7 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 7.8 | xxxx | xxxxx |
| Shared LOS: | * | B | * | * | * | * | * | * | * | A | * | * |
| ApproachDel: | | 12.7 | | xxxxxx | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | | B | | | * | | | * | | | * | |

Note: Queue reported is the number of cars per lane.

No Project

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2039 Bitterwater / Chestnut

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: C[ 18.0]

| Street Name: | Chestnut | | | | | | Bitterwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0 0 | 0 | 0 0 | 0 1 | 0 | 0 1 | 0 0 | 0 |
| Volume Module: | | | | | | | | | | | | |
| Base Vol: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 794 | 5 | 5 | 318 | 0 |
| 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: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 794 | 5 | 5 | 318 | 0 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 794 | 5 | 5 | 318 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 794 | 5 | 5 | 318 | 0 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 6.4 | 6.5 | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | 1125 | 1125 | 797 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 799 | xxxx | xxxxx |
| Potent Cap.: | 229 | 207 | 390 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 833 | xxxx | xxxxx |
| Move Cap.: | 228 | 206 | 390 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 833 | xxxx | xxxxx |
| Volume/Cap: | 0.02 | 0.00 | 0.01 | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | 0.01 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 9.4 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | * | * | * | * | A | * | * |
| Movement: | LT - | LTR - | RT | LT - | LTR - | RT | LT - | LTR - | RT | LT - | LTR - | RT |
| Shared Cap.: | xxxx | 288 | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 0.1 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 18.0 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 9.4 | xxxx | xxxxx |
| Shared LOS: | * | C | * | * | * | * | * | * | * | A | * | * |
| ApproachDel: | | 18.0 | | xxxxxx | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | | C | | | * | | | * | | | * | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2039 Bitterwater / Chestnut

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: C[ 18.8]

| Street Name: | Chestnut | | | | | | Bitterwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 0 0 0 | | | 0 0 0 1 0 | | | 0 1 0 0 0 | | |
| Volume Module: | | | | | | | | | | | | |
| Base Vol: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 416 | 5 | 5 | 901 | 0 |
| 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: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 416 | 5 | 5 | 901 | 0 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 416 | 5 | 5 | 901 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 416 | 5 | 5 | 901 | 0 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 6.4 | 6.5 | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | 1330 | 1330 | 419 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 421 | xxxx | xxxxx |
| Potent Cap.: | 172 | 156 | 639 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1149 | xxxx | xxxxx |
| Move Cap.: | 172 | 156 | 639 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1149 | xxxx | xxxxx |
| Volume/Cap: | 0.03 | 0.00 | 0.01 | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | 0.00 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 8.1 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | * | * | * | * | A | * | * |
| Movement: | LT - | LTR - | RT | LT - | LTR - | RT | LT - | LTR - | RT | LT - | LTR - | RT |
| Shared Cap.: | xxxx | 271 | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 0.1 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 18.8 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 8.1 | xxxx | xxxxx |
| Shared LOS: | * | C | * | * | * | * | * | * | * | A | * | * |
| ApproachDel: | | 18.8 | | | xxxxxx | | | xxxxxx | | | xxxxxx | |
| ApproachLOS: | | C | | | * | | | * | | | * | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2039 Bitterwater / Chestnut

Average Delay (sec/veh): 1.7 Worst Case Level Of Service: D[ 25.1]

| Street Name: | Chestnut | | | | | | Bitterwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 0 0 0 | | | 0 0 0 1 0 | | | 0 1 0 0 0 | | |
| Volume Module: | | | | | | | | | | | | |
| Base Vol: | 69 | 0 | 7 | 0 | 0 | 0 | 0 | 781 | 34 | 3 | 269 | 0 |
| 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: | 69 | 0 | 7 | 0 | 0 | 0 | 0 | 781 | 34 | 3 | 269 | 0 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 69 | 0 | 7 | 0 | 0 | 0 | 0 | 781 | 34 | 3 | 269 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 69 | 0 | 7 | 0 | 0 | 0 | 0 | 781 | 34 | 3 | 269 | 0 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 6.4 | 6.5 | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | 1073 | 1073 | 798 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 815 | xxxx | xxxxx |
| Potent Cap.: | 246 | 222 | 389 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 821 | xxxx | xxxxx |
| Move Cap.: | 245 | 221 | 389 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 821 | xxxx | xxxxx |
| Volume/Cap: | 0.28 | 0.00 | 0.02 | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | 0.00 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 9.4 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | * | * | * | * | A | * | * |
| Movement: | LT | LTR | RT | LT | LTR | RT | LT | LTR | RT | LT | LTR | RT |
| Shared Cap.: | xxxx | 254 | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 1.2 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 25.1 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 9.4 | xxxx | xxxxx |
| Shared LOS: | * | D | * | * | * | * | * | * | * | A | * | * |
| ApproachDel: | | 25.1 | | xxxxxx | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | | D | | | * | | | * | | | * | |

Note: Queue reported is the number of cars per lane.

w/Original adopted Project

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2039 Bitterwater / Chestnut

Average Delay (sec/veh): 2.7 Worst Case Level Of Service: E[ 39.8]

| Street Name: | Chestnut | | | | | | Bitterwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 0 0 0 | | | 0 0 0 1 0 | | | 0 1 0 0 0 | | |
| Volume Module: | | | | | | | | | | | | |
| Base Vol: | 85 | 0 | 9 | 0 | 0 | 0 | 0 | 353 | 105 | 11 | 863 | 0 |
| 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: | 85 | 0 | 9 | 0 | 0 | 0 | 0 | 353 | 105 | 11 | 863 | 0 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 85 | 0 | 9 | 0 | 0 | 0 | 0 | 353 | 105 | 11 | 863 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 85 | 0 | 9 | 0 | 0 | 0 | 0 | 353 | 105 | 11 | 863 | 0 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 6.4 | 6.5 | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | 1291 | 1291 | 406 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 458 | xxxx | xxxxx |
| Potent Cap.: | 182 | 165 | 650 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1114 | xxxx | xxxxx |
| Move Cap.: | 181 | 163 | 650 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1114 | xxxx | xxxxx |
| Volume/Cap: | 0.47 | 0.00 | 0.01 | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | 0.01 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 8.3 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | * | * | * | * | A | * | * |
| Movement: | LT | LTR | RT | LT | LTR | RT | LT | LTR | RT | LT | LTR | RT |
| Shared Cap.: | xxxx | 194 | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 2.4 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 39.8 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 8.3 | xxxx | xxxxx |
| Shared LOS: | * | E | * | * | * | * | * | * | * | A | * | * |
| ApproachDel: | | 39.8 | | xxxxxx | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | | E | | | * | | | * | | | * | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2039 Bitterwater / Chestnut

Average Delay (sec/veh): 2.6 Worst Case Level Of Service: D[ 34.7]

| Street Name: | Chestnut | | | | | | Bitterwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 0 0 0 | | | 0 0 0 1 0 | | | 0 1 0 0 0 | | |
| Volume Module: | | | | | | | | | | | | |
| Base Vol: | 88 | 0 | 9 | 0 | 0 | 0 | 0 | 807 | 42 | 7 | 353 | 0 |
| 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: | 88 | 0 | 9 | 0 | 0 | 0 | 0 | 807 | 42 | 7 | 353 | 0 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 88 | 0 | 9 | 0 | 0 | 0 | 0 | 807 | 42 | 7 | 353 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 88 | 0 | 9 | 0 | 0 | 0 | 0 | 807 | 42 | 7 | 353 | 0 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 6.4 | 6.5 | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | 1195 | 1195 | 828 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 849 | xxxx | xxxxx |
| Potent Cap.: | 208 | 188 | 374 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 798 | xxxx | xxxxx |
| Move Cap.: | 206 | 186 | 374 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 798 | xxxx | xxxxx |
| Volume/Cap: | 0.43 | 0.00 | 0.02 | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | 0.01 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 9.6 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | * | * | * | * | A | * | * |
| Movement: | LT - | LTR - | RT | LT - | LTR - | RT | LT - | LTR - | RT | LT - | LTR - | RT |
| Shared Cap.: | xxxx | 215 | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 2.1 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 34.7 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 9.6 | xxxx | xxxxx |
| Shared LOS: | * | D | * | * | * | * | * | * | * | A | * | * |
| ApproachDel: | | 34.7 | | xxxxxx | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | | D | | | * | | | * | | | * | |

Note: Queue reported is the number of cars per lane.

w/ Proposed Project

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2039 Bitterwater / Chestnut

Average Delay (sec/veh): 6.5 Worst Case Level Of Service: F[ 92.2]

| Street Name: | Chestnut | | | | | | Bitterwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 0 0 0 | | | 0 0 0 1 0 | | | 0 1 0 0 0 | | |
| **Volume Module:** | | | | | | | | | | | | |
| Base Vol: | 104 | 0 | 11 | 0 | 0 | 0 | 0 | 455 | 149 | 26 | 924 | 0 |
| 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: | 104 | 0 | 11 | 0 | 0 | 0 | 0 | 455 | 149 | 26 | 924 | 0 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 104 | 0 | 11 | 0 | 0 | 0 | 0 | 455 | 149 | 26 | 924 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 104 | 0 | 11 | 0 | 0 | 0 | 0 | 455 | 149 | 26 | 924 | 0 |
| **Critical Gap Module:** | | | | | | | | | | | | |
| Critical Gp: | 6.4 | 6.5 | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx |
| **Capacity Module:** | | | | | | | | | | | | |
| Cnflict Vol: | 1506 | 1506 | 530 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 604 | xxxx | xxxxx |
| Potent Cap.: | 135 | 122 | 553 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 984 | xxxx | xxxxx |
| Move Cap.: | 132 | 119 | 553 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 984 | xxxx | xxxxx |
| Volume/Cap: | 0.79 | 0.00 | 0.02 | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | 0.03 | xxxx | xxxx |
| **Level Of Service Module:** | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 0.1 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 8.8 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | * | * | * | * | A | * | * |
| Movement: | LT | LTR | RT | LT | LTR | RT | LT | LTR | RT | LT | LTR | RT |
| Shared Cap.: | xxxx | 142 | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 5.1 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 0.1 | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 92.2 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 8.8 | xxxx | xxxxx |
| Shared LOS: | * | F | * | * | * | * | * | * | * | A | * | * |
| ApproachDel: | | 92.2 | | xxxxxx | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | | F | | | * | | | * | | | * | |

Note: Queue reported is the number of cars per lane.

w/ Improvement

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

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Intersection #624 Metz_Rd/Bitterwater_Rd

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| | | | |
|---|---|---|---|
| Cycle (sec): | 60 | Critical Vol./Cap.(X): | 0.880 |
| Loss Time (sec): | 9 | Average Delay (sec/veh): | 23.8 |
| Optimal Cycle: | 74 | Level Of Service: | C |

**********

| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement: | L | T | R | L | T | R | L | T | R | L | T | R |
| Control: | Split Phase | | | Split Phase | | | Protected | | | Protected | | |
| Rights: | Include | | | Ovl | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Y+R: | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lanes: | 0 0 | 0 0 | 0 | 1 0 | 0 0 | 1 | 1 0 | 1 0 | 0 | 0 0 | 0 1 | 0 |
| Volume Module: | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | 105 | 0 | 306 | 242 | 499 | 0 | 0 | 825 | 203 |
| 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 | 0 | 105 | 0 | 306 | 242 | 499 | 0 | 0 | 825 | 203 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 0 | 0 | 0 | 105 | 0 | 306 | 242 | 499 | 0 | 0 | 825 | 203 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 0 | 0 | 0 | 105 | 0 | 306 | 242 | 499 | 0 | 0 | 825 | 203 |
| PCE Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 0 | 0 | 0 | 105 | 0 | 306 | 242 | 499 | 0 | 0 | 825 | 203 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.85 | 0.95 | 1.00 | 1.00 | 1.00 | 0.97 | 0.97 |
| Lanes: | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 0.80 | 0.20 |
| Final Sat.: | 0 | 0 | 0 | 1805 | 0 | 1615 | 1805 | 1900 | 0 | 0 | 1484 | 365 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 | 0.19 | 0.13 | 0.26 | 0.00 | 0.00 | 0.56 | 0.56 |
| Crit Moves: | | | | **** | | | **** | | | | **** | |
| Green/Cycle: | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 | 0.22 | 0.15 | 0.78 | 0.00 | 0.00 | 0.63 | 0.63 |
| Volume/Cap: | 0.00 | 0.00 | 0.00 | 0.88 | 0.00 | 0.87 | 0.88 | 0.34 | 0.00 | 0.00 | 0.88 | 0.88 |
| Uniform Del: | 0.0 | 0.0 | 0.0 | 27.8 | 0.0 | 22.6 | 24.9 | 1.9 | 0.0 | 0.0 | 9.2 | 9.2 |
| IncremntDel: | 0.0 | 0.0 | 0.0 | 47.6 | 0.0 | 19.8 | 26.2 | 0.1 | 0.0 | 0.0 | 8.0 | 8.0 |
| InitQueuDel: | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Delay Adj: | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 |
| Delay/Veh: | 0.0 | 0.0 | 0.0 | 75.4 | 0.0 | 42.4 | 51.1 | 2.0 | 0.0 | 0.0 | 17.2 | 17.2 |
| User DelAdj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh: | 0.0 | 0.0 | 0.0 | 75.4 | 0.0 | 42.4 | 51.1 | 2.0 | 0.0 | 0.0 | 17.2 | 17.2 |
| LOS by Move: | A | A | A | E | A | D | D | A | A | A | B | B |
| HCM2kAvgQ: | 0 | 0 | 0 | 5 | 0 | 9 | 8 | 3 | 0 | 0 | 18 | 18 |

**********

Note: Queue reported is the number of cars per lane.

**********

w/ Improvement

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

**********

Intersection #2039 Bitterwater / Chestnut

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| | | | |
|---|---|---|---|
| Cycle (sec): | 60 | Critical Vol./Cap.(X): | 0.369 |
| Loss Time (sec): | 9 | Average Delay (sec/veh): | 5.9 |
| Optimal Cycle: | 27 | Level Of Service: | A |

**********

| Street Name: | Chestnut | | | | | | Bitterwater | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
| Movement: | L - T - R | | | L - T - R | | | L - T - R | | | L - T - R | | |
| Control: | Split Phase | | | Split Phase | | | Protected | | | Protected | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Y+R: | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lanes: | 1 0 | 0 0 | 1 | 0 0 | 0 0 | 0 | 0 0 | 1 1 | 0 | 1 0 | 2 0 | 0 |
| Volume Module: | | | | | | | | | | | | |
| Base Vol: | 104 | 0 | 11 | 0 | 0 | 0 | 0 | 455 | 149 | 26 | 924 | 0 |
| 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: | 104 | 0 | 11 | 0 | 0 | 0 | 0 | 455 | 149 | 26 | 924 | 0 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Volume: | 104 | 0 | 11 | 0 | 0 | 0 | 0 | 455 | 149 | 26 | 924 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 104 | 0 | 11 | 0 | 0 | 0 | 0 | 455 | 149 | 26 | 924 | 0 |
| PCE Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 104 | 0 | 11 | 0 | 0 | 0 | 0 | 455 | 149 | 26 | 924 | 0 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.95 | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | 0.91 | 0.95 | 0.95 | 1.00 |
| Lanes: | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.51 | 0.49 | 1.00 | 2.00 | 0.00 |
| Final Sat.: | 1805 | 0 | 1615 | 0 | 0 | 0 | 0 | 2619 | 858 | 1805 | 3610 | 0 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.06 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.17 | 0.17 | 0.01 | 0.26 | 0.00 |
| Crit Moves: | **** | | | | | | **** | | | | **** | |
| Green/Cycle: | 0.16 | 0.00 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.64 | 0.64 | 0.05 | 0.69 | 0.00 |
| Volume/Cap: | 0.37 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.27 | 0.27 | 0.27 | 0.37 | 0.00 |
| Uniform Del: | 22.7 | 0.0 | 21.5 | 0.0 | 0.0 | 0.0 | 0.0 | 4.7 | 4.7 | 27.3 | 3.8 | 0.0 |
| IncremntDel: | 0.8 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 1.5 | 0.1 | 0.0 |
| InitQueuDel: | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Delay Adj: | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Delay/Veh: | 23.5 | 0.0 | 21.6 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 4.8 | 28.8 | 3.9 | 0.0 |
| User DelAdj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh: | 23.5 | 0.0 | 21.6 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 4.8 | 28.8 | 3.9 | 0.0 |
| LOS by Move: | C | A | C | A | A | A | A | A | A | C | A | A |
| HCM2kAvgQ: | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 1 | 4 | 0 |

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Note: Queue reported is the number of cars per lane.

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RUGGERI-JENSEN-AZAR
ENGINEERS • PLANNERS • SURVEYORS

November 18, 2019

Octavio Hurtado
City Engineer
City of King
212 South Vanderhurst Avenue
King City, CA 93930

Re: Downtown Addition 2019 Amendment Traffic Analysis, King City, California

Dear Mr. Hurtado,

This letter documents professional transportation planning services for the proposed Downtown Addition Specific Plan 2019 amendments (i.e. the Rava farmworker housing project) in King City, California. The project definition has two primary components:

1. Workforce Housing: Amend the Downtown Additional Specific Plan (DASP) to add 60 multifamily residential units (increasing the total units in the DASP from 650 to 710 units) to accommodate a proposed 118-unit workforce housing apartment complex on Bitterwater Road near Metz Road. This includes the removal of the Metz Road extension as an access into the DASP.
2. Employee Dormitories: Remove two parcels on Jayne Street, south of Pearl Street, from the DASP, comprising of 42,000 square feet of commercial space. Separate from the DASP, those two parcels would be developed as 66 dormitory units for up to 528 guest workers/seasonal employees. The properties also have the potential for additional limited office or commercial use.

This letter documents implications of the proposed land use and circulation changes with respect to traffic generation, traffic operations and original traffic related CEAQ findings for the adopted Downtown Addition Specific Plan (DASP). Numerical analysis documented in this letter utilize the trip generation and traffic volume forecast prepared for the traffic impact analysis for the Downtown Addition Specific Plan Draft Environmental Impact study. The traffic analysis for the “without First Street Bypass” have been updated to reflect the proposed land use and circulation system changes. Implications to the “with First Street Bypass” are qualitatively described.

**Exhibit 1** depicts the location of the study intersection. **Exhibits 2A and 2B** depict the site plans for the workforce housing and guest worker / seasonal housing projects, respectively.

## A. Project Definitions

The Downtown Area Specific Plan (DASP) was adopted by the City of King in June 2011 and last amended in January 2014. **Exhibit 3** depicts the land uses by area in the DASP.

The proposed project would modify the DASP in two ways:

1. Workforce Housing:
   a. Increase the total number of residential units allowed in the DASP to 710 units, up from the current 650 units.
   b. Construct a 118-unit workforce housing apartment complex, to be located on the two blocks bounded by Bitterwater Road, Chestnut Avenue, future Lynn Street (to be built as part of the DASP), and the Union Pacific Railroad tracks. The development of this project would be through the guidelines of the DASP.
   c. The workforce housing project would also remove the one-block southerly extension of Metz Road, as currently proposed in the DASP.
   d. Remove an area from the DASP surrounded by Jayne Street to the east, Pearl Street to the north, the Union Pacific Railroad tracks the west, and an existing agricultural employee housing facility to the south. Under the DASP, these parcels could accommodate as much as 42,000 square feet of retail space.

2. Employee Dormitories:
   a. Construct a 66-unit, 528-bed guest worker/seasonal employee housing facility for agricultural employees. The facility would be located on Jayne Street, on the same parcels proposed to be removed from the DASP (item 1-d above). The development of this project would be separate and independent from the DASP.

The locations of the study projects within the DASP are also indicated on **Exhibit 3**.

## B. Project Trip Generation

The trip generation has been quantified for both components of the study project: 1) the workforce housing project, which includes the changes to the DASP definition, land uses and access; and 2) the employee dormitories project.

### *1. DASP Modifications*

**Exhibit 4A** depicts the trip generation for the modifications to the DASP, of which the workforce housing project would be a part. This trip generation uses trip rates from Trip Generation, 7th Edition, published by the Institute of Transportation Engineers in 2003. This version of the publication was used – rather than more recent version – for consistency with the transportation impact analysis for the DASP. The DASP, as currently proposed, would generate 10,370 daily

trips, with 486 trips (170 in, 316 out) during the AM peak hour and 923 trips (501 in, 422 out) during the PM peak hour. The proposed changes to the DASP, including the increase of 60 residential units (to accommodate the proposed workforce housing project) and the removal of the Jayne Street commercial properties (at the proposed employee dormitories project site), would result in a net reduction in vehicle trips, generating only 8,135 daily trips, 457 AM peak hour trips and 716 PM peak hour trips. As the revised DASP would generate fewer vehicle trips that the current DASP, the revised DASP project definition would not create more traffic impacts, nor require any more transportation improvements than identified in the previously adopted environmental documentation for the DASP.

The workforce housing project would be constructed as part of the revised DASP. Therefore, no separate or additional environmental analysis with respect to transportation impacts would be required for the project separate and above that from the DASP as a whole.

The workforce housing project would be subject to the City of King Traffic Impact Fee (TIF) and the Transportation Agency for Monterey County (TAMC) Regional Development Impact Fee (RDIF). The City of King will quantify the amount of these fees attributable to this project.

*2. Guest Worker/Seasonal Employee Dormitories*

**Exhibit 4B** depicts the trip generation for the employee dormitories for the guest workers/seasonal employees.

It is expected that all employee workers residing in the seasonal employee dormitories will be bussed to/from work, and they will not have private vehicles. However, there is also a possibility that in the future local residents will be hired and will occupy the employee dormitories, and these workers would have private vehicles. Therefore, the trip generation for the employee dormitories has been estimated in two ways:

a. Employee busing only (no employee private vehicles)
b. Employ private vehicles only (no employee busing)

These two estimates provide the low- and high-end range of trip activity for the dormitories.

a. Employee Busing:

This trip generation alternative for the dormitories anticipates that none of the employees would have their own vehicles. Instead, all of the employees would be bussed by their employer to agricultural fields in southern Monterey County. Most of the bus trips would be during either the early morning or early afternoon, prior to peak hour traffic periods. All of the buses would be stored offsite, arriving at the project site each day for employee transport.

The ITE publication *Trip Generation* does not include trip rates for guest worker/seasonal employee housing projects with employee busing. Instead, the guest worker/seasonal employee project trip generation with employee busing was derived using trip activity at an existing agricultural employee housing facility in Monterey County. **Exhibit 4B** depicts inbound and outbound traffic at the Casa Boronda agricultural housing facility on Madison Lane in the Boronda Area – just west of Salinas. This data was collected during the peak agricultural season on Tuesday, April 16, 2019 between 7:00 – 9:00 AM and 4:00 – 6:00 PM. This collected traffic data is cited from *El Rancho Toro Agricultural Employee Housing Project Traffic Impact Analysis,* Keith Higgins Traffic Engineer, June 6, 2019. From this data, the AM and PM one-hour peak volumes were derived and converted into trips per employee using the roughly 600 employees that reside at that facility. The derived rates were used to estimate the AM and PM peak hour traffic generated by the proposed project. In addition, the daily trip generation for the guest worker/seasonal employee housing facility was estimated assuming that the PM peak hour represents about 25% of the daily total.

**Exhibit 4B** summarizes the employee dormitory trip generation with employee busing. This project is estimated to generate 152 weekday daily trips, with 4 trips (3 in, 1 out) during the AM peak hour and 38 trips (19 in, 19 out) during the PM peak hour.

b. <u>Employee Private Vehicles:</u>

This second trip generation alternative for the dormitories assumes that every employee would have their own private vehicle for transport. This would mean that all employees would drive themselves to and from the fields each day. To be conservative, it is assumed that each employee drives alone, i.e., there is no carpooling, as a worse-case condition. Some employees would also use their cars for travel when not working.

The ITE publication *Trip Generation* does not include trip rates for guest worker/seasonal employee dormitories housing projects where the employees drive private vehicles. Due to the atypical working hours of agricultural employees, none of the standard residential trip rates would be analogous to the dormitory project. Instead, the guest worker/seasonal employee project trip generation with employee private vehicles was derived using the following assumptions:

1. Only employees would live at this facility – no spouses or children would be allowed.
2. Approximately 30% of the employees would also use their cars to travel into King City and outside of the city for personal shopping and entertainment during their off-work hours.

3. Approximately 90% of guest workers/seasonal employees will travel to the fields prior to the AM peak hour and 75% will arrive home from the fields prior to the PM peak hour.

**Exhibit 4B** summarizes the employee dormitory trip generation with employee private vehicles. This project is estimated to generate 1,373 weekday daily trips, with 53 trips (3 in, 50 out) during the AM peak hour and 238 trips (155 in, 83 out) during the PM peak hour.

Both alternate trip generation estimates for the employee dormitories would be new trips to the city that have not previously been evaluated for potential transportation impacts. However, the potential traffic impacts of development of these parcels were previously analyzed through their inclusion in the Downtown Addition Specific Plan (DASP). The trip generation for these parcels as commercial/retail uses in the DASP is shown on **Exhibit 4B,** as repeated from **Exhibit 4A.** The trip generation for the proposed employee dormitories would generate less traffic than if the parcels were to remain as commercial/retail uses under the DASP. Of all the evaluated time frames (daily, AM peak, and PM peak), the PM peak hour has the smallest percent difference in trips when compared to the commercial/retail uses. The PM peak hour has approximately 84% less traffic with the employee busing alternative and 2% less with the employee private vehicle alternative.

Furthermore, the combined daily trips from the workforce housing project and the trips from the employee dormitories project (under both alternatives) are also less than the trips generated by the 42,000 SF of commercial/retail being removed from the DASP. It is therefore concluded that the construction of the employee dormitories would not create more traffic impacts, nor require any more transportation improvements than previously identified in the adopted environmental documentation for the DASP.

The employee housing project would be subject to the City of King TIF and the TAMC RDIF. The City of King will quantify the amount of these fees attributable to this project.

Also note that the northwestern corner of the employee housing site (on Pearl Street adjacent to the Union Pacific railroad tracks) is an existing commercial use. The employee housing project does not propose any changes to that existing use at this time, however future redevelopment is possible. It is not known at this time what type of future redevelopment project may occur at that site, nor when such a redevelopment may occur. It is therefore too speculative to estimate the trip activity of any redevelopment of that site. Any future redevelopment of the existing commercial use should conduct a separate evaluation for its potential transportation impacts.

## C. Metz Road Extension Removal

The workforce housing project proposes to remove the one-block extension of Metz Road south of Bitterwater Road from the DASP. **Exhibit 5A** summarizes the operational results with and without

both the current DASP and the proposed workforce housing (i.e., modified DASP) to determine the traffic effects of this extension removal.

Operations at the following two intersections were evaluated:

1. Metz Road / Bitterwater Road; and
2. Chestnut Avenue / Bitterwater Road

Operations at the following four roadway segments were also evaluated:

1. Bitterwater Road, between First Street and Metz Road;
2. Bitterwater Road, between Metz Road and Chestnut Avenue;
3. Bitterwater Road, between Chestnut Avenue and Palm Avenue; and
4. Bitterwater Road, between Palm Avenue and San Antonio Drive/Oak Avenue.

The analysis includes the following scenarios:

1. Short-Term Conditions Without Downtown Area Specific Plan (DASP);
2. Short-Term Conditions Plus Adopted DASP;
3. Short-Term Conditions Plus Adopted DASP Plus Project (i.e., with amended DASP and the workforce housing);
4. Long-Term Conditions Without DASP;
5. Long-Term Conditions Plus Adopted DASP; and
6. Long-Term Conditions Plus Adopted DASP Plus Project.

Operational effects are based on peak hour level of service calculations using the Traffix software and comparisons with prior calculations from the DASP traffic analyses prepared in 2006-2010 by Higgins Associates/Hatch Mott MacDonald. Similar to the DASP traffic analysis, this analysis also uses the Highway Capacity Manual 2000 methodologies. **Appendix A** contains the level of service descriptions for the intersection and roadway segment operations. The Short-Term, Long-Term, and adopted DASP volumes are also cited from those earlier analyses.

Note that the analyzed traffic volume projections do not include the proposed First Street Bypass, an extension of Oak Avenue on the eastern edge of the DASP that would extend to Lonoak Road, thus serving as an easterly bypass of the First Street corridor through downtown King City for traffic to and from the northern and northeastern portions of the city. Operations with the First Street Bypass are addressed qualitatively later in this section.

**Exhibits 5A-5C** depict the Short-Term traffic volume forecasts and **Exhibits 6A-6C** depict the Long-Term traffic volume forecasts.

Note that the proposed removal of the Metz Road extension from the DASP would eliminate access to the Specific Plan area from the Metz Road / Bitterwater Road intersection. This will result in a relocation of traffic to other Specific Plan area access points, most to the Chestnut Avenue / Bitterwater Road intersection. These diversions are accounted for in the analysis volumes with the Project (i.e. the modified DASP and the proposed workforce housing.)

Average daily segment volumes, levels of service and recommended improvements for the study roadway segments are summarized on **Exhibit 7A**. Intersection levels of service are summarized on **Exhibit 7B** and recommended intersection improvements are summarized on **Exhibit 7C**. **Appendix B** contains the level of service calculations.

*1. Short-Term Conditions*

Under the three Short-Term analysis scenarios, all of the study roadway segments would operate at LOS A during the PM peak hour. No improvements would be required.

The Chestnut Avenue / Bitterwater Road intersection will operate with side-street LOS A and LOS B operations. No improvements would be required.

The transportation impact study for the adopted Specific Plan identified the following improvements at the Metz Road / Bitterwater Road intersection:

1. Signalize the intersection;
2. Add left turn lanes to the eastbound and westbound Bitterwater Road approaches to Metz Road; and
3. Stripe the northbound and southbound Metz Road approaches with one shared left-through lane and one exclusive right turn lane.

With the elimination of the Metz Road extension south of Bitterwater Road into the Specific Plan site, signalization of the Bitterwater Road/Metz Road intersection would not be necessary for the Short-Term condition. However, the addition of an eastbound left turn lane is warranted and recommended on Bitterwater Road at Metz Road. See **Appendix C** for the warrant worksheets.

*2. Long-Term Conditions*

The transportation impact study for the adopted Downtown Addition Specific Plan identified the need to widen Bitterwater Road west of Metz Road to four lanes without the First Street Bypass, with Bitterwater Road east of Metz Road remaining a two-lane road. However, under Long-Term conditions with the modified DASP, construction of the workforce house project and the elimination of the Metz Road extension, operations of the Bitterwater Road segment between Metz Road and Chestnut Avenue would also require widening to four lanes.

The Bitterwater Road/Chestnut Avenue intersection would operate with deficient side-street operations of LOS F with the modified DASP and construction of the workforce housing project. This intersection was not analyzed in the transportation impact study for the adopted Specific Plan, hence there are no recommended improvements at this intersection from that study. As the Caltrans peak hour signal warrant would marginally be met during the PM peak hour under the Long-Term conditions with the modified DASP and the proposed project, the City of King should plan for the eventual implementation of a traffic signal at this intersection in the future. However, a traffic signal should be installed at the intersection only if the need is determined by an engineering analysis of intersection volumes and conditions. Instead, it is recommended that the following improvements be implemented, which also improve intersection operations:

1. Restripe Northbound Chestnut Avenue approach as 1 left turn lane and 1 right turn lane; and
2. Add a second eastbound Bitterwater through lane and a second westbound Bitterwater through lane.

This improvement should also be incorporated into the City of King TIF.

The transportation impact study for the adopted Downtown Addition Specific Plan identified the following improvements at the Bitterwater Road/Metz Road intersection under Long-Term conditions:

1. Signalize the intersection;
2. Add left turn lanes to the eastbound and westbound Bitterwater Road approaches to Metz Road;
3. Stripe the northbound and southbound Metz Road approaches with one shared left-through lane and one exclusive right turn lane;
4. Add a right turn lane to the westbound Bitterwater Road approach; and
5. Add a right turn overlap phase for the southbound Metz Road approach.

In addition, due to the required roadway widening on Bitterwater Road, the following improvement would also be required:

6. Add second eastbound and second westbound Bitterwater through lanes.

With the modified DASP and the workforce housing project, the Metz Road extension south of Bitterwater Road would not be present. This will modify the recommended improvements at the Bitterwater Road/Metz Road intersection under Long-Term conditions to the following:

1. Signalize the intersection;
2. Add a left turn lane to the eastbound Bitterwater Road approach to Metz Road;
3. Add a right turn lane to the westbound Bitterwater Road approach;

4. Add a right turn overlap phase for the southbound Metz Road approach; and
5. Add second eastbound and second westbound Bitterwater through lanes.

Intersection operations with these improvements would be an acceptable LOS B.

*3. <u>With First Street Bypass</u>*

The First Street Bypass would divert traffic from the Bitterwater Road and Metz Road corridors. The "without First Street Bypass" analysis determined that under short-term conditions with the proposed project, the Bitterwater Road/Metz Road intersection and the Bitterwater Road/Chestnut Avenue intersection would operate satisfactorily as STOP controlled intersections. With the First Street Bypass included in the short-term analysis, both intersections would operate as STOP controlled intersections. A left turn lane would still be warranted on the eastbound Bitterwater Road approach to Metz Road.

Under Long-Term conditions with the First Street Bypass included in the analysis, the widening of Bitterwater Road to four lanes would no longer be required. Therefore, this improvement could be removed from the previously recommended intersection improvements under Long-Term conditions at the Chestnut / Bitterwater and Metz Road / Bitterwater intersections. The remaining improvements would still be required at both intersections.

**D. Pros/Cons of Removing the Metz Road Southern Extension**

The removal of the Metz Road extension would eliminate a new, fourth intersection leg at the Bitterwater Road/Metz Road intersection. The following are positive factors associated with the elimination of the extension.

1. Elimination of the additional intersection leg will allow the future Bitterwater Road/Metz Road intersection traffic signal to operate more efficiently compared to operations with four intersection legs. Green phase time that would otherwise be allocated to the Metz Road extension leg of the intersection would be allocated to the other three intersection approaches.
2. The removal would reduce the number of conflicting traffic movements that would cross the railroad tracks, thus reducing the potential for vehicles to be stopped on the tracks when a train is approaching.
3. Construction costs for the future signalization this intersection would be reduced, due to the removal of one intersection approach.

The potential negatives of the removal of the Metz Road southern extension include the following:

1. The traffic demand at the Bitterwater Road/Chestnut Avenue intersection would be higher, which would necessitate additional travel lanes at the intersection and, potential future signalization of the intersection.

2. The block of Bitterwater Road between Metz Road and Chestnut Avenue would need to be widened to four lanes without the Metz Road extension. However, this widening would no longer be necessary if the First Street Bypass is constructed.
3. The loss of on-street parking spaces along the east frontage of Chestnut Avenue due to the recommended improvements to the northbound Chestnut Avenue approach at Bitterwater Road.

## E. Effects on Adopted CEQA Findings

### *1. Short-Term Conditions Without First Street Bypass*

Mitigation Measure TRA-1a of the Downtown Addition Specific Plan Draft EIR requires payment of the City of King TIF to fund improvements identified to mitigate Short-Term impacts. These improvements include the following improvements at the Bitterwater Road/Metz Road intersection:

1. Signalize intersection;
2. Add eastbound and westbound left turn lanes; and
3. Stripe northbound and southbound Metz Road as one left-through and one right turn lane.

With construction of the proposed workforce housing project and its proposed removal of the Metz Road extension from the Downtown Addition Specific Plan, payment of the City of King TIF would still be required, but the intersection improvements necessary at the Bitterwater Road/Metz Road intersection could be reduced in scope. The addition of an eastbound left turn lane is the only intersection improvement required under Short-Term conditions with the modified DASP and construction of the workforce housing project.

### *2. Short-Term Conditions With First Street Bypass*

The Downtown Addition Specific Plan Draft EIR did not identify any significant impacts to the Bitterwater Road/Metz Road intersection under Short-Term with First Street Bypass conditions. However, under Short-Term with First Street Bypass conditions with the modified DASP and the workforce housing, an eastbound left turn lane would be warranted on Bitterwater Road at Metz Road. This is an improvement that is part of the City of King TIF improvements, although it was not specifically identified in the Downtown Addition Specific Plan Draft EIR. Payment of the City of King TIF, as required by Mitigation Measure TRA-1b, would constitute the workforce housing project's contribution towards this improvement.

### *3. Long-Term Conditions Without First Street Bypass*

Mitigation Measure TRA-8a of the Downtown Addition Specific Plan Draft EIR requires payment of the City of King's Traffic Impact Fee to fund improvements identified to mitigate Long-Term

impacts without the First Street Bypass. These improvements include the following improvements at the Bitterwater Road/Metz Road intersection:

1. Signalize intersection;
2. Add eastbound and westbound left turn lanes on the Bitterwater Road approaches to Metz Road;
3. Stripe northbound and southbound Metz Road as one left-through and one right turn lane.
4. Add right turn lane on westbound Bitterwater Road; and
5. Add second eastbound and second westbound through lanes on Bitterwater Road.

With the Metz Road extension eliminated from the DASP circulation plan and with the proposed workforce housing project, payment of the City of King TIF would still be required, but the intersection improvements required at the Bitterwater Road/Metz Road intersection could be reduced in scope for the Long-Term without First Street condition. The improvements required at the Bitterwater Road/Metz Road intersection could be reduced to the following for Long-Term without the First Street Bypass conditions:

1. Signalize intersection;
2. Add eastbound left turn lane; and
3. Add a right turn overlap phase for the southbound Metz Road movement.

The Bitterwater Road/Chestnut Avenue intersection was not analyzed in the Downtown Addition Specific Plan Draft EIR. With the Metz Road extension eliminated from the circulation plan and with the Downtown Specific Plan with the proposed employee housing project, the Long-Term condition without the First Street Bypass would require the following improvements:

1. Construct northbound Chestnut Avenue approach with one left turn lane and one right turn lane.
2. Add a second eastbound and second westbound through lane on Bitterwater Road.

The second eastbound and second westbound through lanes on Bitterwater Road should extend from Chestnut Avenue to Metz Road under Long-Term without the First Street Bypass conditions.

The Chestnut Avenue approach improvements should be implemented by the workforce housing project as part of its extension of Chestnut Avenue stub into the DASP.

*4. <u>Long-Term Conditions With First Street Bypass</u>*

The Downtown Addition Specific Plan DEIR identified cumulative significant impacts at the Bitterwater Road/Metz Road intersection and recommended improvements at the intersection under Long-Term with First Street Bypass conditions. With the proposed alternative land use and circulation plan, the Bitterwater Road/Metz Road intersection would be significantly impacted

on a cumulative basis, but the scope of improvements required to mitigate the improvement would be less. Payment of the City of King TIF as required by TRA-8b would be appropriate.

With the modified DASP and the workforce housing, the Bitterwater Road/Chestnut Avenue intersection would not require signalization, but the northbound Chestnut Avenue approach should be restriped as one left turn lane and one right turn lane. These improvements should be implemented as part of the construction of Chestnut Avenue by the workforce housing added to the City of King TIF program.

## F. Conclusion

The finding of the analyses documented in this letter are presented below.

1. The proposed changes to the Downtown Addition Specific Plan project definition and the proposed employee dormitories would reduce the volume of peak commute hour trips, compared to the adopted Downtown Addition Specific Plan. These proposed changes would therefore not require additional transportation improvements beyond those previously identified in the transportation impact analysis for the Downtown Addition Specific Plan.
2. Both the workforce housing and employee dormitory projects would be subject to both the City of King Traffic Impact Fee and the TAMC Regional Development Impact Fee. The City of King will quantify the fee amounts attributable to each project.
3. The impact of the workforce housing and the removal of the Metz Road extension would be most significant at the Bitterwater Road/Metz Road and Bitterwater Road/Chestnut Avenue intersections.
4. The workforce housing project and the removal of the Metz Road extension would, generally, result in a lower scope of intersection improvements at the Bitterwater Road/Metz Road intersection. However, it would require the widening of Bitterwater Road to four lanes between Metz Road and Chestnut Avenue if the First Street Bypass is not constructed.
5. The workforce housing project and the removal of the Metz Road extension would necessitate lane additions and potentially signalization at the Bitterwater Road/Chestnut Avenue intersection.
6. Eliminating the Metz Road extension between Bitterwater Road and Ellis Street would result in fewer turning vehicle conflicts at the Bitterwater Road/Metz Road intersection, which would improve overall safety at the intersection, particularly when considered in conjunction with train operations at the existing at-grade crossing immediately west of the intersection.

If you have any questions regarding the contents of this letter or need additional information, please contact me. Thank you for the opportunity to assist you with this project.

Respectfully submitted,

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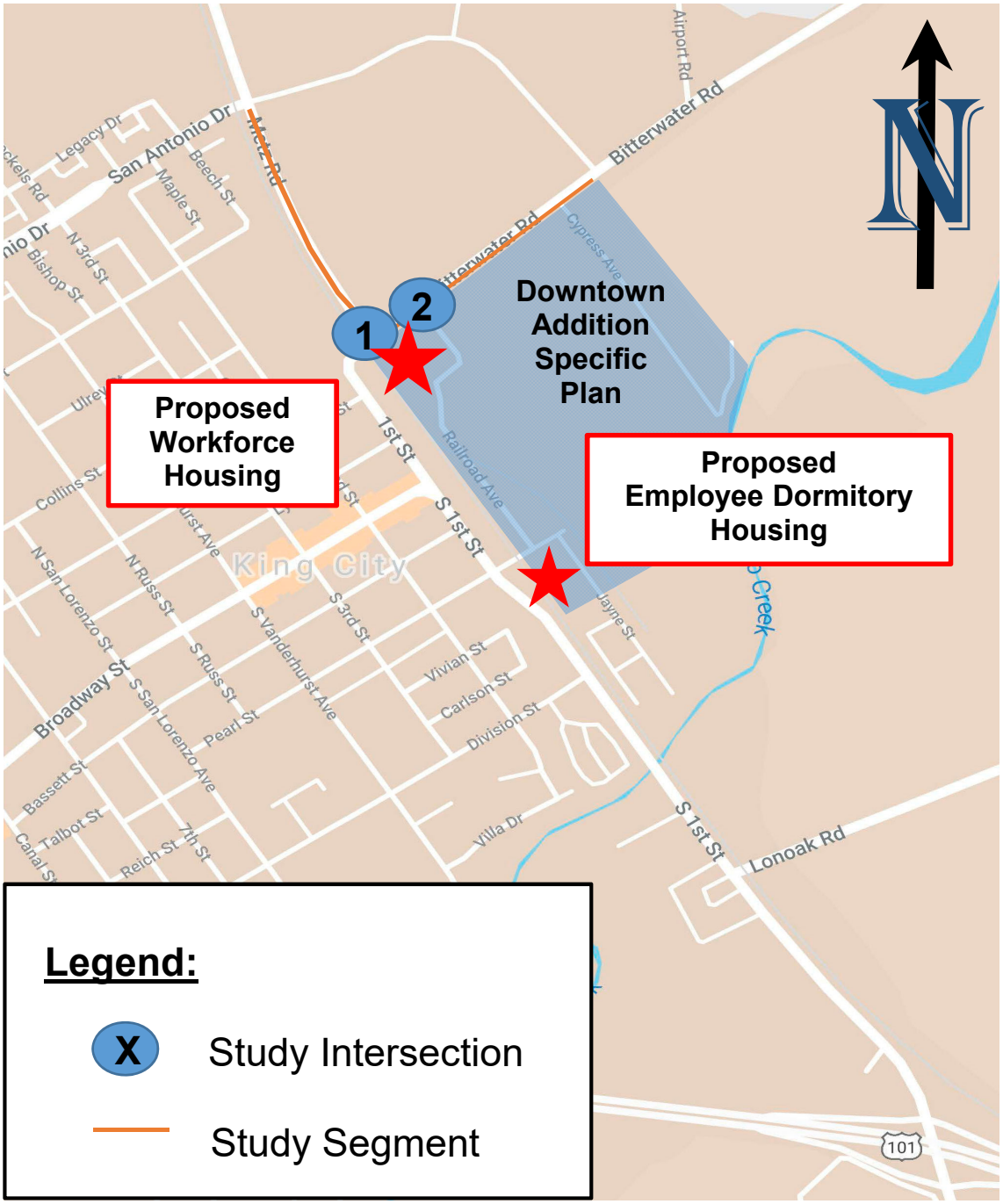


Basemap Source: Google Maps, 2019.

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**Exhibit 1**
**Project Location Map and Study Area**

Source: Nichols Melburg and Rossetto, August 6, 2019.

**Exhibit 2A**
**Project Site Plan - Workforce Housing**

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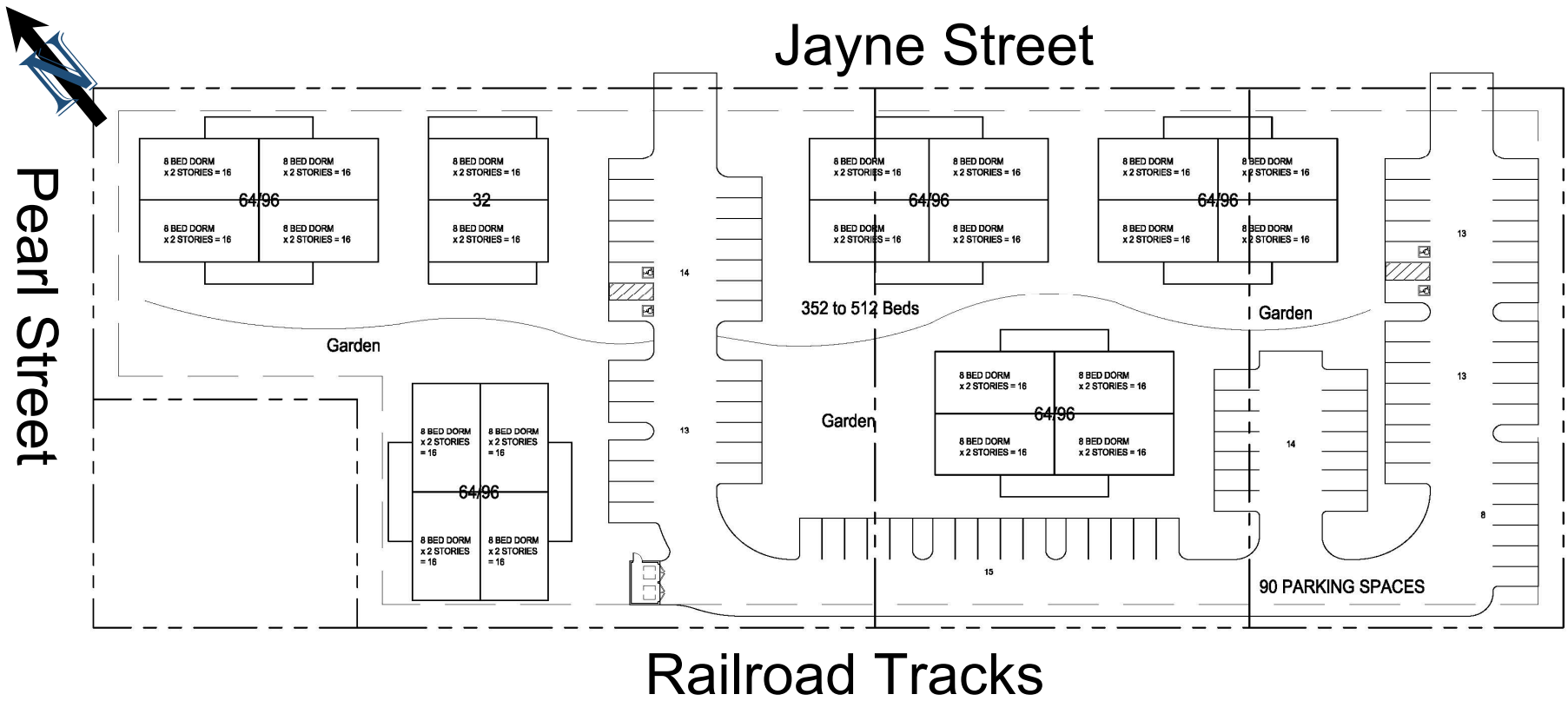


Source: Nichols Melburg and Rossetto, undated.

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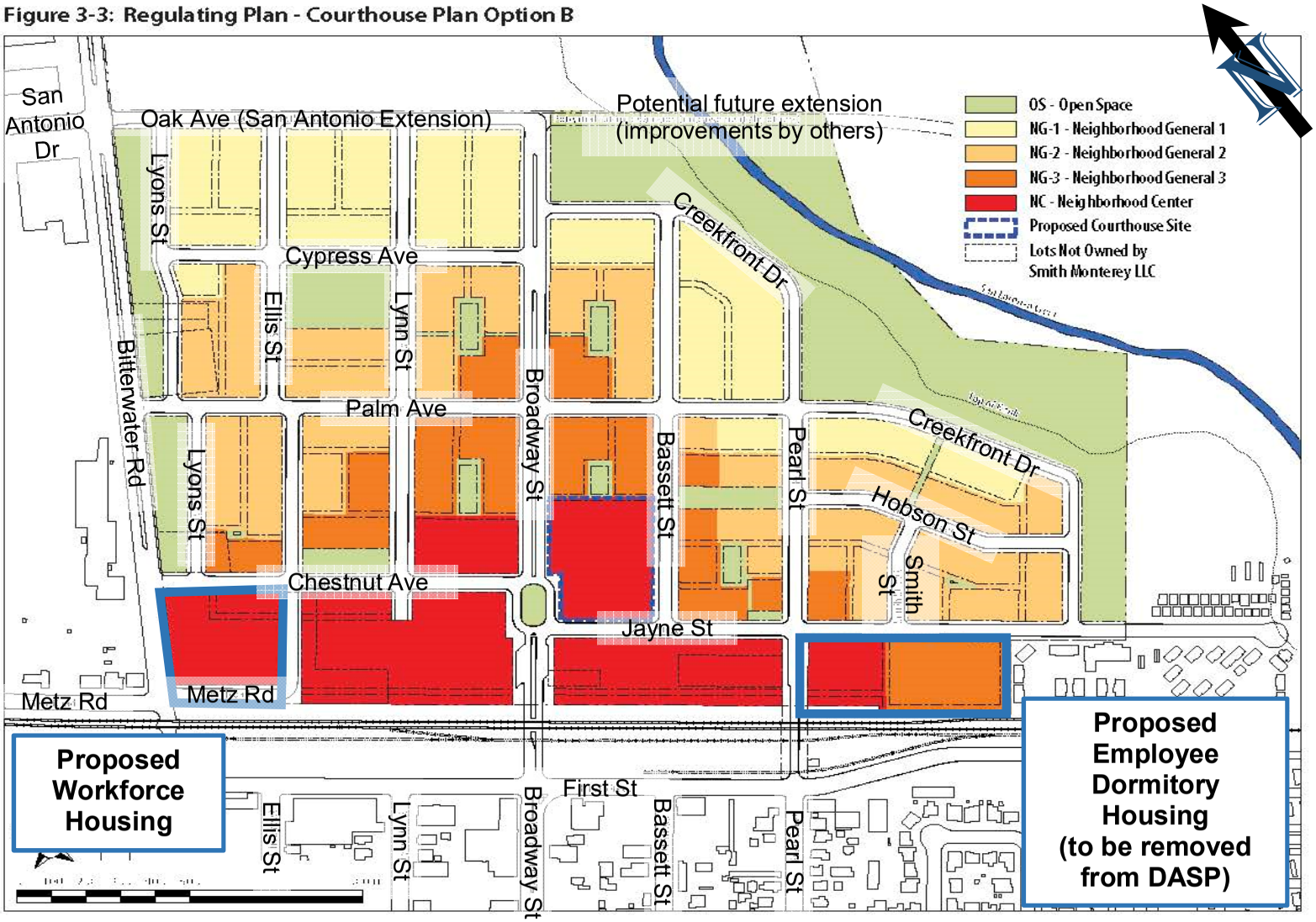
**Exhibit 2B**
**Conceptual Site Plan -**
**Employee Dormitory Housing**

Figure 3-3: Regulating Plan - Courthouse Plan Option B




Basemap Source: *Downtown Addition Specific Plan,* HDR, Inc., et. al., amended January 28, 2014.

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**Exhibit 3**
**Existing Land Use Plan for Downtown Area Specific Plan**

## Downtown Addition Specific Plan Trip Generation

| TRIP GENERATION RATES[1] | ITE LAND USE CODE | DAILY TRIP RATE | AM PEAK HOUR PEAK HOUR RATE | AM PEAK HOUR % OF ADT | AM PEAK HOUR % IN | AM PEAK HOUR % OUT | PM PEAK HOUR PEAK HOUR RATE | PM PEAK HOUR % OF ADT | PM PEAK HOUR % IN | PM PEAK HOUR % OUT |
|---|---|---|---|---|---|---|---|---|---|---|
| Single-Family Detatched Housing (per unit) | 210 | 9.57 | 0.75 | 8% | 25% | 75% | 1.01 | 11% | 63% | 37% |
| Apartment (per unit) | 220 | 6.72 | 0.51 | 8% | 20% | 80% | 0.62 | 9% | 65% | 35% |
| Residential Condominium/Townhouse (per unit) | 230 | 5.86 | 0.44 | 8% | 17% | 83% | 0.52 | 9% | 67% | 33% |
| Specialty Retail (per 1,000 square feet)[3,4] | 814 | 44.32 | 1.33 | 3% | 60% | 40% | 2.74 | 6% | 44% | 56% |
| Shopping Center (per 1,000 square feet)[5] | 820 | 62.81 | 1.43 | 2% | 61% | 39% | 5.80 | 9% | 48% | 52% |

| 1. APPROVED USES | PROJECT SIZE | DAILY TRIPS | AM PEAK HOUR PEAK HOUR TRIPS | AM PEAK HOUR % OF ADT | AM PEAK HOUR TRIPS IN | AM PEAK HOUR TRIPS OUT | PM PEAK HOUR PEAK HOUR TRIPS | PM PEAK HOUR % OF ADT | PM PEAK HOUR TRIPS IN | PM PEAK HOUR TRIPS OUT |
|---|---|---|---|---|---|---|---|---|---|---|
| **1A. Commercial / Retail:** | | | | | | | | | | |
| Work/Live Commercial[6] | 65,060 sq. ft. | 2,883 | 87 | 3% | 52 | 35 | 178 | 6% | 78 | 100 |
| Neighborhood Center (Retail) | 125,000 sq. ft. | 7,851 | 179 | 2% | 109 | 70 | 725 | 9% | 348 | 377 |
| **Subtotal (Commercial / Retail Trips):** | | **10,734** | **266** | | **161** | **105** | **903** | | **426** | **477** |
| Internal Retail Reduction (15% of Retail): | | -1,610 | -40 | | -24 | -16 | -135 | | -64 | -71 |
| Internal Retail Passby Reduction (15% of Retail): | | -1,610 | -40 | | -20 | -20 | -135 | | -68 | -67 |
| **Net Commercial / Retail Trips:** | | **7,514** | **186** | | **117** | **69** | **633** | | **294** | **339** |
| **1B. Residential:** | | | | | | | | | | |
| Single-Family Detatched Housing | 175 units | 1,675 | 131 | 8% | 33 | 98 | 177 | 11% | 112 | 65 |
| Apartments | 8 units | 54 | 4 | 7% | 1 | 3 | 5 | 9% | 3 | 2 |
| Townhomes | 346 units | 2,028 | 152 | 7% | 26 | 126 | 180 | 9% | 121 | 59 |
| Condominiums | 121 units | 709 | 53 | 7% | 9 | 44 | 63 | 9% | 42 | 21 |
| **Subtotal (Residential Trips):** | | **4,466** | **340** | | **69** | **271** | **425** | | **278** | **147** |
| Internal Retail Reduction (15% of Retail): | | -1,610 | -40 | | -16 | -24 | -135 | | -71 | -64 |
| **Net Residential Trips** | | **2,856** | **300** | | **53** | **247** | **290** | | **207** | **83** |
| **1C. Total** | | | | | | | | | | |
| **Net External Trips (Adopted Plan)** | | **10,370** | **486** | | **170** | **316** | **923** | | **501** | **422** |

| 2. PROPOSED MODIFICATIONS | PROJECT SIZE | DAILY TRIPS | AM PEAK HOUR PEAK HOUR TRIPS | AM PEAK HOUR % OF ADT | AM PEAK HOUR TRIPS IN | AM PEAK HOUR TRIPS OUT | PM PEAK HOUR PEAK HOUR TRIPS | PM PEAK HOUR % OF ADT | PM PEAK HOUR TRIPS IN | PM PEAK HOUR TRIPS OUT |
|---|---|---|---|---|---|---|---|---|---|---|
| Apartments | 60 units | 403 | 31 | 8% | 6 | 25 | 37 | 9% | 24 | 13 |
| Commercial/Retail | -42,000 sq. ft. | -2,638 | -60 | 2% | -37 | -23 | -244 | 9% | -117 | -127 |
| **Net Subtotal (Proposed Use):** | | **-2,235** | **-29** | | **-31** | **2** | **-207** | | **-93** | **-114** |

| 3. SPECIFIC PLAN TRIP GENERATION WITH PROPOSED MODIFICATIONS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Total (Approved + Proposed Uses):** | **8,135** | **457** | | **139** | **318** | **716** | | **408** | **308** |

Notes:
1. sq. ft. = square feet.
2. Trip generation rates published by Institute of Transportation Engineers (ITE), *Trip Generation Manual,* 7th Edition, 2003, except where otherwise noted.
3. Regression equation used in calculation of PM peak hour trip generation. PM peak trip rate cited here is equivalentrate for this size of development.
4. ITE does not provide a trip generatino rate during the AM street peak hour for the "Specialty Retail" land use. Rate used here taken from *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region,* San Diego Association of Governments, April 2002.
5. Regression equation used in calculation for daily and peak hour trip generation. Trip rates cited here is equivalentrate for this size of development.
6. "Work/Live Commercial" is defined as commercial space where the proprietor and/or employees both live and work within the project site.

**Exhibit 4A**
**Project Trip Generation - Changes to Downtown Addition Specific Plan**

**Ruggeri-Jensen-Azar**

## Jayne Street Guest Worker / Seasonal Employee Housing Trip Generation

### A. Trip Generation with Employee Busing

| Project Trip Rates | | | AM PEAK HOUR | | | | PM PEAK HOUR | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| REFERENCE USE | EXISTING SIZE | DAILY TRIPS | PEAK HOUR TRIPS | % OF ADT | % IN | % OUT | PEAK HOUR TRIPS | % OF ADT | % IN | % OUT |
| Casa Boronda Ag. Employee Housing Driveway Count[1] | 600 beds | N.A. | 4 | | 3 | 1 | 43 | | 22 | 21 |
| **Trip Rates (per employee):[2,3]** | | **0.288** | **0.007** | | **75%** | **25%** | **0.072** | | **51%** | **49%** |
| Casa Boronda Estimated Trip Generation (traffic study): | | 122 | 2 | | 1% | 1% | 22 | | 11 | 11 |
| **A1. Project Trip Generation (Employee Busing)** | | | AM PEAK HOUR | | | | PM PEAK HOUR | | | |
| PROPOSED USE | PROJECT SIZE | DAILY TRIPS | PEAK HOUR TRIPS | % OF ADT | TRIPS IN | TRIPS OUT | PEAK HOUR TRIPS | % OF ADT | TRIPS IN | TRIPS OUT |
| Guest Worker/Seasonal Employee Housing | 528 beds | 152 | 4 | 3% | 3 | 1 | 38 | 25% | 19 | 19 |
| **Raw Total (Proposed):** | | **152** | **4** | | **3** | **1** | **38** | | **19** | **19** |
| **A2. Existing Zoning (under Downtown Addition Specific Plan)[4]** | | | | | | | | | | |
| Commercial/Retail | -42,000 sq. ft. | -2,638 | -60 | 2% | -37 | -23 | -244 | 9% | -117 | -127 |
| **A3. Net Change with Project (Employee Busing)** | | | | | | | | | | |
| **Total (with Project):** | | **-2,486** | **-56** | | **-34** | **-22** | **-206** | | **-98** | **-108** |

### B. Trip Generation with Employee Private Vehicles

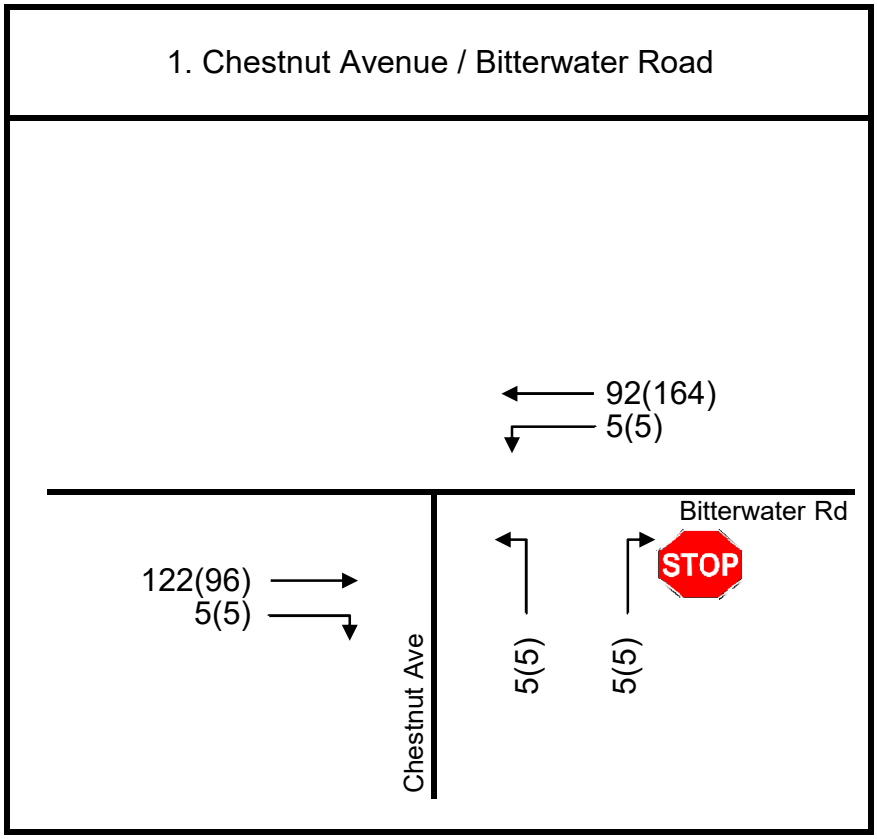
| Project Trip Rates | | | AM PEAK HOUR | | | | PM PEAK HOUR | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| REFERENCE USE | | DAILY TRIPS | PEAK HOUR TRIPS | % OF ADT | % IN | % OUT | PEAK HOUR TRIPS | % OF ADT | % IN | % OUT |
| Agricultural Employee (Private Vehicle) (per bed)[5] | | 2.60 | 0.10 | 4% | 5% | 95% | 0.45 | 17% | 65% | 35% |
| **B1. Project Trip Generation (Employee Private Vehicles)** | | | AM PEAK HOUR | | | | PM PEAK HOUR | | | |
| PROPOSED USE | PROJECT SIZE | DAILY TRIPS | PEAK HOUR TRIPS | % OF ADT | TRIPS IN | TRIPS OUT | PEAK HOUR TRIPS | % OF ADT | TRIPS IN | TRIPS OUT |
| Guest Worker/Seasonal Employee Housing | 528 beds | 1,373 | 53 | 4% | 3 | 50 | 238 | 17% | 155 | 83 |
| **Raw Total (Proposed):** | | **1,373** | **53** | | **3** | **50** | **238** | | **155** | **83** |
| **B2. Existing Zoning (under Downtown Addition Specific Plan)[4]** | | | | | | | | | | |
| Commercial/Retail | -42,000 sq. ft. | -2,638 | -60 | 2% | -37 | -23 | -244 | 9% | -117 | -127 |
| **B3. Net Change with Project (Employee Private Vehicles)** | | | | | | | | | | |
| **Total (with Project):** | | **-1,265** | **-7** | | **-34** | **27** | **-6** | | **38** | **-44** |

Notes:

1. AM and PM peak hour driveway traffic at Casa Boronda cited from *El Rancho Toro Agricultural Employee Housing Project Traffic Impact Analysis,* Keith Higgins Traffic Engineer, June 6, 2019.
2. Daily trip rate for Casa Boronda derived by assuming that PM peak rate is 25% of the daily trip rate.
3. Estimated number of Casa Boronda employees cited from *Casa Boronda Agricultural Employee Housing Project Traffic Impact Analysis,* Keith Higgins Traffic Engineer, July 3, 2017.
4. Trip generation for existing zoning cited from **Exhibit 4A**.
5. Trip generation rates for Agricultural Employee (Private Vehicle) derived using the following assumptions:
   a. Only employees live at the project site - no spouses or children are allowed.
   b. In addition to traveling to/from work each day, 30% of guest workers/seasonal employees will also travel away from home each day for personal shopping/entertainment.
   c. Approximately 90% of guest workers/seasonal employees will travel to the fields prior to the AM peak hour and 75% will arrive home from the fields prior to the PM peak hour.
   d. In/Out percentages for PM peak hour cited from Apartments land use published by Institute of Transportation Engineers (ITE), *Trip Generation Manual,* 7th Edition, 2003.

**Exhibit 4B**
**Project Trip Generation - Jayne Street Guest Worker / Seasonal Employee Housing**

Ruggeri-Jensen-Azar



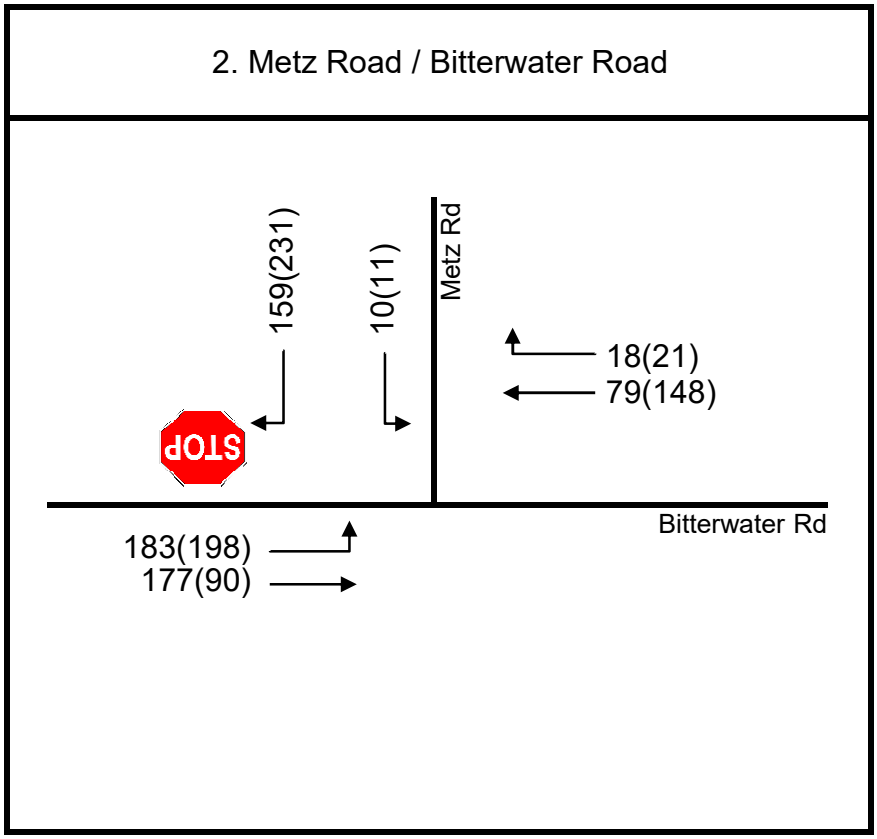
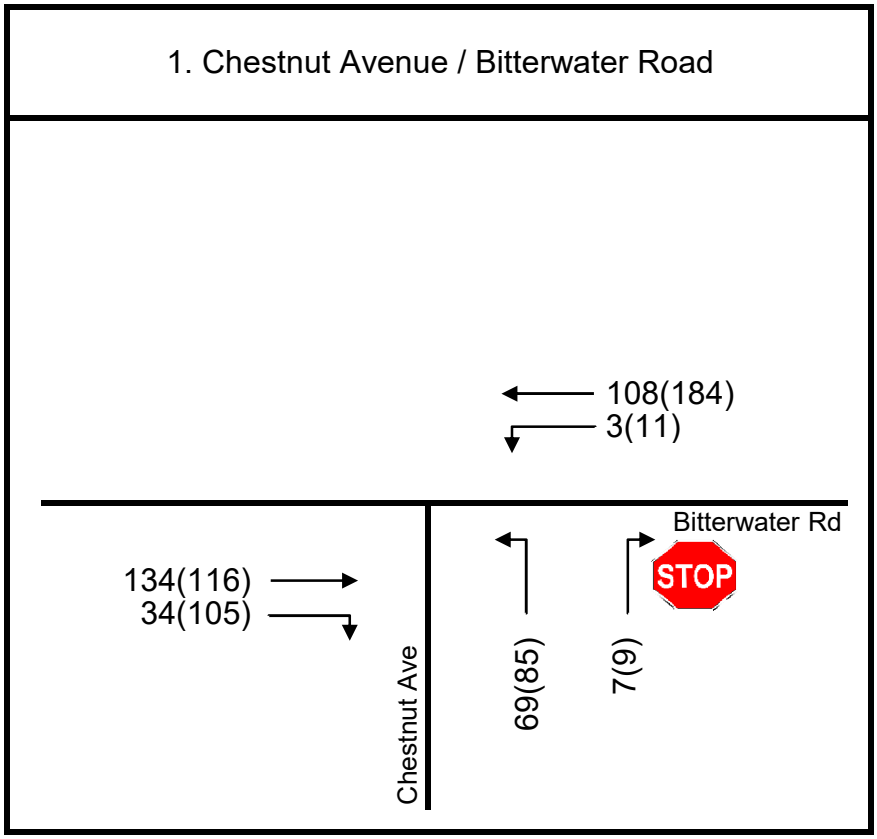




**Exhibit 5A**
**Short-Term Conditions**
**Without Downtown Addition SP**
**AM & PM Peak Hour Volumes**

Ruggeri-Jensen-Azar



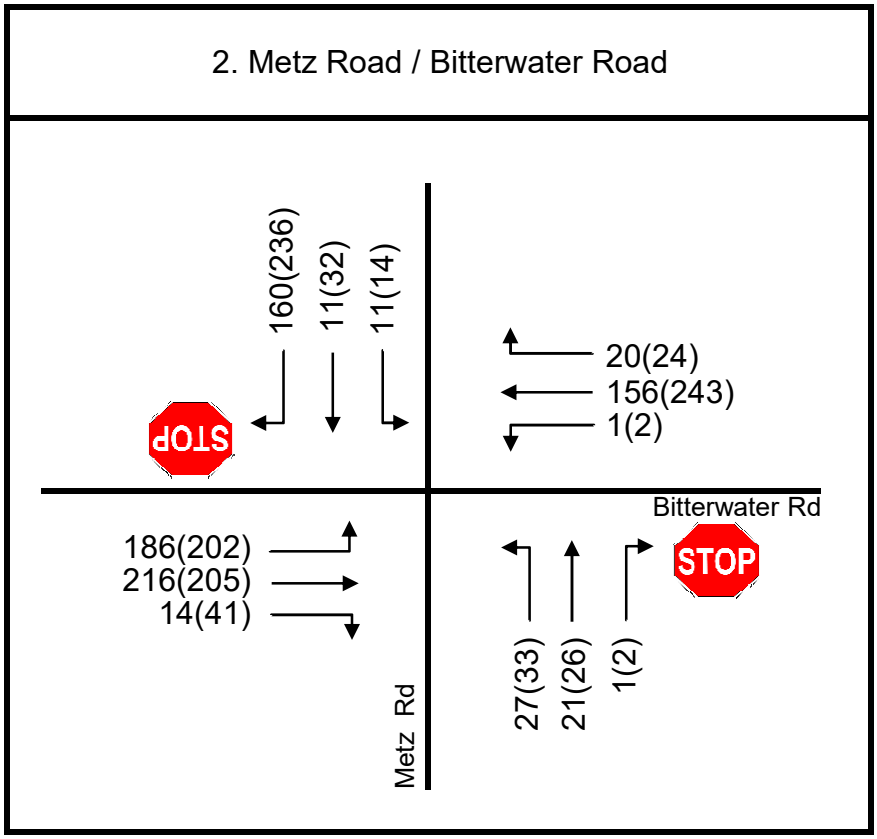
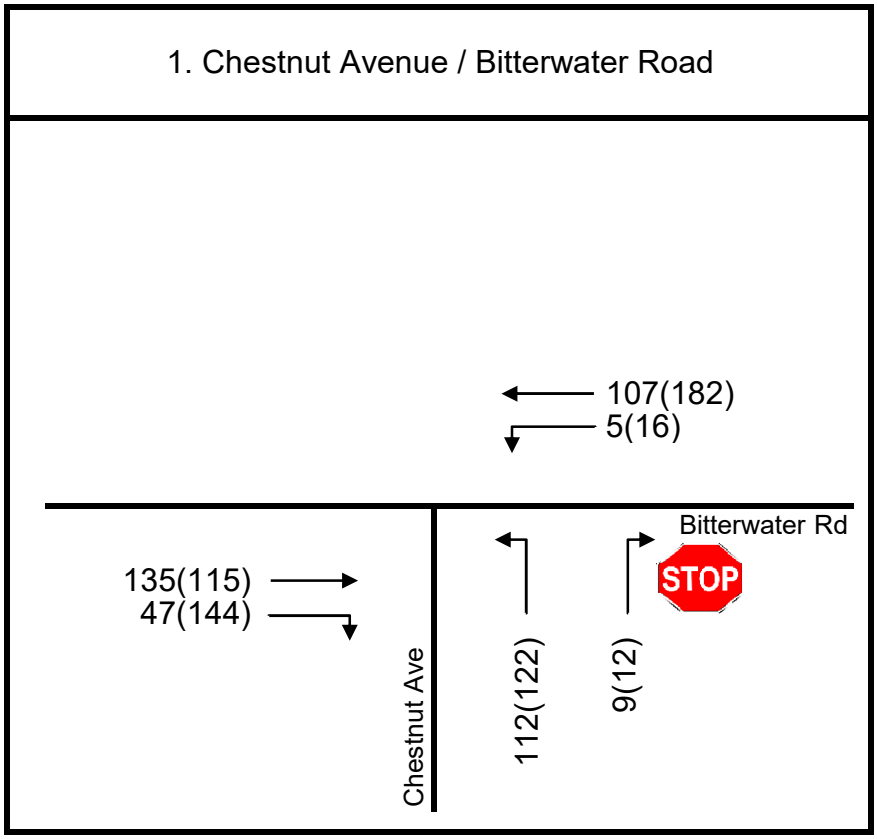




**Exhibit 5B**
**Short-Term Conditions**
**With Adopted Downtown Addition SP**
**AM & PM Peak Hour Volumes**

Ruggeri-Jensen-Azar



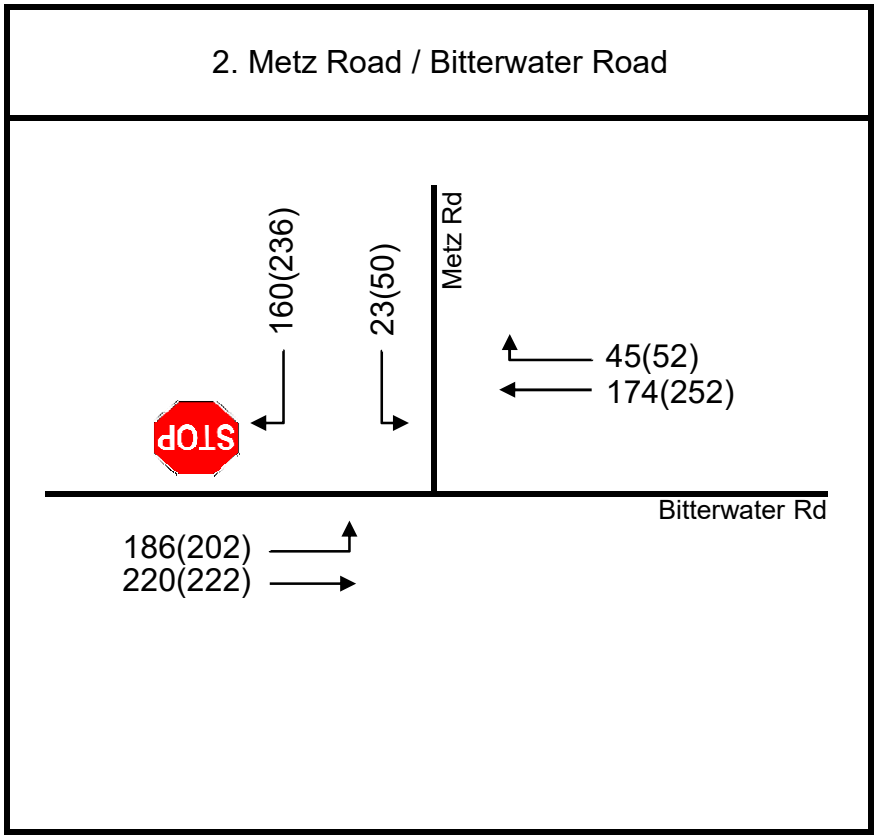
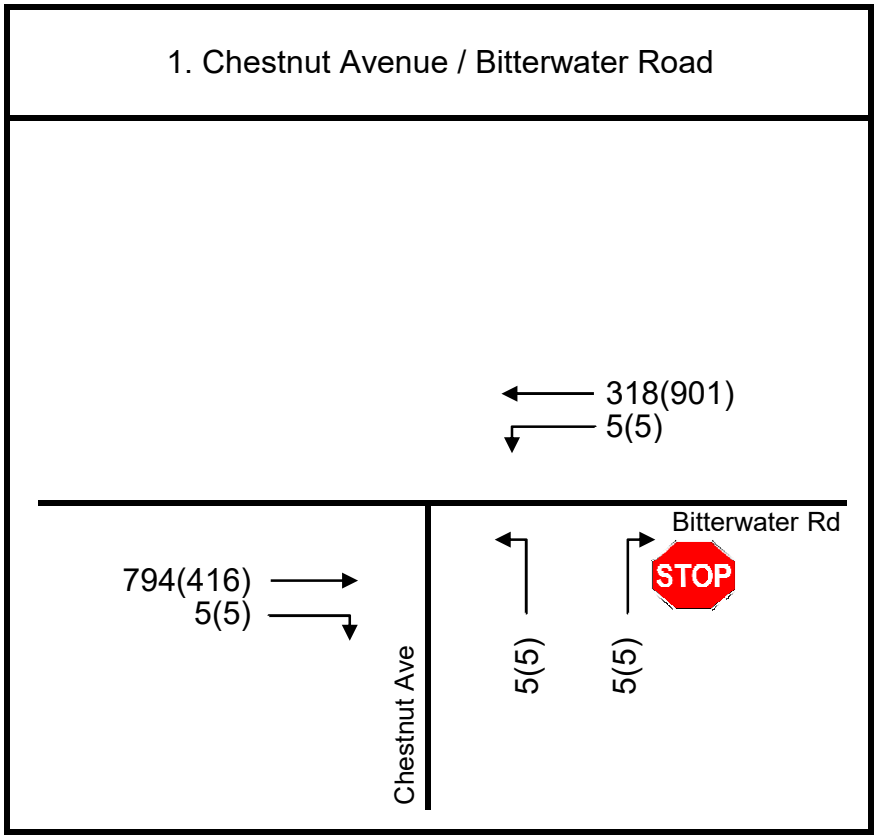




**Exhibit 5C**
**Short-Term Conditions**
**With Adopted Downtown Addition SP**
**Plus Project**
**AM & PM Peak Hour Volumes**

Ruggeri-Jensen-Azar



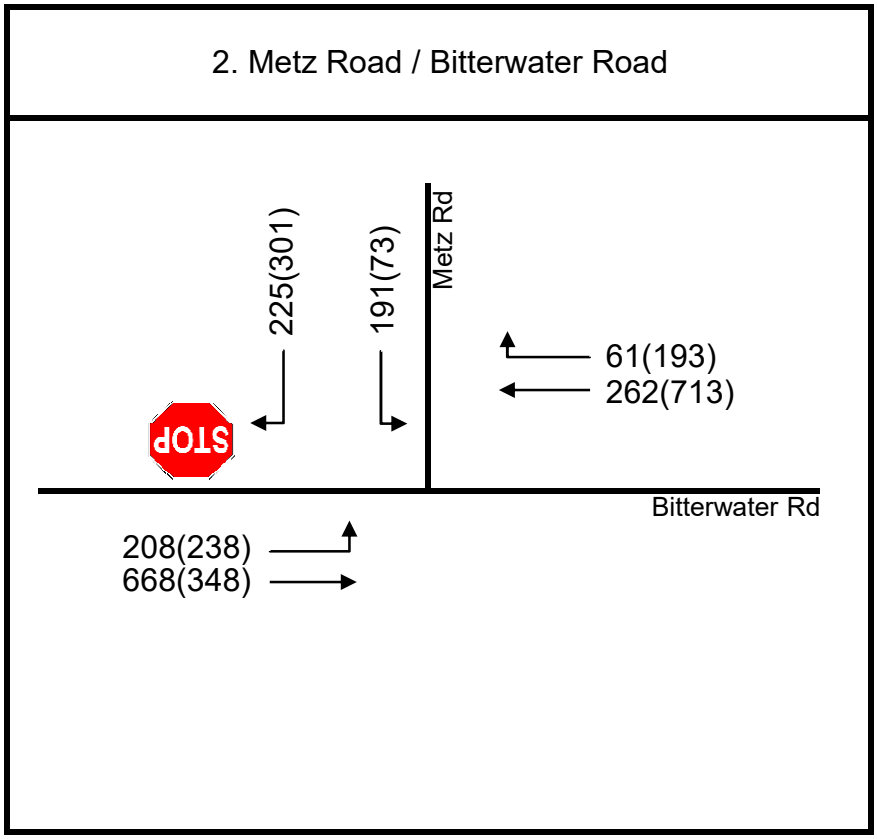
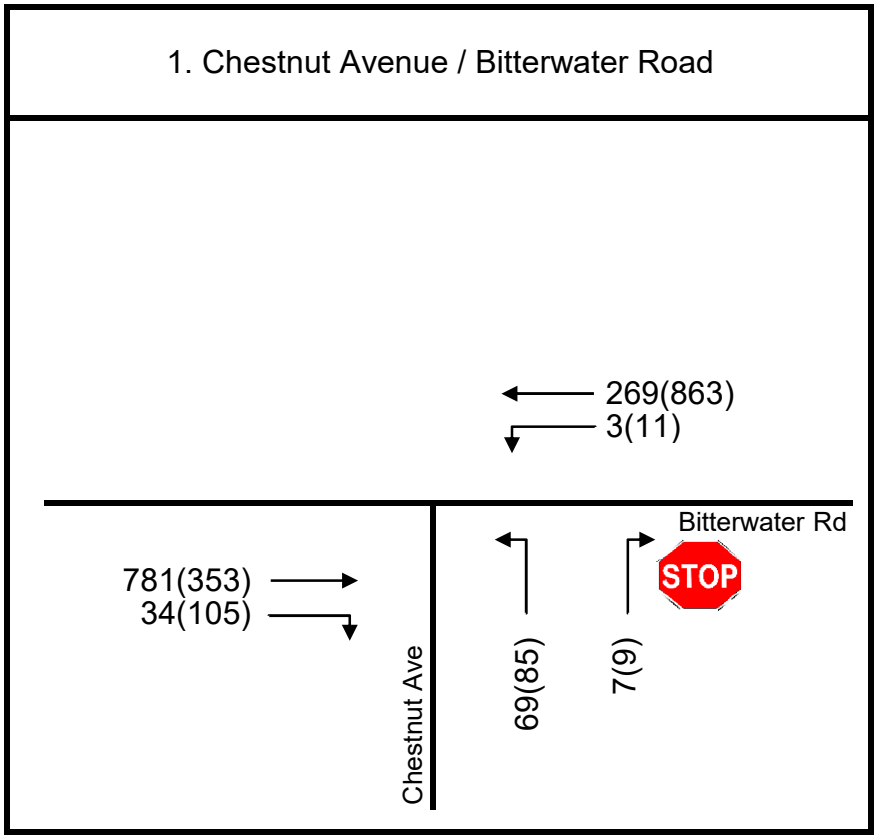




**Exhibit 6A**
**Long-Term Conditions**
**Without Downtown Addition SP**
**AM & PM Peak Hour Volumes**

Ruggeri-Jensen-Azar



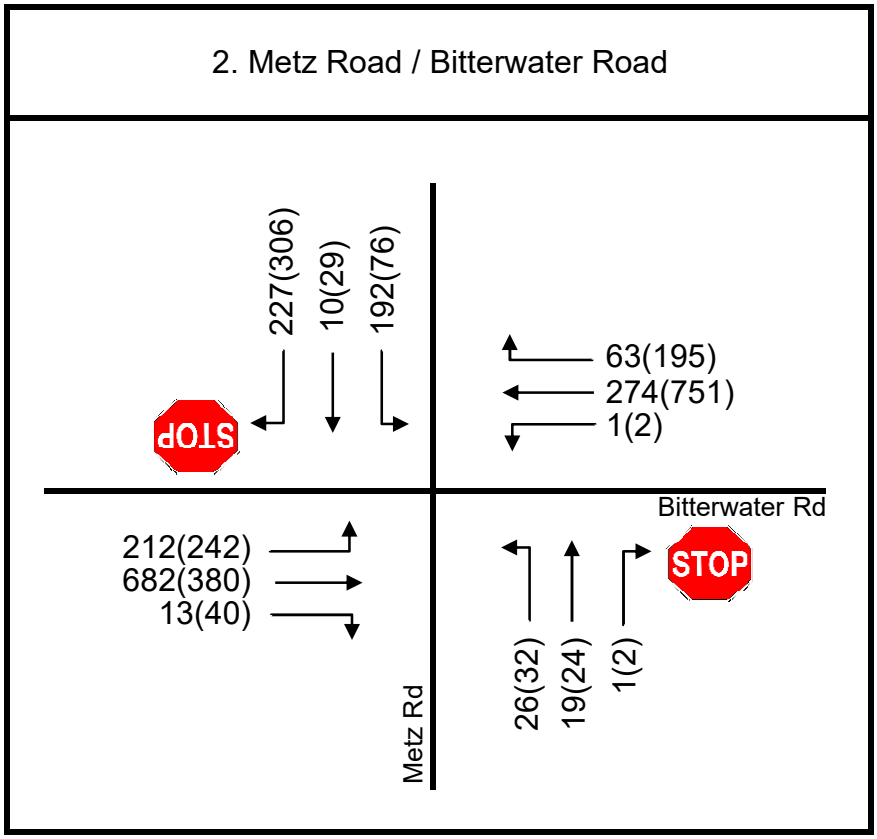
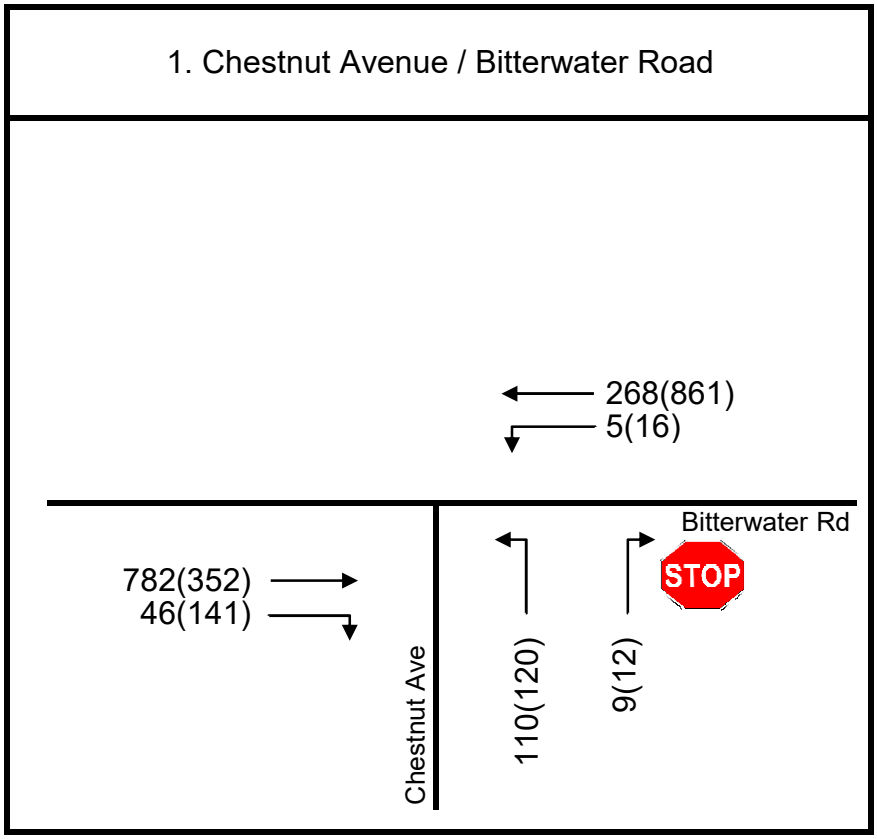




**Exhibit 6B**
**Long-Term Conditions**
**With Adopted Downtown Addition SP**
**AM & PM Peak Hour Volumes**

Ruggeri-Jensen-Azar



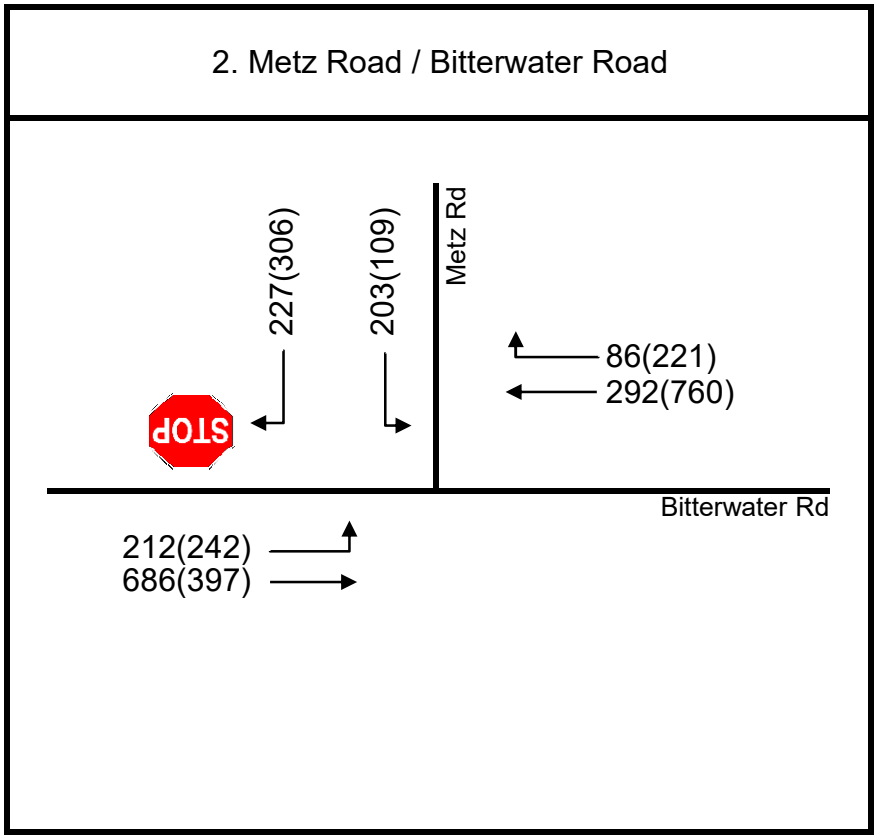




**Exhibit 6C**
**Long-Term Conditions**
**With Adopted Downtown Addition SP**
**Plus Project**
**AM & PM Peak Hour Volumes**

Ruggeri-Jensen-Azar

| Segment | Location | Description | Short-Term | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Without Downtown Addition | | | With Adopted Downtown Addition | | | With Adopted Downtown Addition Plus Project | | |
| | | | *Average Daily Traffic* | | | *Average Daily Traffic* | | | *Average Daily Traffic* | | |
| | | | Volume | LOS | Mitigation/LOS | Volume | LOS | Mitigation/LOS | Volume | LOS | Mitigation/LOS |
| Bitterwater Road | First - Metz | 2-Lane Arterial | 6,670 | A | - | 9,600 | A | - | 9,120 | A | - |
| | Metz - Chestnut | 2-Lane Arterial | 2,700 | A | - | 4,900 | A | - | 5,760 | A | - |
| | Chestnut - Palm | 2-Lane Arterial | 2,700 | A | - | 3,200 | A | - | 3,250 | A | - |
| | Palm - San Antonio | 2-Lane Arterial | 2,390 | A | - | 2,890 | A | - | 2,940 | A | - |
| Metz Road | San Antonio - Bitterwater | 2-Lane Arterial | 4,610 | A | - | 5,410 | A | - | 5,400 | A | - |

| Segment | Location | Description | Long-Term | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Without Downtown Addition | | | With Adopted Downtown Addition | | | With Adopted Downtown Addition Plus Project | | |
| | | | *Average Daily Traffic* | | | *Average Daily Traffic* | | | *Average Daily Traffic* | | |
| | | | Volume | LOS | Mitigation/LOS | Volume | LOS | Mitigation/LOS | Volume | LOS | Mitigation/LOS |
| Bitterwater Road | First - Metz | 2-Lane Arterial | 16,000 | D | 4-LDA / A | 17,510 | E | 4-LDA / A | 17,050 | E | 4-LDA / A |
| | Metz - Chestnut | 2-Lane Arterial | 13,270 | C | - | 14,060 | C | - | 14,870 | D | 4-LDA / A |
| | Chestnut - Palm | 2-Lane Arterial | 13,270 | C | - | 12,360 | B | - | 12,410 | B | - |
| | Palm - San Antonio | 2-Lane Arterial | 12,960 | C | - | 12,050 | B | - | 12,100 | B | - |
| Metz Road | San Antonio - Bitterwater | 2-Lane Arterial | 8,050 | A | - | 8,720 | A | - | 8,780 | A | - |

Notes:
1. LOS = Level of Service
2. 4-LDA = 4-Lane Divided Arterial
3. Average Daily Traffic estimated as 10 times PM peak hour volumes.
4. Traffic volumes without First Street Bypass

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**Exhibit 7A**
**Roadway Segment**
**Levels of Service**
**and Recommended Improvements**

| | N-S Street | E-W Street | Existing Lane Configuration | Existing Intersection Control | LOS Standard | Peak Hour | Short-Term Without Downtown Addition SP | | Short-Term With Adopted Downtown Addition SP | | Short-Term With Adopted Downtown Addition SP Plus Project | | Long-Term Without Downtown Addition SP | | Long-Term With Adopted Downtown Addition SP | | Long-Term With Adopted Downtown Addition SP Plus Project | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS | Delay | LOS |
| 1 | Chestnut Avenue | Bitterwater Road | NB 1-L/T/R<br>EB 1-T/R<br>WB 1-L, 1-T | One-Way Stop | E | AM | 9.4 | A | 10.7 | B | 11.3 | B | 19.7 | C | 30.2 | D | 42.9 | E |
| | | | | | | PM | 9.5 | A | 12.0 | B | 13.0 | B | 21.0 | C | 56.1 | F | 104.3 | F |
| | | | | *With Improvement* | | *AM* | | | | | | | | | *25.8* | *D* | *34.3* | *D* |
| | | | | | | *PM* | | | | | | | | | *24.1* | *C* | *31.1* | *D* |
| 2 | Metz Road | Bitterwater Road | SB 1-L, 1-R<br>EB 1-L/T<br>WB 1-T/R | One-Way Stop | E | AM | 9.9 | A | 31.4/11.7 | D/B | 11.7 | B | 266.3 | F | 328.6/711.2 | F/F | 364.6 | F |
| | | | | | | PM | 11.0 | B | 81.2/15.9 | F/C | 15.3 | C | 167.7 | F | **/** | F | 401.3 | F |
| | | | | *With Improvement* | | *AM* | | | *14.6* | *B* | *11.7* | *B* | *14.5* | *B* | *13.7* | *B* | *12.5* | *B* |
| | | | | | | *PM* | | | *16.2* | *B* | *15.2* | *C* | *18.0* | *B* | *13.0* | *B* | *12.4* | *B* |

Notes:

1. L, T, R = Left, Through, Right
2. NB, SB, EB, WB = Northbound, Southbound, Eastbound, Westbound.
3. Overall City of King (King City) level of service standard is LOS C. Side-street standard is assumed as LOS E.
4. For one- and two-way stop intersections, delays are side-street operations, in seconds per vehicle (sec/veh).
5. Analysis performed using 2000 Highway Capacity Manual methodologies, for consistency with original Downtown Addition Specific Plan traffic study.
6. Level of service calculations can be found in **Appendix B**.
7. ** = Delay exceeds capacity to quantify using 2000 Highway Capacity Manual methodologies. This represents LOS F conditions.
8. LOS highlighted in **red** indicates intersection operating below level of service standard.
   LOS with a thick black border represents a significant impact. Resulting levels of service with recommended improvements noted under "With Improvement". A list of applied improvements can be found on **Exhibit 7C**.

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**Exhibit 7B**
**Intersection**
**Levels of Service**

| | N-S Street | E-W Street | Existing Intersection Control | Short-Term Without Downtown Addition SP | Short-Term With Adopted Downtown Addition SP | Short-Term With Adopted Downtown Addition SP Plus Project | Long-Term Without Downtown Addition SP | Long-Term With Adopted Downtown Addition SP | Long-Term With Adopted Downtown Addition SP Plus Project |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chestnut Avenue | Bitterwater Road | One-Way Stop | x--x | x--x | x--x | x--x | a. Restripe NB as 1-L, 1-R<br>b. Add 2nd EB T, 2nd WB T | a. Restripe NB as 1-L, 1-R<br>b. Add 2nd EB T, 2nd WB T |
| 2 | Metz Road | Bitterwater Road | One-Way Stop | x--x | a. Signalize Intersection<br>b. Add EB L, WB L<br>c. Restripe NB & SB Metz as 1-L/T, 1-R | Add EB L | a. Signalize Intersection<br>b. Add EB L<br>c. Add WB R<br>d. Add 2nd EB T, 2nd WB T | a. Signalize Intersection<br>b. Add EB L, WB L<br>c. Restripe NB and SB Metz as 1-L/T, 1-R<br>d. Add WB R<br>e. Add SB Right Turn Overlap Signal Phase<br>f. Add 2nd EB T, 2nd WB T | a. Signalize Intersection<br>b. Add EB L<br>c. Add WB R<br>d. Add SB Right Turn Overlap Signal Phase<br>e. Add 2nd EB T, 2nd WB T |

Notes:

1. L, T, R = Left, Through, Right
2. NB, SB, EB, WB = Northbound, Southbound, Eastbound, Westbound.
3. "x--x" = No improvements required.

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**Exhibit 7C**
**Recommended**
**Intersection Improvements**

# Appendix A

Level of Service

Descriptions

## APPENDIX A1

## LEVEL OF SERVICE (LOS) DESCRIPTION
## SIGNALIZED INTERSECTIONS

The capacity of an urban street is related primarily to the signal timing and the geometric characteristics of the facility as well as to the composition of traffic on the facility. Geometrics are a fixed characteristic of a facility. Thus, while traffic composition may vary somewhat over time, the capacity of a facility is generally a stable value that can be significantly improved only by initiating geometric improvements. A traffic signal essentially allocates time among conflicting traffic movements that seek to use the same space. The way in which time is allocated significantly affects the operation and the capacity of the intersection and its approaches.

The methodology for signalized intersection is designed to consider individual intersection approaches and individual lane groups within approaches. A lane group consists of one or more lanes on an intersection approach. The outputs from application of the method described in the HCM 2000 are reported on the basis of each lane. For a given lane group at a signalized intersection, three indications are displayed: green, yellow and red. The red indication may include a short period during which all indications are red, referred to as an all-red interval and the yellow indication forms the change and clearance interval between two green phases.

The methodology for analyzing the capacity and level of service must consider a wide variety of prevailing conditions, including the amount and distribution of traffic movements, traffic composition, geometric characteristics, and details of intersection signalization. The methodology addresses the capacity, LOS, and other performance measures for lane groups and the intersection approaches and the LOS for the intersection as a whole.

Capacity is evaluated in terms of the ratio of demand flow rate to capacity (v/c ratio), whereas LOS is evaluated on the basis of control delay per vehicle (in seconds per vehicle). The methodology does not take into account the potential impact of downstream congestion on intersection operation, nor does the methodology detect and adjust for the impacts of turn-pocket overflows on through traffic and intersection operation.

### LEVEL OF SERVICE (LOS) CRITERIA FOR SIGNALIZED INTERSECTIONS

(Reference 2000 Highway Capacity Manual)

| Level of Service | Control Delay (seconds / vehicle) |
|---|---|
| A | <10 |
| B | >10 - 20 |
| C | >20 - 35 |
| D | >35 - 55 |
| E | >55 - 80 |
| F | >80 |

## APPENDIX A2

## LEVEL OF SERVICE (LOS) DESCRIPTION
## UNSIGNALIZED INTERSECTIONS WITH TWO-WAY STOP CONTROL (TWSC)

TWSC intersections are widely used and stop signs are used to control vehicle movements at such intersections. At TWSC intersections, the stop-controlled approaches are referred to as the minor street approaches; they can be either public streets or private driveways. The intersection approaches that are not controlled by stop signs are referred to as the major street approaches. A three-leg intersection is considered to be a standard type of TWSC intersection if the single minor street approach (i.e. the stem of the T configuration) is controlled by a stop sign. Three-leg intersections where two of the three approaches are controlled by stop signs are a special form of unsignalized intersection control.

At TWSC intersections, drivers on the controlled approaches are required to select gaps in the major street flow through which to execute crossing or turning maneuvers on the basis of judgment. In the presence of a queue, each driver on the controlled approach must use some time to move into the front-of-queue position and prepare to evaluate gaps in the major street flow. Capacity analysis at TWSC intersections depends on a clear description and understanding of the interaction of drivers on the minor or stop-controlled approach with drivers on the major street. Both gap acceptance and empirical models have been developed to describe this interaction.

Thus, the capacity of the controlled legs is based on three factors:

- the distribution of gaps in the major street traffic stream;
- driver judgment in selecting gaps through which to execute the desired maneuvers; and
- the follow-up time required by each driver in a queue.

The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions, in the absence of incident, control, traffic or geometric delay. Average control delay for any particular minor movement is a function of the capacity of the approach and the degree of saturation and referred to as level of service.

### LEVEL OF SERVICE (LOS) CRITERIA FOR TWSC INTERSECTIONS

(Reference 2000 Highway Capacity Manual)

| Level of Service | Control Delay (seconds / vehicle) |
|---|---|
| A | 0 - 10 |
| B | >10 - 15 |
| C | >15 - 25 |
| D | >25 - 35 |
| E | >35 - 50 |
| F | >50 |

# APPENDIX A3
# LEVEL OF SERVICE THRESHOLD VOLUMES FOR VARIOUS ROADWAY TYPES
# TOTAL DAILY VOLUMES IN BOTH DIRECTIONS (ADT)

| ROADWAY TYPE | CODE | LOS A | LOS B | LOS C | LOS D | LOS E |
|---|---|---|---|---|---|---|
| 10-Lane Freeway | 10F | 71,000 | 110,000 | 154,000 | 178,000 | 202,000 |
| 8-Lane Freeway | 8F | 56,000 | 88,000 | 124,000 | 151,000 | 162,000 |
| 6-Lane Freeway | 6F | 43,900 | 66,400 | 95,600 | 114,800 | 123,800 |
| 8-Lane Expressway | 8E | 35,000 | 54,000 | 75,000 | 90,000 | 98,000 |
| 6-Lane Expressway | 6E | 28,000 | 42,000 | 56,000 | 67,000 | 74,000 |
| 4-Lane Freeway | 4F | 29,300 | 45,000 | 64,100 | 77,600 | 83,300 |
| 8-Lane Divided Arterial (w/ left-turn lane) | 9 | 40,000 | 47,000 | 54,000 | 61,000 | 68,000 |
| 6-Lane Divided Arterial (w/ left-turn lane) | 7 | 32,000 | 38,000 | 43,000 | 49,000 | 54,000 |
| 4-Lane Expressway | 4E | 18,000 | 27,000 | 36,000 | 45,000 | 50,000 |
| 4-Lane Divided Arterial (w/ left-turn lane) | 5 | 22,000 | 25,000 | 29,000 | 32,500 | 36,000 |
| 4-Lane Undivided Arterial (no left-turn lane) | 4 | 16,000 | 19,000 | 22,000 | 24,000 | 27,000 |
| 2-Lane Rural Highway | 2R | 4,000 | 8,000 | 12,000 | 17,000 | 25,000 |
| 2-Lane Arterial (w/ left-turn lane) | 3 | 11,000 | 12,500 | 14,500 | 16,000 | 18,000 |
| 2-Lane Collector | 2 | 6,000 | 7,500 | 9,000 | 10,500 | 12,000 |
| 2-Lane Local | 1 | 1,200 | 1,400 | 1,600 | 1,800 | 2,000 |
| 1-Lane Freeway Diamond Ramp | 1D | 11,000 | 12,800 | 14,700 | 16,500 | 18,300 |
| 2-Lane Freeway Diamond Ramp | 2D | 22,000 | 25,600 | 29,400 | 33,000 | 36,600 |
| 1-Lane Freeway Loop Ramp | 1L | 9,000 | 10,500 | 12,000 | 13,500 | 15,000 |
| 2-Lane Freeway Loop Ramp | 2L | 16,000 | 18,700 | 21,300 | 24,000 | 26,700 |

Notes:

1. The above threshold volumes for preliminary planning purposes only. If available, the results of detailed level of service analyses will typically have priority over the levels of service derived from this table. In that case this table can be used by the analyst for providing additional considerations for recommending the appropriate general roadway type for the specific condition being analyzed.
2. All above facilities assume a 60%/40% peak hour directional split. All above facilities assume peak hour representing approximately 10% of the Average Daily Traffic (ADT), except for mainline freeway facilities, which assume peak hour representing 8% of the Average Daily Traffic (ADT).
3. Based on *Highway Capacity Manual*, Transportation Research Board, 2000.
4. Freeway thresholds are consistent with conditions utilizing a .95 peak hour factor, with 2% trucks and slightly over a one-mile average interchange spacing.
5. Expressways are consistent with the average of a multi-lane highway (with no signals) and Class 1 arterial (with an average signal spacing of 0.8 signals per mile and a .45 G/C ratio).
6. Arterial thresholds are consistent with the average of Class 1 and Class 2 arterials with an assumed signal density of two signals per mile. This assumes a divided arterial with left-turn lanes. Thresholds for four-lane undivided arterials assume approximately three-fourths the capacity of a four-lane divided arterial due to the impedance in traffic flow resulting from left-turning vehicles waiting in the inside through lane, thus significantly reducing the capacity of the roadway.
7. Rural highways are generally consistent with the *2000 Highway Capacity Manual* rural highway, assuming 8% trucks, 4% RV's, 20% no-passing, and level terrain. The greatest difference is that it assumes a maximum capacity (upper end of LOS E) of 25,000 rather than the 28,000 calculated using the new *Highway Capacity Manual*.
8. Two-lane collectors assume approximately three-fourths of the capacity of a two-lane arterial with left-turn lanes. This is based on the assumption that left-turn channelization is not provided on a two-lane collector.
9. Local street level of service thresholds are based upon "Neighborhood Traffic Related Quality-of-Life Considerations" which assumes a standard suburban neighborhood, 40-foot roadway width, and 25 mile per hour speed limit with normal speed violation rates.
10. Capacities for Diamond Ramps and Loop Ramps may be slightly higher or lower than the planning level capacities indicated above. The *2000 Highway Capacity Manual* (2000 HCM) states that the capacity of a one-lane diamond to be 2,200 vehicles per hour (vph), and 1,800 vph for a small radius loop ramp. Two-lane freeway ramp capacities are estimated in the 2000 HCM to be 4,400vph for a two-lane diamond, and 3,200vph for a two-lane small radius loop. Varying intermediate capacities are provided for incremental conditions between these extremes. Capacities given for each service level assume the same level of service for the adjoining merging roadway as well as level of service being determined by volume-to-capacity and not attainable speed. Level of service will be controlled by freeway level of service if worse than ramp. Mitigations of level of service deficiencies may include the addition of a lane on the freeway ramp, the addition of an auxiliary lane on the freeway mainline, the addition of approach lanes at the ramp junction with the local intersecting street, and/or geometric modifications to improve the efficiency of the ramp itself or its termini. The appropriate mitigation should be determined on a case-by-case basis, considering freeway main line volumes and weaving, the extent that the freeway ramp volume exceeds the above planning thresholds, and the level of service of the ramp intersection with the local street.
11. All volumes are approximate and assume ideal roadway characteristics.

# Appendix B

Intersection

Level of Service

Calculations

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Chestnut Ave / Bitterwater Rd

Average Delay (sec/veh): 0.6  Worst Case Level Of Service: A[ 9.4]

| Street Name: | Chestnut Ave | | | | | | Bitterwater Rd | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 0 | 0 0 | | 0 0 0 | 1 0 | | 1 0 | 1 0 0 | |
| Volume Module: AM Peak Hour | | | | | | | | | | | | |
| Base Vol: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 122 | 5 | 5 | 92 | 0 |
| 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: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 122 | 5 | 5 | 92 | 0 |
| 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: | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 133 | 5 | 5 | 100 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 133 | 5 | 5 | 100 | 0 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 6.4 | 6.5 | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | 246 | 246 | 135 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 138 | xxxx | xxxxx |
| Potent Cap.: | 747 | 660 | 919 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1458 | xxxx | xxxxx |
| Move Cap.: | 744 | 657 | 919 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1458 | xxxx | xxxxx |
| Volume/Cap: | 0.01 | 0.00 | 0.01 | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | 0.00 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 7.5 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | * | * | * | * | A | * | * |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | |
| Shared Cap.: | xxxx | 823 | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 0.0 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 9.4 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shared LOS: | * | A | * | * | * | * | * | * | * | * | * | * |
| ApproachDel: | | 9.4 | | xxxxxx | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | | A | | | * | | | * | | | * | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Metz Rd / Bitterwater Rd

Average Delay (sec/veh): 5.0  Worst Case Level Of Service: A[ 9.9]

| Street Name: | Metz Rd | | | | | | | | Bitterwater Rd | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0 | | 1 0 | 0 0 | 1 | | 0 1 | 0 0 | 0 | | 0 0 | 0 1 | 0 | |
| Volume Module: AM Peak Hour | | | | | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | | 10 | 0 | 159 | | 183 | 177 | 0 | | 0 | 79 | 18 | |
| 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 | 0 | | 10 | 0 | 159 | | 183 | 177 | 0 | | 0 | 79 | 18 | |
| 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: | 0.89 | 0.89 | 0.89 | | 0.89 | 0.89 | 0.89 | | 0.89 | 0.89 | 0.89 | | 0.89 | 0.89 | 0.89 | |
| PHF Volume: | 0 | 0 | 0 | | 11 | 0 | 179 | | 206 | 199 | 0 | | 0 | 89 | 20 | |
| Reduct Vol: | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | |
| FinalVolume: | 0 | 0 | 0 | | 11 | 0 | 179 | | 206 | 199 | 0 | | 0 | 89 | 20 | |
| Critical Gap Module: | | | | | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | | 6.4 | xxxx | 6.2 | | 4.1 | xxxx | xxxxx | | xxxxx | xxxx | xxxxx | |
| FollowUpTim: | xxxxx | xxxx | xxxxx | | 3.5 | xxxx | 3.3 | | 2.2 | xxxx | xxxxx | | xxxxx | xxxx | xxxxx | |
| Capacity Module: | | | | | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | | 709 | xxxx | 99 | | 109 | xxxx | xxxxx | | xxxx | xxxx | xxxxx | |
| Potent Cap.: | xxxx | xxxx | xxxxx | | 404 | xxxx | 962 | | 1494 | xxxx | xxxxx | | xxxx | xxxx | xxxxx | |
| Move Cap.: | xxxx | xxxx | xxxxx | | 355 | xxxx | 962 | | 1494 | xxxx | xxxxx | | xxxx | xxxx | xxxxx | |
| Volume/Cap: | xxxx | xxxx | xxxx | | 0.03 | xxxx | 0.19 | | 0.14 | xxxx | xxxx | | xxxx | xxxx | xxxx | |
| Level Of Service Module: | | | | | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | | 0.1 | xxxx | 0.7 | | 0.5 | xxxx | xxxxx | | xxxx | xxxx | xxxxx | |
| Control Del: | xxxxx | xxxx | xxxxx | | 15.5 | xxxx | 9.6 | | 7.8 | xxxx | xxxxx | | xxxxx | xxxx | xxxxx | |
| LOS by Move: | * | * | * | | C | * | A | | A | * | * | | * | * | * | |
| 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 | | 0.5 | xxxx | xxxxx | | xxxxx | xxxx | xxxxx | |
| Shrd ConDel: | xxxxx | xxxx | xxxxx | | xxxxx | xxxx | xxxxx | | 7.8 | xxxx | xxxxx | | xxxxx | xxxx | xxxxx | |
| Shared LOS: | * | * | * | | * | * | * | | A | * | * | | * | * | * | |
| ApproachDel: | xxxxxx | | | | 9.9 | | | | xxxxxx | | | | xxxxxx | | | |
| ApproachLOS: | * | | | | A | | | | * | | | | * | | | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Chestnut Ave / Bitterwater Rd

Average Delay (sec/veh): 0.5  Worst Case Level Of Service: A[ 9.5]

| Street Name: | Chestnut Ave | | | | | | Bitterwater Rd | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 0 0 0 | | | 0 0 0 1 0 | | | 1 0 1 0 0 | | |
| Volume Module: | PM Peak Hour | | | | | | | | | | | |
| Base Vol: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 96 | 5 | 5 | 164 | 0 |
| 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: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 96 | 5 | 5 | 164 | 0 |
| 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: | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 104 | 5 | 5 | 178 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 104 | 5 | 5 | 178 | 0 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 6.4 | 6.5 | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | 296 | 296 | 107 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 110 | xxxx | xxxxx |
| Potent Cap.: | 699 | 619 | 952 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1493 | xxxx | xxxxx |
| Move Cap.: | 697 | 616 | 952 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1493 | xxxx | xxxxx |
| Volume/Cap: | 0.01 | 0.00 | 0.01 | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | 0.00 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 7.4 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | * | * | * | * | A | * | * |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | |
| Shared Cap.: | xxxx | 805 | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 0.0 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 9.5 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shared LOS: | * | A | * | * | * | * | * | * | * | * | * | * |
| ApproachDel: | | 9.5 | | xxxxxx | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | | A | | | * | | | * | | | * | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Metz Rd / Bitterwater Rd

Average Delay (sec/veh): 3.8  Worst Case Level Of Service: B[ 11.0]

| Street Name: | Metz Rd | | | | | | | | | Bitterwater Rd | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| Volume Module: PM Peak Hour | | | | | | | | | | | | | | | | | | | | |
| Base Vol: | 0 | | 0 | | 0 | 11 | | 0 | | 231 | 0 | | 198 | | 90 | 0 | | 148 | | 21 |
| 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 | | 0 | 11 | | 0 | | 231 | 0 | | 198 | | 90 | 0 | | 148 | | 21 |
| 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: | 0.88 | 0.88 | | 0.88 | | 0.88 | 0.88 | | 0.88 | | 0.88 | 0.88 | | 0.88 | | 0.88 | 0.88 | | 0.88 | |
| PHF Volume: | 0 | | 0 | | 0 | 13 | | 0 | | 263 | 0 | | 225 | | 102 | 0 | | 168 | | 24 |
| Reduct Vol: | 0 | | 0 | | 0 | 0 | | 0 | | 0 | 0 | | 0 | | 0 | 0 | | 0 | | 0 |
| FinalVolume: | 0 | | 0 | | 0 | 13 | | 0 | | 263 | 0 | | 225 | | 102 | 0 | | 168 | | 24 |
| Critical Gap Module: | | | | | | | | | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | | | 6.4 | xxxx | | | 6.2 | xxxxx | xxxx | xxxxx | | | xxxxx | xxxx | xxxxx | | |
| FollowUpTim: | xxxxx | xxxx | xxxxx | | | 3.5 | xxxx | | | 3.3 | xxxxx | xxxx | xxxxx | | | xxxxx | xxxx | xxxxx | | |
| Capacity Module: | | | | | | | | | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | | | 456 | xxxx | | | 180 | xxxx | xxxx | xxxxx | | | xxxx | xxxx | xxxxx | | |
| Potent Cap.: | xxxx | xxxx | xxxxx | | | 566 | xxxx | | | 868 | xxxx | xxxx | xxxxx | | | xxxx | xxxx | xxxxx | | |
| Move Cap.: | xxxx | xxxx | xxxxx | | | 566 | xxxx | | | 868 | xxxx | xxxx | xxxxx | | | xxxx | xxxx | xxxxx | | |
| Volume/Cap: | xxxx | xxxx | xxxx | | | 0.02 | xxxx | | | 0.30 | xxxx | xxxx | xxxx | | | xxxx | xxxx | xxxx | | |
| Level Of Service Module: | | | | | | | | | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | | | 0.1 | xxxx | | | 1.3 | xxxx | xxxx | xxxxx | | | xxxx | xxxx | xxxxx | | |
| Control Del: | xxxxx | xxxx | xxxxx | | | 11.5 | xxxx | | | 10.9 | xxxxx | xxxx | xxxxx | | | xxxxx | xxxx | xxxxx | | |
| LOS by Move: | * | | * | | * | 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: | xxxxxx | | | | | 11.0 | | | | | xxxxxx | | | | | xxxxxx | | | | |
| ApproachLOS: | * | | | | | B | | | | | * | | | | | * | | | | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Chestnut Ave / Bitterwater Rd

Average Delay (sec/veh): 2.3 Worst Case Level Of Service: B[ 10.7]

| Street Name: | Chestnut Ave | | | | | | | | | Bitterwater Rd | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| Volume Module: AM Peak Hour | | | | | | | | | | | | | | | | | | | | |
| Base Vol: | 69 | 0 | 7 | 0 | 0 | 0 | 0 | 134 | 34 | 3 | 108 | 0 | | | | | | | | |
| 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: | 69 | 0 | 7 | 0 | 0 | 0 | 0 | 134 | 34 | 3 | 108 | 0 | | | | | | | | |
| 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: | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | | | | | | | |
| PHF Volume: | 75 | 0 | 8 | 0 | 0 | 0 | 0 | 146 | 37 | 3 | 117 | 0 | | | | | | | | |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | |
| FinalVolume: | 75 | 0 | 8 | 0 | 0 | 0 | 0 | 146 | 37 | 3 | 117 | 0 | | | | | | | | |
| Critical Gap Module: | | | | | | | | | | | | | | | | | | | | |
| Critical Gp: | 6.4 | 6.5 | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx | | | | | | | | |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx | | | | | | | | |
| Capacity Module: | | | | | | | | | | | | | | | | | | | | |
| Cnflict Vol: | 288 | 288 | 164 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 183 | xxxx | xxxxx | | | | | | | | |
| Potent Cap.: | 707 | 625 | 886 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1405 | xxxx | xxxxx | | | | | | | | |
| Move Cap.: | 705 | 624 | 886 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1405 | xxxx | xxxxx | | | | | | | | |
| Volume/Cap: | 0.11 | 0.00 | 0.01 | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | 0.00 | xxxx | xxxx | | | | | | | | |
| Level Of Service Module: | | | | | | | | | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx | | | | | | | | |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 7.6 | xxxx | xxxxx | | | | | | | | |
| LOS by Move: | * | * | * | * | * | * | * | * | * | A | * | * | | | | | | | | |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | | | | | | | | |
| Shared Cap.: | xxxx | 719 | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | | | | | | | | |
| SharedQueue: | xxxxx | 0.4 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | | | | | | | | |
| Shrd ConDel: | xxxxx | 10.7 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | | | | | | | | |
| Shared LOS: | * | B | * | * | * | * | * | * | * | * | * | * | | | | | | | | |
| ApproachDel: | 10.7 | | | xxxxxx | | | xxxxxx | | | xxxxxx | | | | | | | | | | |
| ApproachLOS: | B | | | * | | | * | | | * | | | | | | | | | | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Metz Rd / Bitterwater Rd

Average Delay (sec/veh): 6.3 Worst Case Level Of Service: D[ 31.4]

| Street Name: | Metz Rd | | | | | | Bitterwater Rd | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 1 0 0 1 | | | 0 0 1! 0 0 | | | 0 0 1! 0 0 | | |
| Volume Module: AM Peak Hour | | | | | | | | | | | | |
| Base Vol: | 27 | 21 | 1 | 11 | 11 | 160 | 186 | 216 | 14 | 1 | 156 | 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: | 27 | 21 | 1 | 11 | 11 | 160 | 186 | 216 | 14 | 1 | 156 | 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: | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| PHF Volume: | 30 | 24 | 1 | 12 | 12 | 180 | 209 | 243 | 16 | 1 | 175 | 22 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 30 | 24 | 1 | 12 | 12 | 180 | 209 | 243 | 16 | 1 | 175 | 22 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 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: | 953 | 869 | 251 | 870 | 865 | 187 | 198 | xxxx | xxxxx | 258 | xxxx | xxxxx |
| Potent Cap.: | 241 | 292 | 793 | 274 | 294 | 861 | 1387 | xxxx | xxxxx | 1318 | xxxx | xxxxx |
| Move Cap.: | 159 | 242 | 793 | 221 | 243 | 861 | 1387 | xxxx | xxxxx | 1318 | xxxx | xxxxx |
| Volume/Cap: | 0.19 | 0.10 | 0.00 | 0.06 | 0.05 | 0.21 | 0.15 | xxxx | xxxx | 0.00 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | 0.8 | 0.5 | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | 10.3 | 8.1 | xxxx | xxxxx | 7.7 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | B | A | * | * | A | * | * |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | |
| Shared Cap.: | xxxx | 190 | xxxxx | 231 | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 1.1 | xxxxx | 0.4 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 31.4 | xxxxx | 22.4 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shared LOS: | * | D | * | C | * | * | * | * | * | * | * | * |
| ApproachDel: | 31.4 | | | 11.7 | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | D | | | B | | | * | | | * | | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Chestnut Ave / Bitterwater Rd

Average Delay (sec/veh): 2.4 Worst Case Level Of Service: B[ 12.0]

| Street Name: | Chestnut Ave | | | | | | Bitterwater Rd | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 0 0 0 | | | 0 0 0 1 0 | | | 1 0 1 0 0 | | |
| Volume Module: | PM Peak Hour | | | | | | | | | | | |
| Base Vol: | 85 | 0 | 9 | 0 | 0 | 0 | 0 | 116 | 105 | 11 | 184 | 0 |
| 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: | 85 | 0 | 9 | 0 | 0 | 0 | 0 | 116 | 105 | 11 | 184 | 0 |
| 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: | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume: | 92 | 0 | 10 | 0 | 0 | 0 | 0 | 126 | 114 | 12 | 200 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 92 | 0 | 10 | 0 | 0 | 0 | 0 | 126 | 114 | 12 | 200 | 0 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 6.4 | 6.5 | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | 407 | 407 | 183 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 240 | xxxx | xxxxx |
| Potent Cap.: | 604 | 536 | 864 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1338 | xxxx | xxxxx |
| Move Cap.: | 600 | 532 | 864 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1338 | xxxx | xxxxx |
| Volume/Cap: | 0.15 | 0.00 | 0.01 | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | 0.01 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 7.7 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | * | * | * | * | A | * | * |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | |
| Shared Cap.: | xxxx | 618 | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 0.6 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 12.0 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shared LOS: | * | B | * | * | * | * | * | * | * | * | * | * |
| ApproachDel: | | 12.0 | | xxxxxx | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | | B | | | * | | | * | | | * | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Metz Rd / Bitterwater Rd

Average Delay (sec/veh): 10.5 Worst Case Level Of Service: F[ 81.2]

| Street Name: | Metz Rd | | | | | | Bitterwater Rd | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 1 0 0 1 | | | 0 0 1! 0 0 | | | 0 0 1! 0 0 | | |
| Volume Module: PM Peak Hour | | | | | | | | | | | | |
| Base Vol: | 33 | 26 | 2 | 14 | 32 | 236 | 202 | 205 | 41 | 2 | 243 | 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: | 33 | 26 | 2 | 14 | 32 | 236 | 202 | 205 | 41 | 2 | 243 | 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: | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| PHF Volume: | 38 | 30 | 2 | 16 | 36 | 268 | 230 | 233 | 47 | 2 | 276 | 27 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 38 | 30 | 2 | 16 | 36 | 268 | 230 | 233 | 47 | 2 | 276 | 27 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 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: | 1162 | 1023 | 256 | 1026 | 1033 | 290 | 303 | xxxx | xxxxx | 280 | xxxx | xxxxx |
| Potent Cap.: | 174 | 237 | 787 | 215 | 234 | 754 | 1269 | xxxx | xxxxx | 1295 | xxxx | xxxxx |
| Move Cap.: | 80 | 188 | 787 | 159 | 185 | 754 | 1269 | xxxx | xxxxx | 1295 | xxxx | xxxxx |
| Volume/Cap: | 0.47 | 0.16 | 0.00 | 0.10 | 0.20 | 0.36 | 0.18 | xxxx | xxxx | 0.00 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | 1.6 | 0.7 | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | 12.4 | 8.5 | xxxx | xxxxx | 7.8 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | B | A | * | * | A | * | * |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | |
| Shared Cap.: | xxxx | 110 | xxxxx | 177 | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 3.1 | xxxxx | 1.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 81.2 | xxxxx | 33.8 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shared LOS: | * | F | * | D | * | * | * | * | * | * | * | * |
| ApproachDel: | 81.2 | | | 15.9 | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | F | | | C | | | * | | | * | | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 Metz Rd / Bitterwater Rd

| | | | |
|---|---|---|---|
| Cycle (sec): | 60 | Critical Vol./Cap.(X): | 0.392 |
| Loss Time (sec): | 9 | Average Delay (sec/veh): | 14.6 |
| Optimal Cycle: | 28 | Level Of Service: | B |

| Street Name: | Metz Rd | | | | | | Bitterwater Rd | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
| Movement: | L - T - R | | | L - T - R | | | L - T - R | | | L - T - R | | |
| Control: | Permitted | | | Permitted | | | Protected | | | Protected | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Y+R: | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lanes: | 0 1 | 0 | 0 1 | 0 1 | 0 | 0 1 | 1 | 0 0 | 1 0 | 1 | 0 0 | 1 0 |
| Volume Module:AM Peak Hour | | | | | | | | | | | | |
| Base Vol: | 27 | 21 | 1 | 11 | 11 | 160 | 186 | 216 | 14 | 1 | 156 | 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: | 27 | 21 | 1 | 11 | 11 | 160 | 186 | 216 | 14 | 1 | 156 | 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: | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| PHF Volume: | 30 | 24 | 1 | 12 | 12 | 180 | 209 | 243 | 16 | 1 | 175 | 22 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 30 | 24 | 1 | 12 | 12 | 180 | 209 | 243 | 16 | 1 | 175 | 22 |
| PCE Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 30 | 24 | 1 | 12 | 12 | 180 | 209 | 243 | 16 | 1 | 175 | 22 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.88 | 0.88 | 0.85 | 0.91 | 0.91 | 0.85 | 0.95 | 0.99 | 0.99 | 0.95 | 0.98 | 0.98 |
| Lanes: | 0.56 | 0.44 | 1.00 | 0.50 | 0.50 | 1.00 | 1.00 | 0.94 | 0.06 | 1.00 | 0.89 | 0.11 |
| Final Sat.: | 936 | 728 | 1615 | 864 | 864 | 1615 | 1805 | 1768 | 115 | 1805 | 1655 | 212 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.03 | 0.03 | 0.00 | 0.01 | 0.01 | 0.11 | 0.12 | 0.14 | 0.14 | 0.00 | 0.11 | 0.11 |
| Crit Moves: | | | | | | **** | **** | | | | **** | |
| Green/Cycle: | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.30 | 0.56 | 0.56 | 0.00 | 0.27 | 0.27 |
| Volume/Cap: | 0.11 | 0.11 | 0.00 | 0.05 | 0.05 | 0.39 | 0.39 | 0.24 | 0.24 | 0.24 | 0.39 | 0.39 |
| Uniform Del: | 15.9 | 15.9 | 15.4 | 15.6 | 15.6 | 17.3 | 16.8 | 6.6 | 6.6 | 29.9 | 17.9 | 17.9 |
| IncremntDel: | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.6 | 0.5 | 0.1 | 0.1 | 25.7 | 0.5 | 0.5 |
| InitQueuDel: | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Delay 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 |
| Delay/Veh: | 16.0 | 16.0 | 15.4 | 15.6 | 15.6 | 17.9 | 17.3 | 6.8 | 6.8 | 55.6 | 18.4 | 18.4 |
| User DelAdj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh: | 16.0 | 16.0 | 15.4 | 15.6 | 15.6 | 17.9 | 17.3 | 6.8 | 6.8 | 55.6 | 18.4 | 18.4 |
| LOS by Move: | B | B | B | B | B | B | B | A | A | E | B | B |
| HCM2kAvgQ: | 1 | 1 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 0 | 3 | 3 |

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 Metz Rd / Bitterwater Rd

Cycle (sec): 60 Critical Vol./Cap.(X): 0.535
Loss Time (sec): 9 Average Delay (sec/veh): 16.2
Optimal Cycle: 34 Level Of Service: B

| Street Name: | Metz Rd | | | | | | Bitterwater Rd | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
| Movement: | L - T - R | | | L - T - R | | | L - T - R | | | L - T - R | | |
| Control: | Permitted | | | Permitted | | | Protected | | | Protected | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Y+R: | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lanes: | 0 1 | 0 | 0 1 | 0 1 | 0 | 0 1 | 1 | 0 0 | 1 0 | 1 | 0 0 | 1 0 |
| Volume Module: PM Peak Hour | | | | | | | | | | | | |
| Base Vol: | 33 | 26 | 2 | 14 | 32 | 236 | 202 | 205 | 41 | 2 | 243 | 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: | 33 | 26 | 2 | 14 | 32 | 236 | 202 | 205 | 41 | 2 | 243 | 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: | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| PHF Volume: | 38 | 30 | 2 | 16 | 36 | 268 | 230 | 233 | 47 | 2 | 276 | 27 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 38 | 30 | 2 | 16 | 36 | 268 | 230 | 233 | 47 | 2 | 276 | 27 |
| PCE Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 38 | 30 | 2 | 16 | 36 | 268 | 230 | 233 | 47 | 2 | 276 | 27 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.86 | 0.86 | 0.85 | 0.94 | 0.94 | 0.85 | 0.95 | 0.98 | 0.98 | 0.95 | 0.99 | 0.99 |
| Lanes: | 0.56 | 0.44 | 1.00 | 0.30 | 0.70 | 1.00 | 1.00 | 0.83 | 0.17 | 1.00 | 0.91 | 0.09 |
| Final Sat.: | 915 | 721 | 1615 | 541 | 1237 | 1615 | 1805 | 1544 | 309 | 1805 | 1707 | 169 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.04 | 0.04 | 0.00 | 0.03 | 0.03 | 0.17 | 0.13 | 0.15 | 0.15 | 0.00 | 0.16 | 0.16 |
| Crit Moves: | | | | | | **** | **** | | | | **** | |
| Green/Cycle: | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.24 | 0.54 | 0.54 | 0.00 | 0.30 | 0.30 |
| Volume/Cap: | 0.13 | 0.13 | 0.00 | 0.09 | 0.09 | 0.54 | 0.54 | 0.28 | 0.28 | 0.28 | 0.54 | 0.54 |
| Uniform Del: | 14.9 | 14.9 | 14.3 | 14.7 | 14.7 | 17.1 | 20.0 | 7.6 | 7.6 | 29.8 | 17.4 | 17.4 |
| IncremntDel: | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 | 1.1 | 1.3 | 0.2 | 0.2 | 18.2 | 1.0 | 1.0 |
| InitQueuDel: | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Delay 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 |
| Delay/Veh: | 15.0 | 15.0 | 14.3 | 14.8 | 14.8 | 18.3 | 21.3 | 7.8 | 7.8 | 48.0 | 18.4 | 18.4 |
| User DelAdj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh: | 15.0 | 15.0 | 14.3 | 14.8 | 14.8 | 18.3 | 21.3 | 7.8 | 7.8 | 48.0 | 18.4 | 18.4 |
| LOS by Move: | B | B | B | B | B | B | C | A | A | D | B | B |
| HCM2kAvgQ: | 1 | 1 | 0 | 1 | 1 | 5 | 4 | 3 | 3 | 0 | 5 | 5 |

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Chestnut Ave / Bitterwater Rd

Average Delay (sec/veh): 3.4  Worst Case Level Of Service: B[ 11.3]

| Street Name: | Chestnut Ave | | | | | | Bitterwater Rd | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 0 | 0 0 | | 0 0 0 | 1 0 | | 1 0 | 1 0 0 | |
| Volume Module: AM Peak Hour | | | | | | | | | | | | |
| Base Vol: | 112 | 0 | 9 | 0 | 0 | 0 | 0 | 135 | 47 | 5 | 107 | 0 |
| 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: | 112 | 0 | 9 | 0 | 0 | 0 | 0 | 135 | 47 | 5 | 107 | 0 |
| 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: | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume: | 122 | 0 | 10 | 0 | 0 | 0 | 0 | 147 | 51 | 5 | 116 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 122 | 0 | 10 | 0 | 0 | 0 | 0 | 147 | 51 | 5 | 116 | 0 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 6.4 | 6.5 | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | 299 | 299 | 172 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 198 | xxxx | xxxxx |
| Potent Cap.: | 696 | 616 | 877 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1387 | xxxx | xxxxx |
| Move Cap.: | 694 | 614 | 877 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1387 | xxxx | xxxxx |
| Volume/Cap: | 0.18 | 0.00 | 0.01 | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | 0.00 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 7.6 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | * | * | * | * | A | * | * |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | |
| Shared Cap.: | xxxx | 705 | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 0.7 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 11.3 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shared LOS: | * | B | * | * | * | * | * | * | * | * | * | * |
| ApproachDel: | | 11.3 | | xxxxxx | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | | B | | | * | | | * | | | * | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Metz Rd / Bitterwater Rd

Average Delay (sec/veh): 4.5  Worst Case Level Of Service: B[ 11.7]

| Street Name: | Metz Rd | | | | | | | | | Bitterwater Rd | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | | | |
| Volume Module: | AM Peak Hour | | | | | | | | | | | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | | | 23 | 0 | 160 | | | 186 | 220 | 0 | | | 0 | 174 | 45 | | | | | |
| 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 | 0 | | | 23 | 0 | 160 | | | 186 | 220 | 0 | | | 0 | 174 | 45 | | | | | |
| 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: | 0.89 | 0.89 | 0.89 | | | 0.89 | 0.89 | 0.89 | | | 0.89 | 0.89 | 0.89 | | | 0.89 | 0.89 | 0.89 | | | | | |
| PHF Volume: | 0 | 0 | 0 | | | 26 | 0 | 180 | | | 209 | 247 | 0 | | | 0 | 196 | 51 | | | | | |
| Reduct Vol: | 0 | 0 | 0 | | | 0 | 0 | 0 | | | 0 | 0 | 0 | | | 0 | 0 | 0 | | | | | |
| FinalVolume: | 0 | 0 | 0 | | | 26 | 0 | 180 | | | 209 | 247 | 0 | | | 0 | 196 | 51 | | | | | |
| Critical Gap Module: | | | | | | | | | | | | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | | | 6.4 | xxxx | 6.2 | | | 4.1 | xxxx | xxxxx | | | xxxxx | xxxx | xxxxx | | | | | |
| FollowUpTim: | xxxxx | xxxx | xxxxx | | | 3.5 | xxxx | 3.3 | | | 2.2 | xxxx | xxxxx | | | xxxxx | xxxx | xxxxx | | | | | |
| Capacity Module: | | | | | | | | | | | | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | | | 886 | xxxx | 221 | | | 246 | xxxx | xxxxx | | | xxxx | xxxx | xxxxx | | | | | |
| Potent Cap.: | xxxx | xxxx | xxxxx | | | 318 | xxxx | 824 | | | 1332 | xxxx | xxxxx | | | xxxx | xxxx | xxxxx | | | | | |
| Move Cap.: | xxxx | xxxx | xxxxx | | | 274 | xxxx | 824 | | | 1332 | xxxx | xxxxx | | | xxxx | xxxx | xxxxx | | | | | |
| Volume/Cap: | xxxx | xxxx | xxxx | | | 0.09 | xxxx | 0.22 | | | 0.16 | xxxx | xxxx | | | xxxx | xxxx | xxxx | | | | | |
| Level Of Service Module: | | | | | | | | | | | | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | | | 0.3 | xxxx | 0.8 | | | 0.6 | xxxx | xxxxx | | | xxxx | xxxx | xxxxx | | | | | |
| Control Del: | xxxxx | xxxx | xxxxx | | | 19.5 | xxxx | 10.6 | | | 8.2 | xxxx | xxxxx | | | xxxxx | xxxx | xxxxx | | | | | |
| LOS by Move: | * | * | * | | | C | * | B | | | A | * | * | | | * | * | * | | | | | |
| 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 | | | 0.6 | xxxx | xxxxx | | | xxxxx | xxxx | xxxxx | | | | | |
| Shrd ConDel: | xxxxx | xxxx | xxxxx | | | xxxxx | xxxx | xxxxx | | | 8.2 | xxxx | xxxxx | | | xxxxx | xxxx | xxxxx | | | | | |
| Shared LOS: | * | * | * | | | * | * | * | | | A | * | * | | | * | * | * | | | | | |
| ApproachDel: | xxxxxx | | | | | 11.7 | | | | | xxxxxx | | | | | xxxxxx | | | | | | | |
| ApproachLOS: | * | | | | | B | | | | | * | | | | | * | | | | | | | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Chestnut Ave / Bitterwater Rd

Average Delay (sec/veh): 3.2  Worst Case Level Of Service: B[ 13.0]

| Street Name: | Chestnut Ave | | | | | | Bitterwater Rd | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 0 0 0 | | | 0 0 0 1 0 | | | 1 0 1 0 0 | | |
| Volume Module: | PM Peak Hour | | | | | | | | | | | |
| Base Vol: | 122 | 0 | 12 | 0 | 0 | 0 | 0 | 115 | 144 | 16 | 182 | 0 |
| 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: | 122 | 0 | 12 | 0 | 0 | 0 | 0 | 115 | 144 | 16 | 182 | 0 |
| 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: | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume: | 133 | 0 | 13 | 0 | 0 | 0 | 0 | 125 | 157 | 17 | 198 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 133 | 0 | 13 | 0 | 0 | 0 | 0 | 125 | 157 | 17 | 198 | 0 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 6.4 | 6.5 | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | 436 | 436 | 203 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 282 | xxxx | xxxxx |
| Potent Cap.: | 581 | 517 | 843 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1293 | xxxx | xxxxx |
| Move Cap.: | 575 | 510 | 843 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1293 | xxxx | xxxxx |
| Volume/Cap: | 0.23 | 0.00 | 0.02 | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | 0.01 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 7.8 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | * | * | * | * | A | * | * |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | |
| Shared Cap.: | xxxx | 592 | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 1.0 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 13.0 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shared LOS: | * | B | * | * | * | * | * | * | * | * | * | * |
| ApproachDel: | 13.0 | | | xxxxxx | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | B | | | * | | | * | | | * | | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Metz Rd / Bitterwater Rd

Average Delay (sec/veh): 6.0  Worst Case Level Of Service: C[ 15.3]

| Street Name: | Metz Rd | | | | | | | | | Bitterwater Rd | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | | |
| Volume Module: | PM Peak Hour | | | | | | | | | | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | | | 50 | 0 | | | 236 | 202 | | 222 | | 0 | 0 | | 252 | | 52 | | |
| 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 | 0 | | | 50 | 0 | | | 236 | 202 | | 222 | | 0 | 0 | | 252 | | 52 | | |
| 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: | 0.88 | 0.88 | 0.88 | | | 0.88 | 0.88 | | | 0.88 | 0.88 | | 0.88 | | 0.88 | 0.88 | | 0.88 | | 0.88 | | |
| PHF Volume: | 0 | 0 | 0 | | | 57 | 0 | | | 268 | 230 | | 252 | | 0 | 0 | | 286 | | 59 | | |
| Reduct Vol: | 0 | 0 | 0 | | | 0 | 0 | | | 0 | 0 | | 0 | | 0 | 0 | | 0 | | 0 | | |
| FinalVolume: | 0 | 0 | 0 | | | 57 | 0 | | | 268 | 230 | | 252 | | 0 | 0 | | 286 | | 59 | | |
| Critical Gap Module: | | | | | | | | | | | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | | | 6.4 | xxxx | | | 6.2 | 4.1 | | xxxx | | xxxxx | xxxxx | | xxxx | | xxxxx | | |
| FollowUpTim: | xxxxx | xxxx | xxxxx | | | 3.5 | xxxx | | | 3.3 | 2.2 | | xxxx | | xxxxx | xxxxx | | xxxx | | xxxxx | | |
| Capacity Module: | | | | | | | | | | | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | | | 1027 | xxxx | | | 316 | 345 | | xxxx | | xxxxx | xxxx | | xxxx | | xxxxx | | |
| Potent Cap.: | xxxx | xxxx | xxxxx | | | 262 | xxxx | | | 729 | 1225 | | xxxx | | xxxxx | xxxx | | xxxx | | xxxxx | | |
| Move Cap.: | xxxx | xxxx | xxxxx | | | 219 | xxxx | | | 729 | 1225 | | xxxx | | xxxxx | xxxx | | xxxx | | xxxxx | | |
| Volume/Cap: | xxxx | xxxx | xxxx | | | 0.26 | xxxx | | | 0.37 | 0.19 | | xxxx | | xxxx | xxxx | | xxxx | | xxxx | | |
| Level Of Service Module: | | | | | | | | | | | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | | | 1.0 | xxxx | | | 1.7 | 0.7 | | xxxx | | xxxxx | xxxx | | xxxx | | xxxxx | | |
| Control Del: | xxxxx | xxxx | xxxxx | | | 27.2 | xxxx | | | 12.8 | 8.6 | | xxxx | | xxxxx | xxxxx | | xxxx | | xxxxx | | |
| LOS by Move: | * | * | * | | | D | * | | | B | A | | * | | * | * | | * | | * | | |
| 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 | 0.7 | | xxxx | | xxxxx | xxxxx | | xxxx | | xxxxx | | |
| Shrd ConDel: | xxxxx | xxxx | xxxxx | | | xxxxx | xxxx | | | xxxxx | 8.6 | | xxxx | | xxxxx | xxxxx | | xxxx | | xxxxx | | |
| Shared LOS: | * | * | * | | | * | * | | | * | A | | * | | * | * | | * | | * | | |
| ApproachDel: | xxxxxx | | | | | 15.3 | | | | | xxxxxx | | | | | xxxxxx | | | | | | |
| ApproachLOS: | * | | | | | C | | | | | * | | | | | * | | | | | | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Metz Rd / Bitterwater Rd

Average Delay (sec/veh): 4.5 Worst Case Level Of Service: B[ 11.7]

| Street Name: | Metz Rd | | | | | | | | Bitterwater Rd | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Volume Module: | AM Peak Hour | | | | | | | | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | | | 23 | 0 | | | 160 | 186 | | 220 | | 0 | 0 | | 174 | | 45 |
| 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 | 0 | | | 23 | 0 | | | 160 | 186 | | 220 | | 0 | 0 | | 174 | | 45 |
| 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: | 0.89 | 0.89 | 0.89 | | | 0.89 | 0.89 | | | 0.89 | 0.89 | | 0.89 | | 0.89 | 0.89 | | 0.89 | | 0.89 |
| PHF Volume: | 0 | 0 | 0 | | | 26 | 0 | | | 180 | 209 | | 247 | | 0 | 0 | | 196 | | 51 |
| Reduct Vol: | 0 | 0 | 0 | | | 0 | 0 | | | 0 | 0 | | 0 | | 0 | 0 | | 0 | | 0 |
| FinalVolume: | 0 | 0 | 0 | | | 26 | 0 | | | 180 | 209 | | 247 | | 0 | 0 | | 196 | | 51 |
| Critical Gap Module: | | | | | | | | | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | | | 6.4 | xxxx | | | 6.2 | 4.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | | | | |
| FollowUpTim: | xxxxx | xxxx | xxxxx | | | 3.5 | xxxx | | | 3.3 | 2.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | | | | |
| Capacity Module: | | | | | | | | | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | | | 886 | xxxx | | | 221 | 246 | xxxx | xxxxx | xxxx | xxxx | xxxxx | | | | |
| Potent Cap.: | xxxx | xxxx | xxxxx | | | 318 | xxxx | | | 824 | 1332 | xxxx | xxxxx | xxxx | xxxx | xxxxx | | | | |
| Move Cap.: | xxxx | xxxx | xxxxx | | | 279 | xxxx | | | 824 | 1332 | xxxx | xxxxx | xxxx | xxxx | xxxxx | | | | |
| Volume/Cap: | xxxx | xxxx | xxxx | | | 0.09 | xxxx | | | 0.22 | 0.16 | xxxx | xxxx | xxxx | xxxx | xxxx | | | | |
| Level Of Service Module: | | | | | | | | | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | | | 0.3 | xxxx | | | 0.8 | 0.6 | xxxx | xxxxx | xxxx | xxxx | xxxxx | | | | |
| Control Del: | xxxxx | xxxx | xxxxx | | | 19.2 | xxxx | | | 10.6 | 8.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | | | | |
| LOS by Move: | * | * | * | | | C | * | | | B | A | * | * | * | * | * | | | | |
| 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: | xxxxxx | | | | | 11.7 | | | | | xxxxxx | | | | | xxxxxx | | | | |
| ApproachLOS: | * | | | | | B | | | | | * | | | | | * | | | | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Metz Rd / Bitterwater Rd

Average Delay (sec/veh): 6.0 Worst Case Level Of Service: C[ 15.2]

| Street Name: | Metz Rd | | | | | | | | Bitterwater Rd | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 0 | 1 | 0 | 0 | 0 1 | 1 | 0 | 1 | 0 0 | 0 | 0 | 0 | 1 0 |
| Volume Module: PM Peak Hour | | | | | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | 50 | 0 | 236 | 202 | 222 | 0 | 0 | 252 | 52 | | | | |
| 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 | 0 | 50 | 0 | 236 | 202 | 222 | 0 | 0 | 252 | 52 | | | | |
| 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: | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | | | | |
| PHF Volume: | 0 | 0 | 0 | 57 | 0 | 268 | 230 | 252 | 0 | 0 | 286 | 59 | | | | |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
| FinalVolume: | 0 | 0 | 0 | 57 | 0 | 268 | 230 | 252 | 0 | 0 | 286 | 59 | | | | |
| Critical Gap Module: | | | | | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | 6.4 | xxxx | 6.2 | 4.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | | | | |
| FollowUpTim: | xxxxx | xxxx | xxxxx | 3.5 | xxxx | 3.3 | 2.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | | | | |
| Capacity Module: | | | | | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | 1027 | xxxx | 316 | 345 | xxxx | xxxxx | xxxx | xxxx | xxxxx | | | | |
| Potent Cap.: | xxxx | xxxx | xxxxx | 262 | xxxx | 729 | 1225 | xxxx | xxxxx | xxxx | xxxx | xxxxx | | | | |
| Move Cap.: | xxxx | xxxx | xxxxx | 224 | xxxx | 729 | 1225 | xxxx | xxxxx | xxxx | xxxx | xxxxx | | | | |
| Volume/Cap: | xxxx | xxxx | xxxx | 0.25 | xxxx | 0.37 | 0.19 | xxxx | xxxx | xxxx | xxxx | xxxx | | | | |
| Level Of Service Module: | | | | | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | 1.0 | xxxx | 1.7 | 0.7 | xxxx | xxxxx | xxxx | xxxx | xxxxx | | | | |
| Control Del: | xxxxx | xxxx | xxxxx | 26.4 | xxxx | 12.8 | 8.6 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | | | | |
| LOS by Move: | * | * | * | D | * | B | A | * | * | * | * | * | | | | |
| 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: | xxxxxx | | | 15.2 | | | xxxxxx | | | xxxxxx | | | | | | |
| ApproachLOS: | * | | | C | | | * | | | * | | | | | | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Chestnut Ave / Bitterwater Rd

Average Delay (sec/veh): 0.2  Worst Case Level Of Service: C[ 19.7]

| Street Name: | Chestnut Ave | | | | | | Bitterwater Rd | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 0 | 0 0 | | 0 0 0 | 1 0 | | 1 0 | 1 0 0 | |
| Volume Module: AM Peak Hour | | | | | | | | | | | | |
| Base Vol: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 794 | 5 | 5 | 318 | 0 |
| 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: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 794 | 5 | 5 | 318 | 0 |
| 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: | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 863 | 5 | 5 | 346 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 863 | 5 | 5 | 346 | 0 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 6.4 | 6.5 | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | 1222 | 1222 | 866 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 868 | xxxx | xxxxx |
| Potent Cap.: | 200 | 181 | 356 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 784 | xxxx | xxxxx |
| Move Cap.: | 199 | 180 | 356 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 784 | xxxx | xxxxx |
| Volume/Cap: | 0.03 | 0.00 | 0.02 | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | 0.01 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 9.6 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | * | * | * | * | A | * | * |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | |
| Shared Cap.: | xxxx | 255 | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 0.1 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 19.7 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shared LOS: | * | C | * | * | * | * | * | * | * | * | * | * |
| ApproachDel: | | 19.7 | | xxxxxx | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | | C | | | * | | | * | | | * | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Metz Rd / Bitterwater Rd

Average Delay (sec/veh): 69.7  Worst Case Level Of Service: F[266.3]

| Street Name: | Metz Rd | | | | | | | | | Bitterwater Rd | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | | | |
| Volume Module: | AM Peak Hour | | | | | | | | | | | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | | | 191 | 0 | | | 225 | 208 | | 668 | | 0 | 0 | | 262 | | 61 | | | |
| 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 | 0 | | | 191 | 0 | | | 225 | 208 | | 668 | | 0 | 0 | | 262 | | 61 | | | |
| 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: | 0.89 | 0.89 | 0.89 | | | 0.89 | 0.89 | | | 0.89 | 0.89 | | 0.89 | | 0.89 | 0.89 | | 0.89 | | 0.89 | | | |
| PHF Volume: | 0 | 0 | 0 | | | 215 | 0 | | | 253 | 234 | | 751 | | 0 | 0 | | 294 | | 69 | | | |
| Reduct Vol: | 0 | 0 | 0 | | | 0 | 0 | | | 0 | 0 | | 0 | | 0 | 0 | | 0 | | 0 | | | |
| FinalVolume: | 0 | 0 | 0 | | | 215 | 0 | | | 253 | 234 | | 751 | | 0 | 0 | | 294 | | 69 | | | |
| Critical Gap Module: | | | | | | | | | | | | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | | | 6.4 | xxxx | | | 6.2 | 4.1 | | xxxx | | xxxxx | xxxxx | | xxxx | | xxxxx | | | |
| FollowUpTim: | xxxxx | xxxx | xxxxx | | | 3.5 | xxxx | | | 3.3 | 2.2 | | xxxx | | xxxxx | xxxxx | | xxxx | | xxxxx | | | |
| Capacity Module: | | | | | | | | | | | | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | | | 1547 | xxxx | | | 329 | 363 | | xxxx | | xxxxx | xxxx | | xxxx | | xxxxx | | | |
| Potent Cap.: | xxxx | xxxx | xxxxx | | | 127 | xxxx | | | 717 | 1207 | | xxxx | | xxxxx | xxxx | | xxxx | | xxxxx | | | |
| Move Cap.: | xxxx | xxxx | xxxxx | | | 105 | xxxx | | | 717 | 1207 | | xxxx | | xxxxx | xxxx | | xxxx | | xxxxx | | | |
| Volume/Cap: | xxxx | xxxx | xxxx | | | 2.04 | xxxx | | | 0.35 | 0.19 | | xxxx | | xxxx | xxxx | | xxxx | | xxxx | | | |
| Level Of Service Module: | | | | | | | | | | | | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | | | 18.1 | xxxx | | | 1.6 | 0.7 | | xxxx | | xxxxx | xxxx | | xxxx | | xxxxx | | | |
| Control Del: | xxxxx | xxxx | xxxxx | | | 565.0 | xxxx | | | 12.7 | 8.7 | | xxxx | | xxxxx | xxxxx | | xxxx | | xxxxx | | | |
| LOS by Move: | * | * | * | | | F | * | | | B | A | | * | | * | * | | * | | * | | | |
| 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 | 0.7 | | xxxx | | xxxxx | xxxxx | | xxxx | | xxxxx | | | |
| Shrd ConDel: | xxxxx | xxxx | xxxxx | | | xxxxx | xxxx | | | xxxxx | 8.7 | | xxxx | | xxxxx | xxxxx | | xxxx | | xxxxx | | | |
| Shared LOS: | * | * | * | | | * | * | | | * | A | | * | | * | * | | * | | * | | | |
| ApproachDel: | xxxxxx | | | | | 266.3 | | | | | xxxxxx | | | | | xxxxxx | | | | | | | |
| ApproachLOS: | * | | | | | F | | | | | * | | | | | * | | | | | | | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Chestnut Ave / Bitterwater Rd

Average Delay (sec/veh): 0.2  Worst Case Level Of Service: C[ 21.0]

| Street Name: | Chestnut Ave | | | | | | Bitterwater Rd | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 0 | 0 0 | | 0 0 0 | 1 0 | | 1 0 | 1 0 0 | |
| Volume Module: PM Peak Hour | | | | | | | | | | | | |
| Base Vol: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 416 | 5 | 5 | 901 | 0 |
| 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: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 416 | 5 | 5 | 901 | 0 |
| 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: | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 452 | 5 | 5 | 979 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 452 | 5 | 5 | 979 | 0 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 6.4 | 6.5 | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | 1445 | 1445 | 455 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 458 | xxxx | xxxxx |
| Potent Cap.: | 147 | 133 | 609 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1114 | xxxx | xxxxx |
| Move Cap.: | 146 | 132 | 609 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1114 | xxxx | xxxxx |
| Volume/Cap: | 0.04 | 0.00 | 0.01 | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | 0.00 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 8.2 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | * | * | * | * | A | * | * |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | |
| Shared Cap.: | xxxx | 236 | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 0.1 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 21.0 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shared LOS: | * | C | * | * | * | * | * | * | * | * | * | * |
| ApproachDel: | | 21.0 | | xxxxxx | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | | C | | | * | | | * | | | * | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Metz Rd / Bitterwater Rd

Average Delay (sec/veh): 35.4  Worst Case Level Of Service: F[167.7]

| Street Name: | Metz Rd | | | | | | | | | Bitterwater Rd | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Volume Module: PM Peak Hour | | | | | | | | | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | | | 73 | 0 | | 301 | | 238 | | 348 | | 0 | 0 | | 713 | | 193 |
| Growth Adj: | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 |
| Initial Bse: | 0 | 0 | 0 | | | 73 | 0 | | 301 | | 238 | | 348 | | 0 | 0 | | 713 | | 193 |
| User Adj: | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 | | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | | 1.00 |
| PHF Adj: | 0.88 | 0.88 | 0.88 | | | 0.88 | 0.88 | | 0.88 | | 0.88 | | 0.88 | | 0.88 | 0.88 | | 0.88 | | 0.88 |
| PHF Volume: | 0 | 0 | 0 | | | 83 | 0 | | 342 | | 270 | | 395 | | 0 | 0 | | 810 | | 219 |
| Reduct Vol: | 0 | 0 | 0 | | | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 | | 0 | | 0 |
| FinalVolume: | 0 | 0 | 0 | | | 83 | 0 | | 342 | | 270 | | 395 | | 0 | 0 | | 810 | | 219 |
| Critical Gap Module: | | | | | | | | | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | | | 6.4 | xxxx | | 6.2 | | 4.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | | | | |
| FollowUpTim: | xxxxx | xxxx | xxxxx | | | 3.5 | xxxx | | 3.3 | | 2.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | | | | |
| Capacity Module: | | | | | | | | | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | | | 1856 | xxxx | | 920 | | 1030 | xxxx | xxxxx | xxxx | xxxx | xxxxx | | | | |
| Potent Cap.: | xxxx | xxxx | xxxxx | | | 82 | xxxx | | 331 | | 683 | xxxx | xxxxx | xxxx | xxxx | xxxxx | | | | |
| Move Cap.: | xxxx | xxxx | xxxxx | | | 52 | xxxx | | 331 | | 683 | xxxx | xxxxx | xxxx | xxxx | xxxxx | | | | |
| Volume/Cap: | xxxx | xxxx | xxxx | | | 1.60 | xxxx | | 1.03 | | 0.40 | xxxx | xxxx | xxxx | xxxx | xxxx | | | | |
| Level Of Service Module: | | | | | | | | | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | | | 7.8 | xxxx | | 12.0 | | 1.9 | xxxx | xxxxx | xxxx | xxxx | xxxxx | | | | |
| Control Del: | xxxxx | xxxx | xxxxx | | | 468.7 | xxxx | | 94.7 | | 13.7 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | | | | |
| LOS by Move: | * | * | * | | | F | * | | F | | 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 | | 1.9 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | | | | |
| Shrd ConDel: | xxxxx | xxxx | xxxxx | | | xxxxx | xxxx | | xxxxx | | 13.7 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | | | | |
| Shared LOS: | * | * | * | | | * | * | | * | | B | * | * | * | * | * | | | | |
| ApproachDel: | xxxxxx | | | | | 167.7 | | | | | xxxxxx | | | | | xxxxxx | | | | |
| ApproachLOS: | * | | | | | F | | | | | * | | | | | * | | | | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 Metz Rd / Bitterwater Rd

| | | | |
|---|---|---|---|
| Cycle (sec): | 60 | Critical Vol./Cap.(X): | 0.432 |
| Loss Time (sec): | 9 | Average Delay (sec/veh): | 14.5 |
| Optimal Cycle: | 29 | Level Of Service: | B |

| Street Name: | Metz Rd | | | | | | Bitterwater Rd | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
| Movement: | L - T - R | | | L - T - R | | | L - T - R | | | L - T - R | | |
| Control: | Split Phase | | | Split Phase | | | Protected | | | Protected | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Y+R: | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lanes: | 0 0 | 0 | 0 0 | 1 0 | 0 | 0 1 | 1 0 | 2 | 0 0 | 0 0 | 2 | 0 1 |
| Volume Module:AM Peak Hour | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | 191 | 0 | 225 | 208 | 668 | 0 | 0 | 262 | 61 |
| 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 | 0 | 191 | 0 | 225 | 208 | 668 | 0 | 0 | 262 | 61 |
| 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: | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| PHF Volume: | 0 | 0 | 0 | 215 | 0 | 253 | 234 | 751 | 0 | 0 | 294 | 69 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 0 | 0 | 0 | 215 | 0 | 253 | 234 | 751 | 0 | 0 | 294 | 69 |
| PCE Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 0 | 0 | 0 | 215 | 0 | 253 | 234 | 751 | 0 | 0 | 294 | 69 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.85 | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 0.85 |
| Lanes: | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 2.00 | 0.00 | 0.00 | 2.00 | 1.00 |
| Final Sat.: | 0 | 0 | 0 | 1805 | 0 | 1615 | 1805 | 3610 | 0 | 0 | 3610 | 1615 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.00 | 0.00 | 0.00 | 0.12 | 0.00 | 0.16 | 0.13 | 0.21 | 0.00 | 0.00 | 0.08 | 0.04 |
| Crit Moves: | | | | | | **** | **** | | | | **** | |
| Green/Cycle: | 0.00 | 0.00 | 0.00 | 0.36 | 0.00 | 0.36 | 0.30 | 0.49 | 0.00 | 0.00 | 0.19 | 0.19 |
| Volume/Cap: | 0.00 | 0.00 | 0.00 | 0.33 | 0.00 | 0.43 | 0.43 | 0.43 | 0.00 | 0.00 | 0.43 | 0.23 |
| Uniform Del: | 0.0 | 0.0 | 0.0 | 13.9 | 0.0 | 14.5 | 16.9 | 9.9 | 0.0 | 0.0 | 21.5 | 20.6 |
| IncremntDel: | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.5 | 0.6 | 0.2 | 0.0 | 0.0 | 0.4 | 0.4 |
| InitQueuDel: | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Delay Adj: | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 |
| Delay/Veh: | 0.0 | 0.0 | 0.0 | 14.2 | 0.0 | 15.0 | 17.5 | 10.1 | 0.0 | 0.0 | 21.9 | 21.0 |
| User DelAdj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh: | 0.0 | 0.0 | 0.0 | 14.2 | 0.0 | 15.0 | 17.5 | 10.1 | 0.0 | 0.0 | 21.9 | 21.0 |
| LOS by Move: | A | A | A | B | A | B | B | B | A | A | C | C |
| HCM2kAvgQ: | 0 | 0 | 0 | 3 | 0 | 4 | 4 | 5 | 0 | 0 | 3 | 1 |

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 Metz Rd / Bitterwater Rd

| | | | |
|---|---|---|---|
| Cycle (sec): | 60 | Critical Vol./Cap.(X): | 0.689 |
| Loss Time (sec): | 9 | Average Delay (sec/veh): | 18.0 |
| Optimal Cycle: | 45 | Level Of Service: | B |

| Street Name: | Metz Rd | | | | | | Bitterwater Rd | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
| Movement: | L - | T - | R | L - | T - | R | L - | T - | R | L - | T - | R |
| Control: | Split Phase | | | Split Phase | | | Protected | | | Protected | | |
| Rights: | Include | | | Include | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Y+R: | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lanes: | 0 0 | 0 0 | 0 | 1 0 | 0 0 | 1 | 1 0 | 2 0 | 0 | 0 0 | 2 0 | 1 |
| Volume Module: PM Peak Hour | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | 73 | 0 | 301 | 238 | 348 | 0 | 0 | 713 | 193 |
| Growth Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Initial Bse: | 0 | 0 | 0 | 73 | 0 | 301 | 238 | 348 | 0 | 0 | 713 | 193 |
| User Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHF Adj: | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| PHF Volume: | 0 | 0 | 0 | 83 | 0 | 342 | 270 | 395 | 0 | 0 | 810 | 219 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 0 | 0 | 0 | 83 | 0 | 342 | 270 | 395 | 0 | 0 | 810 | 219 |
| PCE Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 0 | 0 | 0 | 83 | 0 | 342 | 270 | 395 | 0 | 0 | 810 | 219 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.85 | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 0.85 |
| Lanes: | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 2.00 | 0.00 | 0.00 | 2.00 | 1.00 |
| Final Sat.: | 0 | 0 | 0 | 1805 | 0 | 1615 | 1805 | 3610 | 0 | 0 | 3610 | 1615 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 0.21 | 0.15 | 0.11 | 0.00 | 0.00 | 0.22 | 0.14 |
| Crit Moves: | | | | | | **** | **** | | | | **** | |
| Green/Cycle: | 0.00 | 0.00 | 0.00 | 0.31 | 0.00 | 0.31 | 0.22 | 0.54 | 0.00 | 0.00 | 0.33 | 0.33 |
| Volume/Cap: | 0.00 | 0.00 | 0.00 | 0.15 | 0.00 | 0.69 | 0.69 | 0.20 | 0.00 | 0.00 | 0.69 | 0.42 |
| Uniform Del: | 0.0 | 0.0 | 0.0 | 15.1 | 0.0 | 18.3 | 21.6 | 7.0 | 0.0 | 0.0 | 17.6 | 15.8 |
| IncremntDel: | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 4.1 | 5.1 | 0.1 | 0.0 | 0.0 | 1.8 | 0.5 |
| InitQueuDel: | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Delay Adj: | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 |
| Delay/Veh: | 0.0 | 0.0 | 0.0 | 15.2 | 0.0 | 22.4 | 26.8 | 7.1 | 0.0 | 0.0 | 19.4 | 16.3 |
| User DelAdj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh: | 0.0 | 0.0 | 0.0 | 15.2 | 0.0 | 22.4 | 26.8 | 7.1 | 0.0 | 0.0 | 19.4 | 16.3 |
| LOS by Move: | A | A | A | B | A | C | C | A | A | A | B | B |
| HCM2kAvgQ: | 0 | 0 | 0 | 1 | 0 | 7 | 6 | 2 | 0 | 0 | 8 | 4 |

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Chestnut Ave / Bitterwater Rd

Average Delay (sec/veh): 2.0 Worst Case Level Of Service: D[ 30.2]

| Street Name: | Chestnut Ave | | | | | | Bitterwater Rd | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 0 0 0 | | | 0 0 0 1 0 | | | 1 0 1 0 0 | | |
| Volume Module: | AM Peak Hour | | | | | | | | | | | |
| Base Vol: | 69 | 0 | 7 | 0 | 0 | 0 | 0 | 781 | 34 | 3 | 269 | 0 |
| 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: | 69 | 0 | 7 | 0 | 0 | 0 | 0 | 781 | 34 | 3 | 269 | 0 |
| 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: | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume: | 75 | 0 | 8 | 0 | 0 | 0 | 0 | 849 | 37 | 3 | 292 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 75 | 0 | 8 | 0 | 0 | 0 | 0 | 849 | 37 | 3 | 292 | 0 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 6.4 | 6.5 | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | 1166 | 1166 | 867 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 886 | xxxx | xxxxx |
| Potent Cap.: | 216 | 195 | 355 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 773 | xxxx | xxxxx |
| Move Cap.: | 216 | 195 | 355 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 773 | xxxx | xxxxx |
| Volume/Cap: | 0.35 | 0.00 | 0.02 | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | 0.00 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 9.7 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | * | * | * | * | A | * | * |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | |
| Shared Cap.: | xxxx | 224 | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 1.6 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 30.2 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shared LOS: | * | D | * | * | * | * | * | * | * | * | * | * |
| ApproachDel: | | 30.2 | | xxxxxx | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | | D | | | * | | | * | | | * | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Metz Rd / Bitterwater Rd

Average Delay (sec/veh): 187.3 Worst Case Level Of Service: F[711.2]

| Street Name: | Metz Rd | | | | | | Bitterwater Rd | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 1 0 0 1 | | | 0 0 1! 0 0 | | | 0 0 1! 0 0 | | |
| Volume Module: AM Peak Hour | | | | | | | | | | | | |
| Base Vol: | 26 | 19 | 1 | 192 | 10 | 227 | 212 | 682 | 13 | 1 | 274 | 63 |
| 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: | 26 | 19 | 1 | 192 | 10 | 227 | 212 | 682 | 13 | 1 | 274 | 63 |
| 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: | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| PHF Volume: | 29 | 21 | 1 | 216 | 11 | 255 | 238 | 766 | 15 | 1 | 308 | 71 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 29 | 21 | 1 | 216 | 11 | 255 | 238 | 766 | 15 | 1 | 308 | 71 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 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: | 1729 | 1631 | 774 | 1607 | 1603 | 343 | 379 | xxxx | xxxxx | 781 | xxxx | xxxxx |
| Potent Cap.: | 70 | 103 | 402 | 85 | 107 | 704 | 1191 | xxxx | xxxxx | 846 | xxxx | xxxxx |
| Move Cap.: | 33 | 79 | 402 | 56 | 82 | 704 | 1191 | xxxx | xxxxx | 846 | xxxx | xxxxx |
| Volume/Cap: | 0.88 | 0.27 | 0.00 | 3.86 | 0.14 | 0.36 | 0.20 | xxxx | xxxx | 0.00 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | 1.7 | 0.7 | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | 13.0 | 8.8 | xxxx | xxxxx | 9.3 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | B | A | * | * | A | * | * |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | |
| Shared Cap.: | xxxx | 45 | xxxxx | 57 | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 4.9 | xxxxx | 24.7 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 329 | xxxxx | 1496 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shared LOS: | * | F | * | F | * | * | * | * | * | * | * | * |
| ApproachDel: | 328.6 | | | 711.2 | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | F | | | F | | | * | | | * | | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Chestnut Ave / Bitterwater Rd

Average Delay (sec/veh): 3.8 Worst Case Level Of Service: F[ 56.1]

| Street Name: | Chestnut Ave | | | | | | Bitterwater Rd | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 0 0 0 | | | 0 0 0 1 0 | | | 1 0 1 0 0 | | |
| Volume Module: | PM Peak Hour | | | | | | | | | | | |
| Base Vol: | 85 | 0 | 9 | 0 | 0 | 0 | 0 | 353 | 105 | 11 | 863 | 0 |
| 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: | 85 | 0 | 9 | 0 | 0 | 0 | 0 | 353 | 105 | 11 | 863 | 0 |
| 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: | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume: | 92 | 0 | 10 | 0 | 0 | 0 | 0 | 384 | 114 | 12 | 938 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 92 | 0 | 10 | 0 | 0 | 0 | 0 | 384 | 114 | 12 | 938 | 0 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 6.4 | 6.5 | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | 1403 | 1403 | 441 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 498 | xxxx | xxxxx |
| Potent Cap.: | 156 | 141 | 621 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1077 | xxxx | xxxxx |
| Move Cap.: | 154 | 140 | 621 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 1077 | xxxx | xxxxx |
| Volume/Cap: | 0.60 | 0.00 | 0.02 | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | 0.01 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 8.4 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | * | * | * | * | A | * | * |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | |
| Shared Cap.: | xxxx | 166 | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 3.4 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 56.1 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shared LOS: | * | F | * | * | * | * | * | * | * | * | * | * |
| ApproachDel: | | 56.1 | | xxxxxx | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | | F | | | * | | | * | | | * | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Metz Rd / Bitterwater Rd

Average Delay (sec/veh): OVERFLOW Worst Case Level Of Service: F[xxxxx]

| Street Name: | Metz Rd | | | | | | Bitterwater Rd | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 1 0 0 1 | | | 0 0 1! 0 0 | | | 0 0 1! 0 0 | | |
| Volume Module: PM Peak Hour | | | | | | | | | | | | |
| Base Vol: | 32 | 24 | 2 | 76 | 29 | 306 | 242 | 380 | 40 | 2 | 751 | 195 |
| 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: | 32 | 24 | 2 | 76 | 29 | 306 | 242 | 380 | 40 | 2 | 751 | 195 |
| 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: | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| PHF Volume: | 36 | 27 | 2 | 86 | 33 | 348 | 275 | 432 | 45 | 2 | 853 | 222 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 36 | 27 | 2 | 86 | 33 | 348 | 275 | 432 | 45 | 2 | 853 | 222 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 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: | 2164 | 2084 | 455 | 1988 | 1996 | 964 | 1075 | xxxx | xxxxx | 477 | xxxx | xxxxx |
| Potent Cap.: | 35 | 54 | 610 | 46 | 61 | 312 | 656 | xxxx | xxxxx | 1095 | xxxx | xxxxx |
| Move Cap.: | 0 | 27 | 610 | 0 | 31 | 312 | 656 | xxxx | xxxxx | 1095 | xxxx | xxxxx |
| Volume/Cap: | xxxx | 1.01 | 0.00 | xxxx | 1.07 | 1.11 | 0.42 | xxxx | xxxx | 0.00 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | 13.9 | 2.1 | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | 122.3 | 14.4 | xxxx | xxxxx | 8.3 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | F | B | * | * | A | * | * |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | |
| Shared Cap.: | xxxx | 0 | xxxxx | 0 | 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: | xxxxxx | | | +Inf | | | xxxxxx | | | xxxxxx | | |
| ApproachLOS: | F | | | F | | | * | | | * | | |

Note: Queue reported is the number of cars per lane.

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------------------------------------------------------------------------------
------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Unsignalized Method (Base Volume Alternative)
******************************************************************************
Intersection #1 Chestnut Ave / Bitterwater Rd
******************************************************************************
Average Delay (sec/veh):      1.7       Worst Case Level Of Service: D[ 25.8]
******************************************************************************
Street Name:           Chestnut Ave                     Bitterwater Rd
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:        1  0  0  0  1    0  0  0  0  0    0  0  1  1  0    1  0  2  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:AM Peak Hour
Base Vol:      69    0     7     0    0     0     0  781    34     3  269     0
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:   69    0     7     0    0     0     0  781    34     3  269     0
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:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    75    0     8     0    0     0     0  849    37     3  292     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   75    0     8     0    0     0     0  849    37     3  292     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  6.8 xxxx   6.9 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5 xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1020 xxxx   443  xxxx xxxx xxxxx  xxxx xxxx xxxxx   886 xxxx xxxxx
Potent Cap.:  236 xxxx   568  xxxx xxxx xxxxx  xxxx xxxx xxxxx   773 xxxx xxxxx
Move Cap.:    235 xxxx   568  xxxx xxxx xxxxx  xxxx xxxx xxxxx   773 xxxx xxxxx
Volume/Cap:  0.32 xxxx  0.01  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.00 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    1.3 xxxx   0.0  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx
Control Del: 27.3 xxxx  11.4 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   9.7 xxxx xxxxx
LOS by Move:    D    *     B     *    *     *     *    *     *     A    *     *
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:      25.8           xxxxxx           xxxxxx           xxxxxx
ApproachLOS:         D                *                *                *
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
```

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 Metz Rd / Bitterwater Rd

| | | | |
|---|---|---|---|
| Cycle (sec): | 60 | Critical Vol./Cap.(X): | 0.460 |
| Loss Time (sec): | 9 | Average Delay (sec/veh): | 13.7 |
| Optimal Cycle: | 31 | Level Of Service: | B |

| Street Name: | Metz Rd | | | | | | Bitterwater Rd | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
| Movement: | L - T - R | | | L - T - R | | | L - T - R | | | L - T - R | | |
| Control: | Permitted | | | Permitted | | | Protected | | | Protected | | |
| Rights: | Include | | | Ovl | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Y+R: | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lanes: | 0 1 | 0 0 | 1 | 0 1 | 0 0 | 1 | 1 0 | 1 1 | 0 | 1 0 | 2 0 | 1 |
| Volume Module:AM Peak Hour | | | | | | | | | | | | |
| Base Vol: | 26 | 19 | 1 | 192 | 10 | 227 | 212 | 682 | 13 | 1 | 274 | 63 |
| 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: | 26 | 19 | 1 | 192 | 10 | 227 | 212 | 682 | 13 | 1 | 274 | 63 |
| 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: | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| PHF Volume: | 29 | 21 | 1 | 216 | 11 | 255 | 238 | 766 | 15 | 1 | 308 | 71 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 29 | 21 | 1 | 216 | 11 | 255 | 238 | 766 | 15 | 1 | 308 | 71 |
| PCE Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 29 | 21 | 1 | 216 | 11 | 255 | 238 | 766 | 15 | 1 | 308 | 71 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.83 | 0.83 | 0.85 | 0.69 | 0.69 | 0.85 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.85 |
| Lanes: | 0.58 | 0.42 | 1.00 | 0.95 | 0.05 | 1.00 | 1.00 | 1.96 | 0.04 | 1.00 | 2.00 | 1.00 |
| Final Sat.: | 908 | 663 | 1615 | 1242 | 65 | 1615 | 1805 | 3532 | 67 | 1805 | 3610 | 1615 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.03 | 0.03 | 0.00 | 0.17 | 0.17 | 0.16 | 0.13 | 0.22 | 0.22 | 0.00 | 0.09 | 0.04 |
| Crit Moves: | | | | | **** | | **** | | | | **** | |
| Green/Cycle: | 0.38 | 0.38 | 0.38 | 0.38 | 0.38 | 0.66 | 0.29 | 0.47 | 0.47 | 0.00 | 0.19 | 0.19 |
| Volume/Cap: | 0.09 | 0.09 | 0.00 | 0.46 | 0.46 | 0.24 | 0.46 | 0.46 | 0.46 | 0.46 | 0.46 | 0.24 |
| Uniform Del: | 12.0 | 12.0 | 11.6 | 14.1 | 14.1 | 4.0 | 17.6 | 10.7 | 10.7 | 29.9 | 21.8 | 20.8 |
| IncremntDel: | 0.1 | 0.1 | 0.0 | 0.7 | 0.7 | 0.1 | 0.6 | 0.2 | 0.2 | 98.6 | 0.5 | 0.4 |
| InitQueuDel: | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Delay 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 |
| Delay/Veh: | 12.1 | 12.1 | 11.6 | 14.7 | 14.7 | 4.1 | 18.2 | 10.9 | 10.9 | 128.5 | 22.3 | 21.2 |
| User DelAdj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh: | 12.1 | 12.1 | 11.6 | 14.7 | 14.7 | 4.1 | 18.2 | 10.9 | 10.9 | 128.5 | 22.3 | 21.2 |
| LOS by Move: | B | B | B | B | B | A | B | B | B | F | C | C |
| HCM2kAvgQ: | 1 | 1 | 0 | 4 | 4 | 2 | 4 | 5 | 5 | 0 | 3 | 1 |

Note: Queue reported is the number of cars per lane.

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------------------------------------------------------------------------------
------------------------------------------------------------------------------
                      Level Of Service Computation Report
            2000 HCM Unsignalized Method (Base Volume Alternative)
******************************************************************************
Intersection #1 Chestnut Ave / Bitterwater Rd
******************************************************************************
Average Delay (sec/veh):      1.7       Worst Case Level Of Service: C[ 24.1]
******************************************************************************
Street Name:           Chestnut Ave                     Bitterwater Rd
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:        1  0  0  0  1    0  0  0  0  0    0  0  1  1  0    1  0  2  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:PM Peak Hour
Base Vol:      85    0     9     0    0     0     0  353   105    11  863     0
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:   85    0     9     0    0     0     0  353   105    11  863     0
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:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:    92    0    10     0    0     0     0  384   114    12  938     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   92    0    10     0    0     0     0  384   114    12  938     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  6.8 xxxx   6.9 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5 xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  934 xxxx   249  xxxx xxxx xxxxx  xxxx xxxx xxxxx   498 xxxx xxxxx
Potent Cap.:  268 xxxx   757  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1077 xxxx xxxxx
Move Cap.:    266 xxxx   757  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1077 xxxx xxxxx
Volume/Cap:  0.35 xxxx  0.01  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.01 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    1.5 xxxx   0.0  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx
Control Del: 25.6 xxxx   9.8 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.4 xxxx xxxxx
LOS by Move:    D    *     A     *    *     *     *    *     *     A    *     *
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:      24.1           xxxxxx           xxxxxx           xxxxxx
ApproachLOS:         C                *                *                *
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
```

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 Metz Rd / Bitterwater Rd

| | | | |
|---|---|---|---|
| Cycle (sec): | 60 | Critical Vol./Cap.(X): | 0.558 |
| Loss Time (sec): | 9 | Average Delay (sec/veh): | 13.0 |
| Optimal Cycle: | 35 | Level Of Service: | B |

| Street Name: | Metz Rd | | | | | | Bitterwater Rd | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
| Movement: | L - T - R | | | L - T - R | | | L - T - R | | | L - T - R | | |
| Control: | Permitted | | | Permitted | | | Protected | | | Protected | | |
| Rights: | Include | | | Ovl | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Y+R: | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lanes: | 0 1 | 0 0 | 1 | 0 1 | 0 0 | 1 | 1 0 | 1 1 | 0 | 1 0 | 2 0 | 1 |
| Volume Module: PM Peak Hour | | | | | | | | | | | | |
| Base Vol: | 32 | 24 | 2 | 76 | 29 | 306 | 242 | 380 | 40 | 2 | 751 | 195 |
| 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: | 32 | 24 | 2 | 76 | 29 | 306 | 242 | 380 | 40 | 2 | 751 | 195 |
| 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: | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| PHF Volume: | 36 | 27 | 2 | 86 | 33 | 348 | 275 | 432 | 45 | 2 | 853 | 222 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 36 | 27 | 2 | 86 | 33 | 348 | 275 | 432 | 45 | 2 | 853 | 222 |
| PCE Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 36 | 27 | 2 | 86 | 33 | 348 | 275 | 432 | 45 | 2 | 853 | 222 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 0.79 | 0.79 | 0.85 | 0.74 | 0.74 | 0.85 | 0.95 | 0.94 | 0.94 | 0.95 | 0.95 | 0.85 |
| Lanes: | 0.57 | 0.43 | 1.00 | 0.72 | 0.28 | 1.00 | 1.00 | 1.81 | 0.19 | 1.00 | 2.00 | 1.00 |
| Final Sat.: | 858 | 643 | 1615 | 1014 | 387 | 1615 | 1805 | 3220 | 339 | 1805 | 3610 | 1615 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.04 | 0.04 | 0.00 | 0.09 | 0.09 | 0.22 | 0.15 | 0.13 | 0.13 | 0.00 | 0.24 | 0.14 |
| Crit Moves: | | | | | **** | | **** | | | | **** | |
| Green/Cycle: | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.43 | 0.27 | 0.69 | 0.69 | 0.01 | 0.42 | 0.42 |
| Volume/Cap: | 0.28 | 0.28 | 0.01 | 0.56 | 0.56 | 0.51 | 0.56 | 0.19 | 0.19 | 0.19 | 0.56 | 0.32 |
| Uniform Del: | 22.5 | 22.5 | 21.6 | 23.5 | 23.5 | 12.6 | 18.7 | 3.3 | 3.3 | 29.6 | 13.0 | 11.5 |
| IncremntDel: | 0.7 | 0.7 | 0.0 | 3.3 | 3.3 | 0.6 | 1.4 | 0.0 | 0.0 | 8.0 | 0.5 | 0.3 |
| InitQueuDel: | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Delay 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 |
| Delay/Veh: | 23.1 | 23.1 | 21.6 | 26.8 | 26.8 | 13.2 | 20.1 | 3.4 | 3.4 | 37.6 | 13.5 | 11.8 |
| User DelAdj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh: | 23.1 | 23.1 | 21.6 | 26.8 | 26.8 | 13.2 | 20.1 | 3.4 | 3.4 | 37.6 | 13.5 | 11.8 |
| LOS by Move: | C | C | C | C | C | B | C | A | A | D | B | B |
| HCM2kAvgQ: | 1 | 1 | 0 | 3 | 3 | 5 | 5 | 2 | 2 | 0 | 7 | 3 |

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Chestnut Ave / Bitterwater Rd

Average Delay (sec/veh): 4.2  Worst Case Level Of Service: E[ 42.9]

| Street Name: | Chestnut Ave | | | | | | Bitterwater Rd | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 0 | 0 0 | | 0 0 0 | 1 0 | | 1 0 | 1 0 | 0 |
| Volume Module: AM Peak Hour | | | | | | | | | | | | |
| Base Vol: | 110 | 0 | 9 | 0 | 0 | 0 | 0 | 782 | 46 | 5 | 268 | 0 |
| 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: | 110 | 0 | 9 | 0 | 0 | 0 | 0 | 782 | 46 | 5 | 268 | 0 |
| 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: | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| PHF Volume: | 120 | 0 | 10 | 0 | 0 | 0 | 0 | 850 | 50 | 5 | 291 | 0 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FinalVolume: | 120 | 0 | 10 | 0 | 0 | 0 | 0 | 850 | 50 | 5 | 291 | 0 |
| Critical Gap Module: | | | | | | | | | | | | |
| Critical Gp: | 6.4 | 6.5 | 6.2 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 4.1 | xxxx | xxxxx |
| FollowUpTim: | 3.5 | 4.0 | 3.3 | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 2.2 | xxxx | xxxxx |
| Capacity Module: | | | | | | | | | | | | |
| Cnflict Vol: | 1177 | 1177 | 875 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 900 | xxxx | xxxxx |
| Potent Cap.: | 213 | 193 | 351 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 763 | xxxx | xxxxx |
| Move Cap.: | 212 | 191 | 351 | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 763 | xxxx | xxxxx |
| Volume/Cap: | 0.56 | 0.00 | 0.03 | xxxx | xxxx | xxxx | xxxx | xxxx | xxxx | 0.01 | xxxx | xxxx |
| Level Of Service Module: | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | 0.0 | xxxx | xxxxx |
| Control Del: | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | 9.8 | xxxx | xxxxx |
| LOS by Move: | * | * | * | * | * | * | * | * | * | A | * | * |
| Movement: | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | | LT - LTR - RT | | |
| Shared Cap.: | xxxx | 218 | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx | xxxx | xxxx | xxxxx |
| SharedQueue: | xxxxx | 3.3 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shrd ConDel: | xxxxx | 42.9 | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx | xxxxx | xxxx | xxxxx |
| Shared LOS: | * | E | * | * | * | * | * | * | * | * | * | * |
| ApproachDel: | | 42.9 | | | xxxxxx | | | xxxxxx | | | xxxxxx | |
| ApproachLOS: | | E | | | * | | | * | | | * | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Metz Rd / Bitterwater Rd

Average Delay (sec/veh): 93.0  Worst Case Level Of Service: F[364.6]

| Street Name: | Metz Rd | | | | | | | | | Bitterwater Rd | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | | |
| Volume Module: | AM Peak Hour | | | | | | | | | | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | | | 203 | 0 | 227 | | | 212 | 686 | 0 | | | 0 | 292 | 86 | | | | |
| 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 | 0 | | | 203 | 0 | 227 | | | 212 | 686 | 0 | | | 0 | 292 | 86 | | | | |
| 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: | 0.89 | 0.89 | 0.89 | | | 0.89 | 0.89 | 0.89 | | | 0.89 | 0.89 | 0.89 | | | 0.89 | 0.89 | 0.89 | | | | |
| PHF Volume: | 0 | 0 | 0 | | | 228 | 0 | 255 | | | 238 | 771 | 0 | | | 0 | 328 | 97 | | | | |
| Reduct Vol: | 0 | 0 | 0 | | | 0 | 0 | 0 | | | 0 | 0 | 0 | | | 0 | 0 | 0 | | | | |
| FinalVolume: | 0 | 0 | 0 | | | 228 | 0 | 255 | | | 238 | 771 | 0 | | | 0 | 328 | 97 | | | | |
| Critical Gap Module: | | | | | | | | | | | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | | | 6.4 | xxxx | 6.2 | | | 4.1 | xxxx | xxxxx | | | xxxxx | xxxx | xxxxx | | | | |
| FollowUpTim: | xxxxx | xxxx | xxxxx | | | 3.5 | xxxx | 3.3 | | | 2.2 | xxxx | xxxxx | | | xxxxx | xxxx | xxxxx | | | | |
| Capacity Module: | | | | | | | | | | | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | | | 1624 | xxxx | 376 | | | 425 | xxxx | xxxxx | | | xxxx | xxxx | xxxxx | | | | |
| Potent Cap.: | xxxx | xxxx | xxxxx | | | 114 | xxxx | 675 | | | 1145 | xxxx | xxxxx | | | xxxx | xxxx | xxxxx | | | | |
| Move Cap.: | xxxx | xxxx | xxxxx | | | 93 | xxxx | 675 | | | 1145 | xxxx | xxxxx | | | xxxx | xxxx | xxxxx | | | | |
| Volume/Cap: | xxxx | xxxx | xxxx | | | 2.45 | xxxx | 0.38 | | | 0.21 | xxxx | xxxx | | | xxxx | xxxx | xxxx | | | | |
| Level Of Service Module: | | | | | | | | | | | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | | | 21.0 | xxxx | 1.8 | | | 0.8 | xxxx | xxxxx | | | xxxx | xxxx | xxxxx | | | | |
| Control Del: | xxxxx | xxxx | xxxxx | | | 757.1 | xxxx | 13.5 | | | 9.0 | xxxx | xxxxx | | | xxxxx | xxxx | xxxxx | | | | |
| LOS by Move: | * | * | * | | | F | * | B | | | A | * | * | | | * | * | * | | | | |
| 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 | | | 0.8 | xxxx | xxxxx | | | xxxxx | xxxx | xxxxx | | | | |
| Shrd ConDel: | xxxxx | xxxx | xxxxx | | | xxxxx | xxxx | xxxxx | | | 9.0 | xxxx | xxxxx | | | xxxxx | xxxx | xxxxx | | | | |
| Shared LOS: | * | * | * | | | * | * | * | | | A | * | * | | | * | * | * | | | | |
| ApproachDel: | xxxxxx | | | | | 364.6 | | | | | xxxxxx | | | | | xxxxxx | | | | | | |
| ApproachLOS: | * | | | | | F | | | | | * | | | | | * | | | | | | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1 Chestnut Ave / Bitterwater Rd

Average Delay (sec/veh): 9.3  Worst Case Level Of Service: F[104.3]

| Street Name: | Chestnut Ave | | | | | | | | | Bitterwater Rd | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| Volume Module: PM Peak Hour | | | | | | | | | | | | | | | | | | | | |
| Base Vol: | 120 | | 0 | | 12 | 0 | | 0 | | 0 | 0 | | 352 | | 141 | 16 | | 861 | | 0 |
| 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: | 120 | | 0 | | 12 | 0 | | 0 | | 0 | 0 | | 352 | | 141 | 16 | | 861 | | 0 |
| 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: | 0.92 | 0.92 | | 0.92 | | 0.92 | 0.92 | | 0.92 | | 0.92 | 0.92 | | 0.92 | | 0.92 | 0.92 | | 0.92 | |
| PHF Volume: | 130 | | 0 | | 13 | 0 | | 0 | | 0 | 0 | | 383 | | 153 | 17 | | 936 | | 0 |
| Reduct Vol: | 0 | | 0 | | 0 | 0 | | 0 | | 0 | 0 | | 0 | | 0 | 0 | | 0 | | 0 |
| FinalVolume: | 130 | | 0 | | 13 | 0 | | 0 | | 0 | 0 | | 383 | | 153 | 17 | | 936 | | 0 |
| Critical Gap Module: | | | | | | | | | | | | | | | | | | | | |
| Critical Gp: | 6.4 | 6.5 | | | 6.2 | xxxxx | xxxx | | xxxxx | | xxxxx | xxxx | | xxxxx | | 4.1 | xxxx | | xxxxx | |
| FollowUpTim: | 3.5 | 4.0 | | | 3.3 | xxxxx | xxxx | | xxxxx | | xxxxx | xxxx | | xxxxx | | 2.2 | xxxx | | xxxxx | |
| Capacity Module: | | | | | | | | | | | | | | | | | | | | |
| Cnflict Vol: | 1430 | 1430 | | | 459 | xxxx | xxxx | | xxxxx | | xxxx | xxxx | | xxxxx | | 536 | xxxx | | xxxxx | |
| Potent Cap.: | 150 | 136 | | | 606 | xxxx | xxxx | | xxxxx | | xxxx | xxxx | | xxxxx | | 1042 | xxxx | | xxxxx | |
| Move Cap.: | 148 | 134 | | | 606 | xxxx | xxxx | | xxxxx | | xxxx | xxxx | | xxxxx | | 1042 | xxxx | | xxxxx | |
| Volume/Cap: | 0.88 | 0.00 | | | 0.02 | xxxx | xxxx | | xxxx | | xxxx | xxxx | | xxxx | | 0.02 | xxxx | | xxxx | |
| Level Of Service Module: | | | | | | | | | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | | | xxxxx | xxxx | xxxx | | xxxxx | | xxxx | xxxx | | xxxxx | | 0.1 | xxxx | | xxxxx | |
| Control Del: | xxxxx | xxxx | | | xxxxx | xxxxx | xxxx | | xxxxx | | xxxxx | xxxx | | xxxxx | | 8.5 | xxxx | | xxxxx | |
| LOS by Move: | * | * | | | * | * | * | | * | | * | * | | * | | A | * | | * | |
| Movement: | LT | - | LTR | - | RT | LT | - | LTR | - | RT | LT | - | LTR | - | RT | LT | - | LTR | - | RT |
| Shared Cap.: | xxxx | 159 | | | xxxxx | xxxx | xxxx | | xxxxx | | xxxx | xxxx | | xxxxx | | xxxx | xxxx | | xxxxx | |
| SharedQueue: | xxxxx | 6.4 | | | xxxxx | xxxxx | xxxx | | xxxxx | | xxxxx | xxxx | | xxxxx | | xxxxx | xxxx | | xxxxx | |
| Shrd ConDel: | xxxxx | 104 | | | xxxxx | xxxxx | xxxx | | xxxxx | | xxxxx | xxxx | | xxxxx | | xxxxx | xxxx | | xxxxx | |
| Shared LOS: | * | F | | | * | * | * | | * | | * | * | | * | | * | * | | * | |
| ApproachDel: | 104.3 | | | | | xxxxxx | | | | | xxxxxx | | | | | xxxxxx | | | | |
| ApproachLOS: | F | | | | | * | | | | | * | | | | | * | | | | |

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #2 Metz Rd / Bitterwater Rd

Average Delay (sec/veh): 83.6  Worst Case Level Of Service: F[401.3]

| Street Name: | Metz Rd | | | | | | | | | Bitterwater Rd | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | | | |
| Volume Module: | PM Peak Hour | | | | | | | | | | | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | | | 109 | 0 | | 306 | | 242 | | 397 | | 0 | 0 | | 760 | | 221 | | | |
| 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 | 0 | | | 109 | 0 | | 306 | | 242 | | 397 | | 0 | 0 | | 760 | | 221 | | | |
| 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: | 0.88 | 0.88 | 0.88 | | | 0.88 | 0.88 | | 0.88 | | 0.88 | | 0.88 | | 0.88 | 0.88 | | 0.88 | | 0.88 | | | |
| PHF Volume: | 0 | 0 | 0 | | | 124 | 0 | | 348 | | 275 | | 451 | | 0 | 0 | | 864 | | 251 | | | |
| Reduct Vol: | 0 | 0 | 0 | | | 0 | 0 | | 0 | | 0 | | 0 | | 0 | 0 | | 0 | | 0 | | | |
| FinalVolume: | 0 | 0 | 0 | | | 124 | 0 | | 348 | | 275 | | 451 | | 0 | 0 | | 864 | | 251 | | | |
| Critical Gap Module: | | | | | | | | | | | | | | | | | | | | | | | |
| Critical Gp: | xxxxx | xxxx | xxxxx | | | 6.4 | xxxx | | 6.2 | | 4.1 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | | | | | | | |
| FollowUpTim: | xxxxx | xxxx | xxxxx | | | 3.5 | xxxx | | 3.3 | | 2.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | | | | | | | |
| Capacity Module: | | | | | | | | | | | | | | | | | | | | | | | |
| Cnflict Vol: | xxxx | xxxx | xxxxx | | | 1990 | xxxx | | 989 | | 1115 | xxxx | xxxxx | xxxx | xxxx | xxxxx | | | | | | | |
| Potent Cap.: | xxxx | xxxx | xxxxx | | | 68 | xxxx | | 302 | | 634 | xxxx | xxxxx | xxxx | xxxx | xxxxx | | | | | | | |
| Move Cap.: | xxxx | xxxx | xxxxx | | | 40 | xxxx | | 302 | | 634 | xxxx | xxxxx | xxxx | xxxx | xxxxx | | | | | | | |
| Volume/Cap: | xxxx | xxxx | xxxx | | | 3.07 | xxxx | | 1.15 | | 0.43 | xxxx | xxxx | xxxx | xxxx | xxxx | | | | | | | |
| Level Of Service Module: | | | | | | | | | | | | | | | | | | | | | | | |
| 2Way95thQ: | xxxx | xxxx | xxxxx | | | 13.8 | xxxx | | 14.6 | | 2.2 | xxxx | xxxxx | xxxx | xxxx | xxxxx | | | | | | | |
| Control Del: | xxxxx | xxxx | xxxxx | | | 1144 | xxxx | | 136.6 | | 15.0 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | | | | | | | |
| LOS by Move: | * | * | * | | | F | * | | F | | 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 | | 2.2 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | | | | | | | |
| Shrd ConDel: | xxxxx | xxxx | xxxxx | | | xxxxx | xxxx | | xxxxx | | 15.0 | xxxx | xxxxx | xxxxx | xxxx | xxxxx | | | | | | | |
| Shared LOS: | * | * | * | | | * | * | | * | | B | * | * | * | * | * | | | | | | | |
| ApproachDel: | xxxxxx | | | | | 401.3 | | | | | xxxxxx | | | | | xxxxxx | | | | | | | |
| ApproachLOS: | * | | | | | F | | | | | * | | | | | * | | | | | | | |

Note: Queue reported is the number of cars per lane.

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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
            2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #1 Chestnut Ave / Bitterwater Rd
********************************************************************************
Average Delay (sec/veh):      3.4       Worst Case Level Of Service: D[ 34.3]
********************************************************************************
Street Name:           Chestnut Ave                     Bitterwater Rd
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:        1  0  0  0  1    0  0  0  0  0    0  0  1  1  0    1  0  2  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:AM Peak Hour
Base Vol:     110    0     9     0    0     0     0  782    46     5  268     0
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:  110    0     9     0    0     0     0  782    46     5  268     0
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:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:   120    0    10     0    0     0     0  850    50     5  291     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:  120    0    10     0    0     0     0  850    50     5  291     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  6.8 xxxx   6.9 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5 xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: 1032 xxxx   450  xxxx xxxx xxxxx  xxxx xxxx xxxxx   900 xxxx xxxxx
Potent Cap.:  232 xxxx   562  xxxx xxxx xxxxx  xxxx xxxx xxxxx   763 xxxx xxxxx
Move Cap.:    231 xxxx   562  xxxx xxxx xxxxx  xxxx xxxx xxxxx   763 xxxx xxxxx
Volume/Cap:  0.52 xxxx  0.02  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.01 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    2.7 xxxx   0.1  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.0 xxxx xxxxx
Control Del: 36.2 xxxx  11.5 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   9.8 xxxx xxxxx
LOS by Move:    E    *     B     *    *     *     *    *     *     A    *     *
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:      34.3           xxxxxx           xxxxxx           xxxxxx
ApproachLOS:         D                *                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 Metz Rd / Bitterwater Rd

| | | | |
|---|---|---|---|
| Cycle (sec): | 60 | Critical Vol./Cap.(X): | 0.411 |
| Loss Time (sec): | 9 | Average Delay (sec/veh): | 12.5 |
| Optimal Cycle: | 29 | Level Of Service: | B |

| Street Name: | Metz Rd | | | | | | Bitterwater Rd | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
| Movement: | L - T - R | | | L - T - R | | | L - T - R | | | L - T - R | | |
| Control: | Split Phase | | | Split Phase | | | Protected | | | Protected | | |
| Rights: | Include | | | Ovl | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Y+R: | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lanes: | 0 0 0 | 0 0 | | 1 0 0 | 0 1 | | 1 0 2 | 0 0 | | 0 0 2 | 0 1 | |
| Volume Module:AM Peak Hour | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | 203 | 0 | 227 | 212 | 686 | 0 | 0 | 292 | 86 |
| 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 | 0 | 203 | 0 | 227 | 212 | 686 | 0 | 0 | 292 | 86 |
| 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: | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| PHF Volume: | 0 | 0 | 0 | 228 | 0 | 255 | 238 | 771 | 0 | 0 | 328 | 97 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 0 | 0 | 0 | 228 | 0 | 255 | 238 | 771 | 0 | 0 | 328 | 97 |
| PCE Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 0 | 0 | 0 | 228 | 0 | 255 | 238 | 771 | 0 | 0 | 328 | 97 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.85 | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 0.85 |
| Lanes: | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 2.00 | 0.00 | 0.00 | 2.00 | 1.00 |
| Final Sat.: | 0 | 0 | 0 | 1805 | 0 | 1615 | 1805 | 3610 | 0 | 0 | 3610 | 1615 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 | 0.16 | 0.13 | 0.21 | 0.00 | 0.00 | 0.09 | 0.06 |
| Crit Moves: | | | | **** | | | **** | | | | **** | |
| Green/Cycle: | 0.00 | 0.00 | 0.00 | 0.31 | 0.00 | 0.63 | 0.32 | 0.54 | 0.00 | 0.00 | 0.22 | 0.22 |
| Volume/Cap: | 0.00 | 0.00 | 0.00 | 0.41 | 0.00 | 0.25 | 0.41 | 0.39 | 0.00 | 0.00 | 0.41 | 0.27 |
| Uniform Del: | 0.0 | 0.0 | 0.0 | 16.5 | 0.0 | 4.9 | 15.9 | 8.0 | 0.0 | 0.0 | 20.0 | 19.4 |
| IncremntDel: | 0.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.1 | 0.5 | 0.1 | 0.0 | 0.0 | 0.3 | 0.4 |
| InitQueuDel: | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Delay Adj: | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 |
| Delay/Veh: | 0.0 | 0.0 | 0.0 | 17.0 | 0.0 | 5.0 | 16.4 | 8.1 | 0.0 | 0.0 | 20.4 | 19.8 |
| User DelAdj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh: | 0.0 | 0.0 | 0.0 | 17.0 | 0.0 | 5.0 | 16.4 | 8.1 | 0.0 | 0.0 | 20.4 | 19.8 |
| LOS by Move: | A | A | A | B | A | A | B | A | A | A | C | B |
| HCM2kAvgQ: | 0 | 0 | 0 | 4 | 0 | 2 | 4 | 5 | 0 | 0 | 3 | 2 |

Note: Queue reported is the number of cars per lane.

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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                       Level Of Service Computation Report
            2000 HCM Unsignalized Method (Base Volume Alternative)
********************************************************************************
Intersection #1 Chestnut Ave / Bitterwater Rd
********************************************************************************
Average Delay (sec/veh):      2.8       Worst Case Level Of Service: D[ 31.1]
********************************************************************************
Street Name:           Chestnut Ave                     Bitterwater Rd
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:        1  0  0  0  1    0  0  0  0  0    0  0  1  1  0    1  0  2  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:PM Peak Hour
Base Vol:     120    0    12     0    0     0     0  352   141    16  861     0
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:  120    0    12     0    0     0     0  352   141    16  861     0
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:     0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92  0.92 0.92  0.92
PHF Volume:   130    0    13     0    0     0     0  383   153    17  936     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:  130    0    13     0    0     0     0  383   153    17  936     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  6.8 xxxx   6.9 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5 xxxx   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  962 xxxx   268  xxxx xxxx xxxxx  xxxx xxxx xxxxx   536 xxxx xxxxx
Potent Cap.:  257 xxxx   736  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1042 xxxx xxxxx
Move Cap.:    254 xxxx   736  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1042 xxxx xxxxx
Volume/Cap:  0.51 xxxx  0.02  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.02 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:    2.7 xxxx   0.1  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.1 xxxx xxxxx
Control Del: 33.2 xxxx  10.0 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.5 xxxx xxxxx
LOS by Move:    D    *     A     *    *     *     *    *     *     A    *     *
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:      31.1           xxxxxx           xxxxxx           xxxxxx
ApproachLOS:         D                *                *                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
```

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #2 Metz Rd / Bitterwater Rd

| | | | |
|---|---|---|---|
| Cycle (sec): | 60 | Critical Vol./Cap.(X): | 0.541 |
| Loss Time (sec): | 9 | Average Delay (sec/veh): | 12.4 |
| Optimal Cycle: | 34 | Level Of Service: | B |

| Street Name: | Metz Rd | | | | | | Bitterwater Rd | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Approach: | North Bound | | | South Bound | | | East Bound | | | West Bound | | |
| Movement: | L - T - R | | | L - T - R | | | L - T - R | | | L - T - R | | |
| Control: | Split Phase | | | Split Phase | | | Protected | | | Protected | | |
| Rights: | Include | | | Ovl | | | Include | | | Include | | |
| Min. Green: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Y+R: | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lanes: | 0 0 0 | 0 0 | | 1 0 0 | 0 1 | | 1 0 2 | 0 0 | | 0 0 2 | 0 1 | |
| Volume Module: PM Peak Hour | | | | | | | | | | | | |
| Base Vol: | 0 | 0 | 0 | 109 | 0 | 306 | 242 | 397 | 0 | 0 | 760 | 221 |
| 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 | 0 | 109 | 0 | 306 | 242 | 397 | 0 | 0 | 760 | 221 |
| 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: | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| PHF Volume: | 0 | 0 | 0 | 124 | 0 | 348 | 275 | 451 | 0 | 0 | 864 | 251 |
| Reduct Vol: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced Vol: | 0 | 0 | 0 | 124 | 0 | 348 | 275 | 451 | 0 | 0 | 864 | 251 |
| PCE Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| MLF Adj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| FinalVolume: | 0 | 0 | 0 | 124 | 0 | 348 | 275 | 451 | 0 | 0 | 864 | 251 |
| Saturation Flow Module: | | | | | | | | | | | | |
| Sat/Lane: | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Adjustment: | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 0.85 | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 0.85 |
| Lanes: | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 2.00 | 0.00 | 0.00 | 2.00 | 1.00 |
| Final Sat.: | 0 | 0 | 0 | 1805 | 0 | 1615 | 1805 | 3610 | 0 | 0 | 3610 | 1615 |
| Capacity Analysis Module: | | | | | | | | | | | | |
| Vol/Sat: | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 | 0.22 | 0.15 | 0.12 | 0.00 | 0.00 | 0.24 | 0.16 |
| Crit Moves: | | | | **** | | | **** | | | | **** | |
| Green/Cycle: | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 | 0.41 | 0.28 | 0.72 | 0.00 | 0.00 | 0.44 | 0.44 |
| Volume/Cap: | 0.00 | 0.00 | 0.00 | 0.54 | 0.00 | 0.53 | 0.54 | 0.17 | 0.00 | 0.00 | 0.54 | 0.35 |
| Uniform Del: | 0.0 | 0.0 | 0.0 | 24.6 | 0.0 | 13.4 | 18.3 | 2.6 | 0.0 | 0.0 | 12.3 | 11.1 |
| IncremntDel: | 0.0 | 0.0 | 0.0 | 2.6 | 0.0 | 0.8 | 1.2 | 0.0 | 0.0 | 0.0 | 0.4 | 0.3 |
| InitQueuDel: | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Delay Adj: | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 |
| Delay/Veh: | 0.0 | 0.0 | 0.0 | 27.2 | 0.0 | 14.2 | 19.5 | 2.7 | 0.0 | 0.0 | 12.7 | 11.4 |
| User DelAdj: | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| AdjDel/Veh: | 0.0 | 0.0 | 0.0 | 27.2 | 0.0 | 14.2 | 19.5 | 2.7 | 0.0 | 0.0 | 12.7 | 11.4 |
| LOS by Move: | A | A | A | C | A | B | B | A | A | A | B | B |
| HCM2kAvgQ: | 0 | 0 | 0 | 3 | 0 | 5 | 5 | 1 | 0 | 0 | 7 | 3 |

Note: Queue reported is the number of cars per lane.

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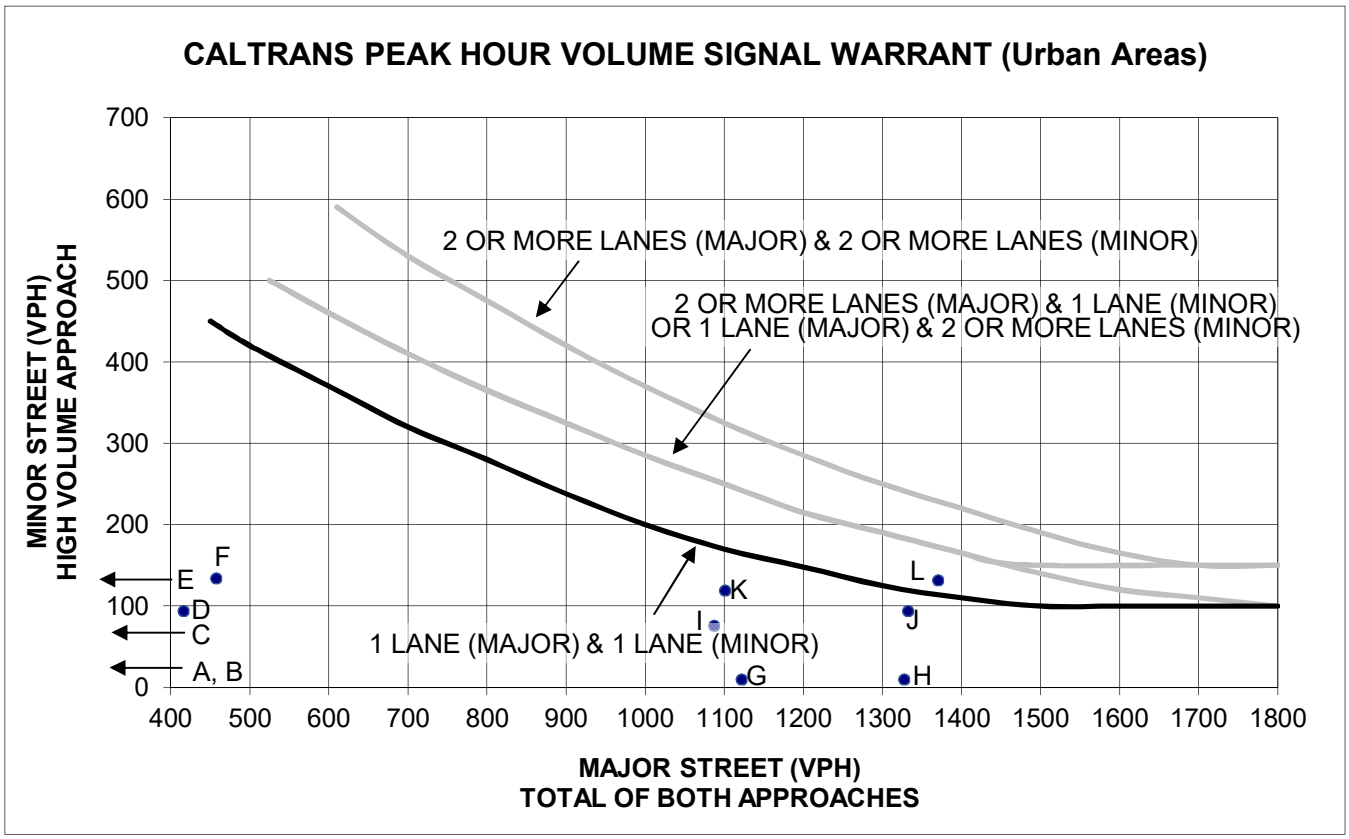
# Appendix C

Warrant

Worksheets

## Intersection #1
## Chestnut Avenue / Bitterwater Road




| Scenario | Bitterwater | Chestnut | Warrant |
|---|---|---|---|
| | East/West | North/South | Met? |
| | (Major) | (Minor) | (Yes/No) |
| A. ST w/o DASP AM | 224 | 10 | No |
| B. ST w/o DASP PM | 270 | 10 | No |
| C. ST+DASP AM | 279 | 76 | No |
| D. ST+DASP PM | 416 | 94 | No |
| E. ST+DASP+Pro AM | 294 | 121 | No |
| F. ST+DASP+Pro PM | 457 | 134 | No |
| G. LT w/o DASP AM | 1122 | 10 | No |
| H. LT w/o DASP PM | 1327 | 10 | No |
| I. LT+DASP AM | 1087 | 76 | No |
| J. LT+DASP PM | 1332 | 94 | No |
| K. LT+DASP+Pro AM | 1101 | 119 | No |
| L. LT+DASP+Pro PM | 1370 | 132 | Yes |

Notes:

1. 150 VPH applies as the lower threshold volume for a minor street approach with two or more lanes and 100 VPH applies as the lower threshold volume for a minor street approaching with one lane.

2. Bold line applies to intersection geometry.

**Warrant 3 (Part B) - Peak Hour Delay**
**#1 - Chestnut Avenue / Bitterwater Road**

Number of Approaches to Intersection: 3 approaches **Minimum Entering Vehicles: 650 vehicles**

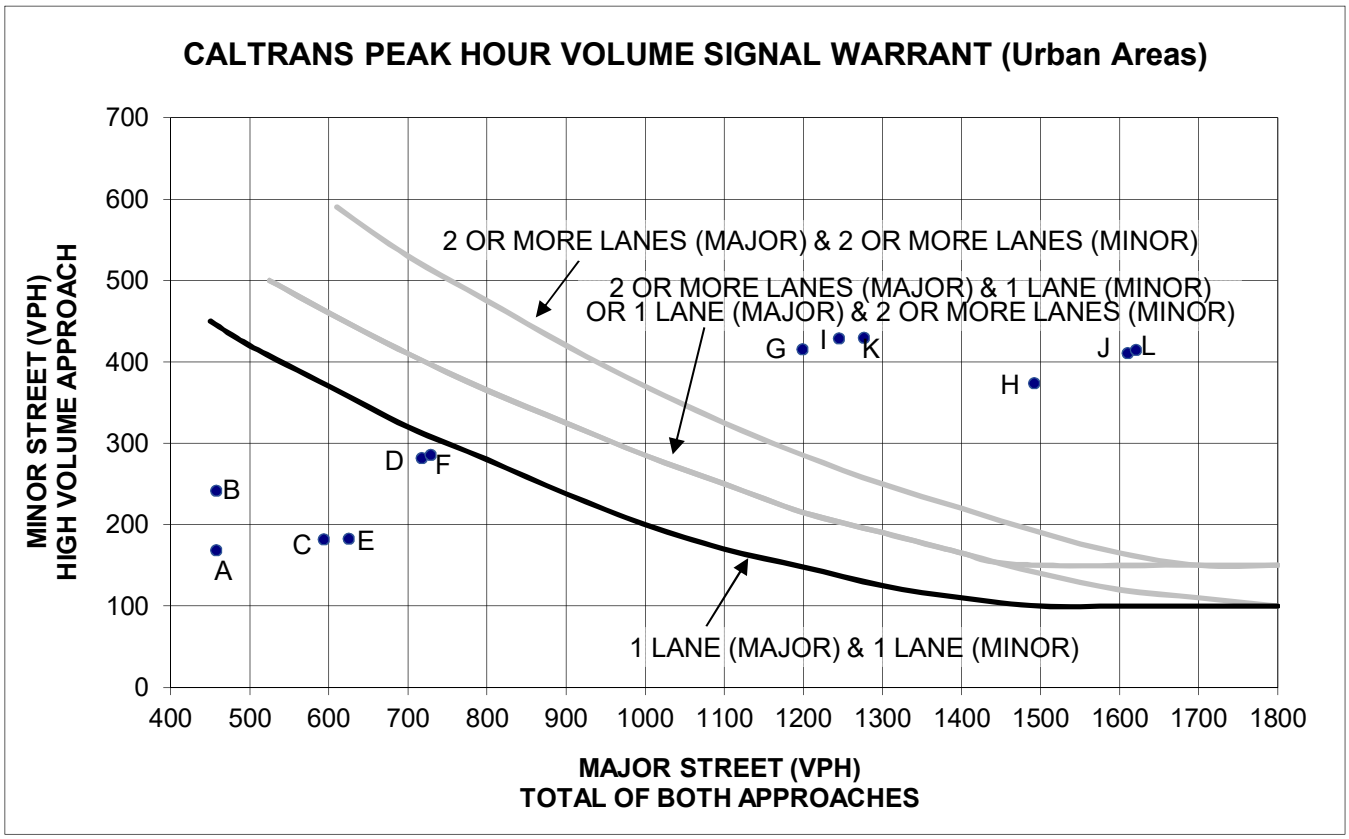
Number of Approach Lanes: NB Post: 1 lanes
SB El Rancho: 1 lanes

| Total Entering Volumes: | | | | |
|---|---|---|---|---|
| | ST w/o DASP AM: | 234 vehicles | LT w/o DASP AM: | 1,132 vehicles |
| | ST w/o DASP PM: | 280 vehicles | LT w/o DASP PM: | 1,337 vehicles |
| | ST+DASP AM: | 355 vehicles | LT+DASP AM: | 1,163 vehicles |
| | ST+DASP PM: | 510 vehicles | LT+DASP PM: | 1,426 vehicles |
| | ST+DASP+Pro AM: | 415 vehicles | LT+DASP+Pro AM: | 1,220 vehicles |
| | ST+DASP+Pro PM: | 591 vehicles | LT+DASP+Pro PM: | 1,502 vehicles |

| Street | Direction | Scenario | Peak Hour | No. of Stopped Vehicles | Average Vehicle Delay (sec) | Total Vehicle Delay (sec) | Total Delay (hours) | Min. Approach Delay? 4 Veh-Hrs (One-Lane) | Min. Approach Delay? 5 Veh-Hrs (Two-Lane) | Min. Approach Vols? 100 Veh (One-Lane) | Min. Approach Vols? 150 Veh (Two-Lane) | At least 650 Veh? (Intersection) | Warrant Met? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chestnut | NB | ST w/o DASP | AM | 10 | 9.4 | 94 | 0.03 | NO | N/A | NO | N/A | NO | NO |
| Chestnut | NB | ST w/o DASP | PM | 10 | 9.5 | 95 | 0.03 | NO | N/A | NO | N/A | NO | NO |
| Chestnut | NB | ST+DASP | AM | 76 | 10.7 | 813 | 0.23 | NO | N/A | NO | N/A | NO | NO |
| Chestnut | NB | ST+DASP | PM | 94 | 12.0 | 1,128 | 0.31 | NO | N/A | NO | N/A | NO | NO |
| Chestnut | NB | ST+DASP+Pro | AM | 121 | 11.3 | 1,367 | 0.38 | NO | N/A | YES | N/A | NO | NO |
| Chestnut | NB | ST+DASP+Pro | PM | 134 | 13.0 | 1,742 | 0.48 | NO | N/A | YES | N/A | NO | NO |
| Chestnut | NB | LT w/o DASP | AM | 10 | 19.7 | 197 | 0.05 | NO | N/A | NO | N/A | YES | NO |
| Chestnut | NB | LT w/o DASP | PM | 10 | 21.0 | 210 | 0.06 | NO | N/A | NO | N/A | YES | NO |
| Chestnut | NB | LT+DASP | AM | 76 | 30.2 | 2,295 | 0.64 | NO | N/A | NO | N/A | YES | NO |
| Chestnut | NB | LT+DASP | PM | 94 | 56.1 | 5,273 | 1.46 | NO | N/A | NO | N/A | YES | NO |
| Chestnut | NB | LT+DASP+Pro | AM | 119 | 42.9 | 5,105 | 1.42 | NO | N/A | YES | N/A | YES | NO |
| Chestnut | NB | LT+DASP+Pro | PM | 132 | 104.3 | 13,768 | 3.82 | NO | N/A | YES | N/A | YES | NO |

Notes:
1. Warrant based on level of service calculations.
2. NB, SB, EB, WB = Northbound, Southbound, Eastbound, Westbound.
3. N/A = Not Applicable - this evaluation does not apply to that approach.

## Intersection #2
## Metz Road / Bittewater Road




| Scenario | Bitterwater | Metz | Warrant |
|---|---|---|---|
| | East/West | North/South | Met? |
| | (Major) | (Minor) | (Yes/No) |
| A. ST w/o DASP AM | 457 | 169 | No |
| B. ST w/o DASP PM | 457 | 242 | No |
| C. ST+DASP AM | 593 | 182 | No |
| D. ST+DASP PM | 717 | 282 | No |
| E. ST+DASP+Pro AM | 625 | 183 | No |
| F. ST+DASP+Pro PM | 728 | 286 | No |
| G. LT w/o DASP AM | 1199 | 416 | Yes |
| H. LT w/o DASP PM | 1492 | 374 | Yes |
| I. LT+DASP AM | 1245 | 429 | Yes |
| J. LT+DASP PM | 1610 | 411 | Yes |
| K. LT+DASP+Pro AM | 1276 | 430 | Yes |
| L. LT+DASP+Pro PM | 1620 | 415 | Yes |

Notes:

1. 150 VPH applies as the lower threshold volume for a minor street approach with two or more lanes and 100 VPH applies as the lower threshold volume for a minor street approaching with one lane.

2. Bold line applies to intersection geometry.

**Warrant 3 (Part B) - Peak Hour Delay**
**#2 - Metz Road / Bitterwater Road**

Number of Approaches to Intersection: 3 approaches **Minimum Entering Vehicles: 650 vehicles**

Number of Approach Lanes: NB Post: 1 lanes
SB El Rancho: 1 lanes

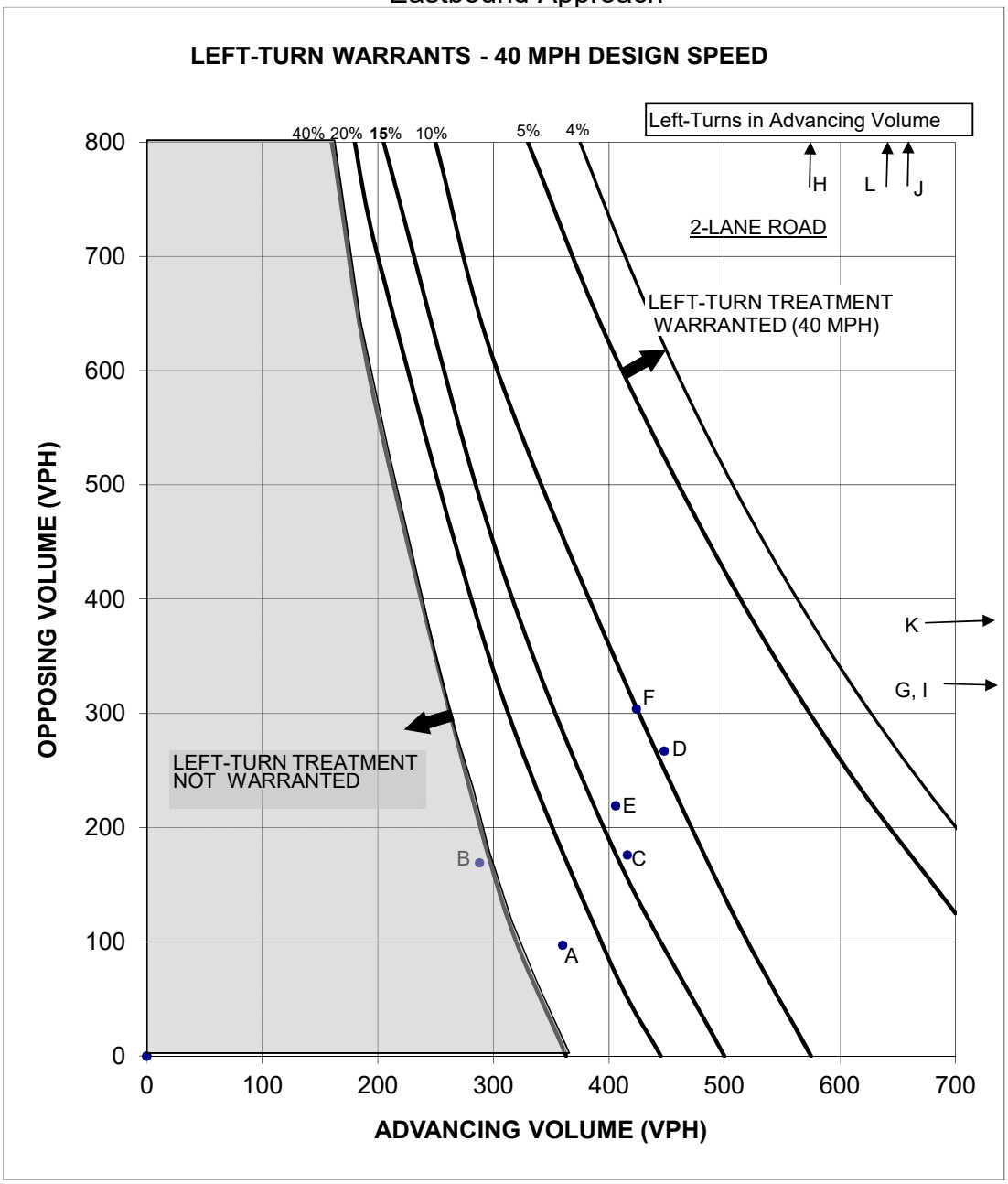
Total Entering Volumes:

| | | | |
|---|---|---|---|
| ST w/o DASP AM: | 626 vehicles | LT w/o DASP AM: | 1,615 vehicles |
| ST w/o DASP PM: | 699 vehicles | LT w/o DASP PM: | 1,866 vehicles |
| ST+DASP AM: | 824 vehicles | LT+DASP AM: | 1,720 vehicles |
| ST+DASP PM: | 1,060 vehicles | LT+DASP PM: | 2,079 vehicles |
| ST+DASP+Pro AM: | 808 vehicles | LT+DASP+Pro AM: | 1,706 vehicles |
| ST+DASP+Pro PM: | 1,014 vehicles | LT+DASP+Pro PM: | 2,035 vehicles |

| Street | Direction | Scenario | Peak Hour | No. of Stopped Vehicles | Average Vehicle Delay (sec) | Total Vehicle Delay (sec) | Total Delay (hours) | Min. Approach Delay? 4 Veh-Hrs (One-Lane) | Min. Approach Delay? 5 Veh-Hrs (Two-Lane) | Min. Approach Vols? 100 Veh (One-Lane) | Min. Approach Vols? 150 Veh (Two-Lane) | At least 650 Veh? (Intersection) | Warrant Met? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Metz | SB | ST w/o DASP | AM | 169 | 9.9 | 1,673 | 0.46 | NO | N/A | YES | N/A | NO | NO |
| Metz | SB | ST w/o DASP | PM | 242 | 11.0 | 2,662 | 0.74 | NO | N/A | YES | N/A | YES | NO |
| Metz | NB | ST+DASP | AM | 49 | 31.4 | 1,539 | 0.43 | NO | N/A | NO | N/A | YES | NO |
| Metz | SB | ST+DASP | AM | 182 | 11.7 | 2,129 | 0.59 | NO | N/A | YES | N/A | YES | NO |
| Metz | NB | ST+DASP | PM | 61 | 81.2 | 4,953 | 1.38 | NO | N/A | NO | N/A | YES | NO |
| Metz | SB | ST+DASP | PM | 282 | 15.9 | 4,484 | 1.25 | NO | N/A | YES | N/A | YES | NO |
| Metz | SB | ST+DASP+Pro | AM | 183 | 11.7 | 2,141 | 0.59 | NO | N/A | YES | N/A | YES | NO |
| Metz | SB | ST+DASP+Pro | PM | 286 | 15.3 | 4,376 | 1.22 | NO | N/A | YES | N/A | YES | NO |
| Metz | SB | LT w/o DASP | AM | 416 | 266.3 | 110,781 | 30.77 | YES | N/A | YES | N/A | YES | YES |
| Metz | SB | LT w/o DASP | PM | 374 | 167.7 | 62,720 | 17.42 | YES | N/A | YES | N/A | YES | YES |
| Metz | NB | LT+DASP | AM | 46 | 328.6 | 15,116 | 4.20 | YES | N/A | NO | N/A | YES | NO |
| Metz | SB | LT+DASP | AM | 429 | 711.2 | 305,105 | 84.75 | YES | N/A | YES | N/A | YES | YES |
| Metz | NB | LT+DASP | PM | 58 | 1,000.0 | 58,000 | 16.11 | YES | N/A | NO | N/A | YES | NO |
| Metz | SB | LT+DASP | PM | 411 | 1,000.0 | 411,000 | 114.17 | YES | N/A | YES | N/A | YES | YES |
| Metz | SB | LT+DASP+Pro | AM | 430 | 364.6 | 156,778 | 43.55 | YES | N/A | YES | N/A | YES | YES |
| Metz | SB | LT+DASP+Pro | PM | 415 | 401.3 | 166,540 | 46.26 | YES | N/A | YES | N/A | YES | YES |

Notes:
1. Warrant based on level of service calculations.
2. NB, SB, EB, WB = Northbound, Southbound, Eastbound, Westbound.
3. N/A = Not Applicable - this evaluation does not apply to that approach.
4. LT+DASP PM delays exceeds capacity to quantify using 2000 Highway Capacity Manual methodologies. These results are approximated as a delay of 1,000 seconds.

Intersection #2
Metz Road / Bitterwater Road
Eastbound Approach




| Scenario | Advancing | Opposing | % Left-Turn | Warrant Met? |
|---|---|---|---|---|
| A. ST w/o DASP AM | 360 | 97 | 51% | Yes |
| B. ST w/o DASP PM | 288 | 169 | 69% | No |
| C. ST+DASP AM | 416 | 176 | 45% | Yes |
| D. ST+DASP PM | 448 | 267 | 45% | Yes |
| E. ST+DASP+Pro AM | 406 | 219 | 46% | Yes |
| F. ST+DASP+Pro PM | 424 | 304 | 48% | Yes |
| G. LT w/o DASP AM | 876 | 323 | 24% | Yes |
| H. LT w/o DASP PM | 586 | 906 | 41% | Yes |
| I. LT+DASP AM | 907 | 337 | 23% | Yes |
| J. LT+DASP PM | 662 | 946 | 37% | Yes |
| K. LT+DASP+Pro AM | 898 | 378 | 24% | Yes |
| L. LT+DASP+Pro PM | 639 | 981 | 38% | Yes |

Source: Transportation Research Board, "Intersection Channelization Guide", NCHRP Report 279, November, 1985