Appendix 1-A: Notice of Preparation

CITY OF OAKLAND

DALZIEL BUILDING • 250 FRANK OGAWA PLAZA, SUITE 3315 • OAKLAND, CALIFORNIA 94612-2032

Department of Planning, Building and Neighborhood Preservation
Strategic Planning Division

(510) 238-3941
FAX (510) 238-6538
TTD (510) 238-3254

October 22, 2012

NOTICE OF PREPARATION (NOP) OF A DRAFT ENVIRONMENTAL IMPACT REPORT (EIR) FOR PROPOSED WEST OAKLAND SPECIFIC PLAN

The City of Oakland Department of Planning, Building and Neighborhood Preservation is preparing a Draft Environmental Impact Report (EIR) for the proposed West Oakland Specific Plan ('The Project') as described below, and is requesting comments on the scope and content of the EIR. The EIR will address the potential physical environmental effects for each of the environmental topics outlined in the California Environmental Quality Act (CEQA). The City has **not** prepared an Initial Study and all CEQA topics will be addressed in the EIR.

The City of Oakland is the Lead Agency for the project and is the public agency with the greatest responsibility for approving the Project and carrying it out. This notice is being sent to Responsible Agencies and other interested parties. Responsible Agencies are those public agencies, besides the City of Oakland, that also have a role in approving or carrying out the Project. When the Draft EIR is published, it will be sent to all Responsible Agencies and to others who respond to this NOP or who otherwise indicate that they would like to receive a copy.

Responses to this NOP and any questions or comments should be directed in writing or via email to:

Ulla-Britt Jonsson, Planner II
City of Oakland Strategic Planning Division
250 Frank Ogawa Plaza, Suite 3315
Oakland, CA, 94612
Phone: (510) 238-3322
Fax: (510) 238-4730
E-mail: ujonsson@oaklandnet.com

Comments on the NOP must be received at the above mailing or e-mail address by **5:00 p.m. November 21, 2012**. Please reference **Case Number ER120018** in all correspondence. Comments should focus on discussing possible impacts on the physical environment, ways in which potential adverse effects might be minimized, and alternatives to the project in light of the EIR's purpose to provide useful and accurate information about such factors.

In addition, comments may be provided at the EIR Scoping Meetings to be held before the Oakland Landmarks Preservation Advisory Board and Oakland City Planning Commission:

LANDMARKS PRESERVATION ADVISORY BOARD SCOPING MEETING	CITY PLANNING COMMISSION SCOPING MEETING
November 5, 2012, 6:00 p.m. **Oakland City Hall** **City Council Chamber** **One Frank H. Ogawa Plaza** **Oakland, CA 94612**	**November 14, 2012, 6:00 p.m.** **Oakland City Hall** **City Council Chamber** **One Frank H. Ogawa Plaza** **Oakland, CA 94612**

PROJECT TITLE: West Oakland Specific Plan

PROJECT LOCATION: The West Oakland Specific Plan area is generally bounded by Interstate-580 (MacArthur Freeway) to the north, Interstate-980 to the east, and the re-located Interstate-880 (Nimitz Freeway) wrapping around the south and west. See attached Project Description for more information.

PROJECT SPONSOR: The City of Oakland is the Project Sponsor for this planning effort.

EXISTING CONDITIONS: The West Oakland Specific Plan area contains a mix of residential, Industrial, commercial, and institutional uses. See attached Project Description for more information.

PROJECT PURPOSE: The purpose of the West Oakland Specific Plan to provide a comprehensive, consistent and multi-faceted vision for development and redevelopment of vacant and/or underutilized commercial and industrial properties in West Oakland, establish a land use and development framework, identify needed transportation and infrastructure improvements, and recommend implementation strategies. See attached Project Description for more information.

PROJECT DESCRIPTION: The West Oakland Specific Plan will guide future development in West Oakland, including a framework for developing undervalued and blighted land. The Specific Plan will include strategies for transit-oriented development at the West Oakland BART Station, to better link transportation choices with new housing and employment options within the community. See attached Project Description for more information.

PROBABLE ENVIRONMENTAL EFFECTS: It is anticipated that the proposed project may result in potentially significant environmental effects to the following:

- Aesthetics, shadow and wind
- Air quality
- Biological resources

- Cultural and historic resources
- Geology and soils
- Greenhouse gas emissions/climate change
- Hazards and hazardous materials
- Hydrology and water quality
- Land use and planning
- Noise
- Population, housing and employment
- Public services and recreation
- Transportation
- Utilities and service systems

All of the noted environmental factors will be analyzed in the Draft EIR.

The Project has no potential for any impact on the following environmental factors, and, as a result, these environmental factors will not be the subject of study in this Draft EIR: Agriculture and Forestry (there are no agricultural and forest land resources in the Plan area), and Mineral Resources (there are no mineral resources in the Plan area).

The Draft EIR will also examine a reasonable range of alternatives to the Project, including the CEQA-mandated No Project Alternative, and other potential alternatives that may be capable or reducing or avoiding potential environmental effects.

Scott Miller
Interim Planning and Zoning Director
Environmental Review Officer

File Number ER120018

WEST OAKLAND SPECIFIC PLAN PROJECT DESCRIPTION

INTRODUCTION

The West Oakland Specific Plan will guide future development in West Oakland. The purpose of the proposed West Oakland Specific Plan is to provide comprehensive and multi-faceted strategies for development and redevelopment, of vacant and/or underutilized commercial and industrial properties in West Oakland. It establishes a land use and development framework, identifies needed transportation and infrastructure improvements, and recommends implementation strategies needed to develop those parcels. The Plan is also a marketing tool for attracting developers to key sites and for encouraging new, targeted economic development. The Plan builds on extensive community feedback to meet its goals of:

- Augmenting West Oakland's development capabilities by enhancing the linkages between West Oakland and future Army Base reuse and development, focusing on the economic and physical synergies between these two areas;
- Encouraging the growth of jobs and services, with opportunities and training available to existing and future residents within West Oakland;
- Determining desired land uses for specific areas within West Oakland, recognizing that different areas have differing needs, opportunities, constraints and assets;
- Attracting quality, compatible residential, commercial and industrial development while preserving existing established residential neighborhoods;
- Supporting existing investment in the area and enhancing existing assets;
- Supporting commercial, mixed-use and transit-oriented land use in West Oakland, particularly in collaboration with the Bay Area Rapid Transit (BART) District for transit-oriented development at the West Oakland BART station;
- Lessening existing land-use conflicts and ensuring avoidance of future conflicts between residential neighborhoods and non-residential uses;
- Enhancing transportation resources throughout West Oakland, and between West Oakland and adjoining areas;
- Furthering the physical and economic revitalization of West Oakland;
- Corresponding with regional development issues in accordance with the district's Priority Development Area designation through SB 375; and
- Minimizing the potential for displacement of existing residents as new residents are accommodated.

With very limited exceptions, the Specific Plan retains the existing Oakland General Plan land use designations and applicable zoning in West Oakland, and adheres to the City's Overall Industrial Land Use Policy to retain current industrial zoning districts. It promotes high density development near the West Oakland BART station and identifies a development vision for other major locations throughout the Specific Plan area, encourages residential and neighborhood-serving commercial establishments on major corridors such as San Pablo Avenue, redirects light industrial and more intensive commercial activities to locations closer to the Port of Oakland and away from residential areas, and protects and enhances West Oakland's residential neighborhoods. The Specific Plan also encourages an enhanced multimodal transportation system to better link residents and businesses. It seeks to accomplish this through a variety of actions, including creation of distinct land use overlays to guide future development of key parcels throughout the Specific Plan area.

The Plan will provide an area-wide set of development regulations and requirements, and will cover land use, development density, circulation and infrastructure, financing mechanisms for public improvement, and will have legal authority as a regulatory document.

The components of the Specific Plan will include:

- Text and diagrams showing the distribution, location and extent of all land uses;
- Proposed distribution, location, extent and intensity of major components of public and private transportation, sewage, water, drainage, solid waste disposal, energy and other essential facilities needed to support the land uses;
- Standards and guidelines for development, and standards for the conservation, development and utilization of natural resources, where applicable;
- Program of implementation measures including regulations, programs, public works projects and financing measures; and
- Statement of Specific Plan's relationship to the General Plan.

PROJECT SETTING

The West Oakland Planning Area (Planning Area) is located in the heart of the East San Francisco Bay Area, near the hub of the Bay Area's freeway system and regional transit system. The West Oakland BART station is located in the southern portion of the Planning Area, and the MacArthur BART station is located approximately one-quarter mile northeast of the Planning Area.

The Planning Area is generally bounded by Interstate 580 (I-580) to the north, I-980 to the east and I-880 to the west. **Figure 1** illustrates the Project location and the Planning Area boundaries.

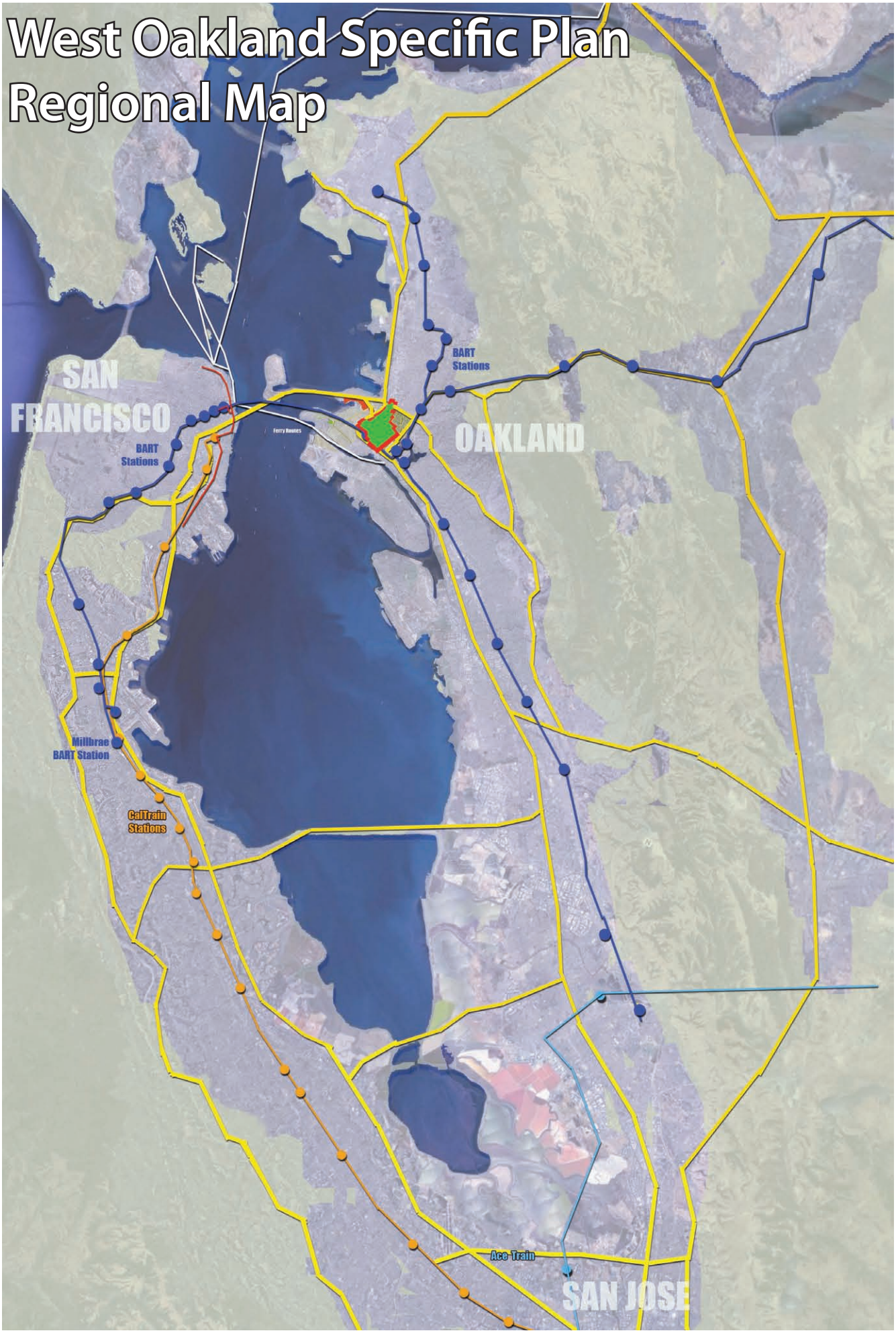

West Oakland Specific Plan
Regional Map
SAN
FRANCISCO
BART
Stations
Ferry Routes
BART
Stations
OAKLAND
Millbrae
BART Station
CalTrain
Stations
Ace Train
SAN JOSE

FIGURE 1

The Planning Area comprises approximately 2.18 square miles or approximately 1,900 acres, subdivided into 6,340 parcels. It has a current population of approximately 25,000 people, and contains employment opportunities for more than 15,000 current employees.

Residential uses occupy approximately 60 percent of the land in West Oakland, generally concentrated in the northern, eastern and southwestern portions of the area. Industrial, commercial and truck-related uses occupy about 23 percent of the land area, and government/institutional and utilities uses occupy the remaining 17 percent. Industrial uses are concentrated primarily around Mandela Parkway and West Grand Avenue and in the vicinity of 3rd Street. Commercial activities primarily occur at the northern end of the Planning Area near Emeryville, along San Pablo Avenue, at the eastern end of West Grand Avenue, on Market Street and on 7th Street. Lands devoted to government, institutional and utilities uses include properties owned by Caltrans, Union Pacific Railroad, U.S. Postal Service, Bay Area Rapid Transit District (BART), East Bay Municipal Utility District (EBMUD), Oakland Unified School District, Oakland Housing Authority, and City of Oakland. Existing land use in the Planning Area is illustrated on **Figure 2**.

Surrounding the Planning Area is a mix of land uses:

- North of I-580 is the East BayBridge Shopping Center and other residential, light industrial, office and public uses in Emeryville.
- To the northwest are the East Bay Municipal Utility District (EBMUD) Main Wastewater Treatment Plant, the I-80/I-580/I-880 interchange, and eastern terminus of the San Francisco-Oakland Bay Bridge and the bridge toll plaza.
- East of I-980 are the Pill Hill and Uptown neighborhoods, Downtown Oakland, City Center, Old Oakland and the 19th Street and 12th Street BART Stations.
- To the southeast are the waterfront Jack London District and Jack London Square.
- Interstate 880, the Union Pacific Railroad and the Burlington Northern and Santa Fe (BNSF) Railroad are located along the southern and western boundaries of the Planning Area. The Port of Oakland and the former Oakland Army Base, currently leased for interim transportation, industrial and commercial uses until it is redeveloped as a Port Logistics Center, are to the south and west of the Planning Area.

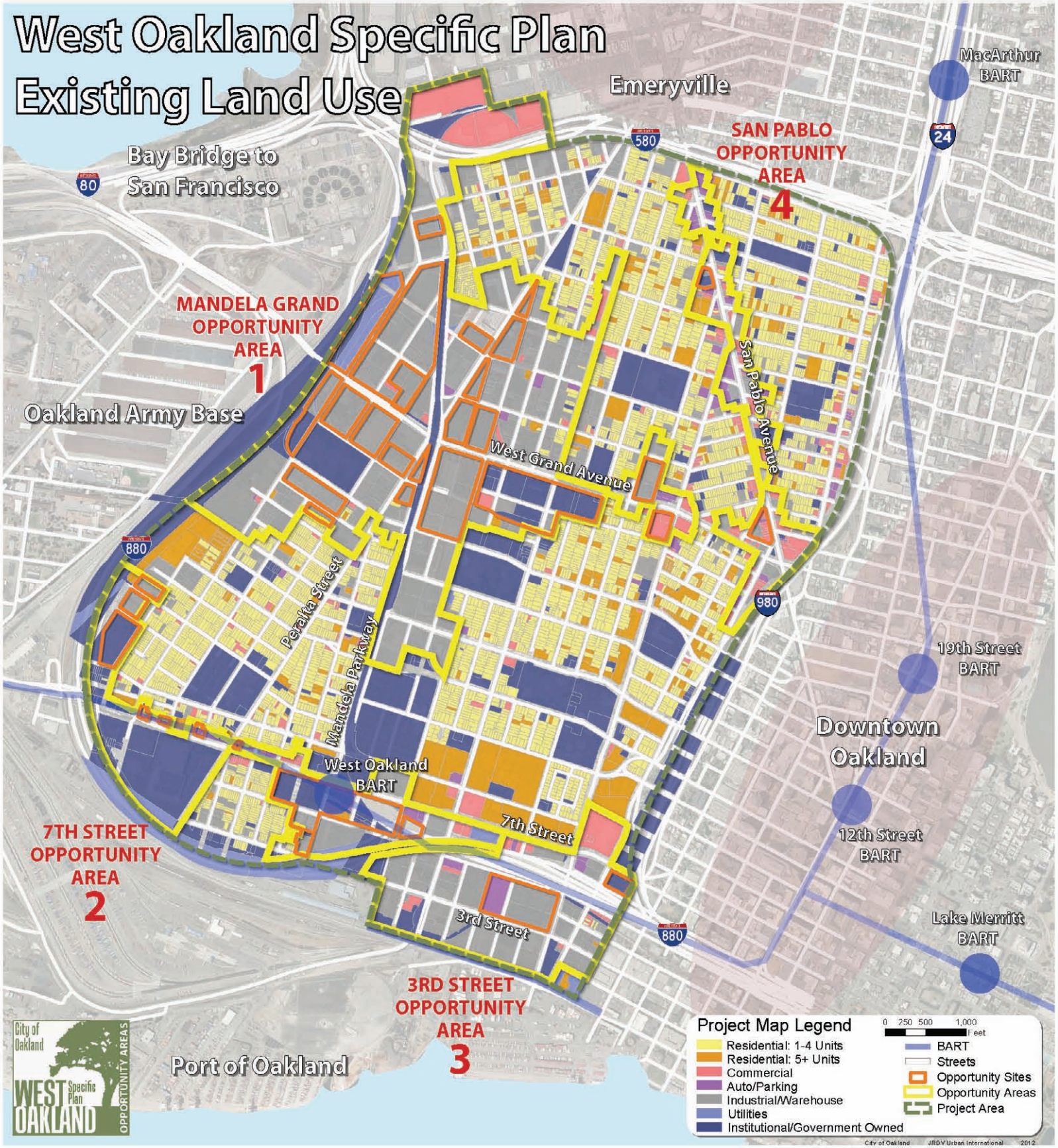

West Oakland Specific Plan
Existing Land Use
Emeryville
MacArthur BART
Bay Bridge to San Francisco
SAN PABLO OPPORTUNITY AREA 4
MANDELA GRAND OPPORTUNITY AREA 1
Oakland Army Base
San Pablo Avenue
West Grand Avenue
Peralta Street
Mandela Parkway
19th Street BART
Downtown Oakland
West Oakland BART
7th Street
12th Street BART
7TH STREET OPPORTUNITY AREA 2
3rd Street
Lake Merritt BART
3RD STREET OPPORTUNITY AREA 3
Port of Oakland
Project Map Legend
Residential: 1-4 Units
Residential: 5+ Units
Commercial
Auto/Parking
Industrial/Warehouse
Utilities
Institutional/Government Owned
BART
Streets
Opportunity Sites
Opportunity Areas
Project Area
0 250 500 1,000 Feet
City of Oakland
JRDV Urban International
2012

FIGURE 2

PLANNING SUBAREAS

Opportunity Areas

The Specific Plan identifies four "Opportunity Areas' targeted for growth. Development facilitated by the Specific Plan would occur in these Opportunity Areas, which contain vacant and underutilized properties and older facilities that no longer meet current standards and market conditions, and thus have the most potential for change. The following Opportunity Areas are shown on **Figure 3.**

- Opportunity Area 1: Mandela/West Grand (239 acres)
- Opportunity Area 2: 7th Street (68 acres)
- Opportunity Area 3: 3rd Street (69 acres)
- Opportunity Area 4: San Pablo Avenue (47 acres)

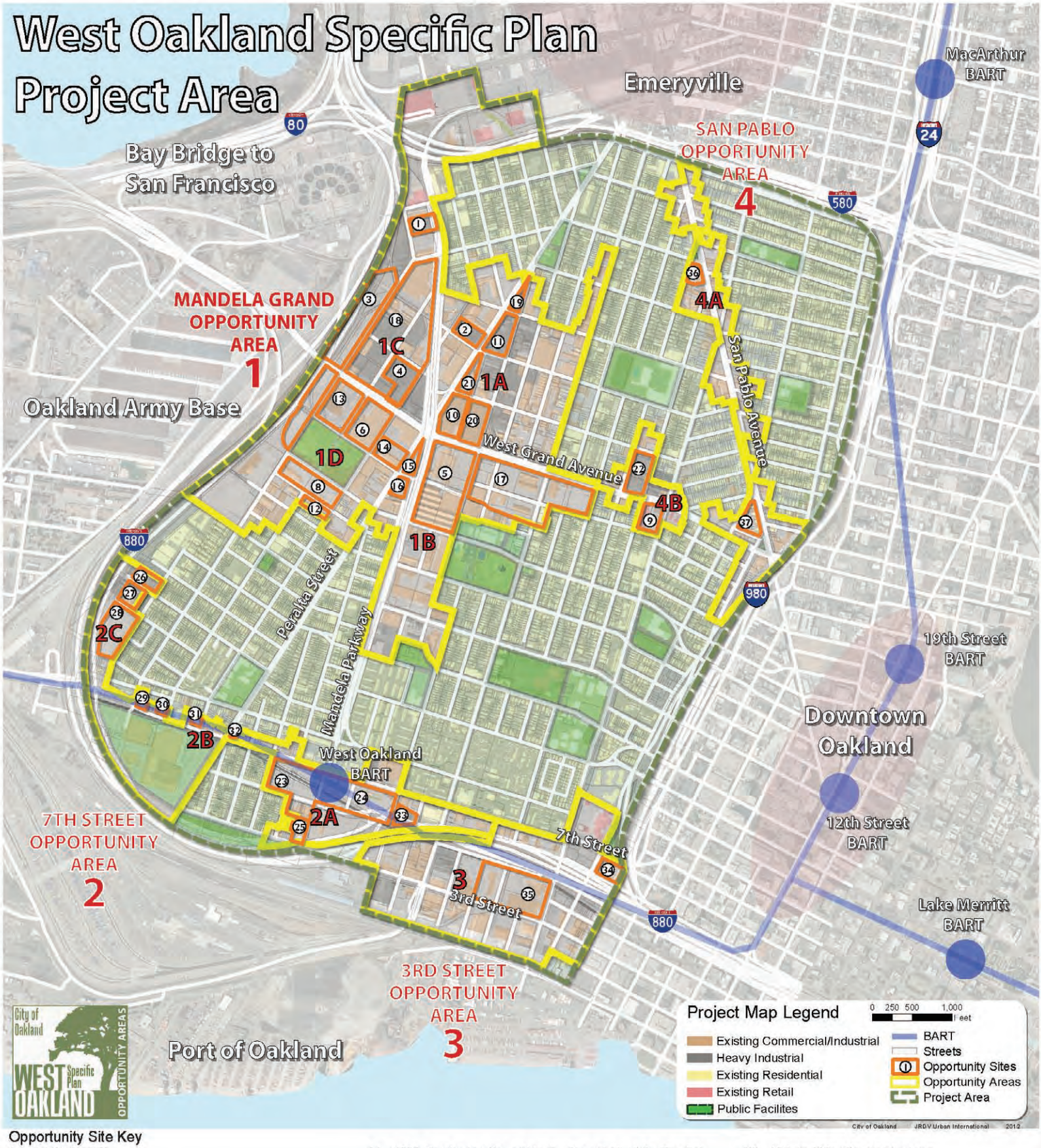
Because of their size and the differing land use development and planning strategies, the Mandela/West Grand Avenue, 7th Street and San Pablo Avenue Opportunity Areas are further divided into subareas, as also shown on Figure 3.

Opportunity Sites

Within the four Opportunity Areas, growth facilitated by the Specific Plan is most likely to occur on 37 specifically identified Opportunity Sites. These Opportunity Sites are also illustrated on Figure 2. Opportunity Sites are individual parcels or groups of commercial and/or industrial parcels that are strategically located, and are vacant, underutilized, blighted or contain uses that conflict with nearby residential neighborhoods. The Opportunity Sites are expected to serve as catalysts in that their development will encourage development of other properties in the surrounding Opportunity Area and can make direct positive contributions to the community.

Enhancement Areas

The predominantly residential neighborhoods of West Oakland that lie outside the Opportunity Areas are referred to as "Enhancement Areas" in the Specific Plan. These areas are not in need of transformational change; but rather preservation and enhancement of their existing strengths. Enhancement Areas include residential neighborhoods outside the Opportunity Areas, and many existing commercial and industrial parcels that are already developed with compatible, economically viable and job-generating uses. A key tenet of the Specific Plan is to retain, enhance, and improve these Enhancement Areas.



Opportunity Site Key

1. 1650 32nd St.
2. 2601 Peralta
3. Upper Wood St.
4. 2240 Wood St. (Grand/Campbell
5. Pacific Pipe/American Steel
6. 1699 West Grand
8. Roadway Express
9. Grand & Market
10. 2300 Peralta (Mandela/Peralta/W.Grand)
11. 2701 Poplar (CASS)
12. Half-block at Willow, Campbell & 17th Street
13. 1700 20th St., (Wood, Willow, W. Grand, 20th Street)
14. 2001 Peralta (portion of block – Campbell, 20th, Peralta)
15. Triangle – Mandela, Peralta, 20th
16. North portion of block – Peralta, Mandela, 20th
17. Poplar to Linden, W. Grand to 20th
18. Grand/32nd, Campbell to Wood
19. Triangle - Peralta, Poplar, 28th
20. Kirkham to Poplar, W. Grand to 24th
21. Triangle - Peralta/Kirkham/24th Street
22. W. Grand/Myrtle/Filbert/24th Street
23. West Oakland Transit Village
24. West Oakland Alliance Development
25. EPA Site
26. 10th to 11th, Pine to Frontage
27. 9th to 10th, Pine to Frontage
28. Phoenix Iron Works
29. 7th & Wood
30. 7th & Willow
31. 7th & Campbell
32. 7th & Peralta
33. South half-block between Union & Magnolia
34. Brush and Castro
35. 425 Market Street
36. North portion of block, Filbert, 32nd, San Pablo
37. San Pablo, W. Grand, 23rd, Brush

FIGURE 3

CITY OF OAKLAND JRDV Urban International OCTOBER, 2012

EXISTING GENERAL PLAN AND ZONING, AND PROPOSED LAND USE OVERLAYS

Commercial / Industrial Areas

Much of the non-residential land within the Opportunity Areas has a current General Plan designation of "Business Mix" and is correspondingly zoned CIX-1 Commercial Industrial Mix 1. These land use and zoning categories are specifically intended to "create, preserve, and enhance the industrial areas of West Oakland that are appropriate for a wide variety of commercial and industrial establishments", and to "accommodate existing industries and provide flexibility to anticipate new technologies". These land uses are also supported by the City of Oakland's Overall Industrial Land Use Policy, which is specifically intended to protect the remaining industrial lands in Oakland, recognizing that industrial land is a scarce resource and that preservation of industrial land is vital to the future economic growth of the city. However, these current General Plan land use and zoning designations allow such a broad range of allowable uses, building intensities and development characteristics that there is no discernible or specific "vision" of the highest and best land uses for specific areas. This broad range of allowed uses may also raise property owner expectations beyond what the current market can support, thereby discouraging investment and slowing development as owners hold out for higher value projects.

While allowing flexibility, the Specific Plan provides more specific and definitive land use direction for these business areas of West Oakland and provides greater clarity and predictability for property owners and developers, neighboring activities, and the community at large. The Specific Plan provides land use policy direction for the Opportunity Areas by identifying a set of new policy-based land use overlays. These land use overlays identify strategically distinct employment uses and building types, reflecting differences in business functions performed, business ages and sizes, and expected amenity levels. These land use overlays supplement, rather than replace the current General Plan and zoning land uses.

Residential Mix Areas

Much of the residential land within the Opportunity Areas has a current General Plan land use designation of "Mixed Housing Type Residential" and is correspondingly zoned either 'Mixed Housing Type Residential' (RM) or 'Housing Business Mix' (HBX). These General Plan and zoning categories are primarily used in the older established neighborhoods of Oakland with a mix of single-family, townhomes and small, multi-unit buildings along with small-scale, neighborhood-serving businesses. Existing policies and regulations are specifically intended to create, maintain and enhance these residential areas. The area surrounding the West Oakland BART station is zoned "S-15: Transit Oriented Development". Existing policies and regulations applicable to this area are intended to create, preserve and enhance areas served by multiple nodes of transportation and to feature high-density residential, commercial, and mixed-use developments to encourage concentrated development. It encourages a pedestrian environment near the transit station with by a mixture of residential, civic, commercial and light industrial activities, and amenities.

The Specific Plan retains the existing General Plan and zoning designations for these mixed residential areas, but supplements them with a more specific mixed-use development program for specific sites. It also proposes to allow limited and carefully selected industrial sites to be converted to new residential development. Criteria by which such residential infill may be allowed include sites within already established residential patterns, sites with established buffers between less compatible industrial neighbors, and sites with immediate proximity to parks and other residential amenities.

Land Use Overlays

To fully realize the development potential of the Specific Plan Area and provide greater clarity and predictability for development, the Specific Plan recommends a set of land use overlays that indicate the type of development that should occur at specific locations in West Oakland. These new land use types are intended as overlays to the existing General Plan designations, providing more specific and targeted land use policy. Nine land use types are recommended: four relating to commercial business and industrial activities, two for retail commercial activities, and three for residential activities.

Business / Industrial Land Use Overlays

Heavy Industrial

The proposed "Heavy Industrial" Land Use Overlay is indicative of many of the more industrial sites within West Oakland that are occupied by such uses as recycling operations, heavy truck-dependent uses, truck parking and other types of loud or pollution-emitting uses. Policy direction inherent in the Specific Plan is to seek alternative sites where many of these heavy industrial land uses may be more appropriate, and to alleviate the adverse effects that these types of uses can have on surrounding neighborhoods. In certain locations, this proposed land use overly also applies to areas with surface parking used for trucks or vehicles. Policy direction of the Plan seeks to replace much of this surface parking with new development, adding structured parking associated with more intense, higher density use.

Business Mix Enhancement

A large number of non-residential facilities throughout the Opportunity Areas are used by industry and other business, but not to their full potential. The purpose of the proposed "Business Mix Enhancement" Land Use Overlay is to retain existing buildings, intensify existing business activities, lower vacancies, and increase utilization. This land use overlay acknowledges the architectural character and historical significance of many existing buildings. This overlay encourages innovative reuse of existing buildings with a focus on incubator space for specific industry groups, adaptable space for artisans and craftspeople, and flexible small spaces where start-up businesses can share facilities and equipment.

Low Intensity Business Mix/Light Industrial

The proposed "Low Intensity Business Mix/Light Industrial" Land Use Overlay is intended to designate sites appropriate to accommodate a broad range of new custom and light manufacturing, light

industrial, warehouse, research and development, "green industry", and service commercial uses that provide well-paying blue collar and green collar jobs. This proposed land use overlay provides for infill development with new, lower density industrial buildings with necessary infrastructure and amenities to attract quality tenants and businesses, which can also be supported by businesses seeking lower rents. This overlay would accommodate lower-intensity development of business mix and light industrial uses in new buildings with surface parking. Adaptive re-use of existing, larger and/or significant existing buildings is encouraged, and preservation of historic buildings consistent with existing City policy and regulations is required.

Higher Intensity Campus

The proposed "Higher Intensity Campus" Land Use Overlay is intended where particularly strong locational advantages make possible the attraction of higher intensity land uses and development types. This proposed land use overlay would provide for new development of more intensive campus-type uses, more likely to be developed in the mid-term or later. Higher intensity building types would have more interior improvements and amenities and more costly structured parking, and must be supported by businesses with greater rent-paying abilities. New development would generally be in a campus configuration, with structured parking and ground-floor flex space. The Plan assumes multiple buildings phased-in over time, using undeveloped areas for surface parking in earlier phases but planned for structured parking in later phases. Expected uses include Research & Development activities, life sciences, and information and technology uses.

Retail / Commercial Land Use Overlays

Large Format Retail

The proposed "Large Format Retail" Land Use Overlay is intended to encourage large format destination retail stores in locations with good freeway access serving the larger regional market, while also providing needed goods and services to West Oakland residents.

Neighborhood-Serving Retail

The proposed "Neighborhood-Serving Retail" Land Use Overlay is intended to encourage more neighborhood-serving retail uses.

Residential Land Use Overlays

High Density Residential Transit-Oriented Development (TOD)

The proposed "High Density Residential TOD" Land Use Overlay is intended for development at the West Oakland BART Station transit-oriented development (TOD). Allowed land uses are multi-family residential uses above ground-floor neighborhood-serving retail establishments, or multi-family residential uses over structured parking.

Medium-Density Podium Residential

The proposed "Medium-Density Podium Residential" Land Use Overlay is intended to be compatible with recent residential development on 7th Street and enable a gradual transition in density from the West Oakland BART Station TOD to the surrounding lower-density residential neighborhoods with residential buildings containing commercial flex space at the street level.

Lower Density Residential

The proposed "Lower Density Residential" Land Use Overlay is intended for a limited number of smaller infill sites with established lower-density residential patterns, established buffers from less compatible industrial neighbors, or immediate proximity to parks or other residential amenities. Development would include residential uses over optional street-level commercial flex space.

OPPORTUNITY AREA DEVELOPMENT CAPACITIES

Opportunity Area 1: Mandela/West Grand

The Mandela/West Grand Opportunity Area is envisioned as the major business and employment center for Oakland and the region while serving as an employment center for West Oakland. The Specific Plan encourages a mix of business activities and development types, with a range of jobs at varying skill/education levels. Recognizing that revitalization is a long-term process, the Plan proposes to retain and expand existing compatible urban manufacturing, construction and other light industrial businesses that have well-paying blue collar and green collar jobs, while attracting new targeted industries that are growing, including life sciences, information technology and clean-tech. Development would likely initially occur as lower-intensity development and with reuse of existing buildings.

The future development vision for area takes advantage of the anticipated relocation of the recycling activities currently located on key parcels within this Opportunity Area to the former Oakland Army Base, thereby leaving these parcels available for new development. The Plan also encourages relocation of other heavier industrial uses located in this Opportunity Area, such as additional recycling operations, heavy truck-dependent uses and other older heavy industries. Greater land availability and other improvements to the area should encourage and attract more low-intensity light industrial and business mix development. Growth is eventually expected to include new mid-rise campus development at key locations, such as at the intersection of Mandela Parkway and West Grand Avenue, and larger format destination retail stores as an extension of the East BayBridge Shopping Center, IKEA and Bay Street Emeryville. Additionally, the Specific Plan recommends that residential development be allowed at selected sites, based on these sites' adjacency to existing residential areas, proximity to existing open space such as Raimondi Park and Wade Johnson Park, and established buffers between these sites and less compatible industrial and business uses.

Table 1 provides a summary of changes in land use, employment and population expected within the Mandela/West Grand Opportunity Area.

TABLE 1
DEVELOPMENT POTENTIAL – OPPORTUNITY AREA #1, MANDELA/WEST GRAND

Land Use (acres)	**Existing**	**2035 Buildout**	**Change from Existing**
Heavy Industrial	43	0	-43
Business Mix/Light Industrial	170	86	-85
Low Intensity Bus. Mix/Lt. Ind.		28	28
High Intensity Campus		59	59
Retail	16	31	15
sub-total	*230*	*203*	*-26*
Residential	9	36	26
sub-total	*9*	*36*	*26*
TOTAL	**239**	**239**	**0**
Non-Residential Building Space and Employment			
Heavy Industrial			
Building Area (sq.ft.)	500,000	0	-500,000
Employment	280	0	-280
Business Mix/Light Industrial			
Building Area (sq.ft.)	3,500,00	2,300,000	-1,200,000
Employment	4,660	4,370	-290
Low Intensity Bus. Mix/Lt. Ind			
Building Area (sq.ft.)	0	640,000	640,000
Employment	0	1,410	1,410
High Intensity Campus			
Building Area (sq.ft.)	0	4,080,000	4,080,000
Employment	0	9,600	9,600
Retail			
Building Area (sq.ft.)	300,000	605,000	305,000
Employment	500	1,170	670
Total			
Building Area (sq.ft.)	**4,300,000**	**7,625,000**	**3,325,000**
Employment	**5,440**	**16,550**	**11,110**
Residential Units, Households and Population			
Single Family and Townhome			
Units	110	241	131
Households	89	232	143
Population	259	482	223
Multi-Family Residential			
Units	0	1,140	1,140
Households	0	1,099	1,099
Population	0	2,285	2,285
Total			
Units	**110**	**1,381**	**1,271**
Households	**89**	**1,331**	**1,242**
Population	**259**	**2,767**	**2,508**

Opportunity Area 2: 7th Street

The land use and development strategy for the 7th Street Opportunity Area includes transit-oriented development (TOD) of higher-density housing with ground floor neighborhood-serving retail on vacant sites and current surface parking lots around the West Oakland BART Station. A new BART parking garage is envisioned next to the freeway to replace existing surface parking lost due to new development, which would also serve to buffer new residential uses from the adjacent freeway. Plazas and open spaces would contribute to a secure and pleasant pedestrian experience at the BART Station TOD. Medium density, podium-style housing with ground floor commercial uses is envisioned further west on 7th Street as a transition from the West Oakland BART Station TOD to the surrounding lower-density neighborhoods.

Throughout this Opportunity Area, 7th Street is envisioned as the neighborhood focus, with neighborhood-serving commercial establishments. Emphasis is placed on prioritizing the types of commercial uses that enliven the street and revitalize 7th Street as a celebration of West Oakland's cultural history of music, art and entertainment. Additionally, the future development vision for this area takes advantage of the anticipated relocation of recycling activities, which are currently located on key parcels along Wood Street but are expected to be relocated to the former Oakland Army Base, as well as reuse of the former Phoenix Ironworks site, for additional commercial and residential activities. These new commercial and residential uses could benefit the surrounding neighborhood by reconnecting the residential edge of Wood Street.

Building design, construction, and ongoing operation and maintenance requirements address the issues of air contaminants and noise from the freeway, and noise from BART trains. Strategies are included in the Plan for reducing BART train noise through improved maintenance and potential noise barriers. Environmental improvements are also envisioned with remediation of known contaminated sites in this area, potentially including innovative biological remediation strategies.

Table 2 provides a summary of changes in land use, employment and population expected within the 7th Street Opportunity Area.

TABLE 2
DEVELOPMENT POTENTIAL – OPPORTUNITY AREA #2, 7TH STREET

Land Use (acres)	**Existing**	**2035 Buildout**	**Change from Existing**
Heavy Industrial	7	0	-7
Business Mix/Light Industrial	58	38	-19
Low Intensity Bus. Mix/Lt. Ind.		7	7
High Intensity Campus		0	0
Retail	0	1	1
sub-total	*65*	*46*	*-19*
Residential	3	22	19
sub-total	*3*	*22*	*19*
TOTAL	**68**	**68**	**0**
Non-Residential Building Space and Employment			
Heavy Industrial			
Building Area (sq.ft.)	100,000	0	-100,000
Employment	50	0	-50
Business Mix/Light Industrial			
Building Area (sq.ft.)	1,690,000	1,490.000	-200,000
Employment	1,820	2,090	270
Low Intensity Bus. Mix/Lt. Ind			
Building Area (sq.ft.)		170,000	170,000
Employment		380	380
High Intensity Campus			
Building Area (sq.ft.)		0	0
Employment		0	0
Retail			
Building Area (sq.ft.)	5,000	90,000	85,000
Employment	10	220	210
Total			
Building Area (sq.ft.)	**1,795,000**	**1,750,000**	**-45,000**
Employment	**1,880**	**2,690**	**810**
Residential Units, Households and Population			
Single Family and Townhome			
Units	35	89	54
Households	29	86	57
Population	85	206	121
Multi-Family Residential			
Units	50	2,750	2,700
Households	41	2,652	2,611
Population	119	6,336	6,217
Total			
Units	**85**	**2,839**	**2,745**
Households	**70**	**2,738**	**2,668**
Population	**204**	**6,542**	**6,338**

Opportunity Area 3: 3rd Street

The 3rd Street Opportunity Area is currently characterized by commercial, industrial and mixed uses and areas of historic building stock. The Specific Plan envisions that this Opportunity Area will continue to support business activities and jobs, capitalizing on its proximity to Downtown Oakland, the Port of Oakland, the rest of West Oakland and the regional freeway network.

This commercial, wholesale area is expected to emerge as a more vibrant and vital business and employment center, with a variety of globally-oriented logistics businesses focusing on manufacturing and light-industrial uses that benefit from adjacencies to the Port, as well as commercial uses that enliven the area during the day and night. Mixed-use commercial, dining and entertainment uses are encouraged in attractive, older warehouse buildings. New business opportunities would reflect the existing mix of light industrial, service commercial, food and beverage production and distribution, and construction-related businesses, as well as small professional offices, import/export, communications, computer services, publishing and printing, photo/audio services, and small R&D activities. Residential development in this area would continue to be prohibited.

Table 3 provides a summary of changes in land use, employment and population expected within the 3rd Street Opportunity Area.

TABLE 3
DEVELOPMENT POTENTIAL – OPPORTUNITY AREA #3, 3RD STREET

Land Use (acres)	**Existing**	**2035 Buildout**	**Change from Existing**
Heavy Industrial	8	0	-8
Business Mix/Light Industrial	57	41	-17
Low Intensity Bus. Mix/Lt. Ind.		13	13
High Intensity Campus		11	11
Retail	3	3	0
sub-total	*68*	*68*	*0*
Residential	0	0	0
sub-total	*0*	*0*	*0*
TOTAL	**68**	**68**	**0**
Non-Residential Building Space and Employment			
Heavy Industrial			
Building Area (sq.ft.)	40,000	0	-40,000
Employment	20		-20
Business Mix/Light Industrial			
Building Area (sq.ft.)	1,000,000	800,000	-200,000
Employment	1,670	1,520	-150
Low Intensity Bus. Mix/Lt. Ind			
Building Area (sq.ft.)		300,000	300,000
Employment		670	670
High Intensity Campus			
Building Area (sq.ft.)		600,000	600,000
Employment		1,410	1,410
Retail			
Building Area (sq.ft.)	50,000	65,000	15,000
Employment	80	120	40
Total			
Building Area (sq.ft.)	**1,090,000**	**1,765,000**	**675,000**
Employment	**1,770**	**3,720**	**1,950**
Residential Units, Households and Population			
Single Family and Townhome			
Units	5	5	0
Households	4	5	1
Population	12	15	3
Multi-Family Residential			
Units	0	0	0
Households	0	0	0
Population	0	0	0
Total			
Units	**5**	**5**	**0**
Households	**4**	**5**	**1**
Population	**12**	**15**	**3**

Opportunity Area 4: San Pablo Avenue

San Pablo Avenue is a major transit corridor, a "main street" of the East Bay between the MacArthur Maze freeway network at the southern border of Emeryville and West Grand Avenue, but it includes numerous vacant and underutilized lots and open space. This Opportunity Area is one of the most significant corridors within West Oakland. Under the Specific Plan, the San Pablo corridor is envisioned as a transformed major commercial corridor connecting West Oakland to Downtown and to Emeryville, Berkeley and beyond, lined with increased retail uses and mixed-use residential development. Consistent with existing City of Oakland policies regarding development of major commercial corridors, the land use and development strategy for the San Pablo Avenue Opportunity Area is for infill mixed-use development with multi-family residential activities over ground-floor retail uses on San Pablo Avenue. Neighborhood-serving retail uses would be anchored by a grocery store on West Grand Avenue at Myrtle Street. Enhanced streetscapes and increased retail uses would activate the street, increase pedestrian activity and enliven the neighborhood.

The block of West Grand Avenue between Myrtle Street and Market Street, which is also within this Opportunity Area, would be developed with a mix of uses, including medium-density, podium-style residential activities, street front retail, and mixed use developments. The Plan encourages revitalization of the existing commercial center south of West Grand Avenue, and proposes new retail uses (grocery store) on the north side of West Grand Avenue that is designed to make full and best use of the site and fit in with the surrounding neighborhood.

Table 4 provides a summary of changes in land use, employment and population expected within the San Pablo Avenue Opportunity Area.

TABLE 4
DEVELOPMENT POTENTIAL – OPPORTUNITY AREA #4, SAN PABLO AVENUE

Land Use (acres)	**Existing**	**2035 Buildout**	**Change from Existing**
Heavy Industrial	4	0	-4
Business Mix/Light Industrial	33	23	-10
Low Intensity Bus. Mix/Lt. Ind.		2	2
High Intensity Campus		0	
Retail	7	10	3
sub-total	*44*	*36*	*-8*
Residential	3	11	8
sub-total	*3*	*11*	*8*
TOTAL	**47**	**47**	**0**
Non-Residential Building Space and Employment			
Heavy Industrial			
Building Area (sq.ft.)	100,000	0	-100,000
Employment	40		-40
Business Mix/Light Industrial			
Building Area (sq.ft.)	600,000	600,000	0
Employment	550	1,140	0
Low Intensity Bus. Mix/Lt. Ind			
Building Area (sq.ft.)		65,000	65,000
Employment		140	140
High Intensity Campus			
Building Area (sq.ft.)		0	0
Employment			
Retail			
Building Area (sq.ft.)	90,000	200,000	110,000
Employment	90	380	290
Total			
Building Area (sq.ft.)	**790,000**	**865,000**	**75,000**
Employment	**680**	**1,660**	**980**
Residential Units, Households and Population			
Single Family and Townhome			
Units	40	105	65
Households	33	101	68
Population	96	226	130
Multi-Family Residential			
Units	30	1,030	1,000
Households	24	994	970
Population	69	2,226	2,157
Total			
Units	**70**	**1,135**	**1,065**
Households	**57**	**1,095**	**1,038**
Population	**165**	**2,452**	**2,287**

AREA-WIDE TRANSPORTATION AND INFRASTRUCTURE IMPROVEMENTS

The Specific Plan also calls for necessary public and private investments in multimodal transportation systems and infrastructure systems necessary to support and sustain new development. The Plan specifically calls for the provision of a network of "complete streets" throughout West Oakland, serving not only the automobile capacities but also providing an interconnected system of bicycle paths and lanes, pedestrian improvements and streetscape amenities, as well as transit improvements intended to better facilitate use of transit choices in west Oakland and to better connect West Oakland to downtown, the Oakland Army Base and other surrounding areas. Improved transit opportunities throughout West Oakland include improvements in transit service providing greater connections between the West Oakland BART station and existing and new employment centers. The transit improvements are envisioned to include enhanced AC Transit bus service, a possible street car service and other approaches, with direct links to planned pedestrian-and bicycle networks, the Mandela Parkway/West Grand Avenue employment and business center, the shopping and other existing amenities at the Oakland/Emeryville city limit line, downtown Oakland BART stations, and Jack London Square.

The Specific Plan also calls for necessary public and private investments in other infrastructure systems, such as potable water, sanitary sewer, storm drainage, electrical and broadband cable, that are needed to attract and support the types of new development envisioned under the Plan.

SPECIFIC PLAN AREA BUILDOUT DEVELOPMENT POTENTIAL AND TIME FRAME

Table 5 identifies the Specific Plan's ultimate development potential, which is assumed as buildout of the Specific Plan for purposes of the Environmental Impact Report (EIR). The Specific Plan would provide for up to approximately 5,090 new dwelling units accommodating an increased population of approximately 10,970 people, and approximately 4.03 million square feet of new commercial, industrial and campus-style office/R&D building space providing up to 14,850 new jobs within West Oakland. Whereas this buildout is anticipated to occur over an extended period of time with incremental increases in new housing and job opportunities, the buildout assumptions included in the Specific Plan are assumed, for purposes of California Environmental Quality Act (CEQA) review, by year 2035.

The overall Land Use Diagram illustrating the various Specific Plan land use overlays is shown on **Figure 4** for the entire Planning Area. **Table 5** provides a summary of land uses, employment and population changes expected within the Planning Area at buildout (year 2035).

TABLE 5
DEVELOPMENT POTENTIAL – TOTAL PLANNING AREA

Land Use (acres)	**Existing**	**2035 Buildout**	**Change from Existing**
Heavy Industrial	62	0	-62
Business Mix/Light Industrial	319	188	-131
Low Intensity Bus. Mix/Lt. Ind.		50	50
High Intensity Campus		70	70
Retail	27	45	18
sub-total	*407*	*353*	*-54*
Residential	16	70	54
sub-total	*16*	*70*	*54*
TOTAL	**423**	**423**	**0**
Non-Residential Building Space and Employment			
Heavy Industrial			
Building Area (sq.ft.)	740,000	0	-740,000
Employment	390	0	-390
Business Mix/Light Industrial			
Building Area (sq.ft.)	6,790,000	5,190,000	-1,600,000
Employment	8,700	9,120	420
Low Intensity Bus. Mix/Lt. Ind			
Building Area (sq.ft.)		1,175,000	1,175,000
Employment		2,600	2,600
High Intensity Campus			
Building Area (sq.ft.)		4,680,000	4,680,000
Employment		11,010	11,010
Retail			
Building Area (sq.ft.)	445,000	960,000	515,000
Employment	680	1,890	1,210
Total			
Building Area (sq.ft.)	**7,975,000**	**12,005,000**	**4,030,000**
Employment	**9,770**	**24,620**	**14,850**
Residential Units, Households and Population			
Single Family and Townhome			
Units	190	440	250
Households	155	424	269
Population	452	929	477
Multi-Family Residential			
Units	80	4,920	4,840
Households	65	4,745	4,680
Population	188	10,847	10,659
Total			
Units	**270**	**5,360**	**5,090**
Households	**220**	**5,169**	**4,949**
Population	**640**	**11,776**	**11,136**

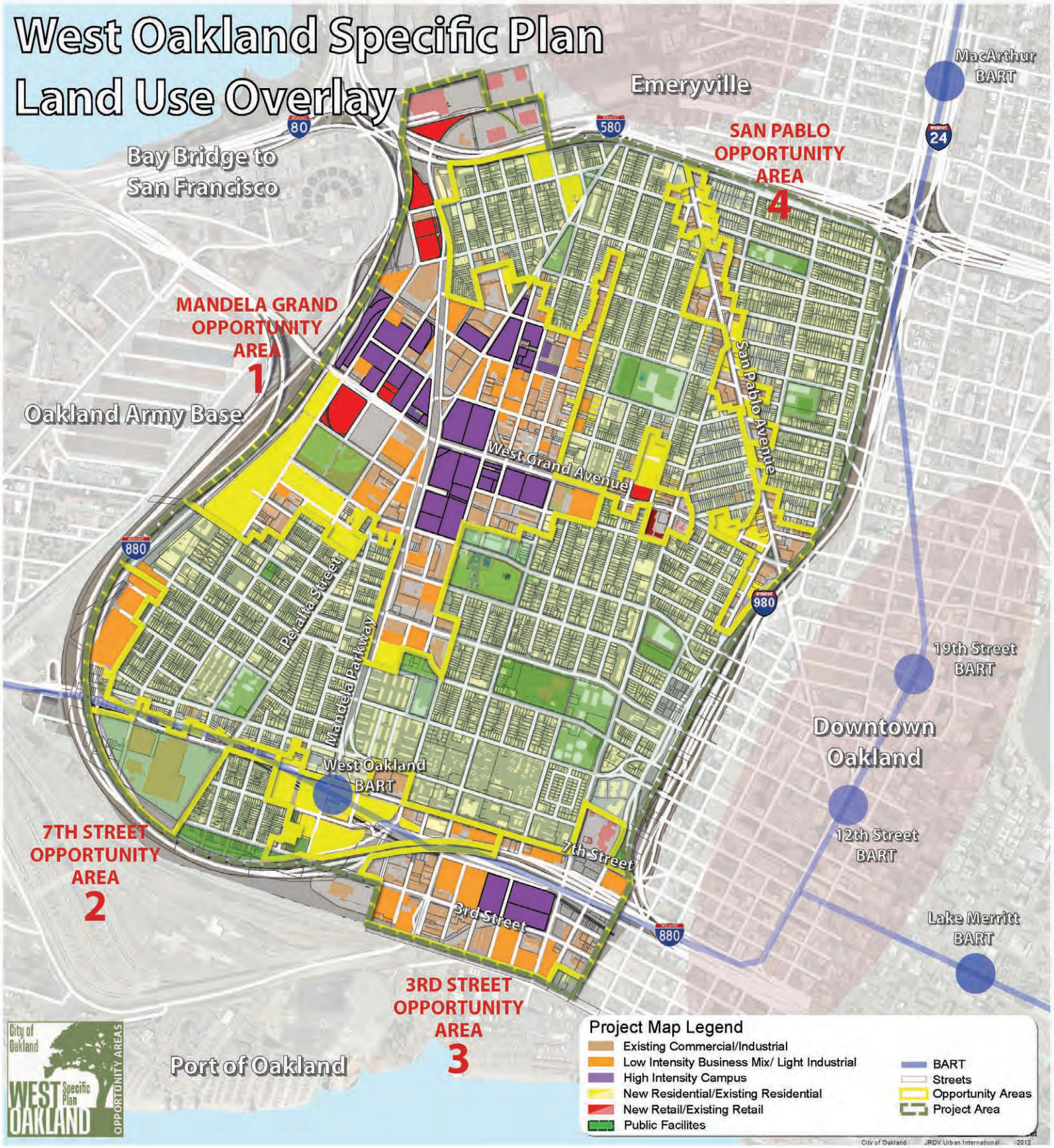

West Oakland Specific Plan
Land Use Overlay
Emeryville
MacArthur BART
SAN PABLO OPPORTUNITY AREA 4
Bay Bridge to San Francisco
MANDELA GRAND OPPORTUNITY AREA 1
Oakland Army Base
San Pablo Avenue
West Grand Avenue
Peralta Street
Mandela Parkway
West Oakland BART
19th Street BART
Downtown Oakland
12th Street BART
7th Street
3rd Street
Lake Merritt BART
7TH STREET OPPORTUNITY AREA 2
3RD STREET OPPORTUNITY AREA 3
Port of Oakland
80
580
24
880
980
Project Map Legend
Existing Commercial/Industrial
Low Intensity Business Mix/ Light Industrial
High Intensity Campus
New Residential/Existing Residential
New Retail/Existing Retail
Public Facilites
BART
Streets
Opportunity Areas
Project Area
City of Oakland
JRDV Urban International
2012

FIGURE 4

ALTERNATIVES

CEQA Guidelines require an analysis of a reasonable range of alternatives for any project subject to an EIR. The purpose of the alternatives section is to provide decision-makers and the public with a discussion of alternatives to the project that are capable of avoiding or substantially lessening any significant effects of the project.

The CEQA-based alternatives anticipated to be analyzed in the EIR are listed below. These alternatives are intended to meet the CEQA requirement that an EIR describe the No Project alternative as well as a range of reasonable alternatives to the Project that would feasibly attain most of the basic objectives of the Project, but would avoid or substantially lessen significant effects. In addition to the identified CEQA alternatives, an additional planning alternative is also anticipated to be analyzed in this EIR. This planning alternative has been developed in response to public comments made during the public participation process conducted throughout the Specific Plan process. It is not specifically intended to reduce or substantially lessen any particular environmental effects of the proposed Project, but instead presents alternative land use concepts for portions of the West Oakland Planning Area.

The anticipated EIR alternatives may include:

- **No Project Alternative** – CEQA Guidelines Section 15126.6(e)(3)(A) states that "If the project is the revision of an existing land use or regulatory plan or policy, the "no project" alternative will be the continuation of the existing plan or policy into the future. Thus, the projected impacts of the proposed plan will be compared to the impacts that would otherwise occur under existing plans."

- **Reduced Project Alternative** – Throughout the Specific Plan process, an alternative to the proposed Specific Plan has been developed and presented, titled the "Mid-Range Plan". This mid-range development alternative represents a less intensive development scenario, with less new residential development and less new non-residential building space. It specifically includes less, if any, of the higher intensity campus style development as proposed in the Plan.

- **Commercial Focused Alternative** – As a non-CEQA alternative, the EIR will also include an analysis of a more retail/commercial focused alternative to the proposed Plan, representing more commercial/office and retail development near the West Oakland BART Station and a greater amount of regional-serving retail in the northerly portion of the Planning Area near Emeryville.

- **Mitigated Alternative** – As required under CEQA, an alternative will be described that is specifically intended to further reduce or avoid potential adverse effects that may be identified as resulting under the proposed Plan. Possible strategies and corresponding land use plans may seek to further address the preservation of historic resources, and minimizing the community's exposure to toxics by way of additional buffers, mitigation and other land use approaches.

Appendix 1-B: Responses to Notice of Preparation

1600 Franklin Street, Oakland, CA 94612

Robert Del Rosario
Director of Service Planning and Development
November 20, 2012

Ulla-Brittt Jonsson, Planner II
City of Oakland Strategic Planning Division
250 Frank Ogawa Plaza, Suite 3315
Oakland, Ca. 94612

Subject: Notice of Preparation of an Environmental Impact Report—West Oakland Specific Plan

Dear Ms. Britt-Jonsson:

Thank you for the opportunity to submit comments on the Notice of Preparation (NOP) of the Draft Environmental Impact Report (EIR) for Proposed West Oakland Specific Plan (WOSP, the Plan). AC Transit is highly motivated to work with the City of Oakland and neighborhood stakeholders to improve the transportation network in West Oakland. We appreciate the time and efforts of city staff and consultants to produce attractive visual aids for the planning process in this complex neighborhood. However, we are concerned that the process thus far has produced little substantive collaboration. We look forward to more productive discussions in the future.

The Notice of Preparation appears inadequate to us, offering few details about the Plan to be evaluated. The NOP describes the plan area and sub-areas and expected build-out of each, but does not propose target or maximum development intensities. The NOP does not detail expected roadway—or transitway—capacity or needs. Neither does the NOP provide any urban design or historic preservation guidance. It is not possible to determine how West Oakland's future buildings, streets, and open spaces would look, feel, or function from the NOP, and thus it is not possible to determine the environmental impacts the Plan would have.

The character of the project is made murkier by the "Plan Summary" (dated October, 2012) which contains the NOP and an additional 38 pages entitled "Specific Plan Goals, Objectives, Strategies, and Actions." This document suggested a range of (sometimes conflicting) actions and policies across the different geographic and issue areas of West Oakland. Neither the NOP nor the Plan Summary provide guidance for prioritizing the conflicting actions or policies. Furthermore, the Plan Summary has not been published as part of the California Environmental Quality Act (CEQA) process. It is not clear what role the Plan Summary and the goals, objectives, strategies, and actions contained therein will play in the formation of the WOSP itself.

Therefore, this letter must perforce focus more on the Plan itself than would otherwise be the case. Below, we try to capture the contents and character of the Plan to make some suggestions about how the EIR should evaluate it.

Plan Area

The Plan Area is approximately 2.18 square miles, roughly bounded by Interstate 880 on the south and west, Interstate 580 on the north, and Interstate 980 on the east. It also incorporates a small area north of 580 at East Baybridge Shopping Center, and south of 880 west of Castro Street. The Plan Area includes approximately 25,000 residents and 15,000 jobs. Relative to the City of Oakland, the Plan Area is approximately 4% of the city's land area, 6% of its population, and 8% of its jobs. West Oakland has long been both one of Oakland's employment centers and one of its reservoirs of affordable housing.

AC Transit

AC Transit is the surface public transit provider for West Oakland. We operate 9 bus lines in the neighborhood forming a grid of north-south and east-west routes approximately ½ mile apart. North-south routes include Martin Luther King, San Pablo, Market, Adeline, and Peralta; East-west routes include 7th St., 10th St., 14th St., and West Grand Ave. Almost every home and business in the West Oakland Plan area is within ¼ mile or less of an AC Transit bus stop. The routes operate from at least 6 a.m. to 10 p.m. Some routes operate longer hours. Frequency of service ranges from every 6.5 minutes to every 30 minutes. Every bus goes to at least one BART station. Some also go to Amtrak or Greyhound.

AC Transit sees the WOSP as an opportunity to work with the City and the community to reinforce and improve this transit network with its strong geographic coverage and generally long hours of operation. As funding becomes available, we would particularly hope to improve frequency on some of the less frequent lines. We see the transit future of West Oakland as built on the improvement, not the repudiation or dismantling, of the existing transit network.

WOSP's effort to bring additional residents and employees to West Oakland can help support transit ridership. Greater numbers of people living and working in an area can generate additional ridership, which can in turn justify additional service. We hope that development under WOSP can stimulate such a "virtuous circle." This can only occur if new residents and workers are integrated into the existing transit system—rather than isolated into separate services—and everyone in West Oakland benefits from the additional resources.

Unfortunately, much of the previous discussion of transit in the West Oakland Specific Plan has focused on a streetcar concept. Staff has produced and distributed materials at public meetings including maps of streetcar alignments and stops, identifying the proposed service as "the O." Presentations have been heavily tilted toward streetcars

as the future of transportation in West Oakland. This premature advocacy was developed without the support or input of AC Transit.

AC Transit would caution against misguided assumptions that rail-based modes automatically imply improvements to reliability, frequency, or speed over traditional buses. The key determinant of successful transit operation is not necessarily the mode, but the policies which govern those modes. Dedicated rights-of-way, signal priority, accessible stops—these are the things the City can provide to ensure reliable service by bus or rail. Well lighted stops and stations that convey a sense of security are crucial in a neighborhood which has historically experienced high crime rates. In some cases, this may require the City to think outside the boundaries of the study area. Congestion around the study area will impact services linking the Plan Area to surrounding destinations.

AC Transit would also caution against assuming that streetcars will automatically generate economic development. The Portland Steetcar is often cited in support of this proposition. However, the Portland Streetcar was developed amid a comprehensive ensemble of state, regional, and local policies designed to focus growth in Central Portland and restrict it elsewhere. This comprehensive policy approach does not exist in and around Oakland. In addition, there are numerous streetcar lines in cities across the country which have not generated substantial economic growth.

AC Transit believes that a discussion about transportation should begin with service needs and gaps, not vehicle types. None of this analysis has been done. There has been no modeling or analysis of anticipated future transit ridership, or its origins and destinations. If streetcars are to be advocated purely as economic development tools, it must be shown that this economic development impact can be achieved without damaging transit, and that the impacts cannot be derived from any other more cost-effective investment. The conclusion that a streetcar would be beneficial for West Oakland must be proven, not assumed.

If a streetcar remains a major part of the Plan, then considerable analysis must be done in the EIR. Questions include:

- What would be the impact, on transit, bicycles, and motor vehicles, of putting a streetcar on various streets in West Oakland?
- How would a streetcar affect the availability of funding for other transit?
- How much ridership would a streetcar generate?
- Which modes, in which locations, would be most effective in reducing automobile trips?
- Where would the maintenance yard for a streetcar be located?
- What impacts would that create?

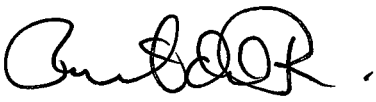
The NOP simply mentions the streetcar concept. We hope that the reduced focus on streetcars in the NOP represents the beginning of a rethinking of how to approach and evaluate West Oakland's transit needs.

Transit Oriented Development
BART staff have repeatedly expressed concerns that the Plan's proposed development around the West Oakland BART station focuses too heavily on residential. They have argued for a broader mix of uses, to provide all-day patronage for local businesses and to avoid the environmental difficulties of building housing adjacent to a freeway. While AC Transit does not believe that large scale commercial uses are always appropriate in BART station areas, in this instance we concur with BART. A broader mix of uses would be more supportive of and efficient for all modes of transit. Commercial uses at West Oakland BART might serve to introduce new sectors and companies to West Oakland, and increase their willingness to go into less familiar areas such as Mandela/Grand.

West Oakland has clearly entered a period of significant change. It will be complex and challenging for the City to appropriately balance the needs and interests of various existing and new residents, businesses, and institutions. In this context, it is critical that the West Oakland Specific Plan and its EIR provide an accurate appraisal of existing conditions and trends, and a fair-minded program of action for the future. If existing resources, in transit and other fields, are disregarded or disassembled, it may be difficult if not impossible to reassemble them. AC Transit looks forward to helping the City navigate the transit and transportation issues of West Oakland.

Thank you for your interest. If you have any questions about this letter, please contact Nathan Landau in Planning and Development at (510) 891-4792 or nlandau@actransit.org.

Yours Truly,



Robert Del Rosario
Director of Service Planning and Marketing

Cc: AC Transit Board of Directors
Dennis Butler
Stephen Newhouse
Nathan Landau

AMERICAN STEEL STUDIOS
A COMMUNITY OF ART, INNOVATION AND INDUSTRY
1296 18th Street, Oakland, CA 94607 510.776.7694
www.americansteelstudios.com info@americansteelstudios.com

20 November, 2012

Dear Ms. Jonsson,

I am writing with regard to the West Oakland Specific Plan, case ER120018.

Over the past decade there has been a continued exodus of artists from San Francisco and other Bay Area locations, particularly those working in the industrial arts. Many of these artists moved to and established studios and businesses in West Oakland in response to the CIX zoning and resources found here that support the nature of their work. This demographic and economic shift has bolstered the existing industrial arts community and has begun to attract industrial artists from around the country and the world, fueling a new Industrial Arts Movement seated in West Oakland. This movement is being documented and celebrated by the global press but remains largely unrecognized locally.

The industrial arts and artists of all genres in West Oakland represent a vibrant and growing sector of the Creative Economy, reminiscent of the Historic West Oakland Cultural District of the 1930's.

I feel the Plan must include criteria for supporting the growth of the resources that the arts represent for West Oakland and allow the virile Industrial Arts Movement to continue to grow. It has already attracted considerable attention from around the world. Investment in these sectors, will support future diversity of economic activity. Ideally, WOSP should support, foster and enhance the existing arts infrastructure, by including specific language that describes the role of the creative economy and the arts in future development plans and activities.

This would include the development of a plan for how the arts sector can be developed in ways that support social equity objectives. Some strategies for achieving this might include:

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a. Defining geographically the Industrial Arts Corridor and include objectives to foster and enhance it in the WOSP
b. Protecting CIX zoning in the Industrial Arts Corridor
c. Designating a series of permanent sites in West Oakland for rotating and long-term public art installations.
d. Establishing a "Percent for Arts" development program in West Oakland.
e. Developing a "Percent for Social Equity" program in West Oakland.

I believe that these ingredients, combined with the innovators and creatives who already live and work here, West Oakland will find itself in the forefront of a new emerging niche market, which includes diversity in industry, demographics and economy.

Best Regards,

Karen Cusolito
Founder, American Steel Studios, LLC

BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

November 21, 2012

Ulla-Britt Jonsson, Planner II
City of Oakland Strategic Planning Division
250 Frank H. Ogawa Plaza, Suite 3315
Oakland, CA 94612

Subject: West Oakland Specific Plan Notice of Preparation of a Draft Environmental Impact Report

Dear Ms. Jonsson:

Bay Area Air Quality Management District (District) staff reviewed your agency's Notice of Preparation (NOP) for the West Oakland Specific Plan (Plan). The City of Oakland (City) is requesting comments on the scope and content of the Draft Environmental Impact Report (DEIR). The City has not prepared an Initial Study and all CEQA topics will be addressed in the DEIR.

The Plan will guide future development in the area generally bounded by Interstates 880 on the west and south; 980 on the east; and 580 on the north. The West Oakland BART station is located in the southern portion of the Plan area, which is approximately 2 square miles subdivided into 6,340 parcels and has a current population of 25,000 residents and 15,000 employees. The Plan area includes a mix of land uses, including residential, commercial, industrial (including diesel truck-related uses), government and institutional uses.

The Plan area is located in a part of the Bay Area with the highest emissions of, and population exposure to, diesel particulate matter. District staff understands the City's interest in further developing West Oakland, but we urge the City to carefully consider the potential for localized exposure to unhealthy air and to plan appropriately.

Air Quality Analysis

1. The DEIR should discuss the District's attainment status for all criteria pollutants and the implications for the region if these standards are not attained or maintained by statutory deadlines; a discussion of the health effects of air pollution (especially on sensitive receptors); and a discussion of greenhouse gas (GHG) emissions and the potential impacts from climate change in the Bay Area. The DEIR should discuss local air quality conditions in West Oakland, especially diesel particulate matter emissions and population exposure.

2. The DEIR should provide a map that clearly identifies the Plan boundary; existing and future planned sensitive receptors (e.g. residencies, schools, day cares, hospitals, and nursing care facilities) and all stationary sources, major roadways, highways, and rail lines within 1,000 feet of the Plan boundary.

939 ELLIS STREET • SAN FRANCISCO CALIFORNIA 94109 • 415.771.6000 • www.baaqmd.gov

3. The District's *CEQA Air Quality Guidelines* (May, 2012) provide guidance on how to evaluate potential construction, operational, and cumulative air quality impacts. A copy can be downloaded from http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Updated-CEQA-Guidelines.aspx.

4. The DEIR should provide a detailed analysis of the potential effects on local and regional air quality from construction and operations (including permitted and non-permitted stationary and area emissions, and mobile emissions). This analysis should include an estimation of both maximum daily and annual emissions of reactive organic gases (ROG), nitrogen oxides (NOx), greenhouse gases (GHGs), and particulate matter (PM2.5 and PM10) that could result from the proposed land uses. These estimates should be compared to appropriate significance thresholds.

5. The DEIR should evaluate the potential adverse impacts to future residents in the Plan area located in close proximity to new and existing sources of air pollution, including freeways, the Port of Oakland, rail yards, stationary sources and loading docks.

6. The DEIR should identify and evaluate measures to reduce criteria pollutants, toxic air contaminants, and GHGs to mitigate potential impacts. These measures should be incorporated into the Plan such that, when implemented on a project-by-project basis, impacts will be below a level of significance. The District's *CEQA Air Quality Guidelines* can assist in identifying and quantifying these measures.

7. Finally, the District thanks the City for including District staff on the Technical Advisory Committee for this Project. Based on careful consideration of the project, District staff believes that the City's Standard Conditions of Approval, which call for the installation of MERV 13 air filtration in buildings serving sensitive receptors, are not stringent enough for this Plan. Due to the Plan's proximity to Interstate 880, the Port of Oakland, the Union Pacific Rail Yard, and the Oakland Army Base, District staff supports the installation of MERV 16 (a higher removal-efficiency filter) air filtration on all buildings serving sensitive receptors.

District staff is available to assist in addressing these comments. If you have any questions, please contact Alison Kirk, Senior Environmental Planner, at (415) 749-5169.

Sincerely,

for Jean Roggenkamp
Deputy Air Pollution Control Officer

cc: BAAQMD Director Tom Bates
BAAQMD Director Scott Haggerty
BAAQMD Director Jennifer Hosterman
BAAQMD Director Nate Miley

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT
300 Lakeside Drive, P.O. Box 12688
Oakland, CA 94604-2688
(510) 464-6000

November 20, 2012

Ulla-Britt Jonsson
City of Oakland Strategic Planning Division
250 Frank H. Ogawa Plaza, Suite 3315
Oakland, CA 94612

Re: NOP of a DEIR for the Proposed West Oakland Specific Plan
Case No. ER120018

Dear Ms. Ulla-Britt:

This letter provides the comments of the San Francisco Bay Area Rapid Transit District ("BART") on the Notice of Preparation ("NOP") for the Draft Environmental Report ("DEIR"), being prepared for the West Oakland Specific Plan ("the Project") by the City of Oakland ("the City"). BART appreciates the opportunity to continue to participate in this process and provides the comments below on the NOP.

BART is very supportive of new infill development projects in downtown Oakland near BART stations. As provided in BART's 2005 Transit-Oriented Development (TOD) Policy, BART believes that by "promoting high quality, more intensive development on and near BART-owned property, [BART] can increase ridership, support long-term system capacity and generate new revenues for transit." To this end, BART looks forward to collaborating with the City to develop a successful Project with substantial benefits for the public.

BART has undertaken a preliminary analysis of station capacity needs for the system, including for the West Oakland BART Station, and we can make this information available to the City. While this analysis evaluates cumulative forecasted ridership growth for 2030 on the BART system and was not intended to provide a project-specific, micro-level analysis for the West Oakland Station, the analysis does indicate that, to ensure public safety and to meet BART's performance standards, the station needs wider train platforms (for both the lower and upper platforms), more vertical circulation (stairways, escalators and elevators), additional fare gates, and potentially additional platform screen doors.

Finally, the Project Description of the West Oakland Specific Plan identifies a number of goals, objectives and strategies that promote pedestrian, bicycle and transit activities while creating a safe, attractive and environmentally sustainable community. We look forward to working with the City to create more robust multi-modal connections to the station.

Again, thank you for the opportunity to comment. We look forward to working with the City of Oakland on this important Project. If you have any questions, please contact my staff Tim Chan at 510.287.4705 or at TChan1@bart.gov.

Sincerely,

Val Joseph Menotti
Planning Department Manager
Bay Area Rapid Transit District

8 November 2012

To: Scott Miller, Interim Planning and Zoning Director for Oakland
Oakland Planning Commissioners
Oakland City Hall
One Frank Ogawa Plaza,
Oakland, Ca. 94612

From: West Oakland Environmental Indicators Project
1747 14th St.
Oakland, Ca. 94607

Re: Case # ER120018: Comments for Scoping of Environmental Impact Report for West Oakland Specific Plan.

Dear Oakland Planning Commissioners and Mr. Miller,

The current approach to the scoping for the West Oakland Specific Plan (WOSP) Environmental Impact Report (EIR) reflects an inadequate process. Since the process began residents and business leaders have complained about the lack of transparency in this WOSP process. Both residents and Technical Advisory sub-committee members have expressed frustration with the lack of feedback coming from the planners and their failure to show how community concerns are reflected in the Draft WOSP.

A statement in the "Mitigated Alternative" section of the draft overview raises many questions for WOEIP. "Possible strategies and corresponding land use plans may seek to further address the preservation of historic resources, and minimizing the community's exposure to toxics by way of traditional buffers, mitigation and other land use approaches"? The EIR must explain these issues of "historic resources", potential "exposure to toxics" generated by planned land uses and the nature of "traditional buffers" to these impacts. To this end, the draft must also describe scenarios for the creation of new buffers between the protected industrial areas and the expanding residential parts of the community.

WOEIP believes every aspect of the EIR needs to acknowledge the legacy of risk exposure in West Oakland brought about by inappropriate zoning in the past. In supporting the expansion of industrial and commercial activities in this already mixed use community, the WOSP EIR must reflect recommendations for health-protective neighborhood design elements including, alternative

infrastructure technologies, "built" buffer zones, green recreation spaces and open spaces, as well as, integrated public spaces in commercial and industrial developments to enhance the health of the disadvantaged and underserved traditional residents of this community.

The funding from the Federal government for the project comes from a transportation related source referred to as Transportation Investment Generating Economic Recovery (TIGER II) grants. Some local residents have been told in various public meetings a rail line will be included in the WOSP based on this transportation funding. Current "Scoping" announcements only mention a "possible street car" line transit system being built in the future in West Oakland. If this transit infrastructure is considered a fundamental element of the economic development potential held in the WOSP, the EIR most clearly address the potential benefits and impacts of such a project on business development, residential development, transit rider ship and the potential allocation of future transit dollars away from more traditional and familiar forms of local public transportation. Without such an analysis, we feel that the inclusion of the streetcar line constitutes an excuse for the use of "transportation" planning dollars for this exercise.

With this in mind the following list will give a set of specific requests and recommendations from WOEIP regarding what needs to be adequately addressed in an EIR for the WOSP.

1. A route analysis for any rail lines to be introduced into the project area as stimulus for new development. This analysis should include the potential benefit to the development of existing community resources such as the Mandela Corridor, the Third Street Corridor, the Peralta Street Corridor and in particular, the historic 16th Street Train Station. A permanent infrastructure system like this can not be casually added to this important plan with considering the benefits or harm it might bring to existing resources.

2. The TIGER II grant application declares a goal of the funding is to create planned linkages between the Oakland Army Base development and the West Oakland community in order the enhance the "sustainability" and quality of life for residents. Thus far these linkages appear to limited to extending AC Transit bus routes to the OAB Logistics Center. Given the amount of public funding being applied to the OAB project, and the water, sewer and power infrastructure links to West Oakland inherent in the OAB develop plan, the WOSP must identify resources to modernize the pubic works infrastructure of the neighborhoods east of I-880. Many of these systems are a century old and it is a social justice travesty to make such a massive investment in site preparation for private development while providing no notion of how similar benefit will be provided to the residents and businesses in the other half of the grant planning area. An adequate environmental appraisal and assessment needs to be fully scoped based on what these linkages are predicted to be in the future. There should be an accurate appraisal of both need and potential for power, water and sewer infrastructure, and alternative transportation modalities, including bikeways, greenways and pedestrian paths there may be in the future. The plan and the scope of the EIR should include revitalization of the 16th St. Train Station with transportation links to the OAB and the Broadway Corridor.

3. The draft documents mention a "Commercial Focused Alternative" without adequate definition and dismisses any potential environmental impact of such an alternative scenario. Draft language states that Oakland city staff view this, "as a non-CEQA alternative." What is a "non-CEQA alternative" and why is it defined so?

4. Significant “unmitigated” impacts need to be accurately and adequately scoped, as well as explained to the community members in easily understood terms.

5. The plan draft fails to define how it will, “while preserving existing established residential neighborhoods” also accomplish, “Lessening existing land-use conflicts and ensuring avoidance of future conflicts between residential neighborhoods and nonresidential uses.” These statements need to be adequately defined and described in the alternative scenario plans. They must also be scoped for an adequate EIR analysis.

6. Because a “Key tenet of the Specific Plan is to retain, enhance and improve… Enhancement Areas” the EIR must fully scope ALL of the environmental impacts which will be associated with the proposed developments in any of the Enhancement Areas.

7. Last, but not least, on 5 May 2012 members of WOEIP presented a verbal presentation with an accompanying PowerPoint presentation about Public Health concerns regarding this WOSP. The Oakland City planning staff has not put the presentation onto the city website for the 5 May 2012 public meeting summary. Nor have the specific questions we addressed to staff at the time been acknowledged or answered.

Thank you for your time and consideration to address each of these issues in detail.

Sincerely,

Margaret Gordon, Co-Director
Brian Beveridge, Co-Director
West Oakland Environmental Indicators Project
1747 14th St.
Oakland, Ca. 94607
www.woeip.org
ph. (510) 257-5640

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OAKLAND, CA 94623-0660
PHONE (510) 286-6053
FAX (510) 286-5559
TTY 711

Flex your power!
Be energy efficient!

November 16, 2012

ALAGEN255
ALA-24, 580,880, 980
SCH#2012102047

Ms. Ulla-Britt Jonsson
Strategic Planning Division
City of Oakland
250 Frank H. Ogawa Plaza, Suite 3315
Oakland, CA 94612

Dear Ms. Jonsson:

West Oakland Specific Plan – Notice of Preparation

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the West Oakland Specific Plan. The following comments are based on the Notice of Preparation. As lead agency, the City of Oakland is responsible for all project mitigation, including any needed improvements to State highways. The project's fair share contribution, financing, scheduling, and implementation responsibilities as well as lead agency monitoring should be fully discussed for all proposed mitigation measures and the project's traffic mitigation fees should be specifically identified in the environmental document. Any required roadway improvements should be completed prior to issuance of project occupancy permits. An encroachment permit is required when the project involves work in the State's Right of Way (ROW). Caltrans will not issue an encroachment permit until our concerns are adequately addressed. Therefore, we strongly recommend that the lead agency ensure resolution of the Caltrans' CEQA concerns prior to submittal of the encroachment permit application; see the end of this letter for more information regarding the encroachment permit process.

Non-Vehicular Modes
Within the West Oakland Specific Plan, Caltrans encourages the City of Oakland to locate any needed housing, jobs and neighborhood services near major mass transit nodes, and connect these nodes with streets configured to facilitate walking and biking, as a means of promoting mass transit use and reducing regional vehicle miles traveled and traffic impacts on local and state roadways. The City of Oakland may further promote mass transit use by coordinating with various transit operators for system improvements/changes that will serve the needs of the future population within the proposed plan.

In addition, please analyze secondary impacts on pedestrians and bicyclists that may result from any traffic impact mitigation measures. Describe any pedestrian and bicycle mitigation measures that would in turn be needed as a means of maintaining and improving access to transit facilities and reducing traffic impacts on state highways.

Traffic Impact Study

The environmental document should include an analysis of the impacts of the proposed project on State highway facilities in the vicinity of the project site, in particular, on and off- ramps and mainline operations for State Route 24, Interstate 580, 880 and 980. Please ensure that a Traffic Impact Study (TIS) includes the information detailed below:

1. Information on the plan's traffic impacts in terms of trip generation, distribution, and assignment. The assumptions and methodologies used in compiling this information should be addressed. The study should clearly show the percentage of project trips assigned to State facilities.

2. Current Average Daily Traffic (ADT) and AM and PM peak hour volumes on all significantly affected streets, freeway and State Route segments and intersections.

3. Schematic illustration and level of service (LOS) analysis for the following scenarios: 1) existing, 2) existing plus project, 3) cumulative and 4) cumulative plus project for the roadways and intersections in the project area.

4. Calculation of cumulative traffic volumes should consider all traffic-generating developments, both existing and future, that would affect the State highway facilities being evaluated.

5. The procedures contained in the 2000 update of the Highway Capacity Manual should be used as a guide for the analysis. We also recommend using Caltrans' *Guide for the Preparation of Traffic Impact Studies;* it is available on the following web site:
   www.dot.ca.gov/hq/tpp/offices/ocp/igr_ceqa_files/tisguide.pdf

6. Mitigation measures should be identified where plan implementation is expected to have a significant impact. Mitigation measures proposed should be fully discussed, including financing, scheduling, implementation responsibilities, and lead agency monitoring.

7. A discussion of the City's transportation fair-share program, capital improvement plan, and contribution to regional improvements to mitigate impacts from the proposed plan.

We look forward to reviewing the TIS, including Technical Appendices, and environmental document for this project. Please send two copies to the address at the top of this letterhead, marked ATTN: Yatman Kwan, AICP, Mail Stop #10D.

Encroachment Permit

Any work or traffic control within the State ROW requires an encroachment permit that is issued by Caltrans. Traffic-related mitigation measures will be incorporated into the construction plans during the encroachment permit process. See the following website link for more information:
http://www.dot.ca.gov/hq/traffops/developserv/permits/

To apply for an encroachment permit, submit a completed encroachment permit application, environmental documentation, and five (5) sets of plans which clearly indicate State ROW to the address at the top of this letterhead, marked ATTN: David Salladay, Mail Stop #5E.

Should you have any questions regarding this letter, please call Yatman Kwan, AICP of my staff at (510) 622-1670.

Sincerely,

ERIK ALM, AICP
District Branch Chief
Local Development - Intergovernmental Review

c: State Clearinghouse

DEPARTMENT OF TRANSPORTATION
111 GRAND AVENUE
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ALAGEN255
ALA-24, 580,880, 980
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In addition, please analyze secondary impacts on pedestrians and bicyclists that may result from any traffic impact mitigation measures. Describe any pedestrian and bicycle mitigation measures that would in turn be needed as a means of maintaining and improving access to transit facilities and reducing traffic impacts on state highways.

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Sincerely,

ERIK ALM, AICP
District Branch Chief
Local Development - Intergovernmental Review

c: State Clearinghouse

CITY OF OAKLAND

CPTED REVIEW PROCESS

Types of Planning Projects for Crime Prevention Through Environmental Design (CPTED) review

Pre-applications and applications for (in alphabetical order)**:**

- 5 or more units
- Alcohol-related
- Commercial and mixed-use properties
- Convenience markets
- Gas stations
- Malls
- Parking garages
- Parking lots
- Parks
- Restaurants
- Schools
- Transitional housing
- ATM Machines
- Other projects deemed to need CPTED review

Counter review and approval for project without Police input:

Use the checklists.

Project taken in <u>without</u> Police input:

1 The Intake or Counter planner fills in the CPTED log on the L:Drive (CPTED folder).
2 The Project Planner fills out the checklist. ”No” checks, and CPTED issues should be a guide for revisions to the project

Process <u>with</u> Police input:

1 The Intake or Counter planner fills in the CPTED review log on the L:Drive.
2 The project planner fills out the CPTED checklist. ”No” checks, and CPTED issues should be a guide for revisions to the project.
3 The project planner emails the PSO (see Community Policing Map and PSO Roster Excel sheet). If no response, then try again and CC the Sergeant (supervisor). If still no response, contact the lieutenant (Junior Commander). Last resort, contact the Area Commander (Captain).

20 Nov 2012

To: Oakland City Planning Commission
Oakland City Hall
250 Frank Ogawa Plaza
Oakland, Cal.

From: Duane De Witt
1747 14th St.
Oakland, Ca. 9607

Re: Case #ER120018 Scope of the Environmental Impact Report for the West Oakland Specific Plan

To whom it may concern:

I have read various documents related to the West Oakland Specific Plan. I believe as currently envisioned, the Environmental Impact Report (EIR) would be inadequate if it does not include these following topics. Please include these topics at a bare minimum for an adequate EIR. Also please reference the attached documents previously submitted to the Metropolitan Transportation Commission (MTC) for the One Bay Area Plan Environmental Impact Report (EIR) as well as the document from the West Oakland Environmental indicators Project (WOEIP) for this EIR.

1. Urban agriculture and the various community gardens and urban farming endeavors in West Oakland.

2. Urban Forestry and the planting and upkeep of the urban greenery and trees in W. Oakland.

3. Alternative transportation modalities as well as bikeways, greenways and pedestrian paths.

4. Linkages to the Oakland Army Base.

5. Health impacts on children of this plan, especially at the educational centers such as schools.

6. Last but not least what about the revitalization of the 16th ST. Train Station with the WOSP?

I will have more to comment upon once I have seen the document available at the public meetings. With this in mind I wish to be certain my written comments will be included in the official records.

Thank you for your time and consideration of this opening comments of mine on this matter.

Sincerely,

Duane De Witt
1747 14th St.
Oakland, Ca. 9607
dewittveteran@yahoo.com

8 November 2012

To: Scott Miller, Interim Planning and Zoning Director for Oakland
Oakland Planning Commissioners
Oakland City Hall
One Frank Ogawa Plaza,
Oakland, Ca. 94612

From: West Oakland Environmental Indicators Project
1747 14th St.
Oakland, Ca. 94607

Re: Case # ER120018: Comments for Scoping of Environmental Impact Report for West Oakland Specific Plan.

Dear Oakland Planning Commissioners and Mr. Miller,

The current approach to the scoping for the West Oakland Specific Plan (WOSP) Environmental Impact Report (EIR) reflects an inadequate process. Since the process began residents and business leaders have complained about the lack of transparency in this WOSP process. Both residents and Technical Advisory sub-committee members have expressed frustration with the lack of feedback coming from the planners and the willingness to show how community concerns are reflected in the Draft WOSP.

Also a statement in the "Mitigated Alternative" raises may questions for WOEIP. What does the following statement actually mean to the community, "Possible strategies and corresponding land use plans may seek to further address the preservation of historic resources, and minimizing the community's exposure to toxics by way of traditional buffers, mitigation and other land use approaches?" Please make sure the EIR explains this in depth with simple language understandable to the general community and laypersons. WOEIP believes every aspect of the EIR needs to acknowledge the legacy of risk exposure and also proposes solutions such as alternative infrastructure, buffer zones, green spaces and open spaces as well as integrated public spaces in commercial and industrial spaces to protect the health of this disadvantaged underserved community.

With this in mind the following list will give a set of specific requests and recommendations from WOEIP regarding what needs to be adequately addressed in an EIR for the WOSP. Specifically because current "Scoping" announcements only mention a "possible street car" line transit system being built in the future in West Oakland. The funding from the Federal government for the project comes from a transportation related source referred to as Transportation Investment Generating Economic Recovery (TIGER II) grants. Some local residents have been told in various public meetings a rail line will be included in the WOSP based on this transportation funding. Therefore this needs to be called out in the EIR and appropriately addressed based on where the line, and its' stops, will be located.

1. Complete route(s) for any and all rail lines to be introduced into the project area for West Oakland before the year 2035. This includes all stops as well as the "No project" alternative. Now is not the time to be coy or non committal about this transportation plan.

2. How will "linkages" with the Oakland Army Base be made and implemented? An adequate environmental appraisal and assessment needs to be fully scoped based on what these linkages are going to be in the future. Through to the year 2035 please. There should be an accurate appraisal of what alternative transportation modalities as well as bikeways, greenways and pedestrian paths there may be in the future. This should include revitalization of the 16th St. Train Station with transportation links in the WOSP.

3. WOEIP seeks an adequate definition and explanation of what the "Commercial Focused Alternative will impact environmentally, while also describing why Oakland city staff view this, "as a non-CEQA alternative." (In Layman's terms please.)

4. Significant "unmitigated" impacts need to be accurately and adequately scoped, as well as explained to the community members in easily understood terms.

5. The plan draft fails to define how it will, "while preserving existing established residential neighborhoods" while also, "Lessening existing land-use conflicts and ensuring avoidance of future conflicts between residential neighborhoods and nonresidential uses." These statements need to be adequately defined, explained, plus reconciled and scoped for an adequate EIR to be produced.

6. Because a "Key tenet of the Specific Plan is to retain, enhance and improve… Enhancement Areas" the EIR must fully scope ALL of the environmental impacts which will be associated with the proposed developments in any of the Enhancement Areas.

7. Last, but not least, on 5 May 2012 members of WOEIP presented a verbal presentation with an accompanying PowerPoint presentation about Public Health concerns regarding this WOSP. The Oakland City planning staff has not put the presentation onto the city website for the 5 May 2012 public meeting summary. Nor have the specific questions we addressed to staff at the time been acknowledged or answered.

While nearly half a billion dollars in public funds in public funds are committed to power, sewer and water infrastructure for the Oakland Army Base portion of this planning grant, no resources have been dedicated or committed to the century old infrastructure in the West Oakland neighborhoods. This is a social justice and environmental justice failure.

Thank you for your time and consideration to address each of these issues in detail.

Sincerely,

Margaret Gordon & Brian Beveridge, Co-Directors
West Oakland Environmental Indicators Project
1747 14th St.
Oakland, Ca. 94607
www.woeip.org ph. (510) 257-5640

10 July 2012

To: Ms. Ashley Nguyen, EIR Project Manager
Metropolitan Transportation Commission
101 Eighth St.
Oakland, Ca. 94607

Re: Comments for the Scoping of the Draft EIR for the Plan Bay Area EIR.

Dear Ms. Nguyen,

Please include these comments in the scoping for the Draft Environmental Impact Report (DEIR) currently being considered for preparation by the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG). Please give us a written response acknowledging receipt of these comments.

Enduringly deprived West Oakland appears to have been neglected again by bay area planners with the One Bay Area Plan (OBAP) efforts regarding future transportation planning with a jobs-housing linkage component. Therefore these comments are made regarding the inadequacies of the "scoping" for the Draft Environmental Impact Report (DEIR) currently being considered for preparation by the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG).

Scoping for the DEIR needs to explore the growth of West Oakland due to Oakland city proposals for increased development in the West Oakland area currently being planned with the West Oakland Specific Plan (WOSP) process. Please do better investigation regarding the environmental impacts of urban growth in West Oakland. The following issues need to be fully investigated to address residents' concerns about the current inadequacy of the scoping for the DEIR for the OBAP.

1. Environmental issues need to be analyzed regarding the impacts of the Oakland Army Base redevelopment into an enlarged rail yard and freight transportation center for the Port of Oakland. This site is immediately next to the community of West Oakland and may have negative environmental impacts from increased train traffic, and freight truck traffic, with the accompanying air and noise pollution increases. Please analyze these developments in the DEIR for the OBAP.

2. Environmental issues associated with increased urban development from the West Oakland Specific Plan proposals need to be included for analysis by the DEIR for OBAP. This is especially true for the environmental impacts associated with the proposed changes to the transportation networks within West Oakland. Please analyze these developments in the DEIR for the OBAP.

3. Alternatives to the proposed Light Rail System (LRS) being planned for West Oakland in the WOSP need to be explored, such as a Bus Rapid Transit (BRT) system. There also needs to be a realistic analysis of what undergrounding the Bay Area Rapid Transit (BART) though West Oakland could do to enhance the local environment. Please analyze these developments in the DEIR for the OBAP.

4. Current scoping is inadequate in regards to the WOSP with its proclaimed linkages to the Oakland Army Base (OAB) and the Port of Oakland in the future. Environmental impacts of NOT having good linkages for workers at the OAB with potential housing in West Oakland would create large environmental health impacts upon local residents. Please investigate these issues deeper and further with explanations to be done with an analysis of these developments in the DEIR for the OBAP.

5. The Port of Oakland is expanding the rail yard for the use of longer trains carrying more freight, perhaps leading to more use of trucks handing freight transport at OAB. Current scoping for the DEIR is not adequate in addressing how these environmental impacts will be monitored and mitigated, if need be, for the health of West Oakland residents. Please analyze these developments in the DEIR for the OBAP.

6. The alternative of a comprehensive transportation connections and linkages plan for the entire West Oakland neighborhood in conjunction with the Oakland Army Base (OAB) redevelopment and Port of Oakland expansion at the OAB needs to be explored and adequately scoped into the DEIR for the OBAP. Please analyze these issues in the DEIR for the OBAP.

With these preliminary comments in mind our organization would be glad to provide more of our expertise and information to your efforts on the DEIR. Please feel free to contact us at your earliest convenience to provide you with more information from a more indepth discussion about the needs for West Oakland with a jobs-housing linkage with any future transportation projects funded by the MTC.

With kind regards,

Margaret Gordon and Brian Beveridge

West Oakland Environmental Indicators Project (WOEIP)
1747 14th St.
Oakland, Ca. 94607
Phone # (510) 257-5640
www.woeip.org

3 Nov 2012

To: Oakland City Landmarks Committee
Oakland City Hall
Frank Ogawa Plaza
Oakland, Cal.

From: Duane De Witt
1747 14th St.
Oakland, Ca. 9607

Re: Scope of the Environmental Impact Report for the West Oakland Specific Plan

To whom it may concern:

I have read various documents related to the West Oakland Specific Plan. I believe as currently envisioned, the Environmental Impact Report (EIR) would be inadequate if it does not include these following topics. Please include these topics at a bare minimum for an adequate EIR.

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3. Alternative transportation modalities as well as bikeways, greenways and pedestrian paths.

4. Linkages to the Oakland Army Base.

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Thank you for your time and consideration of this opening comments of mine on this matter.

Sincerely,
Duane D. De Witt

Duane De Witt
1747 14th St.
Oakland, Ca. 9607
dewittveteran@yahoo.com

October 19, 2012

Comments on Draft West Oakland Specific Plan Project Description

Richard Grow, US EPA, Region 9

Our participation in the Technical Advisory Committee (TAC) for the West Oakland Specific Plan (WOSP) is driven primarily by a concern that environmental and public health implications of this long range plan are given due consideration. We understand that one of the key goals of the current document ("West Oakland Specific Plan", as distributed on October 5) is to provide the basis for the Notice of Preparation (NOP) for the upcoming EIR on the Plan to be carried out under CEQA. Below are offered a few specific suggestions regarding the draft document content, but before getting to those it might help to provide some background on our involvement in this area and these issues.

Of particular concern to us are risks and impacts related to exposure to toxics, in this context primarily due to proximity to sources of toxics. This concern was one of the drivers for our partnering with the community since 2005 in convening the West Oakland Toxics reduction Collaborative (WOTRC), which we continue to co-chair under a Partnering Agreement with the West Oakland Environmental Indicators Project and the Alameda County Public Health Department.

Over the past decade our collective understanding of sources of toxic air contaminants has evolved, with the California State Air Resources Board in the forefront, resulting in a much greater emphasis on the role of mobile sources, and in particular those generating diesel pollutants such as freight movement activities. Along those lines, we have also served in an advisory capacity to the Ditching Dirty Diesel Collaborative since 2004. The most recent report from the DDDC pertinent to the WOSP effort is the December, 2011 report, "At a Crossroads in our Region's Health: Freight Transport and the Future of Community Health in the San Francisco Bay Area." In May of this year I raised the relevance of this report with the TAC and subsequently provided TAC coordinators with background information on the study (available at http://pacinst.org/reports/crossroads_for_health/) and potential applicability of its findings and methodologies to the WOSP effort.

We have been particularly interested in this long range land use planning effort for a number of reasons. First, West Oakland is an area widely, even nationally, known for the significance of the environmental justice related issues that play out in this community, as well as for the high capacity of community members and leaders in advocating and engaging these issues. Community members have served and continue to serve on a number of national advisory bodies for the US EPA. This would appear to be a community uniquely qualified in both its understanding of its the issues and its capacity to advocate for those issues. Second, on occasions when environmental justice advocates have pressed EPA to address EJ related impacts of various federal activities, such as issuance of permits under the Clean Air Act, they have often been told by the Agency that the most fundamental driver of their issues are related to land use, and that those

issues should be addressed, and could possibly best be addressed, in the local land use planning process. This makes the WOSP process also of interest as an excellent opportunity to observe whether and how such environmental and public health impacts are taken into consideration, in this case in a federally funded local planning effort.

Regarding scheduling – in response to the recent rather compressed schedule for review of this 87 page document, we raised a number of concerns and suggestions aimed at allowing for a more in depth consideration of the draft report. Somewhat emblematically, in our view, was that the last minute scheduling of the TAC meeting conflicted directly with a previously scheduled meeting of the Bay Area Quality Management District's (BAAQMD) task force on Community Air Risk Evaluation (CARE), on which we also participate. Interestingly, the DDDC report mentioned above is based in significant part on studies performed by BAAQMD as part of the CARE project. When we have asked about the source of constraints on the current rather rushed schedule for the WOSP, we have been told the schedule was required under the terms of TIGER grant, specifically the cooperative agreement for that grant between DOT, HUD and the City.

We would like to reiterate here (1) our concern that the potential effects of scheduling constraints in limiting the consideration of community impacts, such as the public health concerns mentioned above, should be minimized as much as possible and (2) our willingness to join a conversation with the federal project officers for the TIGER grant to discuss whether adjustments to the schedule might serve to further improve the quality of the plan.

<u>Specific comments on the draft document</u>

Most of our comments are linked to the goal listed on page 2 of the Project Description: "Lessen existing land use conflicts and ensure avoidance of future conflicts between residential neighborhoods and nonresidential uses." We are pleased to see several references throughout the document making clear that among the conflicts of concern are conflicts related to proximity and exposure to toxic pollutants, as well as addressing those conflicts by way of land use, buffers, mitigation measures and so on. This leads to the following specific suggestions:

1. Land use Objective LU 6, Strategy LU 6-3 (p7-8) should be revised to read: "Reduce conflicts between residential and ~~industrial~~ uses generating substantial pollution.

2. There should be cross-references between land use Objective LU 6, Strategy LU 6-3 and environmental Objective EN 3 (pp 29-32) in both of those objectives. It is EN 3, especially ENV 3-5, that provides specifics as to how to go about meeting Strategy LU- 6-3.

3. Alternatives. Implementation of Strategies ENV 3-5a. and b. imply the need for additional alternatives beyond those currently listed at page 8 of the Project

description document. Both of these strategies describe a need to "prioritize" or "site" particular land uses with regard to minimizing community toxics exposures. It is hard to see how either of these strategies could have any meaning if they are only brought into the process after the basic land uses have already been fixed. The plan should describe, and the EIR assess, at least one scenario (or alternative) demonstrating what application of these principles in practice would look like. The DDDC "Crossroads" study referenced above provides one methodology for addressing these by way of buffers, mitigation and other approaches.

4. Children's health, education and schools. Somewhere in the plan – whether in goals, objectives or strategies - there should be acknowledgement of the need to take into consideration the special vulnerabilities of children to environmental health impacts. The plan also needs to take into account the linkage of residential development to the need for schools to serve the children living in those residences. The interrelationship of children's health and schools further highlights the need to take proximity and exposure to toxics into account in planning future residential development.

Thank you for the opportunity to comment on this document.

Richard Grow
US EPA
Region 9
(415) 947-4104
Grow.richard@epa.gov

Planning Commission

7th STREET NEIGHBORHOOD MEETING

PRESENTATION OF THE WEST OAKLAND SPECIFIC PLAN (WOSP) FOLLOWED BY Q & A

MONDAY, NOVEMBER 19th, 6-8:30 PM

OWH STUDIOS: UNIA BUILDING

1485 8th STREET, OAKLAND

FMI: 510.469.1118

In addition to providing a place of worship, this building is the home of OWH Studios and The Jack London Square Information & Referral Center. The studio trains at-risk youth in television and video production and support. The center provides job, business, and housing information to the West Oakland community.

WOSP Planning Commission Scoping Session, Oakland City Hall
November 14, 2012, 6 PM

Genevieve Wilson, resident
1486 8th Street Unit B
Oakland CA 94607
c 510.469.1118

I join Naomi Schiff in my concern that the plan yet lacks clear priorities and phasing, particularly for Area 2 around the West Oakland BART Station, which is my neighborhood. I am especially concerned about the future of our housing in Area 2. How will suitable housing be preserved, how will new housing be planned and built, and how will housing overall be kept affordable for the working class already living in the area? While the maximum capacities depicted in the plan seem over-ambitious, prudent development will be necessary in order to establish and sustain healthy new businesses that the neighborhood needs, such as a grocery store.

Have housing models that are more communal and thus more cost effective be adequately entertained? For example: my building at 1486 8th is an SRO (Single Room Occupancy) with about ten units. There is a kitchen in the middle and two baths in front and in back. We have laundry on site. One shortcoming is that we have no common area, but one could be established; my building manager even hopes to plant a rooftop garden. But the building is up for sale, so these things are only vision at present. Could not this sort of housing model be replicated on a larger scale? Most of the rest of the world lives this way, sharing space and saving cost. We each pay around $550/month rent, all-inclusive.

Numerically Practically * Can targets by percentage be determined for affordable housing? *

To push further: I know this is bold, but could there even be room for a long-term shelter or some kind of transitional housing in the plan? While at Jack London Square last night I ran into a woman named Denise. She was homeless and in need of a meal, and I was able to help her with some change. She also needed housing, and I was unable to help her. I meet and talk with such individuals on a nearly weekly basis, and I am deeply troubled by the lack of suitable housing opportunities available for them. We are in an incredible crisis. I feel, as does a Berkeley Homeless commissioner, that this is a national disgrace.

↳ WSWA's canvassing projects 50-607. unemployed

In closing, I would like to share something from my faith tradition. My background is Christian. I believe in a loving God who has special concern for the poor. I believe that Christ exemplified this love through his life and death on a cross. And I believe that it is through the power of Christ's resurrection that plans like the WOSP can be laid and executed. And so from Psalm 82, verses 3 and 4:

3 *Give justice to the weak and the orphan;*
Maintain the right of the weak and destitute.
4 *Rescue the weak and the needy;*
Deliver them from the hand of the wicked.

Thank you for considering my statement.

*There will be a 7th Street neighborhood meeting next Monday, November 19th, from 6-8:30 pm at the UNIA Building at 1485 8th Street. The purpose will be to present the plan and allow residents ample time for Q & A. All are welcome. Please spread the word.

November 21, 2012 Transmitted via Electronic Mail

Ms. Elois Thornton
Mr. Jeff Chew
Ulla-Britt Jonsson
City of Oakland
250 Frank H. Ogawa Plaza
Oakland, CA 94612

Re: Plan for the West Oakland BART Opportunity Area.

Dear WOSP Team:

Thank you again for your continued hard work and dedication. We remain excited at the prospect of a West Oakland Specific Plan (WOSP) that will facilitate investment and revitalization of our community in a way that previous efforts have been unable to do. While the near-horizon redevelopment of the Army Base makes the coming years different in terms of opportunity than the decade before, we believe that a certain amount of structural planning is necessary in order for this Army Base tide to float West Oakland boats in a productive and sustainable manner. The WOSP could provide just this structure.

We have written previously on aspects of the plan that we believe are critically important. WOCA representatives serve on your advisory groups and have done all in their power to provide advice and perspective. This letter sends recommendations regarding an aspect of the WOSP that we have not previously taken up, namely the plan for the West Oakland BART Opportunity Area.

As you may be aware, at our membership meeting on October 25 we hosted a panel of West Oakland industrial artists, with our lunchtime conversation centering on the evolution of this aspect of our community over the course of the last ten years. The work of The Crucible and American Steel Studios is perhaps the most visible, but as you are hopefully well aware, there are many other artisans and craftspeople in West Oakland and many more contemplating a move to our community because of its physical and cultural attributes. Without question, West Oakland is an Arts District. With proper planning and municipal engagement this District can serve as a foundational element for redevelopment – both locally and around the City.

The arts and artisans movement in West Oakland is contemporary, but also ties to the history of our community. In this way, the arts are for everybody, artisans, residents and visitors alike.

A Sub-Area of the WOSP 7th Street Opportunity Area, the West Oakland BART station is a gateway to the West Oakland Arts District. At present, in the places not occupied by domiciles or businesses, the area proximal to the station is a blank canvas. At present, the WOSP anticipates the canvas to ultimately hold a “transit village” mix of office space, service providers and residents. As stated in the Draft WOSP:

The land use and development strategy for the 7th Street Opportunity Area includes transit-oriented development (TOD) of higher-density housing with ground floor neighborhood-serving retail on vacant sites and current surface parking lots around the West Oakland BART station.

We believe it is appropriate to take a step back to examine how this redevelopment scheme can be arranged such that it obviously emphasizes, celebrates and leverages the Industrial Arts and Non-Industrial Arts endeavors, while at the same time honoring the residents, business owners and history of the community. This is our opportunity to create a "center", "a go to plaza area," a meeting and entertainment place / plaza for West Oakland, which is lacking in the current WOSP vision.

Our specific requests/recommendations are as follows:

(1.) The development as contemplated in Figures 11, 21 and 24 of the Draft WOSP seems very dense. Rather than an inviting gateway, the structures as shown almost feel like a barrier. Consideration should be given to the lowering or removal of the these proposed structures shown along 7th Street on either side of Mandela such that the neighborhood is visible from the train. This land would be an ideal location for a open space with sculpture gardens and gathering place for travelers disembarking West Oakland. Representative work would be an invitation to explore what lies in the community beyond.

(2.) The text of the WOSP section describing 7th Street Opportunity Area priorities and opportunities presently uses just half a sentence to describe the art and musical heritage of the 7th Street corridor. It says nothing of the Industrial Arts at all. With all due respect, this section of the plan should present a far more enthusiastic description of the Industrial Arts history and possibilities.

(3.) All the canvas around the train station is depicted as filled by podium-style residential development with ground floor retail. With all due respect, this covers the blank canvas with monochromatic flat paint. We urge the team to return to the drawing board and return with a rendering that is truly striking, a plan that captures the essence of the history and opportunity. A plan that motivates people to actually get off the train at the West Oakland space. Consider performance space both exterior and interior (in a shape other than a space under a residential podium), structures for arts and trades education, exhibition and gallery space. In addition, consider the inclusion of outdoor open space for seasonal performance and gathering opportunity.

The creative and innovative energy that spawns start-ups has already arrived in West Oakland, and we feel West Oakland and the city at large would benefit greatly and long-term from supporting and fostering this activity.

We thank you for your consideration

Sincerely,
/ s /
Norman Hooks, President
West Oakland Commerce Association

cc: Mayor Jean Quan
Councilmember Nancy Nadel
Councilmember-Elect Lynette McElhaney
City Administrator Deanna Santana
Assistant City Administrator Fred Blackwell
Art Clark, JRDV
Morten Jensen, JRDV

Barriers to Economic Development and Retention in West Oakland

Issues discussed at the meeting of 9/11/2012 with Deputy City Administrator Arturo Sanchez

We can't do economic development and retention without resolving the "negative pressures" on the business community such as:

1. An extremely substandard public infrastructure
2. Abandoned rail lines in the middle of the streets (with large impassable potholes)
3. Crime and lack of support from Oakland Police Department
4. Excessive amounts of illegal dumping
5. Massive amounts of graffiti on public and private property
6. Weeds and debris on public and private property
7. Homeless encampments
8. Lack of support from city's Code Compliance Department
9. Lack of immediate removal of hazardous material on public streets and sidewalks

Gmail by Google

Scott Gregory <sgregory@lamphier-gregory.com>

FW: NOP for West Oakland Specific Plan-EPA

1 message

Jonsson, Ulla-Britt <UJonsson@oaklandnet.com> Wed, Nov 21, 2012 at 3:23 PM
To: sgregory@lamphier-gregory.com, art@jrdv.com

One more before the package

Ulla-Britt Jonsson
Planner
City of Oakland Planning, Building & Neighborhood Preservation

250 Frank H. Ogawa Plaza, Suite 3315, Oakland, CA 94612
(510)238-3322 ujonsson@oaklandnet.com

Please note: Oakland City offices are closed for Thanksgiving on Thursday and Friday, November 22 and 23, 2012

From: Grow.Richard@epamail.epa.gov [mailto:Grow.Richard@epamail.epa.gov]
Sent: Wednesday, November 21, 2012 3:10 PM
To: Jonsson, Ulla-Britt
Cc: Thornton, Elois
Subject: NOP for West Oakland Specific Plan

Ulla-Britt Jonsson

Regarding your Notice of Preparation for the Draft EIR for the West Oakland Specific Plan, please include the attached comments previously submitted to Art Clark on October 19 as part of the Technical Advisory Committee's consideration of the WOSP. According to the Notice, comments should "focus on discussing possible impacts…ways in which potential adverse impacts might be minimized, and alternatives to the project in light of the EIR's purpose to provide useful and accurate information about such factors," and elsewhere the Notice solicits "public input regarding the type of information and analysis that should be considered in the EIR." In our discussions at the TAC it was not altogether evident how or where TAC members' concerns would fit into the WOSP process, but clearly the EIR process is one place where they should be considered.

As discussed in the October 19 comments, most of my concerns could be seen as coming under the category of the "conflicts" referenced in the 7th goal in the Project description. Of most concern are conflicts related to proximity and exposure to toxic pollutants, and the need to address those conflicts by way of land use, buffers, mitigation measures and so on. Our comments also referenced the December, 2011 report by the Pacific Institute and the Ditching Dirty Diesel Collaborative, “At a Crossroads in our Region’s Health: Freight Transport and the Future of Community Health in the San Francisco Bay Area.” This report provides a methodology for addressing these concerns. While there may be other methodologies that could accomplish the same purposes, our overall comment is that either this methodology or something analogous to it should be applied in assessing and mitigating the environmental and public health effects associated with the WOSP and alternatives.

Regarding alternatives, as also discussed in those comments, Strategies ENV 3-5a. and b. in the Project Description document (provided to the TAC for the October 16 meeting) describe a need to “prioritize” or “site” particular land uses with regard to minimizing community toxics exposures. It is hard to see how either of these strategies could have any meaning if they are only brought into the process after the basic land uses have already been fixed, the implication being a need for additional alternatives beyond those currently under consideration by the TAC. As just one example of a potential "conflict" and demonstrating the need for such assessment, the current document projects a substantial buildout of residential housing along the 880 freeway in Area 2A of the Plan, yet this area has been identified in the "Crossroads" report and in studies by the Bay Area Air Quality Management District (BAAQMD) as an area already substantially affected by high concentrations of freight movement related pollutants. Similar potential conflicts may exist in other areas of the WOSP planning area. The proposed plan should describe, and the EIR assess, at least one scenario (or alternative) demonstrating what application of these principles (prioritization and siting particular land uses to minimize community toxics exposures) in practice would look like.

Finally and more generally, please consider the overall perspective described in the attached two pager on "Health Equity and Housing" which has been under discussion in the broader Bay Area sustainability planning process. In particular the general perspective on land use conflicts articulated in the "Crossroads" report should be considered and addressed in the upcoming EIR process.

Richard Grow
US EPA
Region 9
(415) 947-4104

October 19, 2012 comments:

"Health Equity and Housing"

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2 attachments

Comments on WOSP 10_19_20.docx
18K

MTC equity one pager RG Sept2012.docx
84K

November 21, 2012 Transmitted via Electronic Mail

Ms. Elois Thornton
Mr. Jeff Chew
Ulla-Britt Jonsson
City of Oakland
250 Frank H. Ogawa Plaza
Oakland, CA 94612

Re: Plan for the West Oakland BART Opportunity Area.

Dear WOSP Team:

Thank you again for your continued hard work and dedication. We remain excited at the prospect of a West Oakland Specific Plan (WOSP) that will facilitate investment and revitalization of our community in a way that previous efforts have been unable to do. While the near-horizon redevelopment of the Army Base makes the coming years different in terms of opportunity than the decade before, we believe that a certain amount of structural planning is necessary in order for this Army Base tide to float West Oakland boats in a productive and sustainable manner. The WOSP could provide just this structure.

We have written previously on aspects of the plan that we believe are critically important. WOCA representatives serve on your advisory groups and have done all in their power to provide advice and perspective. This letter sends recommendations regarding an aspect of the WOSP that we have not previously taken up, namely the plan for the West Oakland BART Opportunity Area.

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Our specific requests/recommendations are as follows:

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We thank you for your consideration

Sincerely,
/ s /
Norman Hooks, President
West Oakland Commerce Association

cc: Mayor Jean Quan
Councilmember Nancy Nadel
Councilmember-Elect Lynette McElhaney
City Administrator Deanna Santana
Assistant City Administrator Fred Blackwell
Art Clark, JRDV
Morten Jensen, JRDV

Gmail by Google

Scott Gregory <sgregory@lamphier-gregory.com>

FW: Comments for WOSP EIR

1 message

Jonsson, Ulla-Britt <UJonsson@oaklandnet.com> Wed, Nov 21, 2012 at 4:19 PM
To: sgregory@lamphier-gregory.com, Art Clark <Art@jrdv.com>

This one came in after I sent the batch

Ulla-Britt Jonsson
Planner
City of Oakland Planning, Building & Neighborhood Preservation

250 Frank H. Ogawa Plaza, Suite 3315, Oakland, CA 94612
(510)238-3322 ujonsson@oaklandnet.com

Please note: Oakland City offices are closed for Thanksgiving on Thursday and Friday, November 22 and 23, 2012

From: Marcus Johnson [mailto:marcus_a_johnson@yahoo.com]
Sent: Wednesday, November 21, 2012 4:19 PM
To: Jonsson, Ulla-Britt
Subject: Comments for WOSP EIR

Please reference: West Oakland Infrastructure Report (2011) for my inputs:

Page 15

Priority 6 – Circulation Projects that improve circulation through the area are assigned a relatively low priority level, partly due to cost, and partly due to the level of further study that would realistically be required prior to their implementation. Projects could include installing a roundabout within the W. Grand Avenue/Mandela Parkway intersection to facilitate smoother traffic flow and reopening the 10th Street barricade.

Page 28 of 43

Mandela Parkway Industrial Zone – Southwest (SubArea 16)

10th St

- Intersection has block cracking on all 4 ways.

- 10th street at high elevation relative to pine st. Heavily sloped from center towards sides.
- North side has angled parking. No curb or gutter, no SW
- Frontage to Pine St, 3 entrances off of 10th for Industrial truck entrances (Recycling).
- SW, curb and gutter on curb return along Frontage. Ends just after turn.
- Recommendation
  - Replace road cross section. Install sidewalk, rolled curb with gutter, and angled parking sections to maintain existing use.

Pine St

- SW is 5' wide, 1.5' gutter, 6" curb both sides
- Long longitudinal crack and alligator cracking along center, probably some type of joint cracking.
- Between 11th and 12th, road conditions are pretty good.
- Recommendation
- o Slurry seal

11th St (West of Pine St)

- Asphalt is in decent shape
- Few longitudinal and transverse cracks
- No curb, gutter, or sidewalk on either side
- Currently cars park in front of loading bays with "No Parking" markings on bay doors
- Recommendation:
  - Replace road cross section. New section shall have sidewalk, perpendicular parking, rolled curb and gutter on north side and a standard curb and gutter on south side.

Page 92

We understand that the barricade at 10th Street between Pine Street and the I-880 frontage was installed with the approval of the City of Oakland to restrict truck traffic in the residential neighborhood southwest of the Study Area. The barricade currently isolates the residential neighborhood and forces longer trips to circumvent this blockade. With no other nearby access point, drivers could be encouraged to utilize the private access through the new 14th and Wood Street housing development, setting up potential future conflicts. We recommend that the barricade be removed, and signage be installed restricting through truck traffic.

Page 106-107

i. Mandela Parkway Commercial Industrial Zone

Exhibit VI.9 graphically represents areas where new standards are suggested in the Mandela Parkway area as a potential 10th Street section just west of Pine Street.

Perpendicular parking on one side and parallel on the other will provide sufficient parking to match existing uses. The sidewalks will improve pedestrian circulation and safety, while the new curb and gutters will alleviate stormwater runoff ponding and help to prevent future damage to the pavement.

Scott Gregory <sgregory@lamphier-gregory.com>

FW: PC Case ER120018 Comments on the Scoping of the Draft EIR for West Oakland Specific Plan

1 message

Jonsson, Ulla-Britt <UJonsson@oaklandnet.com> Mon, Nov 26, 2012 at 8:35 AM
To: sgregory@lamphier-gregory.com, Scott Gregory <sgregory@lamphier.gregory.com>
Cc: Art Clark <Art@jrdv.com>, "Thornton, Elois" <EAThornton@oaklandnet.com>

Scott,

I'm forwarding this email that came in on the 21st from Margot Lederer-Prado.

I also just realized that I have two email addresses for you. Do you check both? If not, which one?

Ulla-Britt

Ulla-Britt Jonsson
Planner
City of Oakland Planning, Building & Neighborhood Preservation

250 Frank H. Ogawa Plaza, Suite 3315, Oakland, CA 94612
(510)238-3322 ujonsson@oaklandnet.com

From: Margot Lederer [mailto:mlederer.prado@gmail.com]
Sent: Wednesday, November 21, 2012 5:00 PM
To: Jonsson, Ulla-Britt
Cc: Thornton, Elois; Chew, Jeff; Gallo, Aliza; Blackwell, Fred
Subject: PC Case ER120018 Comments on the Scoping of the Draft EIR for West Oakland Specific Plan

Dear Ulla, Jeff, Elois, JRDV Team, cc: Fred Blackwell

I am submitting my comments on the Scoping for the West Oakland Specific Plan EIR. My comments will echo some of those delivered by both community and the Planning Commission at the Wed Nov 14th Scoping Session, which I was unable to attend.

I have submitted comments in the past in my role as a Technical Advisory Committee member. My comments below continue to indicate where I feel we have unsatisfactorily addressed essential components or scope of the Plan contents, such that I do not feel it is ready for the EIR preparation stage. I ask that staff delay the EIR preparation to meet further subject area topics, improve on community process (both Steering Committee and TAC) and provide responses publically to comments of the TAC and Committee as well now as Planning Commission, prior to the preparation of the EIR. I feel we have neglected to acknowledge the international power that the Industrial Arts Corridor, as well as substantial businesses (PS Print, California Cereal, Mayway, Auto Chlor, Atthow Fine Art Services, etc) have brought to the area, and could further expand through the support and compatible development scenarios this Plan could propose.

In summary:

PROCESS COMMENTS

1. Lack of Transparency and Good Planning Process. As a member of the TAC I do not feel that the Team has been transparent in the derivation of the Plan Models and proposed Overlays, nor has truly considered the comments of the TAC. Comments on specific opportunity site direction, comments on the need to provide preliminary real estate proformas to justify the Overly Recommendations which imply indirectly or directly Zoning Changes, and the details of the plan that should be incorporated prior to EIR analysis , as made by TAC, have been ignored, and or considered "in silence". The TAC has never received any minutes of the meetings (three-hour sessions) we have attended, nor been privacy to same comments by the Steering Committee. The Public Transparency of the proposed plans are not widely distributed. Key Stakeholders (including both major business operators in West Oakland and Housing Developers) have not been approached for feedback that would make more realistic the Plan Assumptions.

2. Redundancy- the Plan currently reflects much redundancy in the re=phrasing or repetition of the current zoning. In some cases, the interpretation of zoning is not accurate. For instance, the interpretation of the Health & Safety Zone (S-19) is not entirely correct, as hazardous materials are not "prohibited"; rather the Zone mandates the interaction and approval of Oakland Fire Department as the only true authority on their presence relative to health & safety issues. The EIR should not repeat the scope which the 1998 General Plan adoption has already undergone- this is a redundancyt.

3. Transit Oriented Development- I have submitted comments in July directly to the Team, as well as in subsequent TAC meetings about the lack of absorption of the prior (2001- Michael Willis Architects) Oakland Housing Authority- BART- CEDA/City West Oakland Transit Village Plan opportunity detail. The WOSP description does not recognize what is still relevant today, take advantage of the detail in that Study, nor look at present day economics. The City has engaged with housing developers since that time, and even at this time, four stories over podium construction is not viable, let alone the grand assumptions of the Plan as it stands. While "Alternative B" is commercial scenario, it in no way reflects the dynamism of the present arts and innovation community, does not take advantage of the key locational positioning of this Station (receives all East Bay Trains), nor builds on local assets such as the Crucible nor Bruce Beasley studios. Arts is nationally cited as a stimulator of economic development, but this plan neglects to absorb that fact in any way. The allusion to "public art" and " Seventh Street history" is a token effort. Rather, I believe as do some TAC members, that environmentally (due ot brownfields as well as poor air quality conditions/ Port-Amtrak industrial proximity) this station would do well to make best benefit of flexible commercial and custom manufacturing space (arts- and creative technology oriented); take advantage of present market conditions which could put Oakland in a position of building new creative work space (office/ shared co working and R&D flex space) while still accommodating a residential edge on Seventh St which respects the history and in fact enlivens it with current dynamic economic uses such as the Industrial Art Corridor.

4. Mandela Grand- while staff to Economic Development, I support the creation of a campus like environment for the various sectors we are supporting in Oakland, including Clean/Green Tech; Health & Wellness technologies; Scientific and Creative Communication Technologies, I also know that Oakland's best position for these uses, outside of Downtown and Jack London District and Airport Business Park areas, is for them to be combined and in inspiration from creative industrial productivity, Advanced Manufacturing is the current wave which Oakland needs to capture among the regional economic sectors. With its current flexible zoning, restriction of the Mandela Grand intersection to High Density Campus will deter actual development. Rather the EIR process should examine the ability to use the current flexible zoning of CIX-1 and build a range of potential facility types, such as the three story (ground floor commercial-grocery-over two storeis of light industrial) which Brooklyn Navy Yard is in contract for- showing both the worth and value of multi-story industrial commercial development in high priced urban markets as viable.

5. Raimondi Park- As a member of the Economic Development Team and knowing the limited number of owners around Raimondi Park, we have forseen the "campus-like" apptitude of the sites around Raimondi Park as a huge potential for Oakland, During our Cliff Bar Attraction search, the Roadway site was a prime candidate, due to the corporate philosophy and culture which valued open space, physical activation opportunities for its employees at breaks. Furthermore, a single-story campus is a contributor to a "democratic" corporate environment- valued by

many new economy companies, such that the Hierarchy is not obviously designed to deter employee-management interaction. Raimondi Park still presents that vision, even with the acquisition of Horizon Beverage by the EB5 Direct Foreign Investment Program, as it could represent a true destination for any of our "targeted" sectors, such as healthcare/wellness, food & beverage production, and or creative technology and communication industries. I suggest that a Mixed Use Option for Raimondi Park (HBX) be the Alternative A for the EIR- rather than deluting its potential with strictly residential zoning. The Wood Street District already has a number of entitled sites for residential that must be "absorbed".. before we add a lot more residential "entitlements" to the mix.

5. OVERLAYS- I feel that the extra level of overlays does not allow the market to actually develop- a major goal of the plan while steered by the desires of the WOSP Plan community process- Again, real estate proformas are needed as an indespensible part of the Plan prior to EIR preparation to make sure we finally deliver a West Oakland Plan document that is relevant, is implementable and can benefit from baseline CEQA determination as an outcome of the EIR.

6. INFRASTRUCTURE- the WOSP Plan does not acknowledge the single detail infrastructure assessment document conducted in the recent last two years- West Oakland Infrastructure Plan Rather, it includes simple assumptions true of any jurisdiction. The WO Infrastructure Plan does not cover the entire Plan area, it covers all Industrial Areas. As such it provides prioritization and capital expenditure assumptions to guide and focus the core industrial opportunities on Wood Street and surrounding areas, Staff are unable to pursue Federal funding to begin such improvements without the appropriate CEQA vetting, Therefore I ask that WOSP Team adress the EIR specific to the recommendations of the WO Infrastructure Plan, citing them as an Appendix of the Plan itself.

7. Inadequacy of ground knowledge of the environment in West Oakland. I have seen redundancy as mentioned above, in the Seventh Street recommendations. The WO Transit Village Streetscape Plam (Walter Hood Jr Design, 2003) already studied the implementation of a noise barrier around the Bart lines, engagaging BART engineers in the process. Comments by Chris Pattillo of the Planning Commission exposed the lack of true understanding of the WOSP Consultant Team in the actual "vacancy or not" of industrial facilities in West Oakland. (see PC Meeting of Nov 14th). Few if any sites are vacant, unless held so by speculative owners. In the case of Horizon Beverage, the ownership is legally changing, the use of this modern industrial facility is being upheld as one immediately valued for its use as a ecoonomic engine for trade. (see SF Business Times article of 11/18/12).

Therefore the assumptions of the Overlay needs, to be studied by the Plan Environmental Consultant, is clearly acking common knowledge of what is happening on the ground today in West Oakland. In some cases, the Overlays may indeed present "legal takings" conflicts which the City Attorneys will need to provide justification for in light of the recent (2006) industrial CIX zoning adoption, and the adoption of the Industrial Land Policy during the Dellums administration.

In summary, I ask that the EIR preparation be delayed, the Tiger grant be extended, and that staff of the City be allowed to provide a more genuine community process, vet the issues that remain prior to a EIR preparation, and that this "once in a lifetime" conclusive West Oakland Specific Plan be truly reflective of the sophistication, complexity, depth of need, and other issues that are prevalent in the community todya.

Sincerely,

Margot Lederer Prado
Economic Development Specialist,
City of Oakland
mprado@oaklandnet.com
(50) 238-6766

2.

Gmail by Google

Scott Gregory <sgregory@lamphier-gregory.com>

combined NOP comments

1 message

Jonsson, Ulla-Britt <UJonsson@oaklandnet.com> Wed, Nov 21, 2012 at 4:16 PM
To: sgregory@lamphier-gregory.com, Art Clark <Art@jrdv.com>

Dear Scott and Art,

Here are the compiled comments and notes from the two Scoping hearings.

Ulla-Britt
City of Oakland Planning, Building & Neighborhood Preservation

(510)238-3322

Please note: Oakland City offices are closed for Thanksgiving on Thursday and Friday, November 22 and 23, 2012

---------- Forwarded message ----------
From: "mary lake" <xsalmon@att.net>
To: "Jonsson, Ulla-Britt" <UJonsson@oaklandnet.com>
Cc:
Date: Thu, 15 Nov 2012 12:49:56 -0800
Subject: NOP

Thank you for sending a copy of this NOP to read, even though I am a member of WOCAG, because of the meeting times I have recently not been able to attend meetings due to my work.

Overall this looks very good and encourages me to stay in Oakland after retirement, I have been considering other places, due to what I see as a lack of concern, and interested in the Oakland economy, and that would truly be a lost.

Again, thank you
Mary Lake

---------- Forwarded message ----------
From: "Nathan Landau" <NLandau@actransit.org>
To: "Jonsson, Ulla-Britt" <UJonsson@oaklandnet.com>
Cc:
Date: Wed, 21 Nov 2012 12:34:41 -0800
Subject: Comment letter on the WOSP NOP

Ulla, we've prepared a comment letter for AC Transit on the NOP for the West Oakland Specific Plan. It's being reviewed by management. It's possible that it won't reach you by the end of today, but I'm sure we'll be able to

get it to you within a few work days, maybe Monday. I hope you'll be able to use it.

Nathan Landau

---------- Forwarded message ----------
From: <Grow.Richard@epamail.epa.gov>
To: "Jonsson, Ulla-Britt" <UJonsson@oaklandnet.com>
Cc: "Thornton, Elois" <EAThornton@oaklandnet.com>
Date: Wed, 21 Nov 2012 15:10:05 -0800
Subject: NOP for West Oakland Specific Plan
Ulla-Britt Jonsson

Regarding your Notice of Preparation for the Draft EIR for the West Oakland Specific Plan, please include the attached comments previously submitted to Art Clark on October 19 as part of the Technical Advisory Committee's consideration of the WOSP. According to the Notice, comments should "focus on discussing possible impacts...ways in which potential adverse impacts might be minimized, and alternatives to the project in light of the EIR's purpose to provide useful and accurate information about such factors," and elsewhere the Notice solicits "public input regarding the type of information and analysis that should be considered in the EIR." In our discussions at the TAC it was not altogether evident how or where TAC members' concerns would fit into the WOSP process, but clearly the EIR process is one place where they should be considered.

As discussed in the October 19 comments, most of my concerns could be seen as coming under the category of the "conflicts" referenced in the 7th goal in the Project description. Of most concern are conflicts related to proximity and exposure to toxic pollutants, and the need to address those conflicts by way of land use, buffers, mitigation measures and so on. Our comments also referenced the December, 2011 report by the Pacific Institute and the Ditching Dirty Diesel Collaborative, "At a Crossroads in our Region's Health: Freight Transport and the Future of Community Health in the San Francisco Bay Area." This report provides a methodology for addressing these concerns. While there may be other methodologies that could accomplish the same purposes, our overall comment is that either this methodology or something analogous to it should be applied in assessing and mitigating the environmental and public health effects associated with the WOSP and alternatives.

Regarding alternatives, as also discussed in those comments, Strategies ENV 3-5a. and b. in the Project Description document (provided to the TAC for the October 16 meeting) describe a need to "prioritize" or "site" particular land uses with regard to minimizing community toxics exposures. It is hard to see how either of these strategies could have any meaning if they are only brought into the process after the basic land uses have already been fixed, the implication being a need for additional alternatives beyond those currently under consideration by the TAC. As just one example of a potential "conflict" and demonstrating the need for such assessment, the current document projects a substantial buildout of residential housing along the 880 freeway in Area 2A of the Plan, yet this area has been identified in the "Crossroads" report and in studies by the Bay Area Air Quality Management District (BAAQMD) as an area already substantially affected by high concentrations of freight movement related pollutants. Similar potential conflicts may exist in other areas of the WOSP planning area. The proposed plan should describe, and the EIR assess, at least one scenario (or alternative) demonstrating what application of these principles (prioritization and siting particular land uses to minimize community toxics exposures) in practice would look like.

Finally and more generally, please consider the overall perspective described in the attached two pager on "Health Equity and Housing" which has been under discussion in the broader Bay Area sustainability planning process. In particular the general perspective on land use conflicts articulated in the "Crossroads" report should be considered and addressed in the upcoming EIR process.

Richard Grow
US EPA
Region 9

(415) 947-4104

October 19, 2012 comments:

"Health Equity and Housing"

---------- Forwarded message ----------
From: "George Burtt" <grant_burtt@earthlink.net>
To: "Jonsson, Ulla-Britt" <UJonsson@oaklandnet.com>
Cc: "Thornton, Elois" <EAThornton@oaklandnet.com>, "Chew, Jeff" <JChew@oaklandnet.com>, "Quan, Jean" <JQuan@oaklandnet.com>, "Nadel, Nancy" <NNadel@oaklandnet.com>, "Lynette McElhaney" <lgm@lynettemcelhaney.com>, "Santana, Deanna" <DJSantana@oaklandnet.com>, "Blackwell, Fred" <FBlackwell@oaklandnet.com>, "Art Clark" <art@jrdv.com>, "Morten Jensen" <morten@jrdv.com>
Date: Wed, 21 Nov 2012 16:10:14 -0800
Subject: Comments on Scoping for the DEIR West Oakland Specific Plan Case Number ER120018
Dear Ms. Jonsson

On behalf of the West Oakland Commerce Association and the West Oakland Industrial Arts Corridor Alliance, we offer the following comments and request for modification of the scoping for the Draft EIR West Oakland Specific Plan (WOSP), Case Number ER120018.

The area in question is a Sub-Area of the WOSP 7th Street Opportunity Area, the West Oakland BART station, as known in the WOSP as Sub- Area 2A.

We ask that the environment scoping for this area consider the following potential future uses:

Retail
Commercial
Work - Live (Traditional under the Oakland Building Code)
Artisan Manufacturing
Residential
Large Group Assembly (both for interior and exterior areas / spaces)

As this is different that what the WOSP is currently contemplating scoping for this area, an explanation of why our request is being made is contained in the attached letter of today, November 21, 2012.

We thank you for your consideration

Happy Thanksgiving from all of us

George Burtt
for the
West Oakland Commerce Association and the West Oakland Industrial Arts Corridor Alliance
510-839-6999

23 attachments

Synergy Map.jpeg
121K

Caltrans_20121119_161810.pdf
200K

Duane DeWitt_20121106_132638.pdf
44K

Genevieve Wilson Scoping comments.pdf
174K

George Burtt Scoping comments.pdf
28K

OHA-Nov 13, 2012-WestOakSP.pdf
1112K

Schnitzer West Oakland EIR Comments 11 15 12.pdf
117K

West Oakland Walk Concept Description 08.12 pb.pdf
104K

BART Comments 112012.pdf
50K

WOEIP_20121115.pdf
494K

Brian Beveridge WOEIP 2012-EIR Scoping.pdf.pdf
284K

WOSP LPAB Scoping mtg_rough notes.pdf
93K

rough notes from PC scoping.pdf
17K

BAAQMD.pdf
637K

EPA Richard Grow 10_19_20.pdf
17K

MTC equity one pager RG Sept2012.pdf
62K

Comments on WOSP 10_19_20.docx
18K

MTC equity one pager RG Sept2012.docx
84K

Port of Oakland.pdf

112K

AC Transit.pdf
242K

11_21_12WOSP Letter.doc
26K

ATT446226.htm
1K

George Burtt 11.21.12.pdf
13K

[Draft]

Health Equity and Housing

In recognition that health equity needs to be considered in addressing housing:

The EC recognizes that additional housing production along existing transportation corridors or in close proximity to freight transport infrastructure such as sea ports, airports, freeways, truck routes, rail yards, rail lines, warehouses and distribution centers can result in serious health impacts for nearby residents in disproportionate levels compared to Bay Area residents living further away from these areas.

Placing housing in these areas could also discourage the use of greenhouse gas-reducing transportation improvements and infrastructure (such as pedestrian and bicycle paths) that also improve health and support sustainability.

To address these potential conflicts, the EC recommends that communities consider proximity to transportation corridors and freight transport infrastructure in determining where additional housing production should be located. By systematically considering the health risk posed by toxic air contaminants generated by freight transport infrastructure communities can determine if their housing needs can be met by placing their housing resources outside of high health risk areas.[1]

If sufficient land to meet housing needs are not available outside of high risk areas, communities should identify suitable mitigation measures to be put in place to reduce health risk from freight transport both onsite (e.g. indoor air filters) and/or through the development of a Community Risk Reduction Plan[2] and/or other local planning and permitting mechanisms.

Distributed at Equity Collaborative meeting, September 14, 2012

[1] Among the tools and methodologies available for conducting such assessments is "At a Crossroads in Our Region's Health: Freight Transport and the Future of Community health in the San Francisco Bay Area", December 2011, by the Pacific Institute and the Ditching Dirty Diesel Collaborative.

[2] A program by the Bay Area Air Quality Management District; further details available at http://www.baaqmd.gov/Divisions/Planning-and-Research/CARE-Program/Community-Risk-Reduction-Plans.aspx

At a Crossroads in Our Region's Health:
Freight Transport and the Future of Community Health in the San Francisco Bay Area

December 2011

Executive Summary (excerpts)

A recipe for a truly sustainable community must include community health along with quality housing and jobs connected by public transit as key ingredients. Regional plans are afoot in the San Francisco Bay Area to reduce air pollution that contributes to climate change, known as greenhouse gas emissions, by encouraging more compact development in already urbanized areas along transportation corridors. However, this approach to regional development could also pose hazards to community health by putting more residents next to sources of toxic pollution like freeways, rail yards, ports, and distribution centers.

To protect both our climate and the health of future generations, our strategy for creating more sustainable communities in our region must account for and address potential conflicts between existing polluting land uses and proposed developments like new housing. By planning for health, we can create sustainable communities in the San Francisco Bay Area that are as rich in opportunities for a long healthy life as they are for quality jobs, housing, and transit for all residents.

Our report focuses on portions of the region where areas that have been prioritized for future development, or Priority Development Areas, overlap with communities with the highest health risk from toxic air contaminants, referred to as CARE communities. Using mapping and spatial analysis, the report assesses the current and potential conflicts that exist between freight transport-related land uses and sensitive land uses such as housing, schools, parks, and health clinics in these areas.

This report shows that, without proper regional planning, the potential for exacerbating land use conflicts between residential and freight-transport related land uses is significant in the San Francisco Bay Area. Our analysis found that nearly half (42%) of the land being prioritized for development in our region is located in communities with the highest health risk from toxic air contaminants. One-fourth (25%) of the land in Priority Development Areas that intersect with CARE communities is within a distance from freight-related land uses where it is unadvisable to site sensitive land uses like new housing, according to regulatory agencies like the California Air Resources Board.

Our report also outlines steps that regional and local decision-makers can take to better plan for health when making land use and transportation decisions that will affect residents of these communities for generations to come.

[All documents available at: http://pacinst.org/reports/crossroads_for_health/]

OAKLAND HERITAGE ALLIANCE

November 13, 2012 (By electronic transmission)
City Planning Commission
250 Frank H. Ogawa Plaza
Oakland, CA 94612
Subject: Comments on NOP for West Oakland Specific Plan

Dear Planning Commission Members,

We appreciate the opportunity to comment on the NOP for an EIR on the West Oakland Specific Plan

HISTORIC AND CULTURAL RESOURCES
Study how best to use historic industrial and commercial structures, reusing or adapting them. Incorporate study of incentives such as federal tax credits and Mills Act. Consider recommending area-specific enhancements to the Mills Act program, such as raising the limits on the number of properties which may apply in a given year. Review façade improvement program possibilities. Look into programs of public education and resources for residents to do appropriate rehabilitation, particularly in recently-purchased older properties applying for rental conversions. Review enforcement procedures for small projects, so that extant standards can be enforced in the residential areas.

16TH STREET STATION
Include the old train station as a hub or destination, and strengthen the planning for its neighborhood so that it becomes the asset it should be. This is a key historic landmark.

ALTERNATIVES
Please construct useful, robust, viable alternatives for EIR study, and execute them thoroughly. Rather than make the alternatives section a passage of useless boilerplate, spend our scarce resources on variants really worth studying.

We recommend an alternative or overlay which could coordinate with each of the other alternatives, called a historic preservation alternative, and incorporating a high level of adaptive reuse, retention and preservation of historic resources in all use categories--residential, small commercial, large commercial, and industrial structures.

Robust alternatives for study should also cover differing use mixes, particularly near the West Oakland BART station, emphasize preservation of industrial structures of historic value, varying levels of density, heights, or FARs, and alternative transportation options.

INFILL PROJECTS WHICH RESPECT HISTORIC RESOURCES
Describe infill projects in such a way that heights, densities, and building envelopes form compatible transitions to neighborhood context in both residential and industrial areas, using such ideas as angled roofs and stepped-down bulk on edges of infill projects. If you do not already have a copy, please see the attached map of historic resources, a clear city-produced map of historic resources in West Oakland. This map should be incorporated so that it can be used in conjunction with all other site mapping, to show the affected historic and cultural resources.

CAMPUSES
Approach "campus" style development in such a way that it does not build fortresses, that it interacts with the street grids, where open spaces are open to the public, and where the general thrust is toward integrating development into the neighborhoods. "Campuses" should not create holes or gaps in the neighborhood.

TRANSIT
Study transit networks in relation to the army base development and downtown Oakland, not only Emeryville and West Oakland BART. It is as important to travel east and west as it is to travel north and south. Don't focus on the idea of light rail in preference to other modes.

WHERE ARE SCHOOLS?
In contemplating a great number (ultimately, 12,000 or so) of new residents, please address whether current public school sites would be used, whether closed ones updated and reopened, whether new facilities are required, and what needs are projected.

NEIGHBORHOOD SERVING RETAIL
Review needs and potentials for neighborhood-serving retail uses, including food markets, banking and financial services (other than check-cashing services), and review potential leasing rates to see how locally-owned businesses will be encouraged to survive and to thrive. New structures often present too challenging a leasing structure to encourage small business. Emphasize the reuse of extant retail frontage and study how to improve it for stronger local commercial synergy.

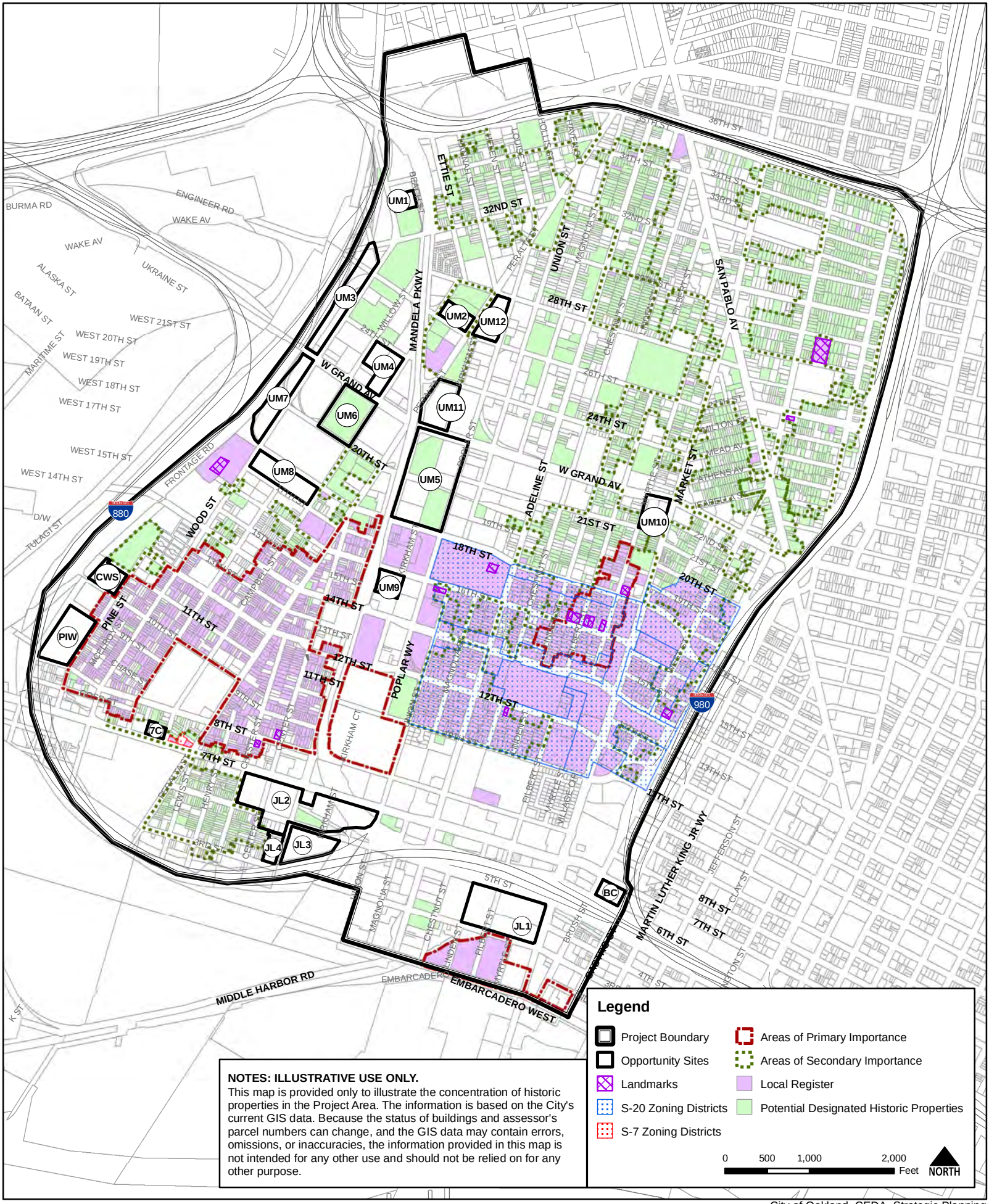
APPENDED MATERIALS:
We are appending a recent planning department map of historic and cultural resources in West Oakland. We are also appending our unofficial notes from the Landmarks Board hearing, as we understand that full minutes will not be available yet. Since the LPAB is supposed to advise the Planning Commission, we hope this will be useful.

Thank you once again for all your efforts and for the opportunity to comment.

Sincerely,

Rachel Force
President

Attachments:
Historic Resources map
Notes from LPAB NOP hearing



City of Oakland, CEDA, Strategic Planning
July 2011

CITY OF OAKLAND

West Oakland Specific Plan

Historic Resources

DRAFT

Notes from landmarks board item on West Oakland Specific Plan NOP, Meeting of November 5, 2012.
(These are unofficial notes but cover most of what was said on this item. Minutes will not be available for at least two weeks, more likely three, so for Planning Commission hearing, these may be useful.)

Staff made a general presentation about the plan.

PUBLIC TESTIMONY:

Naomi Schiff:

What is definition of campus? What is public access? Too many large campuses could stifle neighborhoods. How to knit into community?

Please address alternatives. Consider requesting a Historic Preservation Overlay Alternative that could work with all the other alternatives. Industrial historic buildings, small and large-scale. Some smaller commercial buildings are finding live-work or housing uses, large historic sites may be reusable.

In EIR, address coherent approaches and policy with regard to historic resources.

In goals of project, where is historic preservation? Should be one of the objectives.

City already leaning in this direction somewhat, make it clear and make it policy.

Please prepare robust feasible alternatives.

Dwayne DeWitt:

Clarify dates of hearings.

Project areas: EIR should look at what is currently happening, current cultural resources. Consider such things as:

- Urban agriculture
- Urban forestry (Urban Releaf and another group)

West Oakland and Army Base are next to each other, and they should be linked. Linkages to army base need to be more robust. Transportation? Light rail? History of rail in West Oakland and how it relates to reconfigured transportation patterns.
What about 16th Street Station? Any new light rail line should go to old train station.
Health impacts, children. Where are schools located?

Genevieve Wilson:

Lives near 8th and Chester, New resident
Pupuseria at 7th and Chester: example of small local family run business
Pretty Lady restaurant
16th St Station beautiful building needing rehab
“What is a campus?”

Housing questions: What does putting in housing look like? What form of housing? Is it communal? How is it kept affordable?

Board discussion

Biggs:

Targeting 2035. He will be 65 years old. Most structures in West Oak. more than 100 years old. Hope that economy will strengthen to help historic preservation. What do about crime?

Staffperson Thornton:

Design buildings to be less susceptible to crime.
Require septeb standards
More 24-hours eyes on street
Social equity chapter to be prepared
More jobs

Consultant Art Clark

Design guidelines for campuses.
“Campus” urban campus built to street, active ground floor uses
Large and small existing buildings interspersed, filling in vacant parcels, not isolating
Streetscapes and furniture
More images will be available

Boardmember Garry

Preserving historic resources. Analyze all historic resources in neighborhood. What are character-defining features? Seventh Street. West Oakland is culturally and historically important to the city. Where does that show up? What makes it unique and important? What should be preserved? Recommends handling in guidelines in the recent Central Estuary Plan. Fine Grained approach. Concerned about impact of new large residential on small residential structures. Prevailing heights? Discuss Mills Act and other opportunities. With more jobs and more people in the area, then we should help people who own homes to improve them. Mills Act, and other incentives and help resources. Not just not tearing them down, but helping.
Adaptive re-use discussion should be included, including smaller structures.

Boardmember Goins

No listing of cultural resources in the information packet? West Oakland has a lot of older homes. What percentage of PDHPs?

Staffperson Marvin

Residential neighborhoods shaded purple local register resources- determined eligible, local S20 district of 600 buildings. Oak Center about 2/3 contributing buildings, Oakland Point much denser than that. So. Prescott about 250 buidlings, dense with resources, really intact. On edges, and a little infiltrating industrial areas, also older houses. West Oakland Marsh makes a fairly clear distinction between industrial and residential. Mostly at least ASI level of concentration. Small industrial buildings are more scattered, many

very interesting. Pretty Lady, deco style. Semi-flatiron brick building, old Apex Bedding Factory mostly C-rated, mostly documented through unreinforced masonry survey. Good handle on what is there, mostly in active use. Many look abandoned, but inside there are interesting uses, from aerial dance to precision manufacturing, to mushroom growing. Not much truly abandoned or unvalued.

Boardmember Goins

Address historic areas.
Condition of some houses: not necessarily well fixed up. How can we use opportunity to improve the less good modifications.

Public interested in 7th St. corridor and Central Station. Two areas special attention. Historic overlay makes sense. How can it all be knit together?

Plan talks about using assets of area. Call out historicity of area as an asset, and how it can help catalyze development activity.

Boardmember MacDonald

Representatives on West Oakland Specific Plan. Impressed by enormous undertaking and work. Agrees with comments already made by public. In the plan, state goal for historic and cultural resources in area and that historic industrial buildings should be preserved. Re: campus design. Though consultant said it wasn't to look like Pixar, there was a picture in the presentation showing Pixar. A campus in the West Oakland Specific Plan should not include buildings inaccessible to the public. No barricaded sites, inaccessible. How not to displace current valued uses. Plan for greenscape. Connections with army base. Transportation plan. 16th Street Station? Avoid awkward juxtapositions of large modern buildings up against historic.

Art Clark:

No plan to knock down any extant residential

Boardmember Schulman

Historic overlay idea would be good. Can't see relationships. Shadows and wind impacts on historic resources? No map of historic resources in the packet. Transportation impacts need to be considered with respect to historic fabric, and linkages with downtown. Opp area 3. Likes transit-oriented development, but not too enthusiastic. Not transit, but just a bedroom community? Vertical bedroom suburb. Doesn't fit with area to turn it into bedrooms for people working in SF. West Oakland is a destination. Should really be a true TOD, where some leave, but others come. Area 3 needs mixed-use, perhaps more intensive around Post Office. On edges of opportunity areas 1, 2, 3, explore more intensive higher development, not just 4-5 stories like in Emeryville near San Pablo. We don't want that. We want variation in building heights. Campus: intrinsic to definition is multiple buildings used by single business with employees crossing an open area to reach buildings. Doesn't like silicon valley architectural model. Key element is public right-of-way. Spaces between buildings should be open to public. Public rights of

way need to be incorporated into design guidelines. Shorey House, Shorey Street—is there a better way to commemorate Shorey?

Boardmember Andrews

Historic overlay. Building upon historic resources has not been fully addressed. In terms of culture, but also dollars and cents, should be taken seriously. Real understanding of the value of cultural resources to economic development is critical to the implementation of the plan. Piece missing: West Oakland is not a neighborhood. It is about four-five square miles. It is composed of about nine to twelve neighborhoods. If we approach the specific plan without understanding its neighborhoods, will actually not be able to implement a sustainable plan. Despite asking repeatedly, neighborhoods should be clearly articulated and defined. No such map or description. Neighborhoods are dynamic. Two new neighborhoods are Ghost Town and Dirty Thirties. Whether informally acknowledged or mapped are part of this cultural heritage of this part of the city. Just looking at West Oakland for its opportunity sites is to miss the vitality that not only was, but IS there today. Tech, Food, Agricultural, Artistic, Art, and as an arrival point for new settlement. Extant vitality must be considered.

Chair Naruta:

Healing scar of freeways cutting through neighborhood. Provide more shade. Took class at Crucible. Appreciates their providing opportunities to local people. Wonders about building in such ideas. Other incentives beyond Mills Act. Green Building rehab training? Concerned about San Pablo Ave. commercial historic buildings. What is the intent? Pacific Pipe? Needs to be historic preservation alternatives that emphasize smaller scale historic residential and industrial as well as larger industrial.
Archaeological resources have been discovered in two previous local projects; should attend to archaeological resources; others have provided interesting finds. Refer to earlier projects.

Gmail by Google

Scott Gregory <sgregory@lamphier-gregory.com>

RE: WOSP - A Few More Comments

1 message

Jonsson, Ulla-Britt <UJonsson@oaklandnet.com> Mon, Nov 26, 2012 at 8:41 AM
To: Chris Pattillo <pattillo@pgadesign.com>
Cc: "Thornton, Elois" <EAThornton@oaklandnet.com>, sgregory@lamphier-gregory.com, Scott Gregory <sgregory@lamphier.gregory.com>, Art Clark <Art@jrdv.com>

Hi Chris,

I'm cc'ing the team on this email as it will be helpful to include your comments now.

Ulla-Britt

Ulla-Britt Jonsson
Planner
City of Oakland Planning, Building & Neighborhood Preservation

250 Frank H. Ogawa Plaza, Suite 3315, Oakland, CA 94612
(510)238-3322 ujonsson@oaklandnet.com

From: Chris Pattillo [mailto:pattillo@PGAdesign.com]
Sent: Saturday, November 24, 2012 4:41 PM
To: Jonsson, Ulla-Britt
Cc: Thornton, Elois
Subject: WOSP - A Few More Comments

Ulla,

I know I am late with this, so you can ignore these comments now and tell me to resubmit them when the Draft document is given to the Planning Commission for review. I've been schlepping around the material from the TAC meeting you invited me to everywhere I go and reading it when I have had time. Finally have written up these questions/comments.

Chris

1. Add "Campus" to the Glossary and include images of the type of campus that is suitable for West Oakland.

2. Pg. 11 Objective 7th 2-3: wouldn't it be more desirable to develop a strategy to keep the Oakland Main Post Office on 7th Street rather than devote efforts to having a strategy of what to do in case it closes?

3. Pg. 15, T&I 2-1.c – what is meant by "implement the 7th Street Concept and Urban Design Plan" and in a separate document from the Planning Commission packet, Opportunity Area 2: 7th Street, "Revitalize 7th Street as a neighborhood focus and cultural activity center". Acknowledge the portion of the plan that has already been implemented – these comments suggest that nothing has been done when in fact the city has made a recent significant investment in building the Walter Hood design for 7th Street.

4. Pg. 15 T&I 2-3.b – integrate a low impact development stormwater management – don't we already have a policy for this that applies citywide?

5. Starting with Pg. 15 T&I 2-3.b essentially all of the recommendations in the document seem to apply citywide, or should apply citywide. I don't understand why they are included in a "specific" plan??? Shouldn't a specific plan address only things that are unique/specific and not general city policy? Excluding non-specific material would make the WOSP much more concise which would be good because then the reader (potential developer) would quickly understand what is unique and special about this area of the city and what we are trying to accomplish.

6. Pg. 16 T&I 2-3.c. – "landscaping" should be "planting". At least I think that is what the author intended. The same is true for item h.

7. LU7 – will this study include strategies for how we should "enhance linkages" with the Army Base?

8. T&I 1 – complete streets includes the objectives in T&I 2 and T&I 3 – That is what "complete streets" means. One objective for these 3 should suffice.

Chris Pattillo FASLA
President

PGAdesign
LANDSCAPE ARCHITECTS
444 17th Street
Oakland, CA 94612
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Main | 510.465.1284
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PORT OF OAKLAND

Wednesday, November 21, 2012

Ms. Ulla-Britt Jonsson, Planner II
City of Oakland, Strategic Planning Division
250 Frank H. Ogawa Plaza, Suite 3315
Oakland, CA 94612

Subject: **Response to Notice of Preparation (NOP) of Draft Environmental Impact Report (DEIR) for the proposed West Oakland Specific Plan (Case Number ER120018; SCH# 2012102047)**

Dear Ms. Jonsson,

Thank you for providing the Port of Oakland (Port) the opportunity to comment on the Notice of Preparation (NOP) for the West Oakland Specific Plan (Specific Plan) Draft Environmental Impact Report (DEIR). According to the NOP project description, the Specific Plan proposes to guide future development within West Oakland, includes a framework for developing "undervalued and blighted land", provides strategies for transit-oriented development at the West Oakland BART to better link transportation choices with new housing and employment opportunities, and redirects light industrial and more intensive commercial activities to locations closer to the Port and away from residential areas.

The NOP was issued on Monday, October 22, 2012, and written responses and comments are due Wednesday, November 21, 2012.

The Port, with jurisdictional authority over lands adjacent to the Specific Plan area, submits the following comments for your consideration:

Land Use and Planning

- The Specific Plan proposes new residential and office uses adjacent to freeways, rail lines, and an active container port. In addition, the nearby former Oakland Army Base is being developed by both the City of Oakland and the Port of Oakland with a new rail yard and a trade and logistics center. The DEIR should provide an analysis of the compatibility of existing and proposed land uses, specifically the impacts of the elimination of heavy industrial and the conversion of business mix/light industrial to low intensity business mix/light industrial within Opportunity Areas 1, 2, and 3, located near key Port facility ingress/egress points (e.g., Grand Avenue, 7th Street, and Adeline Street).

Air Quality

- The Specific Plan proposes an 18-fold increase in the residential population which in turn increases the number of sensitive receptors (e.g., children, elderly) potentially exposed to substantial pollutant concentrations along adjacent existing freeways, and near rail lines, truck routes, and port activities. The DEIR should analyze the potential air quality impacts to human health and discuss how these impacts would be reduced to below a level of significance.

530 Water Street ■ Jack London Square ■ P.O. Box 2064 ■ Oakland, California 94604-2064
Telephone: (510) 627-1100 ■ Facsimile: (510) 627-1826 ■ Web Page: www.portofoakland.com

Hydrology and Water Quality

- The Specific Plan proposes up to 54 acres of (re)development which could result in adverse impacts to storm water quality and increased contaminants of concern being conveyed to storm water outfalls in Port jurisdiction. The DEIR should include an inventory and analysis of contaminated sites and a discussion of how (re)development impacts to water quality would be reduced to below a level of significance.

Noise

- The Specific Plan proposes 54 acres of (re)development and an 18-fold increase in the residential population which would expose future residents to existing freeway, rail, truck, BART, and port ambient noise levels. The DEIR should analyze the potential noise impacts to human health and discuss how these impacts would be reduced to below a level of significance.

Transportation

- The Specific Plan proposes 54 acres of (re)development and an 18-fold increase in the residential population which would increase congestion on local streets, freeways, and freeway access ramps, plus increase potential conflicts between existing designated truck routes and automobiles, buses, cyclists, and pedestrians. The DEIR should analyze existing and future traffic levels of service (LOS) and multimodal level of service (MMLOS); identify and resolve potential conflicts between designated truck routes and automobiles, buses, cyclist, and pedestrians; assess associated transportation impacts to human health (under Air Quality and Noise) and public safety; and identify funding mechanisms to meet anticipated capital road improvement needs.

The Port appreciates the opportunity to comment on the Specific Plan's proposed scope and potential environmental impacts. We look forward to reviewing the DEIR. If you have any questions regarding these comments, please contact Mr. Jerry Jakubauskas, Port Assistant Environmental Planner, at (510)627-1297 or Ms. Anne Whittington, Environmental Assessment Supervisor, at (510)627-1559.

Sincerely,

Richard Sinkoff
Director of Environmental Programs & Planning

cc: Pamela Kershaw, Director, Commercial Real Estate Division
Mark Erickson, Senior Maritime Project Administrator, Maritime Division
Anne Whittington, Environment Assessment Supervisor, Environmental Programs & Planning Division
Jeff Jones, Environment Compliance Supervisor, Environmental Programs & Planning Division

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR

Notice of Preparation

October 24, 2012

To: Reviewing Agencies

Re: West Oakland Specific Plan
SCH# 2012102047

Attached for your review and comment is the Notice of Preparation (NOP) for the West Oakland Specific Plan draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Ulla-Britt Jonsson
City of Oakland, Strategic Planning Division
250 Frank H. Ogawa Plaza, Suite 3315
Oakland, CA 94612

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Attachments
cc: Lead Agency

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH# 2012102047
Project Title West Oakland Specific Plan
Lead Agency Oakland, City of

Type NOP Notice of Preparation

Description The West Oakland Specific Plan will guide future development in West Oakland. The purpose of the proposed West Oakland Specific Plan is to provide comprehensive and multi-faceted strategies for development and redevelopment of vacant and/or under-utilized commercial and industrial properties in West Oakland. It establishes a land use and development framework, identifies needed transportation and infrastructure improvements, and recommends implementation strategies needed to develop those parcels. The Plan is also a marketing tool for attracting developers to key sites and for encouraging new, targeted economic development.

Lead Agency Contact

Name Ulla-Britt Jonsson
Agency City of Oakland, Strategic Planning Division
Phone (510) 238-3322 **Fax**
email
Address 250 Frank H. Ogawa Plaza, Suite 3315
City Oakland **State** CA **Zip** 94612

Project Location

County Alameda
City Oakland
Region
Cross Streets West Oakland Planning Area, center ~ West Grand Ave, & Mandela Pkwy
Lat / Long
Parcel No. Numerous
Township **Range** **Section** **Base**

Proximity to:

Highways I-580, 880, 980
Airports
Railways BART, others at Port
Waterways SF Bay, Oakland Estuary
Schools
Land Use GPD: Primarily Business Mix and Mixed Housing Type, with several corresponding zoning districts.

Project Issues

Reviewing Agencies California Coastal Commission; Department of Parks and Recreation; San Francisco Bay Conservation and Development Commission; Department of Water Resources; Department of Fish and Game, Region 3; Native American Heritage Commission; Public Utilities Commission; California Highway Patrol; Caltrans, District 4; Air Resources Board, Transportation Projects; Regional Water Quality Control Board, Region 2; Resources Agency

Date Received 10/24/2012 **Start of Review** 10/24/2012 **End of Review** 11/26/2012

NOP Distribution List

County: Alameda SCH# 2012102047

Resources Agency

- [x] Resources Agency
  Nadell Gayou
- [ ] Dept. of Boating & Waterways
  Nicole Wong
- [x] California Coastal Commission
  Elizabeth A. Fuchs
- [ ] Colorado River Board
  Gerald R. Zimmerman
- [ ] Dept. of Conservation
  Elizabeth Carpenter
- [ ] California Energy Commission
  Eric Knight
- [ ] Cal Fire
  Dan Foster
- [ ] Central Valley Flood Protection Board
  James Herota
- [ ] Office of Historic Preservation
  Ron Parsons
- [x] Dept of Parks & Recreation
  Environmental Stewardship Section
- [ ] California Department of Resources, Recycling & Recovery
  Sue O'Leary
- [x] S.F. Bay Conservation & Dev't. Comm.
  Steve McAdam
- [x] Dept. of Water Resources Resources Agency
  Nadell Gayou

Fish and Game

- [ ] Depart. of Fish & Game
  Scott Flint
  Environmental Services Division
- [ ] Fish & Game Region 1
  Donald Koch
- [ ] Fish & Game Region 1E
  Laurie Harnsberger
- [ ] Fish & Game Region 2
  Jeff Drongesen
- [x] Fish & Game Region 3
  Charles Armor
- [ ] Fish & Game Region 4
  Julie Vance
- [ ] Fish & Game Region 5
  Leslie Newton-Reed
  Habitat Conservation Program
- [ ] Fish & Game Region 6
  Gabrina Gatchel
  Habitat Conservation Program
- [ ] Fish & Game Region 6 I/M
  Brad Henderson
  Inyo/Mono, Habitat Conservation Program
- [ ] Dept. of Fish & Game M
  George Isaac
  Marine Region

Other Departments

- [ ] Food & Agriculture
  Sandra Schubert
  Dept. of Food and Agriculture
- [ ] Depart. of General Services
  Public School Construction
- [ ] Dept. of General Services
  Anna Garbeff
  Environmental Services Section
- [ ] Dept. of Public Health
  Jeffery Worth
  Dept. of Health/Drinking Water
- [ ] Delta Stewardship Council
  Kevan Samsam

Independent Commissions,Boards

- [ ] Delta Protection Commission
  Michael Machado
- [ ] Cal EMA (Emergency Management Agency)
  Dennis Castrillo
- [x] Native American Heritage Comm.
  Debbie Treadway
- [x] Public Utilities Commission
  Leo Wong
- [ ] Santa Monica Bay Restoration
  Guangyu Wang
- [ ] State Lands Commission
  Jennifer Deleong
- [ ] Tahoe Regional Planning Agency (TRPA)
  Cherry Jacques

Business, Trans & Housing

- [ ] Caltrans - Division of Aeronautics
  Philip Crimmins
- [ ] Caltrans - Planning
  Terri Pencovic
- [x] California Highway Patrol
  Suzann Ikeuchi
  Office of Special Projects
- [ ] Housing & Community Development
  CEQA Coordinator
  Housing Policy Division

Dept. of Transportation

- [ ] Caltrans, District 1
  Rex Jackman
- [ ] Caltrans, District 2
  Marcelino Gonzalez
- [ ] Caltrans, District 3
  Gary Arnold
- [x] Caltrans, District 4
  Erik Alm
- [ ] Caltrans, District 5
  David Murray
- [ ] Caltrans, District 6
  Michael Navarro
- [ ] Caltrans, District 7
  Dianna Watson
- [ ] Caltrans, District 8
  Dan Kopulsky
- [ ] Caltrans, District 9
  Gayle Rosander
- [ ] Caltrans, District 10
  Tom Dumas
- [ ] Caltrans, District 11
  Jacob Armstrong
- [ ] Caltrans, District 12
  Marlon Regisford

Cal EPA

Air Resources Board

- [ ] Airport/Energy Projects
  Jim Lerner
- [x] Transportation Projects
  Douglas Ito
- [ ] Industrial Projects
  Mike Tollstrup
- [ ] State Water Resources Control Board
  Regional Programs Unit
  Division of Financial Assistance
- [ ] State Water Resources Control Board
  Student Intern, 401 Water Quality Certification Unit
  Division of Water Quality
- [ ] State Water Resouces Control Board
  Phil Crader
  Division of Water Rights
- [ ] Dept. of Toxic Substances Control
  CEQA Tracking Center
- [ ] Department of Pesticide Regulation
  CEQA Coordinator

Regional Water Quality Contr Board (RWQCB)

- [ ] RWQCB 1
  Cathleen Hudson
  North Coast Region (1)
- [x] RWQCB 2
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- [ ] RWQCB 3
  Central Coast Region (3)
- [ ] RWQCB 4
  Teresa Rodgers
  Los Angeles Region (4)
- [ ] RWQCB 5S
  Central Valley Region (5)
- [ ] RWQCB 5F
  Central Valley Region (5)
  Fresno Branch Office
- [ ] RWQCB 5R
  Central Valley Region (5)
  Redding Branch Office
- [ ] RWQCB 6
  Lahontan Region (6)
- [ ] RWQCB 6V
  Lahontan Region (6)
  Victorville Branch Office
- [ ] RWQCB 7
  Colorado River Basin Region (7)
- [ ] RWQCB 8
  Santa Ana Region (8)
- [ ] RWQCB 9
  San Diego Region (9)

- [ ] Other _____
- [ ] _____ Conservancy

Last Updated 8/14/2012

Schnitzer

1101 Embarcadero West (94607) P.O Box 747 Oakland, CA 94604

Phone (510) 444-3919 Fax (510) 444-3370

November 15th, 2012

Ms. Ulla-Britt Jonsson
Strategic Planning Division
City of Oakland
250 Frank Ogawa Plaza, Ste 3315
Oakland, CA 94612

Re: Case Number ER120018

Dear Ms. Jonsson,

As a West Oakland business, we appreciate the opportunity to submit written comments regarding the City of Oakland's Draft Environmental Impact Report (EIR) for the proposed West Oakland Specific Plan (Case Number ER120018).

Schnitzer Steel Industries is global leader in the metals recycling industry and has been collecting, processing, and recycling materials in West Oakland since 1965. The material we collect is shipped through the San Francisco Bay and processed into finished metal products by steel mills all over the world. Founded in Portland, Oregon in 1906 by Sam Schnitzer, as a one-person scrap metal recycler, we have grown to become the 2011 Scrap Company of the Year by American Metal Market. The success of our company could not have been achieved without our Oakland facility, our employees, and support by the City of Oakland.

Over the last five decades, Schnitzer has seen firsthand the challenges facing West Oakland businesses and residents and we are pleased to see the City of Oakland's renewed attention to this area through the proposed West Oakland Specific Plan. Our facility is located just across the railroad tracks from Opportunity Zone 3 and just down the road from Opportunity Zone 2. The enhancement and reutilization of the industrial areas near our facility could significantly benefit our company if done properly and we want to work with you to ensure success in this effort.

As such, we would encourage you to evaluate the potentially transportation and environmental effects of your proposed plan through the Environmental Impact Report. Our suggestions are as follows:

Environmental

Schnitzer's facility lawfully operates under numerous permits regarding air and water quality and is regulated by Bay Area Air Quality Management District, California Air Resource Board, Department of Toxic Substance Control, City of Oakland, Bay Area Regional Water Quality Control Board, and others. With the plan's proposal to expand commercial and residential properties near our facility, we have serious concerns with how these development projects could adversely affect our operations. It is imperative that the EIR looks at the proposed 'buffer' or proximity of commercial/residential/mixed use buildings to traditional industrial businesses. To ensure there is a quality of life for both residents and businesses an appropriate transition zone must be established. We strongly encourage the division to look at the creation of open space or parks between these areas.

Transportation

The drafted plan seeks to meld existing industrial and transportation related business with light industrial, high-tech, and service oriented businesses while also integrating retail/commercial and residential in areas. However, there are a number of existing businesses including Schnitzer that have located to Opportunity Areas 2 and 3 due to the close proximity to the Port of Oakland, Union Pacific Rail, and access to the freeways. Access to these logistics carriers allows for efficient transport of goods with minimal effect on residential areas.

> *Ex. Trucks currently transit through the "3rd Street Opportunity Area" nearly 24 hours a day due to the SSA/Matson port terminal and Schnitzer Steel operations. In addition, there is no alternative access to these facilities beyond entry on Embarcadero West.*

Significant increases in traffic congestion and accidents could result from more private automobiles mixing with industrial tractor-trailers and more occupants in the 'opportunity areas.' As a business that relies heavily on large scale projects, truck access to our facility is imperative to our success. And, as a corporate citizen of the community, safety for all concerned is a priority. We would ask your division to conduct a full audit of any logistical obstacles the proposed plan would create on current businesses.

Schnitzer strongly believes that West Oakland can benefit from a smart approach that melds industrial, commercial, and residential use spaces. The EIR will be the first step in this process and we look forward to working with you and your staff as you move forward on the West Oakland Specific Plan.

We appreciate your consideration of these comments. If you have any additional questions or comments, please contact Jackie Lynn Ray directly at 510-452-8896 or via email at jray@schn.com.

Thank you,

Mr. Bruce Rieser
Southwest Regional Director
Schnitzer Steel Industries, Inc.

Scott Gregory <sgregory@lamphier-gregory.com>

FW: Case Number ER120018 West Oakland Specific Plan

1 message

Jonsson, Ulla-Britt <UJonsson@oaklandnet.com> Mon, Nov 5, 2012 at 1:09 PM
To: art@jrdv.com, sgregory@lamphier-gregory.com
Cc: "Thornton, Elois" <EAThornton@oaklandnet.com>

FYI Scott and Art

Dear Ulla-Britt Jonsson:

I'm writing about the WOSP. I'm looking forward to West Oakland streets being repaved! That is my favorite part of the plan.

I am concerned about the "Higher Intensity Campus" Land Use Overlay. The term "campus" makes me afraid the plan intends to wreck the grid in those areas. I want to put on record my total opposition to all permanent street closings. The grid is great for pedestrians. It helps us get from one place to another without going very far out of our way. It makes it easy to know where we are and to find the addresses we are looking for.

For the same reason, I oppose the the development of large format retail. Besides a grocery store, which doesn't necessarily have to take up more than one block, I can't even imagine what large format retail we even need in the Mandela Grand Opportunity Area. Target, Home Depot, Offices Max and Depot, Best Buy and Ikea are all already at 40th street. There's a Bed Bath and Beyond in Jack London Square. What other stores are there? Cabelas? The hunting superstore?

Thanks,

Sonja

What is the West Oakland Walk?

August 2012

The West Oakland Walk is a concept created by Philip Banta in association with Norman Hooks, two architects with long standing design and building experience in Oakland. This is an urban design idea to leverage central City assets into a "social circuit" for walking, biking, organic gardening, exercising, and meeting friends, all the activities that build sustainable communities. It developed from our pro-bono work for Raimondi Park which resulted in major sports field renovations.

The West Oakland Walk knits together the parks and public places of Central and West Oakland by **improving a 4.5 mile loop of existing city streets into an urban greenway** running East – West from Lake Merritt in the center of the City to Central Station at its western edge**.** Between these two points currently exist 23 parks (totaling 110 acres), the civic, commercial, and cultural downtown core of Oakland including many of the City's most historically significant buildings, 4 BART stops, and 7 freeway entrances and exits from the major regional artery that connects Oakland to the broader Bay Area.

West Oakland Walk, copyright 2006 Philip Banta and BETA, Inc.

What are the benefits?

With a simple geometric stroke the West Oakland Walk could: **Re-unite** West and Central Oakland across the 980 Freeway; **Reinforce** the community with an event that celebrates the history and place of each neighborhood it passes through; and **Redefine Oakland** to itself and to the world **as a coherent network of Parks, Places and People**. Few downtown cores are endowed with the particular combination of public park space, public service structures and historical legacies enjoyed by the City of Oakland, and fewer still have them arranged in patterns that can be so easily linked. The parks have been long established; the civic and institutional buildings have been serving the City for decades; the streets that connect these assets exist now. In other words, no significant capital investment or private property condemnation is required for this idea to take shape. The West Oakland Walk is a *found design* that will help transform the way people see and use Oakland. Along this pathway all the elements that make a city great are in place waiting to be laced together.

Philip Banta *pbanta@bantadesign.com*

8 November 2012

To: Scott Miller, Interim Planning and Zoning Director for Oakland
Oakland Planning Commissioners
Oakland City Hall
One Frank Ogawa Plaza,
Oakland, Ca. 94612

From: West Oakland Environmental Indicators Project
1747 14th St.
Oakland, Ca. 94607

Re: Case # ER120018: Comments for Scoping of Environmental Impact Report for West Oakland Specific Plan.

Dear Oakland Planning Commissioners and Mr. Miller,

The current approach to the scoping for the West Oakland Specific Plan (WOSP) Environmental Impact Report (EIR) reflects an inadequate process. Since the process began residents and business leaders have complained about the lack of transparency in this WOSP process. Both residents and Technical Advisory sub-committee members have expressed frustration with the lack of feedback coming from the planners and their failure to show how community concerns are reflected in the Draft WOSP.

A statement in the "Mitigated Alternative" section of the draft overview raises many questions for WOEIP. "Possible strategies and corresponding land use plans may seek to further address the preservation of historic resources, and minimizing the community's exposure to toxics by way of traditional buffers, mitigation and other land use approaches"? The EIR must explain these issues of "historic resources", potential "exposure to toxics" generated by planned land uses and the nature of "traditional buffers" to these impacts. To this end, the draft must also describe scenarios for the creation of new buffers between the protected industrial areas and the expanding residential parts of the community.

WOEIP believes every aspect of the EIR needs to acknowledge the legacy of risk exposure in West Oakland brought about by inappropriate zoning in the past. In supporting the expansion of industrial and commercial activities in this already mixed use community, the WOSP EIR must reflect recommendations for health-protective neighborhood design elements including, alternative infrastructure technologies, "built" buffer zones, green recreation spaces and open spaces, as well as,

integrated public spaces in commercial and industrial developments to enhance the health of the disadvantaged and underserved traditional residents of this community.

The funding from the Federal government for the project comes from a transportation related source referred to as Transportation Investment Generating Economic Recovery (TIGER II) grants. Some local residents have been told in various public meetings a rail line will be included in the WOSP based on this transportation funding. Current "Scoping" announcements only mention a "possible street car" line transit system being built in the future in West Oakland. If this transit infrastructure is considered a fundamental element of the economic development potential held in the WOSP, the EIR most clearly address the potential benefits and impacts of such a project on business development, residential development, transit rider ship and the potential allocation of future transit dollars away from more traditional and familiar forms of local public transportation. Without such an analysis, we feel that the inclusion of the streetcar line constitutes an excuse for the use of "transportation" planning dollars for this exercise.

With this in mind the following list will give a set of specific requests and recommendations from WOEIP regarding what needs to be adequately addressed in an EIR for the WOSP.

1. A route analysis for any rail lines to be introduced into the project area as stimulus for new development. This analysis should include the potential benefit to the development of existing community resources such as the Mandela Corridor, the Third Street Corridor, the Peralta Street Corridor and in particular, the historic 16th Street Train Station. A permanent infrastructure system like this can not be casually added to this important plan with considering the benefits or harm it might bring to existing resources.

2. The TIGER II grant application declares a goal of the funding is to create planned linkages between the Oakland Army Base development and the West Oakland community in order the enhance the "sustainability" and quality of life for residents. Thus far these linkages appear to limited to extending AC Transit bus routes to the OAB Logistics Center. Given the amount of public funding being applied to the OAB project, and the water, sewer and power infrastructure links to West Oakland inherent in the OAB develop plan, the WOSP must identify resources to modernize the pubic works infrastructure of the neighborhoods east of I-880. Many of these systems are a century old and it is a social justice travesty to make such a massive investment in site preparation for private development while providing no notion of how similar benefit will be provided to the residents and businesses in the other half of the grant planning area. An adequate environmental appraisal and assessment needs to be fully scoped based on what these linkages are predicted to be in the future. There should be an accurate appraisal of both need and potential for power, water and sewer infrastructure, and alternative transportation modalities, including bikeways, greenways and pedestrian paths there may be in the future. The plan and the scope of the EIR should include revitalization of the 16th St. Train Station with transportation links to the OAB and the Broadway Corridor.

3. The draft documents mention a "Commercial Focused Alternative" without adequate definition and dismisses any potential environmental impact of such an alternative scenario. Draft language states that Oakland city staff view this, "as a non-CEQA alternative." What is a "non-CEQA alternative" and why is it defined so?

4. Significant "unmitigated" impacts need to be accurately and adequately scoped, as well as explained to the community members in easily understood terms.

5. The plan draft fails to define how it will, “while preserving existing established residential neighborhoods” also accomplish, “Lessening existing land-use conflicts and ensuring avoidance of future conflicts between residential neighborhoods and nonresidential uses.” These statements need to be adequately defined and described in the alternative scenario plans. They must also be scoped for an adequate EIR analysis.

6. Because a “Key tenet of the Specific Plan is to retain, enhance and improve… Enhancement Areas” the EIR must fully scope ALL of the environmental impacts which will be associated with the proposed developments in any of the Enhancement Areas.

7. Last, but not least, on 5 May 2012 members of WOEIP presented a verbal presentation with an accompanying PowerPoint presentation about Public Health concerns regarding this WOSP. The Oakland City planning staff has not put the presentation onto the city website for the 5 May 2012 public meeting summary. Nor have the specific questions we addressed to staff at the time been acknowledged or answered.

Thank you for your time and consideration to address each of these issues in detail.

Sincerely,

Margaret Gordon, Co-Director
Brian Beveridge, Co-Director
West Oakland Environmental Indicators Project
1747 14th St.
Oakland, Ca. 94607
www.woeip.org
ph. (510) 257-5640

8 November 2012

To: Scott Miller, Interim Planning and Zoning Director for Oakland
Oakland Planning Commissioners
Oakland City Hall
One Frank Ogawa Plaza,
Oakland, Ca. 94612

From: West Oakland Environmental Indicators Project
1747 14th St.
Oakland, Ca. 94607

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WOEIP believes every aspect of the EIR needs to acknowledge the legacy of risk exposure in West Oakland brought about by inappropriate zoning in the past. In supporting the expansion of industrial and commercial activities in this already mixed use community, the WOSP EIR must reflect recommendations for health-protective neighborhood design elements including, alternative infrastructure technologies, "built" buffer zones, green recreation spaces and open spaces, as well as,

integrated public spaces in commercial and industrial developments to enhance the health of the disadvantaged and underserved traditional residents of this community.

The funding from the Federal government for the project comes from a transportation related source referred to as Transportation Investment Generating Economic Recovery (TIGER II) grants. Some local residents have been told in various public meetings a rail line will be included in the WOSP based on this transportation funding. Current "Scoping" announcements only mention a "possible street car" line transit system being built in the future in West Oakland. If this transit infrastructure is considered a fundamental element of the economic development potential held in the WOSP, the EIR most clearly address the potential benefits and impacts of such a project on business development, residential development, transit rider ship and the potential allocation of future transit dollars away from more traditional and familiar forms of local public transportation. Without such an analysis, we feel that the inclusion of the streetcar line constitutes an excuse for the use of "transportation" planning dollars for this exercise.

With this in mind the following list will give a set of specific requests and recommendations from WOEIP regarding what needs to be adequately addressed in an EIR for the WOSP.

1. A route analysis for any rail lines to be introduced into the project area as stimulus for new development. This analysis should include the potential benefit to the development of existing community resources such as the Mandela Corridor, the Third Street Corridor, the Peralta Street Corridor and in particular, the historic 16th Street Train Station. A permanent infrastructure system like this can not be casually added to this important plan with considering the benefits or harm it might bring to existing resources.

2. The TIGER II grant application declares a goal of the funding is to create planned linkages between the Oakland Army Base development and the West Oakland community in order the enhance the "sustainability" and quality of life for residents. Thus far these linkages appear to limited to extending AC Transit bus routes to the OAB Logistics Center. Given the amount of public funding being applied to the OAB project, and the water, sewer and power infrastructure links to West Oakland inherent in the OAB develop plan, the WOSP must identify resources to modernize the pubic works infrastructure of the neighborhoods east of I-880. Many of these systems are a century old and it is a social justice travesty to make such a massive investment in site preparation for private development while providing no notion of how similar benefit will be provided to the residents and businesses in the other half of the grant planning area. An adequate environmental appraisal and assessment needs to be fully scoped based on what these linkages are predicted to be in the future. There should be an accurate appraisal of both need and potential for power, water and sewer infrastructure, and alternative transportation modalities, including bikeways, greenways and pedestrian paths there may be in the future. The plan and the scope of the EIR should include revitalization of the 16th St. Train Station with transportation links to the OAB and the Broadway Corridor.

3. The draft documents mention a "Commercial Focused Alternative" without adequate definition and dismisses any potential environmental impact of such an alternative scenario. Draft language states that Oakland city staff view this, "as a non-CEQA alternative." What is a "non-CEQA alternative" and why is it defined so?

4. Significant "unmitigated" impacts need to be accurately and adequately scoped, as well as explained to the community members in easily understood terms.

5. The plan draft fails to define how it will, "while preserving existing established residential neighborhoods" also accomplish, "Lessening existing land-use conflicts and ensuring avoidance of future conflicts between residential neighborhoods and nonresidential uses." These statements need to be adequately defined and described in the alternative scenario plans. They must also be scoped for an adequate EIR analysis.

6. Because a "Key tenet of the Specific Plan is to retain, enhance and improve... Enhancement Areas" the EIR must fully scope ALL of the environmental impacts which will be associated with the proposed developments in any of the Enhancement Areas.

7. Last, but not least, on 5 May 2012 members of WOEIP presented a verbal presentation with an accompanying PowerPoint presentation about Public Health concerns regarding this WOSP. The Oakland City planning staff has not put the presentation onto the city website for the 5 May 2012 public meeting summary. Nor have the specific questions we addressed to staff at the time been acknowledged or answered.

Thank you for your time and consideration to address each of these issues in detail.

Sincerely,

Margaret Gordon, Co-Director
Brian Beveridge, Co-Director
West Oakland Environmental Indicators Project
1747 14th St.
Oakland, Ca. 94607
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DRAFT MEETING NOTES
Landmarks Preservation Advisory Board
NOP Scoping Session

November 5, 2012

Items Discussed:

1. Open Forum Speakers
    a. Naomi Schiff
        i. Concerned about campus characteristics.
        ii. More robust and usable plan alternatives needed such as:
            1. Historic Preservation Alternative
            2. Identify and preserve small-scale industrial buildings and large industrial plantations
        iii. Historic preservation should be an objective of the plan
        iv. More complete phasing discussion
    b. Duewayne De Witt
        i. EIR should look at the current culture of West Oakland including: urban agriculture, urban farming and urban forestry.
        ii. Need more robust linkages to Army Base, particularly transportation linkages.
        iii. 16th Street Station should be integral to WOSP along with a train (enhanced transit) linkage.
        iv. Schools and environmental concerns. Mr. DeWitt said that he would submit more substantive comments in writing. (these were scanned and emailed to JRDV)
    c. Genevieve Wilson
        i. Building at 7th & Chester should be preserved.
        ii. Other notable buildings include Pretty Lady, 16th Street Station
        iii. Need a better definition of what is a "campus"?
        iv. Need better understanding of the podium housing prototype; what does it look like, is it communal?
2. Board Member Comments
    a. Thomas Biggs
        i. Most of the housing stock is very old. Over the lifespan of the plan, the area will need to thrive so that residents will be financially able to maintain and improve buildings. Economic development is needed.
        ii. How will the plan address crime? Alcohol, drugs, prostitution are all issues in the area that need improvement.
        iii. Need better understanding of how a "campus" fits in the West Oakland fabric.
    b. Valerie Garry
        i. Need a careful analysis of historic resources
        ii. Character-defining elements are not discussed in the plan
        iii. Where is the discussion of
            1. What's there? What makes it important?

iv. Identify the "pockets", smaller areas, show them on a map.
v. Need guidelines that will address where large-scale development abuts residential areas.
vi. Include Mills Act opportunities to help existing homeowners. Identify other ways to help them.
vii. Include an analysis of adaptive re-use, what are the opportunities, especially for smaller buildings.
viii. Refer to the Estuary Plan chapter on Cultural and Historic Resources for good examples. It was a comparably-sized area.

c. John Goins
i. Include information on Areas of Secondary Importance (ASI's).
ii. Question to Betty Marvin: what is the percentage of Potential Designated Historic Properties (PDHP's). Answer: majority are in Oak Center, Prescott and South Prescott.
iii. Include specific discussion on ASI's and design guidelines
iv. How can the plan address previous unsuccessful modifications to buildings?
v. The 7th Street corridor and 16th Street Station deserve additional thought and special attention.
vi. Include a historic overlay to knit opportunity sites and enhancement areas together.

d. Mary MacDonald
i. Identified herself as the LPAB representative on the WOSP. She had attended a few meetings.
ii. Impressed by the enormous undertaking by staff and consultants.
iii. She wants to focus on comments made by the public tonight, and wants them all to be included in the EIR.
iv. Agrees with Naomi Schiff that plan must include a goal to preserve architectural and cultural resources.
v. Need to identify historic industrial buildings
vi. Incorporate a definition of campus. Pixar is shown in presentation, but is not a good example. Campuses should not be inaccessible and barricaded to public.
vii. Agrees with De Witt; urban farming, forestry, tree planting, greenery should be included.
viii. Need to improve connections and transportation linkages between West Oakland and downtown.
ix. Develop an~~d~~ appropriate use for the 16th Street Station.
x. Protect the property values of the single family dwellings. Ensure new housing is appropriate to design. Consider the proximity of larger buildings to smaller buildings.
xi. Question to consultant: Are there plans to remove existing housing stock? Answer: No.
xii. Plan emphasis on business development – not enough on residential.

e. Daniel Schulman
i. Need to see a historic resources overlay in relation to proposed development. Question: Is Oak Center in ASI?
ii. The Shorey House will soon become a city landmark. Include in the plan as well as street name designation.
iii. Identify transportation linkages to downtown and Army Base.
iv. The Transit Oriented Development should be more than a vertical bedroom community. It should be a place where people arrive and depart throughout the day and include mixed-uses, not all residential.
v. Would like more variation in building heights along Mandela.

vi. Campus definition: multiple buildings on one site with common ownership. Public rights of way must be incorporated into the campus.

f. Christopher Andrews
   i. Build on the historic resources of West Oakland. Understand the value of cultural resources (i.e. Temescal and ___) to economic development.
   ii. West Oakland is 4-5 square miles and 9 – 12 neighborhoods. The neighborhoods must be clearly identified and articulated~~.~~ in map.
   iii. The neighborhoods are dynamic; new ones include "Ghost-Town", and "Dirty 30's".
   iv. The neighborhood structure is part of the cultural heritage of arts, foods, tech, and agriculture.
   v. Transportation – West Oakland has always been an arrival point where new groups of people become established.
   vi. Map the following; neighborhoods, cultural and historic resources, and current cultural overlay. Show how they are supported by opportunity site development and people living in West Oakland.

g. Anna Naruta
   i. Where are the alternatives that will include what are is already there?
   ii. Include a map of the ASI and API areas.
   iii. Be specific about how to link downtown and West Oakland at the 980 overpasses.
   iv. What is a campus?
   v. Look at the Crucible as an example of how to engage the community through building design and operation i.e. offering classes available to the public.
   vi. Include Mills Act or similar programs.
   vii. Include Green Building and Green Rehab programs (see my notes. This is something that could be part of the Equity piece).
   viii. Concerned about proposed improvements impact on San Pablo ASI.
   ix. Include Historic Preservation alternatives.
   x. Include archeologically sensitive sites identified on Mandela Parkway.

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DRAFT MEETING NOTES
WOSP Consultant Team + City Wrap Up

May 25, 2012

Attendees:
Jeff Chew, Elois Thornton, Betty Marvin, Art Clark, Savlan Hauser, Surlene Grant

TO-DO Items Discussed:

1) Amend Phase 3 Deliverable (Draft Specific Plan)
   a. Opportunity sites 1-37 should be labeled by "nickname" on maps
   b. Ensure all items on Elois "Radar" list are included as chapters or sub-sections of Phase 3, including:
      - Crime Deterrents
      - Port Coordination
      - Public Art
      - Etc.

2) TOD Concerns
      - Reduce density restrictions on individual parcels
      - Alternate Massing towards 7th street
      - Commercial Alternative at Alliance Site

3) Create "Illustrated Dictionary" Addendum
   a. All planning terms should be defined ("catalyst project", "TOD", "mid-rise", "EIR", etc.)
   b. All building types need real photo references to accompany massing images from 3d model. Reference photos needed:
      - Commercial (office) on top of Garage
      - Residential on top of Garage
      - Street Closure/Pedestrianization of Street
      - Mid-rise condos

4) Phase 2- Considered delivered but needs edits
   a. In the future, all edits will be consolidated before sending to JRDV team.
   b. Phase 2 should be far more succinct, a synthesis of report "silos" with less narrative and paraphrasing of each sub consultant's work.
   c. Put City's disclaimer on all material produced.

WOSP LPAB Scoping mtg. notes 11.5.12

Naomi Schiff:

- Generally concerned re campus (large). Should be knit into community. What are the positive and negative characteristics.
- Address alternatives.
- Historic preservation overlay alternative..
- Retain & reuse small and large industrial buildings.
- Change residential.
- Preservation/reuse policy leads to a coherent whole.

Duane:

- Urban agriculture/farming part of cultural makeup.
- Urban forestry as well.
- No linkage with Army Base in this plan-transportation based plan.
- 16th Street Station needs to be part of this, especially routing of rail line (street car?)

Genevieve Wilson:

- Upper Cuts, Pretty Lady, are valuable local businesses, 16th Street Station (historic preservation?). Keep housing affordable.

Goins:

- No ASI's in packet (map?)
- Preserve character defining elements
- Focus on Central Station and 7th Street
- Likes historical overlay, historic resources as assets to build on.

Biggs:

- By 2035 hope WO thrives by then
- Improved economy will support re-use of historic buildings
- WO has crime problem.
- Campus should have built-in security-solution?
  Elois: Using CPTED principles in site and building design will help with crime reduction.
- Liquor stores and parking lots attract crime.

Vice Chair Garry:

- Careful analysis of historical resources.
- What are the character defining features of the neighborhoods. Define what is unique and important. Provide guidelines (go to Estuary report)
- Fear small neighborhoods will get lost. Describe them
- Describe Mills Act opportunities for restoration and preservation
- Adaptive re-use.

Mary MacDonald:

- Impressed by enormous undertaking.

- Plan needs a goal of preserving architectural and historic resources and historic industrial buildings.
- The 16th Street Station needs to be re-used in appropriate way.
- Campus needs to be defined in a way that does not mean in accessible to public or barricaded.
- Residential character needs to be maintained, not the "next Emeryville."
- Urban farming and forestry should be included.
- Plan for tree plantings.
- Link to Army Base.

Dan Schulman:

- Likes variation in building heights
- Campus should include public rights of way.
- Should include POWs.
- Shoey Street name should go with new landmark.
- Wants historic overlay with design guidelines.

Andrews:

- Have attended TAC meetings.
- Build more on historic resources is critical.
- WO is not a neighborhood, but is 9-12 neighborhoods. Articulate and define with a map.
- Ghost Town and Dirty Thirties are new neighborhoods.
- Missing incredible opportunity.
- Missing tech, food, agricultural, transportation, current cultural activities that support vitality of WO.

Naruta:

- Emphasize historic preservation and adaptive re-use.
- Map of ASIs and neighborhoods.
- Connectivity with downtown, heal the scar of freeways.
- Don't encapsulate campus; the Crucible is not sealed off. There classes are offered to the public.
- Mills Act credit or similar programs.
- Green building rehab training for jobs.
- Alternatives to include small scale industrial and residential buildings. Look at Mandela Park and Ride plans, Market Street & 7th Street (couldn't hear clearly here)

Appendix 4.4 URBEMIS Model Outputs and BAAQMD BGM Model Results

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Users\bruce\AppData\Roaming\Urbemis\Version9a\Projects\West Oakland SP Existing.urb924

Project Name: West Oakland SP Existing

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	13.00	1.56	7.49	0.02	0.90	0.87	1,913.16

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	73.73	100.87	861.05	0.97	177.61	33.99	97,095.17

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	86.73	102.43	868.54	0.99	178.51	34.86	99,008.33

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.11	1.45	1.06	0.00	0.00	0.00	1,769.22
Hearth	1.57	0.10	5.73	0.02	0.90	0.87	142.68
Landscape	0.06	0.01	0.70	0.00	0.00	0.00	1.26
Consumer Products	2.41						
Architectural Coatings	8.85						
TOTALS (tons/year, unmitigated)	13.00	1.56	7.49	0.02	0.90	0.87	1,913.16

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments mid rise	0.54	0.70	6.10	0.01	1.24	0.24	679.90
Condo/townhouse general	1.54	2.06	17.92	0.02	3.64	0.70	1,998.18
Strip mall	16.67	25.28	210.45	0.24	44.33	8.47	24,080.21
General light industry	53.01	71.01	610.70	0.68	125.16	23.96	68,559.40
General heavy industry	1.97	1.82	15.88	0.02	3.24	0.62	1,777.48
TOTALS (tons/year, unmitigated)	73.73	100.87	861.05	0.97	177.61	33.99	97,095.17

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Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2014 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments mid rise	2.11	5.77	dwelling units	80.00	461.60	3,946.54
Condo/townhouse general	13.89	7.14	dwelling units	190.00	1,356.60	11,598.52
Strip mall		42.94	1000 sq ft	445.00	19,108.30	141,267.66
General light industry		6.97	1000 sq ft	6,790.00	47,326.30	398,724.06
General heavy industry		1.50	1000 sq ft	740.00	1,110.00	10,306.35
					69,362.80	565,843.13

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.4	0.4	99.4	0.2
Light Truck < 3750 lbs	12.3	0.8	97.6	1.6
Light Truck 3751-5750 lbs	19.8	0.5	99.5	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	15.4	84.6
Heavy-Heavy Truck 33,001-60,000 lbs	0.7	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	51.7	48.3	0.0
School Bus	0.0	0.0	0.0	0.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Strip mall				2.0	1.0	97.0
General light industry				50.0	25.0	25.0
General heavy industry				90.0	5.0	5.0

Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name:

Project Name: West Oakland SP Buildout

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	98.40	11.53	119.65	0.33	17.97	17.29	14,805.20

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	64.80	58.76	682.02	1.97	366.11	69.26	199,240.84

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	163.20	70.29	801.67	2.30	384.08	86.55	214,046.04

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.72	9.50	4.93	0.00	0.02	0.02	11,970.97
Hearth	31.09	2.02	113.75	0.33	17.95	17.27	2,832.46
Landscape	0.08	0.01	0.97	0.00	0.00	0.00	1.77
Consumer Products	47.86						
Architectural Coatings	18.65						
TOTALS (tons/year, unmitigated)	98.40	11.53	119.65	0.33	17.97	17.29	14,805.20

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments mid rise	6.20	5.24	61.72	0.18	32.71	6.19	17,871.33
Apartments high rise	5.88	4.92	58.00	0.17	30.74	5.82	16,792.58
Condo/townhouse general	1.47	1.30	15.33	0.04	8.12	1.54	4,437.79
Strip mall	14.71	14.57	165.21	0.48	90.36	17.07	48,866.42
Supermarket	1.90	1.91	21.61	0.06	11.82	2.23	6,392.90
General office building	1.14	1.06	12.25	0.04	6.59	1.25	3,583.62
General light industry	33.50	29.76	347.90	1.00	185.77	35.16	101,296.20

TOTALS (tons/year, unmitigated)	64.80	58.76	682.02	1.97	366.11	69.26	199,240.84

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments mid rise	26.35	4.97	dwelling units	2,460.00	12,226.20	104,530.34
Apartments high rise	16.15	4.67	dwelling units	2,460.00	11,488.20	98,220.67
Condo/townhouse general	27.50	6.90	dwelling units	440.00	3,036.00	25,956.89
Strip mall		42.94	1000 sq ft	910.00	39,075.40	288,884.42
Supermarket		102.24	1000 sq ft	50.00	5,112.00	37,793.01
General office building		11.01	1000 sq ft	236.00	2,598.36	21,053.21
General light industry		6.97	1000 sq ft	10,109.00	70,459.73	593,623.20
					143,995.89	1,170,061.74

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.7	0.0	100.0	0.0
Light Truck < 3750 lbs	12.1	0.0	100.0	0.0
Light Truck 3751-5750 lbs	19.8	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	23.1	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	34.5	65.5	0.0
School Bus	0.0	0.0	0.0	0.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Strip mall				2.0	1.0	97.0
Supermarket				2.0	1.0	97.0

General office building	35.0	17.5	47.5
General light industry	50.0	25.0	25.0

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Users\bruce\AppData\Roaming\Urbemis\Version9a\Projects\West Oakland SP Existing.urb924

Project Name: West Oakland SP Existing

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	62.90	8.05	13.56	0.00	0.04	0.04	9,708.38

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	403.55	478.27	4,650.39	5.52	973.17	186.19	556,996.29

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	466.45	486.32	4,663.95	5.52	973.21	186.23	566,704.67

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.59	7.95	5.83	0.00	0.01	0.01	9,694.34
Hearth - No Summer Emissions							
Landscape	0.61	0.10	7.73	0.00	0.03	0.03	14.04
Consumer Products	13.21						
Architectural Coatings	48.49						
TOTALS (lbs/day, unmitigated)	62.90	8.05	13.56	0.00	0.04	0.04	9,708.38

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments mid rise	3.03	3.33	32.97	0.04	6.79	1.30	3,899.65
Condo/townhouse general	8.50	9.79	96.90	0.11	19.95	3.82	11,460.70
Strip mall	85.70	119.98	1,126.55	1.37	242.89	46.42	138,179.81
General light industry	293.74	336.53	3,307.50	3.90	685.81	131.26	393,261.74
General heavy industry	12.58	8.64	86.47	0.10	17.73	3.39	10,194.39
TOTALS (lbs/day, unmitigated)	403.55	478.27	4,650.39	5.52	973.17	186.19	556,996.29

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Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2014 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments mid rise	2.11	5.77	dwelling units	80.00	461.60	3,946.54
Condo/townhouse general	13.89	7.14	dwelling units	190.00	1,356.60	11,598.52
Strip mall		42.94	1000 sq ft	445.00	19,108.30	141,267.66
General light industry		6.97	1000 sq ft	6,790.00	47,326.30	398,724.06
General heavy industry		1.50	1000 sq ft	740.00	1,110.00	10,306.35
					69,362.80	565,843.13

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.4	0.4	99.4	0.2
Light Truck < 3750 lbs	12.3	0.8	97.6	1.6
Light Truck 3751-5750 lbs	19.8	0.5	99.5	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	15.4	84.6
Heavy-Heavy Truck 33,001-60,000 lbs	0.7	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	51.7	48.3	0.0
School Bus	0.0	0.0	0.0	0.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Strip mall				2.0	1.0	97.0
General light industry				50.0	25.0	25.0
General heavy industry				90.0	5.0	5.0

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name:

Project Name: West Oakland SP Buildout

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	369.22	52.22	37.81	0.00	0.14	0.14	65,614.04

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	353.74	277.46	3,705.50	11.34	2,006.11	379.54	1,144,779.77

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	722.96	329.68	3,743.31	11.34	2,006.25	379.68	1,210,393.81

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	3.97	52.08	26.99	0.00	0.10	0.10	65,594.38
Hearth - No Summer Emissions							
Landscape	0.86	0.14	10.82	0.00	0.04	0.04	19.66
Consumer Products	262.23						
Architectural Coatings	102.16						
TOTALS (lbs/day, unmitigated)	369.22	52.22	37.81	0.00	0.14	0.14	65,614.04

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments mid rise	34.86	24.72	335.73	1.02	179.26	33.94	102,664.38
Apartments high rise	33.24	23.23	315.46	0.96	168.43	31.89	96,467.34
Condo/townhouse general	8.09	6.14	83.37	0.25	44.51	8.43	25,493.54
Strip mall	76.49	68.87	892.53	2.78	495.14	93.56	280,858.84
Supermarket	9.78	9.01	116.76	0.36	64.78	12.24	36,743.08
General office building	6.15	4.99	66.59	0.20	36.10	6.83	20,590.79
General light industry	185.13	140.50	1,895.06	5.77	1,017.89	192.65	581,961.80

TOTALS (lbs/day, unmitigated)	353.74	277.46	3,705.50	11.34	2,006.11	379.54	1,144,779.77

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2035 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments mid rise	26.35	4.97	dwelling units	2,460.00	12,226.20	104,530.34
Apartments high rise	16.15	4.67	dwelling units	2,460.00	11,488.20	98,220.67
Condo/townhouse general	27.50	6.90	dwelling units	440.00	3,036.00	25,956.89
Strip mall		42.94	1000 sq ft	910.00	39,075.40	288,884.42
Supermarket		102.24	1000 sq ft	50.00	5,112.00	37,793.01
General office building		11.01	1000 sq ft	236.00	2,598.36	21,053.21
General light industry		6.97	1000 sq ft	10,109.00	70,459.73	593,623.20
					143,995.89	1,170,061.74

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.7	0.0	100.0	0.0
Light Truck < 3750 lbs	12.1	0.0	100.0	0.0
Light Truck 3751-5750 lbs	19.8	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	23.1	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	34.5	65.5	0.0
School Bus	0.0	0.0	0.0	0.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Strip mall				2.0	1.0	97.0
Supermarket				2.0	1.0	97.0

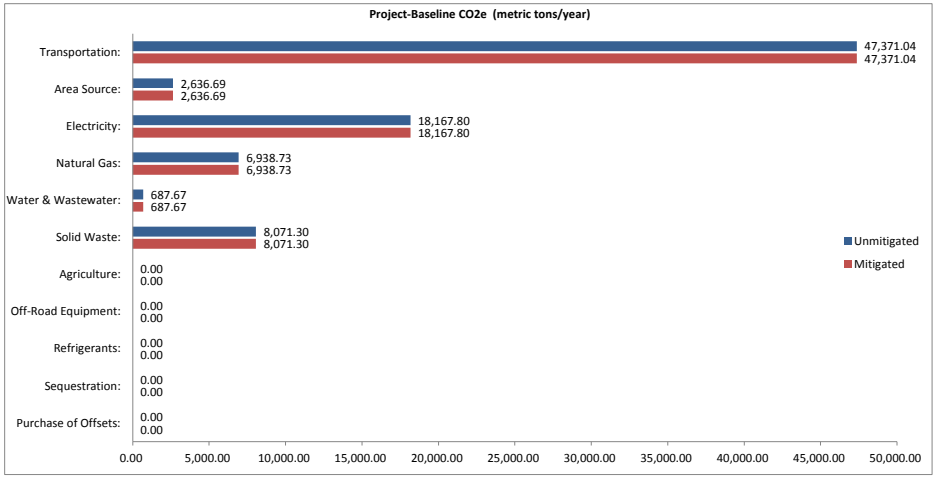
General office building	35.0	17.5	47.5
General light industry	50.0	25.0	25.0

Summary Results

Project Name: West Oakland SP Buildout
Project and Baseline Years: 2035 2014

Results	Unmitigated Project-Baseline CO2e (metric tons/year)	Mitigated Project-Baseline CO2e (metric tons/year)
Transportation:	47,371.04	47,371.04
Area Source:	2,636.69	2,636.69
Electricity:	18,167.80	18,167.80
Natural Gas:	6,938.73	6,938.73
Water & Wastewater:	687.67	687.67
Solid Waste:	8,071.30	8,071.30
Agriculture:	0.00	0.00
Off-Road Equipment:	0.00	0.00
Refrigerants:	0.00	0.00
Sequestration:	N/A	0.00
Purchase of Offsets:	N/A	0.00
Total:	83,873.23	83,873.23

Baseline is currently: **ON**
Baseline Project Name: West Oakland SP Existing
Go to Settings Tab to Turn Off Baseline



Detailed Results

Unmitigated	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation*:				133,730.46	65.78%
Area Source:	2,571.90	9.26	0.04	2,778.87	1.37%
Electricity:	41,918.96	0.35	0.19	41,986.05	20.65%
Natural Gas:	9,373.13	0.88	0.02	9,397.15	4.62%
Water & Wastewater:	993.06	0.01	0.00	994.65	0.49%
Solid Waste:	100.27	681.39	N/A	14,409.44	7.09%
Agriculture:	0.00	0.00	0.00	0.00	0.00%
Off-Road Equipment:	0.00	0.00	0.00	0.00	0.00%
Refrigerants:	N/A	N/A	N/A	0.00	0.00%
Sequestration:	N/A	N/A	N/A	N/A	N/A
Purchase of Offsets:	N/A	N/A	N/A	N/A	N/A
Total:				203,296.63	100.00%

Baseline	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation*:				86,359.43	72.31%
Area Source:	131.67	0.47	0.00	142.19	0.12%
Electricity:	23,780.19	0.20	0.11	23,818.25	19.94%
Natural Gas:	2,452.14	0.23	0.00	2,458.42	2.06%
Water & Wastewater:	306.49	0.00	0.00	306.98	0.26%
Solid Waste:	46.26	299.61	N/A	6,338.14	5.31%
Agriculture:	0.00	0.00	0.00	0.00	0.00%
Off-Road Equipment:	0.00	0.00	0.00	0.00	0.00%
Refrigerants:	N/A	N/A	N/A	0.00	0.00%
Sequestration:	N/A	N/A	N/A	N/A	N/A
Purchase of Offsets:	N/A	N/A	N/A	N/A	N/A
Total:				119,423.40	100.00%

* Several adjustments were made to transportation emissions after they have been imported from URBEMIS.
After importing from URBEMIS, CO2 emissions are converted to metric tons and then adjusted to account for the "Pavley"
regulation. Then, CO2 is converted to CO2e by multiplying by 100/95 to account for the contribution of other GHGs (CH4, N2O, and HFCs [from leaking air conditioners]).
Finally, CO2e is adjusted to account for th low carbon fuels rule.

Mitigated	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation*:				133,730.46	65.78%
Area Source:	2,571.90	9.26	0.00	2,778.87	1.37%
Electricity:	41,918.96	0.35	0.19	41,986.05	20.65%
Natural Gas:	9,373.13	0.88	0.02	9,397.15	4.62%
Water & Wastewater:	993.06	0.01	0.00	994.65	0.49%
Solid Waste:	100.27	681.39	N/A	14,409.44	7.09%
Agriculture:	0.00	0.00	0.00	0.00	0.00%
Off-Road Equipment:	0.00	0.00	0.00	0.00	0.00%
Refrigerants:	N/A	N/A	N/A	0.00	0.00%
Sequestration:	N/A	N/A	N/A	0.00	0.00%
Purchase of Offsets:	N/A	N/A	N/A	0.00	0.00%
Total:				203,296.63	100.00%

Mitigation Measures Selected:

Transportation: Go to the following tab: Transp. Detail Mit for a list of the transportation mitigation measures selected (in URBEMIS)

Electricity: The following mitigation measure(s) have been selected to reduce electricity emissions.

Stationary Health Risk Sources within the West Oakland Specific Plan Area

Source: BAAQMD's Stationary Source Risk & Hazard Analysis Tool, Google Earth, Alameda County May 2012 data set

Southwestern Portion of the Plan Area
Between Mandela Parkway, W Grand, 880

a_May_2012_schema:FID	Alameda_May_2012_schema:PlantNo	Alameda_May_2012_schema:Name	Alameda_May_2012_schema:Address	Alameda_May_2012_schema:City	Alameda_May_2012_schema:UTM_East	Alameda_May_2012_schema:UTM_North	Alameda_May_2012_schema:Cancer	Alameda_May_2012_schema:Hazard	Alameda_May_2012_schema:PM25	Alameda_May_2012_schema:Type	Alameda_May_2012_schema:Source
472	20061	Englund Studio	1850 CAMPBELL STREET	Oakland	562200	4185500	No data	No data	No data		
415	G7578	Horizon Beverage Company	1700 20th Street	Oakland	562163	4185748	na	na	na		
462	15739	California Waste Solutions-10St Street	1820 10TH STREET	Oakland	561444	4185109	0	0	10.3		
446	11894	Nautical Engineering Inc	1790 11TH STREET	Oakland	561669	4184973	0	0	0		
68	18297	Verizon Wireless (Bay Bridge East)	107 BURMA ROAD	Oakland	561584	4184588	0.68	0.0003	0.000707	Generator	HRA
412	5202	US Postal Service - Vehicle Maintenance	1675 7TH STREET	Oakland	561681	4184389	32.11	0.011	0.007		
229	G9398	Trucker's Friends, Inc	1395 7th Street	Oakland	562169	4184456	1.631	0.002	na		
429	12943	California Finest Body & Frame	1720 CENTER STREET	Oakland	562291	4185088	0	0	0		
305	14302	City of Oakland Envr Scvs Division	14TH & MANDELA WAY	Oakland	562260	4185100	30.9	0.011	0.007	Generator	
279	G9994	OFD Fire Station #3	1445 14th Street	Oakland	562266	4185111	na	na	na		

Key:
Yellow highlight indicates sources with at least one over-threshold emission level.
Blue shading indicates sources with all or some missing emissions data.

Map of all listed stationary sources in area showing 1000' radius around sources showing above-threshold emissions.

Note: Yellow line included as 1000 foot scale.

Stationary Health Risk Sources within the West Oakland Specific Plan Area

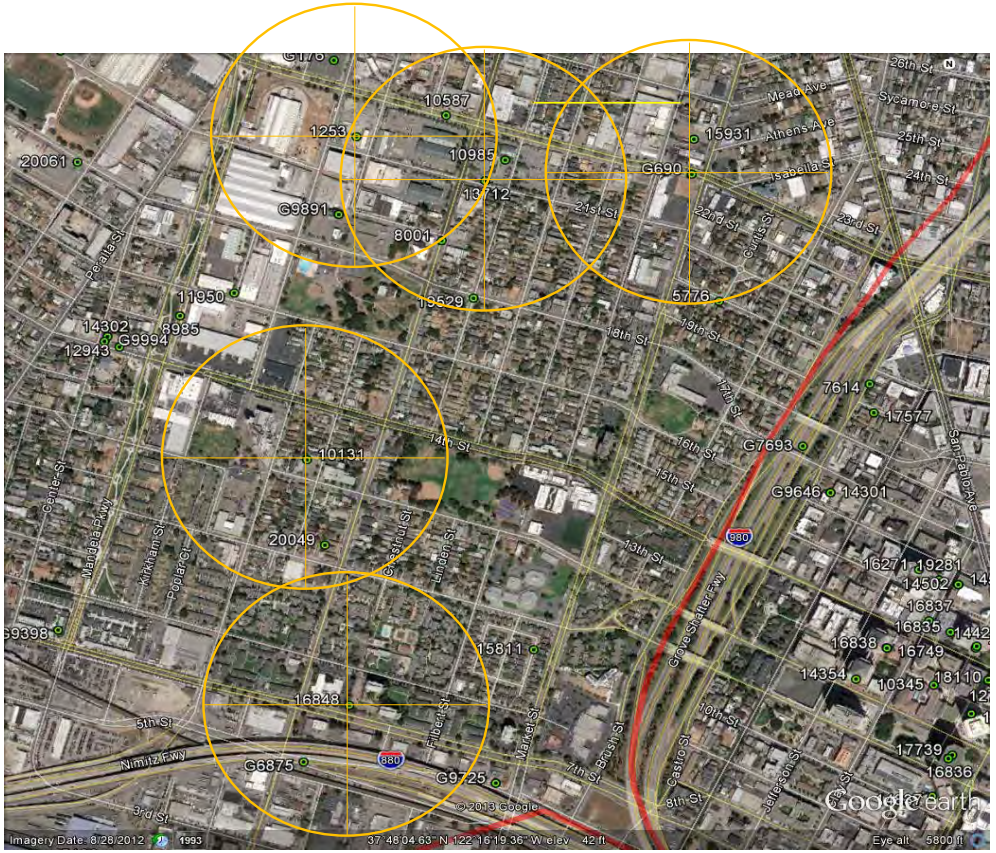
Source: BAAQMD's Stationary Source Risk & Hazard Analysis Tool, Google Earth, Alameda County May 2012 data set

Southeastern Portion of the Plan Area
Between Mandela Parkway, 880, 980, W Grand

a_May_2012_schema:FID	Alameda_May_2012_schema:PlantNo	Alameda_May_2012_schema:Name	Alameda_May_2012_schema:Address	Alameda_May_2012_schema:City	Alameda_May_2012_schema:UTM_East	Alameda_May_2012_schema:UTM_North	Alameda_May_2012_schema:Cancer	Alameda_May_2012_schema:Hazard	Alameda_May_2012_schema:PM25	Alameda_May_2012_schema:Type	Alameda_May_2012_schema:Source
166	10587	Harry Clewans	1231 24TH STREET	Oakland	562961	4185610	0	0	0		
2116	G690	ARCO Facility #02169 - KULWINDER KAUR	889 W Grand Avenue	Oakland	563469	4185482	36.457	0.054	na		
739	1253	Central Concrete Supply, A U S Concrete	2400 PERALTA STREET	Oakland	562776	4185561	0	0	37.1		
714	10985	Custom Wood Finishing	2311 ADELINE STREET	Oakland	563084	4185511	0	0	0		
86	13712	East Bay Municipal Utility Dist	1100 21ST STREET	Oakland	563043	4185465	48.27	0.017	0.092		
623	G9891	East Bay Municipal Utility Dist	2144 Poplar Avenue	Oakland	562741	4185387	na	na	na		
137	8001	East Bay Municipal Utility Dist	1200 21ST STREET	Oakland	562954.1	4185330	5.61	0.002	0.001		
617	5776	Harold's Auto Body & Paint Shop	2126 MARKET STREET	Oakland	563527.3	4185199	0	0.001	0		
523	19529	Carlos Body Shop	1960 ADELINE STREET	Oakland	563020.9	4185202	0	0	0		
253	11950	Norman's Body and Repair Shop	1415 18TH STREET	Oakland	562526.9	4185210	0	0	0		
276	8985	Automekanika Body Shop	1440 17TH STREET	Oakland	562415.5	4185158	0	0	0		
181	10131	California Cereal Products, Inc	1267 14TH STREET	Oakland	562680.1	4184840	0.07	0.001	1.34		
156	20049	New H & L Auto Body,Inc	1221 12TH AVENUE	Oakland	562719	4184650	0	0	0		
2130	15811	Clean Studio	900 MARKET ST, UNIT G	Oakland	563151	4184421	0	0	0		
71	16848	SPRINT	1075 7TH STREET	Oakland	562772	4184294	71.97	0.025	0.127	Generator	
1796	G9725	Market Street Shell #135692	610 Market Street	Oakland	563075	4184123	7.742	0.009	na		

Key:
Yellow highlight indicates sources with at least one over-threshold emission level.
Blue shading indicates sources with all or some missing emissions data.

Map of all listed stationary sources in area showing 1000' radius around sources showing above-threshold emissions.



Note: Yellow line included as 1000 foot scale.

Stationary Health Risk Sources within the West Oakland Specific Plan Area

Source: BAAQMD's Stationary Source Risk & Hazard Analysis Tool, Google Earth, Alameda County May 2012 data set

Northwestern Portion of the Plan Area
Between 880, 580, Peralta, W Grand

a_May_2012_schema:FID	Alameda_May_2012_schema:PlantNo	Alameda_May_2012_schema:Name	Alameda_May_2012_schema:Address	Alameda_May_2012_schema:City	Alameda_May_2012_schema:UTM_East	Alameda_May_2012_schema:UTM_North	Alameda_May_2012_schema:Cancer	Alameda_May_2012_schema:Hazard	Alameda_May_2012_schema:PM25	Alameda_May_2012_schema:Type	Alameda_May_2012_schema:Source
1137	17114	Alameda County Public Works Agency	3455 ETTIE STREET	Oakland	562556	4186752	36.47	0.013	0.008	Generator	
1088	15740	California Waste Solutions - Wood Street	3300 WOOD STREET	Oakland	562432	4186514	0	0	0.149		
1067	18268	Sierra Pacific	3213 WOOD STREET	Oakland	562450	4186481	0	0	21.3		
911	G11913	Clear Channel Outdoor	2857 Hannah Street	Oakland	562747.5	4186411	na	na	na		
914	18373	Ps Print LLC	2861 MANDELA PKWY	Oakland	562544	4186387	0	0	0		
932	12239	Carusso's Restoration	2914 POPLAR STREET	Oakland	562892	4186315	0	0.004	0		
915	17439	Clear Channel Outdoor	2865 HANNAH STREET	Oakland	562786	4186291	0	0	0		
806	17822	Berkeley Repertory Theatre	2526 WOOD STREET	Oakland	562326	4186215	0	0	0		

Key:
Yellow highlight indicates sources with at least one over-threshold emission level.
Blue shading indicates sources with all or some missing emissions data.

Map of all listed stationary sources in area showing 1000' radius around sources showing above-threshold emissions.

Note: Yellow line included as 1000 foot scale.

Stationary Health Risk Sources within the West Oakland Specific Plan Area

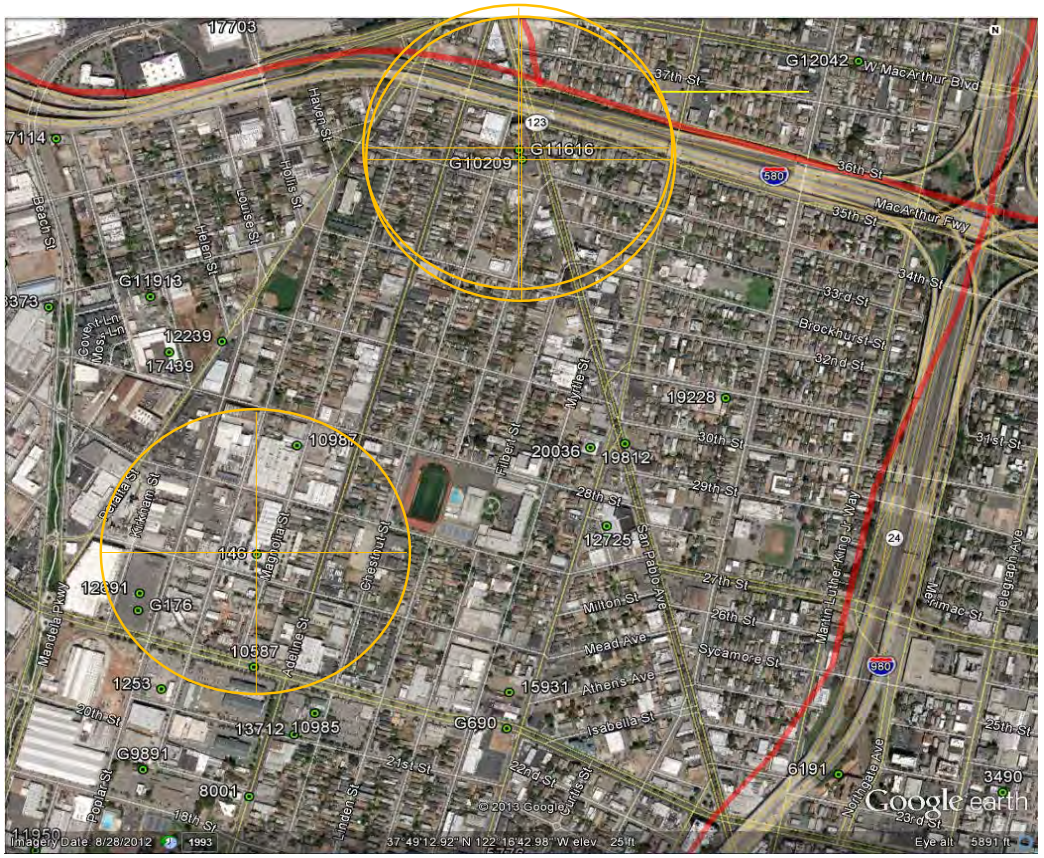
Source: BAAQMD's Stationary Source Risk & Hazard Analysis Tool, Google Earth, Alameda County May 2012 data set

Northeastern Portion of the Plan Area
Between 580, 980, Peralta, W Grand

a_May_2012_schema:FID	Alameda_May_2012_schema:PlantNo	Alameda_May_2012_schema:Name	Alameda_May_2012_schema:Address	Alameda_May_2012_schema:City	Alameda_May_2012_schema:UTM_East	Alameda_May_2012_schema:UTM_North	Alameda_May_2012_schema:Cancer	Alameda_May_2012_schema:Hazard	Alameda_May_2012_schema:PM25	Alameda_May_2012_schema:Type	Alameda_May_2012_schema:Source
1121	G11616	Portola Valley Shell	3420 San Pablo Ave	Oakland	563484	4186732	10.857	0.016	na		
1116	G10209	ARCO Facility #09535 - KRISHAN K GOYAL	3400 San Pablo Ave	Oakland	563490	4186712	29.743	0.044	na		
2077	19228	Engineering/Remediation Resources Group,	825 31ST STREET	Oakland	563900	4186200	No data	No data	No data		
945	19812	Engineering/Remediation Res Group, Inc	2942ND, 2926 &30TH STREET	Oakland	563700	4186100	No data	No data	No data		
933	20036	Hustead's Collision Center Inc	2915 MARKET STREET	Oakland	563631	4186091	No data	No data	No data		
929	10987	Bolero Co	2905 UNION STREET	Oakland	563043.9	4186091	0	0.001	0		
935	12725	San Pablo Auto Body	2926 SAN PABLO AVE	Oakland	563665	4185922	0	0	0		
867	146	CASS, Inc	2730 PERALTA STREET	Oakland	562965	4185855	1030	0.568	0.726		
703	12691	Berkeley Millwork & Furniture Co	2279 POPLAR STREET	Oakland	562731	4185768	0	0.001	0.003		
682	G176	J & O Tire Center	2236 Poplar Street	Oakland	562728	4185731	4.062	0.006	na		
709	15931	Redline Import - Auto Collision	2300 MARKET STREET, #C	Oakland	563473	4185560	0	0	0		

Key:
Yellow highlight indicates sources with at least one over-threshold emission level.
Blue shading indicates sources with all or some missing emissions data.

Map of all listed stationary sources in area showing 1000' radius around sources showing above-threshold emissions.



Note: Yellow line included as 1000 foot scale.

Stationary Health Risk Sources within the West Oakland Specific Plan Area

Source: BAAQMD's Highway Screening Analysis Tool, Google Earth, Alameda County 6ft and 20ft April 2012 data sets

880 (E to W)

Link 908 (6ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft S	0.694	116.372	0.101	0.046
25 ft S	0.526	88.593	0.077	0.038
50 ft S	0.376	63.672	0.055	0.03
75 ft S	0.29	49.303	0.042	0.024
100 ft S	0.233	39.813	0.034	0.021
200 ft S	0.121	21.025	0.018	0.014
300 ft S	0.073	12.886	0.011	0.01
400 ft S	0.049	8.711	0.007	0.009
500 ft S	0.035	6.346	0.005	0.008
750 ft S	0.019	3.439	0.002	0.006
1000 ft S	0.012	2.242	0.001	0.005
10 ft N	1.288	212.97	0.186	0.049
25 ft N	1.028	170.241	0.149	0.038
50 ft N	0.767	127.316	0.111	0.026
75 ft N	0.607	101.018	0.088	0.022
100 ft N	0.498	83.066	0.072	0.02
200 ft N	0.275	46.146	0.04	0.015
300 ft N	0.176	29.775	0.025	0.01
400 ft N	0.123	20.883	0.018	0.009
500 ft N	0.091	15.632	0.013	0.007
750 ft N	0.052	8.958	0.007	0.006
1000 ft N	0.033	5.82	0.005	0.004

Link 908 (20ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft S	0.391	65.571	0.057	0.034
25 ft S	0.344	57.739	0.05	0.029
50 ft S	0.278	46.961	0.04	0.025
75 ft S	0.229	38.807	0.033	0.021
100 ft S	0.192	32.619	0.028	0.018
200 ft S	0.107	18.543	0.015	0.013
300 ft S	0.066	11.734	0.01	0.009
400 ft S	0.045	8.079	0.006	0.008
500 ft S	0.033	5.957	0.005	0.007
750 ft S	0.018	3.288	0.002	0.006
1000 ft S	0.011	2.166	0.001	0.005
10 ft N	0.633	104.792	0.091	0.036
25 ft N	0.607	100.346	0.088	0.031
50 ft N	0.537	88.904	0.077	0.021
75 ft N	0.466	77.234	0.067	0.017
100 ft N	0.404	67.086	0.058	0.016
200 ft N	0.245	40.984	0.035	0.013
300 ft N	0.163	27.413	0.023	0.009
400 ft N	0.115	19.605	0.017	0.008
500 ft N	0.087	14.852	0.012	0.007
750 ft N	0.05	8.652	0.007	0.005
1000 ft N	0.032	5.672	0.004	

Link 905 (6ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft N	0.921	157.179	0.136	0.06
25 ft N	0.757	129.643	0.112	0.049
50 ft N	0.589	101.355	0.087	0.036
75 ft N	0.484	83.605	0.072	0.028
100 ft N	0.412	71.383	0.061	0.024
200 ft N	0.261	45.662	0.039	0.018
300 ft N	0.189	33.312	0.028	0.013
400 ft N	0.148	26.157	0.022	0.01
500 ft N	0.121	21.529	0.018	0.009
750 ft N	0.08	14.263	0.012	0.007
1000 ft N	0.057	10.266	0.008	0.005
10 ft S	1.111	179.831	0.159	0.062
25 ft S	0.908	147.326	0.13	0.049
50 ft S	0.704	114.567	0.101	0.039
75 ft S	0.58	94.507	0.083	0.033
100 ft S	0.494	80.696	0.071	0.027
200 ft S	0.311	51.12	0.044	0.015
300 ft S	0.224	36.955	0.032	0.012
400 ft S	0.172	28.586	0.025	0.009
500 ft S	0.139	23.05	0.02	0.008
750 ft S	0.087	14.668	0.012	0.007
1000 ft S	0.06	10.119	0.008	0.005

Link 905 (20ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft N	0.469	79.412	0.069	0.05
25 ft N	0.457	77.715	0.067	0.043
50 ft N	0.418	71.525	0.061	0.033
75 ft N	0.375	64.526	0.055	0.026
100 ft N	0.337	58.178	0.05	0.022
200 ft N	0.234	40.877	0.035	0.017
300 ft N	0.176	30.887	0.026	0.013
400 ft N	0.14	24.693	0.021	0.01
500 ft N	0.116	20.541	0.017	0.008
750 ft N	0.077	13.814	0.011	0.006
1000 ft N	0.056	10.02	0.008	0.005
10 ft S	0.573	92.844	0.082	0.052
25 ft S	0.561	90.888	0.08	0.042
50 ft S	0.513	83.177	0.073	0.035
75 ft S	0.459	74.685	0.065	0.03
100 ft S	0.412	67.072	0.059	0.025
200 ft S	0.283	46.324	0.04	0.013
300 ft S	0.21	34.55	0.03	0.011
400 ft S	0.164	27.152	0.023	0.008
500 ft S	0.133	22.096	0.019	0.007
750 ft S	0.085	14.234	0.012	0.006
1000 ft S	0.058	9.884	0.008	0.005

Link 764 (6ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft N	1.258	207.553	0.182	0.055
25 ft N	1.034	170.975	0.15	0.046
50 ft N	0.81	134.28	0.117	0.038
75 ft N	0.673	111.752	0.098	0.033
100 ft N	0.579	96.278	0.084	0.028
200 ft N	0.381	63.69	0.055	0.018
300 ft N	0.288	48.356	0.042	0.013
400 ft N	0.234	39.32	0.034	0.011
500 ft N	0.198	33.302	0.029	0.009
750 ft N	0.143	24.098	0.021	0.006
1000 ft N	0.111	18.782	0.016	0.006

Link 764 (20ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft N	0.687	113.497	0.099	0.046
25 ft N	0.665	109.913	0.096	0.038
50 ft N	0.607	100.362	0.088	0.033
75 ft N	0.546	90.469	0.079	0.029
100 ft N	0.493	81.75	0.071	0.026
200 ft N	0.351	58.597	0.051	0.017
300 ft N	0.274	45.76	0.04	0.013
400 ft N	0.225	37.735	0.033	0.011
500 ft N	0.192	32.22	0.028	0.009
750 ft N	0.14	23.563	0.02	0.006
1000 ft N	0.109	18.46	0.016	0.005

Link 768 (6ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft S	0.73	118.627	0.104	0.041
25 ft S	0.615	99.984	0.088	0.032
50 ft S	0.49	79.81	0.07	0.023
75 ft S	0.41	66.873	0.059	0.019
100 ft S	0.354	57.812	0.051	0.017
200 ft S	0.236	38.583	0.034	0.011
300 ft S	0.179	29.346	0.025	0.008
400 ft S	0.145	23.875	0.021	0.007
500 ft S	0.123	20.242	0.017	0.006

Link 768 (20ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft S	0.346	56.871	0.05	0.036
25 ft S	0.354	57.887	0.051	0.029
50 ft S	0.341	55.604	0.049	0.021
75 ft S	0.316	51.517	0.045	0.016
100 ft S	0.29	47.304	0.041	0.015
200 ft S	0.214	34.918	0.03	0.011
300 ft S	0.168	27.509	0.024	0.008
400 ft S	0.139	22.771	0.02	0.007
500 ft S	0.119	19.498	0.017	0.006

Map of Highway Segments

White circles are at the centerpoint of each link and show the modeled distances with the farthest being the 1000' distance

Link numbers are identified for those links near proposed new residential.
Otherwise, link numbers are presented in the tables in counterclockwise order beginning at the intersection of 880 and 980.

Key for tables:
Yellow highlighting for above-threshold values
Orange shading for links near new proposed residential

Individual thresholds are 0.3 PM2.5 and 10 Risk

750 ft S	0.089	14.612	0.012	0.005	750 ft S	0.086	14.258	0.012	0.005
1000 ft S	0.069	11.386	0.01	0.004	1000 ft S	0.068	11.18	0.009	0.004

Link 820 (6ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft E	0.722	117.965	0.104	0.032
25 ft E	0.608	99.246	0.087	0.024
50 ft E	0.483	78.73	0.069	0.019
75 ft E	0.402	65.533	0.057	0.016
100 ft E	0.345	56.36	0.049	0.014
200 ft E	0.226	36.838	0.032	0.01
300 ft E	0.168	27.338	0.024	0.01
400 ft E	0.134	21.755	0.019	0.01
500 ft E	0.111	18.11	0.016	0.009
750 ft E	0.077	12.442	0.011	0.005
1000 ft E	0.057	9.211	0.008	0.004

Link 820 (20ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft E	0.323	53.972	0.047	0.029
25 ft E	0.334	55.336	0.048	0.022
50 ft E	0.325	53.409	0.047	0.016
75 ft E	0.302	49.501	0.043	0.014
100 ft E	0.278	45.421	0.04	0.013
200 ft E	0.203	33.098	0.029	0.009
300 ft E	0.157	25.512	0.022	0.009
400 ft E	0.127	20.683	0.018	0.009
500 ft E	0.107	17.402	0.015	0.009
750 ft E	0.075	12.124	0.01	0.005
1000 ft E	0.056	9.039	0.008	0.004

580 (W to E)

Link 765 (6ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft S	0.622	49.093	0.062	0.079
25 ft S	0.445	35.431	0.045	0.064
50 ft S	0.295	23.736	0.03	0.051
75 ft S	0.214	17.384	0.021	0.041
100 ft S	0.163	13.428	0.016	0.036
200 ft S	0.071	6.084	0.007	0.025
300 ft S	0.038	3.414	0.004	0.018
400 ft S	0.024	2.206	0.002	0.016
500 ft S	0.017	1.566	0.001	0.014
750 ft S	0.009	0.855	0.001	0.012
1000 ft S	0.006	0.559	0	0.009

Link 765 (20ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft S	0.337	26.449	0.034	0.054
25 ft S	0.285	22.52	0.028	0.046
50 ft S	0.216	17.217	0.021	0.039
75 ft S	0.167	13.492	0.017	0.033
100 ft S	0.133	10.86	0.013	0.029
200 ft S	0.062	5.322	0.006	0.021
300 ft S	0.035	3.096	0.003	0.016
400 ft S	0.023	2.043	0.002	0.014
500 ft S	0.016	1.471	0.001	0.013
750 ft S	0.009	0.818	0	0.011
1000 ft S	0.006	0.541	0	0.009

Link 931 (6ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft S	0.828	60.812	0.083	0.118
25 ft S	0.626	46.348	0.063	0.08
50 ft S	0.445	33.238	0.045	0.061
75 ft S	0.34	25.531	0.034	0.055
100 ft S	0.269	20.375	0.027	0.05
200 ft S	0.134	10.332	0.013	0.034
300 ft S	0.081	6.383	0.008	0.026
400 ft S	0.054	4.371	0.005	0.019
500 ft S	0.039	3.197	0.004	0.017
750 ft S	0.021	1.773	0.002	0.013
1000 ft S	0.013	1.141	0.001	0.011

Link 931 (20ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft S	0.456	33.221	0.045	0.091
25 ft S	0.413	30.299	0.041	0.065
50 ft S	0.338	25.024	0.034	0.047
75 ft S	0.276	20.585	0.027	0.044
100 ft S	0.228	17.097	0.023	0.042
200 ft S	0.121	9.29	0.012	0.03
300 ft S	0.075	5.899	0.007	0.024
400 ft S	0.051	4.102	0.005	0.018
500 ft S	0.037	3.032	0.003	0.016
750 ft S	0.02	1.708	0.002	0.012
1000 ft S	0.013	1.108	0.001	0.011

Link 932 (6ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft S	0.851	61.641	0.085	0.098
25 ft S	0.64	46.707	0.064	0.072
50 ft S	0.447	32.855	0.045	0.043
75 ft S	0.335	24.798	0.033	0.037
100 ft S	0.261	19.512	0.026	0.034
200 ft S	0.121	9.236	0.012	0.025
300 ft S	0.07	5.46	0.007	0.02
400 ft S	0.046	3.653	0.004	0.017
500 ft S	0.033	2.631	0.003	0.016
750 ft S	0.017	1.415	0.001	0.012
1000 ft S	0.011	0.904	0.001	0.01

Link 932 (20ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft S	0.413	29.745	0.041	0.065
25 ft S	0.385	27.912	0.038	0.053
50 ft S	0.32	23.363	0.032	0.033
75 ft S	0.261	19.198	0.026	0.029
100 ft S	0.214	15.874	0.021	0.025
200 ft S	0.108	8.193	0.011	0.022
300 ft S	0.065	5.011	0.006	0.018
400 ft S	0.043	3.417	0.004	0.016
500 ft S	0.031	2.492	0.003	0.014
750 ft S	0.016	1.364	0.001	0.012
1000 ft S	0.01	0.88	0.001	0.009

Link 930 (6ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft S	0.903	69.764	0.088	0.087
25 ft S	0.69	53.615	0.067	0.072
50 ft S	0.495	38.77	0.048	0.055
75 ft S	0.382	30.078	0.037	0.041
100 ft S	0.307	24.32	0.03	0.03
200 ft S	0.157	12.646	0.015	0.023
300 ft S	0.095	7.754	0.009	0.018
400 ft S	0.064	5.318	0.006	0.015
500 ft S	0.046	3.89	0.004	0.014
750 ft S	0.024	2.116	0.002	0.011
1000 ft S	0.015	1.347	0.001	0.009

Link 930 (20ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft S	0.464	35.662	0.045	0.056
25 ft S	0.434	33.494	0.042	0.053
50 ft S	0.366	28.464	0.035	0.045
75 ft S	0.305	23.887	0.029	0.035
100 ft S	0.257	20.213	0.025	0.023
200 ft S	0.141	11.352	0.014	0.019
300 ft S	0.088	7.167	0.008	0.016
400 ft S	0.06	4.993	0.006	0.014
500 ft S	0.044	3.691	0.004	0.013
750 ft S	0.023	2.04	0.002	0.011
1000 ft S	0.015	1.31	0.001	0.009

Link 934 (6ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft S	0.775	60.968	0.076	0.085
25 ft S	0.59	46.664	0.058	0.07

Link 934 (20ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft S	0.427	33.268	0.041	0.055
25 ft S	0.384	30.088	0.037	0.052

50 ft S	0.418	33.368	0.041	0.051
75 ft S	0.317	25.442	0.031	0.039
100 ft S	0.249	20.113	0.024	0.034
200 ft S	0.114	9.47	0.011	0.023
300 ft S	0.063	5.399	0.006	0.018
400 ft S	0.039	3.505	0.004	0.015
500 ft S	0.027	2.469	0.002	0.014
750 ft S	0.014	1.285	0.001	0.011
1000 ft S	0.008	0.811	0	0.01

50 ft S	0.311	24.623	0.03	0.041
75 ft S	0.252	20.1	0.024	0.029
100 ft S	0.206	16.548	0.02	0.027
200 ft S	0.101	8.382	0.01	0.02
300 ft S	0.057	4.93	0.005	0.016
400 ft S	0.037	3.26	0.003	0.014
500 ft S	0.026	2.325	0.002	0.013
750 ft S	0.013	1.233	0.001	0.011
1000 ft S	0.008	0.786	0	0.009

Link 933 (6ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft S	0.637	51.033	0.063	0.076
25 ft S	0.458	37.043	0.045	0.061
50 ft S	0.306	25.063	0.03	0.049
75 ft S	0.223	18.463	0.022	0.038
100 ft S	0.171	14.266	0.017	0.033
200 ft S	0.073	6.406	0.007	0.023
300 ft S	0.04	3.574	0.004	0.017
400 ft S	0.025	2.306	0.002	0.015
500 ft S	0.017	1.635	0.001	0.014
750 ft S	0.009	0.891	0.001	0.011
1000 ft S	0.006	0.583	0	0.009

Link 933 (20ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft S	0.344	27.329	0.033	0.055
25 ft S	0.294	23.544	0.029	0.041
50 ft S	0.225	18.249	0.022	0.037
75 ft S	0.175	14.389	0.017	0.031
100 ft S	0.14	11.583	0.014	0.026
200 ft S	0.065	5.618	0.006	0.02
300 ft S	0.036	3.247	0.003	0.015
400 ft S	0.023	2.138	0.002	0.014
500 ft S	0.016	1.536	0.001	0.013
750 ft S	0.009	0.854	0	0.01
1000 ft S	0.006	0.564	0	0.008

Link 928 (6ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft S	0.836	90.886	0.095	0.1
25 ft S	0.676	73.826	0.077	0.082
50 ft S	0.518	56.835	0.059	0.064
75 ft S	0.421	46.392	0.048	0.051
100 ft S	0.354	39.167	0.04	0.04
200 ft S	0.212	23.738	0.024	0.031
300 ft S	0.147	16.633	0.017	0.025
400 ft S	0.108	12.351	0.012	0.021
500 ft S	0.082	9.564	0.009	0.017
750 ft S	0.049	5.802	0.005	0.014
1000 ft S	0.032	3.86	0.003	0.01

Link 928 (20ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft S	0.51	55.464	0.058	0.08
25 ft S	0.466	50.719	0.053	0.071
50 ft S	0.398	43.522	0.045	0.058
75 ft S	0.344	37.712	0.039	0.047
100 ft S	0.3	33.05	0.034	0.037
200 ft S	0.192	21.454	0.022	0.028
300 ft S	0.136	15.439	0.015	0.024
400 ft S	0.102	11.635	0.011	0.02
500 ft S	0.079	9.094	0.009	0.016
750 ft S	0.047	5.588	0.005	0.013
1000 ft S	0.031	3.746	0.003	0.01

Link 938 (6ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft S	0.766	82.908	0.087	0.067
25 ft S	0.596	64.964	0.068	0.058
50 ft S	0.433	47.559	0.049	0.049
75 ft S	0.336	37.213	0.038	0.042
100 ft S	0.271	30.218	0.031	0.037
200 ft S	0.139	15.859	0.016	0.025
300 ft S	0.084	9.851	0.01	0.02
400 ft S	0.056	6.671	0.006	0.016
500 ft S	0.039	4.786	0.004	0.014
750 ft S	0.02	2.561	0.002	0.011
1000 ft S	0.013	1.646	0.001	0.01

Link 938 (20ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft S	0.412	44.777	0.047	0.052
25 ft S	0.372	40.485	0.042	0.043
50 ft S	0.309	33.897	0.035	0.039
75 ft S	0.259	28.54	0.029	0.035
100 ft S	0.219	24.25	0.025	0.031
200 ft S	0.122	13.847	0.014	0.022
300 ft S	0.076	8.906	0.009	0.018
400 ft S	0.052	6.156	0.006	0.014
500 ft S	0.037	4.477	0.004	0.013
750 ft S	0.02	2.445	0.002	0.011
1000 ft S	0.012	1.589	0.001	0.009

980 (N to S)

Link 937 (6ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft W	0.376	52.141	0.048	0.034
25 ft W	0.304	42.528	0.039	0.026
50 ft W	0.232	32.619	0.03	0.022
75 ft W	0.186	26.37	0.024	0.02
100 ft W	0.155	22.042	0.02	0.017
200 ft W	0.089	12.786	0.011	0.013
300 ft W	0.059	8.584	0.007	0.01
400 ft W	0.041	6.079	0.005	0.008
500 ft W	0.03	4.498	0.004	0.007
750 ft W	0.016	2.508	0.002	0.006
1000 ft W	0.01	1.591	0.001	0.005

Link 937 (20ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft W	0.194	26.943	0.025	0.025
25 ft W	0.181	25.295	0.023	0.02
50 ft W	0.159	22.361	0.02	0.016
75 ft W	0.139	19.663	0.018	0.015
100 ft W	0.122	17.345	0.016	0.014
200 ft W	0.077	11.122	0.01	0.011
300 ft W	0.053	7.768	0.007	0.009
400 ft W	0.038	5.623	0.005	0.007
500 ft W	0.028	4.219	0.003	0.007
750 ft W	0.016	2.399	0.002	0.005
1000 ft W	0.01	1.538	0.001	0.005

Link 891 (6ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft W	0.425	59.011	0.054	0.045
25 ft W	0.353	49.297	0.045	0.036
50 ft W	0.279	39.279	0.036	0.026
75 ft W	0.234	32.98	0.03	0.021
100 ft W	0.202	28.569	0.026	0.018
200 ft W	0.133	19.02	0.017	0.014
300 ft W	0.1	14.391	0.013	0.01
400 ft W	0.08	11.476	0.01	0.009
500 ft W	0.066	9.51	0.008	0.008
750 ft W	0.045	6.587	0.006	0.008

Link 891 (20ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft W	0.245	34.159	0.031	0.038
25 ft W	0.232	32.313	0.03	0.032
50 ft W	0.208	29.144	0.027	0.023
75 ft W	0.187	26.286	0.024	0.019
100 ft W	0.169	23.82	0.022	0.017
200 ft W	0.121	17.191	0.015	0.013
300 ft W	0.094	13.401	0.012	0.009
400 ft W	0.075	10.858	0.009	0.009
500 ft W	0.063	9.085	0.008	0.008
750 ft W	0.044	6.374	0.005	0.007

1000 ft W	0.033	4.872	0.004	0.007

1000 ft W	0.032	4.747	0.004	0.007

Link 899 (6ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft W	0.436	60.306	0.056	0.037
25 ft W	0.36	50.059	0.046	0.032
50 ft W	0.281	39.268	0.036	0.027
75 ft W	0.231	32.372	0.03	0.024
100 ft W	0.195	27.46	0.025	0.021
200 ft W	0.117	16.64	0.015	0.013
300 ft W	0.08	11.479	0.01	0.01
400 ft W	0.058	8.455	0.007	0.009
500 ft W	0.045	6.57	0.006	0.007
750 ft W	0.027	4.067	0.003	0.006
1000 ft W	0.018	2.782	0.002	0.005

Link 899 (20ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft W	0.219	30.414	0.028	0.025
25 ft W	0.21	29.272	0.027	0.024
50 ft W	0.191	26.724	0.024	0.022
75 ft W	0.172	24.074	0.022	0.02
100 ft W	0.154	21.611	0.02	0.018
200 ft W	0.103	14.53	0.013	0.012
300 ft W	0.073	10.438	0.009	0.009
400 ft W	0.054	7.861	0.007	0.008
500 ft W	0.042	6.193	0.005	0.007
750 ft W	0.026	3.907	0.003	0.005
1000 ft W	0.018	2.7	0.002	0.005

Link 911 (6ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft W	0.206	30.074	0.027	0.017
25 ft W	0.155	22.919	0.021	0.015
50 ft W	0.106	15.878	0.014	0.013
75 ft W	0.078	11.732	0.01	0.012
100 ft W	0.059	9.048	0.008	0.01
200 ft W	0.027	4.195	0.003	0.008
300 ft W	0.015	2.495	0.002	0.006
400 ft W	0.01	1.68	0.001	0.005
500 ft W	0.007	1.219	0.001	0.004
750 ft W	0.004	0.663	0	0.003
1000 ft W	0.002	0.425	0	0.002

Link 911 (20ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft W	0.07	10.438	0.009	0.009
25 ft W	0.067	9.957	0.009	0.009
50 ft W	0.058	8.737	0.007	0.008
75 ft W	0.049	7.453	0.006	0.008
100 ft W	0.041	6.314	0.005	0.007
200 ft W	0.022	3.481	0.003	0.007
300 ft W	0.014	2.208	0.001	0.005
400 ft W	0.009	1.535	0.001	0.004
500 ft W	0.007	1.135	0.001	0.004
750 ft W	0.004	0.634	0	0.003
1000 ft W	0.002	0.411	0	0.002

Link 912 (6ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft W	0.22	34.999	0.031	0.02
25 ft W	0.178	28.471	0.025	0.016
50 ft W	0.135	21.705	0.019	0.012
75 ft W	0.108	17.434	0.015	0.011
100 ft W	0.089	14.449	0.012	0.01
200 ft W	0.049	8.14	0.007	0.006
300 ft W	0.032	5.352	0.004	0.005
400 ft W	0.022	3.761	0.003	0.004
500 ft W	0.016	2.785	0.002	0.004
750 ft W	0.009	1.571	0.001	0.003
1000 ft W	0.006	1.036	0	0.002

Link 912 (20ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft W	0.107	17.161	0.015	0.013
25 ft W	0.101	16.231	0.014	0.012
50 ft W	0.09	14.428	0.012	0.009
75 ft W	0.079	12.692	0.011	0.008
100 ft W	0.069	11.154	0.009	0.008
200 ft W	0.042	7.01	0.006	0.005
300 ft W	0.029	4.816	0.004	0.005
400 ft W	0.02	3.469	0.003	0.003
500 ft W	0.015	2.609	0.002	0.003
750 ft W	0.008	1.504	0.001	0.003
1000 ft W	0.005	1.002	0	0.002

Link 904 (6ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft W	0.264	41.525	0.037	0.026
25 ft W	0.218	34.353	0.03	0.022
50 ft W	0.169	26.797	0.023	0.018
75 ft W	0.138	21.92	0.019	0.015
100 ft W	0.116	18.467	0.016	0.012
200 ft W	0.069	11.091	0.009	0.008
300 ft W	0.047	7.651	0.006	0.006
400 ft W	0.034	5.626	0.004	0.005
500 ft W	0.026	4.342	0.003	0.004
750 ft W	0.015	2.622	0.002	0.003
1000 ft W	0.01	1.762	0.001	0.003

Link 904 (20ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft W	0.135	21.324	0.019	0.018
25 ft W	0.129	20.359	0.018	0.017
50 ft W	0.116	18.366	0.016	0.015
75 ft W	0.103	16.371	0.014	0.013
100 ft W	0.092	14.58	0.013	0.011
200 ft W	0.06	9.698	0.008	0.008
300 ft W	0.043	6.961	0.006	0.005
400 ft W	0.032	5.231	0.004	0.004
500 ft W	0.025	4.093	0.003	0.004
750 ft W	0.015	2.518	0.002	0.003
1000 ft W	0.01	1.709	0.001	0.003

Link 909 (6ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft W	0.232	37.686	0.033	0.017
25 ft W	0.182	29.735	0.026	0.015
50 ft W	0.132	21.825	0.019	0.013
75 ft W	0.102	17.01	0.014	0.011
100 ft W	0.082	13.741	0.012	0.01
200 ft W	0.041	6.966	0.006	0.007
300 ft W	0.024	4.189	0.003	0.006
400 ft W	0.016	2.773	0.002	0.005
500 ft W	0.011	1.959	0.001	0.004
750 ft W	0.005	1.012	0	0.004
1000 ft W	0.003	0.632	0	0.003

Link 909 (20ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft W	0.108	17.718	0.015	0.011
25 ft W	0.1	16.432	0.014	0.01
50 ft W	0.086	14.179	0.012	0.009
75 ft W	0.073	12.155	0.01	0.008
100 ft W	0.062	10.432	0.009	0.008
200 ft W	0.035	5.929	0.005	0.006
300 ft W	0.021	3.737	0.003	0.005
400 ft W	0.014	2.54	0.002	0.004
500 ft W	0.01	1.825	0.001	0.004
750 ft W	0.005	0.965	0	0.003
1000 ft W	0.003	0.61	0	0.003

Link 907 (6ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft W	0.241	39.779	0.034	0.026
25 ft W	0.18	30	0.026	0.023
50 ft W	0.127	21.243	0.018	0.019
75 ft W	0.096	16.232	0.014	0.017
100 ft W	0.076	12.914	0.011	0.014

Link 907 (20ft elevation)

	PM2.5	Risk	Chron.HI	Acute.HI
10 ft W	0.131	21.793	0.019	0.018
25 ft W	0.115	19.116	0.016	0.016
50 ft W	0.092	15.414	0.013	0.015
75 ft W	0.075	12.61	0.01	0.014
100 ft W	0.062	10.464	0.009	0.012

200 ft W	0.037	6.34	0.005	0.009	200 ft W	0.032	5.546	0.004	0.008
300 ft W	0.022	3.761	0.003	0.007	300 ft W	0.02	3.402	0.002	0.006
400 ft W	0.014	2.518	0.002	0.005	400 ft W	0.013	2.326	0.002	0.005
500 ft W	0.01	1.843	0.001	0.005	500 ft W	0.01	1.726	0.001	0.004
750 ft W	0.006	1.046	0	0.004	750 ft W	0.005	0.999	0	0.004
1000 ft W	0.004	0.703	0	0.003	1000 ft W	0.004	0.678	0	0.003

Appendix 4.5 List of Identified Environmental Cases

Appendix 4.5, Table 1

Oppty Sites	Grand/Mandela Opportunity Area			US EPA Database			DTSC Database				RWQCB Database		DEH Data	
				NPL	CERCLIS	CORRACTS	NFRAP	RESPONSE	ENVIROSTOR	VCP	DEED	GeoTracker	LUST Program	SLIC	County CS
12	ACME Galvanizing Co.	1655	17th Street		X							Open	Cleanup	Open (276)	Open, assess & remed
	Bercovich	1639	18th Street				X		Certified	X	X				
	West Recycler	1405	Wood				X		Refer to RWQCB			Closed	Cleanup		
	Manny Services	1600	Peralta				X								
	Zero Waste Systems	1450	32nd Street				X								
	Chromex Div Lowe Co.	1400	Park				X								
	Electro Coatingss	1401	Park				X								
	Donco Indust	2401	Union				X								
	Grand/Poplar	1250	Grand					X	Active			Open	Cleanup	Open	
	Northwest Venetian	1218	24th Street					X	Certified		X	Open	CLeanup	Open	
	Carnation Dairies	1310	14th Street					X	Refer to Local			Closed	Cleanup	C	X
8	SP Transport	1707	Wood					X	Refer to RWQCB '01			Open	Cleanup	Open, inactive	
	Thomas Short Co	3430	Wood						Certified	X		Closed	X	Open (4)	X (4)
	Sutta Recycling	3401	Wood						Certified	X		Closed	X		X
	Reliance Upholstery	1614	Campbell						Certified	X		Open	Cleanup		
	Giampolini	2847	Peralta						Certified	X	X				X
3	LDS trucking	2233	Wood						Certified	X					
	Oakland Fire Serv Agency	1445	14th Street						Certified	X					
	Alameda Chemical	2668	Hannah						Certified						
	Laher Spring and Elec Car	2419	Magnolia						Certified						
	TKG Storage	2450	Mandela						Certified	X	X				
	Western pacific RR		Union						Certified	X	X				
3	BNSF Yard	Wood	West Grand						Certified		X				
18	P&B Dismantlers	2525	Wood						Certified	X					
	Cal.Electric	3015	Adeline						Inactive			Closed	X		
3	Former Hall	2601	Wood						Inactive						
	Pac Oversea Air	28th	Wood						Inactive						
	Alta Plating & Chem	1433	18th Street						Inactive						
	Mandela Grand	Grand	Mandela						Inactive						
	Mandela Parkway Ext.	32nd	Mandela						Inactive, action reqd	X					
	AT&SF Railroad	3200	Wood						Inactive, need eval	X					
	Nabisco	1267	14th Street						NFA			Closed	X		X (285)
1	General Transport	3211	Wood						NFA	X		Open	X		X
	Willow Park	1368	Willow						NFA	X					
3	Army-Navy Distribution	2233	Wood						NFA						
	Bell Metal Fabric.	2500	Adeline						NFA						
	Shirek	3425	Ettie						No Action			Closed	X		X
2	Custom Alloy Scrap	2601	Peralta						No Action			Closed			X
18	Russ Elliott Roof	2526	Wood						No Action			Closed	X		X (137)
	Commair	1266	14th Street						No action			Closed	X		X (223)
11	Custom Alloy Scrap	2730	Peralta						No Action			Open			X
	Artesian Oil Recovery	2306	Magnolia						No Action						
	BASF	1545	Willow						Refer to RWQCB			Closed	X		X (275)
	Magnolia ST. LLC	1200	32nd Street									Closed	Cleanup	C	X (331)
	Encinal Prop	1310	14th Street									Closed	Cleanup	C	
	Graphite Mill	2500	Kirkham									Closed	Cleanup	C	
	Central Station Land LLC	1401	Wood									Closed	X	C (271)	
18	Wood St. Warehouse	2510	Wood									Closed	X		X
22	Cal West Periodicals	2400	Filbert									Closed	X		X
	Western Seafare	1301	26th Street									Closed	X		X
	Rush Prop	1173	28th Street									Closed	X		X
	Ned Clyde Const	2311	Adeline									Closed	X		X
	Eastshore Lines	2400	Adeline									Closed	X		X
	Aervoe Pac	2528	Adeline									Closed	X		X
	Cal. Electric	3015	Adeline									Closed	X		X
	Kantor's Furn	2525	Mandela									Closed	X		X
	Kalmarac	2792	Cypress									Closed	X		X
	JT Trucking	2818	Cypress									Closed	X		X
	Caltrans Maint.	3465	Ettie									Closed	X		X
	JH Fitzmaurice	2857	Hannah									Closed	X		X
	Residential	2856	Helen									Closed	X		X
	Paciifc Cyrogenics	2311	Magnolia									Closed	X		X
	Blount Intl	2452	Magnolia									Closed	X		X
	CE Toland	2635	Peralta									Closed	X		X

Appendix 4.5, Table 1

Oppty Sites	Grand/Mandela Opportunity Area			US EPA Database				DTSC Database				RWQCB Database		DEH Data	
				NPL	CERCLIS	ORRACTS	NFRAP	RESPONSE	ENVIROSTOR	VCP	DEED	GeoTracker	LUST Program	SLIC	County CS
	Morgan Environ Serv	2433	Poplar									Closed	X		X
	Matheson Mail Transp	2500	Poplar									Closed	X		X
	Lindford Air and Refer	2850	Poplar									Closed	X		X
	Gardiner Mfg	1920	Union									Closed	X		X
	SP Transport	1399	Wood									Closed	X		X
	Utility Truck Bodies	1530	Wood									Closed	X		X
5	Pacific Pipe	1901	Poplar									Closed	X		X
21	Central Concrete Supply	2400	Peralta									Closed	X		X
18	Crown Zellerbach	2230	Willow									Closed	X		X
	Modern Mail	2836	Union									Closed	X		X
	Linford	2650	Magnolia									Closed			X (133)
	Langendorf Bakeries	1000	Grand									Closed	X		X (171)
	Tulloch Const	3428	Ettie									Closed	X		X (2)
	Container Care	1350	16th Street									Closed	X		X (224)
9	Mac Auto Repair	905	Grand									Closed	X		X (262)
1	TASCo	1685	34th Street									Closed	X		
	Marshall Steel Clean	1229	28th Street									Closed	X		
	Oakland, City of	3455	Ettie									Closed	X		
14	PG&E	2121	Peralta									Closed	X		
	Cal Brake & Clutch	2221	Union									Open	Cleanup	Open	X
	Custom Allow Scrap	2711	Union									Open	Cleanup	Open	X (186)
	Little	1201	32nd Street									Open	Cleanup	Open	X (317)
	Linden Lofts	2499	Chestnut									Open	Cleanup	Open	
18	Luccesi	2200	Wood									Open	X		Open, site assess
1	TASCO	3430	Wood									Open	Cleanup		X
	Cereske Elec Cable	1688	24th Street									Open	X		X
	Bay Area Warehouse	4001	Hollis									Open	X		X
	Mandela Truck	1225	Mandela									Open	X		X
	C&L Truck	2460	Wood									Open	X		X
8	Roadway Express	1708	Wood									Open	X		X
18	Pacific Supply	1735	24th Street									Open	X		X
4	Paciifc Pipe	1685	24th Street									Open	X		X
17	EBMUD	1200	21st Street									Open	X		X
	Thompson	1409	12th Street									Open	X		X (284)
16	Cadomartori Truck	1833	Peralta									Open	X		X (291)
	Brooks Auto Serv	1101	28th Street									Open	X		X (306)
	Osagie	1532	Peralta									Open	X		X (333)
	Precision Cast	1549	32nd Street									Open	Cleanup		X (343)
	Atlas Heating	1451	32nd Street									Open	X		X (346)
	Wareham	2855	Mandela									Open	X		X (5)
	MN Warehouse	1549	40th									Open	X		
	Sabek Shell	1230	14th Street									Open	X		
17	EBMUD	1075	Grand									Open	X		
	Grand Refridgerator	2240	Filbert											C	
	Campbell	1614	Campbell											Open	X
	Safeway Ice Cream	2240	Filbert											Open	X
	Apartments	1801	14th Street											Open	
	EZ Rest	2528	Adeline											Open	
17	EBMUD	2130	Adeline												X
	Taylor Roof Struct	1746	13th Street												X
5	Jorgensen Steel	1699	Grand												X
	BP West Coast Prod	889	Grand												X
	Bashland	4015	Hollis												X
	Ransome Co	4030	Hollis												X
	Clark Cramer	2500	Kirkham												X
	Orton & Libitzky	2302	Market												X
	Will's Freight	1700	Grand												X (185)
	Coca-Cola Bottling	1340	Mandela												X (269)
	Franks Tire Serv	1115	21st Street												X (283)

Appendix 4.5, Table 2

Oppty Sites	7th Street Opportunity Area				US EPA Database			DTSC Database				RWQCB Database		DEH Data	
					NPL	CERCLIS CORRACTS	NFRAP	RESPONSE	EnviroStor	VCP	DEED	GeoTracker	LUST Program	SLIC	County CS
25	AMCO Chemicals		1414	3rd Street	Open				Active, cleanup			Open	X		Open, site assessment
	Gaines Property		1795	11th Street		X		X	Certified						
24	SMILO Chemical CO.		500	Kirkham			X		Inactive, needs eval	X					
27	Batavia Property		1832	9th Street			X		NFA						
	J & J Truck Repair		355	Cypress			X								
	California Soda			Lewis Street			X								
	Empty Lot		528	Lewis Street				X	Certified						
28	Vacant Auto Repair			Shorey				X	NFA						
	Jenkins Auto Wreckers		1778	10th Street					Backlog						
	Church's Chicken		1766	7th Street					Certified	X		Closed	X	Open	X
	USPS Parking Structure		1675	7th Street					Certified	X		Open	Cleanup		X
	Marble Technics West		1035	7th Street					Certified	X		Open	X		X
	Changs Automotve		1009	7th Street					Certified	X					X
23	Bobo's Junkyard		1401	3rd Street					Certified	X	X				
25	BART		349	Mandela					Certified						
28	B&A Auto Dismantlers		1823	Shorey					Certified	X					
	Cal-East Foods		505	Cedar					Certified	X					
	Phoenix 766		766	Cedar					Certified	X					
	SP Railyard			Cypress					Certified		X				
	Cypress - 3rd Street			3rd Street					Certified	X					
	SP 3rd St Lot		1509	3rd Street					Certified	X					
	Smith's Wrecking		1600	3rd Street					Certified	X					
	S. Prescott Park		1000	7th Street					Certified	X					
	Wilfred's Auto		1834	7th Street					Certified	X					
	Old Oakland Firehouse		727	Pine					Certified	X					
28	Phoenix		524	Cedar					Inactive, need eval.	X					
28	Phoenix 800		800	Cedar					Inactive, needs eval	X					
	Container Freight		1285	5th Street					Inactive, needs eval.						X
25	California Soda		355	Mandela					NFA						
	Micronesia Cargo Intl		955	7th Street					NFA	X					
	Radomsky		930	Pine					No Action						
23	BART Station		1451	7th Street					Refer to Local						
	1536 Third		1536	3rd Street					Refer to Local						
24	SP Transport	5th		Kirkham								Closed	X		X
	Kelley's Truck		1390	7th Street								Closed	X		X
	Reliable Handi Car		1520	7th Street								CLosed	X		X
	Armored Transport		1333	8th Street								Closed	X		X
	Gosswood Housing Assoc		1111	Pine								Closed	Cleanup		X
33	All Mercedes Dismantlers		1225	7th Street								Closed	X		X
	PacBell		1075	7th Street								Closed	X		X
	Burke Co		310	Union								Closed	Cleanup		
23	Eastlake		1455	5th Street								Closed	X		X
24	Red Star Yeast		1396	5th Street								Open	Cleanup	Open	Open, site assess
25	Globe Metals		1820	10th Street								Open	Cleanup		Open, inactive
28	Phoenix Iron Works		888	Cedar								Open	X		X
	Everidge Service Co		1211	7th Street								Open	X		X
24	J & J Truck Repair		500	Kirkham								Open	X		
	UPRR	5th		Union								Open	Cleanup		
	UP Railroad	Goss		Pine								Open, Inactive	Cleanup		
	Burke Co the 35	111-1199		Pine										Closed	
	Everidge Service Co		800	Center											X
	Paciifc Cannery Lofts	7th		Mandela											X

Appendix 4.5, Table 3

Oppty Sites	3rd Street Opportunity Area			US EPA Database				DTSC Database				RWQCB Database		DEH Data	
				NPL	CERCLIS	CORRACTS	NFRAP	RESPONSE	EnviroStor	VCP	DEED	GeoTracker	LUST Program	SLIC	County CS
	Francis Plating	751	7th Street		X	X			NFA			Open	Cleanup		
	Safety Kleen	400	Market		X				Active			Open	X		X
	Nor Cal Metal Fabric	1121	3rd Street				X								
	Marble Technics	1035	7th Street						Certified	X		Open	X		X
	Western Pacific		Union						Certified		X				
	Amtrak Maintenance	3rd	Union						Certified	X	X				
	Chang's Auto	1009	7th Street						Certified	X					
	E-D Coat	715	4th Street						Inactive						
	Condor Freight	324	Union						NFA	X		Closed	X		
	Micronesian Cargo	955	7th Street						NFA	X					
	Oakland Warehouse	1221	3rd Street									Closed	X		X
	Pac Bell	1075	7th Street									CLosed	X		X
	Nor Cal Metal Fabric	114	Adeline									Closed	X		X
	Lehar Sales	150	Chestnut									Closed	X		X
	Aramark	330	Chestnut									Closed	X		X
35	East Bay Ford Truck	333	Filbert									Closed	X		X
35	Marine Treminals Corp	333	Market									Closed	X		X
	Markus Supply	632	2nd Street									Closed	X		
	Guarantee Forklift	699	4th Street									Closed	X		
	Greyhound Line	7th	Brush									Closed	X		
	Liquid Carbonic	901	Embarcaderp									Closed	X		
	Sunset Wholesale	105	Embarcaderp									Closed	X		
	Oakland Telecom	229	Castro									Closed	Cleanup		
	Oakland Truck Stop	1107	5th Street									Open			X
	Shell Service Station	610	Market									Open	X		X
	Allen Property	325	MLK									Open	X		
	PG&E Plant	50	MLK									Open	X		
	Caltrans Cypress Proj	5th	Adeline									Open			
	Caltrans	6th	Castro									Open	X		
	O' Hare Co	339	3rd Street									Open	X		
	Port of Oak., CNG Station	205	Brush									Open	Cleanup		

Appendix 4.5, Table 4-4

Oppty Sites	San Pablo Opportunity Area			US EPA Database				DTSC Database				RWQCB Database		DEH Data	
				NPL	CERCLIS	CORRACTS	NFRAP	RESPONSE	EnviroStor	VCP	DEED	GeoTracker	LUST Program	SLIC	County CS
	Former Lane Metal Finish	2942	San Pablo					X	Active					Open	X
	Doug Co Metal	1073	34th Street						Inactive			Closed	X		
	ABC Dry Cleaners	2701	San Pablo						Inactive						
	Chris & George Auto Repair	2520	West						Refer to Local						
	Peerless Stages	2021	Brush									Closed	X		X
	AB Co Waterproofing	3135	Filbert									Closed	X		X
	WSB Electric	3032	Market									Closed	X		X
	Cahon Assoc	3501	San Pablo									Closed	X		X
37	Fyne Building	774	Grand									Closed	X		X
	Tune Up Masters	2901	San Pablo									Closed	X		X
	Cal Auto Repair	2801	San Pablo									Closed	X		X
	Herrington Olson Photo	769	22nd Street									Closed	X		X
	Loomis Armored	936	Brockhurst									Closed	X		X
	Crowley/Kent	3016	Filbert									Closed	X		
	Golden Gate Linen	958	28th Street									Closed	X		
	Continental Color	2201	West									Closed	X		
	Commercial	1000	Grand									Closed	X		
	Mac Auto	905	Grand									Closed	X		
	Chevron	850	Grand									Closed	X		
	Grand Ave Refrigerated	2240	Filbert									Closed	Cleanup		
	Shell	3420	San Pablo									Open	X		X
	Thrifty Oil	3400	San Pablo									Open	X		X
	Auto Service Co	820	Isabella									Open	X		X
	FG Gasoline	3314	San Pablo									Open	X		
	ARCO	889	Grand									Open	X		
	Meaders Cleaners	800	Grand									Open	X		
	Burke	949	Grand									Open	X		
	Sinclair Paint	2040	San Pablo												X
	Oakland Bus Terminal	2103	San Pablo												X

Appendix 4.10 Traffic Appendices

Appendix A: Intersection Data for Selected Intersections

WILTEC

Phone: (925) 706-9911 Fax: (925) 706-9914 info@wiltecusa.com

INTERSECTION TURNING MOVEMENT COUNT SUMMARY - VEHICLES

CLIENT:		KITTLESON AND ASSOCIATES
PROJECT:		WEST OAKLAND SPECIFIC PLAN
DATE:		THURSDAY NOVEMBER 15, 2012
PERIOD:		7:00 AM TO 9:00 AM
INTERSECTION:	N/S	ADELINE STREET
	E/W	WEST GRAND AVENUE
CITY:		OAKLAND

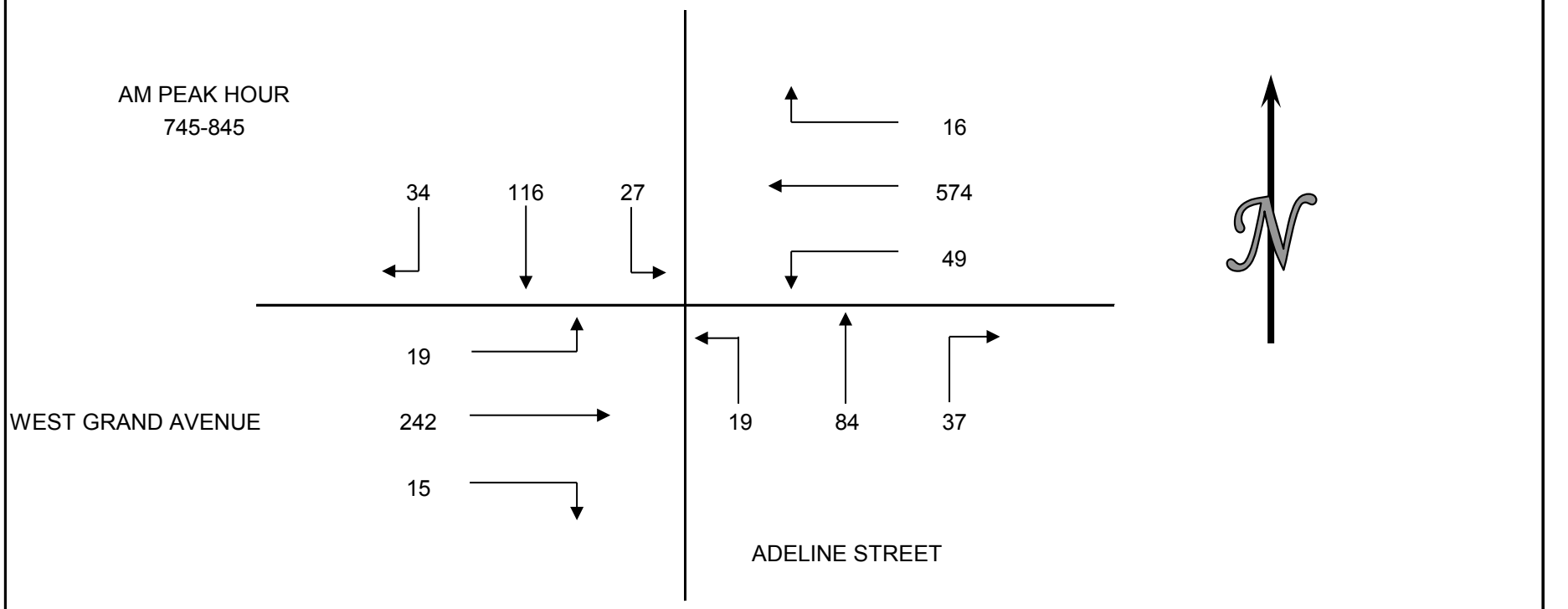
VEHICLE COUNTS

15 MIN COUNTS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-715	5	24	8	4	130	10	4	20	4	5	45	2	261
715-730	6	20	5	5	148	15	6	18	3	7	53	3	289
730-745	8	28	3	8	131	11	6	15	5	4	48	2	269
745-800	13	32	5	4	143	12	8	21	4	8	59	4	313
800-815	10	37	7	3	157	9	9	28	5	3	62	3	333
815-830	6	21	9	5	143	12	11	19	3	2	58	5	294
830-845	5	26	6	4	131	16	9	16	7	2	63	7	292
845-900	3	30	7	5	129	12	6	12	3	4	55	4	270

HOUR TOTALS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-800	32	104	21	21	552	48	24	74	16	24	205	11	1132
715-815	37	117	20	20	579	47	29	82	17	22	222	12	1204
730-830	37	118	24	20	574	44	34	83	17	17	227	14	1209
745-845	34	116	27	16	574	49	37	84	19	15	242	19	1232
800-900	24	114	29	17	560	49	35	75	18	11	238	19	1189



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INTERSECTION TURNING MOVEMENT COUNT SUMMARY - VEHICLES

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PROJECT:		WEST OAKLAND SPECIFIC PLAN
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PERIOD:		4:00 PM TO 6:00 PM
INTERSECTION:	N/S	ADELINE STREET
	E/W	WEST GRAND AVENUE
CITY:		OAKLAND

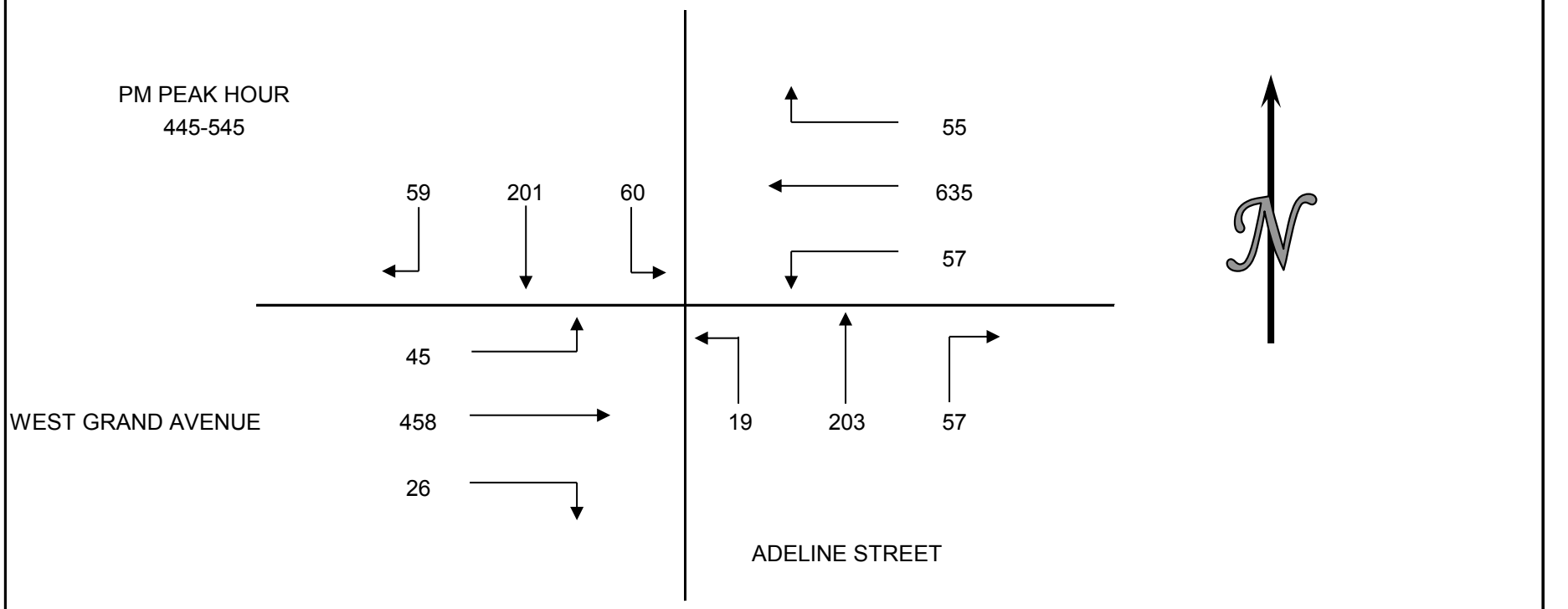
VEHICLE COUNTS

15 MIN COUNTS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-415	25	59	13	13	152	9	17	29	6	13	94	13	443
415-430	20	50	14	9	146	8	19	41	4	14	95	9	429
430-445	13	41	14	10	134	13	19	60	1	8	109	10	432
445-500	17	35	16	10	149	16	21	54	5	6	114	15	458
500-515	15	49	11	15	165	14	10	59	6	11	117	12	484
515-530	13	52	18	16	171	10	14	47	6	3	106	5	461
530-545	14	65	15	14	150	17	12	43	2	6	121	13	472
545-600	11	40	7	9	135	9	4	31	5	6	73	14	344

HOUR TOTALS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-500	75	185	57	42	581	46	76	184	16	41	412	47	1762
415-515	65	175	55	44	594	51	69	214	16	39	435	46	1803
430-530	58	177	59	51	619	53	64	220	18	28	446	42	1835
445-545	59	201	60	55	635	57	57	203	19	26	458	45	1875
500-600	53	206	51	54	621	50	40	180	19	26	417	44	1761



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INTERSECTION TURNING MOVEMENT COUNT SUMMARY - VEHICLES

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PROJECT:		WEST OAKLAND SPECIFIC PLAN
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INTERSECTION:	N/S	MARKET STREET
	E/W	WEST GRAND AVENUE
CITY:		OAKLAND

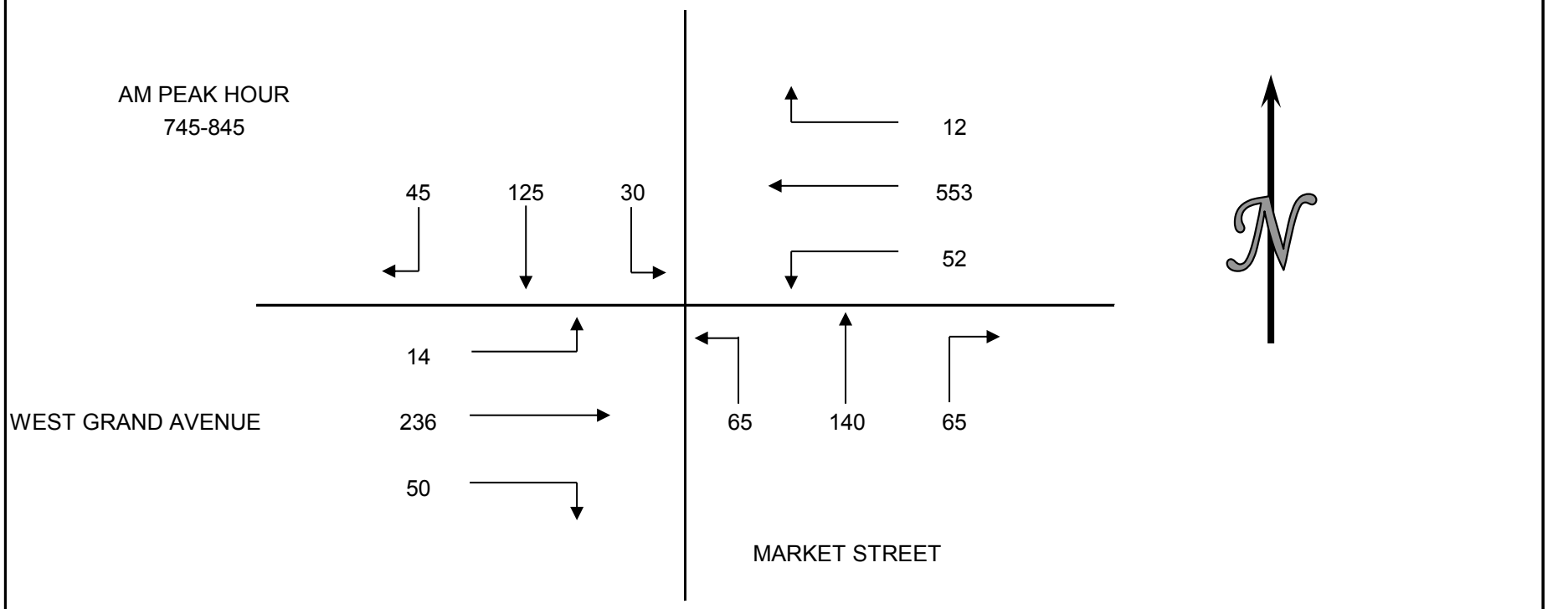
VEHICLE COUNTS

15 MIN COUNTS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-715	12	14	6	3	101	12	9	15	10	6	37	2	227
715-730	11	20	4	4	121	9	9	22	12	10	49	3	274
730-745	8	19	3	3	130	11	14	29	15	7	40	0	279
745-800	10	25	5	2	164	13	13	35	9	8	69	2	355
800-815	15	32	9	3	128	15	18	33	19	17	62	5	356
815-830	9	37	10	4	135	11	13	38	21	10	51	3	342
830-845	11	31	6	3	126	13	21	34	16	15	54	4	334
845-900	12	21	4	1	114	12	15	26	21	12	55	6	299

HOUR TOTALS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-800	41	78	18	12	516	45	45	101	46	31	195	7	1135
715-815	44	96	21	12	543	48	54	119	55	42	220	10	1264
730-830	42	113	27	12	557	50	58	135	64	42	222	10	1332
745-845	45	125	30	12	553	52	65	140	65	50	236	14	1387
800-900	47	121	29	11	503	51	67	131	77	54	222	18	1331



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INTERSECTION TURNING MOVEMENT COUNT SUMMARY - VEHICLES

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	E/W	WEST GRAND AVENUE
CITY:		OAKLAND

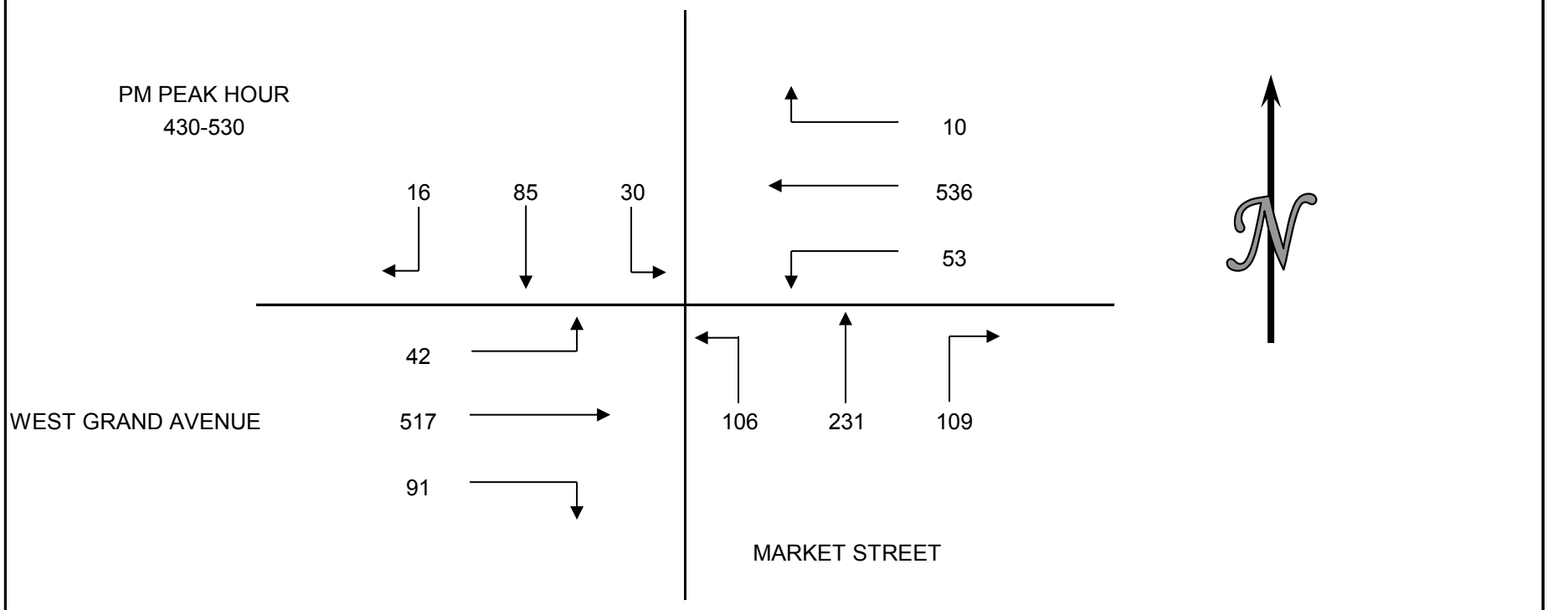
VEHICLE COUNTS

15 MIN COUNTS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-415	5	17	1	7	153	18	20	40	17	17	118	5	418
415-430	8	24	6	6	134	23	23	46	23	13	129	7	442
430-445	4	14	7	6	132	20	20	49	27	26	135	8	448
445-500	3	24	11	2	120	6	32	63	21	24	143	21	470
500-515	3	24	5	1	130	12	27	55	22	18	121	6	424
515-530	6	23	7	1	154	15	30	64	36	23	118	7	484
530-545	4	18	7	2	132	27	24	42	19	16	129	9	429
545-600	0	12	5	0	128	8	28	45	18	13	102	11	370

HOUR TOTALS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-500	20	79	25	21	539	67	95	198	88	80	525	41	1778
415-515	18	86	29	15	516	61	102	213	93	81	528	42	1784
430-530	16	85	30	10	536	53	109	231	106	91	517	42	1826
445-545	16	89	30	6	536	60	113	224	98	81	511	43	1807
500-600	13	77	24	4	544	62	109	206	95	70	470	33	1707



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INTERSECTION TURNING MOVEMENT COUNT SUMMARY - VEHICLES

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PROJECT:		WEST OAKLAND SPECIFIC PLAN
DATE:		THURSDAY NOVEMBER 15, 2012
PERIOD:		7:00 AM TO 9:00 AM
INTERSECTION:	N/S	ADELINE STREET
	E/W	18TH STREET
CITY:		OAKLAND

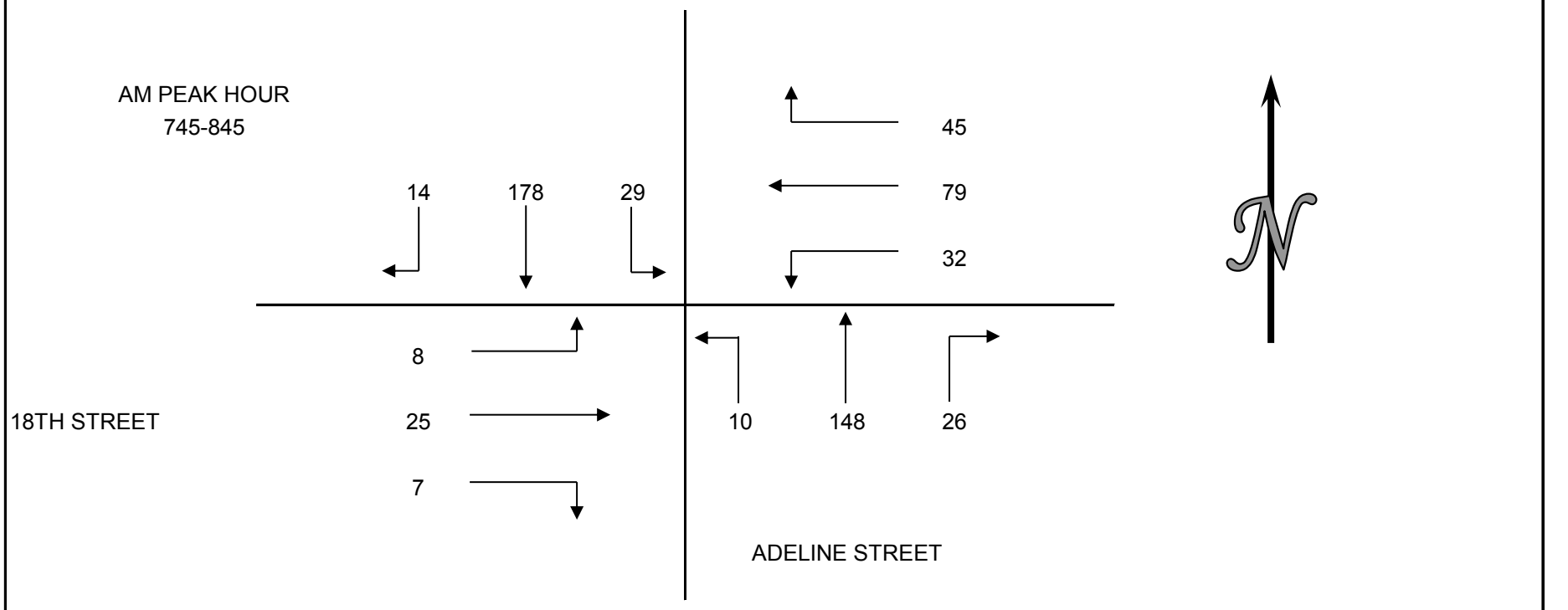
VEHICLE COUNTS

15 MIN COUNTS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-715	0	22	2	14	14	10	3	19	0	0	3	0	87
715-730	3	32	6	7	15	4	4	22	0	0	2	0	95
730-745	3	36	6	8	28	4	2	31	1	0	1	0	120
745-800	3	34	5	17	24	10	8	27	0	2	4	2	136
800-815	2	36	7	9	26	9	11	34	2	2	8	1	147
815-830	4	51	7	9	16	7	3	50	4	1	7	4	163
830-845	5	57	10	10	13	6	4	37	4	2	6	1	155
845-900	4	44	6	4	13	7	10	25	1	0	6	0	120

HOUR TOTALS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-800	9	124	19	46	81	28	17	99	1	2	10	2	438
715-815	11	138	24	41	93	27	25	114	3	4	15	3	498
730-830	12	157	25	43	94	30	24	142	7	5	20	7	566
745-845	14	178	29	45	79	32	26	148	10	7	25	8	601
800-900	15	188	30	32	68	29	28	146	11	5	27	6	585



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PERIOD:		4:00 PM TO 6:00 PM
INTERSECTION:	N/S	ADELINE STREET
	E/W	18TH STREET
CITY:		OAKLAND

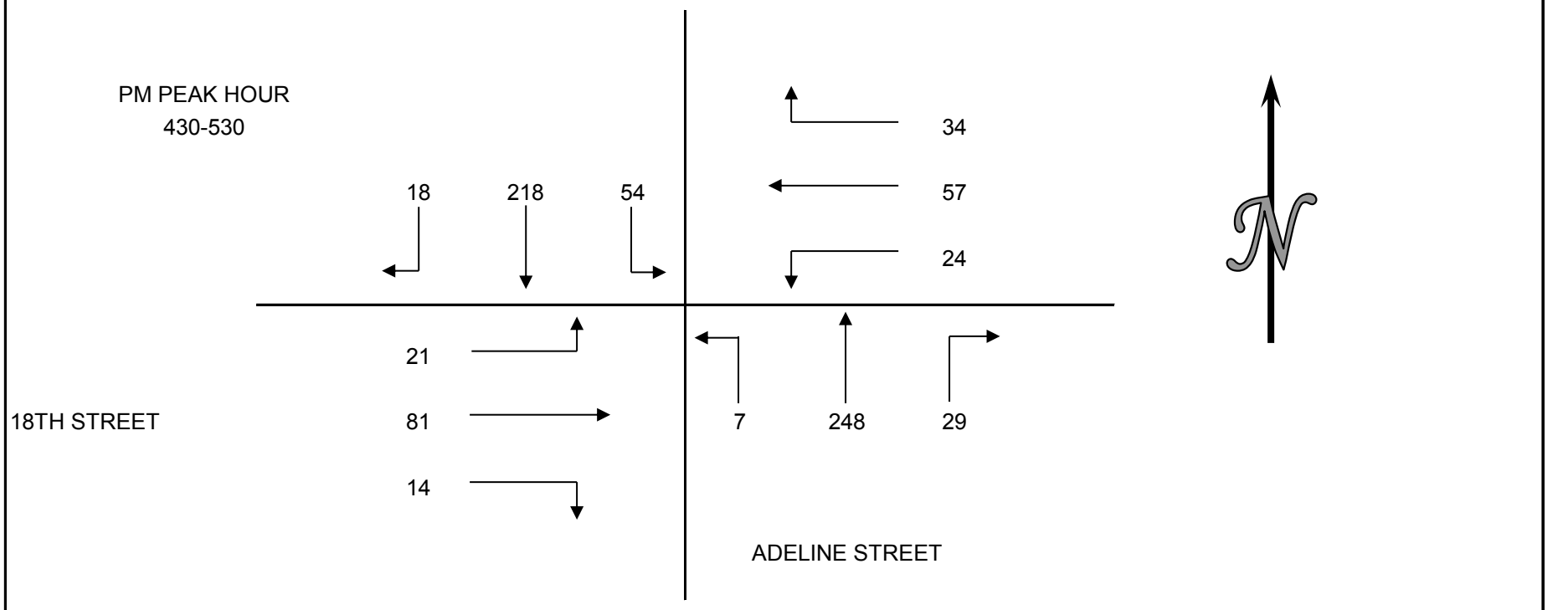
VEHICLE COUNTS

15 MIN COUNTS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-415	1	53	13	9	14	9	4	39	5	3	15	1	166
415-430	5	49	15	7	13	4	8	41	1	3	27	2	175
430-445	6	55	15	4	16	8	5	60	3	2	20	7	201
445-500	3	49	12	13	9	8	11	51	1	3	26	4	190
500-515	4	60	14	7	19	3	5	76	2	2	12	6	210
515-530	5	54	13	10	13	5	8	61	1	7	23	4	204
530-545	2	60	9	8	22	5	6	58	3	2	15	2	192
545-600	3	54	8	9	14	4	5	38	3	2	14	3	157

HOUR TOTALS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-500	15	206	55	33	52	29	28	191	10	11	88	14	732
415-515	18	213	56	31	57	23	29	228	7	10	85	19	776
430-530	18	218	54	34	57	24	29	248	7	14	81	21	805
445-545	14	223	48	38	63	21	30	246	7	14	76	16	796
500-600	14	228	44	34	68	17	24	233	9	13	64	15	763



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INTERSECTION:	N/S	MARKET STREET
	E/W	18TH STREET
CITY:		OAKLAND

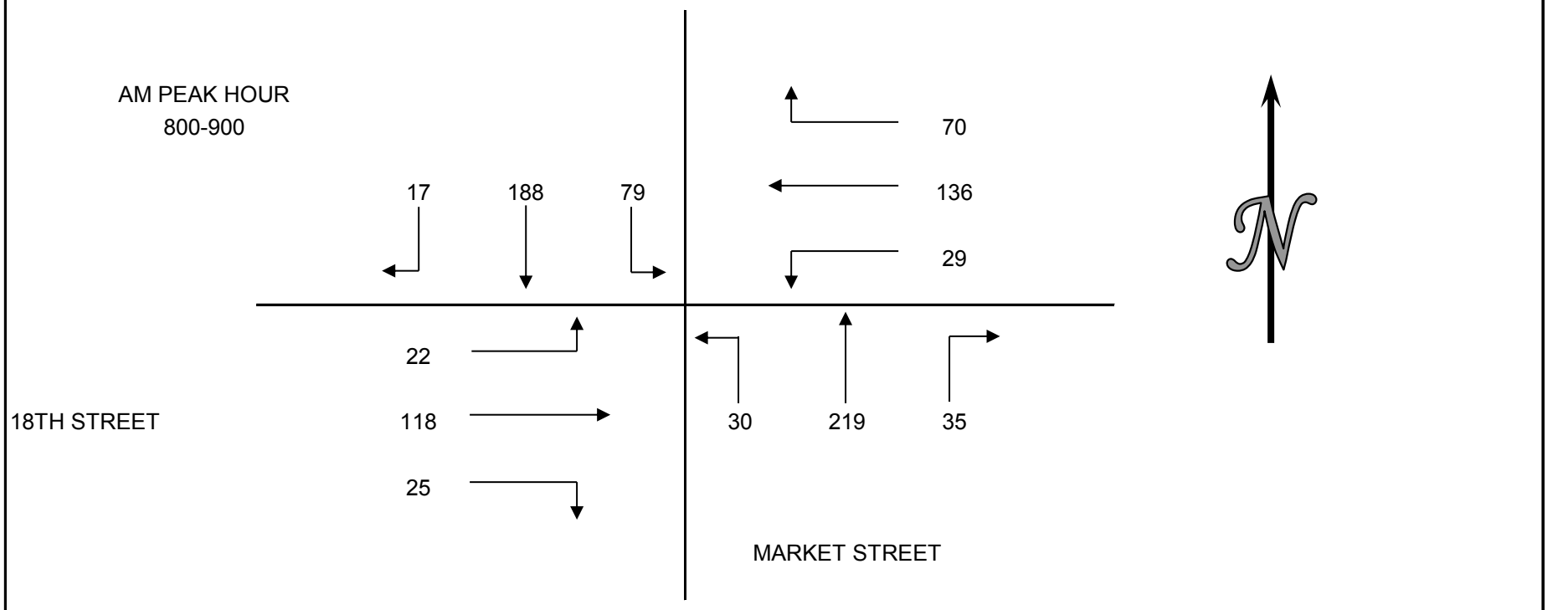
VEHICLE COUNTS

15 MIN COUNTS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-715	3	29	6	16	32	2	5	29	4	1	10	2	139
715-730	4	33	8	19	29	4	2	43	4	3	24	5	178
730-745	2	37	11	9	43	2	3	32	3	1	21	2	166
745-800	3	31	17	11	40	7	3	34	2	7	26	9	190
800-815	6	46	20	19	43	4	5	49	5	7	22	10	236
815-830	2	63	24	17	33	9	8	67	9	10	30	4	276
830-845	5	45	23	20	34	7	17	64	8	0	32	4	259
845-900	4	34	12	14	26	9	5	39	8	8	34	4	197

HOUR TOTALS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-800	12	130	42	55	144	15	13	138	13	12	81	18	673
715-815	15	147	56	58	155	17	13	158	14	18	93	26	770
730-830	13	177	72	56	159	22	19	182	19	25	99	25	868
745-845	16	185	84	67	150	27	33	214	24	24	110	27	961
800-900	17	188	79	70	136	29	35	219	30	25	118	22	968



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	E/W	18TH STREET
CITY:		OAKLAND

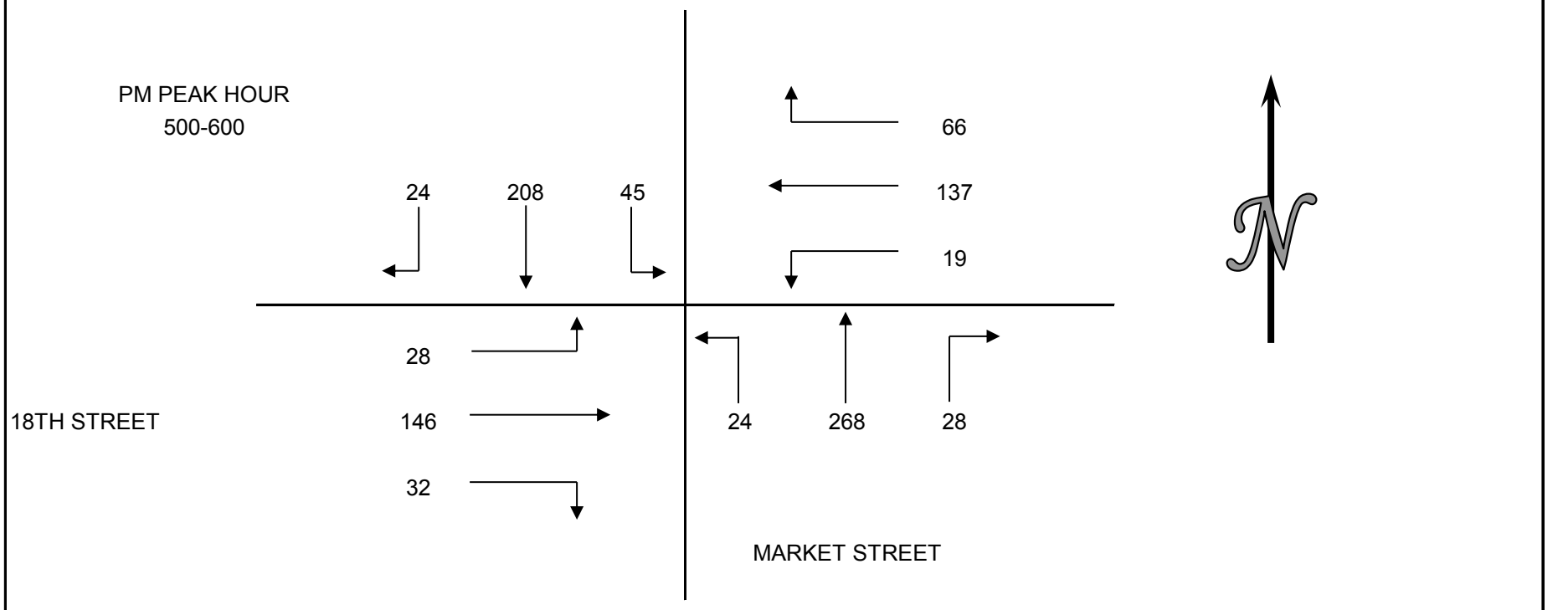
VEHICLE COUNTS

15 MIN COUNTS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-415	11	43	14	13	24	7	6	60	3	5	27	6	219
415-430	8	49	7	8	24	2	6	41	5	6	25	6	187
430-445	6	46	19	13	27	1	8	49	2	1	33	5	210
445-500	4	38	21	18	39	2	13	60	4	5	33	4	241
500-515	4	44	16	23	32	4	8	63	11	13	41	9	268
515-530	7	55	10	12	35	3	9	63	2	3	37	3	239
530-545	9	48	9	12	44	7	7	73	5	6	33	6	259
545-600	4	61	10	19	26	5	4	69	6	10	35	10	259

HOUR TOTALS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-500	29	176	61	52	114	12	33	210	14	17	118	21	857
415-515	22	177	63	62	122	9	35	213	22	25	132	24	906
430-530	21	183	66	66	133	10	38	235	19	22	144	21	958
445-545	24	185	56	65	150	16	37	259	22	27	144	22	1007
500-600	24	208	45	66	137	19	28	268	24	32	146	28	1025



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INTERSECTION TURNING MOVEMENT COUNT SUMMARY - VEHICLES

CLIENT:		KITTLESON AND ASSOCIATES
PROJECT:		WEST OAKLAND SPECIFIC PLAN
DATE:		THURSDAY NOVEMBER 15, 2012
PERIOD:		7:00 AM TO 9:00 AM
INTERSECTION:	N/S	ADELINE STREET
	E/W	14TH STREET
CITY:		OAKLAND

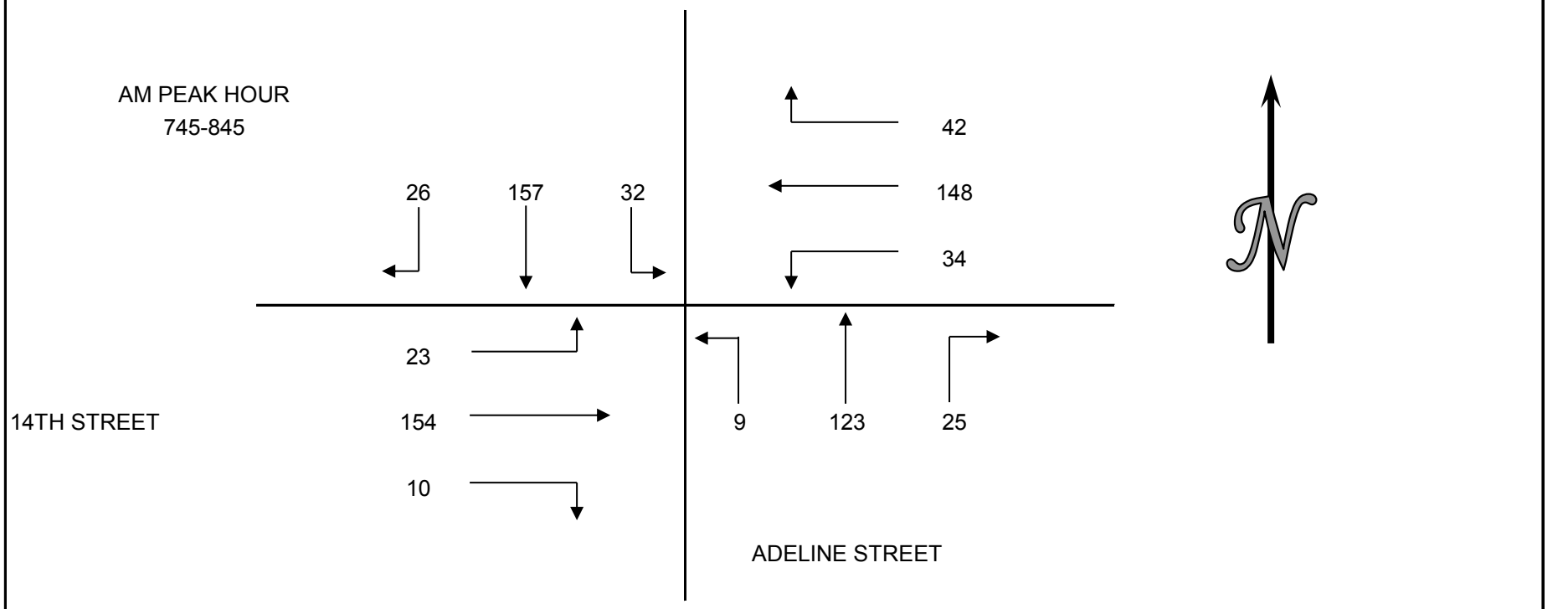
VEHICLE COUNTS

15 MIN COUNTS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-715	4	16	16	4	17	28	14	15	3	3	37	1	158
715-730	2	22	18	11	31	38	15	15	2	2	34	7	197
730-745	7	32	3	7	35	8	16	14	5	2	36	8	173
745-800	3	36	9	9	28	4	8	29	2	3	46	4	181
800-815	6	35	3	7	34	13	5	24	2	1	41	6	177
815-830	10	49	10	17	52	6	4	42	1	4	28	9	232
830-845	7	37	10	9	34	11	8	28	4	2	39	4	193
845-900	5	37	4	9	34	9	9	20	3	1	24	6	161

HOUR TOTALS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-800	16	106	46	31	111	78	53	73	12	10	153	20	709
715-815	18	125	33	34	128	63	44	82	11	8	157	25	728
730-830	26	152	25	40	149	31	33	109	10	10	151	27	763
745-845	26	157	32	42	148	34	25	123	9	10	154	23	783
800-900	28	158	27	42	154	39	26	114	10	8	132	25	763



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INTERSECTION TURNING MOVEMENT COUNT SUMMARY - VEHICLES

CLIENT:		KITTLESON AND ASSOCIATES
PROJECT:		WEST OAKLAND SPECIFIC PLAN
DATE:		THURSDAY NOVEMBER 15, 2012
PERIOD:		4:00 PM TO 6:00 PM
INTERSECTION:	N/S	ADELINE STREET
	E/W	14TH STREET
CITY:		OAKLAND

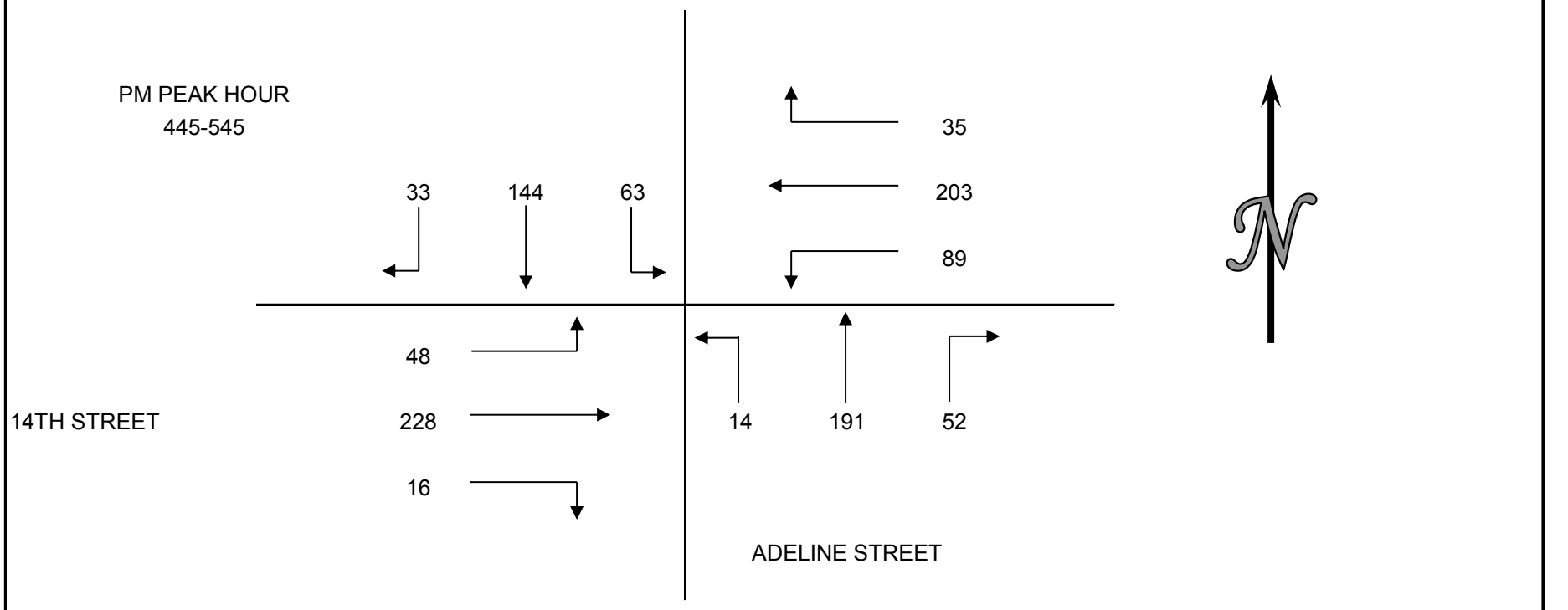
VEHICLE COUNTS

15 MIN COUNTS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-415	8	48	7	5	42	17	9	36	0	3	56	6	237
415-430	7	46	10	10	41	9	7	40	2	2	38	9	221
430-445	8	36	16	7	32	14	10	47	3	0	32	16	221
445-500	9	32	13	12	42	22	17	41	6	4	48	12	258
500-515	9	36	18	12	72	28	20	52	2	3	62	11	325
515-530	7	38	9	4	43	26	9	49	2	7	47	12	253
530-545	8	38	23	7	46	13	6	49	4	2	71	13	280
545-600	4	37	17	10	43	18	13	28	0	0	39	13	222

HOUR TOTALS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-500	32	162	46	34	157	62	43	164	11	9	174	43	937
415-515	33	150	57	41	187	73	54	180	13	9	180	48	1025
430-530	33	142	56	35	189	90	56	189	13	14	189	51	1057
445-545	33	144	63	35	203	89	52	191	14	16	228	48	1116
500-600	28	149	67	33	204	85	48	178	8	12	219	49	1080



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INTERSECTION TURNING MOVEMENT COUNT SUMMARY - VEHICLES

CLIENT:		KITTLESON AND ASSOCIATES
PROJECT:		WEST OAKLAND SPECIFIC PLAN
DATE:		THURSDAY NOVEMBER 15, 2012
PERIOD:		7:00 AM TO 9:00 AM
INTERSECTION:	N/S	ADELINE STREET
	E/W	12TH STREET
CITY:		OAKLAND

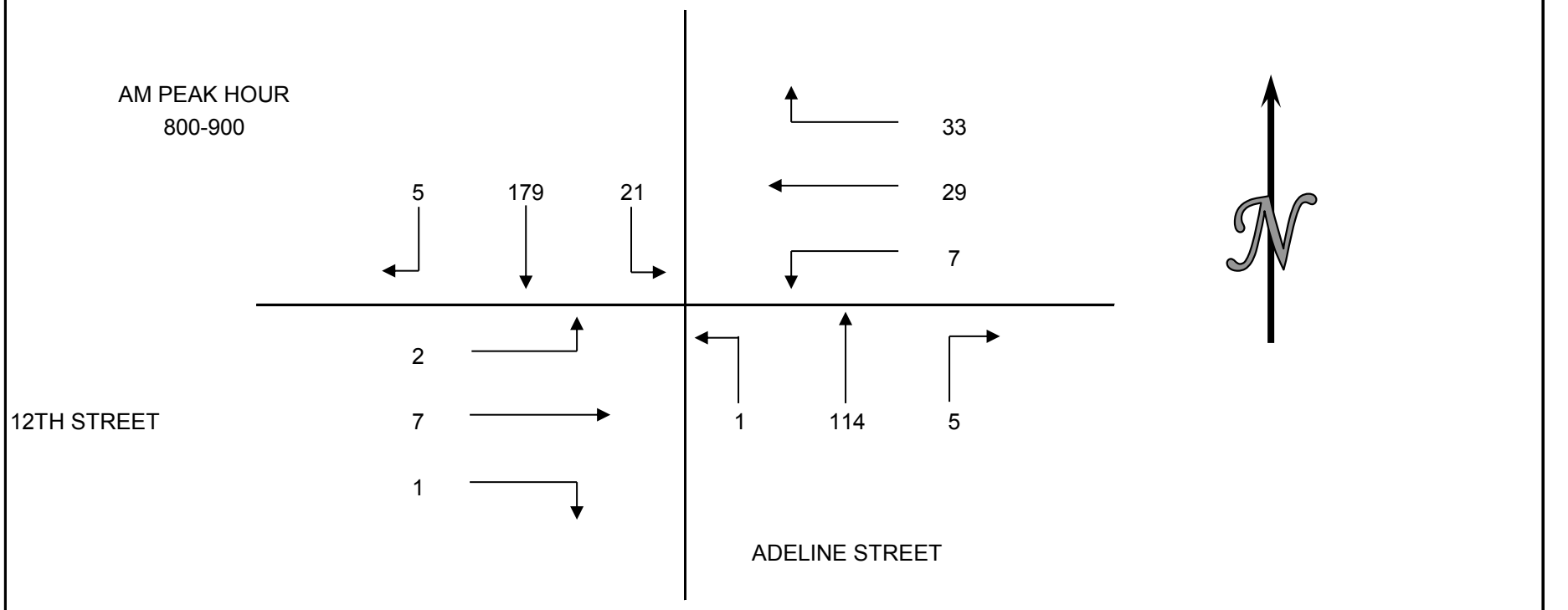
VEHICLE COUNTS

15 MIN COUNTS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-715	1	21	1	11	2	0	0	18	0	0	2	0	56
715-730	0	19	0	15	1	1	0	11	0	0	1	1	49
730-745	0	36	0	13	1	0	2	22	0	0	2	0	76
745-800	1	35	4	5	2	1	0	31	2	1	0	0	82
800-815	0	42	3	3	7	1	1	32	0	0	1	0	90
815-830	2	41	6	9	7	1	2	34	0	1	2	0	105
830-845	2	55	9	13	6	4	0	30	1	0	2	1	123
845-900	1	41	3	8	9	1	2	18	0	0	2	1	86

HOUR TOTALS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-800	2	111	5	44	6	2	2	82	2	1	5	1	263
715-815	1	132	7	36	11	3	3	96	2	1	4	1	297
730-830	3	154	13	30	17	3	5	119	2	2	5	0	353
745-845	5	173	22	30	22	7	3	127	3	2	5	1	400
800-900	5	179	21	33	29	7	5	114	1	1	7	2	404



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INTERSECTION TURNING MOVEMENT COUNT SUMMARY - VEHICLES

CLIENT:		KITTLESON AND ASSOCIATES
PROJECT:		WEST OAKLAND SPECIFIC PLAN
DATE:		THURSDAY NOVEMBER 15, 2012
PERIOD:		4:00 PM TO 6:00 PM
INTERSECTION:	N/S	ADELINE STREET
	E/W	12TH STREET
CITY:		OAKLAND

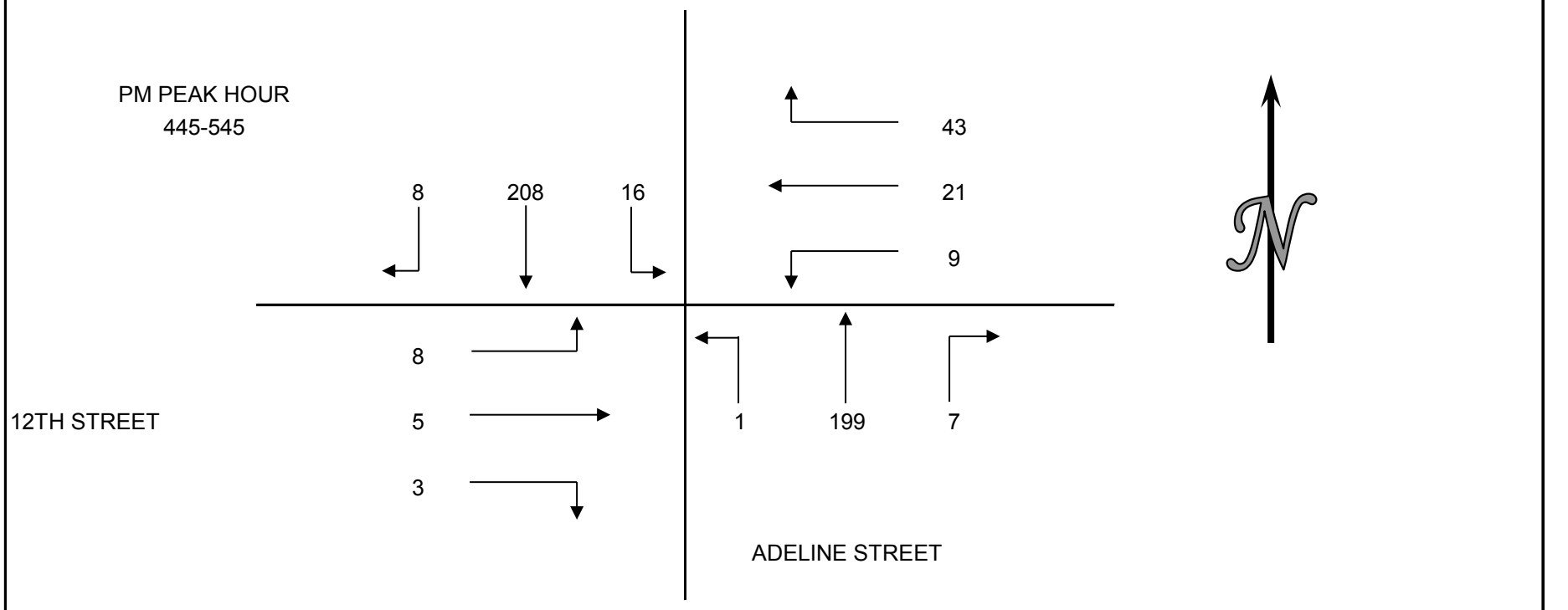
VEHICLE COUNTS

15 MIN COUNTS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-415	3	47	5	5	11	0	2	40	1	0	3	1	118
415-430	1	37	6	7	3	1	1	37	1	0	0	0	94
430-445	2	39	11	11	4	0	1	51	0	0	2	2	123
445-500	2	46	3	12	6	3	1	51	0	3	0	3	130
500-515	2	63	6	12	6	3	2	52	1	0	0	2	149
515-530	1	55	2	7	3	1	2	43	0	0	2	0	116
530-545	3	44	5	12	6	2	2	53	0	0	3	3	133
545-600	2	43	9	7	6	4	0	30	0	0	4	3	108

HOUR TOTALS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-500	8	169	25	35	24	4	5	179	2	3	5	6	465
415-515	7	185	26	42	19	7	5	191	2	3	2	7	496
430-530	7	203	22	42	19	7	6	197	1	3	4	7	518
445-545	8	208	16	43	21	9	7	199	1	3	5	8	528
500-600	8	205	22	38	21	10	6	178	1	0	9	8	506



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INTERSECTION TURNING MOVEMENT COUNT SUMMARY - VEHICLES

CLIENT:		KITTLESON AND ASSOCIATES
PROJECT:		WEST OAKLAND SPECIFIC PLAN
DATE:		THURSDAY NOVEMBER 15, 2012
PERIOD:		7:00 AM TO 9:00 AM
INTERSECTION:	N/S	MANDELA PARKWAY
	E/W	7TH STREET
CITY:		OAKLAND

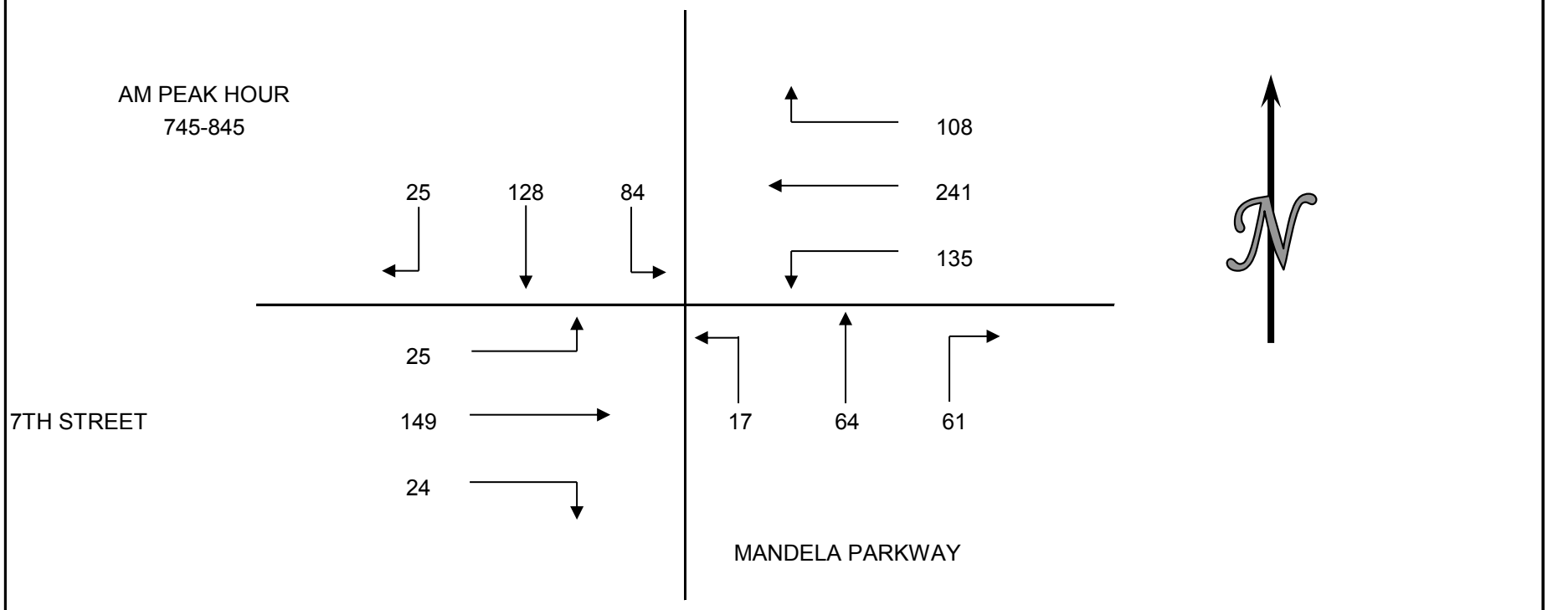
VEHICLE COUNTS

15 MIN COUNTS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-715	8	24	13	10	66	26	12	14	5	6	46	2	232
715-730	5	17	9	5	48	18	11	12	4	2	26	2	159
730-745	7	19	14	17	59	26	8	21	6	7	40	2	226
745-800	2	31	20	21	54	28	13	21	6	7	38	4	245
800-815	6	32	24	35	51	41	10	10	5	7	39	4	264
815-830	7	37	22	30	58	32	16	20	3	5	25	10	265
830-845	10	28	18	22	78	34	22	13	3	5	47	7	287
845-900	6	35	19	13	38	24	12	18	3	2	35	11	216

HOUR TOTALS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-800	22	91	56	53	227	98	44	68	21	22	150	10	862
715-815	20	99	67	78	212	113	42	64	21	23	143	12	894
730-830	22	119	80	103	222	127	47	72	20	26	142	20	1000
745-845	25	128	84	108	241	135	61	64	17	24	149	25	1061
800-900	29	132	83	100	225	131	60	61	14	19	146	32	1032



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INTERSECTION TURNING MOVEMENT COUNT SUMMARY - VEHICLES

CLIENT:		KITTLESON AND ASSOCIATES
PROJECT:		WEST OAKLAND SPECIFIC PLAN
DATE:		THURSDAY NOVEMBER 15, 2012
PERIOD:		4:00 PM TO 6:00 PM
INTERSECTION:	N/S	MADELA PARKWAY
	E/W	7TH STREET
CITY:		OAKLAND

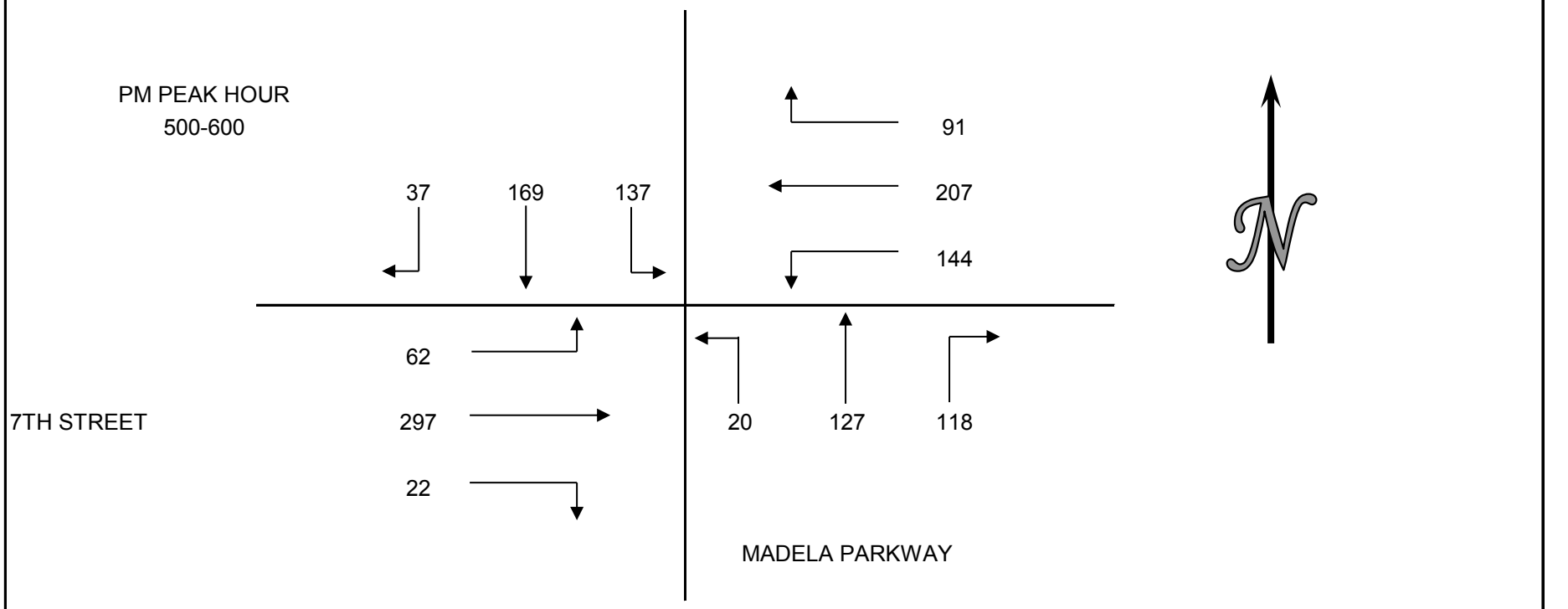
VEHICLE COUNTS

15 MIN COUNTS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-415	12	24	22	23	37	17	20	20	6	4	50	8	243
415-430	7	33	23	13	61	22	26	25	7	9	64	12	302
430-445	11	30	22	22	54	23	23	36	7	7	71	13	319
445-500	7	30	19	18	45	20	16	31	5	2	70	15	278
500-515	13	44	30	30	53	31	29	29	4	4	75	12	354
515-530	6	44	46	24	60	42	37	35	10	8	81	23	416
530-545	9	39	33	19	48	30	24	27	3	5	65	15	317
545-600	9	42	28	18	46	41	28	36	3	5	76	12	344

HOUR TOTALS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-500	37	117	86	76	197	82	85	112	25	22	255	48	1142
415-515	38	137	94	83	213	96	94	121	23	22	280	52	1253
430-530	37	148	117	94	212	116	105	131	26	21	297	63	1367
445-545	35	157	128	91	206	123	106	122	22	19	291	65	1365
500-600	37	169	137	91	207	144	118	127	20	22	297	62	1431



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INTERSECTION TURNING MOVEMENT COUNT SUMMARY - VEHICLES

CLIENT:		KITTLESON AND ASSOCIATES
PROJECT:		WEST OAKLAND SPECIFIC PLAN
DATE:		THURSDAY NOVEMBER 15, 2012
PERIOD:		7:00 AM TO 9:00 AM
INTERSECTION:	N/S	ADELINE STREET
	E/W	7TH STREET
CITY:		OAKLAND

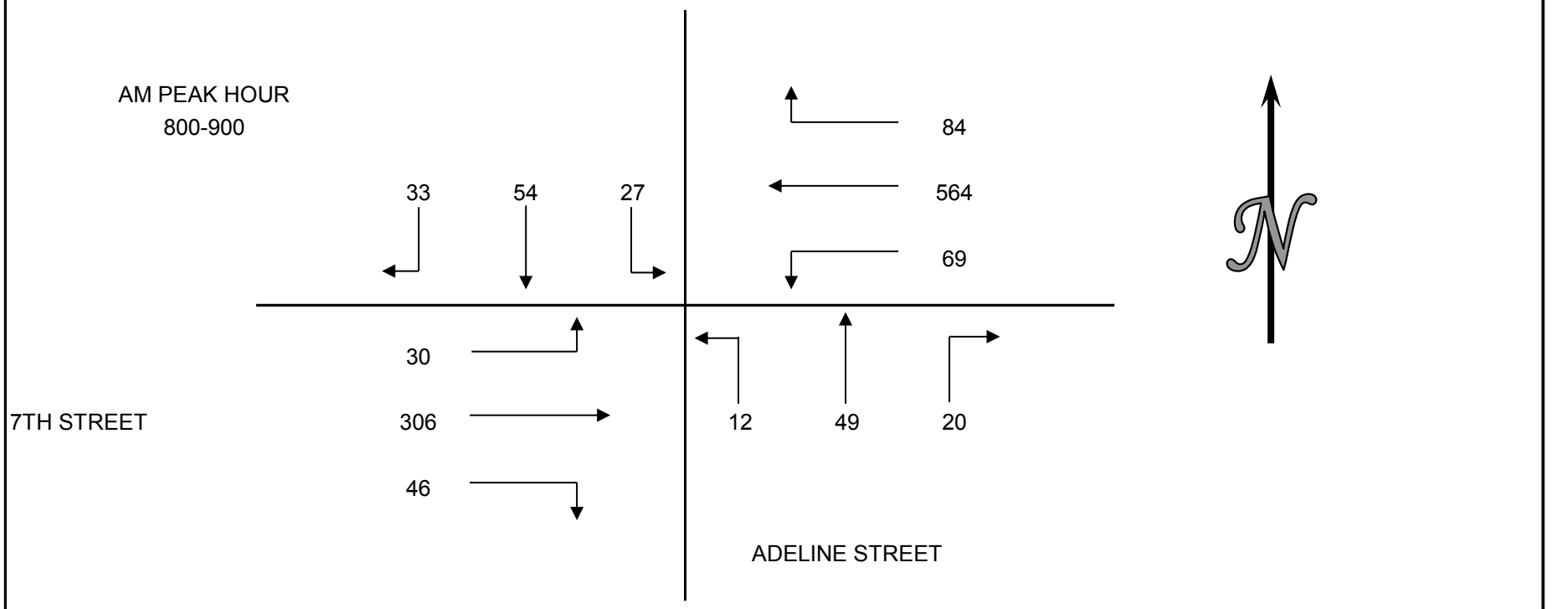
VEHICLE COUNTS

15 MIN COUNTS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-715	3	12	3	8	111	11	5	8	1	13	62	5	242
715-730	8	12	4	11	112	13	2	6	4	14	74	4	264
730-745	7	13	4	15	113	21	0	4	5	14	62	3	261
745-800	6	21	5	13	127	21	0	13	1	21	59	5	292
800-815	5	14	5	27	154	18	3	9	3	12	76	7	333
815-830	14	16	8	22	133	14	4	17	3	6	66	9	312
830-845	4	15	7	22	155	20	6	10	4	15	83	8	349
845-900	10	9	7	13	122	17	7	13	2	13	81	6	300

HOUR TOTALS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-800	24	58	16	47	463	66	7	31	11	62	257	17	1059
715-815	26	60	18	66	506	73	5	32	13	61	271	19	1150
730-830	32	64	22	77	527	74	7	43	12	53	263	24	1198
745-845	29	66	25	84	569	73	13	49	11	54	284	29	1286
800-900	33	54	27	84	564	69	20	49	12	46	306	30	1294



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INTERSECTION TURNING MOVEMENT COUNT SUMMARY - VEHICLES

CLIENT:		KITTLESON AND ASSOCIATES
PROJECT:		WEST OAKLAND SPECIFIC PLAN
DATE:		THURSDAY NOVEMBER 15, 2012
PERIOD:		4:00 PM TO 6:00 PM
INTERSECTION:	N/S	ADELINE STREET
	E/W	7TH STREET
CITY:		OAKLAND

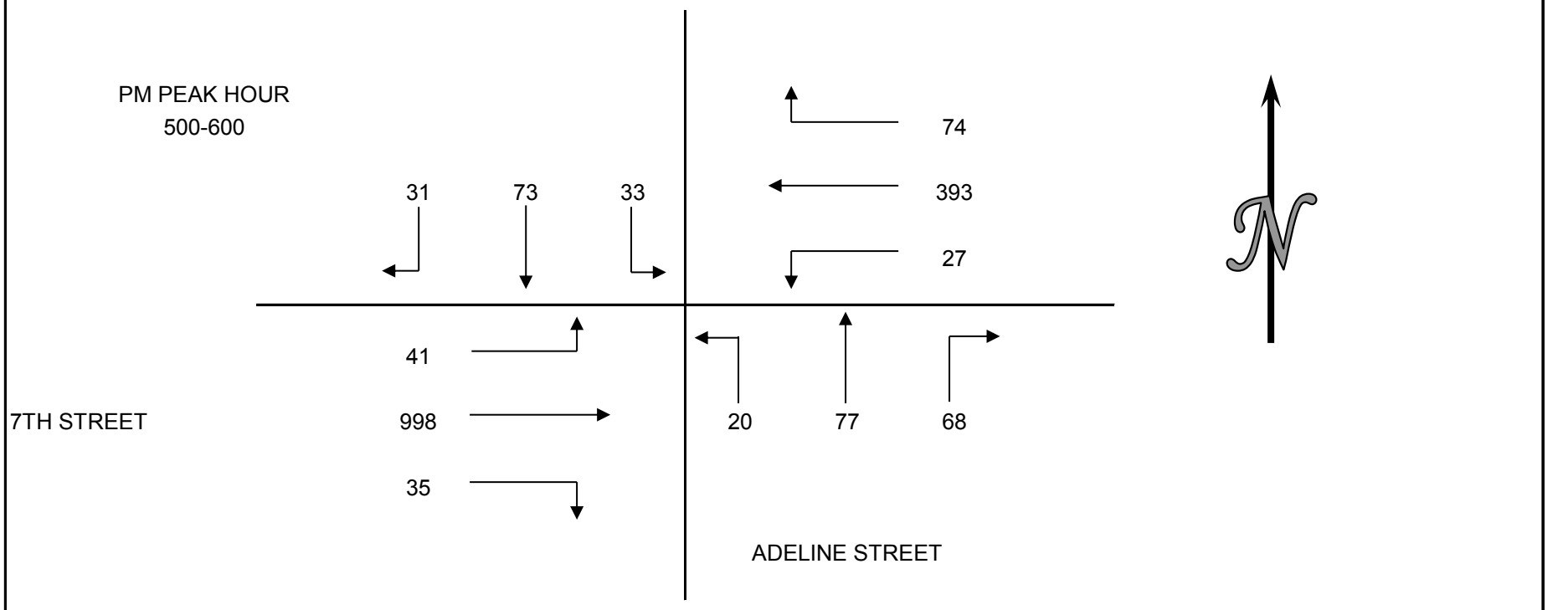
VEHICLE COUNTS

15 MIN COUNTS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-415	5	29	6	12	70	4	8	17	3	9	120	10	293
415-430	8	15	7	16	98	6	10	11	1	8	119	10	309
430-445	18	17	4	12	81	2	15	15	2	14	152	15	347
445-500	2	25	10	6	88	4	13	19	8	18	149	9	351
500-515	7	19	4	31	105	13	18	21	4	10	224	8	464
515-530	9	26	11	18	111	6	24	27	6	7	312	16	573
530-545	7	16	8	19	106	6	12	16	2	11	265	6	474
545-600	8	12	10	6	71	2	14	13	8	7	197	11	359

HOUR TOTALS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-500	33	86	27	46	337	16	46	62	14	49	540	44	1300
415-515	35	76	25	65	372	25	56	66	15	50	644	42	1471
430-530	36	87	29	67	385	25	70	82	20	49	837	48	1735
445-545	25	86	33	74	410	29	67	83	20	46	950	39	1862
500-600	31	73	33	74	393	27	68	77	20	35	998	41	1870



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INTERSECTION TURNING MOVEMENT COUNT SUMMARY - VEHICLES

CLIENT:		KITTLESON AND ASSOCIATES
PROJECT:		WEST OAKLAND SPECIFIC PLAN
DATE:		THURSDAY NOVEMBER 15, 2012
PERIOD:		7:00 AM TO 9:00 AM
INTERSECTION:	N/S	MARKET STREET
	E/W	7TH STREET
CITY:		OAKLAND

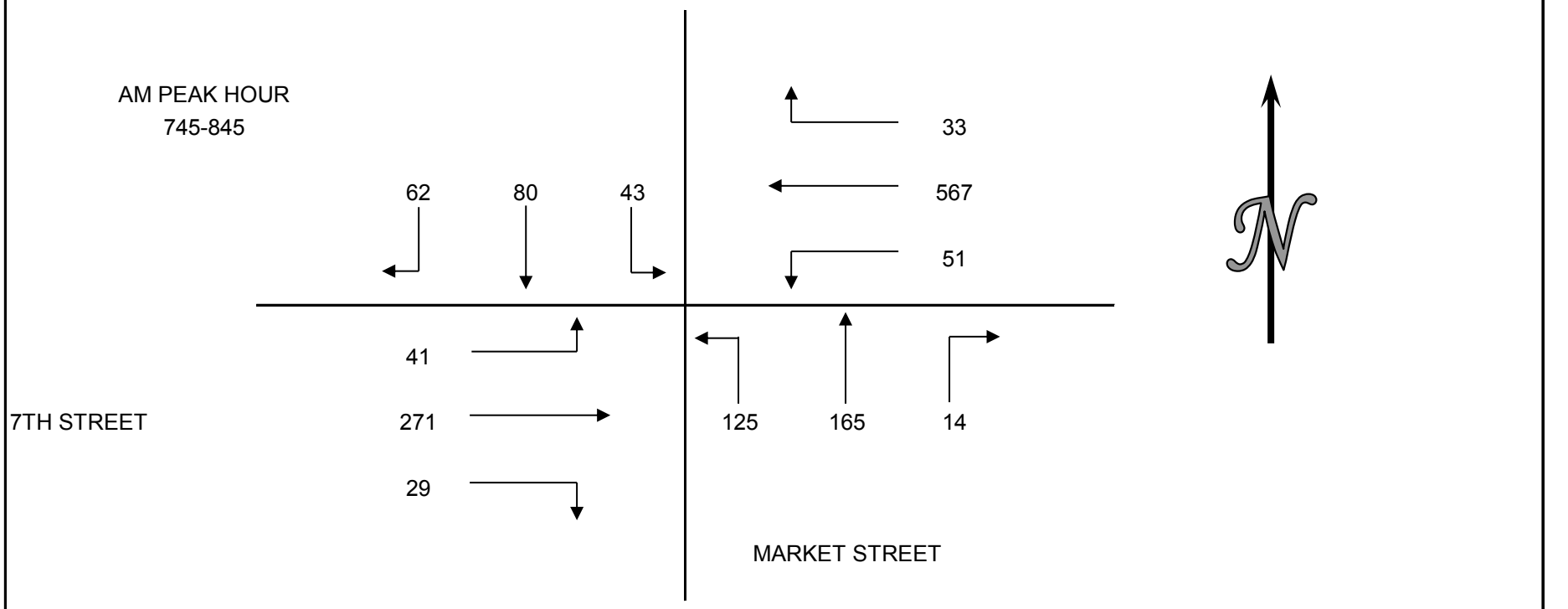
VEHICLE COUNTS

15 MIN COUNTS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-715	2	17	1	2	104	10	1	24	23	3	37	5	229
715-730	5	14	13	1	128	13	4	34	25	6	58	16	317
730-745	23	25	3	1	112	8	0	42	21	8	39	14	296
745-800	14	20	14	3	132	21	2	34	24	10	62	10	346
800-815	8	19	13	11	159	17	6	51	37	6	78	6	411
815-830	18	15	6	8	122	7	4	45	32	6	60	11	334
830-845	22	26	10	11	154	6	2	35	32	7	71	14	390
845-900	14	16	10	9	121	10	5	32	18	7	72	8	322

HOUR TOTALS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-800	44	76	31	7	476	52	7	134	93	27	196	45	1188
715-815	50	78	43	16	531	59	12	161	107	30	237	46	1370
730-830	63	79	36	23	525	53	12	172	114	30	239	41	1387
745-845	62	80	43	33	567	51	14	165	125	29	271	41	1481
800-900	62	76	39	39	556	40	17	163	119	26	281	39	1457



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INTERSECTION TURNING MOVEMENT COUNT SUMMARY - VEHICLES

CLIENT:		KITTLESON AND ASSOCIATES
PROJECT:		WEST OAKLAND SPECIFIC PLAN
DATE:		THURSDAY NOVEMBER 15, 2012
PERIOD:		4:00 PM TO 6:00 PM
INTERSECTION:	N/S	MARKET STREET
	E/W	7TH STREET
CITY:		OAKLAND

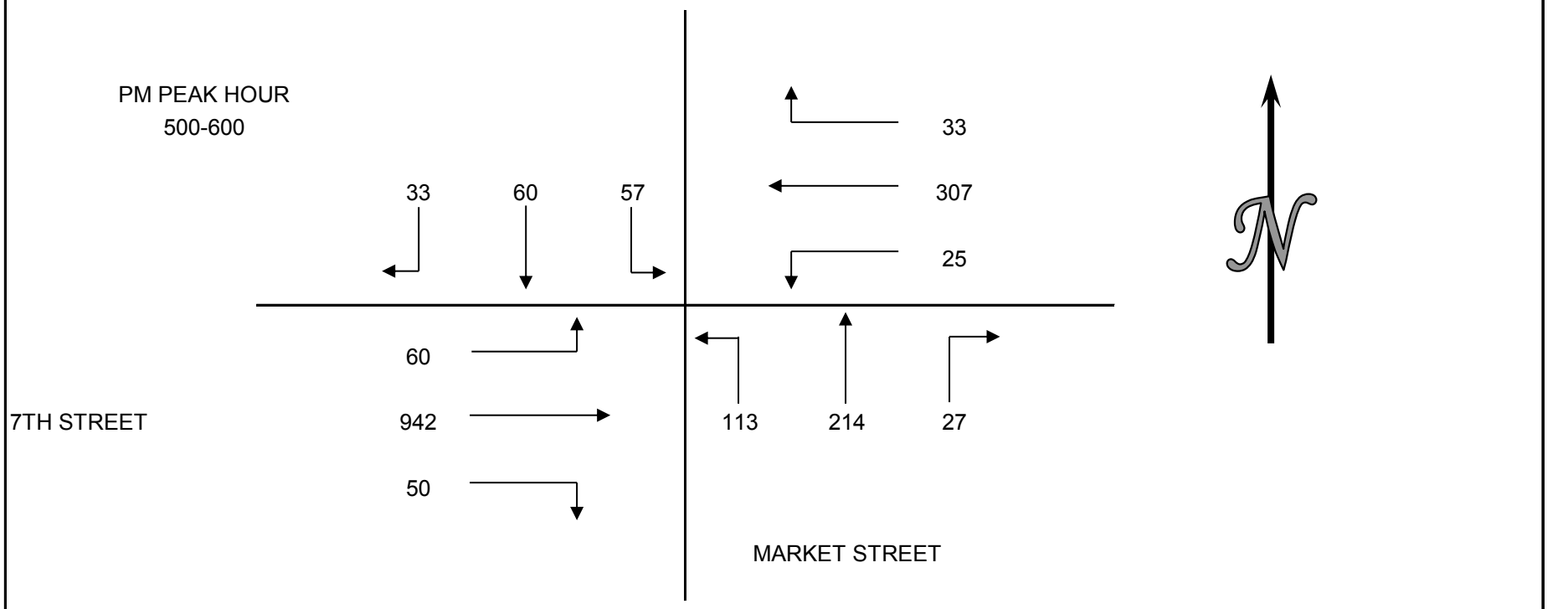
VEHICLE COUNTS

15 MIN COUNTS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-415	15	24	13	7	58	15	10	48	27	12	127	13	369
415-430	4	22	10	5	65	11	6	40	28	13	86	16	306
430-445	11	19	13	10	63	9	7	61	32	11	134	9	379
445-500	13	21	15	6	64	5	5	49	33	12	121	19	363
500-515	16	14	19	13	75	10	10	69	42	14	201	15	498
515-530	2	17	11	8	87	1	9	42	24	12	281	16	510
530-545	8	16	18	7	74	6	5	60	29	11	262	22	518
545-600	7	13	9	5	71	8	3	43	18	13	198	7	395

HOUR TOTALS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-500	43	86	51	28	250	40	28	198	120	48	468	57	1417
415-515	44	76	57	34	267	35	28	219	135	50	542	59	1546
430-530	42	71	58	37	289	25	31	221	131	49	737	59	1750
445-545	39	68	63	34	300	22	29	220	128	49	865	72	1889
500-600	33	60	57	33	307	25	27	214	113	50	942	60	1921



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INTERSECTION TURNING MOVEMENT COUNT SUMMARY - VEHICLES

CLIENT:		KITTLESON AND ASSOCIATES
PROJECT:		WEST OAKLAND SPECIFIC PLAN
DATE:		THURSDAY NOVEMBER 15, 2012
PERIOD:		7:00 AM TO 9:00 AM
INTERSECTION:	N/S	MARKET STREET
	E/W	5TH STREET / I-880 OFF-RAMP
CITY:		OAKLAND

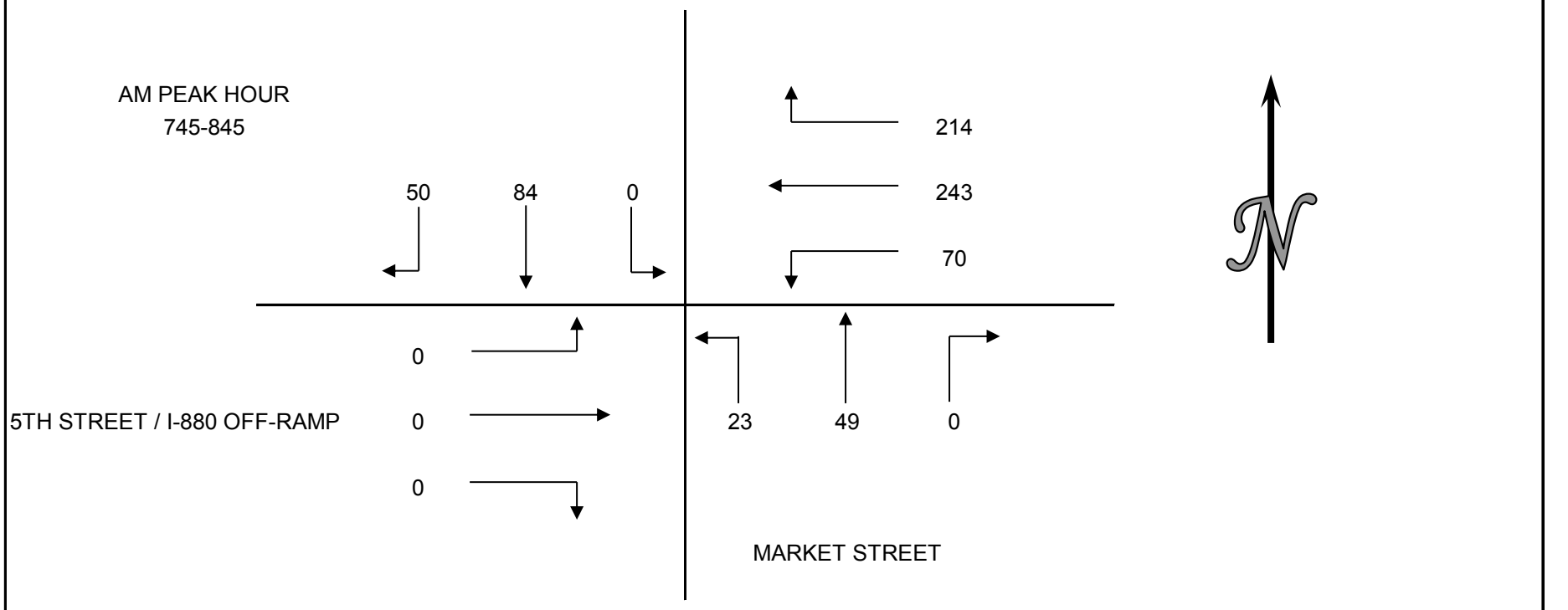
VEHICLE COUNTS

15 MIN COUNTS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-715	8	4	0	34	62	15	0	7	5	0	0	0	135
715-730	10	16	0	41	59	16	0	8	14	0	0	0	164
730-745	6	15	0	41	47	18	0	6	5	0	0	0	138
745-800	19	27	0	49	61	23	0	10	6	0	0	0	195
800-815	15	19	0	65	64	21	0	17	4	0	0	0	205
815-830	4	22	0	63	64	14	0	14	5	0	0	0	186
830-845	12	16	0	37	54	12	0	8	8	0	0	0	147
845-900	14	19	0	27	38	13	0	11	1	0	0	0	123

HOUR TOTALS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-800	43	62	0	165	229	72	0	31	30	0	0	0	632
715-815	50	77	0	196	231	78	0	41	29	0	0	0	702
730-830	44	83	0	218	236	76	0	47	20	0	0	0	724
745-845	50	84	0	214	243	70	0	49	23	0	0	0	733
800-900	45	76	0	192	220	60	0	50	18	0	0	0	661



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INTERSECTION TURNING MOVEMENT COUNT SUMMARY - VEHICLES

CLIENT:		KITTLESON AND ASSOCIATES
PROJECT:		WEST OAKLAND SPECIFIC PLAN
DATE:		THURSDAY NOVEMBER 15, 2012
PERIOD:		7:00 AM TO 9:00 AM
INTERSECTION:	N/S	MARKET STREET
	E/W	5TH STREET (I-880 OFF-RAMP FRONTAGE ROAD)
CITY:		OAKLAND

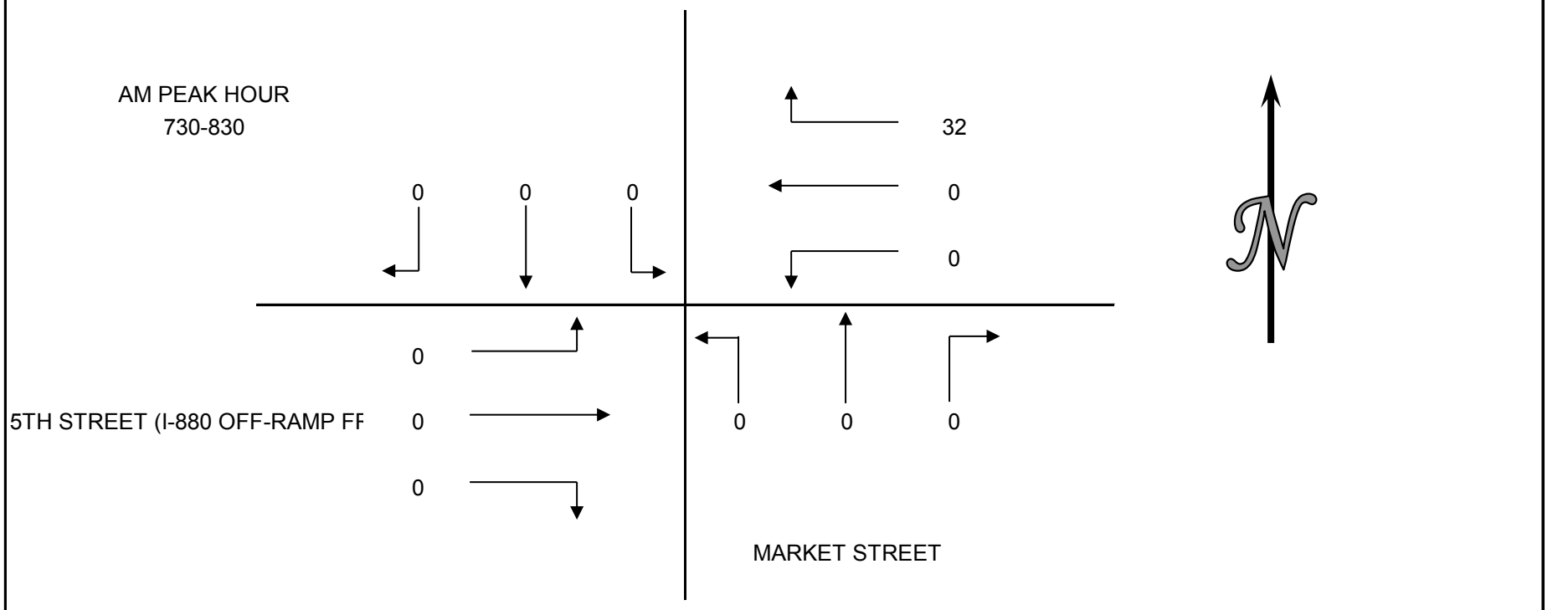
VEHICLE COUNTS

15 MIN COUNTS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-715	0	0	0	5	0	0	0	0	0	0	0	0	5
715-730	0	0	0	3	0	0	0	0	0	0	0	0	3
730-745	0	0	0	5	0	0	0	0	0	0	0	0	5
745-800	0	0	0	6	0	0	0	0	0	0	0	0	6
800-815	0	0	0	9	0	0	0	0	0	0	0	0	9
815-830	0	0	0	12	0	0	0	0	0	0	0	0	12
830-845	0	0	0	5	0	0	0	0	0	0	0	0	5
845-900	0	0	0	6	0	0	0	0	0	0	0	0	6

HOUR TOTALS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-800	0	0	0	19	0	0	0	0	0	0	0	0	19
715-815	0	0	0	23	0	0	0	0	0	0	0	0	23
730-830	0	0	0	32	0	0	0	0	0	0	0	0	32
745-845	0	0	0	32	0	0	0	0	0	0	0	0	32
800-900	0	0	0	32	0	0	0	0	0	0	0	0	32



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INTERSECTION TURNING MOVEMENT COUNT SUMMARY - VEHICLES

CLIENT:		KITTLESON AND ASSOCIATES
PROJECT:		WEST OAKLAND SPECIFIC PLAN
DATE:		TUESDAY NOVEMBER 28, 2012
PERIOD:		4:00 PM TO 6:00 PM
INTERSECTION:	N/S	MARKET STREET / I-880 OFF-RAMP
	E/W	5TH STREET
CITY:		OAKLAND

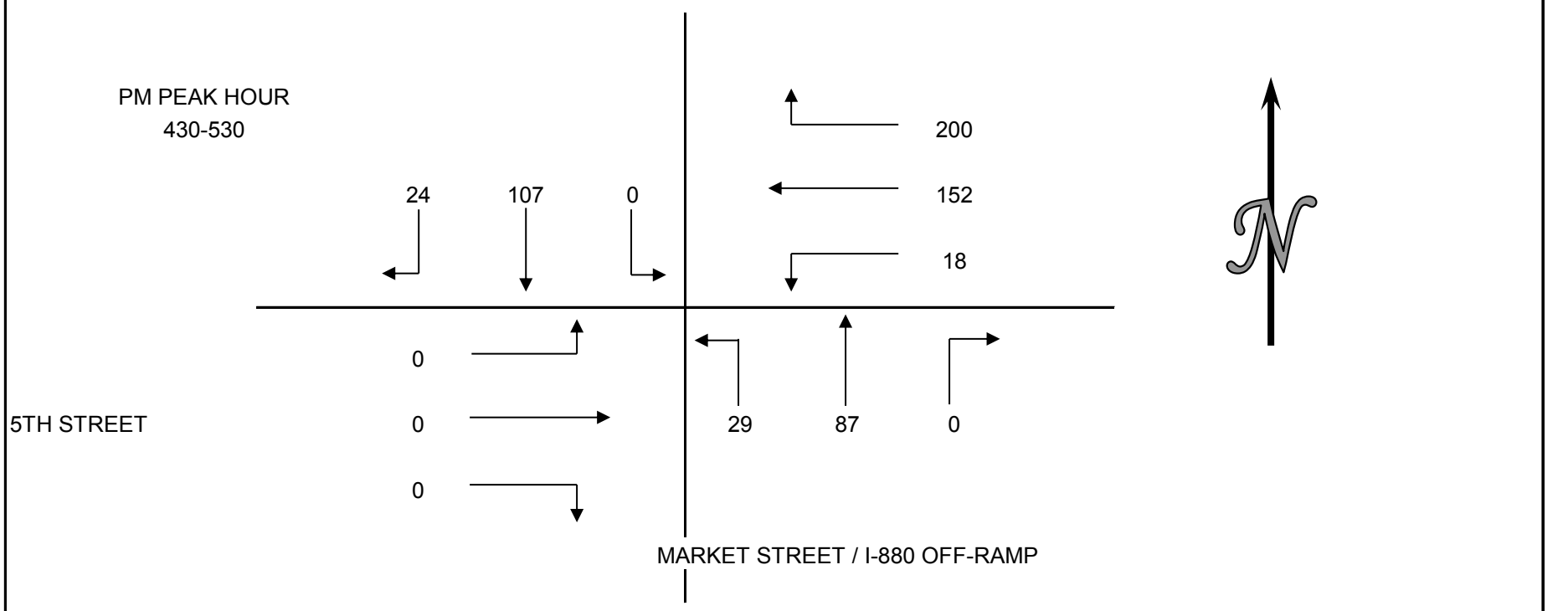
VEHICLE COUNTS

15 MIN COUNTS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-415	8	25	0	21	22	11	0	16	11	0	0	0	114
415-430	6	29	0	34	27	7	0	23	3	0	0	0	129
430-445	6	25	0	53	47	7	0	22	6	0	0	0	166
445-500	7	33	0	46	34	6	0	25	8	0	0	0	159
500-515	5	19	0	45	22	4	0	19	8	0	0	0	122
515-530	6	30	0	56	49	1	0	21	7	0	0	0	170
530-545	2	24	0	44	30	8	0	24	5	0	0	0	137
545-600	5	26	0	32	30	3	0	12	1	0	0	0	109

HOUR TOTALS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-500	27	112	0	154	130	31	0	86	28	0	0	0	568
415-515	24	106	0	178	130	24	0	89	25	0	0	0	576
430-530	24	107	0	200	152	18	0	87	29	0	0	0	617
445-545	20	106	0	191	135	19	0	89	28	0	0	0	588
500-600	18	99	0	177	131	16	0	76	21	0	0	0	538



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INTERSECTION TURNING MOVEMENT COUNT SUMMARY - VEHICLES

CLIENT:		KITTLESON AND ASSOCIATES
PROJECT:		WEST OAKLAND SPECIFIC PLAN
DATE:		TUESDAY NOVEMBER 28, 2012
PERIOD:		4:00 PM TO 6:00 PM
INTERSECTION:	N/S	MARKET STREET / I-880 OFF-RAMP
	E/W	5TH STREET
CITY:		OAKLAND

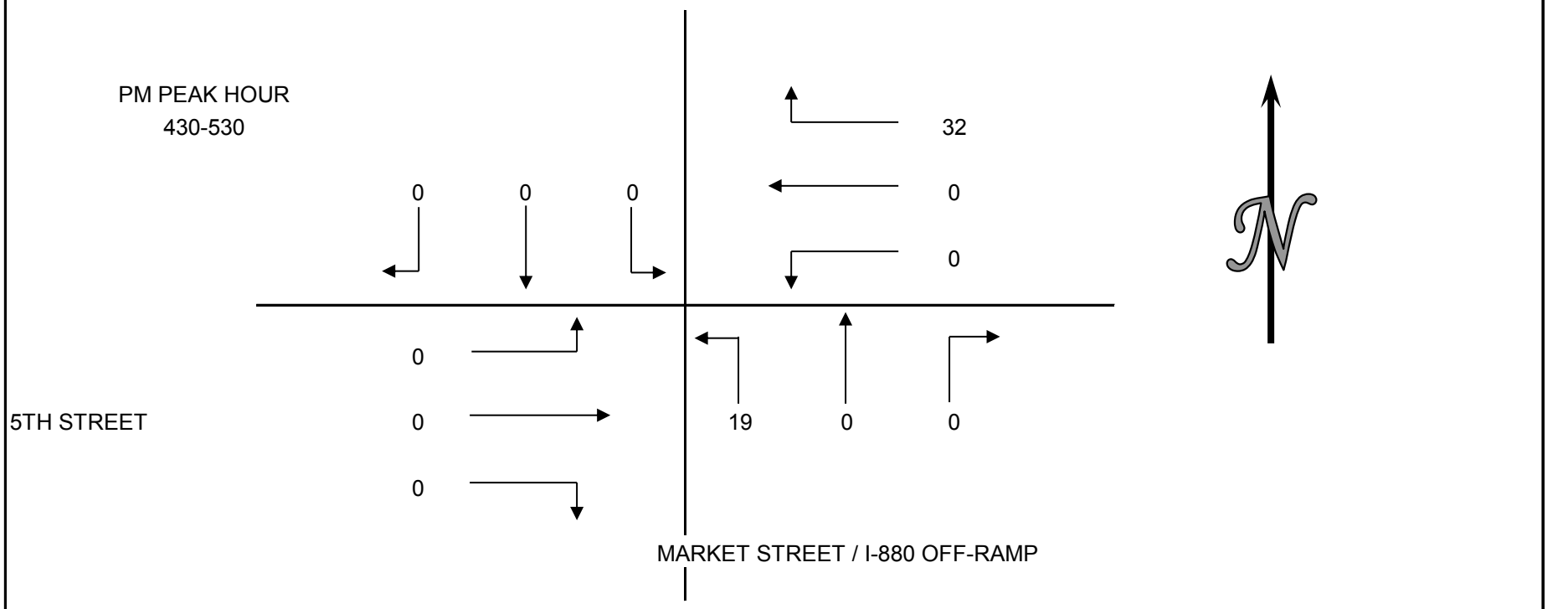
VEHICLE COUNTS

15 MIN COUNTS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9U NBUT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-415	0	0	0	3	0	0	0	0	2	0	0	0	5
415-430	0	0	0	2	0	0	0	0	5	0	0	0	7
430-445	0	0	0	6	0	0	0	0	7	0	0	0	13
445-500	0	0	0	9	0	0	0	0	7	0	0	0	16
500-515	0	0	0	6	0	0	0	0	3	0	0	0	9
515-530	0	0	0	11	0	0	0	0	2	0	0	0	13
530-545	0	0	0	12	0	0	0	0	1	0	0	0	13
545-600	0	0	0	8	0	0	0	0	0	0	0	0	8

HOUR TOTALS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9U NBUT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-500	0	0	0	20	0	0	0	0	21	0	0	0	41
415-515	0	0	0	23	0	0	0	0	22	0	0	0	45
430-530	0	0	0	32	0	0	0	0	19	0	0	0	51
445-545	0	0	0	38	0	0	0	0	13	0	0	0	51
500-600	0	0	0	37	0	0	0	0	6	0	0	0	43



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INTERSECTION TURNING MOVEMENT COUNT SUMMARY - VEHICLES

CLIENT:		KITTLESON AND ASSOCIATES
PROJECT:		WEST OAKLAND SPECIFIC PLAN
DATE:		THURSDAY NOVEMBER 15, 2012
PERIOD:		7:00 AM TO 9:00 AM
INTERSECTION:	N/S	ADELINE STREET
	E/W	5TH STREET
CITY:		OAKLAND

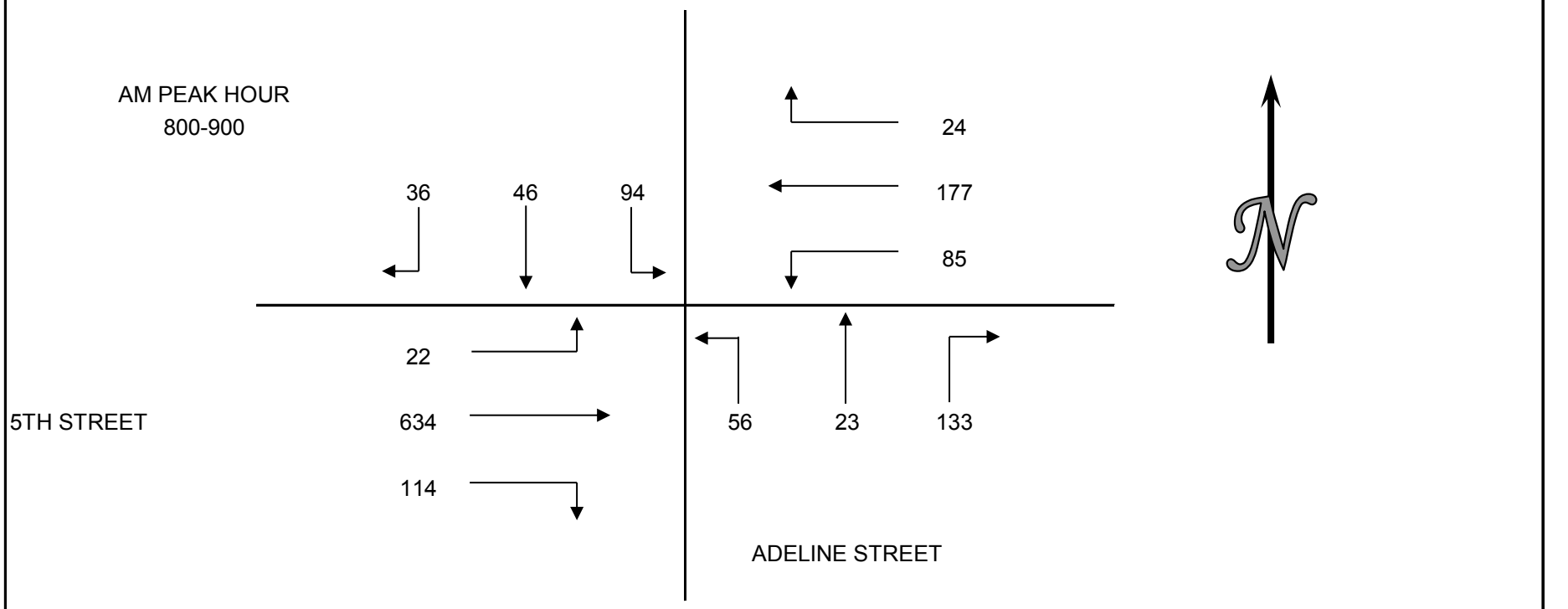
VEHICLE COUNTS

15 MIN COUNTS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-715	0	24	12	9	29	27	11	3	13	35	94	4	261
715-730	5	9	14	7	25	40	7	1	19	31	137	2	297
730-745	10	21	21	3	38	26	13	5	11	27	139	4	318
745-800	2	22	34	5	43	35	18	2	11	17	117	4	310
800-815	9	13	21	4	49	21	25	4	14	25	155	1	341
815-830	11	12	24	8	40	25	36	6	11	24	160	3	360
830-845	10	13	22	7	48	25	30	5	16	34	148	7	365
845-900	6	8	27	5	40	14	42	8	15	31	171	11	378

HOUR TOTALS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-800	17	76	81	24	135	128	49	11	54	110	487	14	1186
715-815	26	65	90	19	155	122	63	12	55	100	548	11	1266
730-830	32	68	100	20	170	107	92	17	47	93	571	12	1329
745-845	32	60	101	24	180	106	109	17	52	100	580	15	1376
800-900	36	46	94	24	177	85	133	23	56	114	634	22	1444



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INTERSECTION TURNING MOVEMENT COUNT SUMMARY - VEHICLES

CLIENT:		KITTLESON AND ASSOCIATES
PROJECT:		WEST OAKLAND SPECIFIC PLAN
DATE:		THURSDAY NOVEMBER 15, 2012
PERIOD:		4:00 PM TO 6:00 PM
INTERSECTION:	N/S	ADELINE STREET
	E/W	5TH STREET
CITY:		OAKLAND

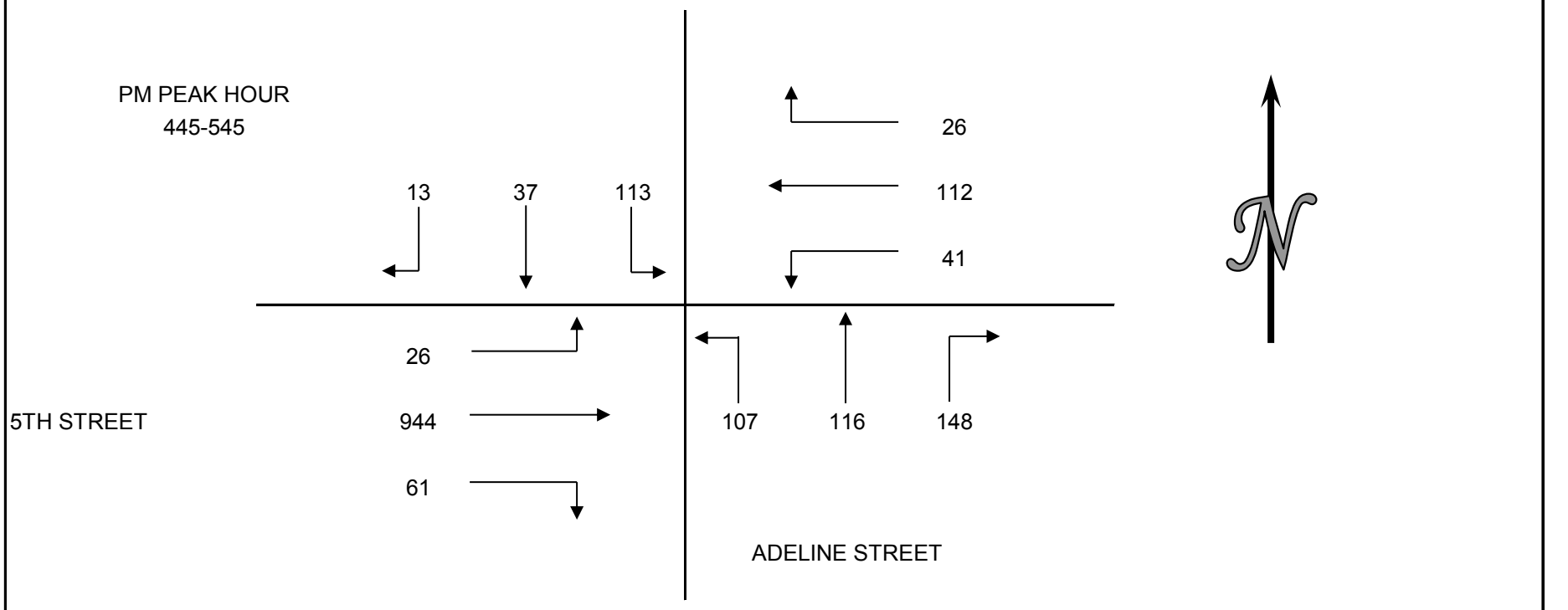
VEHICLE COUNTS

15 MIN COUNTS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-415	2	10	40	8	35	15	58	16	19	23	168	3	397
415-430	3	11	27	5	31	10	66	14	25	17	181	2	392
430-445	5	6	27	8	23	14	63	23	30	13	179	5	396
445-500	2	11	35	6	27	10	58	28	22	13	183	3	398
500-515	6	11	26	5	24	19	39	37	38	13	204	6	428
515-530	4	8	22	6	33	7	32	31	27	14	268	10	462
530-545	1	7	30	9	28	5	19	20	20	21	289	7	456
545-600	1	6	16	7	36	8	15	12	8	23	249	9	390

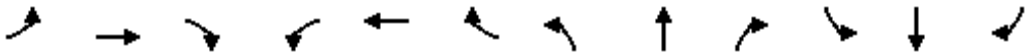
HOUR TOTALS

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-500	12	38	129	27	116	49	245	81	96	66	711	13	1583
415-515	16	39	115	24	105	53	226	102	115	56	747	16	1614
430-530	17	36	110	25	107	50	192	119	117	53	834	24	1684
445-545	13	37	113	26	112	41	148	116	107	61	944	26	1744
500-600	12	32	94	27	121	39	105	100	93	71	1010	32	1736



Appendix B: Intersection Level of Service Worksheets

Existing AM

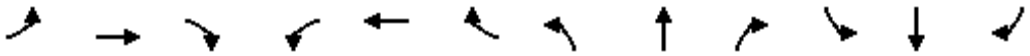


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	623	95	161	577	79	100	129	118	82	232	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3446		1770	3539	1518	1770	1863	1540	1770	1810	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3446		1770	3539	1518	1770	1863	1540	1770	1810	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	677	103	175	627	86	109	140	128	89	252	50
RTOR Reduction (vph)	0	19	0	0	0	51	0	0	96	0	12	0
Lane Group Flow (vph)	27	761	0	175	627	35	109	140	32	89	290	0
Confl. Peds. (#/hr)			32			7			5			6
Confl. Bikes (#/hr)			4			9			11			3
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			
Actuated Green, G (s)	1.5	18.7		7.0	24.2	24.2	4.0	15.0	15.0	3.1	14.1	
Effective Green, g (s)	1.5	18.7		7.0	24.2	24.2	4.0	15.0	15.0	3.1	14.1	
Actuated g/C Ratio	0.03	0.31		0.12	0.40	0.40	0.07	0.25	0.25	0.05	0.24	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	44	1077		207	1432	614	118	467	386	91	426	
v/s Ratio Prot	0.02	c0.22		c0.10	0.18		c0.06	0.08		0.05	c0.16	
v/s Ratio Perm						0.02			0.02			
v/c Ratio	0.61	0.71		0.85	0.44	0.06	0.92	0.30	0.08	0.98	0.68	
Uniform Delay, d1	28.9	18.1		25.9	12.9	10.8	27.7	18.1	17.1	28.3	20.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	22.8	2.1		25.8	0.2	0.0	59.2	0.4	0.1	86.2	4.4	
Delay (s)	51.6	20.3		51.7	13.1	10.9	86.9	18.5	17.2	114.5	25.2	
Level of Service	D	C		D	B	B	F	B	B	F	C	
Approach Delay (s)		21.3			20.5			37.8			45.6	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	27.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	59.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group

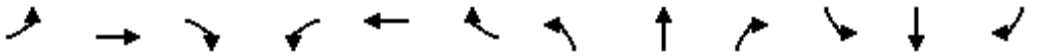


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	174	519	355	40	494	110	439	587	26	136	738	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.95		1.00	0.99		1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.97		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3161		1770	3391		3433	3506		1770	3369	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3161		1770	3391		3433	3506		1770	3369	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	189	564	386	43	537	120	477	638	28	148	802	207
RTOR Reduction (vph)	0	111	0	0	18	0	0	2	0	0	21	0
Lane Group Flow (vph)	189	839	0	43	639	0	477	664	0	148	988	0
Confl. Peds. (#/hr)			83			52			53			68
Confl. Bikes (#/hr)			15			8			15			12
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	14.8	35.3		6.6	27.1		17.4	42.0		13.1	36.7	
Effective Green, g (s)	14.8	35.3		6.6	27.1		17.4	42.0		13.1	36.7	
Actuated g/C Ratio	0.13	0.32		0.06	0.25		0.16	0.38		0.12	0.33	
Clearance Time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.0	2.0		2.0	4.0		2.5	4.0	
Lane Grp Cap (vph)	238	1014		106	835		543	1338		210	1124	
v/s Ratio Prot	c0.11	c0.27		0.02	0.19		c0.14	0.19		0.08	c0.29	
v/s Ratio Perm												
v/c Ratio	0.79	0.83		0.41	0.77		0.88	0.50		0.70	0.88	
Uniform Delay, d1	46.1	34.5		49.8	38.5		45.3	25.9		46.6	34.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	15.5	5.5		0.9	3.8		14.5	1.3		9.5	9.9	
Delay (s)	61.6	40.1		50.7	42.3		59.8	27.2		56.1	44.4	
Level of Service	E	D		D	D		E	C		E	D	
Approach Delay (s)		43.7			42.8			40.8			45.9	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	43.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		

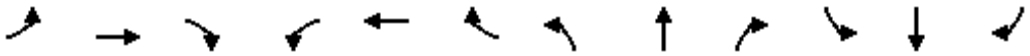
Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group



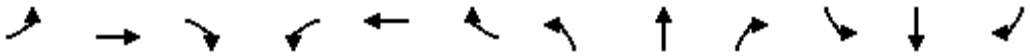
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	239	23	9	135	0	0	0	0	577	838	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5					6.5	6.5	6.5
Lane Util. Factor		0.95			0.91					0.91	0.91	1.00
Frpb, ped/bikes		1.00			1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Frt		0.99			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	0.99	1.00
Satd. Flow (prot)		3479			5062					1610	3369	1550
Flt Permitted		1.00			0.91					0.95	0.99	1.00
Satd. Flow (perm)		3479			4638					1610	3369	1550
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	239	23	9	135	0	0	0	0	577	838	297
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	0	0	0	104
Lane Group Flow (vph)	0	253	0	0	144	0	0	0	0	456	959	193
Confl. Peds. (#/hr)	20		20	20								20
Turn Type		NA		Perm	NA					Perm	NA	Perm
Protected Phases		1			1						2	
Permitted Phases				1						2		2
Actuated Green, G (s)		16.0			16.0					52.0	52.0	52.0
Effective Green, g (s)		16.0			16.0					52.0	52.0	52.0
Actuated g/C Ratio		0.20			0.20					0.65	0.65	0.65
Clearance Time (s)		5.5			5.5					6.5	6.5	6.5
Lane Grp Cap (vph)		695			927					1046	2189	1007
v/s Ratio Prot		c0.07										
v/s Ratio Perm					0.03					0.28	0.28	0.12
v/c Ratio		0.36			0.16					0.44	0.44	0.19
Uniform Delay, d1		27.6			26.4					6.8	6.9	5.6
Progression Factor		1.00			1.20					1.00	1.00	1.00
Incremental Delay, d2		1.5			0.4					1.3	0.6	0.4
Delay (s)		29.1			32.1					8.2	7.5	6.0
Level of Service		C			C					A	A	A
Approach Delay (s)		29.1			32.1			0.0			7.4	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



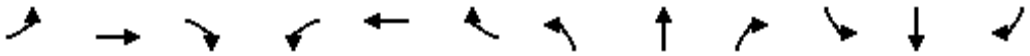
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	132	702	0	0	127	244	4	219	21	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	0.96		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1610	3387			3539	2666		5004				
Flt Permitted	0.95	0.95			1.00	1.00		1.00				
Satd. Flow (perm)	1610	3238			3539	2666		5004				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	132	702	0	0	127	244	4	219	21	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	198	0	12	0	0	0	0
Lane Group Flow (vph)	119	715	0	0	127	46	0	232	0	0	0	0
Confl. Peds. (#/hr)						20			20			
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	18.0	36.5			15.0	15.0		32.5				
Effective Green, g (s)	18.0	36.5			15.0	15.0		32.5				
Actuated g/C Ratio	0.22	0.46			0.19	0.19		0.41				
Clearance Time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Grp Cap (vph)	362	1510			663	499		2032				
v/s Ratio Prot	0.07	c0.11			0.04							
v/s Ratio Perm		c0.11				0.02		0.05				
v/c Ratio	0.33	0.47			0.19	0.09		0.11				
Uniform Delay, d1	25.9	15.1			27.4	26.9		14.8				
Progression Factor	1.08	0.78			1.00	1.00		1.00				
Incremental Delay, d2	2.2	1.0			0.6	0.4		0.1				
Delay (s)	30.3	12.7			28.0	27.2		14.9				
Level of Service	C	B			C	C		B				
Approach Delay (s)		15.2			27.5			14.9			0.0	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



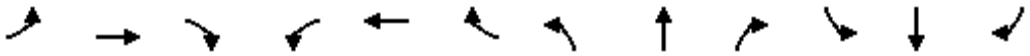
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	18	152	178	218	489	48	32	16	65	20	20	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3312	1404	1543	3284		1243	1250	948	1203	1105	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.98	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3312	1404	1543	3284		1243	1250	948	1203	1105	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	18	152	178	218	489	48	32	16	65	20	20	10
RTOR Reduction (vph)	0	0	127	0	5	0	0	0	56	0	9	0
Lane Group Flow (vph)	18	152	51	218	532	0	24	24	9	20	21	0
Confl. Peds. (#/hr)						1			3			
Heavy Vehicles (%)	0%	9%	15%	17%	7%	21%	38%	44%	68%	50%	75%	40%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases			2						8			
Actuated Green, G (s)	0.9	16.5	16.5	13.2	28.8		8.2	8.2	8.2	3.6	3.6	
Effective Green, g (s)	0.9	16.5	16.5	13.2	28.8		8.2	8.2	8.2	3.6	3.6	
Actuated g/C Ratio	0.02	0.28	0.28	0.23	0.50		0.14	0.14	0.14	0.06	0.06	
Clearance Time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.5	3.5	3.5	2.0	3.5		3.0	3.0	3.0	2.0	2.0	
Lane Grp Cap (vph)	28	942	399	351	1630		175	176	134	74	68	
v/s Ratio Prot	0.01	0.05		c0.14	c0.16		c0.02	0.02		0.02	c0.02	
v/s Ratio Perm			0.04						0.01			
v/c Ratio	0.64	0.16	0.13	0.62	0.33		0.14	0.14	0.07	0.27	0.30	
Uniform Delay, d1	28.4	15.6	15.4	20.2	8.8		21.8	21.8	21.6	25.9	26.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	36.9	0.1	0.2	2.5	0.1		0.4	0.4	0.2	0.7	0.9	
Delay (s)	65.3	15.7	15.6	22.6	8.9		22.2	22.2	21.8	26.7	26.9	
Level of Service	E	B	B	C	A		C	C	C	C	C	
Approach Delay (s)		18.2			12.9			22.0			26.8	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	58.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



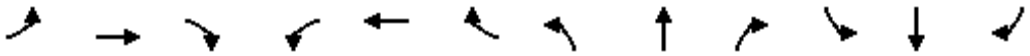
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	170	41	107	537	221	119	110	174	148	110	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.91		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.99	
Satd. Flow (prot)	1014	2958		1299	3438	1369	1480	2541		1480	2333	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.99	
Satd. Flow (perm)	1014	2958		1299	3438	1369	1480	2541		1480	2333	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	40	170	41	107	537	221	119	110	174	148	110	76
RTOR Reduction (vph)	0	18	0	0	0	151	0	144	0	0	43	0
Lane Group Flow (vph)	40	193	0	107	537	70	119	140	0	112	179	0
Confl. Peds. (#/hr)									1			
Heavy Vehicles (%)	78%	14%	37%	39%	5%	18%	22%	42%	19%	11%	45%	45%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	5.4	16.5		9.6	20.7	20.7	11.4	11.4		11.1	11.1	
Effective Green, g (s)	5.4	16.5		9.6	20.7	20.7	11.4	11.4		11.1	11.1	
Actuated g/C Ratio	0.08	0.25		0.15	0.32	0.32	0.18	0.18		0.17	0.17	
Clearance Time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	84	749		191	1093	435	259	444		252	397	
v/s Ratio Prot	0.04	0.07		c0.08	c0.16		c0.08	0.06		0.08	c0.08	
v/s Ratio Perm						0.05						
v/c Ratio	0.48	0.26		0.56	0.49	0.16	0.46	0.32		0.44	0.45	
Uniform Delay, d1	28.5	19.4		25.8	17.9	16.0	24.1	23.4		24.2	24.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.2	0.2		3.7	0.3	0.2	0.9	0.3		0.9	0.6	
Delay (s)	32.7	19.6		29.5	18.3	16.1	25.0	23.7		25.1	24.9	
Level of Service	C	B		C	B	B	C	C		C	C	
Approach Delay (s)		21.7			19.1			24.1			25.0	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	65.1	Sum of lost time (s)	16.5
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	442	64	91	499	0	0	0	0	33	141	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						5.0	
Lane Util. Factor		0.91		1.00	0.95						0.95	
Frpb, ped/bikes		1.00		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.98		1.00	1.00						0.94	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		4894		1765	3343						3179	
Flt Permitted		1.00		0.46	1.00						0.99	
Satd. Flow (perm)		4894		847	3343						3179	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	442	64	91	499	0	0	0	0	33	141	114
RTOR Reduction (vph)	0	25	0	0	0	0	0	0	0	0	79	0
Lane Group Flow (vph)	0	481	0	91	499	0	0	0	0	0	209	0
Confl. Peds. (#/hr)			8	8						10		10
Heavy Vehicles (%)	6%	4%	2%	2%	8%	2%	0%	0%	0%	2%	2%	11%
Turn Type		NA		Perm	NA					Split	NA	
Protected Phases		4			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		13.5		13.5	13.5						10.2	
Effective Green, g (s)		13.5		13.5	13.5						10.2	
Actuated g/C Ratio		0.40		0.40	0.40						0.30	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		1960		339	1339						962	
v/s Ratio Prot		0.10			c0.15						c0.07	
v/s Ratio Perm				0.11								
v/c Ratio		0.25		0.27	0.37						0.22	
Uniform Delay, d1		6.7		6.8	7.1						8.8	
Progression Factor		1.00		0.36	0.38						1.00	
Incremental Delay, d2		0.0		0.2	0.1						0.0	
Delay (s)		6.7		2.6	2.8						8.8	
Level of Service		A		A	A						A	
Approach Delay (s)		6.7			2.7			0.0			8.8	
Approach LOS		A			A			A			A	

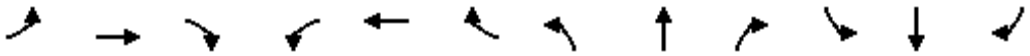
Intersection Summary			
HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	33.7	Sum of lost time (s)	10.0
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	124	351	0	0	526	50	64	253	34	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0				
Lane Util. Factor		0.91			0.91			0.95				
Frpb, ped/bikes		1.00			1.00			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.99			0.99				
Flt Protected		0.99			1.00			0.99				
Satd. Flow (prot)		5016			5011			3451				
Flt Permitted		0.73			1.00			0.99				
Satd. Flow (perm)		3730			5011			3451				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	124	351	0	0	526	50	64	253	34	0	0	0
RTOR Reduction (vph)	0	0	0	0	15	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	475	0	0	561	0	0	340	0	0	0	0
Confl. Peds. (#/hr)	10					10			10			
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)		13.5			13.5			10.2				
Effective Green, g (s)		13.5			13.5			10.2				
Actuated g/C Ratio		0.40			0.40			0.30				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		2.0			2.0			2.0				
Lane Grp Cap (vph)		1494			2007			1044				
v/s Ratio Prot					0.11			c0.10				
v/s Ratio Perm		c0.13										
v/c Ratio		0.32			0.28			0.33				
Uniform Delay, d1		6.9			6.8			9.1				
Progression Factor		0.35			1.00			1.00				
Incremental Delay, d2		0.0			0.0			0.1				
Delay (s)		2.5			6.8			9.2				
Level of Service		A			A			A				
Approach Delay (s)		2.5			6.8			9.2			0.0	
Approach LOS		A			A			A			A	

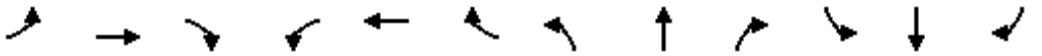
Intersection Summary			
HCM 2000 Control Delay	5.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	33.7	Sum of lost time (s)	10.0
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	242	15	49	574	16	19	84	37	27	116	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5			5.0			5.0	
Lane Util. Factor		0.91			0.91			0.95			0.95	
Frpb, ped/bikes		1.00			1.00			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			1.00			0.96			0.97	
Flt Protected		1.00			1.00			0.99			0.99	
Satd. Flow (prot)		4934			4869			3349			3388	
Flt Permitted		0.89			0.90			0.91			0.90	
Satd. Flow (perm)		4428			4375			3063			3076	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	19	242	15	49	574	16	19	84	37	27	116	34
RTOR Reduction (vph)	0	6	0	0	3	0	0	26	0	0	24	0
Lane Group Flow (vph)	0	270	0	0	636	0	0	114	0	0	153	0
Confl. Peds. (#/hr)	8		7	7		8	11		8	8		11
Confl. Bikes (#/hr)			9			11			8			10
Heavy Vehicles (%)	2%	4%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		47.5			47.5			24.0			24.0	
Effective Green, g (s)		47.5			47.5			24.0			24.0	
Actuated g/C Ratio		0.59			0.59			0.30			0.30	
Clearance Time (s)		3.5			3.5			5.0			5.0	
Lane Grp Cap (vph)		2629			2597			918			922	
v/s Ratio Prot												
v/s Ratio Perm		0.06			c0.15			0.04			c0.05	
v/c Ratio		0.10			0.24			0.12			0.17	
Uniform Delay, d1		7.0			7.7			20.4			20.6	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			0.2			0.3			0.4	
Delay (s)		7.1			7.9			20.6			21.0	
Level of Service		A			A			C			C	
Approach Delay (s)		7.1			7.9			20.6			21.0	
Approach LOS		A			A			C			C	

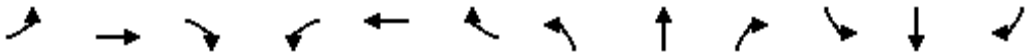
Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	236	50	52	553	12	65	140	65	30	125	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	5.5	3.5	3.5	3.5		3.5	3.5
Lane Util. Factor		0.95	1.00		0.95	1.00	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00	0.95		1.00	0.94	1.00	1.00	0.94		1.00	0.94
Flpb, ped/bikes		1.00	1.00		1.00	1.00	0.98	1.00	1.00		1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00	1.00		0.99	1.00
Satd. Flow (prot)		3432	1490		3244	1493	1650	1845	1488		1837	1497
Flt Permitted		0.92	1.00		0.90	1.00	0.48	1.00	1.00		0.92	1.00
Satd. Flow (perm)		3163	1490		2941	1493	842	1845	1488		1709	1497
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	14	236	50	52	553	12	65	140	65	30	125	45
RTOR Reduction (vph)	0	0	13	0	0	3	0	0	55	0	0	38
Lane Group Flow (vph)	0	250	37	0	605	9	65	140	10	0	155	7
Confl. Peds. (#/hr)	21		15	15		21	27		25	25		27
Confl. Bikes (#/hr)			18			17			16			17
Heavy Vehicles (%)	2%	5%	3%	39%	8%	2%	7%	3%	2%	2%	2%	1%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)		67.1	67.1		67.1	67.1	13.9	13.9	13.9		13.9	13.9
Effective Green, g (s)		67.1	67.1		67.1	67.1	13.9	13.9	13.9		13.9	13.9
Actuated g/C Ratio		0.75	0.75		0.75	0.75	0.15	0.15	0.15		0.15	0.15
Clearance Time (s)		5.5	5.5		5.5	5.5	3.5	3.5	3.5		3.5	3.5
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		2358	1110		2192	1113	130	284	229		263	231
v/s Ratio Prot								0.08				
v/s Ratio Perm		0.08	0.03		c0.21	0.01	0.08		0.01		c0.09	0.00
v/c Ratio		0.11	0.03		0.28	0.01	0.50	0.49	0.04		0.59	0.03
Uniform Delay, d1		3.2	3.0		3.7	2.9	34.9	34.8	32.4		35.4	32.3
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2		0.1	0.1		0.3	0.0	1.1	0.5	0.0		2.2	0.0
Delay (s)		3.3	3.0		4.0	2.9	36.0	35.3	32.4		37.6	32.3
Level of Service		A	A		A	A	D	D	C		D	C
Approach Delay (s)		3.2			4.0			34.8			36.4	
Approach LOS		A			A			C			D	

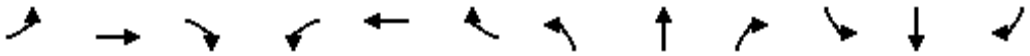
Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	97.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	377	22	24	584	79	47	242	32	76	276	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	0.99	1.00	1.00	0.99	1.00		0.99	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3436	1510	1753	3252	1540	1658	3467		1754	3537	
Flt Permitted		0.95	1.00	0.52	1.00	1.00	0.56	1.00		0.57	1.00	
Satd. Flow (perm)		3257	1510	968	3252	1540	983	3467		1048	3537	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	7	377	22	24	584	79	47	242	32	76	276	1
RTOR Reduction (vph)	0	0	7	0	0	24	0	18	0	0	1	0
Lane Group Flow (vph)	0	384	15	24	584	55	47	256	0	76	276	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Heavy Vehicles (%)	2%	5%	4%	2%	11%	2%	8%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4		4	2			6		
Actuated Green, G (s)		58.8	58.8	58.8	58.8	58.8	16.7	16.7		16.7	16.7	
Effective Green, g (s)		58.8	58.8	58.8	58.8	58.8	16.7	16.7		16.7	16.7	
Actuated g/C Ratio		0.69	0.69	0.69	0.69	0.69	0.20	0.20		0.20	0.20	
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0		4.0	4.0	
Lane Grp Cap (vph)		2253	1044	669	2249	1065	193	681		205	694	
v/s Ratio Prot					c0.18			0.07			c0.08	
v/s Ratio Perm		0.12	0.01	0.02		0.04	0.05			0.07		
v/c Ratio		0.17	0.01	0.04	0.26	0.05	0.24	0.38		0.37	0.40	
Uniform Delay, d1		4.6	4.1	4.1	4.9	4.2	28.8	29.6		29.6	29.8	
Progression Factor		1.00	1.00	0.53	0.51	0.25	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2	0.0	0.1	0.3	0.1	1.4	0.7		1.5	0.5	
Delay (s)		4.7	4.1	2.3	2.8	1.1	30.2	30.4		31.1	30.3	
Level of Service		A	A	A	A	A	C	C		C	C	
Approach Delay (s)		4.7			2.6			30.3			30.5	
Approach LOS		A			A			C			C	

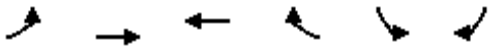
Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	374	20	52	521	28	15	102	168	36	99	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.97		1.00	0.93		0.97	
Flpb, ped/bikes	0.99	1.00	1.00	0.98	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1575	3124	1361	1490	3185	1375		3155	1169		2843	
Flt Permitted	0.46	1.00	1.00	0.53	1.00	1.00		0.90	1.00		0.89	
Satd. Flow (perm)	761	3124	1361	830	3185	1375		2853	1169		2554	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	55	374	20	52	521	28	15	102	168	36	99	105
RTOR Reduction (vph)	0	0	5	0	0	7	0	0	145	0	91	0
Lane Group Flow (vph)	55	374	15	52	521	21	0	117	23	0	149	0
Confl. Peds. (#/hr)	22		31	31		22	34		37	37		34
Confl. Bikes (#/hr)			7			3			12			19
Heavy Vehicles (%)	2%	4%	2%	7%	2%	2%	2%	2%	16%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4		4	2		2	2		
Actuated Green, G (s)	64.9	64.9	64.9	64.9	64.9	64.9		11.6	11.6		11.6	
Effective Green, g (s)	64.9	64.9	64.9	64.9	64.9	64.9		11.6	11.6		11.6	
Actuated g/C Ratio	0.76	0.76	0.76	0.76	0.76	0.76		0.14	0.14		0.14	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	581	2385	1039	633	2431	1049		389	159		348	
v/s Ratio Prot		0.12			c0.16							
v/s Ratio Perm	0.07		0.01	0.06		0.02		0.04	0.02		c0.06	
v/c Ratio	0.09	0.16	0.01	0.08	0.21	0.02		0.30	0.14		0.43	
Uniform Delay, d1	2.6	2.7	2.4	2.5	2.8	2.4		33.0	32.3		33.7	
Progression Factor	0.76	0.76	0.71	0.24	0.49	0.07		1.00	1.00		1.00	
Incremental Delay, d2	0.3	0.1	0.0	0.2	0.2	0.0		0.2	0.2		0.3	
Delay (s)	2.3	2.2	1.7	0.9	1.6	0.2		33.2	32.5		34.0	
Level of Service	A	A	A	A	A	A		C	C		C	
Approach Delay (s)		2.2			1.5			32.8			34.0	
Approach LOS		A			A			C			C	

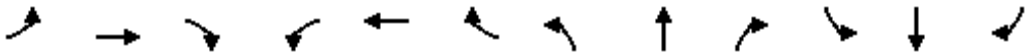
Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



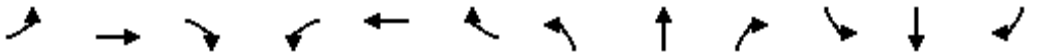
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	120	400	496	84	647	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1593	3008	3036	1343	3053	1191
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1593	3008	3036	1343	3053	1191
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	120	400	496	84	647	168
RTOR Reduction (vph)	0	0	0	44	3	110
Lane Group Flow (vph)	120	400	496	40	661	41
Confl. Peds. (#/hr)				15	15	15
Heavy Vehicles (%)	2%	8%	7%	5%	3%	8%
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	9.5	53.8	40.3	40.3	23.2	23.2
Effective Green, g (s)	9.5	53.8	40.3	40.3	23.2	23.2
Actuated g/C Ratio	0.11	0.63	0.47	0.47	0.27	0.27
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	178	1903	1439	636	833	325
v/s Ratio Prot	c0.08	0.13	c0.16		c0.22	
v/s Ratio Perm				0.03		0.03
v/c Ratio	0.67	0.21	0.34	0.06	0.79	0.13
Uniform Delay, d1	36.3	6.6	14.0	12.1	28.7	23.3
Progression Factor	1.11	1.03	1.07	1.10	1.00	1.00
Incremental Delay, d2	7.6	0.2	0.1	0.0	4.9	0.1
Delay (s)	47.9	7.0	15.0	13.3	33.6	23.3
Level of Service	D	A	B	B	C	C
Approach Delay (s)		16.5	14.8		31.7	
Approach LOS		B	B		C	

Intersection Summary			
HCM 2000 Control Delay	22.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



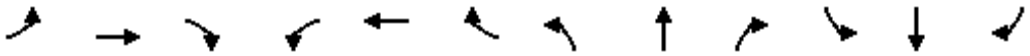
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	74	555	53	80	411	61	85	352	76	51	305	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00	0.91	1.00	0.99	
Flpb, ped/bikes	0.98	1.00			1.00		0.97	1.00	1.00	0.96	1.00	
Frt	1.00	0.99			0.98		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1560	3129			3081		1550	3185	1297	1535	3055	
Flt Permitted	0.44	1.00			0.79		0.39	1.00	1.00	0.42	1.00	
Satd. Flow (perm)	722	3129			2459		643	3185	1297	673	3055	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	74	555	53	80	411	61	85	352	76	51	305	66
RTOR Reduction (vph)	0	5	0	0	6	0	0	0	61	0	31	0
Lane Group Flow (vph)	74	603	0	0	546	0	85	352	15	51	340	0
Confl. Peds. (#/hr)	46		47	47		46	57		65	65		57
Confl. Bikes (#/hr)			9			21			15			22
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	60.3	60.3			60.3		16.7	16.7	16.7	16.7	16.7	
Effective Green, g (s)	60.3	60.3			60.3		16.7	16.7	16.7	16.7	16.7	
Actuated g/C Ratio	0.71	0.71			0.71		0.20	0.20	0.20	0.20	0.20	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	512	2219			1744		126	625	254	132	600	
v/s Ratio Prot		0.19						0.11			0.11	
v/s Ratio Perm	0.10				c0.22		c0.13		0.01	0.08		
v/c Ratio	0.14	0.27			0.31		0.67	0.56	0.06	0.39	0.57	
Uniform Delay, d1	4.0	4.4			4.6		31.6	30.9	27.8	29.7	30.9	
Progression Factor	0.81	0.74			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.3			0.0		10.7	0.7	0.0	0.7	0.7	
Delay (s)	3.8	3.6			4.7		42.3	31.6	27.8	30.4	31.6	
Level of Service	A	A			A		D	C	C	C	C	
Approach Delay (s)		3.6			4.7			32.8			31.5	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	126	65	345	465	101	103	630	290	28	583	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	5.5		5.5	5.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		1.00	1.00
Satd. Flow (prot)	3090	3154	1352	3090	3185	1352		4535	1352		4564	1352
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.74	1.00		0.88	1.00
Satd. Flow (perm)	3090	3154	1352	3090	3185	1352		3364	1352		4010	1352
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	53	126	65	345	465	101	103	630	290	28	583	76
RTOR Reduction (vph)	0	0	43	0	0	53	0	0	200	0	0	53
Lane Group Flow (vph)	53	126	22	345	465	48	0	733	90	0	611	23
Confl. Peds. (#/hr)			40			40	40		40	40		40
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases			8			4	2		2	6		6
Actuated Green, G (s)	4.6	30.3	30.3	16.9	42.6	42.6		27.8	27.8		27.8	27.8
Effective Green, g (s)	4.6	30.3	30.3	16.9	42.6	42.6		27.8	27.8		27.8	27.8
Actuated g/C Ratio	0.05	0.34	0.34	0.19	0.47	0.47		0.31	0.31		0.31	0.31
Clearance Time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	5.5		5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	157	1061	455	580	1507	639		1039	417		1238	417
v/s Ratio Prot	c0.02	0.04		c0.11	c0.15							
v/s Ratio Perm			0.02			0.04		c0.22	0.07		0.15	0.02
v/c Ratio	0.34	0.12	0.05	0.59	0.31	0.07		0.71	0.21		0.49	0.06
Uniform Delay, d1	41.2	20.6	20.1	33.4	14.6	12.9		27.5	23.0		25.4	21.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	1.3	0.2	0.2	1.6	0.5	0.2		2.2	0.3		0.3	0.1
Delay (s)	42.5	20.9	20.3	35.1	15.1	13.2		29.7	23.3		25.7	21.9
Level of Service	D	C	C	D	B	B		C	C		C	C
Approach Delay (s)		25.4			22.5			27.9			25.3	
Approach LOS		C			C			C			C	

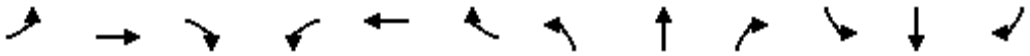
Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	91.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	25	7	32	79	45	10	148	26	29	178	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			0.99			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.97			0.96			0.98			0.99	
Flt Protected		0.99			0.99			1.00			0.99	
Satd. Flow (prot)		3392			3321			3442			3472	
Flt Permitted		0.92			0.91			0.94			0.91	
Satd. Flow (perm)		3136			3044			3246			3183	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	8	25	7	32	79	45	10	148	26	29	178	14
RTOR Reduction (vph)	0	4	0	0	28	0	0	14	0	0	8	0
Lane Group Flow (vph)	0	36	0	0	128	0	0	170	0	0	213	0
Confl. Peds. (#/hr)	15		10	10		15	15		15	15		15
Confl. Bikes (#/hr)			5			4						9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		20.5			20.5			25.5			25.5	
Effective Green, g (s)		20.5			20.5			25.5			25.5	
Actuated g/C Ratio		0.37			0.37			0.46			0.46	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Lane Grp Cap (vph)		1168			1134			1504			1475	
v/s Ratio Prot												
v/s Ratio Perm		0.01			c0.04			0.05			c0.07	
v/c Ratio		0.03			0.11			0.11			0.14	
Uniform Delay, d1		10.9			11.3			8.3			8.5	
Progression Factor		1.00			1.00			0.65			1.00	
Incremental Delay, d2		0.0			0.2			0.2			0.2	
Delay (s)		11.0			11.5			5.6			8.7	
Level of Service		B			B			A			A	
Approach Delay (s)		11.0			11.5			5.6			8.7	
Approach LOS		B			B			A			A	

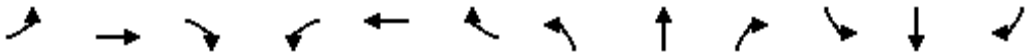
Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.13		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	118	25	29	136	70	30	219	35	79	188	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		0.95			0.95		1.00	0.95			0.95	
Frpb, ped/bikes		0.99			0.99		1.00	0.99			1.00	
Flpb, ped/bikes		1.00			1.00		0.99	1.00			0.99	
Frt		0.98			0.96		1.00	0.98			0.99	
Flt Protected		0.99			0.99		0.95	1.00			0.99	
Satd. Flow (prot)		3408			3327		1750	3445			3431	
Flt Permitted		0.89			0.90		0.58	1.00			0.83	
Satd. Flow (perm)		3064			3019		1064	3445			2879	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	22	118	25	29	136	70	30	219	35	79	188	17
RTOR Reduction (vph)	0	21	0	0	58	0	0	11	0	0	4	0
Lane Group Flow (vph)	0	144	0	0	177	0	30	243	0	0	280	0
Confl. Peds. (#/hr)	14		44	44		14	37		71	71		37
Confl. Bikes (#/hr)			6			2			2			11
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		9.7			9.7		37.6	37.6			37.6	
Effective Green, g (s)		9.7			9.7		37.6	37.6			37.6	
Actuated g/C Ratio		0.18			0.18		0.68	0.68			0.68	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.0			2.0	
Lane Grp Cap (vph)		537			529		723	2342			1957	
v/s Ratio Prot								0.07				
v/s Ratio Perm		0.05			c0.06		0.03				c0.10	
v/c Ratio		0.27			0.34		0.04	0.10			0.14	
Uniform Delay, d1		19.7			20.0		2.9	3.0			3.1	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		0.1			0.1		0.1	0.1			0.2	
Delay (s)		19.8			20.1		3.0	3.1			3.3	
Level of Service		B			C		A	A			A	
Approach Delay (s)		19.8			20.1			3.1			3.3	
Approach LOS		B			C			A			A	

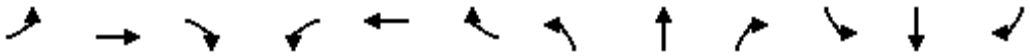
Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.18		
Actuated Cycle Length (s)	55.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	101.7%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	154	10	34	148	42	9	123	25	32	157	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99			1.00			1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.99		1.00	0.97			0.98			0.98	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1759	3502		1762	3404			3432			3439	
Flt Permitted	0.63	1.00		0.65	1.00			0.94			0.91	
Satd. Flow (perm)	1170	3502		1202	3404			3239			3146	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	23	154	10	34	148	42	9	123	25	32	157	26
RTOR Reduction (vph)	0	6	0	0	24	0	0	14	0	0	15	0
Lane Group Flow (vph)	23	158	0	34	166	0	0	143	0	0	200	0
Confl. Peds. (#/hr)	11		8	8		11	3		15	15		3
Confl. Bikes (#/hr)			11			8			2			2
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	23.0	23.0		23.0	23.0			24.0			24.0	
Effective Green, g (s)	23.0	23.0		23.0	23.0			24.0			24.0	
Actuated g/C Ratio	0.42	0.42		0.42	0.42			0.44			0.44	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)	489	1464		502	1423			1413			1372	
v/s Ratio Prot		0.05			c0.05							
v/s Ratio Perm	0.02			0.03				0.04			c0.06	
v/c Ratio	0.05	0.11		0.07	0.12			0.10			0.15	
Uniform Delay, d1	9.5	9.7		9.6	9.8			9.1			9.3	
Progression Factor	1.00	1.00		1.00	1.00			0.76			2.11	
Incremental Delay, d2	0.2	0.1		0.3	0.2			0.1			0.2	
Delay (s)	9.7	9.9		9.8	10.0			7.1			20.0	
Level of Service	A	A		A	A			A			B	
Approach Delay (s)		9.9			9.9			7.1			20.0	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.13		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		

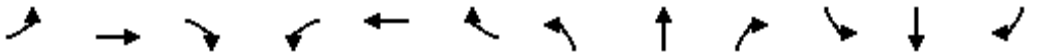
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	7	1	7	29	33	1	114	5	21	179	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5			3.5			3.5	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			0.99			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.93			0.99			1.00	
Flt Protected		0.99			0.99			1.00			0.99	
Satd. Flow (prot)		3444			3246			3513			3505	
Flt Permitted		0.93			0.94			0.95			0.93	
Satd. Flow (perm)		3250			3075			3353			3283	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	2	7	1	7	29	33	1	114	5	21	179	5
RTOR Reduction (vph)	0	1	0	0	23	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	9	0	0	47	0	0	118	0	0	203	0
Confl. Peds. (#/hr)			9	9			5		11	11		5
Confl. Bikes (#/hr)			2			1			1			4
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Actuated Green, G (s)		17.5			17.5			30.5			30.5	
Effective Green, g (s)		17.5			17.5			30.5			30.5	
Actuated g/C Ratio		0.32			0.32			0.55			0.55	
Clearance Time (s)		3.5			3.5			3.5			3.5	
Lane Grp Cap (vph)		1034			978			1859			1820	
v/s Ratio Prot												
v/s Ratio Perm		0.00			c0.02			0.04			c0.06	
v/c Ratio		0.01			0.05			0.06			0.11	
Uniform Delay, d1		12.8			13.0			5.7			5.8	
Progression Factor		1.00			1.00			1.00			2.52	
Incremental Delay, d2		0.0			0.1			0.1			0.1	
Delay (s)		12.8			13.1			5.7			14.8	
Level of Service		B			B			A			B	
Approach Delay (s)		12.8			13.1			5.7			14.8	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.09		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

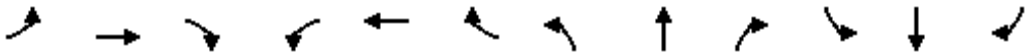
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	30	0	0	147	124	277	195	91	83	0	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frt	1.00	1.00			0.93		1.00	0.96		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	0.99		0.95		1.00
Satd. Flow (prot)	1020	3282			2968		1173	2729		1543		1960
Flt Permitted	0.95	1.00			1.00		0.95	0.99		0.95		1.00
Satd. Flow (perm)	1020	3282			2968		1173	2729		1543		1960
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	34	30	0	0	147	124	277	195	91	83	0	190
RTOR Reduction (vph)	0	0	0	0	98	0	0	25	0	0	0	158
Lane Group Flow (vph)	34	30	0	0	173	0	188	350	0	83	0	32
Confl. Peds. (#/hr)						14						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	77%	10%	0%	0%	8%	17%	40%	15%	14%	17%	0%	45%
Turn Type	Prot	NA			NA		Split	NA		Prot		custom
Protected Phases	1	6			2		4	4		3		3
Permitted Phases												
Actuated Green, G (s)	2.7	17.6			11.4		15.1	15.1		9.1		9.1
Effective Green, g (s)	2.7	17.6			11.4		15.1	15.1		9.1		9.1
Actuated g/C Ratio	0.05	0.32			0.21		0.28	0.28		0.17		0.17
Clearance Time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	50	1054			617		323	751		256		325
v/s Ratio Prot	c0.03	0.01			c0.06		c0.16	0.13		c0.05		0.02
v/s Ratio Perm												
v/c Ratio	0.68	0.03			0.28		0.58	0.47		0.32		0.10
Uniform Delay, d1	25.6	12.7			18.2		17.1	16.5		20.1		19.4
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	26.2	0.0			0.2		2.2	0.3		0.5		0.1
Delay (s)	51.8	12.8			18.4		19.3	16.8		20.7		19.5
Level of Service	D	B			B		B	B		C		B
Approach Delay (s)		33.5			18.4			17.7			19.8	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	54.8	Sum of lost time (s)	16.5
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		

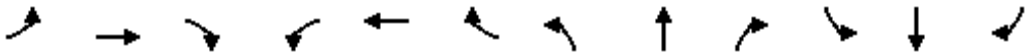
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	149	24	135	241	108	17	64	61	84	128	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98			0.98		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		0.99	1.00	
Frt	1.00	0.98		1.00	0.95			0.94		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1770	3126		1770	3229			1695		1756	1767	
Flt Permitted	0.95	1.00		0.95	1.00			0.92		0.43	1.00	
Satd. Flow (perm)	1770	3126		1770	3229			1562		803	1767	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	25	149	24	135	241	108	17	64	61	84	128	25
RTOR Reduction (vph)	0	9	0	0	32	0	0	31	0	0	8	0
Lane Group Flow (vph)	25	164	0	135	317	0	0	111	0	84	145	0
Confl. Peds. (#/hr)			58			47	70		8	8		70
Confl. Bikes (#/hr)			15			6			9			38
Heavy Vehicles (%)	2%	12%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	5.6	64.1		11.9	70.4			13.0		13.0	13.0	
Effective Green, g (s)	5.6	64.1		11.9	70.4			13.0		13.0	13.0	
Actuated g/C Ratio	0.06	0.64		0.12	0.70			0.13		0.13	0.13	
Clearance Time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	99	2003		210	2273			203		104	229	
v/s Ratio Prot	c0.01	0.05		c0.08	c0.10						0.08	
v/s Ratio Perm								0.07		c0.10		
v/c Ratio	0.25	0.08		0.64	0.14			0.55		0.81	0.63	
Uniform Delay, d1	45.2	6.8		42.0	4.9			40.7		42.3	41.2	
Progression Factor	1.23	1.36		1.24	0.23			1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.0		4.7	0.1			1.6		33.5	4.2	
Delay (s)	56.0	9.3		56.9	1.2			42.3		75.8	45.4	
Level of Service	E	A		E	A			D		E	D	
Approach Delay (s)		15.2			16.8			42.3			56.2	
Approach LOS		B			B			D			E	

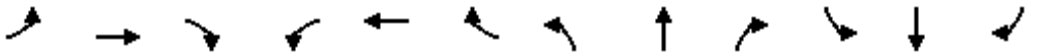
Intersection Summary			
HCM 2000 Control Delay	28.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	306	46	69	564	84	12	49	20	27	54	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	0.99			0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00	0.99	1.00			1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.96			0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00			0.99	
Satd. Flow (prot)	1762	3232		1025	3471	1517	1346	1771			2899	
Flt Permitted	0.42	1.00		0.54	1.00	1.00	0.68	1.00			0.89	
Satd. Flow (perm)	777	3232		582	3471	1517	963	1771			2616	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	30	306	46	69	564	84	12	49	20	27	54	33
RTOR Reduction (vph)	0	12	0	0	0	30	0	14	0	0	24	0
Lane Group Flow (vph)	30	340	0	69	564	54	12	55	0	0	90	0
Confl. Peds. (#/hr)	21		23	23		21	9		11	11		9
Confl. Bikes (#/hr)			4			5						1
Heavy Vehicles (%)	2%	8%	17%	75%	4%	4%	33%	100%	78%	2%	33%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	64.0	64.0		64.0	64.0	64.0	28.0	28.0			28.0	
Effective Green, g (s)	64.0	64.0		64.0	64.0	64.0	28.0	28.0			28.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64	0.64	0.28	0.28			0.28	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)	497	2068		372	2221	970	269	495			732	
v/s Ratio Prot		0.11			c0.16			0.03				
v/s Ratio Perm	0.04			0.12		0.04	0.01				c0.03	
v/c Ratio	0.06	0.16		0.19	0.25	0.06	0.04	0.11			0.12	
Uniform Delay, d1	6.7	7.2		7.4	7.7	6.7	26.2	26.7			26.8	
Progression Factor	0.22	0.14		1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.2	0.2		1.1	0.3	0.1	0.3	0.5			0.3	
Delay (s)	1.7	1.2		8.5	8.0	6.8	26.6	27.2			27.2	
Level of Service	A	A		A	A	A	C	C			C	
Approach Delay (s)		1.2			7.9			27.1			27.2	
Approach LOS		A			A			C			C	

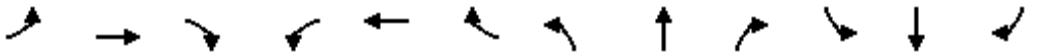
Intersection Summary			
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	41	271	29	51	567	33	125	165	14	43	80	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1578	4090		1752	4571		1760	1810	1541	1749	3539	1246
Flt Permitted	0.34	1.00		0.56	1.00		0.70	1.00	1.00	0.65	1.00	1.00
Satd. Flow (perm)	563	4090		1036	4571		1301	1810	1541	1201	3539	1246
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	41	271	29	51	567	33	125	165	14	43	80	62
RTOR Reduction (vph)	0	22	0	0	12	0	0	0	5	0	0	22
Lane Group Flow (vph)	41	278	0	51	588	0	125	165	9	43	80	40
Confl. Peds. (#/hr)	10		20	20		10	8		20	20		8
Confl. Bikes (#/hr)			7			3						6
Heavy Vehicles (%)	14%	27%	2%	2%	13%	2%	2%	5%	2%	2%	2%	27%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	16.9	16.9		16.9	16.9		48.6	48.6	48.6	48.6	48.6	48.6
Effective Green, g (s)	16.9	16.9		16.9	16.9		48.6	48.6	48.6	48.6	48.6	48.6
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.65	0.65	0.65	0.65	0.65	0.65
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	126	921		233	1029		843	1172	998	778	2293	807
v/s Ratio Prot		0.07			c0.13			0.09			0.02	
v/s Ratio Perm	0.07			0.05			c0.10		0.01	0.04		0.03
v/c Ratio	0.33	0.30		0.22	0.57		0.15	0.14	0.01	0.06	0.03	0.05
Uniform Delay, d1	24.3	24.1		23.7	25.8		5.1	5.1	4.7	4.8	4.8	4.8
Progression Factor	1.00	1.00		1.00	1.00		1.24	1.23	1.92	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.1		0.2	0.5		0.4	0.2	0.0	0.1	0.0	0.1
Delay (s)	24.8	24.2		23.8	26.3		6.7	6.5	9.0	5.0	4.8	4.9
Level of Service	C	C		C	C		A	A	A	A	A	A
Approach Delay (s)		24.3			26.1			6.7			4.9	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

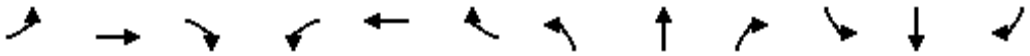
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	70	243	214	23	49	0	0	84	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	1.00			0.95	1.00
Frpb, ped/bikes					1.00	0.99	1.00	1.00			1.00	0.98
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3499	1562	1770	990			3167	1558
Flt Permitted					0.99	1.00	0.70	1.00			1.00	1.00
Satd. Flow (perm)					3499	1562	1303	990			3167	1558
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	70	243	214	23	49	0	0	84	50
RTOR Reduction (vph)	0	0	0	0	0	173	0	0	0	0	0	16
Lane Group Flow (vph)	0	0	0	0	313	41	23	49	0	0	84	34
Confl. Peds. (#/hr)				1		2			8	8		
Confl. Bikes (#/hr)												13
Heavy Vehicles (%)	2%	15%	88%	2%	2%	2%	2%	92%	0%	2%	14%	2%
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					4			6			2	
Permitted Phases				4		4	6					2
Actuated Green, G (s)					14.3	14.3	51.2	51.2			51.2	51.2
Effective Green, g (s)					14.3	14.3	51.2	51.2			51.2	51.2
Actuated g/C Ratio					0.19	0.19	0.68	0.68			0.68	0.68
Clearance Time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Vehicle Extension (s)					2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)					667	297	889	675			2162	1063
v/s Ratio Prot								c0.05			0.03	
v/s Ratio Perm					0.09	0.03	0.02					0.02
v/c Ratio					0.47	0.14	0.03	0.07			0.04	0.03
Uniform Delay, d1					27.0	25.2	3.8	4.0			3.9	3.9
Progression Factor					1.00	1.00	1.00	1.00			0.86	0.94
Incremental Delay, d2					0.2	0.1	0.0	0.0			0.0	0.1
Delay (s)					27.2	25.3	3.8	4.0			3.4	3.7
Level of Service					C	C	A	A			A	A
Approach Delay (s)		0.0			26.4			3.9			3.5	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.16		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	30.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

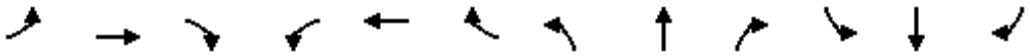


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	634	114	85	177	24	56	23	133	94	46	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.87		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.99	
Satd. Flow (prot)	1770	3306		1770	3448		1770	1611		1610	2460	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.99	
Satd. Flow (perm)	1770	3306		1770	3448		1770	1611		1610	2460	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	22	634	114	85	177	24	56	23	133	94	46	36
RTOR Reduction (vph)	0	8	0	0	5	0	0	113	0	0	31	0
Lane Group Flow (vph)	22	740	0	85	196	0	56	43	0	59	86	0
Confl. Peds. (#/hr)						50			3			3
Confl. Bikes (#/hr)			4						1			
Heavy Vehicles (%)	2%	6%	9%	2%	2%	2%	2%	74%	96%	2%	77%	2%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Actuated Green, G (s)	2.2	27.0		7.4	32.7		10.9	10.9		11.0	11.0	
Effective Green, g (s)	2.2	27.0		7.4	32.7		10.9	10.9		11.0	11.0	
Actuated g/C Ratio	0.03	0.37		0.10	0.45		0.15	0.15		0.15	0.15	
Clearance Time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.5	3.0		3.2	3.2		3.0	3.0	
Lane Grp Cap (vph)	53	1234		181	1559		266	242		244	374	
v/s Ratio Prot	0.01	c0.22		c0.05	0.06		c0.03	0.03		c0.04	0.04	
v/s Ratio Perm												
v/c Ratio	0.42	0.60		0.47	0.13		0.21	0.18		0.24	0.23	
Uniform Delay, d1	34.4	18.3		30.6	11.5		26.9	26.8		27.0	26.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.9	0.8		1.4	0.0		0.4	0.4		0.5	0.3	
Delay (s)	36.3	19.1		32.0	11.5		27.4	27.2		27.5	27.3	
Level of Service	D	B		C	B		C	C		C	C	
Approach Delay (s)		19.6			17.6			27.2			27.3	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	72.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

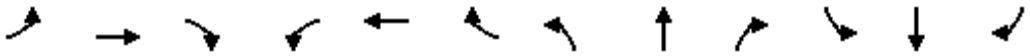
c Critical Lane Group

Existing PM



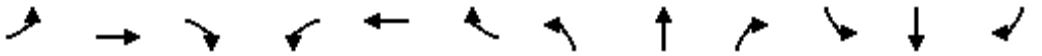
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	41	537	64	107	454	75	50	143	103	140	244	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3471		1770	3539	1516	1770	1863	1538	1770	1819	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3471		1770	3539	1516	1770	1863	1538	1770	1819	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	584	70	116	493	82	54	155	112	152	265	40
RTOR Reduction (vph)	0	15	0	0	0	55	0	0	85	0	9	0
Lane Group Flow (vph)	45	639	0	116	493	27	54	155	27	152	296	0
Confl. Peds. (#/hr)			2			7			7			9
Confl. Bikes (#/hr)			24			10			11			12
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			
Actuated Green, G (s)	1.7	15.8		3.5	17.6	17.6	3.0	13.0	13.0	5.0	15.0	
Effective Green, g (s)	1.7	15.8		3.5	17.6	17.6	3.0	13.0	13.0	5.0	15.0	
Actuated g/C Ratio	0.03	0.30		0.07	0.33	0.33	0.06	0.24	0.24	0.09	0.28	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	56	1028		116	1168	500	99	454	375	166	511	
v/s Ratio Prot	0.03	c0.18		c0.07	0.14		0.03	0.08		c0.09	c0.16	
v/s Ratio Perm						0.02			0.02			
v/c Ratio	0.80	0.62		1.00	0.42	0.05	0.55	0.34	0.07	0.92	0.58	
Uniform Delay, d1	25.6	16.2		24.9	13.9	12.2	24.5	16.6	15.5	23.9	16.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	55.1	1.2		83.6	0.2	0.0	6.0	0.5	0.1	45.7	1.6	
Delay (s)	80.7	17.4		108.5	14.1	12.2	30.5	17.1	15.6	69.7	18.0	
Level of Service	F	B		F	B	B	C	B	B	E	B	
Approach Delay (s)		21.4			29.7			18.8			35.2	
Approach LOS		C			C			B			D	

Intersection Summary			
HCM 2000 Control Delay	26.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	53.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



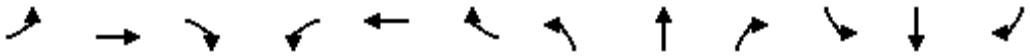
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	189	557	333	25	329	118	350	791	14	163	877	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.96		1.00	0.98		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.96		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3212		1770	3346		3433	3525		1770	3448	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3212		1770	3346		3433	3525		1770	3448	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	205	605	362	27	358	128	380	860	15	177	953	113
RTOR Reduction (vph)	0	79	0	0	34	0	0	1	0	0	8	0
Lane Group Flow (vph)	205	888	0	27	452	0	380	874	0	177	1058	0
Confl. Peds. (#/hr)			59			38			53			68
Confl. Bikes (#/hr)			31			2			24			28
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	14.5	32.6		6.6	24.7		13.9	44.0		13.8	42.9	
Effective Green, g (s)	14.5	32.6		6.6	24.7		13.9	44.0		13.8	42.9	
Actuated g/C Ratio	0.13	0.30		0.06	0.22		0.13	0.40		0.13	0.39	
Clearance Time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.0	2.0		2.0	4.0		2.5	4.0	
Lane Grp Cap (vph)	233	951		106	751		433	1410		222	1344	
v/s Ratio Prot	c0.12	c0.28		0.02	0.14		c0.11	0.25		0.10	c0.31	
v/s Ratio Perm												
v/c Ratio	0.88	0.93		0.25	0.60		0.88	0.62		0.80	0.79	
Uniform Delay, d1	46.9	37.7		49.4	38.2		47.2	26.3		46.7	29.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	28.4	15.6		0.5	0.9		17.4	2.1		17.3	4.7	
Delay (s)	75.3	53.2		49.8	39.2		64.6	28.4		64.0	34.3	
Level of Service	E	D		D	D		E	C		E	C	
Approach Delay (s)		57.1			39.7			39.3			38.5	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	44.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	88.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



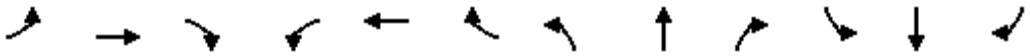
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	423	33	10	209	0	0	0	0	340	242	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5					6.5	6.5	6.5
Lane Util. Factor		0.95			0.91					0.91	0.91	1.00
Frpb, ped/bikes		1.00			1.00					1.00	1.00	0.97
Flpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Frt		0.99			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	0.98	1.00
Satd. Flow (prot)		3489			5070					1610	3327	1540
Flt Permitted		1.00			0.92					0.95	0.98	1.00
Satd. Flow (perm)		3489			4659					1610	3327	1540
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	423	33	10	209	0	0	0	0	340	242	172
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	0	0	0	90
Lane Group Flow (vph)	0	449	0	0	219	0	0	0	0	190	392	82
Confl. Peds. (#/hr)	20		20	20								20
Turn Type		NA		Perm	NA					Perm	NA	Perm
Protected Phases		1			1						2	
Permitted Phases				1						2		2
Actuated Green, G (s)		30.0			30.0					38.0	38.0	38.0
Effective Green, g (s)		30.0			30.0					38.0	38.0	38.0
Actuated g/C Ratio		0.38			0.38					0.48	0.48	0.48
Clearance Time (s)		5.5			5.5					6.5	6.5	6.5
Lane Grp Cap (vph)		1308			1747					764	1580	731
v/s Ratio Prot		c0.13										
v/s Ratio Perm					0.05					c0.12	0.12	0.05
v/c Ratio		0.34			0.13					0.25	0.25	0.11
Uniform Delay, d1		17.9			16.4					12.5	12.5	11.6
Progression Factor		1.00			0.32					1.00	1.00	1.00
Incremental Delay, d2		0.7			0.1					0.8	0.4	0.3
Delay (s)		18.7			5.3					13.3	12.9	12.0
Level of Service		B			A					B	B	B
Approach Delay (s)		18.7			5.3			0.0			12.8	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	211	561	0	0	221	777	18	682	63	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1610	3384			3539	2704		5004				
Flt Permitted	0.95	0.95			1.00	1.00		1.00				
Satd. Flow (perm)	1610	3207			3539	2704		5004				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	211	561	0	0	221	777	18	682	63	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	119	0	13	0	0	0	0
Lane Group Flow (vph)	190	582	0	0	221	658	0	750	0	0	0	0
Confl. Peds. (#/hr)						20			20			
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	12.0	42.0			26.5	26.5		27.0				
Effective Green, g (s)	12.0	42.0			26.5	26.5		27.0				
Actuated g/C Ratio	0.15	0.52			0.33	0.33		0.34				
Clearance Time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Grp Cap (vph)	241	1710			1172	895		1688				
v/s Ratio Prot	c0.12	0.05			0.06							
v/s Ratio Perm		0.13				c0.24		0.15				
v/c Ratio	0.79	0.34			0.19	0.74		0.44				
Uniform Delay, d1	32.8	11.0			19.1	23.6		20.7				
Progression Factor	0.97	1.50			1.00	1.00		1.00				
Incremental Delay, d2	21.9	0.5			0.4	5.3		0.8				
Delay (s)	53.7	17.0			19.4	29.0		21.5				
Level of Service	D	B			B	C		C				
Approach Delay (s)		26.1			26.9			21.5			0.0	
Approach LOS		C			C			C			A	

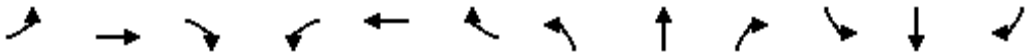
Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	224	67	57	528	20	305	22	196	32	10	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3312	1214	1289	3349		1649	1528	1262	1480	1405	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3312	1214	1289	3349		1649	1528	1262	1480	1405	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	6	224	67	57	528	20	305	22	196	32	10	30
RTOR Reduction (vph)	0	0	48	0	2	0	0	0	144	0	28	0
Lane Group Flow (vph)	6	224	19	57	546	0	162	165	52	32	12	0
Heavy Vehicles (%)	0%	9%	33%	40%	5%	65%	4%	73%	28%	22%	50%	10%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases			2						8			
Actuated Green, G (s)	0.8	16.4	16.4	4.9	20.5		14.9	14.9	14.9	3.9	3.9	
Effective Green, g (s)	0.8	16.4	16.4	4.9	20.5		14.9	14.9	14.9	3.9	3.9	
Actuated g/C Ratio	0.01	0.29	0.29	0.09	0.36		0.26	0.26	0.26	0.07	0.07	
Clearance Time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	3.0	4.5	4.5	3.0	4.5		4.0	4.0	4.0	3.0	3.0	
Lane Grp Cap (vph)	25	959	351	111	1212		434	402	332	101	96	
v/s Ratio Prot	0.00	0.07		c0.04	c0.16		0.10	c0.11		c0.02	0.01	
v/s Ratio Perm			0.02						0.04			
v/c Ratio	0.24	0.23	0.06	0.51	0.45		0.37	0.41	0.16	0.32	0.13	
Uniform Delay, d1	27.6	15.3	14.5	24.7	13.8		17.0	17.2	16.0	25.1	24.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.9	0.2	0.1	4.0	0.5		0.7	0.9	0.3	1.8	0.6	
Delay (s)	32.5	15.5	14.6	28.7	14.2		17.8	18.2	16.3	26.9	25.3	
Level of Service	C	B	B	C	B		B	B	B	C	C	
Approach Delay (s)		15.7			15.6			17.3			26.0	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	56.6	Sum of lost time (s)	16.5
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

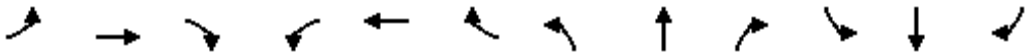
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	115	264	72	156	513	212	63	188	176	86	63	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.93		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.99	
Satd. Flow (prot)	1337	3086		1687	3406	1509	1444	2950		1369	2645	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.99	
Satd. Flow (perm)	1337	3086		1687	3406	1509	1444	2950		1369	2645	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	115	264	72	156	513	212	63	188	176	86	63	23
RTOR Reduction (vph)	0	21	0	0	0	147	0	124	0	0	16	0
Lane Group Flow (vph)	115	315	0	156	513	65	63	240	0	58	98	0
Heavy Vehicles (%)	35%	13%	14%	7%	6%	7%	25%	14%	13%	20%	16%	57%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	10.2	18.1		12.7	20.6	20.6	11.1	11.1		8.7	8.7	
Effective Green, g (s)	10.2	18.1		12.7	20.6	20.6	11.1	11.1		8.7	8.7	
Actuated g/C Ratio	0.15	0.27		0.19	0.31	0.31	0.17	0.17		0.13	0.13	
Clearance Time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	203	832		319	1045	463	238	488		177	342	
v/s Ratio Prot	c0.09	0.10		0.09	c0.15		0.04	c0.08		c0.04	0.04	
v/s Ratio Perm						0.04						
v/c Ratio	0.57	0.38		0.49	0.49	0.14	0.26	0.49		0.33	0.29	
Uniform Delay, d1	26.4	19.9		24.3	19.0	16.8	24.4	25.4		26.5	26.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.6	0.3		1.2	0.4	0.1	0.4	0.6		0.8	0.3	
Delay (s)	30.0	20.2		25.5	19.3	17.0	24.9	26.0		27.3	26.7	
Level of Service	C	C		C	B	B	C	C		C	C	
Approach Delay (s)		22.7			19.9			25.8			26.9	
Approach LOS		C			B			C			C	

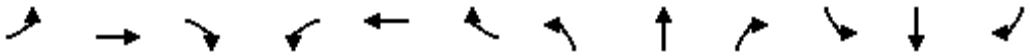
Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	67.1	Sum of lost time (s)	16.5
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	425	65	109	548	0	0	0	0	93	270	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						5.0	
Lane Util. Factor		0.91		1.00	0.95						0.95	
Frpb, ped/bikes		1.00		1.00	1.00						1.00	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.98		1.00	1.00						0.96	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		4848		1763	3312						3287	
Flt Permitted		1.00		0.46	1.00						0.99	
Satd. Flow (perm)		4848		860	3312						3287	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	425	65	109	548	0	0	0	0	93	270	154
RTOR Reduction (vph)	0	27	0	0	0	0	0	0	0	0	62	0
Lane Group Flow (vph)	0	463	0	109	548	0	0	0	0	0	455	0
Confl. Peds. (#/hr)			10	10						10		10
Heavy Vehicles (%)	16%	5%	2%	2%	9%	2%	1%	0%	0%	2%	2%	7%
Turn Type		NA		Perm	NA					Split	NA	
Protected Phases		4			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		15.9		15.9	15.9						12.0	
Effective Green, g (s)		15.9		15.9	15.9						12.0	
Actuated g/C Ratio		0.42		0.42	0.42						0.32	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		2033		360	1389						1040	
v/s Ratio Prot		0.10			c0.17						c0.14	
v/s Ratio Perm				0.13								
v/c Ratio		0.23		0.30	0.39						0.44	
Uniform Delay, d1		7.1		7.3	7.7						10.3	
Progression Factor		1.00		0.39	0.41						1.00	
Incremental Delay, d2		0.0		0.2	0.1						0.1	
Delay (s)		7.1		3.1	3.2						10.4	
Level of Service		A		A	A						B	
Approach Delay (s)		7.1			3.1			0.0			10.4	
Approach LOS		A			A			A			B	

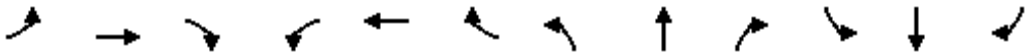
Intersection Summary			
HCM 2000 Control Delay	6.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	37.9	Sum of lost time (s)	10.0
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	166	352	0	0	570	80	87	307	119	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0				
Lane Util. Factor		0.91			0.91			0.95				
Frpb, ped/bikes		1.00			1.00			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.98			0.97				
Flt Protected		0.98			1.00			0.99				
Satd. Flow (prot)		5000			4979			3375				
Flt Permitted		0.71			1.00			0.99				
Satd. Flow (perm)		3584			4979			3375				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	166	352	0	0	570	80	87	307	119	0	0	0
RTOR Reduction (vph)	0	0	0	0	24	0	0	38	0	0	0	0
Lane Group Flow (vph)	0	518	0	0	626	0	0	475	0	0	0	0
Confl. Peds. (#/hr)	10					10			10			
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)		15.9			15.9			12.0				
Effective Green, g (s)		15.9			15.9			12.0				
Actuated g/C Ratio		0.42			0.42			0.32				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		2.0			2.0			2.0				
Lane Grp Cap (vph)		1503			2088			1068				
v/s Ratio Prot					0.13			c0.14				
v/s Ratio Perm		c0.14										
v/c Ratio		0.34			0.30			0.45				
Uniform Delay, d1		7.5			7.3			10.3				
Progression Factor		0.49			1.00			1.00				
Incremental Delay, d2		0.1			0.0			0.1				
Delay (s)		3.7			7.3			10.4				
Level of Service		A			A			B				
Approach Delay (s)		3.7			7.3			10.4			0.0	
Approach LOS		A			A			B			A	

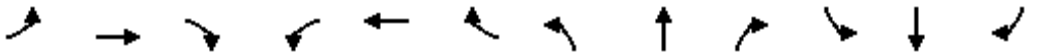
Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	37.9	Sum of lost time (s)	10.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	458	26	57	635	55	19	203	57	60	201	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5			5.0			5.0	
Lane Util. Factor		0.91			0.91			0.95			0.95	
Frpb, ped/bikes		1.00			1.00			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.99			0.97			0.97	
Flt Protected		1.00			1.00			1.00			0.99	
Satd. Flow (prot)		4938			4798			3391			3370	
Flt Permitted		0.85			0.86			0.92			0.84	
Satd. Flow (perm)		4194			4163			3127			2842	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	45	458	26	57	635	55	19	203	57	60	201	59
RTOR Reduction (vph)	0	7	0	0	11	0	0	29	0	0	24	0
Lane Group Flow (vph)	0	522	0	0	736	0	0	251	0	0	296	0
Confl. Peds. (#/hr)	6		1	1		6	17		21	21		17
Confl. Bikes (#/hr)			7			11			4			24
Heavy Vehicles (%)	2%	4%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		48.5			48.5			23.0			23.0	
Effective Green, g (s)		48.5			48.5			23.0			23.0	
Actuated g/C Ratio		0.61			0.61			0.29			0.29	
Clearance Time (s)		3.5			3.5			5.0			5.0	
Lane Grp Cap (vph)		2542			2523			899			817	
v/s Ratio Prot												
v/s Ratio Perm		0.12			c0.18			0.08			c0.10	
v/c Ratio		0.21			0.29			0.28			0.36	
Uniform Delay, d1		7.1			7.5			22.1			22.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.2			0.3			0.8			1.2	
Delay (s)		7.3			7.8			22.8			23.9	
Level of Service		A			A			C			C	
Approach Delay (s)		7.3			7.8			22.8			23.9	
Approach LOS		A			A			C			C	

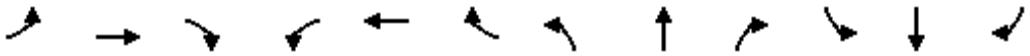
Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	107.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	42	517	91	53	536	10	106	231	109	30	85	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	5.5	3.5	3.5	3.5		3.5	3.5
Lane Util. Factor		0.95	1.00		0.95	1.00	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00	0.96		1.00	0.97	1.00	1.00	0.95		1.00	0.97
Flpb, ped/bikes		1.00	1.00		1.00	1.00	0.99	1.00	1.00		1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00	1.00		0.99	1.00
Satd. Flow (prot)		3463	1500		3266	1543	1673	1827	1508		1833	1536
Flt Permitted		0.88	1.00		0.86	1.00	0.62	1.00	1.00		0.74	1.00
Satd. Flow (perm)		3042	1500		2812	1543	1092	1827	1508		1375	1536
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	42	517	91	53	536	10	106	231	109	30	85	16
RTOR Reduction (vph)	0	0	26	0	0	3	0	0	89	0	0	13
Lane Group Flow (vph)	0	559	65	0	589	7	106	231	20	0	115	3
Confl. Peds. (#/hr)	2		9	9		2	9		19	19		9
Confl. Bikes (#/hr)			21			5			13			7
Heavy Vehicles (%)	2%	4%	3%	30%	8%	2%	7%	4%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)		64.5	64.5		64.5	64.5	16.5	16.5	16.5		16.5	16.5
Effective Green, g (s)		64.5	64.5		64.5	64.5	16.5	16.5	16.5		16.5	16.5
Actuated g/C Ratio		0.72	0.72		0.72	0.72	0.18	0.18	0.18		0.18	0.18
Clearance Time (s)		5.5	5.5		5.5	5.5	3.5	3.5	3.5		3.5	3.5
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		2180	1075		2015	1105	200	334	276		252	281
v/s Ratio Prot								c0.13				
v/s Ratio Perm		0.18	0.04		c0.21	0.00	0.10		0.01		0.08	0.00
v/c Ratio		0.26	0.06		0.29	0.01	0.53	0.69	0.07		0.46	0.01
Uniform Delay, d1		4.4	3.8		4.6	3.6	33.2	34.4	30.4		32.8	30.1
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2		0.3	0.1		0.4	0.0	1.4	4.9	0.0		0.5	0.0
Delay (s)		4.7	3.9		4.9	3.6	34.6	39.3	30.5		33.2	30.1
Level of Service		A	A		A	A	C	D	C		C	C
Approach Delay (s)		4.6			4.9			36.0			32.8	
Approach LOS		A			A			D			C	

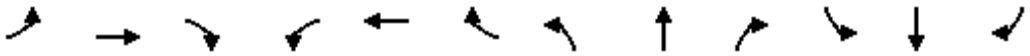
Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	118	620	114	35	541	54	312	408	77	105	330	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	0.99	1.00		0.99	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.96	
Flt Protected		0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3479	1482	1761	3195	1540	1725	3441		1759	3375	
Flt Permitted		0.75	1.00	0.29	1.00	1.00	0.47	1.00		0.44	1.00	
Satd. Flow (perm)		2613	1482	536	3195	1540	847	3441		820	3375	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	118	620	114	35	541	54	312	408	77	105	330	121
RTOR Reduction (vph)	0	0	62	0	0	29	0	20	0	0	47	0
Lane Group Flow (vph)	0	738	52	35	541	25	312	465	0	105	404	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Heavy Vehicles (%)	2%	3%	6%	2%	13%	2%	4%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4		4	2			6		
Actuated Green, G (s)		39.0	39.0	39.0	39.0	39.0	36.5	36.5		36.5	36.5	
Effective Green, g (s)		39.0	39.0	39.0	39.0	39.0	36.5	36.5		36.5	36.5	
Actuated g/C Ratio		0.46	0.46	0.46	0.46	0.46	0.43	0.43		0.43	0.43	
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0		4.0	4.0	
Lane Grp Cap (vph)		1198	679	245	1465	706	363	1477		352	1449	
v/s Ratio Prot					0.17			0.14			0.12	
v/s Ratio Perm		c0.28	0.04	0.07		0.02	c0.37			0.13		
v/c Ratio		0.62	0.08	0.14	0.37	0.04	0.86	0.31		0.30	0.28	
Uniform Delay, d1		17.4	12.9	13.3	15.0	12.7	21.9	16.0		15.9	15.7	
Progression Factor		1.00	1.00	1.44	1.40	2.37	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.4	0.2	1.2	0.7	0.1	19.5	0.3		0.7	0.1	
Delay (s)		19.7	13.1	20.3	21.7	30.1	41.4	16.3		16.5	15.9	
Level of Service		B	B	C	C	C	D	B		B	B	
Approach Delay (s)		18.8			22.3			26.1			16.0	
Approach LOS		B			C			C			B	

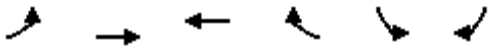
Intersection Summary			
HCM 2000 Control Delay	21.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	68	554	10	26	685	40	20	173	218	35	78	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.96		1.00	0.92		0.96	
Flpb, ped/bikes	0.99	1.00	1.00	0.99	1.00	1.00		1.00	1.00		0.99	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1578	3154	1366	1573	3065	1374		3157	1144		2806	
Flt Permitted	0.39	1.00	1.00	0.44	1.00	1.00		0.91	1.00		0.87	
Satd. Flow (perm)	641	3154	1366	736	3065	1374		2882	1144		2473	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	68	554	10	26	685	40	20	173	218	35	78	98
RTOR Reduction (vph)	0	0	3	0	0	9	0	0	172	0	83	0
Lane Group Flow (vph)	68	554	7	26	685	31	0	193	46	0	128	0
Confl. Peds. (#/hr)	23		26	26		23	49		40	40		49
Confl. Bikes (#/hr)			13			4			20			19
Heavy Vehicles (%)	2%	3%	2%	2%	6%	2%	2%	2%	17%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4		4	2		2	2		
Actuated Green, G (s)	63.7	63.7	63.7	63.7	63.7	63.7		12.8	12.8		12.8	
Effective Green, g (s)	63.7	63.7	63.7	63.7	63.7	63.7		12.8	12.8		12.8	
Actuated g/C Ratio	0.75	0.75	0.75	0.75	0.75	0.75		0.15	0.15		0.15	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	480	2363	1023	551	2296	1029		433	172		372	
v/s Ratio Prot		0.18			c0.22							
v/s Ratio Perm	0.11		0.01	0.04		0.02		c0.07	0.04		0.05	
v/c Ratio	0.14	0.23	0.01	0.05	0.30	0.03		0.45	0.26		0.34	
Uniform Delay, d1	3.0	3.2	2.7	2.8	3.4	2.7		32.9	31.9		32.3	
Progression Factor	2.02	2.23	2.55	0.67	1.40	0.71		1.00	1.00		1.00	
Incremental Delay, d2	0.5	0.2	0.0	0.2	0.3	0.1		0.3	0.3		0.2	
Delay (s)	6.5	7.4	6.8	2.0	5.1	2.0		33.1	32.2		32.5	
Level of Service	A	A	A	A	A	A		C	C		C	
Approach Delay (s)		7.3			4.9			32.7			32.5	
Approach LOS		A			A			C			C	

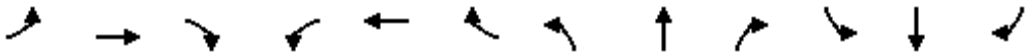
Intersection Summary			
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	73.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



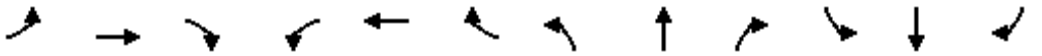
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	234	485	528	366	158	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.99	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.96	1.00
Satd. Flow (prot)	1577	3094	3065	1382	3033	1213
Flt Permitted	0.95	1.00	1.00	1.00	0.96	1.00
Satd. Flow (perm)	1577	3094	3065	1382	3033	1213
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	234	485	528	366	158	89
RTOR Reduction (vph)	0	0	0	172	8	67
Lane Group Flow (vph)	234	485	528	194	162	10
Confl. Peds. (#/hr)				15	15	15
Heavy Vehicles (%)	3%	5%	6%	2%	3%	6%
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	16.6	65.7	45.1	45.1	11.3	11.3
Effective Green, g (s)	16.6	65.7	45.1	45.1	11.3	11.3
Actuated g/C Ratio	0.20	0.77	0.53	0.53	0.13	0.13
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	307	2391	1626	733	403	161
v/s Ratio Prot	c0.15	0.16	c0.17		c0.05	
v/s Ratio Perm				0.14		0.01
v/c Ratio	0.76	0.20	0.32	0.26	0.40	0.06
Uniform Delay, d1	32.3	2.6	11.3	10.9	33.8	32.2
Progression Factor	1.01	1.48	0.90	1.10	1.00	1.00
Incremental Delay, d2	9.5	0.2	0.0	0.1	0.2	0.1
Delay (s)	42.1	4.0	10.2	12.1	34.0	32.3
Level of Service	D	A	B	B	C	C
Approach Delay (s)		16.4	11.0		33.5	
Approach LOS		B	B		C	

Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	69	390	31	90	293	29	208	523	145	43	420	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	0.99			1.00		1.00	1.00	0.83	1.00	0.99	
Flpb, ped/bikes	0.99	1.00			0.99		0.99	1.00	1.00	0.94	1.00	
Frt	1.00	0.99			0.99		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1569	3129			3082		1571	3185	1180	1498	3072	
Flt Permitted	0.49	1.00			0.78		0.38	1.00	1.00	0.38	1.00	
Satd. Flow (perm)	817	3129			2435		635	3185	1180	592	3072	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	69	390	31	90	293	29	208	523	145	43	420	91
RTOR Reduction (vph)	0	6	0	0	5	0	0	0	91	0	26	0
Lane Group Flow (vph)	69	415	0	0	407	0	208	523	54	43	485	0
Confl. Peds. (#/hr)	27		81	81		27	35		141	141		35
Confl. Bikes (#/hr)			21			15			52			17
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	45.6	45.6			45.6		31.4	31.4	31.4	31.4	31.4	
Effective Green, g (s)	45.6	45.6			45.6		31.4	31.4	31.4	31.4	31.4	
Actuated g/C Ratio	0.54	0.54			0.54		0.37	0.37	0.37	0.37	0.37	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	438	1678			1306		234	1176	435	218	1134	
v/s Ratio Prot		0.13						0.16			0.16	
v/s Ratio Perm	0.08				c0.17		c0.33		0.05	0.07		
v/c Ratio	0.16	0.25			0.31		0.89	0.44	0.12	0.20	0.43	
Uniform Delay, d1	10.0	10.5			11.0		25.2	20.2	17.7	18.2	20.1	
Progression Factor	0.73	0.76			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.8	0.3			0.0		30.1	0.1	0.0	0.2	0.1	
Delay (s)	8.1	8.3			11.0		55.3	20.3	17.8	18.4	20.2	
Level of Service	A	A			B		E	C	B	B	C	
Approach Delay (s)		8.3			11.0			28.2			20.0	
Approach LOS		A			B			C			C	

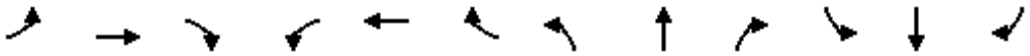
Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	114	538	110	279	259	36	9	1068	707	2	504	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	4.0		5.5	5.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.98		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)	3090	3185	1349	3090	3185	1349		4574	1391		4576	1349
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.93	1.00		0.94	1.00
Satd. Flow (perm)	3090	3185	1349	3090	3185	1349		4276	1391		4285	1349
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	114	538	110	279	259	36	9	1068	707	2	504	50
RTOR Reduction (vph)	0	0	63	0	0	21	0	0	0	0	0	33
Lane Group Flow (vph)	114	538	47	279	259	15	0	1077	707	0	506	17
Confl. Peds. (#/hr)			40			40	40		40	40		40
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Free	Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases			8			4	2		Free	6		6
Actuated Green, G (s)	8.9	34.7	34.7	13.5	39.3	39.3		31.8	95.0		31.8	31.8
Effective Green, g (s)	8.9	34.7	34.7	13.5	39.3	39.3		31.8	95.0		31.8	31.8
Actuated g/C Ratio	0.09	0.37	0.37	0.14	0.41	0.41		0.33	1.00		0.33	0.33
Clearance Time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	289	1163	492	439	1317	558		1431	1391		1434	451
v/s Ratio Prot	0.04	0.17		0.09	0.08							
v/s Ratio Perm			0.03			0.01		c0.25	c0.51		0.12	0.01
v/c Ratio	0.39	0.46	0.10	0.64	0.20	0.03		0.75	0.51		0.35	0.04
Uniform Delay, d1	40.5	23.0	19.8	38.4	17.8	16.5		28.1	0.0		23.8	21.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	0.9	1.3	0.4	3.0	0.3	0.1		2.3	1.3		0.2	0.0
Delay (s)	41.4	24.4	20.2	41.4	18.1	16.6		30.4	1.3		24.0	21.3
Level of Service	D	C	C	D	B	B		C	A		C	C
Approach Delay (s)		26.3			29.4			18.9			23.7	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		

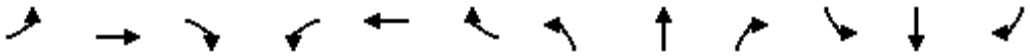
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	81	14	24	57	34	7	248	29	54	218	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			0.99			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.96			0.98			0.99	
Flt Protected		0.99			0.99			1.00			0.99	
Satd. Flow (prot)		3428			3318			3469			3459	
Flt Permitted		0.91			0.90			0.95			0.86	
Satd. Flow (perm)		3147			3022			3293			2997	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	21	81	14	24	57	34	7	248	29	54	218	18
RTOR Reduction (vph)	0	9	0	0	21	0	0	15	0	0	8	0
Lane Group Flow (vph)	0	107	0	0	94	0	0	269	0	0	282	0
Confl. Peds. (#/hr)	11		12	12		11	26		15	15		26
Confl. Bikes (#/hr)			5			3			8			19
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		23.5			23.5			27.5			27.5	
Effective Green, g (s)		23.5			23.5			27.5			27.5	
Actuated g/C Ratio		0.39			0.39			0.46			0.46	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Lane Grp Cap (vph)		1232			1183			1509			1373	
v/s Ratio Prot												
v/s Ratio Perm		c0.03			0.03			0.08			c0.09	
v/c Ratio		0.09			0.08			0.18			0.21	
Uniform Delay, d1		11.5			11.5			9.6			9.7	
Progression Factor		1.00			1.00			0.59			1.00	
Incremental Delay, d2		0.1			0.1			0.3			0.3	
Delay (s)		11.6			11.6			5.9			10.1	
Level of Service		B			B			A			B	
Approach Delay (s)		11.6			11.6			5.9			10.1	
Approach LOS		B			B			A			B	

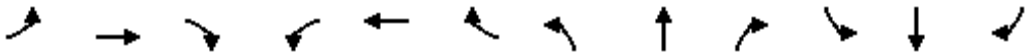
Intersection Summary			
HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.15		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	28	146	32	19	137	66	24	268	28	45	208	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		0.95			0.95		1.00	0.95			0.95	
Frpb, ped/bikes		0.99			0.99		1.00	1.00			1.00	
Flpb, ped/bikes		1.00			1.00		0.99	1.00			1.00	
Frt		0.98			0.96		1.00	0.99			0.99	
Flt Protected		0.99			1.00		0.95	1.00			0.99	
Satd. Flow (prot)		3403			3338		1746	3482			3453	
Flt Permitted		0.89			0.92		0.58	1.00			0.88	
Satd. Flow (perm)		3056			3081		1069	3482			3067	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	28	146	32	19	137	66	24	268	28	45	208	24
RTOR Reduction (vph)	0	26	0	0	53	0	0	8	0	0	7	0
Lane Group Flow (vph)	0	180	0	0	169	0	24	288	0	0	270	0
Confl. Peds. (#/hr)	9		61	61		9	43		17	17		43
Confl. Bikes (#/hr)			1			2			9			1
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		10.8			10.8		37.5	37.5			37.5	
Effective Green, g (s)		10.8			10.8		37.5	37.5			37.5	
Actuated g/C Ratio		0.19			0.19		0.67	0.67			0.67	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		586			591		712	2319			2042	
v/s Ratio Prot								0.08				
v/s Ratio Perm		c0.06			0.05		0.02				c0.09	
v/c Ratio		0.31			0.29		0.03	0.12			0.13	
Uniform Delay, d1		19.5			19.5		3.2	3.4			3.4	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		0.3			0.3		0.1	0.1			0.1	
Delay (s)		19.8			19.7		3.3	3.5			3.6	
Level of Service		B			B		A	A			A	
Approach Delay (s)		19.8			19.7			3.5			3.6	
Approach LOS		B			B			A			A	

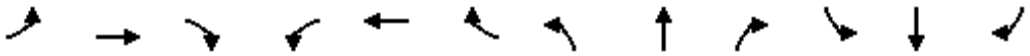
Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	56.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	228	16	89	203	35	14	191	52	63	144	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			0.99			1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00			1.00			1.00	
Frt	1.00	0.99		1.00	0.98			0.97			0.98	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1751	3497		1749	3445			3403			3403	
Flt Permitted	0.60	1.00		0.60	1.00			0.94			0.83	
Satd. Flow (perm)	1113	3497		1105	3445			3201			2871	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	48	228	16	89	203	35	14	191	52	63	144	33
RTOR Reduction (vph)	0	9	0	0	20	0	0	29	0	0	19	0
Lane Group Flow (vph)	48	236	0	89	218	0	0	228	0	0	221	0
Confl. Peds. (#/hr)	21		24	24		21	7		20	20		7
Confl. Bikes (#/hr)			12			10			4			8
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	26.0	26.0		26.0	26.0			26.0			26.0	
Effective Green, g (s)	26.0	26.0		26.0	26.0			26.0			26.0	
Actuated g/C Ratio	0.43	0.43		0.43	0.43			0.43			0.43	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)	482	1515		478	1492			1387			1244	
v/s Ratio Prot		0.07			0.06							
v/s Ratio Perm	0.04			c0.08				0.07			c0.08	
v/c Ratio	0.10	0.16		0.19	0.15			0.16			0.18	
Uniform Delay, d1	10.1	10.3		10.5	10.3			10.4			10.4	
Progression Factor	1.00	1.00		1.00	1.00			1.29			2.16	
Incremental Delay, d2	0.4	0.2		0.9	0.2			0.3			0.3	
Delay (s)	10.5	10.5		11.3	10.5			13.6			22.8	
Level of Service	B	B		B	B			B			C	
Approach Delay (s)		10.5			10.7			13.6			22.8	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.18		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

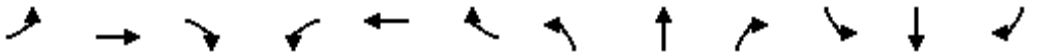
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	5	3	9	21	43	1	199	7	16	208	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5			3.5			3.5	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			0.99			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.97			0.91			0.99			0.99	
Flt Protected		0.98			0.99			1.00			1.00	
Satd. Flow (prot)		3338			3170			3518			3505	
Flt Permitted		0.89			0.94			0.95			0.94	
Satd. Flow (perm)		3062			2992			3359			3295	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	8	5	3	9	21	43	1	199	7	16	208	8
RTOR Reduction (vph)	0	2	0	0	30	0	0	3	0	0	3	0
Lane Group Flow (vph)	0	14	0	0	43	0	0	204	0	0	229	0
Confl. Peds. (#/hr)	5		4	4		5	10		12	12		10
Confl. Bikes (#/hr)						3			1			7
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Actuated Green, G (s)		18.5			18.5			34.5			34.5	
Effective Green, g (s)		18.5			18.5			34.5			34.5	
Actuated g/C Ratio		0.31			0.31			0.58			0.58	
Clearance Time (s)		3.5			3.5			3.5			3.5	
Lane Grp Cap (vph)		944			922			1931			1894	
v/s Ratio Prot												
v/s Ratio Perm		0.00			c0.01			0.06			c0.07	
v/c Ratio		0.01			0.05			0.11			0.12	
Uniform Delay, d1		14.4			14.6			5.8			5.8	
Progression Factor		1.00			1.00			1.00			1.38	
Incremental Delay, d2		0.0			0.1			0.1			0.1	
Delay (s)		14.4			14.7			5.9			8.2	
Level of Service		B			B			A			A	
Approach Delay (s)		14.4			14.7			5.9			8.2	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.09		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		

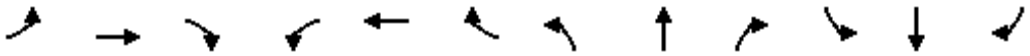
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	93	92	0	0	97	119	89	207	109	83	0	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frt	1.00	1.00			0.92		1.00	0.95		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1367	3312			2624		972	2887		1556		2472
Flt Permitted	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (perm)	1367	3312			2624		972	2887		1556		2472
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	93	92	0	0	97	119	89	207	109	83	0	165
RTOR Reduction (vph)	0	0	0	0	95	0	0	53	0	0	0	138
Lane Group Flow (vph)	93	92	0	0	121	0	80	272	0	83	0	27
Confl. Peds. (#/hr)						17						
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	32%	9%	0%	0%	25%	24%	69%	12%	12%	16%	0%	15%
Turn Type	Prot	NA			NA		Split	NA		Prot		custom
Protected Phases	1	6			2		4	4		3		3
Permitted Phases												
Actuated Green, G (s)	7.2	21.6			10.9		10.8	10.8		8.8		8.8
Effective Green, g (s)	7.2	21.6			10.9		10.8	10.8		8.8		8.8
Actuated g/C Ratio	0.13	0.40			0.20		0.20	0.20		0.16		0.16
Clearance Time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	181	1319			527		193	575		252		401
v/s Ratio Prot	c0.07	0.03			c0.05		0.08	c0.09		c0.05		0.01
v/s Ratio Perm												
v/c Ratio	0.51	0.07			0.23		0.41	0.47		0.33		0.07
Uniform Delay, d1	21.9	10.1			18.1		18.9	19.2		20.1		19.2
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	1.0	0.0			0.2		1.1	0.4		0.6		0.1
Delay (s)	22.9	10.1			18.3		20.0	19.6		20.6		19.3
Level of Service	C	B			B		B	B		C		B
Approach Delay (s)		16.5			18.3			19.7			19.7	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	54.2	Sum of lost time (s)	16.5
Intersection Capacity Utilization	44.6%	ICU Level of Service	A
Analysis Period (min)	15		

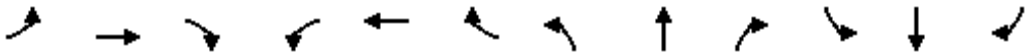
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	297	22	144	207	91	20	127	118	137	169	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.97			0.98		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		0.99	1.00	
Frt	1.00	0.99		1.00	0.95			0.94		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1770	3350		1770	3178			1710		1752	1785	
Flt Permitted	0.95	1.00		0.95	1.00			0.97		0.40	1.00	
Satd. Flow (perm)	1770	3350		1770	3178			1663		730	1785	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	62	297	22	144	207	91	20	127	118	137	169	37
RTOR Reduction (vph)	0	6	0	0	46	0	0	32	0	0	9	0
Lane Group Flow (vph)	62	313	0	144	252	0	0	233	0	137	197	0
Confl. Peds. (#/hr)			49			78	39		15	15		39
Confl. Bikes (#/hr)			12			8			10			24
Heavy Vehicles (%)	2%	6%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	11.9	45.2		11.6	44.9			22.2		22.2	22.2	
Effective Green, g (s)	11.9	45.2		11.6	44.9			22.2		22.2	22.2	
Actuated g/C Ratio	0.13	0.50		0.13	0.50			0.25		0.25	0.25	
Clearance Time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	234	1682		228	1585			410		180	440	
v/s Ratio Prot	c0.04	c0.09		c0.08	0.08						0.11	
v/s Ratio Perm								0.14		c0.19		
v/c Ratio	0.26	0.19		0.63	0.16			0.57		0.76	0.45	
Uniform Delay, d1	35.1	12.3		37.2	12.3			29.7		31.4	28.7	
Progression Factor	0.84	0.86		1.27	0.67			1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.0		4.1	0.2			1.1		15.6	0.3	
Delay (s)	29.8	10.5		51.3	8.4			30.8		47.0	29.0	
Level of Service	C	B		D	A			C		D	C	
Approach Delay (s)		13.7			22.4			30.8			36.2	
Approach LOS		B			C			C			D	

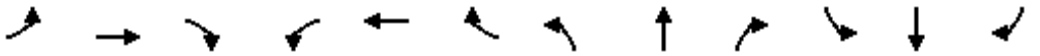
Intersection Summary			
HCM 2000 Control Delay	24.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	41	998	35	27	393	74	20	77	68	33	73	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	0.99			1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00	1.00	1.00	1.00			1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.93			0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00			0.99	
Satd. Flow (prot)	1760	3381		1055	3471	1486	1579	2050			3076	
Flt Permitted	0.51	1.00		0.20	1.00	1.00	0.67	1.00			0.88	
Satd. Flow (perm)	948	3381		227	3471	1486	1105	2050			2732	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	41	998	35	27	393	74	20	77	68	33	73	31
RTOR Reduction (vph)	0	3	0	0	0	33	0	44	0	0	20	0
Lane Group Flow (vph)	41	1030	0	27	393	41	20	101	0	0	117	0
Confl. Peds. (#/hr)	18		4	4		18	4		3	3		4
Confl. Bikes (#/hr)			9			7			9			
Heavy Vehicles (%)	2%	6%	11%	71%	4%	6%	14%	50%	76%	2%	20%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	44.0	44.0		44.0	44.0	44.0	28.0	28.0			28.0	
Effective Green, g (s)	44.0	44.0		44.0	44.0	44.0	28.0	28.0			28.0	
Actuated g/C Ratio	0.55	0.55		0.55	0.55	0.55	0.35	0.35			0.35	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)	521	1859		124	1909	817	386	717			956	
v/s Ratio Prot		c0.30			0.11			c0.05				
v/s Ratio Perm	0.04			0.12		0.03	0.02				0.04	
v/c Ratio	0.08	0.55		0.22	0.21	0.05	0.05	0.14			0.12	
Uniform Delay, d1	8.5	11.6		9.2	9.1	8.3	17.2	17.8			17.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	0.3	1.2		4.0	0.2	0.1	0.3	0.4			0.3	
Delay (s)	8.8	12.8		13.2	9.4	8.4	17.5	18.2			17.9	
Level of Service	A	B		B	A	A	B	B			B	
Approach Delay (s)		12.7			9.4			18.1			17.9	
Approach LOS		B			A			B			B	

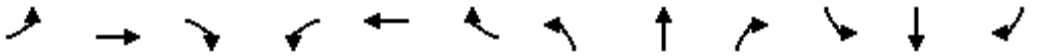
Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	737	49	25	289	37	131	221	31	58	71	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1667	4284		1769	4518		1752	1863	1549	1762	3539	1242
Flt Permitted	0.55	1.00		0.31	1.00		0.71	1.00	1.00	0.58	1.00	1.00
Satd. Flow (perm)	960	4284		576	4518		1307	1863	1549	1078	3539	1242
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	59	737	49	25	289	37	131	221	31	58	71	42
RTOR Reduction (vph)	0	9	0	0	19	0	0	0	18	0	0	24
Lane Group Flow (vph)	59	777	0	25	307	0	131	221	13	58	71	18
Confl. Peds. (#/hr)	5		1	1		5			7	7		
Confl. Bikes (#/hr)			9			3			8			
Heavy Vehicles (%)	8%	21%	2%	2%	14%	2%	3%	2%	2%	2%	2%	30%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	39.0	39.0		39.0	39.0		36.5	36.5	36.5	36.5	36.5	36.5
Effective Green, g (s)	39.0	39.0		39.0	39.0		36.5	36.5	36.5	36.5	36.5	36.5
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.43	0.43	0.43	0.43	0.43	0.43
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	440	1965		264	2072		561	799	665	462	1519	533
v/s Ratio Prot		c0.18			0.07			c0.12			0.02	
v/s Ratio Perm	0.06			0.04			0.10		0.01	0.05		0.01
v/c Ratio	0.13	0.40		0.09	0.15		0.23	0.28	0.02	0.13	0.05	0.03
Uniform Delay, d1	13.3	15.2		13.0	13.4		15.4	15.7	14.0	14.6	14.1	14.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.6		0.1	0.0		1.0	0.9	0.1	0.6	0.1	0.1
Delay (s)	13.9	15.8		13.1	13.4		16.4	16.6	14.0	15.2	14.2	14.2
Level of Service	B	B		B	B		B	B	B	B	B	B
Approach Delay (s)		15.7			13.3			16.3			14.5	
Approach LOS		B			B			B			B	

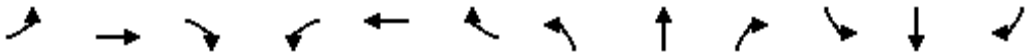
Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	18	152	200	48	87	0	0	107	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	1.00			0.95	1.00
Frpb, ped/bikes					1.00	0.98	1.00	1.00			1.00	0.98
Flpb, ped/bikes					1.00	1.00	0.99	1.00			1.00	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3517	1550	1753	1111			2865	1548
Flt Permitted					0.99	1.00	0.68	1.00			1.00	1.00
Satd. Flow (perm)					3517	1550	1263	1111			2865	1548
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	18	152	200	48	87	0	0	107	24
RTOR Reduction (vph)	0	0	0	0	0	173	0	0	0	0	0	6
Lane Group Flow (vph)	0	0	0	0	170	27	48	87	0	0	107	18
Confl. Peds. (#/hr)				10		10	10					10
Heavy Vehicles (%)	0%	13%	100%	2%	2%	2%	2%	71%	83%	0%	26%	2%
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					4			6			2	
Permitted Phases				4		4	6					2
Actuated Green, G (s)					12.3	12.3	68.2	68.2			68.2	68.2
Effective Green, g (s)					12.3	12.3	68.2	68.2			68.2	68.2
Actuated g/C Ratio					0.14	0.14	0.76	0.76			0.76	0.76
Clearance Time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Vehicle Extension (s)					2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)					480	211	957	841			2171	1173
v/s Ratio Prot								c0.08			0.04	
v/s Ratio Perm					0.05	0.02	0.04					0.01
v/c Ratio					0.35	0.13	0.05	0.10			0.05	0.02
Uniform Delay, d1					35.2	34.1	2.7	2.9			2.7	2.7
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					0.2	0.1	0.0	0.0			0.0	0.0
Delay (s)					35.4	34.2	2.8	2.9			2.8	2.7
Level of Service					D	C	A	A			A	A
Approach Delay (s)		0.0			34.8			2.8			2.8	
Approach LOS		A			C			A			A	

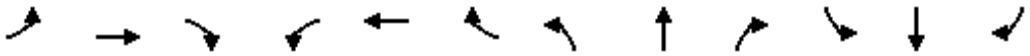
Intersection Summary			
HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.14		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	944	61	41	112	26	107	116	148	113	37	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.97		1.00	0.92		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.97	
Satd. Flow (prot)	1770	3376		1770	3431		1770	1881		1610	2572	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.97	
Satd. Flow (perm)	1770	3376		1770	3431		1770	1881		1610	2572	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	26	944	61	41	112	26	107	116	148	113	37	13
RTOR Reduction (vph)	0	2	0	0	9	0	0	126	0	0	8	0
Lane Group Flow (vph)	26	1003	0	41	129	0	107	138	0	56	99	0
Confl. Peds. (#/hr)						1			2			6
Heavy Vehicles (%)	2%	5%	21%	2%	2%	2%	2%	57%	88%	2%	78%	2%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Actuated Green, G (s)	2.4	38.8		4.3	41.2		12.4	12.4		10.9	10.9	
Effective Green, g (s)	2.4	38.8		4.3	41.2		12.4	12.4		10.9	10.9	
Actuated g/C Ratio	0.03	0.47		0.05	0.50		0.15	0.15		0.13	0.13	
Clearance Time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.5	3.0		3.2	3.2		3.0	3.0	
Lane Grp Cap (vph)	51	1589		92	1715		266	283		212	340	
v/s Ratio Prot	0.01	c0.30		c0.02	0.04		0.06	c0.07		0.03	c0.04	
v/s Ratio Perm												
v/c Ratio	0.51	0.63		0.45	0.08		0.40	0.49		0.26	0.29	
Uniform Delay, d1	39.4	16.4		37.9	10.7		31.6	32.1		32.1	32.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.9	0.8		2.5	0.0		1.1	1.4		0.7	0.5	
Delay (s)	42.3	17.2		40.4	10.7		32.7	33.5		32.8	32.7	
Level of Service	D	B		D	B		C	C		C	C	
Approach Delay (s)		17.9			17.5			33.3			32.8	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	82.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Existing + Preferred Project AM

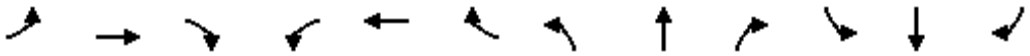


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	38	666	97	161	728	83	100	137	119	82	265	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3450		1770	3539	1518	1770	1863	1541	1770	1801	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3450		1770	3539	1518	1770	1863	1541	1770	1801	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	724	105	175	791	90	109	149	129	89	288	70
RTOR Reduction (vph)	0	19	0	0	0	54	0	0	95	0	15	0
Lane Group Flow (vph)	41	810	0	175	791	36	109	149	34	89	343	0
Confl. Peds. (#/hr)			32			7			5			6
Confl. Bikes (#/hr)			4			9			11			3
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			
Actuated Green, G (s)	1.5	18.9		7.0	24.4	24.4	4.0	16.1	16.1	3.1	15.2	
Effective Green, g (s)	1.5	18.9		7.0	24.4	24.4	4.0	16.1	16.1	3.1	15.2	
Actuated g/C Ratio	0.02	0.31		0.11	0.40	0.40	0.07	0.26	0.26	0.05	0.25	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	43	1067		202	1413	606	115	490	406	89	448	
v/s Ratio Prot	0.02	c0.23		c0.10	0.22		c0.06	0.08		0.05	c0.19	
v/s Ratio Perm						0.02			0.02			
v/c Ratio	0.95	0.76		0.87	0.56	0.06	0.95	0.30	0.08	1.00	0.77	
Uniform Delay, d1	29.8	19.0		26.6	14.2	11.3	28.4	18.0	16.9	29.0	21.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	118.5	3.2		29.9	0.5	0.0	66.8	0.4	0.1	95.4	7.6	
Delay (s)	148.3	22.2		56.5	14.7	11.3	95.3	18.4	17.0	124.4	28.9	
Level of Service	F	C		E	B	B	F	B	B	F	C	
Approach Delay (s)		28.1			21.3			39.6			47.9	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	30.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	61.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		

Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group

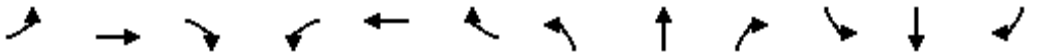


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	201	534	358	40	597	110	446	619	26	136	788	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.95		1.00	0.99		1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.98		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3167		1770	3413		3433	3508		1770	3347	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3167		1770	3413		3433	3508		1770	3347	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	218	580	389	43	649	120	485	673	28	148	857	257
RTOR Reduction (vph)	0	101	0	0	14	0	0	3	0	0	25	0
Lane Group Flow (vph)	218	868	0	43	755	0	485	698	0	148	1089	0
Confl. Peds. (#/hr)			83			52			53			68
Confl. Bikes (#/hr)			15			8			15			12
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	15.8	37.6		6.6	28.4		17.1	39.7		13.1	34.7	
Effective Green, g (s)	15.8	37.6		6.6	28.4		17.1	39.7		13.1	34.7	
Actuated g/C Ratio	0.14	0.34		0.06	0.26		0.16	0.36		0.12	0.32	
Clearance Time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.0	2.0		2.0	4.0		2.5	4.0	
Lane Grp Cap (vph)	254	1082		106	881		533	1266		210	1055	
v/s Ratio Prot	c0.12	c0.27		0.02	0.22		c0.14	0.20		0.08	c0.33	
v/s Ratio Perm												
v/c Ratio	0.86	0.80		0.41	0.86		0.91	0.55		0.70	1.03	
Uniform Delay, d1	46.0	32.8		49.8	38.9		45.7	28.0		46.6	37.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	23.0	4.2		0.9	7.9		19.0	1.7		9.5	36.2	
Delay (s)	69.0	37.1		50.7	46.8		64.7	29.8		56.1	73.9	
Level of Service	E	D		D	D		E	C		E	E	
Approach Delay (s)		42.9			47.0			44.1			71.8	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	52.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	94.1%	ICU Level of Service	F
Analysis Period (min)	15		

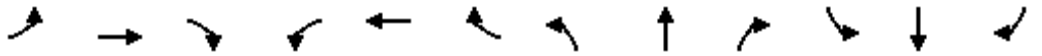
Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group



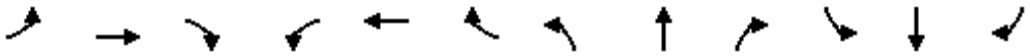
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	317	23	9	174	0	0	0	0	577	838	764
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5					6.5	6.5	6.5
Lane Util. Factor		0.95			0.91					0.91	0.91	1.00
Frpb, ped/bikes		1.00			1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Frt		0.99			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	0.99	1.00
Satd. Flow (prot)		3492			5068					1610	3369	1550
Flt Permitted		1.00			0.91					0.95	0.99	1.00
Satd. Flow (perm)		3492			4646					1610	3369	1550
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	317	23	9	174	0	0	0	0	577	838	764
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	0	124
Lane Group Flow (vph)	0	334	0	0	183	0	0	0	0	456	959	640
Confl. Peds. (#/hr)	20		20	20								20
Turn Type		NA		Perm	NA					Perm	NA	Perm
Protected Phases		1			1						2	
Permitted Phases				1						2		2
Actuated Green, G (s)		16.0			16.0					52.0	52.0	52.0
Effective Green, g (s)		16.0			16.0					52.0	52.0	52.0
Actuated g/C Ratio		0.20			0.20					0.65	0.65	0.65
Clearance Time (s)		5.5			5.5					6.5	6.5	6.5
Lane Grp Cap (vph)		698			929					1046	2189	1007
v/s Ratio Prot		c0.10										
v/s Ratio Perm					0.04					0.28	0.28	c0.41
v/c Ratio		0.48			0.20					0.44	0.44	0.64
Uniform Delay, d1		28.3			26.6					6.8	6.9	8.4
Progression Factor		1.00			1.20					1.00	1.00	1.00
Incremental Delay, d2		2.3			0.5					1.3	0.6	3.1
Delay (s)		30.6			32.4					8.2	7.5	11.4
Level of Service		C			C					A	A	B
Approach Delay (s)		30.6			32.4			0.0			9.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	199	715	0	0	165	244	4	309	28	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	0.96		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1610	3386			3539	2666		5009				
Flt Permitted	0.95	0.95			1.00	1.00		1.00				
Satd. Flow (perm)	1610	3233			3539	2666		5009				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	199	715	0	0	165	244	4	309	28	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	198	0	13	0	0	0	0
Lane Group Flow (vph)	179	735	0	0	165	46	0	328	0	0	0	0
Confl. Peds. (#/hr)						20			20			
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	18.0	36.5			15.0	15.0		32.5				
Effective Green, g (s)	18.0	36.5			15.0	15.0		32.5				
Actuated g/C Ratio	0.22	0.46			0.19	0.19		0.41				
Clearance Time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Grp Cap (vph)	362	1509			663	499		2034				
v/s Ratio Prot	0.11	c0.11			0.05							
v/s Ratio Perm		c0.11				0.02		0.07				
v/c Ratio	0.49	0.49			0.25	0.09		0.16				
Uniform Delay, d1	27.0	15.2			27.7	26.9		15.1				
Progression Factor	0.99	0.75			1.00	1.00		1.00				
Incremental Delay, d2	4.4	1.0			0.9	0.4		0.2				
Delay (s)	31.2	12.5			28.6	27.2		15.3				
Level of Service	C	B			C	C		B				
Approach Delay (s)		16.1			27.8			15.3			0.0	
Approach LOS		B			C			B			A	

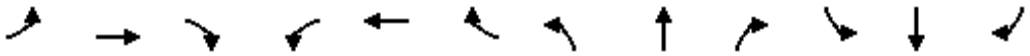
Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	18	426	178	224	602	49	32	16	69	20	20	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3312	1404	1543	3298		1243	1250	947	1203	1105	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.98	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3312	1404	1543	3298		1243	1250	947	1203	1105	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	18	426	178	224	602	49	32	16	69	20	20	10
RTOR Reduction (vph)	0	0	118	0	3	0	0	0	61	0	9	0
Lane Group Flow (vph)	18	426	60	224	648	0	24	24	8	20	21	0
Confl. Peds. (#/hr)						1			3			
Heavy Vehicles (%)	0%	9%	15%	17%	7%	21%	38%	44%	68%	50%	75%	40%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases			2						8			
Actuated Green, G (s)	0.9	22.2	22.2	15.5	36.8		8.1	8.1	8.1	3.6	3.6	
Effective Green, g (s)	0.9	22.2	22.2	15.5	36.8		8.1	8.1	8.1	3.6	3.6	
Actuated g/C Ratio	0.01	0.34	0.34	0.24	0.56		0.12	0.12	0.12	0.05	0.05	
Clearance Time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.5	3.5	3.5	2.0	3.5		3.0	3.0	3.0	2.0	2.0	
Lane Grp Cap (vph)	24	1115	472	362	1841		152	153	116	65	60	
v/s Ratio Prot	0.01	0.13		c0.15	c0.20		c0.02	0.02		0.02	c0.02	
v/s Ratio Perm			0.04						0.01			
v/c Ratio	0.75	0.38	0.13	0.62	0.35		0.16	0.16	0.07	0.31	0.34	
Uniform Delay, d1	32.4	16.6	15.1	22.6	8.0		25.8	25.8	25.6	30.0	30.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	77.3	0.3	0.1	2.2	0.1		0.5	0.5	0.3	1.0	1.2	
Delay (s)	109.7	16.9	15.3	24.8	8.1		26.3	26.3	25.8	30.9	31.3	
Level of Service	F	B	B	C	A		C	C	C	C	C	
Approach Delay (s)		19.1			12.4			26.0			31.1	
Approach LOS		B			B			C			C	

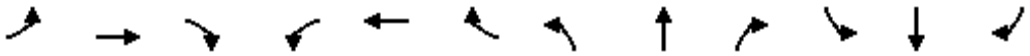
Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	65.9	Sum of lost time (s)	16.5
Intersection Capacity Utilization	44.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



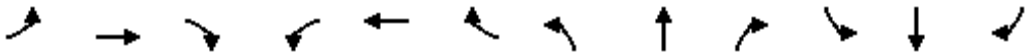
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	397	96	138	587	337	187	206	188	498	204	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.93		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.98	
Satd. Flow (prot)	1014	2958		1299	3438	1369	1480	2541		1480	2556	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.98	
Satd. Flow (perm)	1014	2958		1299	3438	1369	1480	2541		1480	2556	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	40	397	96	138	587	337	187	206	188	498	204	76
RTOR Reduction (vph)	0	19	0	0	0	226	0	117	0	0	9	0
Lane Group Flow (vph)	40	474	0	138	587	111	187	277	0	259	510	0
Confl. Peds. (#/hr)									1			
Heavy Vehicles (%)	78%	14%	37%	39%	5%	18%	22%	42%	19%	11%	45%	45%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	6.5	23.4		16.1	33.0	33.0	18.0	18.0		26.6	26.6	
Effective Green, g (s)	6.5	23.4		16.1	33.0	33.0	18.0	18.0		26.6	26.6	
Actuated g/C Ratio	0.06	0.23		0.16	0.33	0.33	0.18	0.18		0.26	0.26	
Clearance Time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	65	688		207	1127	449	264	454		391	675	
v/s Ratio Prot	0.04	c0.16		c0.11	0.17		c0.13	0.11		0.18	c0.20	
v/s Ratio Perm						0.08						
v/c Ratio	0.62	0.69		0.67	0.52	0.25	0.71	0.61		0.66	0.76	
Uniform Delay, d1	45.8	35.3		39.7	27.4	24.7	38.8	38.1		33.0	34.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	16.1	2.9		7.9	0.4	0.3	7.8	2.0		3.8	4.6	
Delay (s)	61.9	38.2		47.6	27.8	25.0	46.6	40.0		36.8	38.6	
Level of Service	E	D		D	C	C	D	D		D	D	
Approach Delay (s)		39.9			29.5			42.1			38.0	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	36.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	100.6	Sum of lost time (s)	16.5
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	966	127	144	665	0	0	0	0	130	200	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						5.0	
Lane Util. Factor		0.91		1.00	0.95						0.95	
Frpb, ped/bikes		1.00		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.98		1.00	1.00						0.95	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		4899		1766	3343						3225	
Flt Permitted		1.00		0.23	1.00						0.99	
Satd. Flow (perm)		4899		435	3343						3225	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	966	127	144	665	0	0	0	0	130	200	145
RTOR Reduction (vph)	0	14	0	0	0	0	0	0	0	0	73	0
Lane Group Flow (vph)	0	1079	0	144	665	0	0	0	0	0	402	0
Confl. Peds. (#/hr)			8	8						10		10
Heavy Vehicles (%)	6%	4%	2%	2%	8%	2%	0%	0%	0%	2%	2%	11%
Turn Type		NA		Perm	NA					Split	NA	
Protected Phases		4			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		42.3		42.3	42.3						16.3	
Effective Green, g (s)		42.3		42.3	42.3						16.3	
Actuated g/C Ratio		0.62		0.62	0.62						0.24	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		3020		268	2061						766	
v/s Ratio Prot		0.22			0.20						c0.12	
v/s Ratio Perm				c0.33								
v/c Ratio		0.36		0.54	0.32						0.52	
Uniform Delay, d1		6.5		7.5	6.3						22.8	
Progression Factor		1.00		0.65	0.55						1.00	
Incremental Delay, d2		0.0		0.9	0.0						0.3	
Delay (s)		6.5		5.8	3.5						23.1	
Level of Service		A		A	A						C	
Approach Delay (s)		6.5			3.9			0.0			23.1	
Approach LOS		A			A			A			C	

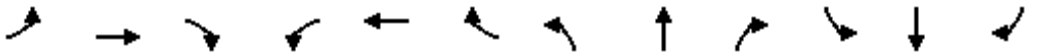
Intersection Summary			
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	68.6	Sum of lost time (s)	10.0
Intersection Capacity Utilization	98.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	270	826	0	0	676	353	133	322	113	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0				
Lane Util. Factor	1.00	0.95			0.95			0.95				
Frpb, ped/bikes	1.00	1.00			0.99			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.95			0.97				
Flt Protected	0.95	1.00			1.00			0.99				
Satd. Flow (prot)	1765	3539			3328			3381				
Flt Permitted	0.24	1.00			1.00			0.99				
Satd. Flow (perm)	440	3539			3328			3381				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	270	826	0	0	676	353	133	322	113	0	0	0
RTOR Reduction (vph)	0	0	0	0	57	0	0	32	0	0	0	0
Lane Group Flow (vph)	270	826	0	0	972	0	0	536	0	0	0	0
Confl. Peds. (#/hr)	10					10			10			
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)	42.3	42.3			42.3			16.3				
Effective Green, g (s)	42.3	42.3			42.3			16.3				
Actuated g/C Ratio	0.62	0.62			0.62			0.24				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Vehicle Extension (s)	2.0	2.0			2.0			2.0				
Lane Grp Cap (vph)	271	2182			2052			803				
v/s Ratio Prot		0.23			0.29			c0.16				
v/s Ratio Perm	c0.61											
v/c Ratio	1.00	0.38			0.47			0.67				
Uniform Delay, d1	13.1	6.6			7.1			23.7				
Progression Factor	0.65	0.38			1.00			1.00				
Incremental Delay, d2	51.9	0.0			0.1			1.6				
Delay (s)	60.5	2.5			7.2			25.3				
Level of Service	E	A			A			C				
Approach Delay (s)		16.8			7.2			25.3			0.0	
Approach LOS		B			A			C			A	

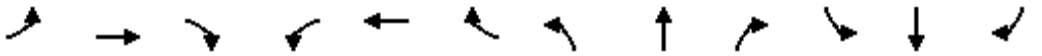
Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	68.6	Sum of lost time (s)	10.0
Intersection Capacity Utilization	98.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	473	38	53	1301	16	36	89	41	28	118	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.95		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1767	3428		1761	3399		1754	1760		1758	1786	
Flt Permitted	0.13	1.00		0.44	1.00		0.65	1.00		0.67	1.00	
Satd. Flow (perm)	250	3428		819	3399		1208	1760		1246	1786	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	19	473	38	53	1301	16	36	89	41	28	118	35
RTOR Reduction (vph)	0	7	0	0	1	0	0	21	0	0	13	0
Lane Group Flow (vph)	19	504	0	53	1316	0	36	109	0	28	140	0
Confl. Peds. (#/hr)	8		7	7		8	11		8	8		11
Confl. Bikes (#/hr)			9			11			8			10
Heavy Vehicles (%)	2%	4%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	47.5	47.5		47.5	47.5		24.0	24.0		24.0	24.0	
Effective Green, g (s)	47.5	47.5		47.5	47.5		24.0	24.0		24.0	24.0	
Actuated g/C Ratio	0.59	0.59		0.59	0.59		0.30	0.30		0.30	0.30	
Clearance Time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	148	2035		486	2018		362	528		373	535	
v/s Ratio Prot		0.15			c0.39			0.06			c0.08	
v/s Ratio Perm	0.08			0.06			0.03			0.02		
v/c Ratio	0.13	0.25		0.11	0.65		0.10	0.21		0.08	0.26	
Uniform Delay, d1	7.1	7.7		7.1	10.8		20.2	20.9		20.1	21.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.8	0.3		0.5	1.7		0.5	0.9		0.4	1.2	
Delay (s)	8.9	8.0		7.5	12.4		20.8	21.8		20.4	22.5	
Level of Service	A	A		A	B		C	C		C	C	
Approach Delay (s)		8.1			12.2			21.6			22.1	
Approach LOS		A			B			C			C	

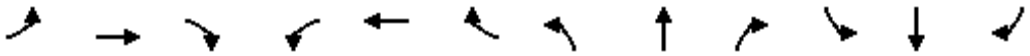
Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	388	104	66	825	19	333	172	65	31	160	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Lane Util. Factor		0.95			0.95	1.00	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes		0.99			1.00	0.94	1.00	1.00	0.95		1.00	0.95
Flpb, ped/bikes		1.00			1.00	1.00	0.98	1.00	1.00		1.00	1.00
Frt		0.97			1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected		1.00			1.00	1.00	0.95	1.00	1.00		0.99	1.00
Satd. Flow (prot)		3308			3259	1487	1652	1845	1508		1842	1519
Flt Permitted		0.84			0.86	1.00	0.58	1.00	1.00		0.94	1.00
Satd. Flow (perm)		2775			2820	1487	1010	1845	1508		1747	1519
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	40	388	104	66	825	19	333	172	65	31	160	244
RTOR Reduction (vph)	0	25	0	0	0	7	0	0	40	0	0	81
Lane Group Flow (vph)	0	507	0	0	891	12	333	172	25	0	191	163
Confl. Peds. (#/hr)	21		15	15		21	27		25	25		27
Confl. Bikes (#/hr)			18			17			16			17
Heavy Vehicles (%)	2%	5%	3%	39%	8%	2%	7%	3%	2%	2%	2%	1%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		4
Actuated Green, G (s)		46.4			46.4	46.4	34.6	34.6	34.6		34.6	34.6
Effective Green, g (s)		46.4			46.4	46.4	34.6	34.6	34.6		34.6	34.6
Actuated g/C Ratio		0.52			0.52	0.52	0.38	0.38	0.38		0.38	0.38
Clearance Time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Vehicle Extension (s)		2.0			2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1430			1453	766	388	709	579		671	583
v/s Ratio Prot								0.09				
v/s Ratio Perm		0.18			c0.32	0.01	c0.33		0.02		0.11	0.11
v/c Ratio		0.35			0.61	0.02	0.86	0.24	0.04		0.28	0.28
Uniform Delay, d1		12.9			15.4	10.6	25.4	18.8	17.3		19.1	19.1
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2		0.7			1.9	0.0	16.3	0.1	0.0		0.1	0.1
Delay (s)		13.6			17.4	10.7	41.8	18.9	17.3		19.2	19.2
Level of Service		B			B	B	D	B	B		B	B
Approach Delay (s)		13.6			17.2			32.1			19.2	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	105.4%	ICU Level of Service	G
Analysis Period (min)	15		

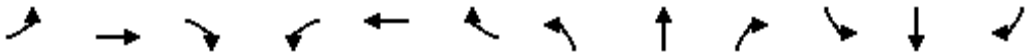
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	510	38	24	866	102	55	301	32	80	293	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	0.99	1.00	1.00	0.99	1.00		0.99	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3436	1510	1756	3252	1540	1658	3480		1756	3511	
Flt Permitted		0.93	1.00	0.45	1.00	1.00	0.53	1.00		0.50	1.00	
Satd. Flow (perm)		3215	1510	833	3252	1540	927	3480		923	3511	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	12	510	38	24	866	102	55	301	32	80	293	14
RTOR Reduction (vph)	0	0	12	0	0	26	0	14	0	0	6	0
Lane Group Flow (vph)	0	522	26	24	866	76	55	319	0	80	301	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Heavy Vehicles (%)	2%	5%	4%	2%	11%	2%	8%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4		4	2			6		
Actuated Green, G (s)		57.3	57.3	57.3	57.3	57.3	18.2	18.2		18.2	18.2	
Effective Green, g (s)		57.3	57.3	57.3	57.3	57.3	18.2	18.2		18.2	18.2	
Actuated g/C Ratio		0.67	0.67	0.67	0.67	0.67	0.21	0.21		0.21	0.21	
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0		4.0	4.0	
Lane Grp Cap (vph)		2167	1017	561	2192	1038	198	745		197	751	
v/s Ratio Prot					c0.27			c0.09			0.09	
v/s Ratio Perm		0.16	0.02	0.03		0.05	0.06			0.09		
v/c Ratio		0.24	0.03	0.04	0.40	0.07	0.28	0.43		0.41	0.40	
Uniform Delay, d1		5.4	4.6	4.6	6.2	4.7	27.9	28.9		28.7	28.7	
Progression Factor		1.00	1.00	1.02	0.72	1.19	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3	0.0	0.1	0.5	0.1	1.6	0.8		1.9	0.5	
Delay (s)		5.7	4.6	4.9	4.9	5.8	29.5	29.7		30.6	29.2	
Level of Service		A	A	A	A	A	C	C		C	C	
Approach Delay (s)		5.6			5.0			29.7			29.5	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

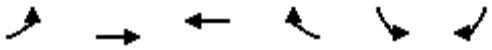
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	512	20	52	826	28	15	102	178	36	99	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.97		1.00	0.93		0.97	
Flpb, ped/bikes	0.99	1.00	1.00	0.98	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1582	3124	1361	1495	3185	1375		3155	1169		2843	
Flt Permitted	0.33	1.00	1.00	0.46	1.00	1.00		0.90	1.00		0.89	
Satd. Flow (perm)	550	3124	1361	729	3185	1375		2853	1169		2554	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	55	512	20	52	826	28	15	102	178	36	99	105
RTOR Reduction (vph)	0	0	5	0	0	7	0	0	154	0	91	0
Lane Group Flow (vph)	55	512	15	52	826	21	0	117	24	0	149	0
Confl. Peds. (#/hr)	22		31	31		22	34		37	37		34
Confl. Bikes (#/hr)			7			3			12			19
Heavy Vehicles (%)	2%	4%	2%	7%	2%	2%	2%	2%	16%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4		4	2		2	2		
Actuated Green, G (s)	64.9	64.9	64.9	64.9	64.9	64.9		11.6	11.6		11.6	
Effective Green, g (s)	64.9	64.9	64.9	64.9	64.9	64.9		11.6	11.6		11.6	
Actuated g/C Ratio	0.76	0.76	0.76	0.76	0.76	0.76		0.14	0.14		0.14	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	419	2385	1039	556	2431	1049		389	159		348	
v/s Ratio Prot		0.16			c0.26							
v/s Ratio Perm	0.10		0.01	0.07		0.02		0.04	0.02		c0.06	
v/c Ratio	0.13	0.21	0.01	0.09	0.34	0.02		0.30	0.15		0.43	
Uniform Delay, d1	2.6	2.8	2.4	2.6	3.2	2.4		33.0	32.4		33.7	
Progression Factor	0.87	0.87	0.80	0.65	0.83	0.67		1.00	1.00		1.00	
Incremental Delay, d2	0.6	0.2	0.0	0.3	0.3	0.0		0.2	0.2		0.3	
Delay (s)	2.9	2.7	1.9	1.9	3.0	1.7		33.2	32.5		34.0	
Level of Service	A	A	A	A	A	A		C	C		C	
Approach Delay (s)		2.7			2.9			32.8			34.0	
Approach LOS		A			A			C			C	

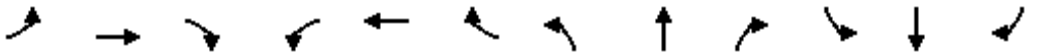
Intersection Summary			
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



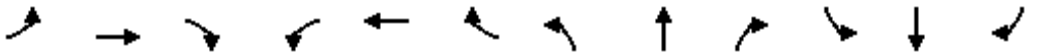
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	219	449	798	84	647	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1593	3008	3036	1343	3053	1191
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1593	3008	3036	1343	3053	1191
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	219	449	798	84	647	172
RTOR Reduction (vph)	0	0	0	36	3	113
Lane Group Flow (vph)	219	449	798	48	661	42
Confl. Peds. (#/hr)				15	15	15
Heavy Vehicles (%)	2%	8%	7%	5%	3%	8%
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	15.6	53.8	34.2	34.2	23.2	23.2
Effective Green, g (s)	15.6	53.8	34.2	34.2	23.2	23.2
Actuated g/C Ratio	0.18	0.63	0.40	0.40	0.27	0.27
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	292	1903	1221	540	833	325
v/s Ratio Prot	c0.14	0.15	c0.26		c0.22	
v/s Ratio Perm				0.04		0.04
v/c Ratio	0.75	0.24	0.65	0.09	0.79	0.13
Uniform Delay, d1	32.9	6.7	20.6	15.7	28.7	23.3
Progression Factor	1.09	1.17	1.04	0.89	1.00	1.00
Incremental Delay, d2	9.1	0.3	0.9	0.0	4.9	0.1
Delay (s)	44.8	8.2	22.3	14.0	33.6	23.4
Level of Service	D	A	C	B	C	C
Approach Delay (s)		20.2	21.6		31.6	
Approach LOS		C	C		C	

Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	82	586	53	80	661	61	92	352	76	51	305	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	0.91	1.00	0.98	
Flpb, ped/bikes	0.99	1.00			1.00		0.97	1.00	1.00	0.96	1.00	
Frt	1.00	0.99			0.99		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00			1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1571	3131			3113		1552	3185	1298	1535	3011	
Flt Permitted	0.33	1.00			0.82		0.36	1.00	1.00	0.42	1.00	
Satd. Flow (perm)	541	3131			2571		595	3185	1298	680	3011	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	82	586	53	80	661	61	92	352	76	51	305	96
RTOR Reduction (vph)	0	4	0	0	4	0	0	0	61	0	49	0
Lane Group Flow (vph)	82	635	0	0	798	0	92	352	15	51	352	0
Confl. Peds. (#/hr)	46		47	47		46	57		65	65		57
Confl. Bikes (#/hr)			9			21			15			22
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	59.9	59.9			59.9		17.1	17.1	17.1	17.1	17.1	
Effective Green, g (s)	59.9	59.9			59.9		17.1	17.1	17.1	17.1	17.1	
Actuated g/C Ratio	0.70	0.70			0.70		0.20	0.20	0.20	0.20	0.20	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	381	2206			1811		119	640	261	136	605	
v/s Ratio Prot		0.20						0.11			0.12	
v/s Ratio Perm	0.15				c0.31		c0.15		0.01	0.07		
v/c Ratio	0.22	0.29			0.44		0.77	0.55	0.06	0.38	0.58	
Uniform Delay, d1	4.4	4.6			5.4		32.1	30.5	27.4	29.3	30.7	
Progression Factor	0.93	0.92			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.2	0.3			0.1		24.2	0.6	0.0	0.6	0.9	
Delay (s)	5.2	4.6			5.4		56.3	31.1	27.5	30.0	31.6	
Level of Service	A	A			A		E	C	C	C	C	
Approach Delay (s)		4.6			5.4			35.0			31.5	
Approach LOS		A			A			D			C	

Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	91.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	135	65	345	669	101	130	631	290	28	583	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	5.5		5.5	5.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		1.00	1.00
Satd. Flow (prot)	3090	3154	1352	3090	3185	1352		4526	1352		4564	1352
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.72	1.00		0.88	1.00
Satd. Flow (perm)	3090	3154	1352	3090	3185	1352		3303	1352		4002	1352
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	55	135	65	345	669	101	130	631	290	28	583	83
RTOR Reduction (vph)	0	0	45	0	0	49	0	0	197	0	0	56
Lane Group Flow (vph)	55	135	20	345	669	52	0	761	93	0	611	27
Confl. Peds. (#/hr)			40			40	40		40	40		40
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases			8			4	2		2	6		6
Actuated Green, G (s)	5.9	27.4	27.4	18.8	40.3	40.3		28.8	28.8		28.8	28.8
Effective Green, g (s)	5.9	27.4	27.4	18.8	40.3	40.3		28.8	28.8		28.8	28.8
Actuated g/C Ratio	0.07	0.30	0.30	0.21	0.45	0.45		0.32	0.32		0.32	0.32
Clearance Time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	5.5		5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	202	960	411	645	1426	605		1056	432		1280	432
v/s Ratio Prot	c0.02	0.04		c0.11	c0.21							
v/s Ratio Perm			0.01			0.04		c0.23	0.07		0.15	0.02
v/c Ratio	0.27	0.14	0.05	0.53	0.47	0.09		0.72	0.21		0.48	0.06
Uniform Delay, d1	40.0	22.7	22.1	31.7	17.4	14.3		27.0	22.3		24.6	21.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	0.7	0.3	0.2	0.9	1.1	0.3		2.4	0.3		0.3	0.1
Delay (s)	40.7	23.1	22.3	32.6	18.5	14.6		29.5	22.6		24.8	21.3
Level of Service	D	C	C	C	B	B		C	C		C	C
Approach Delay (s)		26.7			22.5			27.6			24.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

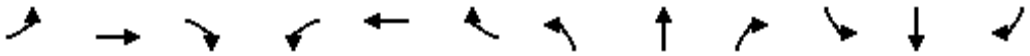
Site: Existing + Proj Pref AM

Adeline & 18th
Existing + Preferred Project AM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	231	2.0	0.353	6.3	LOS A	2.1	53.0	0.37	0.74	26.8
8	T	176	2.0	0.353	6.3	LOS A	2.1	53.0	0.37	0.46	29.7
18	R	29	2.0	0.353	6.3	LOS A	2.1	53.0	0.37	0.53	29.3
Approach		436	2.0	0.353	6.3	LOS A	2.1	53.0	0.37	0.61	28.0
East: 18th Street (WB)											
1	L	35	2.0	0.284	6.9	LOS A	1.4	34.6	0.57	0.90	26.9
6	T	182	2.0	0.284	6.9	LOS A	1.4	34.6	0.57	0.68	29.5
16	R	45	2.0	0.284	6.9	LOS A	1.4	34.6	0.57	0.73	29.1
Approach		262	2.0	0.284	6.9	LOS A	1.4	34.6	0.57	0.72	29.0
North: Adeline Street (SB)											
7	L	29	2.0	0.280	7.0	LOS A	1.3	33.7	0.58	0.93	26.9
4	T	207	2.0	0.280	7.0	LOS A	1.3	33.7	0.58	0.70	29.4
14	R	14	2.0	0.280	7.0	LOS A	1.3	33.7	0.58	0.75	29.1
Approach		250	2.0	0.280	7.0	LOS A	1.3	33.7	0.58	0.73	29.1
West: 18th Street (EB)											
5	L	8	2.0	0.116	4.4	LOS A	0.5	13.0	0.41	0.85	28.0
2	T	93	2.0	0.116	4.4	LOS A	0.5	13.0	0.41	0.53	31.2
12	R	23	2.0	0.116	4.4	LOS A	0.5	13.0	0.41	0.60	30.8
Approach		124	2.0	0.116	4.4	LOS A	0.5	13.0	0.41	0.57	30.9
All Vehicles		1072	2.0	0.353	6.4	LOS A	2.1	53.0	0.47	0.66	28.8

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	185	28	29	254	252	30	324	35	129	231	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99			1.00	
Flpb, ped/bikes	1.00	1.00		0.98	1.00		0.98	1.00			0.99	
Frt	1.00	0.98		1.00	0.93		1.00	0.99			0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1763	1814		1726	1703		1735	3459			3394	
Flt Permitted	0.19	1.00		0.56	1.00		0.53	1.00			0.74	
Satd. Flow (perm)	359	1814		1022	1703		960	3459			2556	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	22	185	28	29	254	252	30	324	35	129	231	22
RTOR Reduction (vph)	0	8	0	0	54	0	0	11	0	0	6	0
Lane Group Flow (vph)	22	205	0	29	452	0	30	348	0	0	376	0
Confl. Peds. (#/hr)	14		44	44		14	37		71	71		37
Confl. Bikes (#/hr)			6			2			2			11
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	20.7	20.7		20.7	20.7		37.2	37.2			37.2	
Effective Green, g (s)	20.7	20.7		20.7	20.7		37.2	37.2			37.2	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.56	0.56			0.56	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Lane Grp Cap (vph)	112	569		321	534		541	1952			1442	
v/s Ratio Prot		0.11			c0.27			0.10				
v/s Ratio Perm	0.06			0.03			0.03				c0.15	
v/c Ratio	0.20	0.36		0.09	0.85		0.06	0.18			0.26	
Uniform Delay, d1	16.5	17.5		16.0	21.1		6.5	6.9			7.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.3	0.1		0.0	11.3		0.2	0.2			0.4	
Delay (s)	16.8	17.6		16.0	32.4		6.6	7.1			7.8	
Level of Service	B	B		B	C		A	A			A	
Approach Delay (s)		17.5			31.6			7.1			7.8	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	65.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	101.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

Site: Existing + Proj Pref AM

Adeline & 14th
Existing + Preferred Project AM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	24	2.0	0.373	6.9	LOS A	2.2	54.7	0.47	0.85	26.8
8	T	376	2.0	0.373	6.9	LOS A	2.2	54.7	0.47	0.56	29.6
18	R	25	2.0	0.373	6.9	LOS A	2.2	54.7	0.47	0.62	29.2
Approach		425	2.0	0.373	6.9	LOS A	2.2	54.7	0.47	0.58	29.4
East: 14th Street (WB)											
1	L	34	2.0	0.245	6.4	LOS A	1.1	28.9	0.55	0.90	27.1
6	T	148	2.0	0.245	6.4	LOS A	1.1	28.9	0.55	0.67	29.7
16	R	42	2.0	0.245	6.4	LOS A	1.1	28.9	0.55	0.72	29.4
Approach		224	2.0	0.245	6.4	LOS A	1.1	28.9	0.55	0.71	29.2
North: Adeline Street (SB)											
7	L	32	2.0	0.230	5.2	LOS A	1.1	29.1	0.40	0.84	27.6
4	T	205	2.0	0.230	5.2	LOS A	1.1	29.1	0.40	0.52	30.6
14	R	26	2.0	0.230	5.2	LOS A	1.1	29.1	0.40	0.59	30.2
Approach		263	2.0	0.230	5.2	LOS A	1.1	29.1	0.40	0.57	30.1
West: 14th Street (EB)											
5	L	23	2.0	0.176	5.0	LOS A	0.8	20.7	0.43	0.85	27.7
2	T	154	2.0	0.176	5.0	LOS A	0.8	20.7	0.43	0.55	30.8
12	R	11	2.0	0.176	5.0	LOS A	0.8	20.7	0.43	0.61	30.4
Approach		188	2.0	0.176	5.0	LOS A	0.8	20.7	0.43	0.59	30.4
All Vehicles		1100	2.0	0.373	6.1	LOS A	2.2	54.7	0.46	0.60	29.7

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.

MOVEMENT SUMMARY

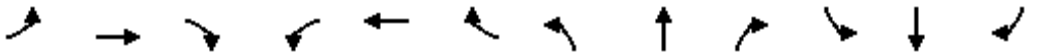
Site: Existing + Proj AM

Adeline & 12th
Existing + Preferred Project AM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	1	2.0	0.234	4.6	LOS A	1.3	32.0	0.14	0.90	27.7
8	T	314	2.0	0.234	4.6	LOS A	1.3	32.0	0.14	0.42	31.2
18	R	5	2.0	0.234	4.6	LOS A	1.3	32.0	0.14	0.52	30.5
Approach		320	2.0	0.234	4.6	LOS A	1.3	32.0	0.14	0.42	31.1
East: 12th Street (WB)											
1	L	7	2.0	0.132	4.7	LOS A	0.6	14.8	0.45	0.82	27.8
6	T	29	2.0	0.132	4.7	LOS A	0.6	14.8	0.45	0.56	30.8
16	R	99	2.0	0.132	4.7	LOS A	0.6	14.8	0.45	0.61	30.4
Approach		135	2.0	0.132	4.7	LOS A	0.6	14.8	0.45	0.61	30.3
North: Adeline Street (SB)											
7	L	22	2.0	0.187	4.2	LOS A	0.9	24.1	0.15	0.88	27.9
4	T	227	2.0	0.187	4.2	LOS A	0.9	24.1	0.15	0.41	31.4
14	R	5	2.0	0.187	4.2	LOS A	0.9	24.1	0.15	0.51	30.8
Approach		254	2.0	0.187	4.2	LOS A	0.9	24.1	0.15	0.46	31.1
West: 12th Street (EB)											
5	L	2	2.0	0.009	3.4	LOS A	0.0	1.0	0.37	0.78	28.5
2	T	7	2.0	0.009	3.4	LOS A	0.0	1.0	0.37	0.46	31.9
12	R	1	2.0	0.009	3.4	LOS A	0.0	1.0	0.37	0.52	31.4
Approach		10	2.0	0.009	3.4	LOS A	0.0	1.0	0.37	0.53	31.1
All Vehicles		719	2.0	0.234	4.5	LOS A	1.3	32.0	0.21	0.47	31.0

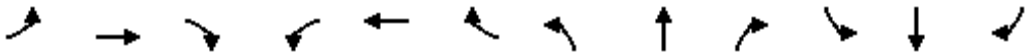
Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	38	32	0	0	162	291	277	227	196	216	0	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			0.98		1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frt	1.00	1.00			0.90		1.00	0.94		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1020	3282			2821		1173	2763		1543		1960
Flt Permitted	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (perm)	1020	3282			2821		1173	2763		1543		1960
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	38	32	0	0	162	291	277	227	196	216	0	196
RTOR Reduction (vph)	0	0	0	0	241	0	0	100	0	0	0	152
Lane Group Flow (vph)	38	32	0	0	212	0	238	362	0	216	0	44
Confl. Peds. (#/hr)						14						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	77%	10%	0%	0%	8%	17%	40%	15%	14%	17%	0%	45%
Turn Type	Prot	NA			NA		Split	NA		Prot		custom
Protected Phases	1	6			2		4	4		3		3
Permitted Phases												
Actuated Green, G (s)	4.6	20.1			12.0		21.1	21.1		15.6		15.6
Effective Green, g (s)	4.6	20.1			12.0		21.1	21.1		15.6		15.6
Actuated g/C Ratio	0.07	0.29			0.17		0.30	0.30		0.22		0.22
Clearance Time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	67	945			484		354	835		344		438
v/s Ratio Prot	c0.04	0.01			c0.08		c0.20	0.13		c0.14		0.02
v/s Ratio Perm												
v/c Ratio	0.57	0.03			0.44		0.67	0.43		0.63		0.10
Uniform Delay, d1	31.6	17.9			25.9		21.3	19.5		24.5		21.5
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	6.4	0.0			0.5		4.5	0.3		3.1		0.1
Delay (s)	38.0	17.9			26.3		25.8	19.8		27.6		21.6
Level of Service	D	B			C		C	B		C		C
Approach Delay (s)		28.8			26.3			21.9			24.7	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	69.8	Sum of lost time (s)	16.5
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

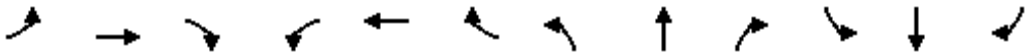
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	72	470	24	135	496	171	17	64	61	100	128	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.98			0.98		1.00	0.95	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		0.99	1.00	
Frt	1.00	0.99		1.00	0.96			0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1770	3189		1770	3265			1698		1756	1697	
Flt Permitted	0.95	1.00		0.95	1.00			0.86		0.46	1.00	
Satd. Flow (perm)	1770	3189		1770	3265			1465		845	1697	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	72	470	24	135	496	171	17	64	61	100	128	52
RTOR Reduction (vph)	0	3	0	0	28	0	0	31	0	0	17	0
Lane Group Flow (vph)	72	491	0	135	639	0	0	111	0	100	163	0
Confl. Peds. (#/hr)			58			47	70		8	8		70
Confl. Bikes (#/hr)			15			6			9			38
Heavy Vehicles (%)	2%	12%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	9.8	63.1		11.9	65.2			14.0		14.0	14.0	
Effective Green, g (s)	9.8	63.1		11.9	65.2			14.0		14.0	14.0	
Actuated g/C Ratio	0.10	0.63		0.12	0.65			0.14		0.14	0.14	
Clearance Time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	173	2012		210	2128			205		118	237	
v/s Ratio Prot	c0.04	0.15		c0.08	c0.20						0.10	
v/s Ratio Perm								0.08		c0.12		
v/c Ratio	0.42	0.24		0.64	0.30			0.54		0.85	0.69	
Uniform Delay, d1	42.4	8.0		42.0	7.5			40.0		42.0	40.9	
Progression Factor	1.20	1.32		1.09	0.31			1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.0		4.9	0.4			1.6		38.6	6.4	
Delay (s)	51.5	10.6		50.6	2.7			41.6		80.6	47.4	
Level of Service	D	B		D	A			D		F	D	
Approach Delay (s)		15.8			10.8			41.6			59.2	
Approach LOS		B			B			D			E	

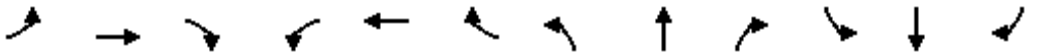
Intersection Summary			
HCM 2000 Control Delay	22.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	620	56	69	839	254	13	54	20	38	65	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00	0.99	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.96		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1761	3268		1024	3471	1492	1346	933		1751	1461	
Flt Permitted	0.30	1.00		0.36	1.00	1.00	0.69	1.00		0.71	1.00	
Satd. Flow (perm)	548	3268		393	3471	1492	977	933		1306	1461	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	30	620	56	69	839	254	13	54	20	38	65	33
RTOR Reduction (vph)	0	7	0	0	0	91	0	14	0	0	18	0
Lane Group Flow (vph)	30	669	0	69	839	163	13	60	0	38	80	0
Confl. Peds. (#/hr)	21		23	23		21	9		11	11		9
Confl. Bikes (#/hr)			4			5						1
Heavy Vehicles (%)	2%	8%	17%	75%	4%	4%	33%	100%	78%	2%	33%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	64.0	64.0		64.0	64.0	64.0	28.0	28.0		28.0	28.0	
Effective Green, g (s)	64.0	64.0		64.0	64.0	64.0	28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64	0.64	0.28	0.28		0.28	0.28	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	350	2091		251	2221	954	273	261		365	409	
v/s Ratio Prot		0.20			c0.24			c0.06			0.05	
v/s Ratio Perm	0.05			0.18		0.11	0.01			0.03		
v/c Ratio	0.09	0.32		0.27	0.38	0.17	0.05	0.23		0.10	0.20	
Uniform Delay, d1	6.9	8.1		7.9	8.5	7.3	26.3	27.7		26.7	27.4	
Progression Factor	0.39	0.34		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.4		2.7	0.5	0.4	0.3	2.1		0.6	1.1	
Delay (s)	3.1	3.1		10.6	9.0	7.7	26.6	29.8		27.3	28.5	
Level of Service	A	A		B	A	A	C	C		C	C	
Approach Delay (s)		3.1			8.8			29.3			28.1	
Approach LOS		A			A			C			C	

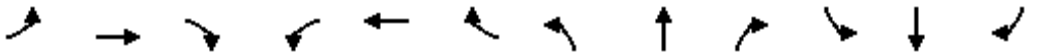
Intersection Summary			
HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	137	453	78	51	619	33	381	180	14	47	106	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1579	4094		1757	4573		1761	1810	1541	1749	3539	1246
Flt Permitted	0.34	1.00		0.42	1.00		0.69	1.00	1.00	0.64	1.00	1.00
Satd. Flow (perm)	564	4094		772	4573		1270	1810	1541	1185	3539	1246
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	137	453	78	51	619	33	381	180	14	47	106	193
RTOR Reduction (vph)	0	42	0	0	10	0	0	0	6	0	0	77
Lane Group Flow (vph)	137	489	0	51	642	0	381	180	8	47	106	116
Confl. Peds. (#/hr)	10		20	20		10	8		20	20		8
Confl. Bikes (#/hr)			7			3						6
Heavy Vehicles (%)	14%	27%	2%	2%	13%	2%	2%	5%	2%	2%	2%	27%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	22.4	22.4		22.4	22.4		43.1	43.1	43.1	43.1	43.1	43.1
Effective Green, g (s)	22.4	22.4		22.4	22.4		43.1	43.1	43.1	43.1	43.1	43.1
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.57	0.57	0.57	0.57	0.57	0.57
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	168	1222		230	1365		729	1040	885	680	2033	716
v/s Ratio Prot		0.12			0.14			0.10			0.03	
v/s Ratio Perm	c0.24			0.07			c0.30		0.01	0.04		0.09
v/c Ratio	0.82	0.40		0.22	0.47		0.52	0.17	0.01	0.07	0.05	0.16
Uniform Delay, d1	24.4	20.9		19.8	21.5		9.7	7.5	6.8	7.1	7.0	7.5
Progression Factor	1.00	1.00		1.00	1.00		1.11	1.15	1.74	1.00	1.00	1.00
Incremental Delay, d2	24.1	0.1		0.2	0.1		2.5	0.3	0.0	0.2	0.0	0.5
Delay (s)	48.5	21.0		19.9	21.6		13.3	9.0	11.9	7.3	7.0	8.0
Level of Service	D	C		B	C		B	A	B	A	A	A
Approach Delay (s)		26.7			21.4			11.9			7.6	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	18.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

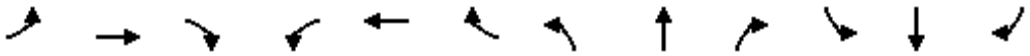
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	177	243	470	23	52	0	0	161	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	1.00			0.95	1.00
Frpb, ped/bikes					1.00	0.99	1.00	1.00			1.00	0.98
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3465	1562	1770	990			3167	1557
Flt Permitted					0.98	1.00	0.65	1.00			1.00	1.00
Satd. Flow (perm)					3465	1562	1211	990			3167	1557
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	177	243	470	23	52	0	0	161	50
RTOR Reduction (vph)	0	0	0	0	0	363	0	0	0	0	0	18
Lane Group Flow (vph)	0	0	0	0	420	107	23	52	0	0	161	32
Confl. Peds. (#/hr)				1		2			8	8		
Confl. Bikes (#/hr)												13
Heavy Vehicles (%)	2%	15%	88%	2%	2%	2%	2%	92%	0%	2%	14%	2%
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					4			6			2	
Permitted Phases				4		4	6					2
Actuated Green, G (s)					17.0	17.0	48.5	48.5			48.5	48.5
Effective Green, g (s)					17.0	17.0	48.5	48.5			48.5	48.5
Actuated g/C Ratio					0.23	0.23	0.65	0.65			0.65	0.65
Clearance Time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Vehicle Extension (s)					2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)					785	354	783	640			2047	1006
v/s Ratio Prot								c0.05			0.05	
v/s Ratio Perm					0.12	0.07	0.02					0.02
v/c Ratio					0.54	0.30	0.03	0.08			0.08	0.03
Uniform Delay, d1					25.5	24.1	4.8	4.9			4.9	4.8
Progression Factor					1.00	1.00	1.00	1.00			0.76	0.83
Incremental Delay, d2					0.4	0.2	0.0	0.0			0.1	0.1
Delay (s)					25.9	24.2	4.8	5.0			3.8	4.0
Level of Service					C	C	A	A			A	A
Approach Delay (s)		0.0			25.0			4.9			3.9	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

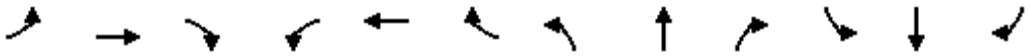


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	634	114	85	177	24	56	43	133	168	49	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.98		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.89		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3301		1770	3421		1770	873		1770	1217	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3301		1770	3421		1770	873		1770	1217	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	22	634	114	85	177	24	56	43	133	168	49	36
RTOR Reduction (vph)	0	8	0	0	6	0	0	77	0	0	18	0
Lane Group Flow (vph)	22	740	0	85	195	0	56	99	0	168	67	0
Confl. Peds. (#/hr)						50			3			3
Confl. Bikes (#/hr)			4						1			
Heavy Vehicles (%)	2%	6%	9%	2%	2%	2%	2%	74%	96%	2%	77%	2%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Actuated Green, G (s)	2.3	30.8		8.0	37.0		16.6	16.6		15.2	15.2	
Effective Green, g (s)	2.3	30.8		8.0	37.0		16.6	16.6		15.2	15.2	
Actuated g/C Ratio	0.03	0.36		0.09	0.43		0.19	0.19		0.18	0.18	
Clearance Time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.5	3.0		3.2	3.2		3.0	3.0	
Lane Grp Cap (vph)	47	1174		163	1461		339	167		310	213	
v/s Ratio Prot	0.01	c0.22		c0.05	0.06		0.03	c0.11		c0.09	0.05	
v/s Ratio Perm												
v/c Ratio	0.47	0.63		0.52	0.13		0.17	0.59		0.54	0.31	
Uniform Delay, d1	41.5	23.2		37.5	15.1		29.2	31.9		32.5	31.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.7	1.1		2.3	0.0		0.2	5.7		1.9	0.8	
Delay (s)	44.2	24.3		39.8	15.1		29.5	37.6		34.5	32.0	
Level of Service	D	C		D	B		C	D		C	C	
Approach Delay (s)		24.9			22.4			35.7			33.6	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	86.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Existing + Preferred Project PM

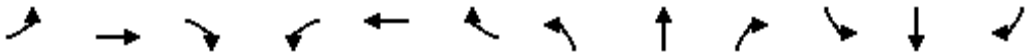


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	778	67	107	550	85	52	176	104	143	252	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3484		1770	3539	1517	1770	1863	1536	1770	1805	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3484		1770	3539	1517	1770	1863	1536	1770	1805	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	79	846	73	116	598	92	57	191	113	155	274	61
RTOR Reduction (vph)	0	10	0	0	0	61	0	0	91	0	14	0
Lane Group Flow (vph)	79	909	0	116	598	31	57	191	22	155	321	0
Confl. Peds. (#/hr)			32			7			5			6
Confl. Bikes (#/hr)			4			9			11			3
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			
Actuated Green, G (s)	2.7	17.9		3.6	18.8	18.8	3.2	10.8	10.8	7.6	15.2	
Effective Green, g (s)	2.7	17.9		3.6	18.8	18.8	3.2	10.8	10.8	7.6	15.2	
Actuated g/C Ratio	0.05	0.32		0.06	0.34	0.34	0.06	0.19	0.19	0.14	0.27	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	85	1115		113	1190	510	101	359	296	240	490	
v/s Ratio Prot	0.04	c0.26		c0.07	0.17		0.03	0.10		c0.09	c0.18	
v/s Ratio Perm						0.02			0.01			
v/c Ratio	0.93	0.82		1.03	0.50	0.06	0.56	0.53	0.07	0.65	0.66	
Uniform Delay, d1	26.5	17.5		26.1	14.8	12.6	25.7	20.3	18.5	22.9	18.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	73.4	4.7		92.0	0.3	0.1	7.0	1.5	0.1	5.9	3.2	
Delay (s)	99.9	22.2		118.1	15.2	12.6	32.7	21.8	18.6	28.7	21.2	
Level of Service	F	C		F	B	B	C	C	B	C	C	
Approach Delay (s)		28.3			29.7			22.5			23.6	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	55.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group

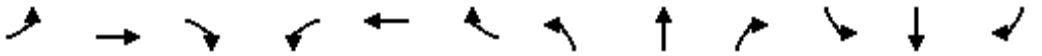


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	273	702	343	25	391	118	361	862	14	163	909	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.96		1.00	0.98		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.97		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3233		1770	3353		3433	3527		1770	3434	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3233		1770	3353		3433	3527		1770	3434	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	297	763	373	27	425	128	392	937	15	177	988	142
RTOR Reduction (vph)	0	50	0	0	25	0	0	1	0	0	10	0
Lane Group Flow (vph)	297	1086	0	27	528	0	392	951	0	177	1120	0
Confl. Peds. (#/hr)			83			52			53			68
Confl. Bikes (#/hr)			15			8			15			12
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	14.9	37.5		6.6	29.2		13.0	39.1		13.8	38.9	
Effective Green, g (s)	14.9	37.5		6.6	29.2		13.0	39.1		13.8	38.9	
Actuated g/C Ratio	0.14	0.34		0.06	0.27		0.12	0.36		0.13	0.35	
Clearance Time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.0	2.0		2.0	4.0		2.5	4.0	
Lane Grp Cap (vph)	239	1102		106	890		405	1253		222	1214	
v/s Ratio Prot	c0.17	c0.34		0.02	0.16		c0.11	0.27		0.10	c0.33	
v/s Ratio Perm												
v/c Ratio	1.24	0.99		0.25	0.59		0.97	0.76		0.80	0.92	
Uniform Delay, d1	47.5	36.0		49.4	35.2		48.3	31.3		46.7	34.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	139.4	23.4		0.5	0.7		35.8	4.3		17.3	12.9	
Delay (s)	187.0	59.4		49.8	35.9		84.1	35.6		64.0	47.0	
Level of Service	F	E		D	D		F	D		E	D	
Approach Delay (s)		85.8			36.6			49.8			49.3	
Approach LOS		F			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	59.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	94.9%	ICU Level of Service	F
Analysis Period (min)	15		

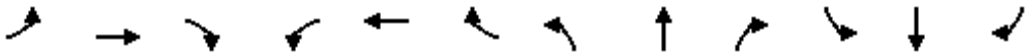
Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group



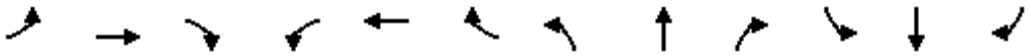
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	793	35	10	235	0	0	0	0	340	242	401
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5					6.5	6.5	6.5
Lane Util. Factor		0.95			0.91					0.91	0.91	1.00
Frpb, ped/bikes		1.00			1.00					1.00	1.00	0.97
Flpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Frt		0.99			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	0.98	1.00
Satd. Flow (prot)		3510			5074					1610	3327	1540
Flt Permitted		1.00			0.90					0.95	0.98	1.00
Satd. Flow (perm)		3510			4597					1610	3327	1540
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	793	35	10	235	0	0	0	0	340	242	401
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	0	211
Lane Group Flow (vph)	0	824	0	0	245	0	0	0	0	190	392	190
Confl. Peds. (#/hr)	20		20	20								20
Turn Type		NA		Perm	NA					Perm	NA	Perm
Protected Phases		1			1						2	
Permitted Phases				1						2		2
Actuated Green, G (s)		30.0			30.0					38.0	38.0	38.0
Effective Green, g (s)		30.0			30.0					38.0	38.0	38.0
Actuated g/C Ratio		0.38			0.38					0.48	0.48	0.48
Clearance Time (s)		5.5			5.5					6.5	6.5	6.5
Lane Grp Cap (vph)		1316			1723					764	1580	731
v/s Ratio Prot		c0.23										
v/s Ratio Perm					0.05					0.12	0.12	c0.12
v/c Ratio		0.63			0.14					0.25	0.25	0.26
Uniform Delay, d1		20.4			16.5					12.5	12.5	12.6
Progression Factor		1.00			0.31					1.00	1.00	1.00
Incremental Delay, d2		2.3			0.2					0.8	0.4	0.9
Delay (s)		22.7			5.2					13.3	12.9	13.4
Level of Service		C			A					B	B	B
Approach Delay (s)		22.7			5.2			0.0			13.2	
Approach LOS		C			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



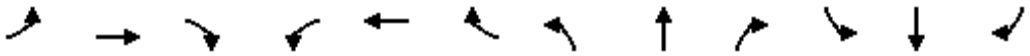
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	513	631	0	0	247	777	18	966	78	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	0.99			1.00	1.00		1.00				
Satd. Flow (prot)	1610	3359			3539	2704		5014				
Flt Permitted	0.95	0.77			1.00	1.00		1.00				
Satd. Flow (perm)	1610	2622			3539	2704		5014				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	513	631	0	0	247	777	18	966	78	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	55	0	11	0	0	0	0
Lane Group Flow (vph)	369	775	0	0	247	722	0	1051	0	0	0	0
Confl. Peds. (#/hr)						20			20			
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	12.0	42.0			26.5	26.5		27.0				
Effective Green, g (s)	12.0	42.0			26.5	26.5		27.0				
Actuated g/C Ratio	0.15	0.52			0.33	0.33		0.34				
Clearance Time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Grp Cap (vph)	241	1487			1172	895		1692				
v/s Ratio Prot	c0.23	0.08			0.07							
v/s Ratio Perm		0.20				c0.27		0.21				
v/c Ratio	1.53	0.52			0.21	0.81		0.62				
Uniform Delay, d1	34.0	12.4			19.2	24.4		22.2				
Progression Factor	1.02	2.41			1.00	1.00		1.00				
Incremental Delay, d2	256.5	1.1			0.4	7.7		1.7				
Delay (s)	291.1	31.1			19.6	32.1		23.9				
Level of Service	F	C			B	C		C				
Approach Delay (s)		114.9			29.1			23.9			0.0	
Approach LOS		F			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	57.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



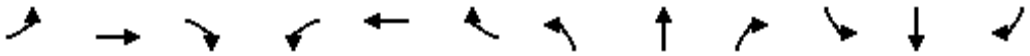
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	345	67	66	772	20	305	22	206	33	10	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3312	1214	1289	3375		1649	1528	1244	1480	1405	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3312	1214	1289	3375		1649	1528	1244	1480	1405	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	6	345	67	66	772	20	305	22	206	33	10	30
RTOR Reduction (vph)	0	0	46	0	1	0	0	0	157	0	27	0
Lane Group Flow (vph)	6	345	21	66	791	0	162	165	49	33	13	0
Confl. Peds. (#/hr)						1			3			
Heavy Vehicles (%)	0%	9%	33%	40%	5%	65%	4%	73%	28%	22%	50%	10%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases			2						8			
Actuated Green, G (s)	0.9	20.7	20.7	7.6	27.4		15.8	15.8	15.8	5.7	5.7	
Effective Green, g (s)	0.9	20.7	20.7	7.6	27.4		15.8	15.8	15.8	5.7	5.7	
Actuated g/C Ratio	0.01	0.31	0.31	0.11	0.41		0.24	0.24	0.24	0.09	0.09	
Clearance Time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	3.0	4.5	4.5	3.0	4.5		4.0	4.0	4.0	3.0	3.0	
Lane Grp Cap (vph)	24	1034	379	147	1394		392	364	296	127	120	
v/s Ratio Prot	0.00	0.10		c0.05	c0.23		0.10	c0.11		c0.02	0.01	
v/s Ratio Perm			0.02						0.04			
v/c Ratio	0.25	0.33	0.06	0.45	0.57		0.41	0.45	0.17	0.26	0.10	
Uniform Delay, d1	32.4	17.5	16.0	27.4	14.9		21.3	21.6	20.0	28.3	27.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.4	0.3	0.1	2.2	0.8		1.0	1.2	0.4	1.1	0.4	
Delay (s)	37.8	17.8	16.1	29.6	15.7		22.3	22.8	20.4	29.4	28.3	
Level of Service	D	B	B	C	B		C	C	C	C	C	
Approach Delay (s)		17.8			16.7			21.7			28.8	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	66.3	Sum of lost time (s)	16.5
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



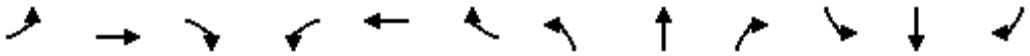
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	115	339	126	194	689	520	139	272	227	240	158	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.93		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.98	
Satd. Flow (prot)	1337	3058		1687	3406	1509	1444	2944		1369	2778	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.98	
Satd. Flow (perm)	1337	3058		1687	3406	1509	1444	2944		1369	2778	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	115	339	126	194	689	520	139	272	227	240	158	23
RTOR Reduction (vph)	0	32	0	0	0	364	0	105	0	0	5	0
Lane Group Flow (vph)	115	433	0	194	689	156	139	394	0	139	277	0
Confl. Peds. (#/hr)									1			
Heavy Vehicles (%)	35%	13%	14%	7%	6%	7%	25%	14%	13%	20%	16%	57%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	14.4	25.4		16.8	27.8	27.8	18.2	18.2		15.8	15.8	
Effective Green, g (s)	14.4	25.4		16.8	27.8	27.8	18.2	18.2		15.8	15.8	
Actuated g/C Ratio	0.16	0.27		0.18	0.30	0.30	0.20	0.20		0.17	0.17	
Clearance Time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	207	837		305	1021	452	283	578		233	473	
v/s Ratio Prot	0.09	0.14		c0.12	c0.20		0.10	c0.13		c0.10	0.10	
v/s Ratio Perm						0.10						
v/c Ratio	0.56	0.52		0.64	0.67	0.35	0.49	0.68		0.60	0.59	
Uniform Delay, d1	36.2	28.5		35.1	28.5	25.3	33.1	34.6		35.5	35.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.2	0.5		4.3	1.8	0.5	1.0	3.0		3.4	1.5	
Delay (s)	39.4	29.0		39.4	30.3	25.8	34.1	37.6		38.9	37.0	
Level of Service	D	C		D	C	C	C	D		D	D	
Approach Delay (s)		31.1			29.9			36.8			37.6	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	32.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	92.7	Sum of lost time (s)	16.5
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	633	137	179	937	0	0	0	0	452	384	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						5.0	
Lane Util. Factor		0.91		1.00	0.95						0.95	
Frpb, ped/bikes		1.00		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.97		1.00	1.00						0.96	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		4811		1762	3312						3278	
Flt Permitted		1.00		0.33	1.00						0.98	
Satd. Flow (perm)		4811		603	3312						3278	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	633	137	179	937	0	0	0	0	452	384	285
RTOR Reduction (vph)	0	38	0	0	0	0	0	0	0	0	40	0
Lane Group Flow (vph)	0	732	0	179	937	0	0	0	0	0	1081	0
Confl. Peds. (#/hr)			8	8						10		10
Heavy Vehicles (%)	16%	5%	2%	2%	9%	2%	1%	0%	0%	2%	2%	7%
Turn Type		NA		Perm	NA					Split	NA	
Protected Phases		4			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		42.1		42.1	42.1						31.7	
Effective Green, g (s)		42.1		42.1	42.1						31.7	
Actuated g/C Ratio		0.50		0.50	0.50						0.38	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		2416		302	1663						1240	
v/s Ratio Prot		0.15			0.28						c0.33	
v/s Ratio Perm				c0.30								
v/c Ratio		0.30		0.59	0.56						0.87	
Uniform Delay, d1		12.2		14.8	14.5						24.2	
Progression Factor		1.00		0.35	0.34						1.00	
Incremental Delay, d2		0.0		1.5	0.2						6.7	
Delay (s)		12.3		6.6	5.1						30.9	
Level of Service		B		A	A						C	
Approach Delay (s)		12.3			5.3			0.0			30.9	
Approach LOS		B			A			A			C	

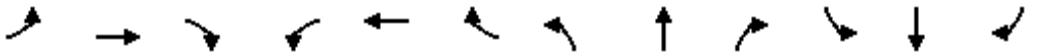
Intersection Summary			
HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	83.8	Sum of lost time (s)	10.0
Intersection Capacity Utilization	119.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	241	844	0	0	965	298	151	408	214	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0				
Lane Util. Factor	1.00	0.95			0.95			0.95				
Frpb, ped/bikes	1.00	1.00			0.99			0.99				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.96			0.96				
Flt Protected	0.95	1.00			1.00			0.99				
Satd. Flow (prot)	1770	3539			3391			3339				
Flt Permitted	0.12	1.00			1.00			0.99				
Satd. Flow (perm)	221	3539			3391			3339				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	241	844	0	0	965	298	151	408	214	0	0	0
RTOR Reduction (vph)	0	0	0	0	32	0	0	48	0	0	0	0
Lane Group Flow (vph)	241	844	0	0	1231	0	0	725	0	0	0	0
Confl. Peds. (#/hr)	10					10			10			
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)	42.1	42.1			42.1			31.7				
Effective Green, g (s)	42.1	42.1			42.1			31.7				
Actuated g/C Ratio	0.50	0.50			0.50			0.38				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Vehicle Extension (s)	2.0	2.0			2.0			2.0				
Lane Grp Cap (vph)	111	1777			1703			1263				
v/s Ratio Prot		0.24			0.36			c0.22				
v/s Ratio Perm	c1.09											
v/c Ratio	2.17	0.47			0.72			0.57				
Uniform Delay, d1	20.8	13.6			16.3			20.7				
Progression Factor	1.07	0.96			1.00			1.00				
Incremental Delay, d2	552.0	0.1			1.3			0.4				
Delay (s)	574.3	13.1			17.6			21.1				
Level of Service	F	B			B			C				
Approach Delay (s)		137.8			17.6			21.1			0.0	
Approach LOS		F			B			C			A	

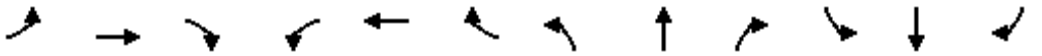
Intersection Summary			
HCM 2000 Control Delay	60.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.48		
Actuated Cycle Length (s)	83.8	Sum of lost time (s)	10.0
Intersection Capacity Utilization	119.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	47	1377	26	57	1049	56	26	206	57	65	214	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1767	3461		1768	3350		1757	1792		1760	1789	
Flt Permitted	0.20	1.00		0.12	1.00		0.46	1.00		0.47	1.00	
Satd. Flow (perm)	366	3461		221	3350		844	1792		877	1789	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	47	1377	26	57	1049	56	26	206	57	65	214	60
RTOR Reduction (vph)	0	2	0	0	5	0	0	12	0	0	13	0
Lane Group Flow (vph)	47	1401	0	57	1100	0	26	251	0	65	261	0
Confl. Peds. (#/hr)	8		7	7		8	11		8	8		11
Confl. Bikes (#/hr)			9			11			8			10
Heavy Vehicles (%)	2%	4%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	48.5	48.5		48.5	48.5		23.0	23.0		23.0	23.0	
Effective Green, g (s)	48.5	48.5		48.5	48.5		23.0	23.0		23.0	23.0	
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.29	0.29		0.29	0.29	
Clearance Time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	221	2098		133	2030		242	515		252	514	
v/s Ratio Prot		c0.40			0.33			0.14			c0.15	
v/s Ratio Perm	0.13			0.26			0.03			0.07		
v/c Ratio	0.21	0.67		0.43	0.54		0.11	0.49		0.26	0.51	
Uniform Delay, d1	7.1	10.4		8.4	9.2		21.0	23.6		21.9	23.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.2	1.7		9.8	1.0		0.9	3.3		2.5	3.6	
Delay (s)	9.3	12.1		18.2	10.3		21.8	26.9		24.4	27.3	
Level of Service	A	B		B	B		C	C		C	C	
Approach Delay (s)		12.0			10.7			26.4			26.8	
Approach LOS		B			B			C			C	

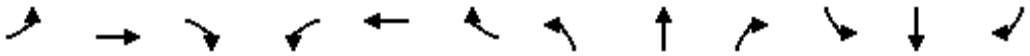
Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	81.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	97	1145	339	80	687	15	234	290	131	45	178	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Lane Util. Factor		0.95			0.95	1.00	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes		0.99			1.00	0.94	1.00	1.00	0.95		1.00	0.95
Flpb, ped/bikes		1.00			1.00	1.00	0.98	1.00	1.00		1.00	1.00
Frt		0.97			1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected		1.00			0.99	1.00	0.95	1.00	1.00		0.99	1.00
Satd. Flow (prot)		3321			3256	1490	1655	1827	1504		1839	1500
Flt Permitted		0.82			0.59	1.00	0.49	1.00	1.00		0.84	1.00
Satd. Flow (perm)		2740			1941	1490	855	1827	1504		1553	1500
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	97	1145	339	80	687	15	234	290	131	45	178	149
RTOR Reduction (vph)	0	24	0	0	0	6	0	0	42	0	0	105
Lane Group Flow (vph)	0	1557	0	0	767	9	234	290	89	0	223	44
Confl. Peds. (#/hr)	21		15	15		21	27		25	25		27
Confl. Bikes (#/hr)			18			17			16			17
Heavy Vehicles (%)	2%	4%	3%	30%	8%	2%	7%	4%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		4
Actuated Green, G (s)		54.5			54.5	54.5	26.5	26.5	26.5		26.5	26.5
Effective Green, g (s)		54.5			54.5	54.5	26.5	26.5	26.5		26.5	26.5
Actuated g/C Ratio		0.61			0.61	0.61	0.29	0.29	0.29		0.29	0.29
Clearance Time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Vehicle Extension (s)		2.0			2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1659			1175	902	251	537	442		457	441
v/s Ratio Prot								0.16				
v/s Ratio Perm		c0.57			0.40	0.01	c0.27		0.06		0.14	0.03
v/c Ratio		0.94			1.05dl	0.01	0.93	0.54	0.20		0.49	0.10
Uniform Delay, d1		16.2			11.6	7.0	30.9	26.6	23.8		26.2	23.1
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2		11.7			2.8	0.0	38.3	0.6	0.1		0.3	0.0
Delay (s)		27.9			14.4	7.1	69.1	27.2	23.9		26.5	23.1
Level of Service		C			B	A	E	C	C		C	C
Approach Delay (s)		27.9			14.3			41.5			25.1	
Approach LOS		C			B			D			C	

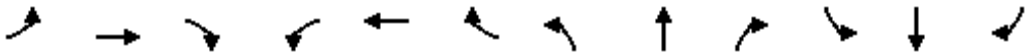
Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	123.7%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	1218	177	35	699	75	325	449	77	116	381	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	0.99	1.00		0.99	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.96	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3489	1482	1770	3195	1540	1726	3449		1759	3379	
Flt Permitted		0.70	1.00	0.11	1.00	1.00	0.43	1.00		0.42	1.00	
Satd. Flow (perm)		2471	1482	201	3195	1540	778	3449		781	3379	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	133	1218	177	35	699	75	325	449	77	116	381	135
RTOR Reduction (vph)	0	0	68	0	0	42	0	10	0	0	43	0
Lane Group Flow (vph)	0	1351	109	35	699	33	325	516	0	116	473	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Heavy Vehicles (%)	2%	3%	6%	2%	13%	2%	4%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4		4	2			6		
Actuated Green, G (s)		37.1	37.1	37.1	37.1	37.1	38.4	38.4		38.4	38.4	
Effective Green, g (s)		37.1	37.1	37.1	37.1	37.1	38.4	38.4		38.4	38.4	
Actuated g/C Ratio		0.44	0.44	0.44	0.44	0.44	0.45	0.45		0.45	0.45	
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0		4.0	4.0	
Lane Grp Cap (vph)		1078	646	87	1394	672	351	1558		352	1526	
v/s Ratio Prot					0.22			0.15			0.14	
v/s Ratio Perm		c0.55	0.07	0.17		0.02	c0.42			0.15		
v/c Ratio		1.25	0.17	0.40	0.50	0.05	0.93	0.33		0.33	0.31	
Uniform Delay, d1		23.9	14.6	16.4	17.3	13.8	22.0	15.0		15.0	14.9	
Progression Factor		1.00	1.00	0.71	0.87	0.69	1.00	1.00		1.00	1.00	
Incremental Delay, d2		121.7	0.6	12.4	1.2	0.1	30.7	0.3		0.8	0.2	
Delay (s)		145.6	15.1	24.1	16.2	9.6	52.7	15.3		15.8	15.0	
Level of Service		F	B	C	B	A	D	B		B	B	
Approach Delay (s)		130.5			15.9			29.6			15.1	
Approach LOS		F			B			C			B	

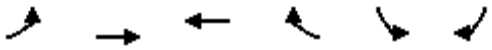
Intersection Summary			
HCM 2000 Control Delay	64.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	111.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	68	1161	10	26	864	40	20	173	242	35	78	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.97		1.00	0.94		0.97	
Flpb, ped/bikes	0.99	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1583	3154	1361	1585	3065	1375		3160	1169		2841	
Flt Permitted	0.30	1.00	1.00	0.20	1.00	1.00		0.91	1.00		0.88	
Satd. Flow (perm)	492	3154	1361	328	3065	1375		2906	1169		2530	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	68	1161	10	26	864	40	20	173	242	35	78	98
RTOR Reduction (vph)	0	0	3	0	0	10	0	0	25	0	63	0
Lane Group Flow (vph)	68	1161	7	26	864	30	0	193	217	0	148	0
Confl. Peds. (#/hr)	22		31	31		22	34		37	37		34
Confl. Bikes (#/hr)			7			3			12			19
Heavy Vehicles (%)	2%	3%	2%	2%	6%	2%	2%	2%	17%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4		4	2		2	2		
Actuated Green, G (s)	55.3	55.3	55.3	55.3	55.3	55.3		21.2	21.2		21.2	
Effective Green, g (s)	55.3	55.3	55.3	55.3	55.3	55.3		21.2	21.2		21.2	
Actuated g/C Ratio	0.65	0.65	0.65	0.65	0.65	0.65		0.25	0.25		0.25	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	320	2051	885	213	1994	894		724	291		631	
v/s Ratio Prot		c0.37			0.28							
v/s Ratio Perm	0.14		0.00	0.08		0.02		0.07	c0.19		0.06	
v/c Ratio	0.21	0.57	0.01	0.12	0.43	0.03		0.27	0.75		0.23	
Uniform Delay, d1	6.0	8.2	5.2	5.6	7.2	5.3		25.6	29.4		25.4	
Progression Factor	1.34	1.35	1.78	1.15	1.26	1.21		1.00	1.00		1.00	
Incremental Delay, d2	0.1	0.1	0.0	1.0	0.6	0.1		0.1	8.8		0.1	
Delay (s)	8.2	11.2	9.3	7.5	9.7	6.5		25.7	38.2		25.5	
Level of Service	A	B	A	A	A	A		C	D		C	
Approach Delay (s)		11.0			9.5			32.7			25.5	
Approach LOS		B			A			C			C	

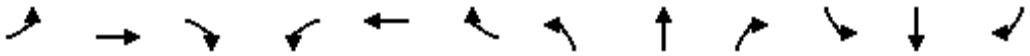
Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



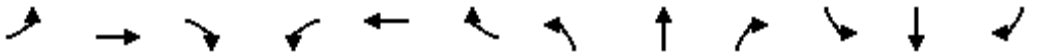
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	540	810	703	366	158	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.99	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.96	1.00
Satd. Flow (prot)	1577	3094	3065	1382	3023	1213
Flt Permitted	0.95	1.00	1.00	1.00	0.96	1.00
Satd. Flow (perm)	1577	3094	3065	1382	3023	1213
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	540	810	703	366	158	94
RTOR Reduction (vph)	0	0	0	227	11	68
Lane Group Flow (vph)	540	810	703	139	163	10
Confl. Peds. (#/hr)				15	15	15
Heavy Vehicles (%)	3%	5%	6%	2%	3%	6%
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	36.2	65.7	25.5	25.5	11.3	11.3
Effective Green, g (s)	36.2	65.7	25.5	25.5	11.3	11.3
Actuated g/C Ratio	0.43	0.77	0.30	0.30	0.13	0.13
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	671	2391	919	414	401	161
v/s Ratio Prot	c0.34	0.26	c0.23		c0.05	
v/s Ratio Perm				0.10		0.01
v/c Ratio	0.80	0.34	0.76	0.34	0.41	0.06
Uniform Delay, d1	21.3	3.0	27.0	23.2	33.8	32.2
Progression Factor	0.95	1.29	1.00	1.26	1.00	1.00
Incremental Delay, d2	5.7	0.3	3.3	0.2	0.2	0.1
Delay (s)	25.9	4.2	30.2	29.3	34.0	32.3
Level of Service	C	A	C	C	C	C
Approach Delay (s)		12.9	29.9		33.5	
Approach LOS		B	C		C	

Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	113	653	31	90	378	29	226	523	145	43	420	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	0.92	1.00	0.98	
Flpb, ped/bikes	0.98	1.00			1.00		0.98	1.00	1.00	0.97	1.00	
Frt	1.00	0.99			0.99		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1559	3156			3109		1559	3185	1308	1548	3032	
Flt Permitted	0.43	1.00			0.73		0.38	1.00	1.00	0.39	1.00	
Satd. Flow (perm)	714	3156			2297		622	3185	1308	635	3032	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	113	653	31	90	378	29	226	523	145	43	420	119
RTOR Reduction (vph)	0	3	0	0	4	0	0	0	63	0	35	0
Lane Group Flow (vph)	113	681	0	0	493	0	226	523	82	43	504	0
Confl. Peds. (#/hr)	46		47	47		46	57		65	65		57
Confl. Bikes (#/hr)			9			21			15			22
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	42.7	42.7			42.7		34.3	34.3	34.3	34.3	34.3	
Effective Green, g (s)	42.7	42.7			42.7		34.3	34.3	34.3	34.3	34.3	
Actuated g/C Ratio	0.50	0.50			0.50		0.40	0.40	0.40	0.40	0.40	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	358	1585			1153		250	1285	527	256	1223	
v/s Ratio Prot		c0.22						0.16			0.17	
v/s Ratio Perm	0.16				0.21		c0.36		0.06	0.07		
v/c Ratio	0.32	0.43			0.43		0.90	0.41	0.16	0.17	0.41	
Uniform Delay, d1	12.5	13.4			13.4		23.8	18.1	16.1	16.2	18.1	
Progression Factor	0.94	0.92			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.2	0.8			0.1		32.0	0.1	0.1	0.1	0.1	
Delay (s)	14.0	13.1			13.5		55.8	18.2	16.2	16.3	18.2	
Level of Service	B	B			B		E	B	B	B	B	
Approach Delay (s)		13.3			13.5			27.4			18.1	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	95.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	139	739	110	279	292	36	22	1068	707	2	505	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	4.0		5.5	5.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.98		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)	3090	3154	1349	3090	3185	1349		4570	1391		4576	1349
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.92	1.00		0.94	1.00
Satd. Flow (perm)	3090	3154	1349	3090	3185	1349		4211	1391		4285	1349
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	139	739	110	279	292	36	22	1068	707	2	505	53
RTOR Reduction (vph)	0	0	57	0	0	21	0	0	0	0	0	35
Lane Group Flow (vph)	139	739	53	279	292	15	0	1090	707	0	507	18
Confl. Peds. (#/hr)			40			40	40		40	40		40
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Free	Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases			8			4	2		Free	6		6
Actuated Green, G (s)	9.5	35.7	35.7	12.2	38.4	38.4		32.1	95.0		32.1	32.1
Effective Green, g (s)	9.5	35.7	35.7	12.2	38.4	38.4		32.1	95.0		32.1	32.1
Actuated g/C Ratio	0.10	0.38	0.38	0.13	0.40	0.40		0.34	1.00		0.34	0.34
Clearance Time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	309	1185	506	396	1287	545		1422	1391		1447	455
v/s Ratio Prot	0.04	c0.23		c0.09	0.09							
v/s Ratio Perm			0.04			0.01		c0.26	c0.51		0.12	0.01
v/c Ratio	0.45	0.62	0.10	0.70	0.23	0.03		0.77	0.51		0.35	0.04
Uniform Delay, d1	40.3	24.2	19.3	39.7	18.6	17.0		28.1	0.0		23.6	21.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	1.0	2.5	0.4	5.6	0.4	0.1		2.5	1.3		0.1	0.0
Delay (s)	41.3	26.7	19.7	45.3	19.0	17.1		30.6	1.3		23.8	21.1
Level of Service	D	C	B	D	B	B		C	A		C	C
Approach Delay (s)		27.9			31.0			19.1			23.5	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

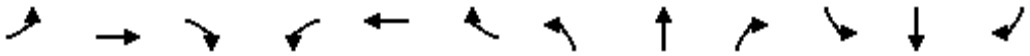
Site: Existing + Proj Pref PM

Adeline & 18th
Existing + Preferred Project PM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	105	2.0	0.430	8.9	LOS A	2.4	60.8	0.64	0.92	25.9
8	T	256	2.0	0.430	8.9	LOS A	2.4	60.8	0.64	0.74	28.1
18	R	36	2.0	0.430	8.9	LOS A	2.4	60.8	0.64	0.78	27.8
Approach		397	2.0	0.430	8.9	LOS A	2.4	60.8	0.64	0.79	27.4
East: 18th Street (WB)											
1	L	33	2.0	0.239	6.1	LOS A	1.1	28.5	0.53	0.88	27.2
6	T	161	2.0	0.239	6.1	LOS A	1.1	28.5	0.53	0.64	29.9
16	R	34	2.0	0.239	6.1	LOS A	1.1	28.5	0.53	0.69	29.6
Approach		228	2.0	0.239	6.1	LOS A	1.1	28.5	0.53	0.68	29.4
North: Adeline Street (SB)											
7	L	56	2.0	0.287	6.3	LOS A	1.4	36.8	0.50	0.86	27.1
4	T	224	2.0	0.287	6.3	LOS A	1.4	36.8	0.50	0.60	29.8
14	R	18	2.0	0.287	6.3	LOS A	1.4	36.8	0.50	0.65	29.5
Approach		298	2.0	0.287	6.3	LOS A	1.4	36.8	0.50	0.65	29.2
West: 18th Street (EB)											
5	L	21	2.0	0.417	8.1	LOS A	2.4	60.2	0.58	0.89	26.4
2	T	337	2.0	0.417	8.1	LOS A	2.4	60.2	0.58	0.66	28.8
12	R	69	2.0	0.417	8.1	LOS A	2.4	60.2	0.58	0.70	28.5
Approach		427	2.0	0.417	8.1	LOS A	2.4	60.2	0.58	0.68	28.6
All Vehicles		1350	2.0	0.430	7.6	LOS A	2.4	60.8	0.57	0.71	28.5

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	392	41	19	249	83	24	439	28	282	331	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00			1.00	
Flpb, ped/bikes	0.99	1.00		0.98	1.00		0.99	1.00			0.99	
Frt	1.00	0.99		1.00	0.96		1.00	0.99			0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1759	1828		1743	1782		1746	3490			3385	
Flt Permitted	0.39	1.00		0.25	1.00		0.38	1.00			0.64	
Satd. Flow (perm)	723	1828		465	1782		702	3490			2230	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	45	392	41	19	249	83	24	439	28	282	331	25
RTOR Reduction (vph)	0	6	0	0	19	0	0	6	0	0	4	0
Lane Group Flow (vph)	45	427	0	19	313	0	24	461	0	0	634	0
Confl. Peds. (#/hr)	14		44	44		14	37		71	71		37
Confl. Bikes (#/hr)			6			2			2			11
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	20.5	20.5		20.5	20.5		37.2	37.2			37.2	
Effective Green, g (s)	20.5	20.5		20.5	20.5		37.2	37.2			37.2	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.57	0.57			0.57	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	225	570		145	556		397	1976			1262	
v/s Ratio Prot		c0.23			0.18			0.13				
v/s Ratio Perm	0.06			0.04			0.03				c0.28	
v/c Ratio	0.20	0.75		0.13	0.56		0.06	0.23			0.50	
Uniform Delay, d1	16.6	20.3		16.2	18.9		6.4	7.1			8.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.4	5.4		0.4	1.3		0.3	0.3			1.4	
Delay (s)	17.0	25.7		16.6	20.2		6.7	7.4			10.1	
Level of Service	B	C		B	C		A	A			B	
Approach Delay (s)		24.9			20.0			7.4			10.1	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	65.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	102.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

Site: Existing + Proj Pref PM

Adeline & 14th
Existing + Preferred Project PM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	14	2.0	0.368	7.5	LOS A	2.0	49.9	0.57	0.90	26.6
8	T	300	2.0	0.368	7.5	LOS A	2.0	49.9	0.57	0.66	29.1
18	R	52	2.0	0.368	7.5	LOS A	2.0	49.9	0.57	0.71	28.8
Approach		366	2.0	0.368	7.5	LOS A	2.0	49.9	0.57	0.68	29.0
East: 14th Street (WB)											
1	L	89	2.0	0.336	7.2	LOS A	1.7	43.8	0.56	0.87	26.6
6	T	203	2.0	0.336	7.2	LOS A	1.7	43.8	0.56	0.66	29.1
16	R	35	2.0	0.336	7.2	LOS A	1.7	43.8	0.56	0.71	28.8
Approach		327	2.0	0.336	7.2	LOS A	1.7	43.8	0.56	0.72	28.3
North: Adeline Street (SB)											
7	L	63	2.0	0.297	6.4	LOS A	1.5	38.3	0.51	0.86	27.0
4	T	209	2.0	0.297	6.4	LOS A	1.5	38.3	0.51	0.61	29.7
14	R	34	2.0	0.297	6.4	LOS A	1.5	38.3	0.51	0.66	29.3
Approach		306	2.0	0.297	6.4	LOS A	1.5	38.3	0.51	0.66	29.0
West: 14th Street (EB)											
5	L	49	2.0	0.307	6.8	LOS A	1.5	39.1	0.55	0.89	26.9
2	T	230	2.0	0.307	6.8	LOS A	1.5	39.1	0.55	0.65	29.5
12	R	21	2.0	0.307	6.8	LOS A	1.5	39.1	0.55	0.70	29.1
Approach		300	2.0	0.307	6.8	LOS A	1.5	39.1	0.55	0.69	29.0
All Vehicles		1299	2.0	0.368	7.0	LOS A	2.0	49.9	0.55	0.69	28.8

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.

MOVEMENT SUMMARY

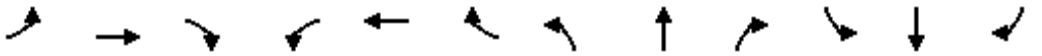
Site: Existing + Proj PM

Adeline & 12th
Existing + Preferred Project PM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	1	2.0	0.205	4.4	LOS A	1.1	26.9	0.18	0.89	27.8
8	T	268	2.0	0.205	4.4	LOS A	1.1	26.9	0.18	0.42	31.3
18	R	7	2.0	0.205	4.4	LOS A	1.1	26.9	0.18	0.52	30.7
Approach		276	2.0	0.205	4.4	LOS A	1.1	26.9	0.18	0.43	31.3
East: 12th Street (WB)											
1	L	9	2.0	0.105	4.3	LOS A	0.5	11.7	0.41	0.80	27.9
6	T	21	2.0	0.105	4.3	LOS A	0.5	11.7	0.41	0.52	31.1
16	R	82	2.0	0.105	4.3	LOS A	0.5	11.7	0.41	0.58	30.6
Approach		112	2.0	0.105	4.3	LOS A	0.5	11.7	0.41	0.59	30.5
North: Adeline Street (SB)											
7	L	34	2.0	0.222	4.5	LOS A	1.2	29.9	0.14	0.87	27.7
4	T	261	2.0	0.222	4.5	LOS A	1.2	29.9	0.14	0.41	31.2
14	R	8	2.0	0.222	4.5	LOS A	1.2	29.9	0.14	0.50	30.6
Approach		303	2.0	0.222	4.5	LOS A	1.2	29.9	0.14	0.46	30.7
West: 12th Street (EB)											
5	L	8	2.0	0.015	3.6	LOS A	0.1	1.6	0.40	0.73	28.2
2	T	5	2.0	0.015	3.6	LOS A	0.1	1.6	0.40	0.47	31.5
12	R	3	2.0	0.015	3.6	LOS A	0.1	1.6	0.40	0.53	31.0
Approach		16	2.0	0.015	3.6	LOS A	0.1	1.6	0.40	0.61	29.6
All Vehicles		707	2.0	0.222	4.4	LOS A	1.2	29.9	0.21	0.47	30.9

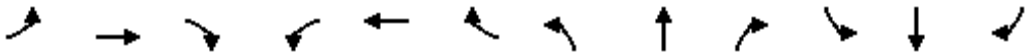
Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	99	97	0	0	155	273	90	222	165	255	0	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			0.98		1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frt	1.00	1.00			0.90		1.00	0.94		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1367	3312			2584		972	2858		1556		2472
Flt Permitted	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (perm)	1367	3312			2584		972	2858		1556		2472
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	99	97	0	0	155	273	90	222	165	255	0	192
RTOR Reduction (vph)	0	0	0	0	225	0	0	109	0	0	0	138
Lane Group Flow (vph)	99	97	0	0	203	0	81	287	0	255	0	54
Confl. Peds. (#/hr)						14						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	32%	9%	0%	0%	25%	24%	69%	12%	12%	16%	0%	15%
Turn Type	Prot	NA			NA		Split	NA		Prot		custom
Protected Phases	1	6			2		4	4		3		3
Permitted Phases												
Actuated Green, G (s)	8.1	23.4			11.8		11.9	11.9		18.8		18.8
Effective Green, g (s)	8.1	23.4			11.8		11.9	11.9		18.8		18.8
Actuated g/C Ratio	0.12	0.35			0.18		0.18	0.18		0.28		0.28
Clearance Time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	165	1155			454		172	506		435		692
v/s Ratio Prot	c0.07	0.03			c0.08		0.08	c0.10		c0.16		0.02
v/s Ratio Perm												
v/c Ratio	0.60	0.08			0.45		0.47	0.57		0.59		0.08
Uniform Delay, d1	28.0	14.7			24.7		24.8	25.2		20.8		17.8
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	3.9	0.0			0.5		1.5	1.2		1.7		0.0
Delay (s)	31.8	14.7			25.2		26.3	26.4		22.5		17.8
Level of Service	C	B			C		C	C		C		B
Approach Delay (s)		23.3			25.2			26.4			20.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	67.1	Sum of lost time (s)	16.5
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		

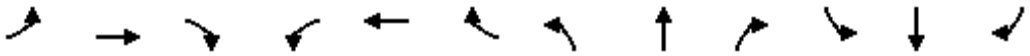
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	111	704	22	144	636	151	20	128	132	189	169	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.99			0.99		1.00	0.95	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		0.99	1.00	
Frt	1.00	1.00		1.00	0.97			0.94		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1770	3379		1770	3286			1712		1760	1671	
Flt Permitted	0.95	1.00		0.95	1.00			0.97		0.50	1.00	
Satd. Flow (perm)	1770	3379		1770	3286			1666		932	1671	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	111	704	22	144	636	151	20	128	132	189	169	107
RTOR Reduction (vph)	0	3	0	0	34	0	0	29	0	0	21	0
Lane Group Flow (vph)	111	723	0	144	753	0	0	251	0	189	255	0
Confl. Peds. (#/hr)			58			47	70		8	8		70
Confl. Bikes (#/hr)			15			6			9			38
Heavy Vehicles (%)	2%	6%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	12.2	32.8		11.1	31.7			35.1		35.1	35.1	
Effective Green, g (s)	12.2	32.8		11.1	31.7			35.1		35.1	35.1	
Actuated g/C Ratio	0.14	0.36		0.12	0.35			0.39		0.39	0.39	
Clearance Time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	239	1231		218	1157			649		363	651	
v/s Ratio Prot	0.06	c0.21		0.08	c0.23						0.15	
v/s Ratio Perm								0.15		c0.20		
v/c Ratio	0.46	0.59		0.66	0.65			0.39		0.52	0.39	
Uniform Delay, d1	35.9	23.1		37.7	24.5			19.7		21.0	19.8	
Progression Factor	0.94	0.91		0.96	0.61			1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.5		5.6	2.8			0.1		0.6	0.1	
Delay (s)	34.4	21.6		42.0	17.7			19.9		21.6	19.9	
Level of Service	C	C		D	B			B		C	B	
Approach Delay (s)		23.3			21.4			19.9			20.6	
Approach LOS		C			C			B			C	

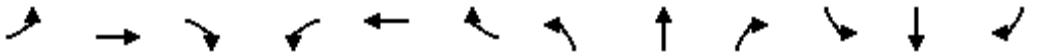
Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	1450	54	27	857	124	36	89	68	72	81	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		1.00	1.00	1.00	0.99	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1760	3376		1054	3471	1460	1573	1092		1756	1572	
Flt Permitted	0.27	1.00		0.09	1.00	1.00	0.68	1.00		0.63	1.00	
Satd. Flow (perm)	500	3376		101	3471	1460	1123	1092		1173	1572	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	53	1450	54	27	857	124	36	89	68	72	81	42
RTOR Reduction (vph)	0	3	0	0	0	56	0	18	0	0	23	0
Lane Group Flow (vph)	53	1501	0	27	857	68	36	139	0	72	100	0
Confl. Peds. (#/hr)	21		23	23		21	9		11	11		9
Confl. Bikes (#/hr)			4			5						1
Heavy Vehicles (%)	2%	6%	11%	71%	4%	6%	14%	50%	76%	2%	20%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	44.0	44.0		44.0	44.0	44.0	28.0	28.0		28.0	28.0	
Effective Green, g (s)	44.0	44.0		44.0	44.0	44.0	28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.55	0.55		0.55	0.55	0.55	0.35	0.35		0.35	0.35	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	275	1856		55	1909	803	393	382		410	550	
v/s Ratio Prot		c0.44			0.25			c0.13			0.06	
v/s Ratio Perm	0.11			0.27		0.05	0.03			0.06		
v/c Ratio	0.19	0.81		0.49	0.45	0.08	0.09	0.37		0.18	0.18	
Uniform Delay, d1	9.1	14.6		11.1	10.8	8.5	17.5	19.4		18.0	18.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	3.9		28.1	0.8	0.2	0.5	2.7		0.9	0.7	
Delay (s)	10.6	18.5		39.2	11.5	8.7	17.9	22.1		18.9	18.8	
Level of Service	B	B		D	B	A	B	C		B	B	
Approach Delay (s)		18.2			11.9			21.3			18.8	
Approach LOS		B			B			C			B	

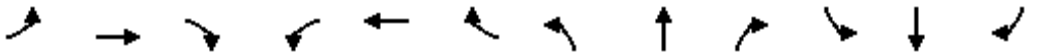
Intersection Summary			
HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	81.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	124	1065	146	25	345	37	356	313	31	73	142	273
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	0.99	1.00		1.00	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1663	4274		1765	4520		1743	1863	1538	1752	3539	1215
Flt Permitted	0.52	1.00		0.16	1.00		0.66	1.00	1.00	0.48	1.00	1.00
Satd. Flow (perm)	905	4274		304	4520		1214	1863	1538	887	3539	1215
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	124	1065	146	25	345	37	356	313	31	73	142	273
RTOR Reduction (vph)	0	21	0	0	15	0	0	0	15	0	0	156
Lane Group Flow (vph)	124	1190	0	25	367	0	356	313	16	73	142	117
Confl. Peds. (#/hr)	10		20	20		10	8		20	20		8
Confl. Bikes (#/hr)			7			3						6
Heavy Vehicles (%)	8%	21%	2%	2%	14%	2%	3%	2%	2%	2%	2%	30%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	39.0	39.0		39.0	39.0		36.5	36.5	36.5	36.5	36.5	36.5
Effective Green, g (s)	39.0	39.0		39.0	39.0		36.5	36.5	36.5	36.5	36.5	36.5
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.43	0.43	0.43	0.43	0.43	0.43
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	415	1961		139	2073		521	799	660	380	1519	521
v/s Ratio Prot		c0.28			0.08			0.17			0.04	
v/s Ratio Perm	0.14			0.08			c0.29		0.01	0.08		0.10
v/c Ratio	0.30	0.61		0.18	0.18		0.68	0.39	0.02	0.19	0.09	0.23
Uniform Delay, d1	14.4	17.3		13.6	13.5		19.6	16.6	14.0	15.1	14.4	15.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	1.4		0.2	0.0		7.1	1.4	0.1	1.1	0.1	1.0
Delay (s)	16.3	18.7		13.8	13.6		26.7	18.1	14.1	16.2	14.5	16.3
Level of Service	B	B		B	B		C	B	B	B	B	B
Approach Delay (s)		18.4			13.6			22.3			15.8	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		

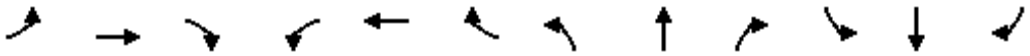
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	56	152	456	48	115	0	0	273	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	1.00			0.95	1.00
Frpb, ped/bikes					1.00	0.99	1.00	1.00			1.00	0.98
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3491	1561	1770	1111			2865	1558
Flt Permitted					0.99	1.00	0.58	1.00			1.00	1.00
Satd. Flow (perm)					3491	1561	1087	1111			2865	1558
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	56	152	456	48	115	0	0	273	24
RTOR Reduction (vph)	0	0	0	0	0	388	0	0	0	0	0	6
Lane Group Flow (vph)	0	0	0	0	208	68	48	115	0	0	273	18
Confl. Peds. (#/hr)				1		2			8	8		
Confl. Bikes (#/hr)												13
Heavy Vehicles (%)	0%	13%	100%	2%	2%	2%	2%	71%	83%	0%	26%	2%
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					4			6			2	
Permitted Phases				4		4	6					2
Actuated Green, G (s)					13.4	13.4	67.1	67.1			67.1	67.1
Effective Green, g (s)					13.4	13.4	67.1	67.1			67.1	67.1
Actuated g/C Ratio					0.15	0.15	0.75	0.75			0.75	0.75
Clearance Time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Vehicle Extension (s)					2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)					519	232	810	828			2136	1161
v/s Ratio Prot								c0.10			0.10	
v/s Ratio Perm					0.06	0.04	0.04					0.01
v/c Ratio					0.40	0.29	0.06	0.14			0.13	0.02
Uniform Delay, d1					34.7	34.1	3.0	3.2			3.2	2.9
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					0.2	0.3	0.0	0.0			0.1	0.0
Delay (s)					34.9	34.3	3.1	3.3			3.3	3.0
Level of Service					C	C	A	A			A	A
Approach Delay (s)		0.0			34.5			3.2			3.3	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.18		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

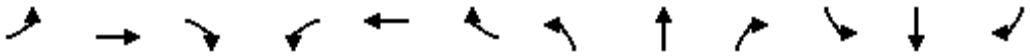


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	944	61	41	112	26	107	186	148	153	41	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.97		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.97		1.00	0.93		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3371		1770	3330		1770	1031		1770	1142	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3371		1770	3330		1770	1031		1770	1142	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	26	944	61	41	112	26	107	186	148	153	41	13
RTOR Reduction (vph)	0	3	0	0	12	0	0	16	0	0	9	0
Lane Group Flow (vph)	26	1002	0	41	126	0	107	318	0	153	45	0
Confl. Peds. (#/hr)						50			3			3
Confl. Bikes (#/hr)			4						1			
Heavy Vehicles (%)	2%	5%	21%	2%	2%	2%	2%	57%	88%	2%	78%	2%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Actuated Green, G (s)	4.1	37.9		6.4	40.7		39.3	39.3		15.4	15.4	
Effective Green, g (s)	4.1	37.9		6.4	40.7		39.3	39.3		15.4	15.4	
Actuated g/C Ratio	0.04	0.33		0.06	0.35		0.34	0.34		0.13	0.13	
Clearance Time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.5	3.0		3.2	3.2		3.0	3.0	
Lane Grp Cap (vph)	63	1110		98	1178		604	352		237	152	
v/s Ratio Prot	0.01	c0.30		c0.02	c0.04		0.06	c0.31		c0.09	0.04	
v/s Ratio Perm												
v/c Ratio	0.41	0.90		0.42	0.11		0.18	0.90		0.65	0.30	
Uniform Delay, d1	54.3	36.8		52.5	24.9		26.5	36.1		47.2	44.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	10.3		2.1	0.0		0.2	25.6		5.9	1.1	
Delay (s)	55.9	47.1		54.6	25.0		26.7	61.7		53.1	46.0	
Level of Service	E	D		D	C		C	E		D	D	
Approach Delay (s)		47.3			31.8			53.2			51.3	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	47.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Existing + Project AM Mitigated

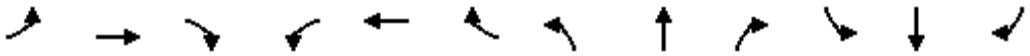


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	38	666	97	161	728	83	100	137	119	82	265	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3450		1770	3539	1518	1770	1863	1541	1770	1801	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3450		1770	3539	1518	1770	1863	1541	1770	1801	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	724	105	175	791	90	109	149	129	89	288	70
RTOR Reduction (vph)	0	19	0	0	0	54	0	0	95	0	15	0
Lane Group Flow (vph)	41	810	0	175	791	36	109	149	34	89	343	0
Confl. Peds. (#/hr)			32			7			5			6
Confl. Bikes (#/hr)			4			9			11			3
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			
Actuated Green, G (s)	1.5	18.9		7.0	24.4	24.4	4.0	16.1	16.1	3.1	15.2	
Effective Green, g (s)	1.5	18.9		7.0	24.4	24.4	4.0	16.1	16.1	3.1	15.2	
Actuated g/C Ratio	0.02	0.31		0.11	0.40	0.40	0.07	0.26	0.26	0.05	0.25	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	43	1067		202	1413	606	115	490	406	89	448	
v/s Ratio Prot	0.02	c0.23		c0.10	0.22		c0.06	0.08		0.05	c0.19	
v/s Ratio Perm						0.02			0.02			
v/c Ratio	0.95	0.76		0.87	0.56	0.06	0.95	0.30	0.08	1.00	0.77	
Uniform Delay, d1	29.8	19.0		26.6	14.2	11.3	28.4	18.0	16.9	29.0	21.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	118.5	3.2		29.9	0.5	0.0	66.8	0.4	0.1	95.4	7.6	
Delay (s)	148.3	22.2		56.5	14.7	11.3	95.3	18.4	17.0	124.4	28.9	
Level of Service	F	C		E	B	B	F	B	B	F	C	
Approach Delay (s)		28.1			21.3			39.6			47.9	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	30.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	61.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		

Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group

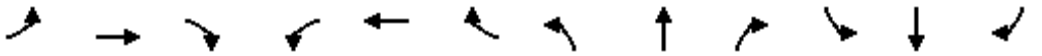


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	201	534	358	40	597	110	446	619	26	136	788	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Lane Util. Factor	0.97	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.95		1.00	0.99		1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	0.98		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3165		1770	3413		3433	3508		1770	3348	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	3165		1770	3413		3433	3508		1770	3348	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	218	580	389	43	649	120	485	673	28	148	857	257
RTOR Reduction (vph)	0	102	0	0	14	0	0	2	0	0	26	0
Lane Group Flow (vph)	218	867	0	43	755	0	485	699	0	148	1088	0
Confl. Peds. (#/hr)			83			52			53			68
Confl. Bikes (#/hr)			15			8			15			12
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	10.0	32.6		6.6	29.2		17.4	44.0		13.8	39.4	
Effective Green, g (s)	10.0	32.6		6.6	29.2		17.4	44.0		13.8	39.4	
Actuated g/C Ratio	0.09	0.30		0.06	0.27		0.16	0.40		0.13	0.36	
Clearance Time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.0	2.0		2.0	4.0		2.5	4.0	
Lane Grp Cap (vph)	312	937		106	905		543	1403		222	1199	
v/s Ratio Prot	c0.06	c0.27		0.02	0.22		c0.14	0.20		0.08	c0.33	
v/s Ratio Perm												
v/c Ratio	0.70	0.93		0.41	0.83		0.89	0.50		0.67	0.91	
Uniform Delay, d1	48.5	37.5		49.8	38.1		45.4	24.7		45.9	33.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.4	14.5		0.9	6.4		16.5	1.3		6.6	11.6	
Delay (s)	54.0	52.0		50.7	44.5		61.9	26.0		52.6	45.1	
Level of Service	D	D		D	D		E	C		D	D	
Approach Delay (s)		52.4			44.8			40.7			46.0	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	46.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	94.1%	ICU Level of Service	F
Analysis Period (min)	15		

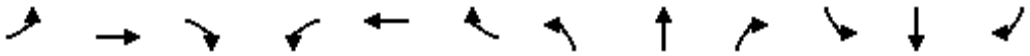
Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group



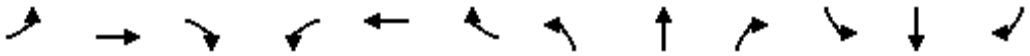
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	317	23	9	174	0	0	0	0	577	838	764
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5					6.5	6.5	6.5
Lane Util. Factor		0.95			0.91					0.91	0.91	1.00
Frpb, ped/bikes		1.00			1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Frt		0.99			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	0.99	1.00
Satd. Flow (prot)		3492			5068					1610	3369	1550
Flt Permitted		1.00			0.91					0.95	0.99	1.00
Satd. Flow (perm)		3492			4646					1610	3369	1550
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	317	23	9	174	0	0	0	0	577	838	764
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	0	124
Lane Group Flow (vph)	0	334	0	0	183	0	0	0	0	456	959	640
Confl. Peds. (#/hr)	20		20	20								20
Turn Type		NA		Perm	NA					Perm	NA	Perm
Protected Phases		1			1						2	
Permitted Phases				1						2		2
Actuated Green, G (s)		16.0			16.0					52.0	52.0	52.0
Effective Green, g (s)		16.0			16.0					52.0	52.0	52.0
Actuated g/C Ratio		0.20			0.20					0.65	0.65	0.65
Clearance Time (s)		5.5			5.5					6.5	6.5	6.5
Lane Grp Cap (vph)		698			929					1046	2189	1007
v/s Ratio Prot		c0.10										
v/s Ratio Perm					0.04					0.28	0.28	c0.41
v/c Ratio		0.48			0.20					0.44	0.44	0.64
Uniform Delay, d1		28.3			26.6					6.8	6.9	8.4
Progression Factor		1.00			1.20					1.00	1.00	1.00
Incremental Delay, d2		2.3			0.5					1.3	0.6	3.1
Delay (s)		30.6			32.4					8.2	7.5	11.4
Level of Service		C			C					A	A	B
Approach Delay (s)		30.6			32.4			0.0			9.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



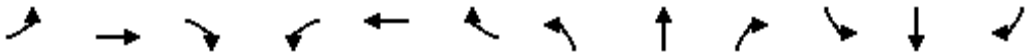
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	199	715	0	0	165	244	4	309	28	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	0.96		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1610	3386			3539	2666		5009				
Flt Permitted	0.95	0.95			1.00	1.00		1.00				
Satd. Flow (perm)	1610	3233			3539	2666		5009				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	199	715	0	0	165	244	4	309	28	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	198	0	13	0	0	0	0
Lane Group Flow (vph)	179	735	0	0	165	46	0	328	0	0	0	0
Confl. Peds. (#/hr)						20			20			
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	18.0	36.5			15.0	15.0		32.5				
Effective Green, g (s)	18.0	36.5			15.0	15.0		32.5				
Actuated g/C Ratio	0.22	0.46			0.19	0.19		0.41				
Clearance Time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Grp Cap (vph)	362	1509			663	499		2034				
v/s Ratio Prot	0.11	c0.11			0.05							
v/s Ratio Perm		c0.11				0.02		0.07				
v/c Ratio	0.49	0.49			0.25	0.09		0.16				
Uniform Delay, d1	27.0	15.2			27.7	26.9		15.1				
Progression Factor	0.99	0.75			1.00	1.00		1.00				
Incremental Delay, d2	4.4	1.0			0.9	0.4		0.2				
Delay (s)	31.2	12.5			28.6	27.2		15.3				
Level of Service	C	B			C	C		B				
Approach Delay (s)		16.1			27.8			15.3			0.0	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



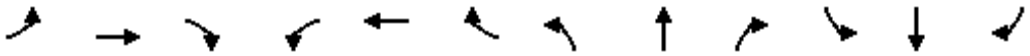
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	18	426	178	224	602	49	32	16	69	20	20	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3312	1404	1543	3298		1243	1250	947	1203	1105	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.98	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3312	1404	1543	3298		1243	1250	947	1203	1105	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	18	426	178	224	602	49	32	16	69	20	20	10
RTOR Reduction (vph)	0	0	118	0	3	0	0	0	61	0	9	0
Lane Group Flow (vph)	18	426	60	224	648	0	24	24	8	20	21	0
Confl. Peds. (#/hr)						1			3			
Heavy Vehicles (%)	0%	9%	15%	17%	7%	21%	38%	44%	68%	50%	75%	40%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases			2						8			
Actuated Green, G (s)	0.9	22.2	22.2	15.5	36.8		8.1	8.1	8.1	3.6	3.6	
Effective Green, g (s)	0.9	22.2	22.2	15.5	36.8		8.1	8.1	8.1	3.6	3.6	
Actuated g/C Ratio	0.01	0.34	0.34	0.24	0.56		0.12	0.12	0.12	0.05	0.05	
Clearance Time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.5	3.5	3.5	2.0	3.5		3.0	3.0	3.0	2.0	2.0	
Lane Grp Cap (vph)	24	1115	472	362	1841		152	153	116	65	60	
v/s Ratio Prot	0.01	0.13		c0.15	c0.20		c0.02	0.02		0.02	c0.02	
v/s Ratio Perm			0.04						0.01			
v/c Ratio	0.75	0.38	0.13	0.62	0.35		0.16	0.16	0.07	0.31	0.34	
Uniform Delay, d1	32.4	16.6	15.1	22.6	8.0		25.8	25.8	25.6	30.0	30.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	77.3	0.3	0.1	2.2	0.1		0.5	0.5	0.3	1.0	1.2	
Delay (s)	109.7	16.9	15.3	24.8	8.1		26.3	26.3	25.8	30.9	31.3	
Level of Service	F	B	B	C	A		C	C	C	C	C	
Approach Delay (s)		19.1			12.4			26.0			31.1	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	65.9	Sum of lost time (s)	16.5
Intersection Capacity Utilization	44.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



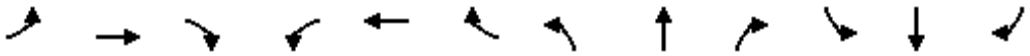
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	397	96	138	587	337	187	206	188	498	204	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.93		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.98	
Satd. Flow (prot)	1014	2958		1299	3438	1369	1480	2541		1480	2556	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.98	
Satd. Flow (perm)	1014	2958		1299	3438	1369	1480	2541		1480	2556	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	40	397	96	138	587	337	187	206	188	498	204	76
RTOR Reduction (vph)	0	19	0	0	0	226	0	117	0	0	9	0
Lane Group Flow (vph)	40	474	0	138	587	111	187	277	0	259	510	0
Confl. Peds. (#/hr)									1			
Heavy Vehicles (%)	78%	14%	37%	39%	5%	18%	22%	42%	19%	11%	45%	45%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	6.5	23.4		16.1	33.0	33.0	18.0	18.0		26.6	26.6	
Effective Green, g (s)	6.5	23.4		16.1	33.0	33.0	18.0	18.0		26.6	26.6	
Actuated g/C Ratio	0.06	0.23		0.16	0.33	0.33	0.18	0.18		0.26	0.26	
Clearance Time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	65	688		207	1127	449	264	454		391	675	
v/s Ratio Prot	0.04	c0.16		c0.11	0.17		c0.13	0.11		0.18	c0.20	
v/s Ratio Perm						0.08						
v/c Ratio	0.62	0.69		0.67	0.52	0.25	0.71	0.61		0.66	0.76	
Uniform Delay, d1	45.8	35.3		39.7	27.4	24.7	38.8	38.1		33.0	34.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	16.1	2.9		7.9	0.4	0.3	7.8	2.0		3.8	4.6	
Delay (s)	61.9	38.2		47.6	27.8	25.0	46.6	40.0		36.8	38.6	
Level of Service	E	D		D	C	C	D	D		D	D	
Approach Delay (s)		39.9			29.5			42.1			38.0	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	36.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	100.6	Sum of lost time (s)	16.5
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	966	127	144	665	0	0	0	0	130	200	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						5.0	
Lane Util. Factor		0.91		1.00	0.95						0.95	
Frpb, ped/bikes		1.00		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.98		1.00	1.00						0.95	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		4899		1766	3343						3225	
Flt Permitted		1.00		0.23	1.00						0.99	
Satd. Flow (perm)		4899		435	3343						3225	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	966	127	144	665	0	0	0	0	130	200	145
RTOR Reduction (vph)	0	14	0	0	0	0	0	0	0	0	73	0
Lane Group Flow (vph)	0	1079	0	144	665	0	0	0	0	0	402	0
Confl. Peds. (#/hr)			8	8						10		10
Heavy Vehicles (%)	6%	4%	2%	2%	8%	2%	0%	0%	0%	2%	2%	11%
Turn Type		NA		Perm	NA					Split	NA	
Protected Phases		4			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		42.3		42.3	42.3						16.3	
Effective Green, g (s)		42.3		42.3	42.3						16.3	
Actuated g/C Ratio		0.62		0.62	0.62						0.24	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		3020		268	2061						766	
v/s Ratio Prot		0.22			0.20						c0.12	
v/s Ratio Perm				c0.33								
v/c Ratio		0.36		0.54	0.32						0.52	
Uniform Delay, d1		6.5		7.5	6.3						22.8	
Progression Factor		1.00		0.65	0.55						1.00	
Incremental Delay, d2		0.0		0.9	0.0						0.3	
Delay (s)		6.5		5.8	3.5						23.1	
Level of Service		A		A	A						C	
Approach Delay (s)		6.5			3.9			0.0			23.1	
Approach LOS		A			A			A			C	

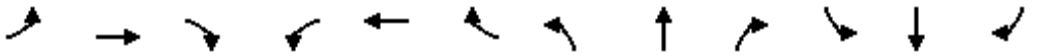
Intersection Summary			
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	68.6	Sum of lost time (s)	10.0
Intersection Capacity Utilization	98.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	270	826	0	0	676	353	133	322	113	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0				
Lane Util. Factor	1.00	0.95			0.95			0.95				
Frpb, ped/bikes	1.00	1.00			0.99			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.95			0.97				
Flt Protected	0.95	1.00			1.00			0.99				
Satd. Flow (prot)	1765	3539			3328			3381				
Flt Permitted	0.24	1.00			1.00			0.99				
Satd. Flow (perm)	440	3539			3328			3381				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	270	826	0	0	676	353	133	322	113	0	0	0
RTOR Reduction (vph)	0	0	0	0	57	0	0	32	0	0	0	0
Lane Group Flow (vph)	270	826	0	0	972	0	0	536	0	0	0	0
Confl. Peds. (#/hr)	10					10			10			
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)	42.3	42.3			42.3			16.3				
Effective Green, g (s)	42.3	42.3			42.3			16.3				
Actuated g/C Ratio	0.62	0.62			0.62			0.24				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Vehicle Extension (s)	2.0	2.0			2.0			2.0				
Lane Grp Cap (vph)	271	2182			2052			803				
v/s Ratio Prot		0.23			0.29			c0.16				
v/s Ratio Perm	c0.61											
v/c Ratio	1.00	0.38			0.47			0.67				
Uniform Delay, d1	13.1	6.6			7.1			23.7				
Progression Factor	0.65	0.38			1.00			1.00				
Incremental Delay, d2	51.9	0.0			0.1			1.6				
Delay (s)	60.5	2.5			7.2			25.3				
Level of Service	E	A			A			C				
Approach Delay (s)		16.8			7.2			25.3			0.0	
Approach LOS		B			A			C			A	

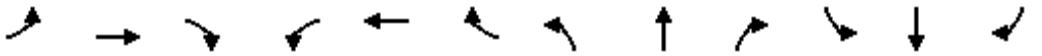
Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	68.6	Sum of lost time (s)	10.0
Intersection Capacity Utilization	98.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	473	38	53	1301	16	36	89	41	28	118	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.95		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1767	3428		1761	3399		1754	1760		1758	1786	
Flt Permitted	0.13	1.00		0.44	1.00		0.65	1.00		0.67	1.00	
Satd. Flow (perm)	250	3428		819	3399		1208	1760		1246	1786	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	19	473	38	53	1301	16	36	89	41	28	118	35
RTOR Reduction (vph)	0	7	0	0	1	0	0	21	0	0	13	0
Lane Group Flow (vph)	19	504	0	53	1316	0	36	109	0	28	140	0
Confl. Peds. (#/hr)	8		7	7		8	11		8	8		11
Confl. Bikes (#/hr)			9			11			8			10
Heavy Vehicles (%)	2%	4%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	47.5	47.5		47.5	47.5		24.0	24.0		24.0	24.0	
Effective Green, g (s)	47.5	47.5		47.5	47.5		24.0	24.0		24.0	24.0	
Actuated g/C Ratio	0.59	0.59		0.59	0.59		0.30	0.30		0.30	0.30	
Clearance Time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	148	2035		486	2018		362	528		373	535	
v/s Ratio Prot		0.15			c0.39			0.06			c0.08	
v/s Ratio Perm	0.08			0.06			0.03			0.02		
v/c Ratio	0.13	0.25		0.11	0.65		0.10	0.21		0.08	0.26	
Uniform Delay, d1	7.1	7.7		7.1	10.8		20.2	20.9		20.1	21.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.8	0.3		0.5	1.7		0.5	0.9		0.4	1.2	
Delay (s)	8.9	8.0		7.5	12.4		20.8	21.8		20.4	22.5	
Level of Service	A	A		A	B		C	C		C	C	
Approach Delay (s)		8.1			12.2			21.6			22.1	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	388	104	66	825	19	333	172	65	31	160	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Lane Util. Factor		0.95			0.95	1.00	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes		0.99			1.00	0.94	1.00	1.00	0.95		1.00	0.95
Flpb, ped/bikes		1.00			1.00	1.00	0.98	1.00	1.00		1.00	1.00
Frt		0.97			1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected		1.00			1.00	1.00	0.95	1.00	1.00		0.99	1.00
Satd. Flow (prot)		3308			3259	1487	1652	1845	1508		1842	1519
Flt Permitted		0.84			0.86	1.00	0.58	1.00	1.00		0.94	1.00
Satd. Flow (perm)		2775			2820	1487	1010	1845	1508		1747	1519
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	40	388	104	66	825	19	333	172	65	31	160	244
RTOR Reduction (vph)	0	25	0	0	0	7	0	0	40	0	0	81
Lane Group Flow (vph)	0	507	0	0	891	12	333	172	25	0	191	163
Confl. Peds. (#/hr)	21		15	15		21	27		25	25		27
Confl. Bikes (#/hr)			18			17			16			17
Heavy Vehicles (%)	2%	5%	3%	39%	8%	2%	7%	3%	2%	2%	2%	1%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		4
Actuated Green, G (s)		46.4			46.4	46.4	34.6	34.6	34.6		34.6	34.6
Effective Green, g (s)		46.4			46.4	46.4	34.6	34.6	34.6		34.6	34.6
Actuated g/C Ratio		0.52			0.52	0.52	0.38	0.38	0.38		0.38	0.38
Clearance Time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Vehicle Extension (s)		2.0			2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1430			1453	766	388	709	579		671	583
v/s Ratio Prot								0.09				
v/s Ratio Perm		0.18			c0.32	0.01	c0.33		0.02		0.11	0.11
v/c Ratio		0.35			0.61	0.02	0.86	0.24	0.04		0.28	0.28
Uniform Delay, d1		12.9			15.4	10.6	25.4	18.8	17.3		19.1	19.1
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2		0.7			1.9	0.0	16.3	0.1	0.0		0.1	0.1
Delay (s)		13.6			17.4	10.7	41.8	18.9	17.3		19.2	19.2
Level of Service		B			B	B	D	B	B		B	B
Approach Delay (s)		13.6			17.2			32.1			19.2	
Approach LOS		B			B			C			B	

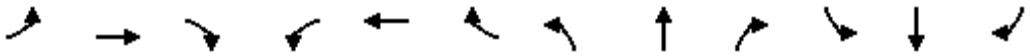
Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	105.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	510	38	24	866	102	55	301	32	80	293	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	0.99	1.00	1.00	0.99	1.00		0.99	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3436	1510	1756	3252	1540	1658	3480		1756	3511	
Flt Permitted		0.93	1.00	0.45	1.00	1.00	0.53	1.00		0.50	1.00	
Satd. Flow (perm)		3215	1510	833	3252	1540	927	3480		923	3511	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	12	510	38	24	866	102	55	301	32	80	293	14
RTOR Reduction (vph)	0	0	12	0	0	26	0	14	0	0	6	0
Lane Group Flow (vph)	0	522	26	24	866	76	55	319	0	80	301	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Heavy Vehicles (%)	2%	5%	4%	2%	11%	2%	8%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4		4	2			6		
Actuated Green, G (s)		57.3	57.3	57.3	57.3	57.3	18.2	18.2		18.2	18.2	
Effective Green, g (s)		57.3	57.3	57.3	57.3	57.3	18.2	18.2		18.2	18.2	
Actuated g/C Ratio		0.67	0.67	0.67	0.67	0.67	0.21	0.21		0.21	0.21	
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0		4.0	4.0	
Lane Grp Cap (vph)		2167	1017	561	2192	1038	198	745		197	751	
v/s Ratio Prot					c0.27			c0.09			0.09	
v/s Ratio Perm		0.16	0.02	0.03		0.05	0.06			0.09		
v/c Ratio		0.24	0.03	0.04	0.40	0.07	0.28	0.43		0.41	0.40	
Uniform Delay, d1		5.4	4.6	4.6	6.2	4.7	27.9	28.9		28.7	28.7	
Progression Factor		1.00	1.00	1.02	0.72	1.19	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3	0.0	0.1	0.5	0.1	1.6	0.8		1.9	0.5	
Delay (s)		5.7	4.6	4.9	4.9	5.8	29.5	29.7		30.6	29.2	
Level of Service		A	A	A	A	A	C	C		C	C	
Approach Delay (s)		5.6			5.0			29.7			29.5	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

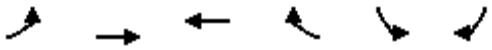
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	512	20	52	826	28	15	102	178	36	99	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.97		1.00	0.93		0.97	
Flpb, ped/bikes	0.99	1.00	1.00	0.98	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1582	3124	1361	1495	3185	1375		3155	1169		2843	
Flt Permitted	0.33	1.00	1.00	0.46	1.00	1.00		0.90	1.00		0.89	
Satd. Flow (perm)	550	3124	1361	729	3185	1375		2853	1169		2554	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	55	512	20	52	826	28	15	102	178	36	99	105
RTOR Reduction (vph)	0	0	5	0	0	7	0	0	154	0	91	0
Lane Group Flow (vph)	55	512	15	52	826	21	0	117	24	0	149	0
Confl. Peds. (#/hr)	22		31	31		22	34		37	37		34
Confl. Bikes (#/hr)			7			3			12			19
Heavy Vehicles (%)	2%	4%	2%	7%	2%	2%	2%	2%	16%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4		4	2		2	2		
Actuated Green, G (s)	64.9	64.9	64.9	64.9	64.9	64.9		11.6	11.6		11.6	
Effective Green, g (s)	64.9	64.9	64.9	64.9	64.9	64.9		11.6	11.6		11.6	
Actuated g/C Ratio	0.76	0.76	0.76	0.76	0.76	0.76		0.14	0.14		0.14	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	419	2385	1039	556	2431	1049		389	159		348	
v/s Ratio Prot		0.16			c0.26							
v/s Ratio Perm	0.10		0.01	0.07		0.02		0.04	0.02		c0.06	
v/c Ratio	0.13	0.21	0.01	0.09	0.34	0.02		0.30	0.15		0.43	
Uniform Delay, d1	2.6	2.8	2.4	2.6	3.2	2.4		33.0	32.4		33.7	
Progression Factor	0.87	0.87	0.80	0.65	0.83	0.67		1.00	1.00		1.00	
Incremental Delay, d2	0.6	0.2	0.0	0.3	0.3	0.0		0.2	0.2		0.3	
Delay (s)	2.9	2.7	1.9	1.9	3.0	1.7		33.2	32.5		34.0	
Level of Service	A	A	A	A	A	A		C	C		C	
Approach Delay (s)		2.7			2.9			32.8			34.0	
Approach LOS		A			A			C			C	

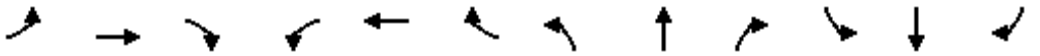
Intersection Summary			
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



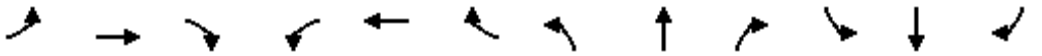
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	219	449	798	84	647	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1593	3008	3036	1343	3053	1191
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1593	3008	3036	1343	3053	1191
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	219	449	798	84	647	172
RTOR Reduction (vph)	0	0	0	36	3	113
Lane Group Flow (vph)	219	449	798	48	661	42
Confl. Peds. (#/hr)				15	15	15
Heavy Vehicles (%)	2%	8%	7%	5%	3%	8%
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	15.6	53.8	34.2	34.2	23.2	23.2
Effective Green, g (s)	15.6	53.8	34.2	34.2	23.2	23.2
Actuated g/C Ratio	0.18	0.63	0.40	0.40	0.27	0.27
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	292	1903	1221	540	833	325
v/s Ratio Prot	c0.14	0.15	c0.26		c0.22	
v/s Ratio Perm				0.04		0.04
v/c Ratio	0.75	0.24	0.65	0.09	0.79	0.13
Uniform Delay, d1	32.9	6.7	20.6	15.7	28.7	23.3
Progression Factor	1.09	1.17	1.04	0.89	1.00	1.00
Incremental Delay, d2	9.1	0.3	0.9	0.0	4.9	0.1
Delay (s)	44.8	8.2	22.3	14.0	33.6	23.4
Level of Service	D	A	C	B	C	C
Approach Delay (s)		20.2	21.6		31.6	
Approach LOS		C	C		C	

Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	82	586	53	80	661	61	92	352	76	51	305	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	0.91	1.00	0.98	
Flpb, ped/bikes	0.99	1.00			1.00		0.97	1.00	1.00	0.96	1.00	
Frt	1.00	0.99			0.99		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00			1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1571	3131			3113		1552	3185	1298	1535	3011	
Flt Permitted	0.33	1.00			0.82		0.36	1.00	1.00	0.42	1.00	
Satd. Flow (perm)	541	3131			2571		595	3185	1298	680	3011	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	82	586	53	80	661	61	92	352	76	51	305	96
RTOR Reduction (vph)	0	4	0	0	4	0	0	0	61	0	49	0
Lane Group Flow (vph)	82	635	0	0	798	0	92	352	15	51	352	0
Confl. Peds. (#/hr)	46		47	47		46	57		65	65		57
Confl. Bikes (#/hr)			9			21			15			22
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	59.9	59.9			59.9		17.1	17.1	17.1	17.1	17.1	
Effective Green, g (s)	59.9	59.9			59.9		17.1	17.1	17.1	17.1	17.1	
Actuated g/C Ratio	0.70	0.70			0.70		0.20	0.20	0.20	0.20	0.20	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	381	2206			1811		119	640	261	136	605	
v/s Ratio Prot		0.20						0.11			0.12	
v/s Ratio Perm	0.15				c0.31		c0.15		0.01	0.07		
v/c Ratio	0.22	0.29			0.44		0.77	0.55	0.06	0.38	0.58	
Uniform Delay, d1	4.4	4.6			5.4		32.1	30.5	27.4	29.3	30.7	
Progression Factor	0.93	0.92			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.2	0.3			0.1		24.2	0.6	0.0	0.6	0.9	
Delay (s)	5.2	4.6			5.4		56.3	31.1	27.5	30.0	31.6	
Level of Service	A	A			A		E	C	C	C	C	
Approach Delay (s)		4.6			5.4			35.0			31.5	
Approach LOS		A			A			D			C	

Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	91.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	135	65	345	669	101	130	631	290	28	583	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	5.5		5.5	5.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		1.00	1.00
Satd. Flow (prot)	3090	3154	1352	3090	3185	1352		4526	1352		4564	1352
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.72	1.00		0.88	1.00
Satd. Flow (perm)	3090	3154	1352	3090	3185	1352		3303	1352		4002	1352
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	55	135	65	345	669	101	130	631	290	28	583	83
RTOR Reduction (vph)	0	0	45	0	0	49	0	0	197	0	0	56
Lane Group Flow (vph)	55	135	20	345	669	52	0	761	93	0	611	27
Confl. Peds. (#/hr)			40			40	40		40	40		40
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases			8			4	2		2	6		6
Actuated Green, G (s)	5.9	27.4	27.4	18.8	40.3	40.3		28.8	28.8		28.8	28.8
Effective Green, g (s)	5.9	27.4	27.4	18.8	40.3	40.3		28.8	28.8		28.8	28.8
Actuated g/C Ratio	0.07	0.30	0.30	0.21	0.45	0.45		0.32	0.32		0.32	0.32
Clearance Time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	5.5		5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	202	960	411	645	1426	605		1056	432		1280	432
v/s Ratio Prot	c0.02	0.04		c0.11	c0.21							
v/s Ratio Perm			0.01			0.04		c0.23	0.07		0.15	0.02
v/c Ratio	0.27	0.14	0.05	0.53	0.47	0.09		0.72	0.21		0.48	0.06
Uniform Delay, d1	40.0	22.7	22.1	31.7	17.4	14.3		27.0	22.3		24.6	21.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	0.7	0.3	0.2	0.9	1.1	0.3		2.4	0.3		0.3	0.1
Delay (s)	40.7	23.1	22.3	32.6	18.5	14.6		29.5	22.6		24.8	21.3
Level of Service	D	C	C	C	B	B		C	C		C	C
Approach Delay (s)		26.7			22.5			27.6			24.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

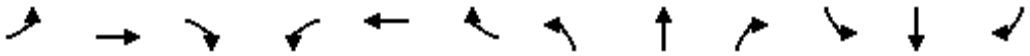
Site: Existing + Proj Pref AM

Adeline & 18th
Existing + Preferred Project AM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	231	2.0	0.353	6.3	LOS A	2.1	53.0	0.37	0.74	26.8
8	T	176	2.0	0.353	6.3	LOS A	2.1	53.0	0.37	0.46	29.7
18	R	29	2.0	0.353	6.3	LOS A	2.1	53.0	0.37	0.53	29.3
Approach		436	2.0	0.353	6.3	LOS A	2.1	53.0	0.37	0.61	28.0
East: 18th Street (WB)											
1	L	35	2.0	0.284	6.9	LOS A	1.4	34.6	0.57	0.90	26.9
6	T	182	2.0	0.284	6.9	LOS A	1.4	34.6	0.57	0.68	29.5
16	R	45	2.0	0.284	6.9	LOS A	1.4	34.6	0.57	0.73	29.1
Approach		262	2.0	0.284	6.9	LOS A	1.4	34.6	0.57	0.72	29.0
North: Adeline Street (SB)											
7	L	29	2.0	0.280	7.0	LOS A	1.3	33.7	0.58	0.93	26.9
4	T	207	2.0	0.280	7.0	LOS A	1.3	33.7	0.58	0.70	29.4
14	R	14	2.0	0.280	7.0	LOS A	1.3	33.7	0.58	0.75	29.1
Approach		250	2.0	0.280	7.0	LOS A	1.3	33.7	0.58	0.73	29.1
West: 18th Street (EB)											
5	L	8	2.0	0.116	4.4	LOS A	0.5	13.0	0.41	0.85	28.0
2	T	93	2.0	0.116	4.4	LOS A	0.5	13.0	0.41	0.53	31.2
12	R	23	2.0	0.116	4.4	LOS A	0.5	13.0	0.41	0.60	30.8
Approach		124	2.0	0.116	4.4	LOS A	0.5	13.0	0.41	0.57	30.9
All Vehicles		1072	2.0	0.353	6.4	LOS A	2.1	53.0	0.47	0.66	28.8

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	185	28	29	254	252	30	324	35	129	231	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99			1.00	
Flpb, ped/bikes	1.00	1.00		0.98	1.00		0.98	1.00			0.99	
Frt	1.00	0.98		1.00	0.93		1.00	0.99			0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1763	1814		1726	1703		1735	3459			3394	
Flt Permitted	0.19	1.00		0.56	1.00		0.53	1.00			0.74	
Satd. Flow (perm)	359	1814		1022	1703		960	3459			2556	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	22	185	28	29	254	252	30	324	35	129	231	22
RTOR Reduction (vph)	0	8	0	0	54	0	0	11	0	0	6	0
Lane Group Flow (vph)	22	205	0	29	452	0	30	348	0	0	376	0
Confl. Peds. (#/hr)	14		44	44		14	37		71	71		37
Confl. Bikes (#/hr)			6			2			2			11
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	20.7	20.7		20.7	20.7		37.2	37.2			37.2	
Effective Green, g (s)	20.7	20.7		20.7	20.7		37.2	37.2			37.2	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.56	0.56			0.56	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Lane Grp Cap (vph)	112	569		321	534		541	1952			1442	
v/s Ratio Prot		0.11			c0.27			0.10				
v/s Ratio Perm	0.06			0.03			0.03				c0.15	
v/c Ratio	0.20	0.36		0.09	0.85		0.06	0.18			0.26	
Uniform Delay, d1	16.5	17.5		16.0	21.1		6.5	6.9			7.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.3	0.1		0.0	11.3		0.2	0.2			0.4	
Delay (s)	16.8	17.6		16.0	32.4		6.6	7.1			7.8	
Level of Service	B	B		B	C		A	A			A	
Approach Delay (s)		17.5			31.6			7.1			7.8	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	65.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	101.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

Site: Existing + Proj Pref AM

Adeline & 14th
Existing + Preferred Project AM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	24	2.0	0.373	6.9	LOS A	2.2	54.7	0.47	0.85	26.8
8	T	376	2.0	0.373	6.9	LOS A	2.2	54.7	0.47	0.56	29.6
18	R	25	2.0	0.373	6.9	LOS A	2.2	54.7	0.47	0.62	29.2
Approach		425	2.0	0.373	6.9	LOS A	2.2	54.7	0.47	0.58	29.4
East: 14th Street (WB)											
1	L	34	2.0	0.245	6.4	LOS A	1.1	28.9	0.55	0.90	27.1
6	T	148	2.0	0.245	6.4	LOS A	1.1	28.9	0.55	0.67	29.7
16	R	42	2.0	0.245	6.4	LOS A	1.1	28.9	0.55	0.72	29.4
Approach		224	2.0	0.245	6.4	LOS A	1.1	28.9	0.55	0.71	29.2
North: Adeline Street (SB)											
7	L	32	2.0	0.230	5.2	LOS A	1.1	29.1	0.40	0.84	27.6
4	T	205	2.0	0.230	5.2	LOS A	1.1	29.1	0.40	0.52	30.6
14	R	26	2.0	0.230	5.2	LOS A	1.1	29.1	0.40	0.59	30.2
Approach		263	2.0	0.230	5.2	LOS A	1.1	29.1	0.40	0.57	30.1
West: 14th Street (EB)											
5	L	23	2.0	0.176	5.0	LOS A	0.8	20.7	0.43	0.85	27.7
2	T	154	2.0	0.176	5.0	LOS A	0.8	20.7	0.43	0.55	30.8
12	R	11	2.0	0.176	5.0	LOS A	0.8	20.7	0.43	0.61	30.4
Approach		188	2.0	0.176	5.0	LOS A	0.8	20.7	0.43	0.59	30.4
All Vehicles		1100	2.0	0.373	6.1	LOS A	2.2	54.7	0.46	0.60	29.7

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.

MOVEMENT SUMMARY

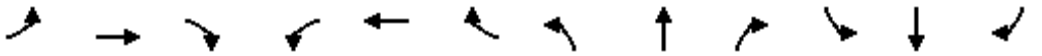
Site: Existing + Proj AM

Adeline & 12th
Existing + Preferred Project AM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	1	2.0	0.234	4.6	LOS A	1.3	32.0	0.14	0.90	27.7
8	T	314	2.0	0.234	4.6	LOS A	1.3	32.0	0.14	0.42	31.2
18	R	5	2.0	0.234	4.6	LOS A	1.3	32.0	0.14	0.52	30.5
Approach		320	2.0	0.234	4.6	LOS A	1.3	32.0	0.14	0.42	31.1
East: 12th Street (WB)											
1	L	7	2.0	0.132	4.7	LOS A	0.6	14.8	0.45	0.82	27.8
6	T	29	2.0	0.132	4.7	LOS A	0.6	14.8	0.45	0.56	30.8
16	R	99	2.0	0.132	4.7	LOS A	0.6	14.8	0.45	0.61	30.4
Approach		135	2.0	0.132	4.7	LOS A	0.6	14.8	0.45	0.61	30.3
North: Adeline Street (SB)											
7	L	22	2.0	0.187	4.2	LOS A	0.9	24.1	0.15	0.88	27.9
4	T	227	2.0	0.187	4.2	LOS A	0.9	24.1	0.15	0.41	31.4
14	R	5	2.0	0.187	4.2	LOS A	0.9	24.1	0.15	0.51	30.8
Approach		254	2.0	0.187	4.2	LOS A	0.9	24.1	0.15	0.46	31.1
West: 12th Street (EB)											
5	L	2	2.0	0.009	3.4	LOS A	0.0	1.0	0.37	0.78	28.5
2	T	7	2.0	0.009	3.4	LOS A	0.0	1.0	0.37	0.46	31.9
12	R	1	2.0	0.009	3.4	LOS A	0.0	1.0	0.37	0.52	31.4
Approach		10	2.0	0.009	3.4	LOS A	0.0	1.0	0.37	0.53	31.1
All Vehicles		719	2.0	0.234	4.5	LOS A	1.3	32.0	0.21	0.47	31.0

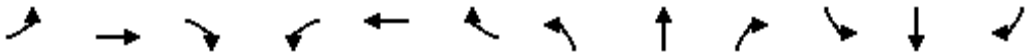
Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	38	32	0	0	162	291	277	227	196	216	0	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			0.98		1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frt	1.00	1.00			0.90		1.00	0.94		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1020	3282			2821		1173	2763		1543		1960
Flt Permitted	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (perm)	1020	3282			2821		1173	2763		1543		1960
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	38	32	0	0	162	291	277	227	196	216	0	196
RTOR Reduction (vph)	0	0	0	0	241	0	0	100	0	0	0	152
Lane Group Flow (vph)	38	32	0	0	212	0	238	362	0	216	0	44
Confl. Peds. (#/hr)						14						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	77%	10%	0%	0%	8%	17%	40%	15%	14%	17%	0%	45%
Turn Type	Prot	NA			NA		Split	NA		Prot		custom
Protected Phases	1	6			2		4	4		3		3
Permitted Phases												
Actuated Green, G (s)	4.6	20.1			12.0		21.1	21.1		15.6		15.6
Effective Green, g (s)	4.6	20.1			12.0		21.1	21.1		15.6		15.6
Actuated g/C Ratio	0.07	0.29			0.17		0.30	0.30		0.22		0.22
Clearance Time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	67	945			484		354	835		344		438
v/s Ratio Prot	c0.04	0.01			c0.08		c0.20	0.13		c0.14		0.02
v/s Ratio Perm												
v/c Ratio	0.57	0.03			0.44		0.67	0.43		0.63		0.10
Uniform Delay, d1	31.6	17.9			25.9		21.3	19.5		24.5		21.5
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	6.4	0.0			0.5		4.5	0.3		3.1		0.1
Delay (s)	38.0	17.9			26.3		25.8	19.8		27.6		21.6
Level of Service	D	B			C		C	B		C		C
Approach Delay (s)		28.8			26.3			21.9			24.7	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	69.8	Sum of lost time (s)	16.5
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

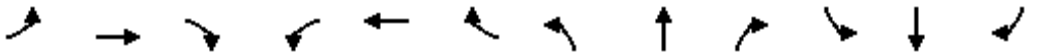
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	72	470	24	135	496	171	17	64	61	100	128	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.98			0.98		1.00	0.95	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		0.99	1.00	
Frt	1.00	0.99		1.00	0.96			0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1770	3189		1770	3265			1698		1756	1697	
Flt Permitted	0.95	1.00		0.95	1.00			0.86		0.46	1.00	
Satd. Flow (perm)	1770	3189		1770	3265			1465		845	1697	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	72	470	24	135	496	171	17	64	61	100	128	52
RTOR Reduction (vph)	0	3	0	0	28	0	0	31	0	0	17	0
Lane Group Flow (vph)	72	491	0	135	639	0	0	111	0	100	163	0
Confl. Peds. (#/hr)			58			47	70		8	8		70
Confl. Bikes (#/hr)			15			6			9			38
Heavy Vehicles (%)	2%	12%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	9.8	63.1		11.9	65.2			14.0		14.0	14.0	
Effective Green, g (s)	9.8	63.1		11.9	65.2			14.0		14.0	14.0	
Actuated g/C Ratio	0.10	0.63		0.12	0.65			0.14		0.14	0.14	
Clearance Time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	173	2012		210	2128			205		118	237	
v/s Ratio Prot	c0.04	0.15		c0.08	c0.20						0.10	
v/s Ratio Perm								0.08		c0.12		
v/c Ratio	0.42	0.24		0.64	0.30			0.54		0.85	0.69	
Uniform Delay, d1	42.4	8.0		42.0	7.5			40.0		42.0	40.9	
Progression Factor	1.20	1.32		1.09	0.31			1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.0		4.9	0.4			1.6		38.6	6.4	
Delay (s)	51.5	10.6		50.6	2.7			41.6		80.6	47.4	
Level of Service	D	B		D	A			D		F	D	
Approach Delay (s)		15.8			10.8			41.6			59.2	
Approach LOS		B			B			D			E	

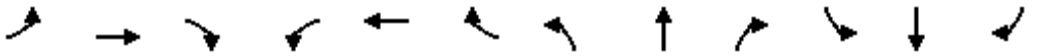
Intersection Summary			
HCM 2000 Control Delay	22.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	620	56	69	839	254	13	54	20	38	65	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00	0.99	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.96		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1761	3268		1024	3471	1492	1346	933		1751	1461	
Flt Permitted	0.30	1.00		0.36	1.00	1.00	0.69	1.00		0.71	1.00	
Satd. Flow (perm)	548	3268		393	3471	1492	977	933		1306	1461	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	30	620	56	69	839	254	13	54	20	38	65	33
RTOR Reduction (vph)	0	7	0	0	0	91	0	14	0	0	18	0
Lane Group Flow (vph)	30	669	0	69	839	163	13	60	0	38	80	0
Confl. Peds. (#/hr)	21		23	23		21	9		11	11		9
Confl. Bikes (#/hr)			4			5						1
Heavy Vehicles (%)	2%	8%	17%	75%	4%	4%	33%	100%	78%	2%	33%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	64.0	64.0		64.0	64.0	64.0	28.0	28.0		28.0	28.0	
Effective Green, g (s)	64.0	64.0		64.0	64.0	64.0	28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64	0.64	0.28	0.28		0.28	0.28	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	350	2091		251	2221	954	273	261		365	409	
v/s Ratio Prot		0.20			c0.24			c0.06			0.05	
v/s Ratio Perm	0.05			0.18		0.11	0.01			0.03		
v/c Ratio	0.09	0.32		0.27	0.38	0.17	0.05	0.23		0.10	0.20	
Uniform Delay, d1	6.9	8.1		7.9	8.5	7.3	26.3	27.7		26.7	27.4	
Progression Factor	0.39	0.34		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.4		2.7	0.5	0.4	0.3	2.1		0.6	1.1	
Delay (s)	3.1	3.1		10.6	9.0	7.7	26.6	29.8		27.3	28.5	
Level of Service	A	A		B	A	A	C	C		C	C	
Approach Delay (s)		3.1			8.8			29.3			28.1	
Approach LOS		A			A			C			C	

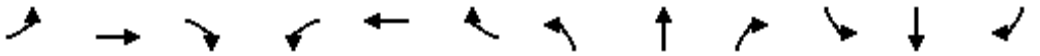
Intersection Summary			
HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	137	453	78	51	619	33	381	180	14	47	106	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1579	4094		1757	4573		1761	1810	1541	1749	3539	1246
Flt Permitted	0.34	1.00		0.42	1.00		0.69	1.00	1.00	0.64	1.00	1.00
Satd. Flow (perm)	564	4094		772	4573		1270	1810	1541	1185	3539	1246
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	137	453	78	51	619	33	381	180	14	47	106	193
RTOR Reduction (vph)	0	42	0	0	10	0	0	0	6	0	0	77
Lane Group Flow (vph)	137	489	0	51	642	0	381	180	8	47	106	116
Confl. Peds. (#/hr)	10		20	20		10	8		20	20		8
Confl. Bikes (#/hr)			7			3						6
Heavy Vehicles (%)	14%	27%	2%	2%	13%	2%	2%	5%	2%	2%	2%	27%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	22.4	22.4		22.4	22.4		43.1	43.1	43.1	43.1	43.1	43.1
Effective Green, g (s)	22.4	22.4		22.4	22.4		43.1	43.1	43.1	43.1	43.1	43.1
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.57	0.57	0.57	0.57	0.57	0.57
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	168	1222		230	1365		729	1040	885	680	2033	716
v/s Ratio Prot		0.12			0.14			0.10			0.03	
v/s Ratio Perm	c0.24			0.07			c0.30		0.01	0.04		0.09
v/c Ratio	0.82	0.40		0.22	0.47		0.52	0.17	0.01	0.07	0.05	0.16
Uniform Delay, d1	24.4	20.9		19.8	21.5		9.7	7.5	6.8	7.1	7.0	7.5
Progression Factor	1.00	1.00		1.00	1.00		1.11	1.15	1.74	1.00	1.00	1.00
Incremental Delay, d2	24.1	0.1		0.2	0.1		2.5	0.3	0.0	0.2	0.0	0.5
Delay (s)	48.5	21.0		19.9	21.6		13.3	9.0	11.9	7.3	7.0	8.0
Level of Service	D	C		B	C		B	A	B	A	A	A
Approach Delay (s)		26.7			21.4			11.9			7.6	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	18.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

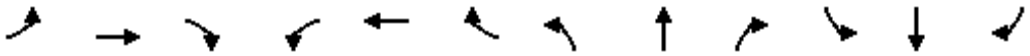
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	177	243	470	23	52	0	0	161	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	1.00			0.95	1.00
Frpb, ped/bikes					1.00	0.99	1.00	1.00			1.00	0.98
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3465	1562	1770	990			3167	1557
Flt Permitted					0.98	1.00	0.65	1.00			1.00	1.00
Satd. Flow (perm)					3465	1562	1211	990			3167	1557
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	177	243	470	23	52	0	0	161	50
RTOR Reduction (vph)	0	0	0	0	0	363	0	0	0	0	0	18
Lane Group Flow (vph)	0	0	0	0	420	107	23	52	0	0	161	32
Confl. Peds. (#/hr)				1		2			8	8		
Confl. Bikes (#/hr)												13
Heavy Vehicles (%)	2%	15%	88%	2%	2%	2%	2%	92%	0%	2%	14%	2%
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					4			6			2	
Permitted Phases				4		4	6					2
Actuated Green, G (s)					17.0	17.0	48.5	48.5			48.5	48.5
Effective Green, g (s)					17.0	17.0	48.5	48.5			48.5	48.5
Actuated g/C Ratio					0.23	0.23	0.65	0.65			0.65	0.65
Clearance Time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Vehicle Extension (s)					2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)					785	354	783	640			2047	1006
v/s Ratio Prot								c0.05			0.05	
v/s Ratio Perm					0.12	0.07	0.02					0.02
v/c Ratio					0.54	0.30	0.03	0.08			0.08	0.03
Uniform Delay, d1					25.5	24.1	4.8	4.9			4.9	4.8
Progression Factor					1.00	1.00	1.00	1.00			0.76	0.83
Incremental Delay, d2					0.4	0.2	0.0	0.0			0.1	0.1
Delay (s)					25.9	24.2	4.8	5.0			3.8	4.0
Level of Service					C	C	A	A			A	A
Approach Delay (s)		0.0			25.0			4.9			3.9	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

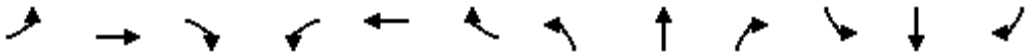


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	634	114	85	177	24	56	43	133	168	49	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.98		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.89		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3301		1770	3421		1770	873		1770	1217	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3301		1770	3421		1770	873		1770	1217	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	22	634	114	85	177	24	56	43	133	168	49	36
RTOR Reduction (vph)	0	8	0	0	6	0	0	77	0	0	18	0
Lane Group Flow (vph)	22	740	0	85	195	0	56	99	0	168	67	0
Confl. Peds. (#/hr)						50			3			3
Confl. Bikes (#/hr)			4						1			
Heavy Vehicles (%)	2%	6%	9%	2%	2%	2%	2%	74%	96%	2%	77%	2%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Actuated Green, G (s)	2.3	30.8		8.0	37.0		16.6	16.6		15.2	15.2	
Effective Green, g (s)	2.3	30.8		8.0	37.0		16.6	16.6		15.2	15.2	
Actuated g/C Ratio	0.03	0.36		0.09	0.43		0.19	0.19		0.18	0.18	
Clearance Time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.5	3.0		3.2	3.2		3.0	3.0	
Lane Grp Cap (vph)	47	1174		163	1461		339	167		310	213	
v/s Ratio Prot	0.01	c0.22		c0.05	0.06		0.03	c0.11		c0.09	0.05	
v/s Ratio Perm												
v/c Ratio	0.47	0.63		0.52	0.13		0.17	0.59		0.54	0.31	
Uniform Delay, d1	41.5	23.2		37.5	15.1		29.2	31.9		32.5	31.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.7	1.1		2.3	0.0		0.2	5.7		1.9	0.8	
Delay (s)	44.2	24.3		39.8	15.1		29.5	37.6		34.5	32.0	
Level of Service	D	C		D	B		C	D		C	C	
Approach Delay (s)		24.9			22.4			35.7			33.6	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	86.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Existing + Project PM Mitigated

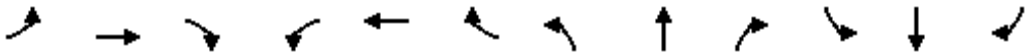


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	778	67	107	550	85	52	176	104	143	252	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3484		1770	3539	1517	1770	1863	1536	1770	1805	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3484		1770	3539	1517	1770	1863	1536	1770	1805	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	79	846	73	116	598	92	57	191	113	155	274	61
RTOR Reduction (vph)	0	10	0	0	0	61	0	0	91	0	14	0
Lane Group Flow (vph)	79	909	0	116	598	31	57	191	22	155	321	0
Confl. Peds. (#/hr)			32			7			5			6
Confl. Bikes (#/hr)			4			9			11			3
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			
Actuated Green, G (s)	2.7	17.9		3.6	18.8	18.8	3.2	10.8	10.8	7.6	15.2	
Effective Green, g (s)	2.7	17.9		3.6	18.8	18.8	3.2	10.8	10.8	7.6	15.2	
Actuated g/C Ratio	0.05	0.32		0.06	0.34	0.34	0.06	0.19	0.19	0.14	0.27	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	85	1115		113	1190	510	101	359	296	240	490	
v/s Ratio Prot	0.04	c0.26		c0.07	0.17		0.03	0.10		c0.09	c0.18	
v/s Ratio Perm						0.02			0.01			
v/c Ratio	0.93	0.82		1.03	0.50	0.06	0.56	0.53	0.07	0.65	0.66	
Uniform Delay, d1	26.5	17.5		26.1	14.8	12.6	25.7	20.3	18.5	22.9	18.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	73.4	4.7		92.0	0.3	0.1	7.0	1.5	0.1	5.9	3.2	
Delay (s)	99.9	22.2		118.1	15.2	12.6	32.7	21.8	18.6	28.7	21.2	
Level of Service	F	C		F	B	B	C	C	B	C	C	
Approach Delay (s)		28.3			29.7			22.5			23.6	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	55.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group

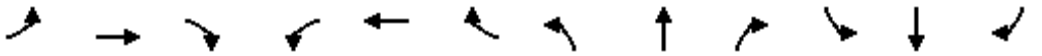


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	273	702	343	25	391	118	361	862	14	163	909	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Lane Util. Factor	0.97	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.96		1.00	0.98		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.97		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	3233		1770	3353		3433	3527		1770	3434	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	3233		1770	3353		3433	3527		1770	3434	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	297	763	373	27	425	128	392	937	15	177	988	142
RTOR Reduction (vph)	0	52	0	0	25	0	0	1	0	0	10	0
Lane Group Flow (vph)	297	1084	0	27	528	0	392	951	0	177	1120	0
Confl. Peds. (#/hr)			83			52			53			68
Confl. Bikes (#/hr)			15			8			15			12
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.2	39.5		6.6	32.9		14.5	37.1		13.8	35.4	
Effective Green, g (s)	13.2	39.5		6.6	32.9		14.5	37.1		13.8	35.4	
Actuated g/C Ratio	0.12	0.36		0.06	0.30		0.13	0.34		0.13	0.32	
Clearance Time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.0	2.0		2.0	4.0		2.5	4.0	
Lane Grp Cap (vph)	411	1160		106	1002		452	1189		222	1105	
v/s Ratio Prot	c0.09	c0.34		0.02	0.16		c0.11	0.27		0.10	c0.33	
v/s Ratio Perm												
v/c Ratio	0.72	0.93		0.25	0.53		0.87	0.80		0.80	1.01	
Uniform Delay, d1	46.6	34.0		49.4	32.1		46.8	33.1		46.7	37.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.3	13.5		0.5	0.2		15.5	5.7		17.3	30.4	
Delay (s)	51.9	47.5		49.8	32.3		62.3	38.8		64.0	67.7	
Level of Service	D	D		D	C		E	D		E	E	
Approach Delay (s)		48.4			33.1			45.6			67.2	
Approach LOS		D			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	51.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	94.9%	ICU Level of Service	F
Analysis Period (min)	15		

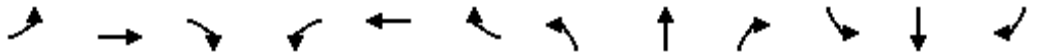
Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group



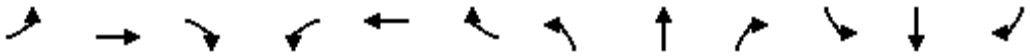
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	793	35	10	235	0	0	0	0	340	242	401
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5					6.5	6.5	6.5
Lane Util. Factor		0.95			0.91					0.91	0.91	1.00
Frpb, ped/bikes		1.00			1.00					1.00	1.00	0.97
Flpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Frt		0.99			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	0.98	1.00
Satd. Flow (prot)		3510			5074					1610	3327	1540
Flt Permitted		1.00			0.90					0.95	0.98	1.00
Satd. Flow (perm)		3510			4597					1610	3327	1540
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	793	35	10	235	0	0	0	0	340	242	401
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	0	211
Lane Group Flow (vph)	0	824	0	0	245	0	0	0	0	190	392	190
Confl. Peds. (#/hr)	20		20	20								20
Turn Type		NA		Perm	NA					Perm	NA	Perm
Protected Phases		1			1						2	
Permitted Phases				1						2		2
Actuated Green, G (s)		30.0			30.0					38.0	38.0	38.0
Effective Green, g (s)		30.0			30.0					38.0	38.0	38.0
Actuated g/C Ratio		0.38			0.38					0.48	0.48	0.48
Clearance Time (s)		5.5			5.5					6.5	6.5	6.5
Lane Grp Cap (vph)		1316			1723					764	1580	731
v/s Ratio Prot		c0.23										
v/s Ratio Perm					0.05					0.12	0.12	c0.12
v/c Ratio		0.63			0.14					0.25	0.25	0.26
Uniform Delay, d1		20.4			16.5					12.5	12.5	12.6
Progression Factor		1.00			0.31					1.00	1.00	1.00
Incremental Delay, d2		2.3			0.2					0.8	0.4	0.9
Delay (s)		22.7			5.2					13.3	12.9	13.4
Level of Service		C			A					B	B	B
Approach Delay (s)		22.7			5.2			0.0			13.2	
Approach LOS		C			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



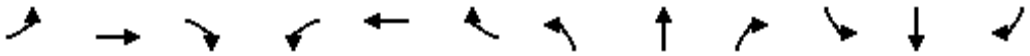
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	513	631	0	0	247	777	18	966	78	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	0.99			1.00	1.00		1.00				
Satd. Flow (prot)	1610	3359			3539	2704		5014				
Flt Permitted	0.95	0.77			1.00	1.00		1.00				
Satd. Flow (perm)	1610	2622			3539	2704		5014				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	513	631	0	0	247	777	18	966	78	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	55	0	11	0	0	0	0
Lane Group Flow (vph)	369	775	0	0	247	722	0	1051	0	0	0	0
Confl. Peds. (#/hr)						20			20			
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	12.0	42.0			26.5	26.5		27.0				
Effective Green, g (s)	12.0	42.0			26.5	26.5		27.0				
Actuated g/C Ratio	0.15	0.52			0.33	0.33		0.34				
Clearance Time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Grp Cap (vph)	241	1487			1172	895		1692				
v/s Ratio Prot	c0.23	0.08			0.07							
v/s Ratio Perm		0.20				c0.27		0.21				
v/c Ratio	1.53	0.52			0.21	0.81		0.62				
Uniform Delay, d1	34.0	12.4			19.2	24.4		22.2				
Progression Factor	1.02	2.41			1.00	1.00		1.00				
Incremental Delay, d2	256.5	1.1			0.4	7.7		1.7				
Delay (s)	291.1	31.1			19.6	32.1		23.9				
Level of Service	F	C			B	C		C				
Approach Delay (s)		114.9			29.1			23.9			0.0	
Approach LOS		F			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	57.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



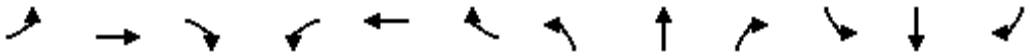
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	345	67	66	772	20	305	22	206	33	10	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.99	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3312	1214	1289	3375		1649	1528	1244	1480	1405	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3312	1214	1289	3375		1649	1528	1244	1480	1405	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	6	345	67	66	772	20	305	22	206	33	10	30
RTOR Reduction (vph)	0	0	46	0	1	0	0	0	157	0	27	0
Lane Group Flow (vph)	6	345	21	66	791	0	162	165	49	33	13	0
Confl. Peds. (#/hr)						1			3			
Heavy Vehicles (%)	0%	9%	33%	40%	5%	65%	4%	73%	28%	22%	50%	10%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases			2						8			
Actuated Green, G (s)	0.9	20.7	20.7	7.6	27.4		15.8	15.8	15.8	5.7	5.7	
Effective Green, g (s)	0.9	20.7	20.7	7.6	27.4		15.8	15.8	15.8	5.7	5.7	
Actuated g/C Ratio	0.01	0.31	0.31	0.11	0.41		0.24	0.24	0.24	0.09	0.09	
Clearance Time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	3.0	4.5	4.5	3.0	4.5		4.0	4.0	4.0	3.0	3.0	
Lane Grp Cap (vph)	24	1034	379	147	1394		392	364	296	127	120	
v/s Ratio Prot	0.00	0.10		c0.05	c0.23		0.10	c0.11		c0.02	0.01	
v/s Ratio Perm			0.02						0.04			
v/c Ratio	0.25	0.33	0.06	0.45	0.57		0.41	0.45	0.17	0.26	0.10	
Uniform Delay, d1	32.4	17.5	16.0	27.4	14.9		21.3	21.6	20.0	28.3	27.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.4	0.3	0.1	2.2	0.8		1.0	1.2	0.4	1.1	0.4	
Delay (s)	37.8	17.8	16.1	29.6	15.7		22.3	22.8	20.4	29.4	28.3	
Level of Service	D	B	B	C	B		C	C	C	C	C	
Approach Delay (s)		17.8			16.7			21.7			28.8	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	66.3	Sum of lost time (s)	16.5
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



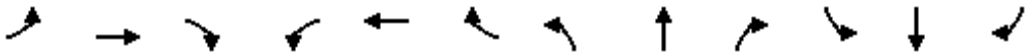
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	115	339	126	194	689	520	139	272	227	240	158	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.93		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.98	
Satd. Flow (prot)	1337	3058		1687	3406	1509	1444	2944		1369	2778	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.98	
Satd. Flow (perm)	1337	3058		1687	3406	1509	1444	2944		1369	2778	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	115	339	126	194	689	520	139	272	227	240	158	23
RTOR Reduction (vph)	0	32	0	0	0	364	0	105	0	0	5	0
Lane Group Flow (vph)	115	433	0	194	689	156	139	394	0	139	277	0
Confl. Peds. (#/hr)									1			
Heavy Vehicles (%)	35%	13%	14%	7%	6%	7%	25%	14%	13%	20%	16%	57%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	14.4	25.4		16.8	27.8	27.8	18.2	18.2		15.8	15.8	
Effective Green, g (s)	14.4	25.4		16.8	27.8	27.8	18.2	18.2		15.8	15.8	
Actuated g/C Ratio	0.16	0.27		0.18	0.30	0.30	0.20	0.20		0.17	0.17	
Clearance Time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	207	837		305	1021	452	283	578		233	473	
v/s Ratio Prot	0.09	0.14		c0.12	c0.20		0.10	c0.13		c0.10	0.10	
v/s Ratio Perm						0.10						
v/c Ratio	0.56	0.52		0.64	0.67	0.35	0.49	0.68		0.60	0.59	
Uniform Delay, d1	36.2	28.5		35.1	28.5	25.3	33.1	34.6		35.5	35.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.2	0.5		4.3	1.8	0.5	1.0	3.0		3.4	1.5	
Delay (s)	39.4	29.0		39.4	30.3	25.8	34.1	37.6		38.9	37.0	
Level of Service	D	C		D	C	C	C	D		D	D	
Approach Delay (s)		31.1			29.9			36.8			37.6	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	32.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	92.7	Sum of lost time (s)	16.5
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	633	137	179	937	0	0	0	0	452	384	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						5.0	
Lane Util. Factor		0.91		1.00	0.95						0.95	
Frpb, ped/bikes		1.00		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.97		1.00	1.00						0.96	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		4811		1762	3312						3278	
Flt Permitted		1.00		0.33	1.00						0.98	
Satd. Flow (perm)		4811		603	3312						3278	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	633	137	179	937	0	0	0	0	452	384	285
RTOR Reduction (vph)	0	38	0	0	0	0	0	0	0	0	40	0
Lane Group Flow (vph)	0	732	0	179	937	0	0	0	0	0	1081	0
Confl. Peds. (#/hr)			8	8						10		10
Heavy Vehicles (%)	16%	5%	2%	2%	9%	2%	1%	0%	0%	2%	2%	7%
Turn Type		NA		Perm	NA					Split	NA	
Protected Phases		4			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		42.1		42.1	42.1						31.7	
Effective Green, g (s)		42.1		42.1	42.1						31.7	
Actuated g/C Ratio		0.50		0.50	0.50						0.38	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		2416		302	1663						1240	
v/s Ratio Prot		0.15			0.28						c0.33	
v/s Ratio Perm				c0.30								
v/c Ratio		0.30		0.59	0.56						0.87	
Uniform Delay, d1		12.2		14.8	14.5						24.2	
Progression Factor		1.00		0.35	0.34						1.00	
Incremental Delay, d2		0.0		1.5	0.2						6.7	
Delay (s)		12.3		6.6	5.1						30.9	
Level of Service		B		A	A						C	
Approach Delay (s)		12.3			5.3			0.0			30.9	
Approach LOS		B			A			A			C	

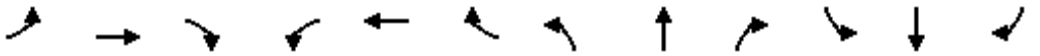
Intersection Summary			
HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	83.8	Sum of lost time (s)	10.0
Intersection Capacity Utilization	119.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	241	844	0	0	965	298	151	408	214	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0				
Lane Util. Factor	1.00	0.95			0.95			0.95				
Frpb, ped/bikes	1.00	1.00			0.99			0.99				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.96			0.96				
Flt Protected	0.95	1.00			1.00			0.99				
Satd. Flow (prot)	1770	3539			3391			3339				
Flt Permitted	0.12	1.00			1.00			0.99				
Satd. Flow (perm)	221	3539			3391			3339				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	241	844	0	0	965	298	151	408	214	0	0	0
RTOR Reduction (vph)	0	0	0	0	32	0	0	48	0	0	0	0
Lane Group Flow (vph)	241	844	0	0	1231	0	0	725	0	0	0	0
Confl. Peds. (#/hr)	10					10			10			
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)	42.1	42.1			42.1			31.7				
Effective Green, g (s)	42.1	42.1			42.1			31.7				
Actuated g/C Ratio	0.50	0.50			0.50			0.38				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Vehicle Extension (s)	2.0	2.0			2.0			2.0				
Lane Grp Cap (vph)	111	1777			1703			1263				
v/s Ratio Prot		0.24			0.36			c0.22				
v/s Ratio Perm	c1.09											
v/c Ratio	2.17	0.47			0.72			0.57				
Uniform Delay, d1	20.8	13.6			16.3			20.7				
Progression Factor	1.07	0.96			1.00			1.00				
Incremental Delay, d2	552.0	0.1			1.3			0.4				
Delay (s)	574.3	13.1			17.6			21.1				
Level of Service	F	B			B			C				
Approach Delay (s)		137.8			17.6			21.1			0.0	
Approach LOS		F			B			C			A	

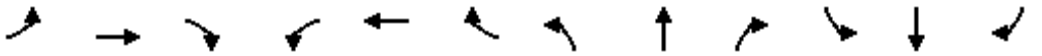
Intersection Summary			
HCM 2000 Control Delay	60.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.48		
Actuated Cycle Length (s)	83.8	Sum of lost time (s)	10.0
Intersection Capacity Utilization	119.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	47	1377	26	57	1049	56	26	206	57	65	214	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	1.00		1.00	0.99		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1767	3461		1768	3350		1757	1792		1760	1789	
Flt Permitted	0.20	1.00		0.12	1.00		0.46	1.00		0.47	1.00	
Satd. Flow (perm)	366	3461		221	3350		844	1792		877	1789	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	47	1377	26	57	1049	56	26	206	57	65	214	60
RTOR Reduction (vph)	0	2	0	0	5	0	0	12	0	0	13	0
Lane Group Flow (vph)	47	1401	0	57	1100	0	26	251	0	65	261	0
Confl. Peds. (#/hr)	8		7	7		8	11		8	8		11
Confl. Bikes (#/hr)			9			11			8			10
Heavy Vehicles (%)	2%	4%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	48.5	48.5		48.5	48.5		23.0	23.0		23.0	23.0	
Effective Green, g (s)	48.5	48.5		48.5	48.5		23.0	23.0		23.0	23.0	
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.29	0.29		0.29	0.29	
Clearance Time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	221	2098		133	2030		242	515		252	514	
v/s Ratio Prot		c0.40			0.33			0.14			c0.15	
v/s Ratio Perm	0.13			0.26			0.03			0.07		
v/c Ratio	0.21	0.67		0.43	0.54		0.11	0.49		0.26	0.51	
Uniform Delay, d1	7.1	10.4		8.4	9.2		21.0	23.6		21.9	23.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.2	1.7		9.8	1.0		0.9	3.3		2.5	3.6	
Delay (s)	9.3	12.1		18.2	10.3		21.8	26.9		24.4	27.3	
Level of Service	A	B		B	B		C	C		C	C	
Approach Delay (s)		12.0			10.7			26.4			26.8	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	81.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



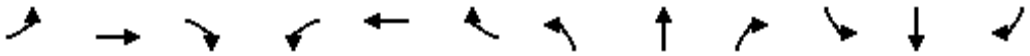
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	97	1145	339	80	687	15	234	290	131	45	178	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Lane Util. Factor		0.95			0.95	1.00	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes		0.99			1.00	0.94	1.00	1.00	0.95		1.00	0.95
Flpb, ped/bikes		1.00			1.00	1.00	0.98	1.00	1.00		1.00	1.00
Frt		0.97			1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected		1.00			0.99	1.00	0.95	1.00	1.00		0.99	1.00
Satd. Flow (prot)		3321			3256	1490	1655	1827	1504		1839	1500
Flt Permitted		0.82			0.59	1.00	0.49	1.00	1.00		0.84	1.00
Satd. Flow (perm)		2740			1941	1490	855	1827	1504		1553	1500
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	97	1145	339	80	687	15	234	290	131	45	178	149
RTOR Reduction (vph)	0	24	0	0	0	6	0	0	42	0	0	105
Lane Group Flow (vph)	0	1557	0	0	767	9	234	290	89	0	223	44
Confl. Peds. (#/hr)	21		15	15		21	27		25	25		27
Confl. Bikes (#/hr)			18			17			16			17
Heavy Vehicles (%)	2%	4%	3%	30%	8%	2%	7%	4%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		4
Actuated Green, G (s)		54.5			54.5	54.5	26.5	26.5	26.5		26.5	26.5
Effective Green, g (s)		54.5			54.5	54.5	26.5	26.5	26.5		26.5	26.5
Actuated g/C Ratio		0.61			0.61	0.61	0.29	0.29	0.29		0.29	0.29
Clearance Time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Vehicle Extension (s)		2.0			2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1659			1175	902	251	537	442		457	441
v/s Ratio Prot								0.16				
v/s Ratio Perm		c0.57			0.40	0.01	c0.27		0.06		0.14	0.03
v/c Ratio		0.94			1.05dl	0.01	0.93	0.54	0.20		0.49	0.10
Uniform Delay, d1		16.2			11.6	7.0	30.9	26.6	23.8		26.2	23.1
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2		11.7			2.8	0.0	38.3	0.6	0.1		0.3	0.0
Delay (s)		27.9			14.4	7.1	69.1	27.2	23.9		26.5	23.1
Level of Service		C			B	A	E	C	C		C	C
Approach Delay (s)		27.9			14.3			41.5			25.1	
Approach LOS		C			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	123.7%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	1218	177	35	699	75	325	449	77	116	381	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	0.99	1.00		0.99	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.96	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3489	1482	1770	3195	1540	1726	3449		1759	3379	
Flt Permitted		0.70	1.00	0.11	1.00	1.00	0.43	1.00		0.42	1.00	
Satd. Flow (perm)		2471	1482	201	3195	1540	778	3449		781	3379	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	133	1218	177	35	699	75	325	449	77	116	381	135
RTOR Reduction (vph)	0	0	68	0	0	42	0	10	0	0	43	0
Lane Group Flow (vph)	0	1351	109	35	699	33	325	516	0	116	473	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Heavy Vehicles (%)	2%	3%	6%	2%	13%	2%	4%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4		4	2			6		
Actuated Green, G (s)		37.1	37.1	37.1	37.1	37.1	38.4	38.4		38.4	38.4	
Effective Green, g (s)		37.1	37.1	37.1	37.1	37.1	38.4	38.4		38.4	38.4	
Actuated g/C Ratio		0.44	0.44	0.44	0.44	0.44	0.45	0.45		0.45	0.45	
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0		4.0	4.0	
Lane Grp Cap (vph)		1078	646	87	1394	672	351	1558		352	1526	
v/s Ratio Prot					0.22			0.15			0.14	
v/s Ratio Perm		c0.55	0.07	0.17		0.02	c0.42			0.15		
v/c Ratio		1.25	0.17	0.40	0.50	0.05	0.93	0.33		0.33	0.31	
Uniform Delay, d1		23.9	14.6	16.4	17.3	13.8	22.0	15.0		15.0	14.9	
Progression Factor		1.00	1.00	0.71	0.87	0.69	1.00	1.00		1.00	1.00	
Incremental Delay, d2		121.7	0.6	12.4	1.2	0.1	30.7	0.3		0.8	0.2	
Delay (s)		145.6	15.1	24.1	16.2	9.6	52.7	15.3		15.8	15.0	
Level of Service		F	B	C	B	A	D	B		B	B	
Approach Delay (s)		130.5			15.9			29.6			15.1	
Approach LOS		F			B			C			B	

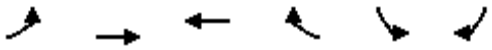
Intersection Summary			
HCM 2000 Control Delay	64.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	111.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	68	1161	10	26	864	40	20	173	242	35	78	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.97		1.00	0.94		0.97	
Flpb, ped/bikes	0.99	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1583	3154	1361	1585	3065	1375		3160	1169		2841	
Flt Permitted	0.30	1.00	1.00	0.20	1.00	1.00		0.91	1.00		0.88	
Satd. Flow (perm)	492	3154	1361	328	3065	1375		2906	1169		2530	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	68	1161	10	26	864	40	20	173	242	35	78	98
RTOR Reduction (vph)	0	0	3	0	0	10	0	0	25	0	63	0
Lane Group Flow (vph)	68	1161	7	26	864	30	0	193	217	0	148	0
Confl. Peds. (#/hr)	22		31	31		22	34		37	37		34
Confl. Bikes (#/hr)			7			3			12			19
Heavy Vehicles (%)	2%	3%	2%	2%	6%	2%	2%	2%	17%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4		4	2		2	2		
Actuated Green, G (s)	55.3	55.3	55.3	55.3	55.3	55.3		21.2	21.2		21.2	
Effective Green, g (s)	55.3	55.3	55.3	55.3	55.3	55.3		21.2	21.2		21.2	
Actuated g/C Ratio	0.65	0.65	0.65	0.65	0.65	0.65		0.25	0.25		0.25	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	320	2051	885	213	1994	894		724	291		631	
v/s Ratio Prot		c0.37			0.28							
v/s Ratio Perm	0.14		0.00	0.08		0.02		0.07	c0.19		0.06	
v/c Ratio	0.21	0.57	0.01	0.12	0.43	0.03		0.27	0.75		0.23	
Uniform Delay, d1	6.0	8.2	5.2	5.6	7.2	5.3		25.6	29.4		25.4	
Progression Factor	1.34	1.35	1.78	1.15	1.26	1.21		1.00	1.00		1.00	
Incremental Delay, d2	0.1	0.1	0.0	1.0	0.6	0.1		0.1	8.8		0.1	
Delay (s)	8.2	11.2	9.3	7.5	9.7	6.5		25.7	38.2		25.5	
Level of Service	A	B	A	A	A	A		C	D		C	
Approach Delay (s)		11.0			9.5			32.7			25.5	
Approach LOS		B			A			C			C	

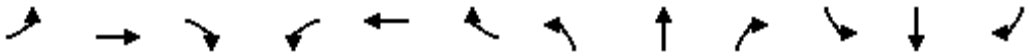
Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



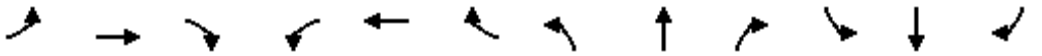
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	540	810	703	366	158	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.99	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.96	1.00
Satd. Flow (prot)	1577	3094	3065	1382	3023	1213
Flt Permitted	0.95	1.00	1.00	1.00	0.96	1.00
Satd. Flow (perm)	1577	3094	3065	1382	3023	1213
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	540	810	703	366	158	94
RTOR Reduction (vph)	0	0	0	227	11	68
Lane Group Flow (vph)	540	810	703	139	163	10
Confl. Peds. (#/hr)				15	15	15
Heavy Vehicles (%)	3%	5%	6%	2%	3%	6%
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	36.2	65.7	25.5	25.5	11.3	11.3
Effective Green, g (s)	36.2	65.7	25.5	25.5	11.3	11.3
Actuated g/C Ratio	0.43	0.77	0.30	0.30	0.13	0.13
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	671	2391	919	414	401	161
v/s Ratio Prot	c0.34	0.26	c0.23		c0.05	
v/s Ratio Perm				0.10		0.01
v/c Ratio	0.80	0.34	0.76	0.34	0.41	0.06
Uniform Delay, d1	21.3	3.0	27.0	23.2	33.8	32.2
Progression Factor	0.95	1.29	1.00	1.26	1.00	1.00
Incremental Delay, d2	5.7	0.3	3.3	0.2	0.2	0.1
Delay (s)	25.9	4.2	30.2	29.3	34.0	32.3
Level of Service	C	A	C	C	C	C
Approach Delay (s)		12.9	29.9		33.5	
Approach LOS		B	C		C	

Intersection Summary			
HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	113	653	31	90	378	29	226	523	145	43	420	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	0.92	1.00	0.98	
Flpb, ped/bikes	0.98	1.00			1.00		0.98	1.00	1.00	0.97	1.00	
Frt	1.00	0.99			0.99		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1559	3156			3109		1559	3185	1308	1548	3032	
Flt Permitted	0.43	1.00			0.73		0.38	1.00	1.00	0.39	1.00	
Satd. Flow (perm)	714	3156			2297		622	3185	1308	635	3032	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	113	653	31	90	378	29	226	523	145	43	420	119
RTOR Reduction (vph)	0	3	0	0	4	0	0	0	63	0	35	0
Lane Group Flow (vph)	113	681	0	0	493	0	226	523	82	43	504	0
Confl. Peds. (#/hr)	46		47	47		46	57		65	65		57
Confl. Bikes (#/hr)			9			21			15			22
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	42.7	42.7			42.7		34.3	34.3	34.3	34.3	34.3	
Effective Green, g (s)	42.7	42.7			42.7		34.3	34.3	34.3	34.3	34.3	
Actuated g/C Ratio	0.50	0.50			0.50		0.40	0.40	0.40	0.40	0.40	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	358	1585			1153		250	1285	527	256	1223	
v/s Ratio Prot		c0.22						0.16			0.17	
v/s Ratio Perm	0.16				0.21		c0.36		0.06	0.07		
v/c Ratio	0.32	0.43			0.43		0.90	0.41	0.16	0.17	0.41	
Uniform Delay, d1	12.5	13.4			13.4		23.8	18.1	16.1	16.2	18.1	
Progression Factor	0.94	0.92			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.2	0.8			0.1		32.0	0.1	0.1	0.1	0.1	
Delay (s)	14.0	13.1			13.5		55.8	18.2	16.2	16.3	18.2	
Level of Service	B	B			B		E	B	B	B	B	
Approach Delay (s)		13.3			13.5			27.4			18.1	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	95.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	139	739	110	279	292	36	22	1068	707	2	505	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	4.0		5.5	5.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.98		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)	3090	3154	1349	3090	3185	1349		4570	1391		4576	1349
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.92	1.00		0.94	1.00
Satd. Flow (perm)	3090	3154	1349	3090	3185	1349		4211	1391		4285	1349
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	139	739	110	279	292	36	22	1068	707	2	505	53
RTOR Reduction (vph)	0	0	57	0	0	21	0	0	0	0	0	35
Lane Group Flow (vph)	139	739	53	279	292	15	0	1090	707	0	507	18
Confl. Peds. (#/hr)			40			40	40		40	40		40
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Free	Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases			8			4	2		Free	6		6
Actuated Green, G (s)	9.5	35.7	35.7	12.2	38.4	38.4		32.1	95.0		32.1	32.1
Effective Green, g (s)	9.5	35.7	35.7	12.2	38.4	38.4		32.1	95.0		32.1	32.1
Actuated g/C Ratio	0.10	0.38	0.38	0.13	0.40	0.40		0.34	1.00		0.34	0.34
Clearance Time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	309	1185	506	396	1287	545		1422	1391		1447	455
v/s Ratio Prot	0.04	c0.23		c0.09	0.09							
v/s Ratio Perm			0.04			0.01		c0.26	c0.51		0.12	0.01
v/c Ratio	0.45	0.62	0.10	0.70	0.23	0.03		0.77	0.51		0.35	0.04
Uniform Delay, d1	40.3	24.2	19.3	39.7	18.6	17.0		28.1	0.0		23.6	21.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	1.0	2.5	0.4	5.6	0.4	0.1		2.5	1.3		0.1	0.0
Delay (s)	41.3	26.7	19.7	45.3	19.0	17.1		30.6	1.3		23.8	21.1
Level of Service	D	C	B	D	B	B		C	A		C	C
Approach Delay (s)		27.9			31.0			19.1			23.5	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

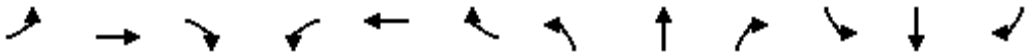
Site: Existing + Proj Pref PM

Adeline & 18th
Existing + Preferred Project PM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	105	2.0	0.430	8.9	LOS A	2.4	60.8	0.64	0.92	25.9
8	T	256	2.0	0.430	8.9	LOS A	2.4	60.8	0.64	0.74	28.1
18	R	36	2.0	0.430	8.9	LOS A	2.4	60.8	0.64	0.78	27.8
Approach		397	2.0	0.430	8.9	LOS A	2.4	60.8	0.64	0.79	27.4
East: 18th Street (WB)											
1	L	33	2.0	0.239	6.1	LOS A	1.1	28.5	0.53	0.88	27.2
6	T	161	2.0	0.239	6.1	LOS A	1.1	28.5	0.53	0.64	29.9
16	R	34	2.0	0.239	6.1	LOS A	1.1	28.5	0.53	0.69	29.6
Approach		228	2.0	0.239	6.1	LOS A	1.1	28.5	0.53	0.68	29.4
North: Adeline Street (SB)											
7	L	56	2.0	0.287	6.3	LOS A	1.4	36.8	0.50	0.86	27.1
4	T	224	2.0	0.287	6.3	LOS A	1.4	36.8	0.50	0.60	29.8
14	R	18	2.0	0.287	6.3	LOS A	1.4	36.8	0.50	0.65	29.5
Approach		298	2.0	0.287	6.3	LOS A	1.4	36.8	0.50	0.65	29.2
West: 18th Street (EB)											
5	L	21	2.0	0.417	8.1	LOS A	2.4	60.2	0.58	0.89	26.4
2	T	337	2.0	0.417	8.1	LOS A	2.4	60.2	0.58	0.66	28.8
12	R	69	2.0	0.417	8.1	LOS A	2.4	60.2	0.58	0.70	28.5
Approach		427	2.0	0.417	8.1	LOS A	2.4	60.2	0.58	0.68	28.6
All Vehicles		1350	2.0	0.430	7.6	LOS A	2.4	60.8	0.57	0.71	28.5

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	392	41	19	249	83	24	439	28	282	331	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00			1.00	
Flpb, ped/bikes	0.99	1.00		0.98	1.00		0.99	1.00			0.99	
Frt	1.00	0.99		1.00	0.96		1.00	0.99			0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1759	1828		1743	1782		1746	3490			3385	
Flt Permitted	0.39	1.00		0.25	1.00		0.38	1.00			0.64	
Satd. Flow (perm)	723	1828		465	1782		702	3490			2230	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	45	392	41	19	249	83	24	439	28	282	331	25
RTOR Reduction (vph)	0	6	0	0	19	0	0	6	0	0	4	0
Lane Group Flow (vph)	45	427	0	19	313	0	24	461	0	0	634	0
Confl. Peds. (#/hr)	14		44	44		14	37		71	71		37
Confl. Bikes (#/hr)			6			2			2			11
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	20.5	20.5		20.5	20.5		37.2	37.2			37.2	
Effective Green, g (s)	20.5	20.5		20.5	20.5		37.2	37.2			37.2	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.57	0.57			0.57	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	225	570		145	556		397	1976			1262	
v/s Ratio Prot		c0.23			0.18			0.13				
v/s Ratio Perm	0.06			0.04			0.03				c0.28	
v/c Ratio	0.20	0.75		0.13	0.56		0.06	0.23			0.50	
Uniform Delay, d1	16.6	20.3		16.2	18.9		6.4	7.1			8.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.4	5.4		0.4	1.3		0.3	0.3			1.4	
Delay (s)	17.0	25.7		16.6	20.2		6.7	7.4			10.1	
Level of Service	B	C		B	C		A	A			B	
Approach Delay (s)		24.9			20.0			7.4			10.1	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	65.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	102.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

Site: Existing + Proj Pref PM

Adeline & 14th
Existing + Preferred Project PM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	14	2.0	0.368	7.5	LOS A	2.0	49.9	0.57	0.90	26.6
8	T	300	2.0	0.368	7.5	LOS A	2.0	49.9	0.57	0.66	29.1
18	R	52	2.0	0.368	7.5	LOS A	2.0	49.9	0.57	0.71	28.8
Approach		366	2.0	0.368	7.5	LOS A	2.0	49.9	0.57	0.68	29.0
East: 14th Street (WB)											
1	L	89	2.0	0.336	7.2	LOS A	1.7	43.8	0.56	0.87	26.6
6	T	203	2.0	0.336	7.2	LOS A	1.7	43.8	0.56	0.66	29.1
16	R	35	2.0	0.336	7.2	LOS A	1.7	43.8	0.56	0.71	28.8
Approach		327	2.0	0.336	7.2	LOS A	1.7	43.8	0.56	0.72	28.3
North: Adeline Street (SB)											
7	L	63	2.0	0.297	6.4	LOS A	1.5	38.3	0.51	0.86	27.0
4	T	209	2.0	0.297	6.4	LOS A	1.5	38.3	0.51	0.61	29.7
14	R	34	2.0	0.297	6.4	LOS A	1.5	38.3	0.51	0.66	29.3
Approach		306	2.0	0.297	6.4	LOS A	1.5	38.3	0.51	0.66	29.0
West: 14th Street (EB)											
5	L	49	2.0	0.307	6.8	LOS A	1.5	39.1	0.55	0.89	26.9
2	T	230	2.0	0.307	6.8	LOS A	1.5	39.1	0.55	0.65	29.5
12	R	21	2.0	0.307	6.8	LOS A	1.5	39.1	0.55	0.70	29.1
Approach		300	2.0	0.307	6.8	LOS A	1.5	39.1	0.55	0.69	29.0
All Vehicles		1299	2.0	0.368	7.0	LOS A	2.0	49.9	0.55	0.69	28.8

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.

MOVEMENT SUMMARY

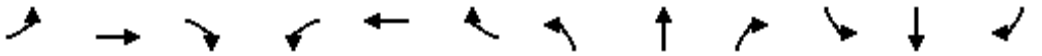
Site: Existing + Proj PM

Adeline & 12th
Existing + Preferred Project PM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	1	2.0	0.205	4.4	LOS A	1.1	26.9	0.18	0.89	27.8
8	T	268	2.0	0.205	4.4	LOS A	1.1	26.9	0.18	0.42	31.3
18	R	7	2.0	0.205	4.4	LOS A	1.1	26.9	0.18	0.52	30.7
Approach		276	2.0	0.205	4.4	LOS A	1.1	26.9	0.18	0.43	31.3
East: 12th Street (WB)											
1	L	9	2.0	0.105	4.3	LOS A	0.5	11.7	0.41	0.80	27.9
6	T	21	2.0	0.105	4.3	LOS A	0.5	11.7	0.41	0.52	31.1
16	R	82	2.0	0.105	4.3	LOS A	0.5	11.7	0.41	0.58	30.6
Approach		112	2.0	0.105	4.3	LOS A	0.5	11.7	0.41	0.59	30.5
North: Adeline Street (SB)											
7	L	34	2.0	0.222	4.5	LOS A	1.2	29.9	0.14	0.87	27.7
4	T	261	2.0	0.222	4.5	LOS A	1.2	29.9	0.14	0.41	31.2
14	R	8	2.0	0.222	4.5	LOS A	1.2	29.9	0.14	0.50	30.6
Approach		303	2.0	0.222	4.5	LOS A	1.2	29.9	0.14	0.46	30.7
West: 12th Street (EB)											
5	L	8	2.0	0.015	3.6	LOS A	0.1	1.6	0.40	0.73	28.2
2	T	5	2.0	0.015	3.6	LOS A	0.1	1.6	0.40	0.47	31.5
12	R	3	2.0	0.015	3.6	LOS A	0.1	1.6	0.40	0.53	31.0
Approach		16	2.0	0.015	3.6	LOS A	0.1	1.6	0.40	0.61	29.6
All Vehicles		707	2.0	0.222	4.4	LOS A	1.2	29.9	0.21	0.47	30.9

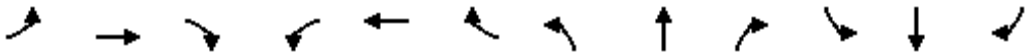
Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	99	97	0	0	155	273	90	222	165	255	0	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			0.98		1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frt	1.00	1.00			0.90		1.00	0.94		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1367	3312			2584		972	2858		1556		2472
Flt Permitted	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (perm)	1367	3312			2584		972	2858		1556		2472
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	99	97	0	0	155	273	90	222	165	255	0	192
RTOR Reduction (vph)	0	0	0	0	225	0	0	109	0	0	0	138
Lane Group Flow (vph)	99	97	0	0	203	0	81	287	0	255	0	54
Confl. Peds. (#/hr)						14						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	32%	9%	0%	0%	25%	24%	69%	12%	12%	16%	0%	15%
Turn Type	Prot	NA			NA		Split	NA		Prot		custom
Protected Phases	1	6			2		4	4		3		3
Permitted Phases												
Actuated Green, G (s)	8.1	23.4			11.8		11.9	11.9		18.8		18.8
Effective Green, g (s)	8.1	23.4			11.8		11.9	11.9		18.8		18.8
Actuated g/C Ratio	0.12	0.35			0.18		0.18	0.18		0.28		0.28
Clearance Time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	165	1155			454		172	506		435		692
v/s Ratio Prot	c0.07	0.03			c0.08		0.08	c0.10		c0.16		0.02
v/s Ratio Perm												
v/c Ratio	0.60	0.08			0.45		0.47	0.57		0.59		0.08
Uniform Delay, d1	28.0	14.7			24.7		24.8	25.2		20.8		17.8
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	3.9	0.0			0.5		1.5	1.2		1.7		0.0
Delay (s)	31.8	14.7			25.2		26.3	26.4		22.5		17.8
Level of Service	C	B			C		C	C		C		B
Approach Delay (s)		23.3			25.2			26.4			20.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	67.1	Sum of lost time (s)	16.5
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		

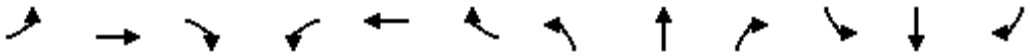
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	111	704	22	144	636	151	20	128	132	189	169	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.99			0.99		1.00	0.95	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		0.99	1.00	
Frt	1.00	1.00		1.00	0.97			0.94		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1770	3379		1770	3286			1712		1760	1671	
Flt Permitted	0.95	1.00		0.95	1.00			0.97		0.50	1.00	
Satd. Flow (perm)	1770	3379		1770	3286			1666		932	1671	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	111	704	22	144	636	151	20	128	132	189	169	107
RTOR Reduction (vph)	0	3	0	0	34	0	0	29	0	0	21	0
Lane Group Flow (vph)	111	723	0	144	753	0	0	251	0	189	255	0
Confl. Peds. (#/hr)			58			47	70		8	8		70
Confl. Bikes (#/hr)			15			6			9			38
Heavy Vehicles (%)	2%	6%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	12.2	32.8		11.1	31.7			35.1		35.1	35.1	
Effective Green, g (s)	12.2	32.8		11.1	31.7			35.1		35.1	35.1	
Actuated g/C Ratio	0.14	0.36		0.12	0.35			0.39		0.39	0.39	
Clearance Time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	239	1231		218	1157			649		363	651	
v/s Ratio Prot	0.06	c0.21		0.08	c0.23						0.15	
v/s Ratio Perm								0.15		c0.20		
v/c Ratio	0.46	0.59		0.66	0.65			0.39		0.52	0.39	
Uniform Delay, d1	35.9	23.1		37.7	24.5			19.7		21.0	19.8	
Progression Factor	0.94	0.91		0.96	0.61			1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.5		5.6	2.8			0.1		0.6	0.1	
Delay (s)	34.4	21.6		42.0	17.7			19.9		21.6	19.9	
Level of Service	C	C		D	B			B		C	B	
Approach Delay (s)		23.3			21.4			19.9			20.6	
Approach LOS		C			C			B			C	

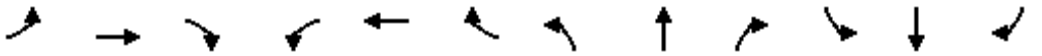
Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	1450	54	27	857	124	36	89	68	72	81	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		1.00	1.00	1.00	0.99	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1760	3376		1054	3471	1460	1573	1092		1756	1572	
Flt Permitted	0.27	1.00		0.09	1.00	1.00	0.68	1.00		0.63	1.00	
Satd. Flow (perm)	500	3376		101	3471	1460	1123	1092		1173	1572	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	53	1450	54	27	857	124	36	89	68	72	81	42
RTOR Reduction (vph)	0	3	0	0	0	56	0	18	0	0	23	0
Lane Group Flow (vph)	53	1501	0	27	857	68	36	139	0	72	100	0
Confl. Peds. (#/hr)	21		23	23		21	9		11	11		9
Confl. Bikes (#/hr)			4			5						1
Heavy Vehicles (%)	2%	6%	11%	71%	4%	6%	14%	50%	76%	2%	20%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	44.0	44.0		44.0	44.0	44.0	28.0	28.0		28.0	28.0	
Effective Green, g (s)	44.0	44.0		44.0	44.0	44.0	28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.55	0.55		0.55	0.55	0.55	0.35	0.35		0.35	0.35	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	275	1856		55	1909	803	393	382		410	550	
v/s Ratio Prot		c0.44			0.25			c0.13			0.06	
v/s Ratio Perm	0.11			0.27		0.05	0.03			0.06		
v/c Ratio	0.19	0.81		0.49	0.45	0.08	0.09	0.37		0.18	0.18	
Uniform Delay, d1	9.1	14.6		11.1	10.8	8.5	17.5	19.4		18.0	18.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	3.9		28.1	0.8	0.2	0.5	2.7		0.9	0.7	
Delay (s)	10.6	18.5		39.2	11.5	8.7	17.9	22.1		18.9	18.8	
Level of Service	B	B		D	B	A	B	C		B	B	
Approach Delay (s)		18.2			11.9			21.3			18.8	
Approach LOS		B			B			C			B	

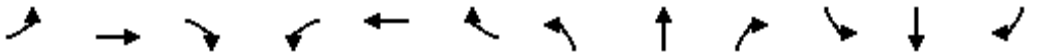
Intersection Summary			
HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	81.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	124	1065	146	25	345	37	356	313	31	73	142	273
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	0.99	1.00		1.00	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1663	4274		1765	4520		1743	1863	1538	1752	3539	1215
Flt Permitted	0.52	1.00		0.16	1.00		0.66	1.00	1.00	0.48	1.00	1.00
Satd. Flow (perm)	905	4274		304	4520		1214	1863	1538	887	3539	1215
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	124	1065	146	25	345	37	356	313	31	73	142	273
RTOR Reduction (vph)	0	21	0	0	15	0	0	0	15	0	0	156
Lane Group Flow (vph)	124	1190	0	25	367	0	356	313	16	73	142	117
Confl. Peds. (#/hr)	10		20	20		10	8		20	20		8
Confl. Bikes (#/hr)			7			3						6
Heavy Vehicles (%)	8%	21%	2%	2%	14%	2%	3%	2%	2%	2%	2%	30%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	39.0	39.0		39.0	39.0		36.5	36.5	36.5	36.5	36.5	36.5
Effective Green, g (s)	39.0	39.0		39.0	39.0		36.5	36.5	36.5	36.5	36.5	36.5
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.43	0.43	0.43	0.43	0.43	0.43
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	415	1961		139	2073		521	799	660	380	1519	521
v/s Ratio Prot		c0.28			0.08			0.17			0.04	
v/s Ratio Perm	0.14			0.08			c0.29		0.01	0.08		0.10
v/c Ratio	0.30	0.61		0.18	0.18		0.68	0.39	0.02	0.19	0.09	0.23
Uniform Delay, d1	14.4	17.3		13.6	13.5		19.6	16.6	14.0	15.1	14.4	15.3
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	1.4		0.2	0.0		7.1	1.4	0.1	1.1	0.1	1.0
Delay (s)	16.3	18.7		13.8	13.6		26.7	18.1	14.1	16.2	14.5	16.3
Level of Service	B	B		B	B		C	B	B	B	B	B
Approach Delay (s)		18.4			13.6			22.3			15.8	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		

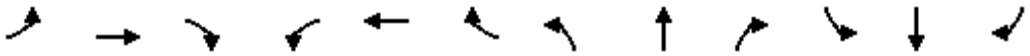
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	56	152	456	48	115	0	0	273	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	1.00			0.95	1.00
Frpb, ped/bikes					1.00	0.99	1.00	1.00			1.00	0.98
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3491	1561	1770	1111			2865	1558
Flt Permitted					0.99	1.00	0.58	1.00			1.00	1.00
Satd. Flow (perm)					3491	1561	1087	1111			2865	1558
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	56	152	456	48	115	0	0	273	24
RTOR Reduction (vph)	0	0	0	0	0	388	0	0	0	0	0	6
Lane Group Flow (vph)	0	0	0	0	208	68	48	115	0	0	273	18
Confl. Peds. (#/hr)				1		2			8	8		
Confl. Bikes (#/hr)												13
Heavy Vehicles (%)	0%	13%	100%	2%	2%	2%	2%	71%	83%	0%	26%	2%
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					4			6			2	
Permitted Phases				4		4	6					2
Actuated Green, G (s)					13.4	13.4	67.1	67.1			67.1	67.1
Effective Green, g (s)					13.4	13.4	67.1	67.1			67.1	67.1
Actuated g/C Ratio					0.15	0.15	0.75	0.75			0.75	0.75
Clearance Time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Vehicle Extension (s)					2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)					519	232	810	828			2136	1161
v/s Ratio Prot								c0.10			0.10	
v/s Ratio Perm					0.06	0.04	0.04					0.01
v/c Ratio					0.40	0.29	0.06	0.14			0.13	0.02
Uniform Delay, d1					34.7	34.1	3.0	3.2			3.2	2.9
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					0.2	0.3	0.0	0.0			0.1	0.0
Delay (s)					34.9	34.3	3.1	3.3			3.3	3.0
Level of Service					C	C	A	A			A	A
Approach Delay (s)		0.0			34.5			3.2			3.3	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.18		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

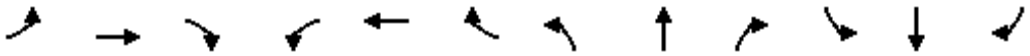


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	944	61	41	112	26	107	186	148	153	41	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.97		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.97		1.00	0.93		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3371		1770	3330		1770	1031		1770	1142	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3371		1770	3330		1770	1031		1770	1142	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	26	944	61	41	112	26	107	186	148	153	41	13
RTOR Reduction (vph)	0	3	0	0	12	0	0	16	0	0	9	0
Lane Group Flow (vph)	26	1002	0	41	126	0	107	318	0	153	45	0
Confl. Peds. (#/hr)						50			3			3
Confl. Bikes (#/hr)			4						1			
Heavy Vehicles (%)	2%	5%	21%	2%	2%	2%	2%	57%	88%	2%	78%	2%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Actuated Green, G (s)	4.1	37.9		6.4	40.7		39.3	39.3		15.4	15.4	
Effective Green, g (s)	4.1	37.9		6.4	40.7		39.3	39.3		15.4	15.4	
Actuated g/C Ratio	0.04	0.33		0.06	0.35		0.34	0.34		0.13	0.13	
Clearance Time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.5	3.0		3.2	3.2		3.0	3.0	
Lane Grp Cap (vph)	63	1110		98	1178		604	352		237	152	
v/s Ratio Prot	0.01	c0.30		c0.02	c0.04		0.06	c0.31		c0.09	0.04	
v/s Ratio Perm												
v/c Ratio	0.41	0.90		0.42	0.11		0.18	0.90		0.65	0.30	
Uniform Delay, d1	54.3	36.8		52.5	24.9		26.5	36.1		47.2	44.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	10.3		2.1	0.0		0.2	25.6		5.9	1.1	
Delay (s)	55.9	47.1		54.6	25.0		26.7	61.7		53.1	46.0	
Level of Service	E	D		D	C		C	E		D	D	
Approach Delay (s)		47.3			31.8			53.2			51.3	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	47.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

2035 AM

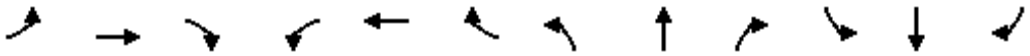


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	47	1233	97	277	1443	254	124	206	195	384	562	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3488		1770	3539	1517	1770	1863	1541	1770	1792	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3488		1770	3539	1517	1770	1863	1541	1770	1792	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	51	1340	105	301	1568	276	135	224	212	417	611	176
RTOR Reduction (vph)	0	9	0	0	0	102	0	0	130	0	18	0
Lane Group Flow (vph)	51	1436	0	301	1568	174	135	224	82	417	769	0
Confl. Peds. (#/hr)			32			7			5			6
Confl. Bikes (#/hr)			4			9			11			3
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			
Actuated Green, G (s)	2.4	18.6		7.0	23.2	23.2	4.0	16.0	16.0	4.0	16.0	
Effective Green, g (s)	2.4	18.6		7.0	23.2	23.2	4.0	16.0	16.0	4.0	16.0	
Actuated g/C Ratio	0.04	0.30		0.11	0.38	0.38	0.06	0.26	0.26	0.06	0.26	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	68	1053		201	1332	571	114	483	400	114	465	
v/s Ratio Prot	0.03	c0.41		c0.17	0.44		0.08	0.12		c0.24	c0.43	
v/s Ratio Perm						0.11			0.05			
v/c Ratio	0.75	1.36		1.50	1.18	0.30	1.18	0.46	0.21	3.66	1.65	
Uniform Delay, d1	29.3	21.5		27.3	19.2	13.5	28.8	19.2	17.8	28.8	22.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	36.6	169.8		248.2	87.9	0.3	142.1	0.7	0.3	1217.4	303.9	
Delay (s)	65.9	191.3		275.5	107.1	13.8	170.9	19.9	18.1	1246.2	326.7	
Level of Service	E	F		F	F	B	F	B	B	F	F	
Approach Delay (s)		187.0			118.7			54.9			645.2	
Approach LOS		F			F			D			F	

Intersection Summary			
HCM 2000 Control Delay	247.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.68		
Actuated Cycle Length (s)	61.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	112.5%	ICU Level of Service	H
Analysis Period (min)	15		

Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group

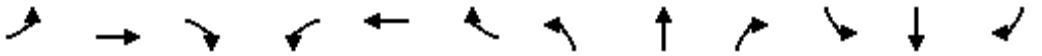


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	247	898	933	128	1184	190	895	865	46	165	1364	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.94		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.92		1.00	0.98		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3069		1770	3427		3433	3499		1770	3404	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3069		1770	3427		3433	3499		1770	3404	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	268	976	1014	139	1287	207	973	940	50	179	1483	286
RTOR Reduction (vph)	0	170	0	0	12	0	0	3	0	0	14	0
Lane Group Flow (vph)	268	1820	0	139	1482	0	973	987	0	179	1755	0
Confl. Peds. (#/hr)			83			52			53			68
Confl. Bikes (#/hr)			15			8			15			12
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	17.0	35.0		11.0	29.0		15.0	37.1		13.9	35.0	
Effective Green, g (s)	17.0	35.0		11.0	29.0		15.0	37.1		13.9	35.0	
Actuated g/C Ratio	0.15	0.32		0.10	0.26		0.14	0.34		0.13	0.32	
Clearance Time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.0	2.0		2.0	4.0		2.5	4.0	
Lane Grp Cap (vph)	273	976		177	903		468	1180		223	1083	
v/s Ratio Prot	c0.15	c0.59		0.08	0.43		c0.28	0.28		0.10	c0.52	
v/s Ratio Perm												
v/c Ratio	0.98	1.86		0.79	1.64		2.08	0.84		0.80	1.62	
Uniform Delay, d1	46.3	37.5		48.3	40.5		47.5	33.6		46.7	37.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	49.0	392.9		18.7	293.7		492.9	7.1		18.0	283.4	
Delay (s)	95.4	430.4		67.0	334.2		540.4	40.7		64.7	320.9	
Level of Service	F	F		E	F		F	D		E	F	
Approach Delay (s)		390.6			311.4			288.4			297.3	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	325.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.70		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	152.5%	ICU Level of Service	H
Analysis Period (min)	15		

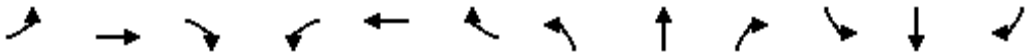
Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group



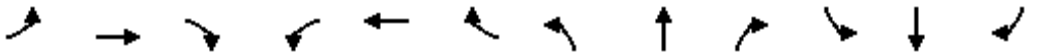
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	670	61	12	316	0	0	0	0	631	877	524
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5					6.5	6.5	6.5
Lane Util. Factor		0.95			0.91					0.91	0.91	1.00
Frpb, ped/bikes		1.00			1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Frt		0.99			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	0.99	1.00
Satd. Flow (prot)		3482			5075					1610	3366	1550
Flt Permitted		1.00			0.82					0.95	0.99	1.00
Satd. Flow (perm)		3482			4162					1610	3366	1550
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	670	61	12	316	0	0	0	0	631	877	524
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	0	0	0	56
Lane Group Flow (vph)	0	722	0	0	328	0	0	0	0	486	1022	468
Confl. Peds. (#/hr)	20		20	20								20
Turn Type		NA		Perm	NA					Perm	NA	Perm
Protected Phases		1			1						2	
Permitted Phases				1						2		2
Actuated Green, G (s)		17.0			17.0					51.0	51.0	51.0
Effective Green, g (s)		17.0			17.0					51.0	51.0	51.0
Actuated g/C Ratio		0.21			0.21					0.64	0.64	0.64
Clearance Time (s)		5.5			5.5					6.5	6.5	6.5
Lane Grp Cap (vph)		739			884					1026	2145	988
v/s Ratio Prot		c0.21										
v/s Ratio Perm					0.08					0.30	0.30	0.30
v/c Ratio		0.98			0.37					0.47	0.48	0.47
Uniform Delay, d1		31.3			26.9					7.5	7.5	7.5
Progression Factor		1.00			1.12					1.00	1.00	1.00
Incremental Delay, d2		28.0			1.2					1.6	0.8	1.6
Delay (s)		59.4			31.4					9.1	8.3	9.2
Level of Service		E			C					A	A	A
Approach Delay (s)		59.4			31.4			0.0			8.7	
Approach LOS		E			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



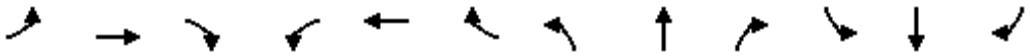
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	395	920	0	0	305	737	11	781	32	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1610	3383			3539	2702		5044				
Flt Permitted	0.95	0.94			1.00	1.00		1.00				
Satd. Flow (perm)	1610	3190			3539	2702		5044				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	395	920	0	0	305	737	11	781	32	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	141	0	6	0	0	0	0
Lane Group Flow (vph)	355	960	0	0	305	596	0	818	0	0	0	0
Confl. Peds. (#/hr)						20			20			
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	23.5	52.5			25.5	25.5		16.5				
Effective Green, g (s)	23.5	52.5			25.5	25.5		16.5				
Actuated g/C Ratio	0.29	0.66			0.32	0.32		0.21				
Clearance Time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Grp Cap (vph)	472	2150			1128	861		1040				
v/s Ratio Prot	c0.22	0.13			0.09							
v/s Ratio Perm		0.16				c0.22		0.16				
v/c Ratio	0.75	0.45			0.27	0.69		0.79				
Uniform Delay, d1	25.6	6.7			20.3	23.8		30.1				
Progression Factor	0.81	0.65			1.00	1.00		1.00				
Incremental Delay, d2	7.3	0.5			0.6	4.6		6.0				
Delay (s)	28.0	4.8			20.9	28.4		36.1				
Level of Service	C	A			C	C		D				
Approach Delay (s)		11.1			26.2			36.1			0.0	
Approach LOS		B			C			D			A	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



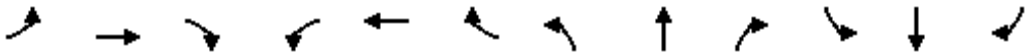
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	919	747	394	1677	70	214	45	331	30	21	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3312	1404	1543	3333		1243	1248	946	1203	1115	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3312	1404	1543	3333		1243	1248	946	1203	1115	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	61	919	747	394	1677	70	214	45	331	30	21	20
RTOR Reduction (vph)	0	0	337	0	2	0	0	0	281	0	19	0
Lane Group Flow (vph)	61	919	410	394	1745	0	128	131	50	30	22	0
Confl. Peds. (#/hr)						1			3			
Heavy Vehicles (%)	0%	9%	15%	17%	7%	21%	38%	44%	68%	50%	75%	40%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases			2						8			
Actuated Green, G (s)	5.5	46.3	46.3	34.3	75.1		18.0	18.0	18.0	4.4	4.4	
Effective Green, g (s)	5.5	46.3	46.3	34.3	75.1		18.0	18.0	18.0	4.4	4.4	
Actuated g/C Ratio	0.05	0.39	0.39	0.29	0.63		0.15	0.15	0.15	0.04	0.04	
Clearance Time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.5	3.5	3.5	2.0	3.5		3.0	3.0	3.0	2.0	2.0	
Lane Grp Cap (vph)	83	1283	543	442	2094		187	187	142	44	41	
v/s Ratio Prot	0.03	0.28		c0.26	c0.52		0.10	c0.10		c0.02	0.02	
v/s Ratio Perm			0.29						0.05			
v/c Ratio	0.73	0.72	0.76	0.89	0.83		0.68	0.70	0.35	0.68	0.53	
Uniform Delay, d1	56.3	31.0	31.7	40.8	17.3		48.1	48.2	45.5	56.9	56.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	26.9	2.0	6.1	19.2	3.1		9.9	11.2	1.5	29.4	6.4	
Delay (s)	83.2	33.0	37.8	60.1	20.4		58.0	59.4	47.0	86.2	63.0	
Level of Service	F	C	D	E	C		E	E	D	F	E	
Approach Delay (s)		36.9			27.7			52.1			72.8	
Approach LOS		D			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	35.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	119.5	Sum of lost time (s)	16.5
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



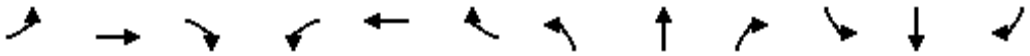
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	777	357	349	1440	321	540	270	504	224	318	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	0.90		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1014	2837		1299	3438	1369	1480	2543		1480	2279	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1014	2837		1299	3438	1369	1480	2543		1480	2279	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	155	777	357	349	1440	321	540	270	504	224	318	180
RTOR Reduction (vph)	0	39	0	0	0	151	0	241	0	0	44	0
Lane Group Flow (vph)	155	1095	0	349	1440	170	540	533	0	202	476	0
Confl. Peds. (#/hr)									1			
Heavy Vehicles (%)	78%	14%	37%	39%	5%	18%	22%	42%	19%	11%	45%	45%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	15.5	40.0		25.5	50.0	50.0	38.5	38.5		19.0	19.0	
Effective Green, g (s)	15.5	40.0		25.5	50.0	50.0	38.5	38.5		19.0	19.0	
Actuated g/C Ratio	0.11	0.29		0.18	0.36	0.36	0.28	0.28		0.14	0.14	
Clearance Time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	112	813		237	1232	490	408	701		201	310	
v/s Ratio Prot	0.15	c0.39		c0.27	0.42		c0.36	0.21		0.14	c0.21	
v/s Ratio Perm						0.12						
v/c Ratio	1.38	1.35		1.47	1.17	0.35	1.32	0.76		1.00	1.54	
Uniform Delay, d1	62.0	49.8		57.0	44.8	32.8	50.5	46.3		60.2	60.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	218.6	164.5		234.2	85.0	0.4	161.8	4.7		64.8	256.5	
Delay (s)	280.6	214.3		291.2	129.8	33.2	212.3	50.9		125.0	316.8	
Level of Service	F	F		F	F	C	F	D		F	F	
Approach Delay (s)		222.2			141.8			117.3			263.1	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	171.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.39		
Actuated Cycle Length (s)	139.5	Sum of lost time (s)	16.5
Intersection Capacity Utilization	110.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1462	64	124	1315	0	0	0	0	442	321	545
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						5.0	
Lane Util. Factor		0.91		1.00	0.95						0.95	
Frpb, ped/bikes		1.00		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.99		1.00	1.00						0.94	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		4955		1768	3343						3119	
Flt Permitted		1.00		0.11	1.00						0.98	
Satd. Flow (perm)		4955		203	3343						3119	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1462	64	124	1315	0	0	0	0	442	321	545
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	22	0
Lane Group Flow (vph)	0	1521	0	124	1315	0	0	0	0	0	1286	0
Confl. Peds. (#/hr)			8	8						10		10
Heavy Vehicles (%)	6%	4%	2%	2%	8%	2%	0%	0%	0%	2%	2%	11%
Turn Type		NA		Perm	NA					Split	NA	
Protected Phases		4			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		45.0		45.0	45.0						32.0	
Effective Green, g (s)		45.0		45.0	45.0						32.0	
Actuated g/C Ratio		0.52		0.52	0.52						0.37	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		2562		105	1729						1147	
v/s Ratio Prot		0.31			0.39						c0.41	
v/s Ratio Perm				c0.61								
v/c Ratio		0.59		1.18	0.76						1.12	
Uniform Delay, d1		14.6		21.0	16.7						27.5	
Progression Factor		1.00		0.36	0.25						1.00	
Incremental Delay, d2		0.2		133.5	1.4						66.4	
Delay (s)		14.9		141.0	5.6						93.9	
Level of Service		B		F	A						F	
Approach Delay (s)		14.9			17.2			0.0			93.9	
Approach LOS		B			B			A			F	

Intersection Summary			
HCM 2000 Control Delay	39.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	88.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

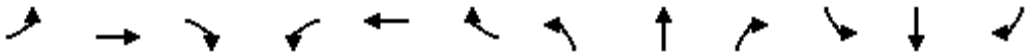


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	344	1560	0	0	1375	319	64	349	59	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0				
Lane Util. Factor		0.91			0.91			0.95				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.97			0.98				
Flt Protected		0.99			1.00			0.99				
Satd. Flow (prot)		5040			4915			3440				
Flt Permitted		0.66			1.00			0.99				
Satd. Flow (perm)		3336			4915			3440				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	344	1560	0	0	1375	319	64	349	59	0	0	0
RTOR Reduction (vph)	0	0	0	0	44	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	1904	0	0	1650	0	0	461	0	0	0	0
Confl. Peds. (#/hr)	10					10			10			
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)		45.0			45.0			32.0				
Effective Green, g (s)		45.0			45.0			32.0				
Actuated g/C Ratio		0.52			0.52			0.37				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		2.0			2.0			2.0				
Lane Grp Cap (vph)		1725			2542			1265				
v/s Ratio Prot					0.34			c0.13				
v/s Ratio Perm		c0.57										
v/c Ratio		4.05dl			0.65			0.36				
Uniform Delay, d1		21.0			15.3			20.1				
Progression Factor		0.67			1.00			1.00				
Incremental Delay, d2		53.3			0.4			0.1				
Delay (s)		67.5			15.7			20.1				
Level of Service		E			B			C				
Approach Delay (s)		67.5			15.7			20.1			0.0	
Approach LOS		E			B			C			A	

Intersection Summary			
HCM 2000 Control Delay	40.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	99.3%	ICU Level of Service	F
Analysis Period (min)	15		

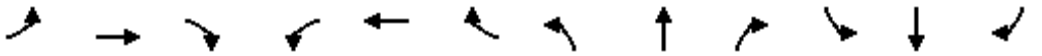
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	1287	119	128	1686	16	33	84	39	27	154	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5			5.0			5.0	
Lane Util. Factor		0.91			0.91			0.95			0.95	
Frpb, ped/bikes		1.00			1.00			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			1.00			0.96			0.97	
Flt Protected		1.00			1.00			0.99			0.99	
Satd. Flow (prot)		4920			4883			3343			3379	
Flt Permitted		0.80			0.70			0.86			0.91	
Satd. Flow (perm)		3962			3419			2911			3094	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	48	1287	119	128	1686	16	33	84	39	27	154	50
RTOR Reduction (vph)	0	13	0	0	1	0	0	27	0	0	15	0
Lane Group Flow (vph)	0	1441	0	0	1829	0	0	129	0	0	216	0
Confl. Peds. (#/hr)	8		7	7		8	11		8	8		11
Confl. Bikes (#/hr)			9			11			8			10
Heavy Vehicles (%)	2%	4%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		47.5			47.5			24.0			24.0	
Effective Green, g (s)		47.5			47.5			24.0			24.0	
Actuated g/C Ratio		0.59			0.59			0.30			0.30	
Clearance Time (s)		3.5			3.5			5.0			5.0	
Lane Grp Cap (vph)		2352			2030			873			928	
v/s Ratio Prot												
v/s Ratio Perm		0.36			c0.53			0.04			c0.07	
v/c Ratio		0.61			0.90			0.15			0.23	
Uniform Delay, d1		10.4			14.2			20.5			21.1	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.2			7.0			0.4			0.6	
Delay (s)		11.6			21.2			20.9			21.7	
Level of Service		B			C			C			C	
Approach Delay (s)		11.6			21.2			20.9			21.7	
Approach LOS		B			C			C			C	

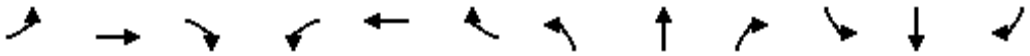
Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	118.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	95	997	230	52	1274	13	362	369	106	40	182	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	5.5	3.5	3.5	3.5		3.5	3.5
Lane Util. Factor		0.95	1.00		0.95	1.00	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00	0.95		1.00	0.94	1.00	1.00	0.95		1.00	0.95
Flpb, ped/bikes		1.00	1.00		1.00	1.00	0.98	1.00	1.00		1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00	1.00		0.99	1.00
Satd. Flow (prot)		3431	1485		3298	1487	1654	1845	1508		1842	1519
Flt Permitted		0.59	1.00		0.82	1.00	0.54	1.00	1.00		0.89	1.00
Satd. Flow (perm)		2032	1485		2697	1487	938	1845	1508		1654	1519
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	95	997	230	52	1274	13	362	369	106	40	182	206
RTOR Reduction (vph)	0	0	109	0	0	3	0	0	50	0	0	23
Lane Group Flow (vph)	0	1092	121	0	1326	10	362	369	56	0	222	183
Confl. Peds. (#/hr)	21		15	15		21	27		25	25		27
Confl. Bikes (#/hr)			18			17			16			17
Heavy Vehicles (%)	2%	5%	3%	39%	8%	2%	7%	3%	2%	2%	2%	1%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)		47.2	47.2		47.2	47.2	33.8	33.8	33.8		33.8	33.8
Effective Green, g (s)		47.2	47.2		47.2	47.2	33.8	33.8	33.8		33.8	33.8
Actuated g/C Ratio		0.52	0.52		0.52	0.52	0.38	0.38	0.38		0.38	0.38
Clearance Time (s)		5.5	5.5		5.5	5.5	3.5	3.5	3.5		3.5	3.5
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1065	778		1414	779	352	692	566		621	570
v/s Ratio Prot								0.20				
v/s Ratio Perm		c0.54	0.08		0.49	0.01	c0.39		0.04		0.13	0.12
v/c Ratio		1.03	0.16		0.94	0.01	1.03	0.53	0.10		0.36	0.32
Uniform Delay, d1		21.4	11.1		20.0	10.2	28.1	21.9	18.2		20.3	20.0
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2		34.2	0.4		13.1	0.0	55.5	0.4	0.0		0.1	0.1
Delay (s)		55.6	11.5		33.1	10.3	83.6	22.3	18.3		20.4	20.1
Level of Service		E	B		C	B	F	C	B		C	C
Approach Delay (s)		47.9			32.9			48.3			20.2	
Approach LOS		D			C			D			C	

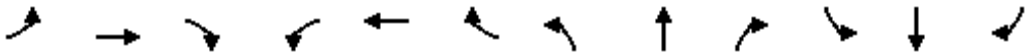
Intersection Summary			
HCM 2000 Control Delay	39.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	120.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	84	901	245	69	1262	248	101	759	32	77	1321	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3432	1510	1765	3252	1540	1669	3514		1763	3538	
Flt Permitted		0.58	1.00	0.16	1.00	1.00	0.10	1.00		0.28	1.00	
Satd. Flow (perm)		2002	1510	303	3252	1540	178	3514		519	3538	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	84	901	245	69	1262	248	101	759	32	77	1321	3
RTOR Reduction (vph)	0	0	18	0	0	67	0	4	0	0	0	0
Lane Group Flow (vph)	0	985	227	69	1262	181	101	787	0	77	1324	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Heavy Vehicles (%)	2%	5%	4%	2%	11%	2%	8%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4		4	2			6		
Actuated Green, G (s)		36.0	36.0	36.0	36.0	36.0	39.5	39.5		39.5	39.5	
Effective Green, g (s)		36.0	36.0	36.0	36.0	36.0	39.5	39.5		39.5	39.5	
Actuated g/C Ratio		0.42	0.42	0.42	0.42	0.42	0.46	0.46		0.46	0.46	
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0		4.0	4.0	
Lane Grp Cap (vph)		847	639	128	1377	652	82	1632		241	1644	
v/s Ratio Prot					0.39			0.22			0.37	
v/s Ratio Perm		c0.49	0.15	0.23		0.12	c0.57			0.15		
v/c Ratio		1.16	0.35	0.54	0.92	0.28	1.23	0.48		0.32	0.81	
Uniform Delay, d1		24.5	16.6	18.3	23.1	16.0	22.8	15.7		14.3	19.5	
Progression Factor		1.00	1.00	1.41	1.04	1.80	1.00	1.00		1.00	1.00	
Incremental Delay, d2		86.2	1.5	12.8	9.5	0.9	174.1	0.5		1.0	3.1	
Delay (s)		110.7	18.2	38.6	33.5	29.8	196.9	16.2		15.3	22.6	
Level of Service		F	B	D	C	C	F	B		B	C	
Approach Delay (s)		92.3			33.1			36.6			22.2	
Approach LOS		F			C			D			C	

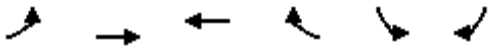
Intersection Summary			
HCM 2000 Control Delay	45.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	123.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	894	27	108	1404	32	18	102	271	37	99	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.97		1.00	0.94		0.97	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1589	3124	1361	1506	3185	1375		3150	1175		2854	
Flt Permitted	0.15	1.00	1.00	0.30	1.00	1.00		0.89	1.00		0.89	
Satd. Flow (perm)	254	3124	1361	470	3185	1375		2837	1175		2572	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	55	894	27	108	1404	32	18	102	271	37	99	105
RTOR Reduction (vph)	0	0	7	0	0	6	0	0	111	0	36	0
Lane Group Flow (vph)	55	894	20	108	1404	26	0	120	160	0	205	0
Confl. Peds. (#/hr)	22		31	31		22	34		37	37		34
Confl. Bikes (#/hr)			7			3			12			19
Heavy Vehicles (%)	2%	4%	2%	7%	2%	2%	2%	2%	16%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4		4	2		2	2		
Actuated Green, G (s)	60.6	60.6	60.6	60.6	60.6	60.6		15.9	15.9		15.9	
Effective Green, g (s)	60.6	60.6	60.6	60.6	60.6	60.6		15.9	15.9		15.9	
Actuated g/C Ratio	0.71	0.71	0.71	0.71	0.71	0.71		0.19	0.19		0.19	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	181	2227	970	335	2270	980		530	219		481	
v/s Ratio Prot		0.29			c0.44							
v/s Ratio Perm	0.22		0.01	0.23		0.02		0.04	c0.14		0.08	
v/c Ratio	0.30	0.40	0.02	0.32	0.62	0.03		0.23	0.73		0.43	
Uniform Delay, d1	4.5	4.9	3.6	4.5	6.3	3.6		29.3	32.5		30.5	
Progression Factor	0.98	0.78	0.64	2.73	2.57	3.03		1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.0	0.0	0.2	0.1	0.0		0.1	10.4		0.2	
Delay (s)	4.8	3.9	2.3	12.7	16.2	10.8		29.4	42.9		30.7	
Level of Service	A	A	A	B	B	B		C	D		C	
Approach Delay (s)		3.9			15.9			38.8			30.7	
Approach LOS		A			B			D			C	

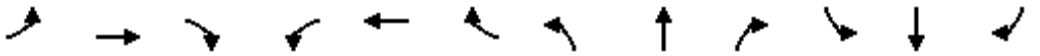
Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



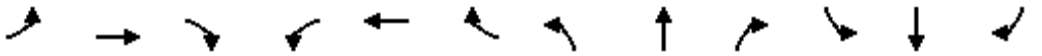
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	529	614	1403	124	647	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1593	3008	3036	1343	3050	1191
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1593	3008	3036	1343	3050	1191
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	529	614	1403	124	647	212
RTOR Reduction (vph)	0	0	0	36	3	142
Lane Group Flow (vph)	529	614	1403	88	665	49
Confl. Peds. (#/hr)				15	15	15
Heavy Vehicles (%)	2%	8%	7%	5%	3%	8%
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	20.3	55.3	31.0	31.0	21.7	21.7
Effective Green, g (s)	20.3	55.3	31.0	31.0	21.7	21.7
Actuated g/C Ratio	0.24	0.65	0.36	0.36	0.26	0.26
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	380	1956	1107	489	778	304
v/s Ratio Prot	c0.33	0.20	c0.46		c0.22	
v/s Ratio Perm				0.07		0.04
v/c Ratio	1.39	0.31	1.27	0.18	0.85	0.16
Uniform Delay, d1	32.4	6.5	27.0	18.4	30.1	24.6
Progression Factor	0.69	1.42	0.97	1.13	1.00	1.00
Incremental Delay, d2	190.6	0.4	122.8	0.0	8.8	0.1
Delay (s)	213.0	9.6	149.1	20.9	38.9	24.7
Level of Service	F	A	F	C	D	C
Approach Delay (s)		103.8	138.7		35.7	
Approach LOS		F	F		D	

Intersection Summary			
HCM 2000 Control Delay	102.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	108.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	76	872	53	136	1107	112	170	481	158	116	424	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00	0.92	1.00	0.98	
Flpb, ped/bikes	1.00	1.00			1.00		0.98	1.00	1.00	0.97	1.00	
Frt	1.00	0.99			0.99		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00			1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1586	3148			3111		1562	3185	1306	1546	3007	
Flt Permitted	0.12	1.00			0.68		0.32	1.00	1.00	0.39	1.00	
Satd. Flow (perm)	201	3148			2130		532	3185	1306	629	3007	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	76	872	53	136	1107	112	170	481	158	116	424	144
RTOR Reduction (vph)	0	5	0	0	8	0	0	0	72	0	40	0
Lane Group Flow (vph)	76	920	0	0	1347	0	170	481	86	116	528	0
Confl. Peds. (#/hr)	46		47	47		46	57		65	65		57
Confl. Bikes (#/hr)			9			21			15			22
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	49.0	49.0			49.0		28.0	28.0	28.0	28.0	28.0	
Effective Green, g (s)	49.0	49.0			49.0		28.0	28.0	28.0	28.0	28.0	
Actuated g/C Ratio	0.58	0.58			0.58		0.33	0.33	0.33	0.33	0.33	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	115	1814			1227		175	1049	430	207	990	
v/s Ratio Prot		0.29						0.15			0.18	
v/s Ratio Perm	0.38				c0.63		c0.32		0.07	0.18		
v/c Ratio	0.66	0.51			1.10		0.97	0.46	0.20	0.56	0.53	
Uniform Delay, d1	12.3	10.8			18.0		28.1	22.5	20.5	23.4	23.2	
Progression Factor	0.38	0.30			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	22.4	0.9			56.9		59.1	0.1	0.1	2.1	0.3	
Delay (s)	27.1	4.1			74.9		87.2	22.6	20.5	25.5	23.5	
Level of Service	C	A			E		F	C	C	C	C	
Approach Delay (s)		5.9			74.9			35.8			23.8	
Approach LOS		A			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	39.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	119.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

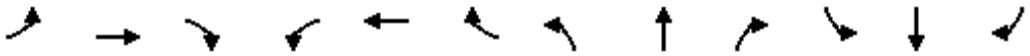


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	157	171	465	842	101	425	1243	423	28	1162	203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	5.5		5.5	5.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		1.00	1.00
Satd. Flow (prot)	3090	3154	1352	3090	3185	1352		4512	1352		4571	1352
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.66	1.00		0.81	1.00
Satd. Flow (perm)	3090	3154	1352	3090	3185	1352		3031	1352		3712	1352
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	89	157	171	465	842	101	425	1243	423	28	1162	203
RTOR Reduction (vph)	0	0	81	0	0	50	0	0	242	0	0	83
Lane Group Flow (vph)	89	157	90	465	842	51	0	1668	181	0	1190	120
Confl. Peds. (#/hr)			40			40	40		40	40		40
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases			8			4	2		2	6		6
Actuated Green, G (s)	4.0	15.3	15.3	21.2	32.5	32.5		38.5	38.5		38.5	38.5
Effective Green, g (s)	4.0	15.3	15.3	21.2	32.5	32.5		38.5	38.5		38.5	38.5
Actuated g/C Ratio	0.04	0.17	0.17	0.24	0.36	0.36		0.43	0.43		0.43	0.43
Clearance Time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	5.5		5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	137	536	229	727	1150	488		1296	578		1587	578
v/s Ratio Prot	c0.03	0.05		0.15	c0.26							
v/s Ratio Perm			0.07			0.04		c0.55	0.13		0.32	0.09
v/c Ratio	0.65	0.29	0.40	0.64	0.73	0.10		3.70dl	0.31		0.75	0.21
Uniform Delay, d1	42.3	32.6	33.2	31.0	25.0	19.1		25.8	17.0		21.7	16.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	10.2	1.4	5.0	1.9	4.1	0.4		135.1	0.3		2.0	0.2
Delay (s)	52.5	34.0	38.3	32.8	29.1	19.5		160.9	17.3		23.7	16.4
Level of Service	D	C	D	C	C	B		F	B		C	B
Approach Delay (s)		39.7			29.6			131.8			22.6	
Approach LOS		D			C			F			C	

Intersection Summary			
HCM 2000 Control Delay	68.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	116.2%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

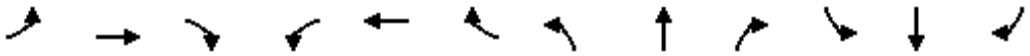
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	53	9	37	194	45	37	164	70	76	312	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			1.00			0.99			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.98			0.96			0.98	
Flt Protected		0.99			0.99			0.99			0.99	
Satd. Flow (prot)		3438			3412			3355			3431	
Flt Permitted		0.92			0.92			0.87			0.85	
Satd. Flow (perm)		3193			3149			2942			2956	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	8	53	9	37	194	45	37	164	70	76	312	51
RTOR Reduction (vph)	0	5	0	0	27	0	0	39	0	0	18	0
Lane Group Flow (vph)	0	65	0	0	249	0	0	232	0	0	421	0
Confl. Peds. (#/hr)	15		10	10		15	15		15	15		15
Confl. Bikes (#/hr)			5			4						9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		21.5			21.5			24.5			24.5	
Effective Green, g (s)		21.5			21.5			24.5			24.5	
Actuated g/C Ratio		0.39			0.39			0.45			0.45	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Lane Grp Cap (vph)		1248			1230			1310			1316	
v/s Ratio Prot												
v/s Ratio Perm		0.02			c0.08			0.08			c0.14	
v/c Ratio		0.05			0.20			0.18			0.32	
Uniform Delay, d1		10.4			11.1			9.2			9.9	
Progression Factor		1.00			1.00			0.83			1.00	
Incremental Delay, d2		0.1			0.4			0.3			0.6	
Delay (s)		10.5			11.4			7.9			10.5	
Level of Service		B			B			A			B	
Approach Delay (s)		10.5			11.4			7.9			10.5	
Approach LOS		B			B			A			B	

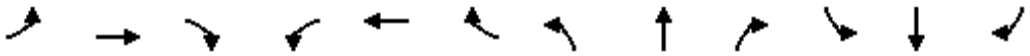
Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	254	25	29	234	195	49	582	88	270	219	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		0.95			0.95		1.00	0.95			0.95	
Frpb, ped/bikes		1.00			0.99		1.00	0.99			1.00	
Flpb, ped/bikes		1.00			1.00		0.99	1.00			0.99	
Frt		0.99			0.94		1.00	0.98			0.99	
Flt Protected		0.99			1.00		0.95	1.00			0.98	
Satd. Flow (prot)		3457			3266		1755	3449			3383	
Flt Permitted		0.80			0.92		0.46	1.00			0.58	
Satd. Flow (perm)		2799			3000		843	3449			2005	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	254	25	29	234	195	49	582	88	270	219	38
RTOR Reduction (vph)	0	11	0	0	141	0	0	13	0	0	6	0
Lane Group Flow (vph)	0	318	0	0	317	0	49	657	0	0	521	0
Confl. Peds. (#/hr)	14		44	44		14	37		71	71		37
Confl. Bikes (#/hr)			6			2			2			11
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		12.9			12.9		37.4	37.4			37.4	
Effective Green, g (s)		12.9			12.9		37.4	37.4			37.4	
Actuated g/C Ratio		0.22			0.22		0.64	0.64			0.64	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.0			2.0	
Lane Grp Cap (vph)		619			663		540	2212			1286	
v/s Ratio Prot								0.19				
v/s Ratio Perm		c0.11			0.11		0.06				c0.26	
v/c Ratio		0.51			0.48		0.09	0.30			0.41	
Uniform Delay, d1		19.9			19.8		4.0	4.6			5.1	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		0.3			0.2		0.3	0.3			0.9	
Delay (s)		20.2			20.0		4.3	5.0			6.0	
Level of Service		C			B		A	A			A	
Approach Delay (s)		20.2			20.0			4.9			6.0	
Approach LOS		C			B			A			A	

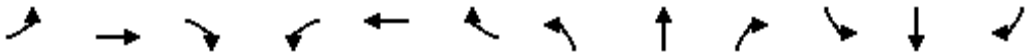
Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	58.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	109.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	154	14	34	148	42	11	209	25	32	298	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99			1.00			1.00	
Flpb, ped/bikes	0.99	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.99		1.00	0.97			0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			1.00	
Satd. Flow (prot)	1759	3488		1762	3404			3469			3479	
Flt Permitted	0.63	1.00		0.65	1.00			0.94			0.92	
Satd. Flow (perm)	1170	3488		1197	3404			3263			3205	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	24	154	14	34	148	42	11	209	25	32	298	26
RTOR Reduction (vph)	0	8	0	0	24	0	0	14	0	0	11	0
Lane Group Flow (vph)	24	160	0	34	166	0	0	231	0	0	345	0
Confl. Peds. (#/hr)	11		8	8		11	3		15	15		3
Confl. Bikes (#/hr)			11			8			2			2
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	23.0	23.0		23.0	23.0			24.0			24.0	
Effective Green, g (s)	23.0	23.0		23.0	23.0			24.0			24.0	
Actuated g/C Ratio	0.42	0.42		0.42	0.42			0.44			0.44	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)	489	1458		500	1423			1423			1398	
v/s Ratio Prot		0.05			c0.05							
v/s Ratio Perm	0.02			0.03				0.07			c0.11	
v/c Ratio	0.05	0.11		0.07	0.12			0.16			0.25	
Uniform Delay, d1	9.5	9.8		9.6	9.8			9.4			9.8	
Progression Factor	1.00	1.00		1.00	1.00			0.75			2.09	
Incremental Delay, d2	0.2	0.2		0.3	0.2			0.2			0.4	
Delay (s)	9.7	9.9		9.8	10.0			7.2			20.9	
Level of Service	A	A		A	A			A			C	
Approach Delay (s)		9.9			9.9			7.2			20.9	
Approach LOS		A			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.18		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

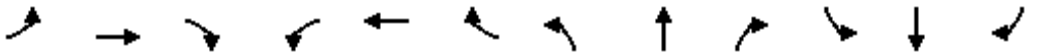
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	7	1	8	29	63	1	173	5	26	319	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5			3.5			3.5	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			0.99			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.91			1.00			1.00	
Flt Protected		0.99			1.00			1.00			1.00	
Satd. Flow (prot)		3444			3164			3522			3517	
Flt Permitted		0.93			0.94			0.95			0.93	
Satd. Flow (perm)		3243			3001			3361			3291	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	2	7	1	8	29	63	1	173	5	26	319	5
RTOR Reduction (vph)	0	1	0	0	43	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	9	0	0	57	0	0	177	0	0	348	0
Confl. Peds. (#/hr)			9	9			5		11	11		5
Confl. Bikes (#/hr)			2			1			1			4
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Actuated Green, G (s)		17.5			17.5			30.5			30.5	
Effective Green, g (s)		17.5			17.5			30.5			30.5	
Actuated g/C Ratio		0.32			0.32			0.55			0.55	
Clearance Time (s)		3.5			3.5			3.5			3.5	
Lane Grp Cap (vph)		1031			954			1863			1825	
v/s Ratio Prot												
v/s Ratio Perm		0.00			c0.02			0.05			c0.11	
v/c Ratio		0.01			0.06			0.09			0.19	
Uniform Delay, d1		12.8			13.0			5.8			6.1	
Progression Factor		1.00			1.00			1.00			2.97	
Incremental Delay, d2		0.0			0.1			0.1			0.2	
Delay (s)		12.8			13.2			5.9			18.4	
Level of Service		B			B			A			B	
Approach Delay (s)		12.8			13.2			5.9			18.4	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.14		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		

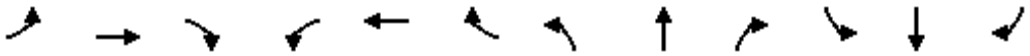
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	142	45	0	0	311	436	443	518	91	148	0	570
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			0.98		1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frt	1.00	1.00			0.91		1.00	0.98		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	0.99		0.95		1.00
Satd. Flow (prot)	1020	3282			2857		1173	2847		1543		1960
Flt Permitted	0.95	1.00			1.00		0.95	0.99		0.95		1.00
Satd. Flow (perm)	1020	3282			2857		1173	2847		1543		1960
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	142	45	0	0	311	436	443	518	91	148	0	570
RTOR Reduction (vph)	0	0	0	0	242	0	0	10	0	0	0	502
Lane Group Flow (vph)	142	45	0	0	505	0	346	696	0	148	0	68
Confl. Peds. (#/hr)						14						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	77%	10%	0%	0%	8%	17%	40%	15%	14%	17%	0%	45%
Turn Type	Prot	NA			NA		Split	NA		Prot		custom
Protected Phases	1	6			2		4	4		3		3
Permitted Phases												
Actuated Green, G (s)	16.4	41.9			22.0		32.9	32.9		11.8		11.8
Effective Green, g (s)	16.4	41.9			22.0		32.9	32.9		11.8		11.8
Actuated g/C Ratio	0.16	0.42			0.22		0.33	0.33		0.12		0.12
Clearance Time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	167	1380			631		387	940		182		232
v/s Ratio Prot	c0.14	0.01			c0.18		c0.29	0.24		c0.10		0.03
v/s Ratio Perm												
v/c Ratio	0.85	0.03			0.80		0.89	0.74		0.81		0.29
Uniform Delay, d1	40.4	16.9			36.7		31.7	29.6		42.8		40.1
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	30.7	0.0			6.8		22.1	3.0		22.9		0.5
Delay (s)	71.1	17.0			43.5		53.8	32.6		65.8		40.6
Level of Service	E	B			D		D	C		E		D
Approach Delay (s)		58.1			43.5			39.5			45.8	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	43.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	99.6	Sum of lost time (s)	16.5
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		

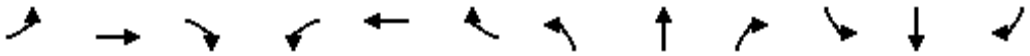
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	94	659	26	135	677	187	17	64	61	147	128	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.98			0.98		1.00	0.95	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		0.99	1.00	
Frt	1.00	0.99		1.00	0.97			0.94		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1770	3197		1770	3292			1702		1755	1686	
Flt Permitted	0.95	1.00		0.95	1.00			0.95		0.52	1.00	
Satd. Flow (perm)	1770	3197		1770	3292			1630		953	1686	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	94	659	26	135	677	187	17	64	61	147	128	60
RTOR Reduction (vph)	0	2	0	0	19	0	0	32	0	0	20	0
Lane Group Flow (vph)	94	683	0	135	845	0	0	110	0	147	168	0
Confl. Peds. (#/hr)			58			47	70		8	8		70
Confl. Bikes (#/hr)			15			6			9			38
Heavy Vehicles (%)	2%	12%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	11.2	59.6		12.0	60.4			17.4		17.4	17.4	
Effective Green, g (s)	11.2	59.6		12.0	60.4			17.4		17.4	17.4	
Actuated g/C Ratio	0.11	0.60		0.12	0.60			0.17		0.17	0.17	
Clearance Time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	198	1905		212	1988			283		165	293	
v/s Ratio Prot	c0.05	0.21		c0.08	c0.26						0.10	
v/s Ratio Perm								0.07		c0.15		
v/c Ratio	0.47	0.36		0.64	0.43			0.39		0.89	0.57	
Uniform Delay, d1	41.6	10.4		41.9	10.6			36.6		40.4	37.9	
Progression Factor	1.12	1.27		0.96	0.79			1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.0		4.5	0.7			0.3		39.6	1.7	
Delay (s)	47.2	13.2		44.6	9.0			36.9		79.9	39.6	
Level of Service	D	B		D	A			D		E	D	
Approach Delay (s)		17.3			13.8			36.9			57.3	
Approach LOS		B			B			D			E	

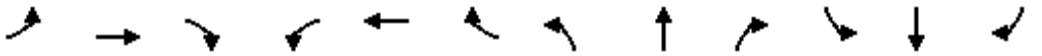
Intersection Summary			
HCM 2000 Control Delay	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	786	58	128	1427	126	26	64	66	93	91	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	0.99			0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.99	1.00			1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.92			0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00			0.98	
Satd. Flow (prot)	1768	3284		1028	3471	1517	1348	1745			2975	
Flt Permitted	0.12	1.00		0.29	1.00	1.00	0.55	1.00			0.80	
Satd. Flow (perm)	229	3284		318	3471	1517	781	1745			2418	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	30	786	58	128	1427	126	26	64	66	93	91	76
RTOR Reduction (vph)	0	5	0	0	0	45	0	48	0	0	36	0
Lane Group Flow (vph)	30	839	0	128	1427	81	26	82	0	0	224	0
Confl. Peds. (#/hr)	21		23	23		21	9		11	11		9
Confl. Bikes (#/hr)			4			5						1
Heavy Vehicles (%)	2%	8%	17%	75%	4%	4%	33%	100%	78%	2%	33%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	64.0	64.0		64.0	64.0	64.0	28.0	28.0			28.0	
Effective Green, g (s)	64.0	64.0		64.0	64.0	64.0	28.0	28.0			28.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64	0.64	0.28	0.28			0.28	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)	146	2101		203	2221	970	218	488			677	
v/s Ratio Prot		0.26			c0.41			0.05				
v/s Ratio Perm	0.13			0.40		0.05	0.03				c0.09	
v/c Ratio	0.21	0.40		0.63	0.64	0.08	0.12	0.17			0.33	
Uniform Delay, d1	7.5	8.7		10.9	11.0	6.8	26.8	27.2			28.6	
Progression Factor	0.46	0.45		1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	3.1	0.6		14.0	1.4	0.2	1.1	0.7			1.3	
Delay (s)	6.5	4.5		24.8	12.4	7.0	27.9	28.0			29.9	
Level of Service	A	A		C	B	A	C	C			C	
Approach Delay (s)		4.5			13.0			28.0			29.9	
Approach LOS		A			B			C			C	

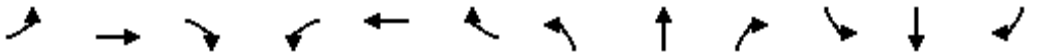
Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	120.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	193	679	54	51	1231	58	243	260	14	74	104	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1582	4089		1760	4575		1761	1810	1541	1752	3539	1245
Flt Permitted	0.15	1.00		0.34	1.00		0.69	1.00	1.00	0.54	1.00	1.00
Satd. Flow (perm)	249	4089		631	4575		1272	1810	1541	995	3539	1245
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	193	679	54	51	1231	58	243	260	14	74	104	249
RTOR Reduction (vph)	0	12	0	0	7	0	0	0	8	0	0	17
Lane Group Flow (vph)	193	721	0	51	1282	0	243	260	6	74	104	232
Confl. Peds. (#/hr)	10		20	20		10	8		20	20		8
Confl. Bikes (#/hr)			7			3						6
Heavy Vehicles (%)	14%	27%	2%	2%	13%	2%	2%	5%	2%	2%	2%	27%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	35.0	35.0		35.0	35.0		30.5	30.5	30.5	30.5	30.5	30.5
Effective Green, g (s)	35.0	35.0		35.0	35.0		30.5	30.5	30.5	30.5	30.5	30.5
Actuated g/C Ratio	0.47	0.47		0.47	0.47		0.41	0.41	0.41	0.41	0.41	0.41
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	116	1908		294	2135		517	736	626	404	1439	506
v/s Ratio Prot		0.18			0.28			0.14			0.03	
v/s Ratio Perm	c0.78			0.08			c0.19		0.00	0.07		0.19
v/c Ratio	1.66	0.38		0.17	0.60		0.47	0.35	0.01	0.18	0.07	0.46
Uniform Delay, d1	20.0	12.9		11.6	14.8		16.3	15.4	13.3	14.3	13.6	16.2
Progression Factor	1.00	1.00		1.00	1.00		1.07	1.07	1.46	1.00	1.00	1.00
Incremental Delay, d2	333.5	0.0		0.1	0.3		3.0	1.3	0.0	1.0	0.1	3.0
Delay (s)	353.5	13.0		11.7	15.1		20.5	17.9	19.4	15.3	13.7	19.2
Level of Service	F	B		B	B		C	B	B	B	B	B
Approach Delay (s)		84.0			15.0			19.2			17.2	
Approach LOS		F			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	35.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	90.5%	ICU Level of Service	E
Analysis Period (min)	15		

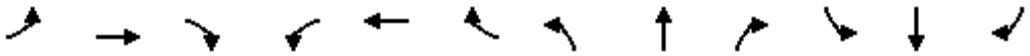
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	70	243	231	23	71	0	0	112	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	1.00			0.95	1.00
Frpb, ped/bikes					1.00	0.99	1.00	1.00			1.00	0.98
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3499	1562	1770	990			3167	1558
Flt Permitted					0.99	1.00	0.68	1.00			1.00	1.00
Satd. Flow (perm)					3499	1562	1269	990			3167	1558
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	70	243	231	23	71	0	0	112	67
RTOR Reduction (vph)	0	0	0	0	0	187	0	0	0	0	0	21
Lane Group Flow (vph)	0	0	0	0	313	44	23	71	0	0	112	46
Confl. Peds. (#/hr)				1		2			8	8		
Confl. Bikes (#/hr)												13
Heavy Vehicles (%)	2%	15%	88%	2%	2%	2%	2%	92%	0%	2%	14%	2%
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					4			6			2	
Permitted Phases				4		4	6					2
Actuated Green, G (s)					14.3	14.3	51.2	51.2			51.2	51.2
Effective Green, g (s)					14.3	14.3	51.2	51.2			51.2	51.2
Actuated g/C Ratio					0.19	0.19	0.68	0.68			0.68	0.68
Clearance Time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Vehicle Extension (s)					2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)					667	297	866	675			2162	1063
v/s Ratio Prot								c0.07			0.04	
v/s Ratio Perm					0.09	0.03	0.02					0.03
v/c Ratio					0.47	0.15	0.03	0.11			0.05	0.04
Uniform Delay, d1					27.0	25.3	3.8	4.1			3.9	3.9
Progression Factor					1.00	1.00	1.00	1.00			1.35	1.77
Incremental Delay, d2					0.2	0.1	0.0	0.0			0.0	0.1
Delay (s)					27.2	25.4	3.9	4.1			5.3	7.0
Level of Service					C	C	A	A			A	A
Approach Delay (s)		0.0			26.4			4.0			5.9	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.18		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	31.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

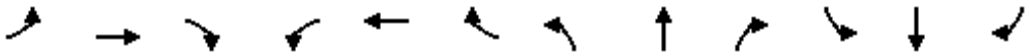


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	634	114	85	177	24	56	129	137	114	174	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.92		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3306		1770	3445		1770	1782		1610	2086	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3306		1770	3445		1770	1782		1610	2086	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	26	634	114	85	177	24	56	129	137	114	174	37
RTOR Reduction (vph)	0	10	0	0	7	0	0	114	0	0	10	0
Lane Group Flow (vph)	26	738	0	85	194	0	56	152	0	103	212	0
Confl. Peds. (#/hr)						50			3			3
Confl. Bikes (#/hr)			4						1			
Heavy Vehicles (%)	2%	6%	9%	2%	2%	2%	2%	74%	96%	2%	77%	2%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Actuated Green, G (s)	2.4	28.4		7.9	34.4		14.0	14.0		15.5	15.5	
Effective Green, g (s)	2.4	28.4		7.9	34.4		14.0	14.0		15.5	15.5	
Actuated g/C Ratio	0.03	0.35		0.10	0.42		0.17	0.17		0.19	0.19	
Clearance Time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.5	3.0		3.2	3.2		3.0	3.0	
Lane Grp Cap (vph)	51	1147		170	1448		302	304		305	395	
v/s Ratio Prot	0.01	c0.22		c0.05	0.06		0.03	c0.09		0.06	c0.10	
v/s Ratio Perm												
v/c Ratio	0.51	0.64		0.50	0.13		0.19	0.50		0.34	0.54	
Uniform Delay, d1	39.1	22.4		35.1	14.6		29.0	30.7		28.7	29.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.9	1.2		1.7	0.0		0.3	1.4		0.7	1.4	
Delay (s)	42.0	23.7		36.8	14.6		29.3	32.1		29.4	31.3	
Level of Service	D	C		D	B		C	C		C	C	
Approach Delay (s)		24.3			21.2			31.6			30.7	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	81.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

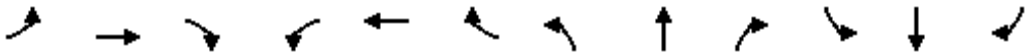
c Critical Lane Group

2035 PM



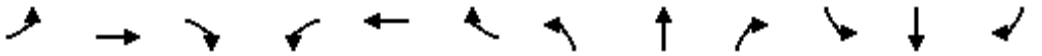
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	130	1106	254	332	1230	187	168	444	206	140	457	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.95	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3418		1770	3539	1510	1770	1863	1538	1770	1824	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3418		1770	3539	1510	1770	1863	1538	1770	1824	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	141	1202	276	361	1337	203	183	483	224	152	497	65
RTOR Reduction (vph)	0	33	0	0	0	120	0	0	164	0	8	0
Lane Group Flow (vph)	141	1445	0	361	1337	83	183	483	60	152	554	0
Confl. Peds. (#/hr)			2			7			7			9
Confl. Bikes (#/hr)			24			10			11			12
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			
Actuated Green, G (s)	5.0	16.0		5.0	16.0	16.0	6.0	16.0	16.0	7.0	17.0	
Effective Green, g (s)	5.0	16.0		5.0	16.0	16.0	6.0	16.0	16.0	7.0	17.0	
Actuated g/C Ratio	0.08	0.27		0.08	0.27	0.27	0.10	0.27	0.27	0.12	0.28	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	147	911		147	943	402	177	496	410	206	516	
v/s Ratio Prot	0.08	c0.42		c0.20	0.38		c0.10	0.26		0.09	c0.30	
v/s Ratio Perm						0.05			0.04			
v/c Ratio	0.96	1.59		2.46	1.42	0.21	1.03	0.97	0.15	0.74	1.07	
Uniform Delay, d1	27.4	22.0		27.5	22.0	17.1	27.0	21.8	16.8	25.6	21.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	61.1	269.0		675.1	194.3	0.3	76.8	33.5	0.2	12.9	60.9	
Delay (s)	88.5	291.0		702.6	216.3	17.3	103.8	55.2	17.0	38.5	82.4	
Level of Service	F	F		F	F	B	F	E	B	D	F	
Approach Delay (s)		273.4			287.4			55.6			73.1	
Approach LOS		F			F			E			E	

Intersection Summary			
HCM 2000 Control Delay	212.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.41		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	107.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



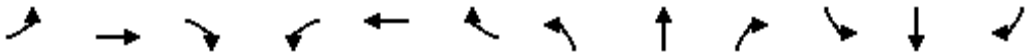
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	189	1057	519	59	815	142	950	1046	44	277	1225	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.97		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.98		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3251		1770	3430		3433	3506		1770	3445	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3251		1770	3430		3433	3506		1770	3445	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	205	1149	564	64	886	154	1033	1137	48	301	1332	163
RTOR Reduction (vph)	0	53	0	0	13	0	0	3	0	0	9	0
Lane Group Flow (vph)	205	1660	0	64	1027	0	1033	1182	0	301	1486	0
Confl. Peds. (#/hr)			59			38			53			68
Confl. Bikes (#/hr)			31			2			24			28
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.9	33.8		8.8	28.7		13.0	39.4		15.0	40.4	
Effective Green, g (s)	13.9	33.8		8.8	28.7		13.0	39.4		15.0	40.4	
Actuated g/C Ratio	0.13	0.31		0.08	0.26		0.12	0.36		0.14	0.37	
Clearance Time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.0	2.0		2.0	4.0		2.5	4.0	
Lane Grp Cap (vph)	223	998		141	894		405	1255		241	1265	
v/s Ratio Prot	c0.12	c0.51		0.04	0.30		c0.30	0.34		0.17	c0.43	
v/s Ratio Perm												
v/c Ratio	0.92	1.66		0.45	1.15		2.55	0.94		1.25	1.17	
Uniform Delay, d1	47.5	38.1		48.3	40.6		48.5	34.2		47.5	34.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	37.8	303.1		0.8	80.2		705.0	14.9		141.7	87.3	
Delay (s)	85.3	341.2		49.2	120.8		753.5	49.1		189.2	122.1	
Level of Service	F	F		D	F		F	D		F	F	
Approach Delay (s)		313.9			116.7			377.2			133.3	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	256.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.51		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	136.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



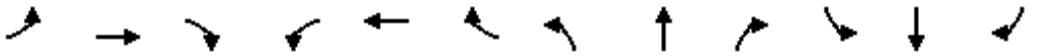
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1085	105	11	304	0	0	0	0	579	510	470
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5					6.5	6.5	6.5
Lane Util. Factor		0.95			0.91					0.91	0.91	1.00
Frpb, ped/bikes		1.00			1.00					1.00	1.00	0.97
Flpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Frt		0.99			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	0.98	1.00
Satd. Flow (prot)		3478			5076					1610	3339	1540
Flt Permitted		1.00			0.90					0.95	0.98	1.00
Satd. Flow (perm)		3478			4554					1610	3339	1540
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1085	105	11	304	0	0	0	0	579	510	470
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	0	0	0	294
Lane Group Flow (vph)	0	1181	0	0	315	0	0	0	0	353	736	176
Confl. Peds. (#/hr)	20		20	20								20
Turn Type		NA		Perm	NA					Perm	NA	Perm
Protected Phases		1			1						2	
Permitted Phases				1						2		2
Actuated Green, G (s)		38.0			38.0					30.0	30.0	30.0
Effective Green, g (s)		38.0			38.0					30.0	30.0	30.0
Actuated g/C Ratio		0.48			0.48					0.38	0.38	0.38
Clearance Time (s)		5.5			5.5					6.5	6.5	6.5
Lane Grp Cap (vph)		1652			2163					603	1252	577
v/s Ratio Prot		c0.34										
v/s Ratio Perm					0.07					0.22	0.22	0.11
v/c Ratio		0.71			0.15					0.59	0.59	0.31
Uniform Delay, d1		16.7			11.8					20.0	20.0	17.6
Progression Factor		1.00			0.33					1.00	1.00	1.00
Incremental Delay, d2		2.7			0.1					4.1	2.0	1.4
Delay (s)		19.4			4.0					24.1	22.1	19.0
Level of Service		B			A					C	C	B
Approach Delay (s)		19.4			4.0			0.0			21.6	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	617	1053	0	0	298	935	36	1231	73	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1610	3379			3539	2700		5027				
Flt Permitted	0.95	0.92			1.00	1.00		1.00				
Satd. Flow (perm)	1610	3102			3539	2700		5027				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	617	1053	0	0	298	935	36	1231	73	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	57	0	8	0	0	0	0
Lane Group Flow (vph)	543	1127	0	0	298	878	0	1332	0	0	0	0
Confl. Peds. (#/hr)						20			20			
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	22.5	50.5			24.5	24.5		18.5				
Effective Green, g (s)	22.5	50.5			24.5	24.5		18.5				
Actuated g/C Ratio	0.28	0.63			0.31	0.31		0.23				
Clearance Time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Grp Cap (vph)	452	2036			1083	826		1162				
v/s Ratio Prot	c0.34	0.16			0.08							
v/s Ratio Perm		0.19				c0.33		0.27				
v/c Ratio	1.20	0.55			0.28	1.06		1.15				
Uniform Delay, d1	28.8	8.4			21.0	27.8		30.8				
Progression Factor	0.88	1.92			1.00	1.00		1.00				
Incremental Delay, d2	105.6	0.8			0.6	49.5		76.4				
Delay (s)	131.0	16.9			21.7	77.2		107.2				
Level of Service	F	B			C	E		F				
Approach Delay (s)		54.0			63.8			107.2			0.0	
Approach LOS		D			E			F			A	

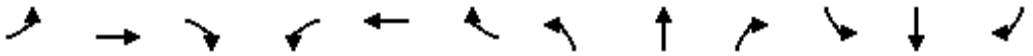
Intersection Summary			
HCM 2000 Control Delay	73.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	106.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	945	410	256	1654	37	757	32	481	77	35	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3312	1214	1289	3384		1649	1575	1262	1480	1389	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3312	1214	1289	3384		1649	1575	1262	1480	1389	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	945	410	256	1654	37	757	32	481	77	35	73
RTOR Reduction (vph)	0	0	240	0	1	0	0	0	275	0	55	0
Lane Group Flow (vph)	15	945	170	256	1690	0	394	395	206	77	53	0
Heavy Vehicles (%)	0%	9%	33%	40%	5%	65%	4%	73%	28%	22%	50%	10%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases			2						8			
Actuated Green, G (s)	2.3	47.7	47.7	27.9	73.3		35.1	35.1	35.1	8.1	8.1	
Effective Green, g (s)	2.3	47.7	47.7	27.9	73.3		35.1	35.1	35.1	8.1	8.1	
Actuated g/C Ratio	0.02	0.35	0.35	0.21	0.54		0.26	0.26	0.26	0.06	0.06	
Clearance Time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	3.0	4.5	4.5	3.0	4.5		4.0	4.0	4.0	3.0	3.0	
Lane Grp Cap (vph)	30	1167	427	265	1833		427	408	327	88	83	
v/s Ratio Prot	0.01	0.29		c0.20	c0.50		0.24	c0.25		c0.05	0.04	
v/s Ratio Perm			0.14						0.16			
v/c Ratio	0.50	0.81	0.40	0.97	0.92		0.92	0.97	0.63	0.88	0.64	
Uniform Delay, d1	65.9	39.7	33.0	53.2	28.4		48.8	49.5	44.3	63.1	62.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	12.5	4.7	1.1	45.5	8.5		25.7	36.0	4.2	56.5	15.9	
Delay (s)	78.4	44.4	34.0	98.7	36.8		74.5	85.6	48.6	119.6	78.1	
Level of Service	E	D	C	F	D		E	F	D	F	E	
Approach Delay (s)		41.7			45.0			68.1			95.4	
Approach LOS		D			D			E			F	

Intersection Summary			
HCM 2000 Control Delay	52.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	135.3	Sum of lost time (s)	16.5
Intersection Capacity Utilization	91.6%	ICU Level of Service	F
Analysis Period (min)	15		

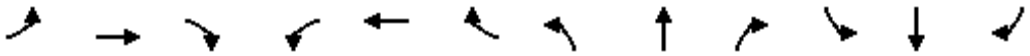
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	251	750	497	489	1449	212	432	453	552	130	232	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	0.92		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1337	2993		1687	3406	1509	1444	2920		1369	2644	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1337	2993		1687	3406	1509	1444	2920		1369	2644	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	251	750	497	489	1449	212	432	453	552	130	232	76
RTOR Reduction (vph)	0	81	0	0	0	99	0	158	0	0	19	0
Lane Group Flow (vph)	251	1166	0	489	1449	113	432	847	0	117	302	0
Heavy Vehicles (%)	35%	13%	14%	7%	6%	7%	25%	14%	13%	20%	16%	57%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	20.5	44.0		31.5	55.0	55.0	35.5	35.5		12.0	12.0	
Effective Green, g (s)	20.5	44.0		31.5	55.0	55.0	35.5	35.5		12.0	12.0	
Actuated g/C Ratio	0.15	0.32		0.23	0.39	0.39	0.25	0.25		0.09	0.09	
Clearance Time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	196	944		380	1342	594	367	743		117	227	
v/s Ratio Prot	0.19	c0.39		c0.29	0.43		c0.30	0.29		0.09	c0.11	
v/s Ratio Perm						0.07						
v/c Ratio	1.28	1.24		1.29	1.08	0.19	1.18	1.14		1.00	1.33	
Uniform Delay, d1	59.5	47.8		54.0	42.2	27.7	52.0	52.0		63.8	63.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	159.5	115.1		147.7	49.1	0.2	104.5	78.7		83.2	175.4	
Delay (s)	219.0	162.9		201.7	91.4	27.8	156.5	130.7		147.0	239.1	
Level of Service	F	F		F	F	C	F	F		F	F	
Approach Delay (s)		172.3			110.2			138.5			214.5	
Approach LOS		F			F			F			F	

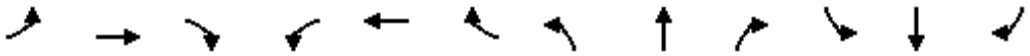
Intersection Summary			
HCM 2000 Control Delay	142.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	139.5	Sum of lost time (s)	16.5
Intersection Capacity Utilization	116.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1334	65	179	1453	0	0	0	0	698	501	513
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						5.0	
Lane Util. Factor		0.91		1.00	0.95						0.95	
Frpb, ped/bikes		1.00		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.99		1.00	1.00						0.96	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		4905		1767	3312						3244	
Flt Permitted		1.00		0.12	1.00						0.98	
Satd. Flow (perm)		4905		227	3312						3244	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1334	65	179	1453	0	0	0	0	698	501	513
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	9	0
Lane Group Flow (vph)	0	1393	0	179	1453	0	0	0	0	0	1703	0
Confl. Peds. (#/hr)			10	10						10		10
Heavy Vehicles (%)	16%	5%	2%	2%	9%	2%	1%	0%	0%	2%	2%	7%
Turn Type		NA		Perm	NA					Split	NA	
Protected Phases		4			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		41.0		41.0	41.0						36.0	
Effective Green, g (s)		41.0		41.0	41.0						36.0	
Actuated g/C Ratio		0.47		0.47	0.47						0.41	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		2311		106	1560						1342	
v/s Ratio Prot		0.28			0.44						c0.52	
v/s Ratio Perm				c0.79								
v/c Ratio		0.60		1.69	0.93						1.27	
Uniform Delay, d1		17.0		23.0	21.7						25.5	
Progression Factor		1.00		0.26	0.23						1.00	
Incremental Delay, d2		0.3		331.5	6.3						127.0	
Delay (s)		17.3		337.4	11.3						152.5	
Level of Service		B		F	B						F	
Approach Delay (s)		17.3			47.1			0.0			152.5	
Approach LOS		B			D			A			F	

Intersection Summary			
HCM 2000 Control Delay	76.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.48		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	100.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

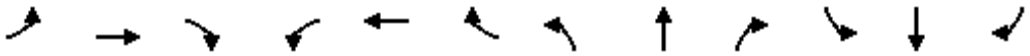


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	431	1601	0	0	1545	398	87	502	261	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0				
Lane Util. Factor		0.91			0.91			0.95				
Frpb, ped/bikes		1.00			0.99			0.99				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.97			0.95				
Flt Protected		0.99			1.00			0.99				
Satd. Flow (prot)		5032			4900			3336				
Flt Permitted		0.68			1.00			0.99				
Satd. Flow (perm)		3438			4900			3336				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	431	1601	0	0	1545	398	87	502	261	0	0	0
RTOR Reduction (vph)	0	0	0	0	52	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	2032	0	0	1891	0	0	844	0	0	0	0
Confl. Peds. (#/hr)	10					10			10			
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)		41.0			41.0			36.0				
Effective Green, g (s)		41.0			41.0			36.0				
Actuated g/C Ratio		0.47			0.47			0.41				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		2.0			2.0			2.0				
Lane Grp Cap (vph)		1620			2309			1380				
v/s Ratio Prot					0.39			c0.25				
v/s Ratio Perm		c0.59										
v/c Ratio		5.01dl			0.82			0.61				
Uniform Delay, d1		23.0			19.8			20.0				
Progression Factor		0.78			1.00			1.00				
Incremental Delay, d2		117.3			2.3			0.6				
Delay (s)		135.1			22.1			20.6				
Level of Service		F			C			C				
Approach Delay (s)		135.1			22.1			20.6			0.0	
Approach LOS		F			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	69.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	116.2%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

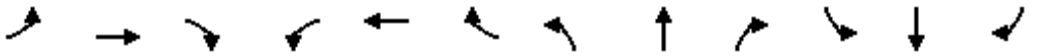


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	81	1460	419	123	1629	55	244	245	122	60	270	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5			5.0			5.0	
Lane Util. Factor		0.91			0.91			0.95			0.95	
Frpb, ped/bikes		1.00			1.00			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.97			1.00			0.97			0.97	
Flt Protected		1.00			1.00			0.98			0.99	
Satd. Flow (prot)		4826			4827			3329			3358	
Flt Permitted		0.74			0.67			0.64			0.72	
Satd. Flow (perm)		3571			3222			2190			2439	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	81	1460	419	123	1629	55	244	245	122	60	270	94
RTOR Reduction (vph)	0	61	0	0	4	0	0	28	0	0	20	0
Lane Group Flow (vph)	0	1899	0	0	1803	0	0	583	0	0	404	0
Confl. Peds. (#/hr)	6		1	1		6	17		21	21		17
Confl. Bikes (#/hr)			7			11			4			24
Heavy Vehicles (%)	2%	4%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		48.5			48.5			23.0			23.0	
Effective Green, g (s)		48.5			48.5			23.0			23.0	
Actuated g/C Ratio		0.61			0.61			0.29			0.29	
Clearance Time (s)		3.5			3.5			5.0			5.0	
Lane Grp Cap (vph)		2164			1953			629			701	
v/s Ratio Prot												
v/s Ratio Perm		0.53			c0.56			c0.27			0.17	
v/c Ratio		0.88			1.28dl			0.93			0.58	
Uniform Delay, d1		13.3			14.1			27.7			24.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		5.4			8.8			21.9			3.4	
Delay (s)		18.7			22.9			49.5			27.8	
Level of Service		B			C			D			C	
Approach Delay (s)		18.7			22.9			49.5			27.8	
Approach LOS		B			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	134.2%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

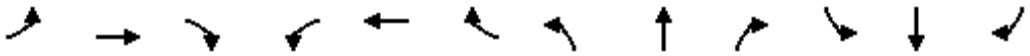
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	273	1416	91	53	1217	18	358	638	126	58	85	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	5.5	3.5	3.5	3.5		3.5	3.5
Lane Util. Factor		0.95	1.00		0.95	1.00	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00	0.95		1.00	0.97	1.00	1.00	0.96		1.00	0.97
Flpb, ped/bikes		1.00	1.00		1.00	1.00	0.99	1.00	1.00		1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected		0.99	1.00		1.00	1.00	0.95	1.00	1.00		0.98	1.00
Satd. Flow (prot)		3454	1497		3307	1542	1674	1827	1518		1826	1541
Flt Permitted		0.53	1.00		0.68	1.00	0.62	1.00	1.00		0.21	1.00
Satd. Flow (perm)		1840	1497		2255	1542	1092	1827	1518		391	1541
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	273	1416	91	53	1217	18	358	638	126	58	85	90
RTOR Reduction (vph)	0	0	37	0	0	4	0	0	29	0	0	49
Lane Group Flow (vph)	0	1689	54	0	1270	14	358	638	97	0	143	41
Confl. Peds. (#/hr)	2		9	9		2	9		19	19		9
Confl. Bikes (#/hr)			21			5			13			7
Heavy Vehicles (%)	2%	4%	3%	30%	8%	2%	7%	4%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)		53.5	53.5		53.5	53.5	27.5	27.5	27.5		27.5	27.5
Effective Green, g (s)		53.5	53.5		53.5	53.5	27.5	27.5	27.5		27.5	27.5
Actuated g/C Ratio		0.59	0.59		0.59	0.59	0.31	0.31	0.31		0.31	0.31
Clearance Time (s)		5.5	5.5		5.5	5.5	3.5	3.5	3.5		3.5	3.5
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1093	889		1340	916	333	558	463		119	470
v/s Ratio Prot								0.35				
v/s Ratio Perm		c0.92	0.04		0.56	0.01	0.33		0.06		c0.37	0.03
v/c Ratio		1.62dl	0.06		0.95	0.01	1.08	1.14	0.21		1.20	0.09
Uniform Delay, d1		18.2	7.7		17.0	7.5	31.2	31.2	23.2		31.2	22.3
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2		250.0	0.1		14.9	0.0	70.7	84.2	0.1		146.6	0.0
Delay (s)		268.2	7.8		31.9	7.5	102.0	115.5	23.3		177.8	22.3
Level of Service		F	A		C	A	F	F	C		F	C
Approach Delay (s)		254.9			31.5			100.8			117.8	
Approach LOS		F			C			F			F	

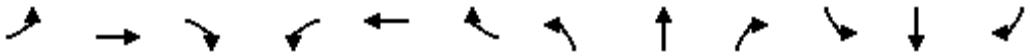
Intersection Summary			
HCM 2000 Control Delay	143.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.43		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	142.8%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	229	1250	339	96	879	97	554	802	157	218	1015	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.97	
Flt Protected		0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3481	1482	1770	3195	1540	1733	3438		1765	3431	
Flt Permitted		0.56	1.00	0.12	1.00	1.00	0.13	1.00		0.22	1.00	
Satd. Flow (perm)		1973	1482	226	3195	1540	234	3438		410	3431	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	229	1250	339	96	879	97	554	802	157	218	1015	219
RTOR Reduction (vph)	0	0	41	0	0	45	0	6	0	0	22	0
Lane Group Flow (vph)	0	1479	298	96	879	52	554	953	0	218	1213	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Heavy Vehicles (%)	2%	3%	6%	2%	13%	2%	4%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4		4	2			6		
Actuated Green, G (s)		33.0	33.0	33.0	33.0	33.0	42.5	42.5		42.5	42.5	
Effective Green, g (s)		33.0	33.0	33.0	33.0	33.0	42.5	42.5		42.5	42.5	
Actuated g/C Ratio		0.39	0.39	0.39	0.39	0.39	0.50	0.50		0.50	0.50	
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0		4.0	4.0	
Lane Grp Cap (vph)		765	575	87	1240	597	117	1719		205	1715	
v/s Ratio Prot					0.28			0.28			0.35	
v/s Ratio Perm		c0.75	0.20	0.43		0.03	c2.37			0.53		
v/c Ratio		1.93	0.52	1.10	0.71	0.09	4.74	0.55		1.06	0.71	
Uniform Delay, d1		26.0	19.9	26.0	21.9	16.5	21.2	14.7		21.2	16.4	
Progression Factor		1.00	1.00	0.41	0.41	0.07	1.00	1.00		1.00	1.00	
Incremental Delay, d2		424.8	3.3	117.9	2.8	0.2	1700.1	0.7		80.6	1.5	
Delay (s)		450.8	23.2	128.6	11.9	1.4	1721.3	15.4		101.9	17.9	
Level of Service		F	C	F	B	A	F	B		F	B	
Approach Delay (s)		371.1			21.4			640.0			30.5	
Approach LOS		F			C			F			C	

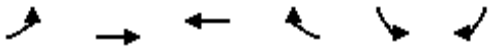
Intersection Summary			
HCM 2000 Control Delay	292.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	3.51		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	147.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	1316	25	55	1125	57	27	205	349	35	78	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.96		1.00	0.93		0.97	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1587	3154	1364	1588	3065	1373		3153	1161		2825	
Flt Permitted	0.19	1.00	1.00	0.14	1.00	1.00		0.91	1.00		0.88	
Satd. Flow (perm)	318	3154	1364	230	3065	1373		2876	1161		2506	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	119	1316	25	55	1125	57	27	205	349	35	78	98
RTOR Reduction (vph)	0	0	6	0	0	16	0	0	28	0	46	0
Lane Group Flow (vph)	119	1316	19	55	1125	41	0	232	321	0	165	0
Confl. Peds. (#/hr)	23		26	26		23	49		40	40		49
Confl. Bikes (#/hr)			13			4			20			19
Heavy Vehicles (%)	2%	3%	2%	2%	6%	2%	2%	2%	17%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4		4	2		2	2		
Actuated Green, G (s)	50.4	50.4	50.4	50.4	50.4	50.4		26.1	26.1		26.1	
Effective Green, g (s)	50.4	50.4	50.4	50.4	50.4	50.4		26.1	26.1		26.1	
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59		0.31	0.31		0.31	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	188	1870	808	136	1817	814		883	356		769	
v/s Ratio Prot		c0.42			0.37							
v/s Ratio Perm	0.37		0.01	0.24		0.03		0.08	c0.28		0.07	
v/c Ratio	0.63	0.70	0.02	0.40	0.62	0.05		0.26	0.90		0.21	
Uniform Delay, d1	11.3	12.1	7.1	9.3	11.1	7.3		22.2	28.2		21.8	
Progression Factor	0.76	0.81	0.89	1.45	1.42	1.41		1.00	1.00		1.00	
Incremental Delay, d2	1.5	0.2	0.0	4.0	0.7	0.1		0.1	24.6		0.1	
Delay (s)	10.1	10.0	6.4	17.4	16.5	10.3		22.3	52.8		21.9	
Level of Service	B	A	A	B	B	B		C	D		C	
Approach Delay (s)		9.9			16.3			40.6			21.9	
Approach LOS		A			B			D			C	

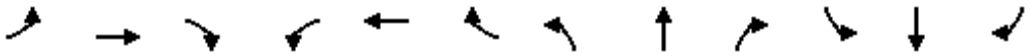
Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	96.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	594	1015	898	525	259	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	0.99	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.97	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.96	1.00
Satd. Flow (prot)	1577	3094	3065	1382	2972	1213
Flt Permitted	0.95	1.00	1.00	1.00	0.96	1.00
Satd. Flow (perm)	1577	3094	3065	1382	2972	1213
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	594	1015	898	525	259	209
RTOR Reduction (vph)	0	0	0	235	30	122
Lane Group Flow (vph)	594	1015	898	290	292	24
Confl. Peds. (#/hr)				15	15	15
Heavy Vehicles (%)	3%	5%	6%	2%	3%	6%
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	36.9	62.9	22.0	22.0	14.1	14.1
Effective Green, g (s)	36.9	62.9	22.0	22.0	14.1	14.1
Actuated g/C Ratio	0.43	0.74	0.26	0.26	0.17	0.17
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	684	2289	793	357	493	201
v/s Ratio Prot	c0.38	0.33	c0.29		c0.10	
v/s Ratio Perm				0.21		0.02
v/c Ratio	0.87	0.44	1.13	0.81	0.59	0.12
Uniform Delay, d1	21.8	4.3	31.5	29.6	32.8	30.2
Progression Factor	0.77	0.83	1.11	1.33	1.00	1.00
Incremental Delay, d2	7.8	0.4	61.3	1.3	1.3	0.1
Delay (s)	24.5	4.0	96.3	40.5	34.1	30.3
Level of Service	C	A	F	D	C	C
Approach Delay (s)		11.6	75.7		32.9	
Approach LOS		B	E		C	

Intersection Summary			
HCM 2000 Control Delay	40.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



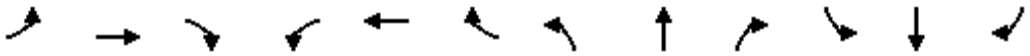
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	173	955	33	124	856	93	399	1106	299	91	438	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	0.83	1.00	0.99	
Flpb, ped/bikes	1.00	1.00			1.00		0.99	1.00	1.00	0.98	1.00	
Frt	1.00	0.99			0.99		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1586	3160			3109		1575	3185	1186	1562	3003	
Flt Permitted	0.15	1.00			0.61		0.35	1.00	1.00	0.13	1.00	
Satd. Flow (perm)	251	3160			1904		577	3185	1186	218	3003	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	173	955	33	124	856	93	399	1106	299	91	438	179
RTOR Reduction (vph)	0	3	0	0	8	0	0	0	23	0	43	0
Lane Group Flow (vph)	173	985	0	0	1065	0	399	1106	276	91	574	0
Confl. Peds. (#/hr)	27		81	81		27	35		141	141		35
Confl. Bikes (#/hr)			21			15			52			17
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	39.0	39.0			39.0		38.0	38.0	38.0	38.0	38.0	
Effective Green, g (s)	39.0	39.0			39.0		38.0	38.0	38.0	38.0	38.0	
Actuated g/C Ratio	0.46	0.46			0.46		0.45	0.45	0.45	0.45	0.45	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	115	1449			873		257	1423	530	97	1342	
v/s Ratio Prot		0.31						0.35			0.19	
v/s Ratio Perm	c0.69				0.56		c0.69		0.23	0.42		
v/c Ratio	1.50	0.68			1.22		1.55	0.78	0.52	0.94	0.43	
Uniform Delay, d1	23.0	18.1			23.0		23.5	19.9	16.9	22.4	16.1	
Progression Factor	0.87	0.87			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	263.9	2.4			109.3		267.0	2.5	0.4	70.0	0.1	
Delay (s)	284.0	18.2			132.3		290.5	22.4	17.4	92.4	16.1	
Level of Service	F	B			F		F	C	B	F	B	
Approach Delay (s)		57.8			132.3			80.9			25.9	
Approach LOS		E			F			F			C	

Intersection Summary			
HCM 2000 Control Delay	78.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.52		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	126.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	330	887	247	463	733	76	21	1939	731	3	1249	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	4.0		5.5	5.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.98		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)	3090	3185	1349	3090	3185	1349		4574	1391		4576	1349
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.91	1.00		0.93	1.00
Satd. Flow (perm)	3090	3185	1349	3090	3185	1349		4161	1391		4234	1349
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	330	887	247	463	733	76	21	1939	731	3	1249	211
RTOR Reduction (vph)	0	0	65	0	0	53	0	0	0	0	0	79
Lane Group Flow (vph)	330	887	182	463	733	24	0	1960	731	0	1252	132
Confl. Peds. (#/hr)			40			40	40		40	40		40
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Free	Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases			8			4	2		Free	6		6
Actuated Green, G (s)	11.0	27.5	27.5	12.0	28.5	28.5		40.5	95.0		40.5	40.5
Effective Green, g (s)	11.0	27.5	27.5	12.0	28.5	28.5		40.5	95.0		40.5	40.5
Actuated g/C Ratio	0.12	0.29	0.29	0.13	0.30	0.30		0.43	1.00		0.43	0.43
Clearance Time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	357	921	390	390	955	404		1773	1391		1805	575
v/s Ratio Prot	0.11	c0.28		c0.15	0.23							
v/s Ratio Perm			0.13			0.02		c0.47	0.53		0.30	0.10
v/c Ratio	0.92	0.96	0.47	1.19	0.77	0.06		1.11	0.53		0.69	0.23
Uniform Delay, d1	41.6	33.2	27.7	41.5	30.2	23.7		27.2	0.0		22.2	17.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	29.0	22.0	4.0	107.2	5.9	0.3		56.4	1.4		1.2	0.2
Delay (s)	70.6	55.2	31.7	148.7	36.1	24.0		83.7	1.4		23.4	17.5
Level of Service	E	E	C	F	D	C		F	A		C	B
Approach Delay (s)		54.7			76.4			61.3			22.5	
Approach LOS		D			E			E			C	

Intersection Summary			
HCM 2000 Control Delay	54.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	112.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

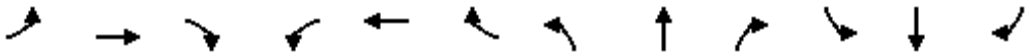


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	38	262	14	24	86	54	14	541	113	363	386	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			0.99			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.95			0.97			0.99	
Flt Protected		0.99			0.99			1.00			0.98	
Satd. Flow (prot)		3487			3311			3429			3402	
Flt Permitted		0.91			0.89			0.94			0.58	
Satd. Flow (perm)		3181			2967			3212			2031	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	38	262	14	24	86	54	14	541	113	363	386	64
RTOR Reduction (vph)	0	5	0	0	36	0	0	29	0	0	10	0
Lane Group Flow (vph)	0	309	0	0	128	0	0	639	0	0	803	0
Confl. Peds. (#/hr)	11		12	12		11	26		15	15		26
Confl. Bikes (#/hr)			5			3			8			19
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		20.5			20.5			30.5			30.5	
Effective Green, g (s)		20.5			20.5			30.5			30.5	
Actuated g/C Ratio		0.34			0.34			0.51			0.51	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Lane Grp Cap (vph)		1086			1013			1632			1032	
v/s Ratio Prot												
v/s Ratio Perm		c0.10			0.04			0.20			c0.40	
v/c Ratio		0.28			0.13			0.39			1.03dl	
Uniform Delay, d1		14.4			13.6			9.1			12.0	
Progression Factor		1.00			1.00			0.40			1.00	
Incremental Delay, d2		0.7			0.3			0.7			5.8	
Delay (s)		15.1			13.8			4.3			17.8	
Level of Service		B			B			A			B	
Approach Delay (s)		15.1			13.8			4.3			17.8	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		

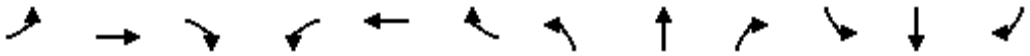
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	562	91	20	178	107	59	830	78	45	208	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0			4.0	
Lane Util. Factor		0.95			0.95		1.00	0.95			0.95	
Frpb, ped/bikes		0.99			0.99		1.00	1.00			1.00	
Flpb, ped/bikes		1.00			1.00		0.98	1.00			1.00	
Frt		0.98			0.95		1.00	0.99			0.99	
Flt Protected		0.99			1.00		0.95	1.00			0.99	
Satd. Flow (prot)		3423			3315		1741	3486			3453	
Flt Permitted		0.83			0.89		0.58	1.00			0.79	
Satd. Flow (perm)		2871			2969		1066	3486			2738	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	119	562	91	20	178	107	59	830	78	45	208	24
RTOR Reduction (vph)	0	15	0	0	71	0	0	10	0	0	10	0
Lane Group Flow (vph)	0	757	0	0	234	0	59	898	0	0	267	0
Confl. Peds. (#/hr)	9		61	61		9	43		17	17		43
Confl. Bikes (#/hr)			1			2			9			1
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		23.1			23.1		37.1	37.1			37.1	
Effective Green, g (s)		23.1			23.1		37.1	37.1			37.1	
Actuated g/C Ratio		0.34			0.34		0.54	0.54			0.54	
Clearance Time (s)		4.0			4.0		4.0	4.0			4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		972			1005		579	1896			1489	
v/s Ratio Prot								c0.26				
v/s Ratio Perm		c0.26			0.08		0.06				0.10	
v/c Ratio		0.78			0.23		0.10	0.47			0.18	
Uniform Delay, d1		20.3			16.2		7.5	9.6			7.9	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		4.0			0.1		0.4	0.9			0.3	
Delay (s)		24.2			16.3		7.9	10.4			8.1	
Level of Service		C			B		A	B			A	
Approach Delay (s)		24.2			16.3			10.3			8.1	
Approach LOS		C			B			B			A	

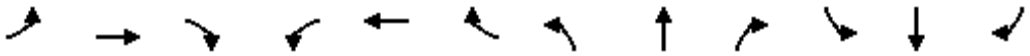
Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	68.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	93.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	228	21	90	203	35	18	568	53	63	309	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Flpb, ped/bikes	0.99	1.00		0.99	1.00			1.00			1.00	
Frt	1.00	0.99		1.00	0.98			0.99			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1751	3484		1749	3445			3482			3460	
Flt Permitted	0.60	1.00		0.60	1.00			0.94			0.81	
Satd. Flow (perm)	1113	3484		1100	3445			3279			2809	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	52	228	21	90	203	35	18	568	53	63	309	33
RTOR Reduction (vph)	0	11	0	0	20	0	0	11	0	0	11	0
Lane Group Flow (vph)	52	238	0	90	218	0	0	628	0	0	394	0
Confl. Peds. (#/hr)	21		24	24		21	7		20	20		7
Confl. Bikes (#/hr)			12			10			4			8
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	26.0	26.0		26.0	26.0			26.0			26.0	
Effective Green, g (s)	26.0	26.0		26.0	26.0			26.0			26.0	
Actuated g/C Ratio	0.43	0.43		0.43	0.43			0.43			0.43	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)	482	1509		476	1492			1420			1217	
v/s Ratio Prot		0.07			0.06							
v/s Ratio Perm	0.05			c0.08				c0.19			0.14	
v/c Ratio	0.11	0.16		0.19	0.15			0.44			0.32	
Uniform Delay, d1	10.1	10.3		10.5	10.3			11.9			11.2	
Progression Factor	1.00	1.00		1.00	1.00			1.25			1.71	
Incremental Delay, d2	0.5	0.2		0.9	0.2			1.0			0.5	
Delay (s)	10.6	10.6		11.4	10.5			15.9			19.7	
Level of Service	B	B		B	B			B			B	
Approach Delay (s)		10.6			10.7			15.9			19.7	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

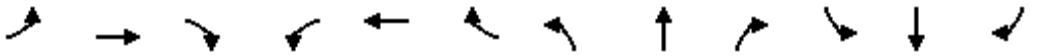
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	5	3	10	21	134	1	491	7	25	370	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5			3.5			3.5	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			0.98			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.97			0.88			1.00			1.00	
Flt Protected		0.98			1.00			1.00			1.00	
Satd. Flow (prot)		3339			3050			3530			3516	
Flt Permitted		0.88			0.95			0.95			0.92	
Satd. Flow (perm)		3020			2895			3371			3238	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	8	5	3	10	21	134	1	491	7	25	370	8
RTOR Reduction (vph)	0	2	0	0	93	0	0	2	0	0	3	0
Lane Group Flow (vph)	0	14	0	0	72	0	0	497	0	0	400	0
Confl. Peds. (#/hr)	5		4	4		5	10		12	12		10
Confl. Bikes (#/hr)						3			1			7
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Actuated Green, G (s)		18.5			18.5			34.5			34.5	
Effective Green, g (s)		18.5			18.5			34.5			34.5	
Actuated g/C Ratio		0.31			0.31			0.58			0.58	
Clearance Time (s)		3.5			3.5			3.5			3.5	
Lane Grp Cap (vph)		931			892			1938			1861	
v/s Ratio Prot												
v/s Ratio Perm		0.00			c0.02			c0.15			0.12	
v/c Ratio		0.01			0.08			0.26			0.22	
Uniform Delay, d1		14.4			14.7			6.4			6.2	
Progression Factor		1.00			1.00			1.00			1.56	
Incremental Delay, d2		0.0			0.2			0.3			0.3	
Delay (s)		14.4			14.9			6.7			9.9	
Level of Service		B			B			A			A	
Approach Delay (s)		14.4			14.9			6.7			9.9	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	51.5%	ICU Level of Service	A
Analysis Period (min)	15		

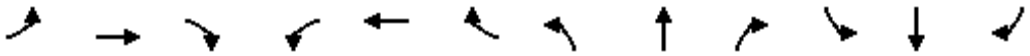
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	258	182	0	0	152	275	157	537	202	306	0	580
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			0.98		1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frt	1.00	1.00			0.90		1.00	0.96		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1367	3312			2562		972	2929		1556		2472
Flt Permitted	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (perm)	1367	3312			2562		972	2929		1556		2472
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	258	182	0	0	152	275	157	537	202	306	0	580
RTOR Reduction (vph)	0	0	0	0	239	0	0	30	0	0	0	455
Lane Group Flow (vph)	258	182	0	0	188	0	141	725	0	306	0	125
Confl. Peds. (#/hr)						17						
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	32%	9%	0%	0%	25%	24%	69%	12%	12%	16%	0%	15%
Turn Type	Prot	NA			NA		Split	NA		Prot		custom
Protected Phases	1	6			2		4	4		3		3
Permitted Phases												
Actuated Green, G (s)	21.0	37.3			12.8		26.2	26.2		21.1		21.1
Effective Green, g (s)	21.0	37.3			12.8		26.2	26.2		21.1		21.1
Actuated g/C Ratio	0.22	0.38			0.13		0.27	0.27		0.22		0.22
Clearance Time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	294	1265			336		260	786		336		534
v/s Ratio Prot	c0.19	0.05			c0.07		0.15	c0.25		c0.20		0.05
v/s Ratio Perm												
v/c Ratio	0.88	0.14			0.56		0.54	0.92		0.91		0.23
Uniform Delay, d1	37.1	19.7			39.8		30.6	34.7		37.3		31.6
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	23.5	0.0			1.6		1.8	16.2		27.7		0.2
Delay (s)	60.6	19.7			41.4		32.4	50.9		65.0		31.7
Level of Service	E	B			D		C	D		E		C
Approach Delay (s)		43.7			41.4			48.0			43.2	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	44.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	97.6	Sum of lost time (s)	16.5
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		

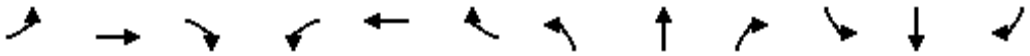
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	93	751	22	144	797	252	20	127	118	381	169	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.97			0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		0.99	1.00	
Frt	1.00	1.00		1.00	0.96			0.94		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1770	3382		1770	3226			1718		1750	1726	
Flt Permitted	0.95	1.00		0.95	1.00			0.97		0.53	1.00	
Satd. Flow (perm)	1770	3382		1770	3226			1672		972	1726	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	93	751	22	144	797	252	20	127	118	381	169	84
RTOR Reduction (vph)	0	2	0	0	33	0	0	34	0	0	21	0
Lane Group Flow (vph)	93	771	0	144	1016	0	0	231	0	381	232	0
Confl. Peds. (#/hr)			49			78	39		15	15		39
Confl. Bikes (#/hr)			12			8			10			24
Heavy Vehicles (%)	2%	6%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	6.6	32.7		9.5	35.6			36.8		36.8	36.8	
Effective Green, g (s)	6.6	32.7		9.5	35.6			36.8		36.8	36.8	
Actuated g/C Ratio	0.07	0.36		0.11	0.40			0.41		0.41	0.41	
Clearance Time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	129	1228		186	1276			683		397	705	
v/s Ratio Prot	0.05	c0.23		0.08	c0.32						0.13	
v/s Ratio Perm								0.14		c0.39		
v/c Ratio	0.72	0.63		0.77	0.80			0.34		0.96	0.33	
Uniform Delay, d1	40.8	23.6		39.2	24.0			18.2		25.9	18.2	
Progression Factor	0.95	0.92		0.90	0.84			1.00		1.00	1.00	
Incremental Delay, d2	15.4	0.7		16.5	5.2			0.1		34.1	0.1	
Delay (s)	54.2	22.5		52.0	25.5			18.4		60.0	18.3	
Level of Service	D	C		D	C			B		E	B	
Approach Delay (s)		25.9			28.7			18.4			43.3	
Approach LOS		C			C			B			D	

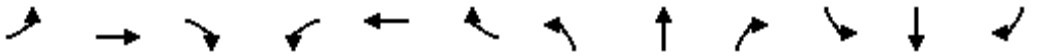
Intersection Summary			
HCM 2000 Control Delay	30.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	1719	37	72	1390	276	30	121	123	90	124	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	0.99			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.92			0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00			0.98	
Satd. Flow (prot)	1768	3390		1055	3471	1486	1580	2025			3102	
Flt Permitted	0.10	1.00		0.09	1.00	1.00	0.56	1.00			0.79	
Satd. Flow (perm)	191	3390		101	3471	1486	938	2025			2476	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	61	1719	37	72	1390	276	30	121	123	90	124	69
RTOR Reduction (vph)	0	2	0	0	0	124	0	10	0	0	21	0
Lane Group Flow (vph)	61	1754	0	72	1390	152	30	234	0	0	262	0
Confl. Peds. (#/hr)	18		4	4		18	4		3	3		4
Confl. Bikes (#/hr)			9			7			9			
Heavy Vehicles (%)	2%	6%	11%	71%	4%	6%	14%	50%	76%	2%	20%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	44.0	44.0		44.0	44.0	44.0	28.0	28.0			28.0	
Effective Green, g (s)	44.0	44.0		44.0	44.0	44.0	28.0	28.0			28.0	
Actuated g/C Ratio	0.55	0.55		0.55	0.55	0.55	0.35	0.35			0.35	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)	105	1864		55	1909	817	328	708			866	
v/s Ratio Prot		0.52			0.40			c0.12				
v/s Ratio Perm	0.32			c0.71		0.10	0.03				0.11	
v/c Ratio	0.58	0.94		1.31	0.73	0.19	0.09	0.33			0.30	
Uniform Delay, d1	11.9	16.8		18.0	13.5	9.0	17.5	19.1			18.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	
Incremental Delay, d2	21.3	10.9		224.8	2.5	0.5	0.6	1.3			0.9	
Delay (s)	33.3	27.7		242.8	16.0	9.5	18.0	20.4			19.8	
Level of Service	C	C		F	B	A	B	C			B	
Approach Delay (s)		27.9			24.4			20.1			19.8	
Approach LOS		C			C			C			B	

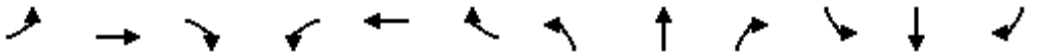
Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	112.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	178	1465	49	25	985	62	524	440	40	85	71	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.98	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1670	4285		1769	4533		1752	1863	1548	1765	3539	1242
Flt Permitted	0.22	1.00		0.11	1.00		0.71	1.00	1.00	0.32	1.00	1.00
Satd. Flow (perm)	387	4285		197	4533		1307	1863	1548	601	3539	1242
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	178	1465	49	25	985	62	524	440	40	85	71	188
RTOR Reduction (vph)	0	4	0	0	8	0	0	0	16	0	0	45
Lane Group Flow (vph)	178	1510	0	25	1039	0	524	440	24	85	71	143
Confl. Peds. (#/hr)	5		1	1		5			7	7		
Confl. Bikes (#/hr)			9			3			8			
Heavy Vehicles (%)	8%	21%	2%	2%	14%	2%	3%	2%	2%	2%	2%	30%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	42.0	42.0		42.0	42.0		33.5	33.5	33.5	33.5	33.5	33.5
Effective Green, g (s)	42.0	42.0		42.0	42.0		33.5	33.5	33.5	33.5	33.5	33.5
Actuated g/C Ratio	0.49	0.49		0.49	0.49		0.39	0.39	0.39	0.39	0.39	0.39
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	191	2117		97	2239		515	734	610	236	1394	489
v/s Ratio Prot		0.35			0.23			0.24			0.02	
v/s Ratio Perm	c0.46			0.13			c0.40		0.02	0.14		0.11
v/c Ratio	0.93	0.71		0.26	0.46		1.02	0.60	0.04	0.36	0.05	0.29
Uniform Delay, d1	20.2	16.8		12.5	14.1		25.8	20.4	15.8	18.2	15.9	17.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	49.4	2.1		0.5	0.1		44.1	3.6	0.1	4.2	0.1	1.5
Delay (s)	69.6	18.9		13.0	14.2		69.9	24.0	16.0	22.4	16.0	19.1
Level of Service	E	B		B	B		E	C	B	C	B	B
Approach Delay (s)		24.2			14.1			47.6			19.3	
Approach LOS		C			B			D			B	

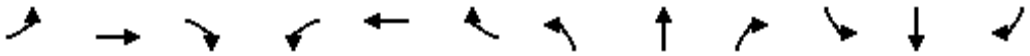
Intersection Summary			
HCM 2000 Control Delay	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	82.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	18	162	553	48	131	0	0	107	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	1.00			0.95	1.00
Frpb, ped/bikes					1.00	0.98	1.00	1.00			1.00	0.98
Flpb, ped/bikes					1.00	1.00	0.99	1.00			1.00	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3518	1550	1753	1111			2865	1548
Flt Permitted					1.00	1.00	0.68	1.00			1.00	1.00
Satd. Flow (perm)					3518	1550	1263	1111			2865	1548
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	18	162	553	48	131	0	0	107	24
RTOR Reduction (vph)	0	0	0	0	0	470	0	0	0	0	0	6
Lane Group Flow (vph)	0	0	0	0	180	83	48	131	0	0	107	18
Confl. Peds. (#/hr)				10		10	10					10
Heavy Vehicles (%)	0%	13%	100%	2%	2%	2%	2%	71%	83%	0%	26%	2%
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					4			6			2	
Permitted Phases				4		4	6					2
Actuated Green, G (s)					13.5	13.5	67.0	67.0			67.0	67.0
Effective Green, g (s)					13.5	13.5	67.0	67.0			67.0	67.0
Actuated g/C Ratio					0.15	0.15	0.74	0.74			0.74	0.74
Clearance Time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Vehicle Extension (s)					2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)					527	232	940	827			2132	1152
v/s Ratio Prot								c0.12			0.04	
v/s Ratio Perm					0.05	c0.05	0.04					0.01
v/c Ratio					0.34	0.36	0.05	0.16			0.05	0.02
Uniform Delay, d1					34.3	34.4	3.1	3.3			3.1	3.0
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					0.1	0.3	0.0	0.0			0.0	0.0
Delay (s)					34.4	34.7	3.1	3.4			3.1	3.0
Level of Service					C	C	A	A			A	A
Approach Delay (s)		0.0			34.6			3.3			3.1	
Approach LOS		A			C			A			A	

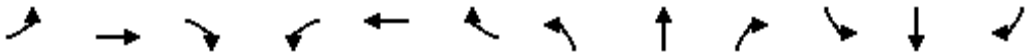
Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	944	65	41	112	26	107	268	148	142	164	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.97		1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.99	
Satd. Flow (prot)	1770	3372		1770	3430		1770	2023		1610	2119	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.99	
Satd. Flow (perm)	1770	3372		1770	3430		1770	2023		1610	2119	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	26	944	65	41	112	26	107	268	148	142	164	14
RTOR Reduction (vph)	0	3	0	0	13	0	0	49	0	0	3	0
Lane Group Flow (vph)	26	1006	0	41	125	0	107	367	0	105	212	0
Confl. Peds. (#/hr)						1			2			6
Heavy Vehicles (%)	2%	5%	21%	2%	2%	2%	2%	57%	88%	2%	78%	2%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Actuated Green, G (s)	3.4	41.6		5.8	44.5		27.0	27.0		17.4	17.4	
Effective Green, g (s)	3.4	41.6		5.8	44.5		27.0	27.0		17.4	17.4	
Actuated g/C Ratio	0.03	0.39		0.05	0.41		0.25	0.25		0.16	0.16	
Clearance Time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.5	3.0		3.2	3.2		3.0	3.0	
Lane Grp Cap (vph)	55	1301		95	1415		443	506		259	342	
v/s Ratio Prot	0.01	c0.30		c0.02	c0.04		0.06	c0.18		0.07	c0.10	
v/s Ratio Perm												
v/c Ratio	0.47	0.77		0.43	0.09		0.24	0.72		0.41	0.62	
Uniform Delay, d1	51.3	29.0		49.4	19.3		32.2	37.0		40.6	42.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.3	2.9		2.3	0.0		0.3	5.2		1.0	3.3	
Delay (s)	53.6	31.9		51.7	19.3		32.5	42.2		41.6	45.4	
Level of Service	D	C		D	B		C	D		D	D	
Approach Delay (s)		32.4			26.7			40.2			44.2	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	107.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

2035 + Project Commercial Alternative AM

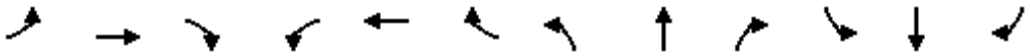


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	66	1265	79	279	1368	247	62	169	197	370	564	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3498		1770	3539	1518	1770	1863	1540	1770	1793	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3498		1770	3539	1518	1770	1863	1540	1770	1793	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	1375	86	303	1487	268	67	184	214	402	613	174
RTOR Reduction (vph)	0	8	0	0	0	100	0	0	133	0	17	0
Lane Group Flow (vph)	72	1453	0	303	1487	168	67	184	81	402	770	0
Confl. Peds. (#/hr)			32			7			5			6
Confl. Bikes (#/hr)			4			9			11			3
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			
Actuated Green, G (s)	2.3	18.9		7.0	23.6	23.6	2.3	14.6	14.6	4.0	16.3	
Effective Green, g (s)	2.3	18.9		7.0	23.6	23.6	2.3	14.6	14.6	4.0	16.3	
Actuated g/C Ratio	0.04	0.31		0.12	0.39	0.39	0.04	0.24	0.24	0.07	0.27	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	67	1092		204	1380	592	67	449	371	117	483	
v/s Ratio Prot	0.04	c0.42		c0.17	0.42		0.04	0.10		c0.23	c0.43	
v/s Ratio Perm						0.11			0.05			
v/c Ratio	1.07	1.33		1.49	1.08	0.28	1.00	0.41	0.22	3.44	1.59	
Uniform Delay, d1	29.1	20.8		26.8	18.4	12.7	29.1	19.3	18.4	28.2	22.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	132.0	155.3		242.7	48.1	0.3	110.0	0.6	0.3	1117.4	277.2	
Delay (s)	161.1	176.1		269.4	66.5	12.9	139.1	19.9	18.7	1145.7	299.3	
Level of Service	F	F		F	E	B	F	B	B	F	F	
Approach Delay (s)		175.4			89.4			36.5			585.5	
Approach LOS		F			F			D			F	

Intersection Summary			
HCM 2000 Control Delay	222.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.67		
Actuated Cycle Length (s)	60.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	109.4%	ICU Level of Service	H
Analysis Period (min)	15		

Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group

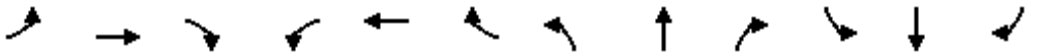


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	249	941	912	128	1149	190	864	784	45	165	1350	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.94		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.98		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3084		1770	3424		3433	3496		1770	3407	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3084		1770	3424		3433	3496		1770	3407	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	271	1023	991	139	1249	207	939	852	49	179	1467	277
RTOR Reduction (vph)	0	159	0	0	12	0	0	4	0	0	14	0
Lane Group Flow (vph)	271	1855	0	139	1444	0	939	897	0	179	1730	0
Confl. Peds. (#/hr)			83			52			53			68
Confl. Bikes (#/hr)			15			8			15			12
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	17.0	35.0		11.0	29.0		15.0	37.1		13.9	35.0	
Effective Green, g (s)	17.0	35.0		11.0	29.0		15.0	37.1		13.9	35.0	
Actuated g/C Ratio	0.15	0.32		0.10	0.26		0.14	0.34		0.13	0.32	
Clearance Time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.0	2.0		2.0	4.0		2.5	4.0	
Lane Grp Cap (vph)	273	981		177	902		468	1179		223	1084	
v/s Ratio Prot	c0.15	c0.60		0.08	0.42		c0.27	0.26		0.10	c0.51	
v/s Ratio Perm												
v/c Ratio	0.99	1.89		0.79	1.60		2.01	0.76		0.80	1.60	
Uniform Delay, d1	46.4	37.5		48.3	40.5		47.5	32.5		46.7	37.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	52.2	404.8		18.7	275.7		460.4	4.7		18.0	272.4	
Delay (s)	98.6	442.3		67.0	316.2		507.9	37.2		64.7	309.9	
Level of Service	F	F		E	F		F	D		E	F	
Approach Delay (s)		401.6			294.5			277.4			287.1	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	320.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.69		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	151.3%	ICU Level of Service	H
Analysis Period (min)	15		

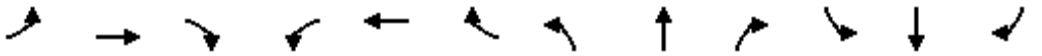
Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group



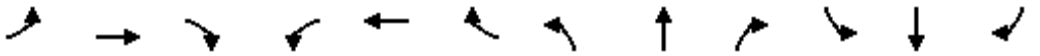
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	538	81	12	299	0	0	0	0	631	897	576
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5					6.5	6.5	6.5
Lane Util. Factor		0.95			0.91					0.91	0.91	1.00
Frpb, ped/bikes		0.99			1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Frt		0.98			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	0.99	1.00
Satd. Flow (prot)		3449			5074					1610	3368	1550
Flt Permitted		1.00			0.87					0.95	0.99	1.00
Satd. Flow (perm)		3449			4440					1610	3368	1550
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	538	81	12	299	0	0	0	0	631	897	576
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	0	0	0	62
Lane Group Flow (vph)	0	604	0	0	311	0	0	0	0	492	1036	514
Confl. Peds. (#/hr)	20		20	20								20
Turn Type		NA		Perm	NA					Perm	NA	Perm
Protected Phases		1			1						2	
Permitted Phases				1						2		2
Actuated Green, G (s)		17.0			17.0					51.0	51.0	51.0
Effective Green, g (s)		17.0			17.0					51.0	51.0	51.0
Actuated g/C Ratio		0.21			0.21					0.64	0.64	0.64
Clearance Time (s)		5.5			5.5					6.5	6.5	6.5
Lane Grp Cap (vph)		732			943					1026	2147	988
v/s Ratio Prot		c0.18										
v/s Ratio Perm					0.07					0.31	0.31	c0.33
v/c Ratio		0.83			0.33					0.48	0.48	0.52
Uniform Delay, d1		30.1			26.7					7.6	7.6	7.9
Progression Factor		1.00			1.12					1.00	1.00	1.00
Incremental Delay, d2		10.3			0.9					1.6	0.8	2.0
Delay (s)		40.3			30.9					9.2	8.4	9.8
Level of Service		D			C					A	A	A
Approach Delay (s)		40.3			30.9			0.0			9.0	
Approach LOS		D			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



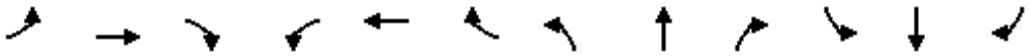
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	297	888	0	0	293	737	8	756	31	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1610	3385			3539	2704		5045				
Flt Permitted	0.95	0.95			1.00	1.00		1.00				
Satd. Flow (perm)	1610	3210			3539	2704		5045				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	297	888	0	0	293	737	8	756	31	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	180	0	5	0	0	0	0
Lane Group Flow (vph)	267	918	0	0	293	557	0	790	0	0	0	0
Confl. Peds. (#/hr)						20			20			
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	21.5	51.5			26.5	26.5		17.5				
Effective Green, g (s)	21.5	51.5			26.5	26.5		17.5				
Actuated g/C Ratio	0.27	0.64			0.33	0.33		0.22				
Clearance Time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Grp Cap (vph)	432	2113			1172	895		1103				
v/s Ratio Prot	c0.17	0.12			0.08							
v/s Ratio Perm		0.16				c0.21		0.16				
v/c Ratio	0.62	0.43			0.25	0.62		0.72				
Uniform Delay, d1	25.6	7.0			19.5	22.5		28.9				
Progression Factor	0.90	0.75			1.00	1.00		1.00				
Incremental Delay, d2	5.1	0.5			0.5	3.3		4.0				
Delay (s)	28.2	5.8			20.0	25.8		32.9				
Level of Service	C	A			C	C		C				
Approach Delay (s)		10.8			24.1			32.9			0.0	
Approach LOS		B			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	933	748	388	1621	69	213	45	335	31	21	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3312	1404	1543	3333		1243	1248	946	1203	1115	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3312	1404	1543	3333		1243	1248	946	1203	1115	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	61	933	748	388	1621	69	213	45	335	31	21	20
RTOR Reduction (vph)	0	0	337	0	2	0	0	0	285	0	19	0
Lane Group Flow (vph)	61	933	411	388	1688	0	128	130	50	31	22	0
Confl. Peds. (#/hr)						1			3			
Heavy Vehicles (%)	0%	9%	15%	17%	7%	21%	38%	44%	68%	50%	75%	40%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases			2						8			
Actuated Green, G (s)	5.5	46.5	46.5	33.9	74.9		17.9	17.9	17.9	4.5	4.5	
Effective Green, g (s)	5.5	46.5	46.5	33.9	74.9		17.9	17.9	17.9	4.5	4.5	
Actuated g/C Ratio	0.05	0.39	0.39	0.28	0.63		0.15	0.15	0.15	0.04	0.04	
Clearance Time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.5	3.5	3.5	2.0	3.5		3.0	3.0	3.0	2.0	2.0	
Lane Grp Cap (vph)	83	1290	547	438	2092		186	187	141	45	42	
v/s Ratio Prot	0.03	0.28		c0.25	c0.51		0.10	c0.10		c0.03	0.02	
v/s Ratio Perm			0.29						0.05			
v/c Ratio	0.73	0.72	0.75	0.89	0.81		0.69	0.70	0.36	0.69	0.52	
Uniform Delay, d1	56.2	30.9	31.4	40.8	16.7		48.1	48.1	45.5	56.7	56.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	26.9	2.1	5.9	18.4	2.4		10.1	10.7	1.5	29.5	4.4	
Delay (s)	83.1	33.0	37.3	59.3	19.2		58.2	58.8	47.1	86.3	60.8	
Level of Service	F	C	D	E	B		E	E	D	F	E	
Approach Delay (s)		36.6			26.7			52.0			71.7	
Approach LOS		D			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	34.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	119.3	Sum of lost time (s)	16.5
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

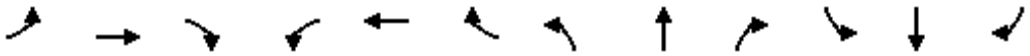


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	865	284	284	1387	343	526	233	514	324	241	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.90		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.99	
Satd. Flow (prot)	1014	2904		1299	3438	1369	1480	2543		1480	2316	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.99	
Satd. Flow (perm)	1014	2904		1299	3438	1369	1480	2543		1480	2316	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	155	865	284	284	1387	343	526	233	514	324	241	180
RTOR Reduction (vph)	0	23	0	0	0	168	0	201	0	0	52	0
Lane Group Flow (vph)	155	1126	0	284	1387	175	526	546	0	253	440	0
Confl. Peds. (#/hr)									1			
Heavy Vehicles (%)	78%	14%	37%	39%	5%	18%	22%	42%	19%	11%	45%	45%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	16.5	42.0		22.5	48.0	48.0	39.5	39.5		19.0	19.0	
Effective Green, g (s)	16.5	42.0		22.5	48.0	48.0	39.5	39.5		19.0	19.0	
Actuated g/C Ratio	0.12	0.30		0.16	0.34	0.34	0.28	0.28		0.14	0.14	
Clearance Time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	119	874		209	1182	471	419	720		201	315	
v/s Ratio Prot	0.15	c0.39		c0.22	0.40		c0.36	0.21		0.17	c0.19	
v/s Ratio Perm						0.13						
v/c Ratio	1.30	1.29		1.36	1.17	0.37	1.26	0.88dr		1.26	1.40	
Uniform Delay, d1	61.5	48.8		58.5	45.8	34.4	50.0	45.6		60.2	60.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	184.3	138.3		189.3	87.3	0.5	133.1	4.4		150.2	197.1	
Delay (s)	245.8	187.1		247.8	133.0	34.9	183.1	50.0		210.4	257.3	
Level of Service	F	F		F	F	C	F	D		F	F	
Approach Delay (s)		194.1			132.5			105.0			241.4	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	156.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	139.5	Sum of lost time (s)	16.5
Intersection Capacity Utilization	106.6%	ICU Level of Service	G
Analysis Period (min)	15		

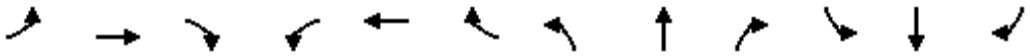
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1646	79	140	1232	0	0	0	0	494	361	530
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						5.0	
Lane Util. Factor		0.91		1.00	0.95						0.95	
Frpb, ped/bikes		1.00		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.99		1.00	1.00						0.94	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		4952		1770	3343						3145	
Flt Permitted		1.00		0.09	1.00						0.98	
Satd. Flow (perm)		4952		162	3343						3145	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1646	79	140	1232	0	0	0	0	494	361	530
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	31	0
Lane Group Flow (vph)	0	1719	0	140	1232	0	0	0	0	0	1354	0
Confl. Peds. (#/hr)			8	8						10		10
Heavy Vehicles (%)	6%	4%	2%	2%	8%	2%	0%	0%	0%	2%	2%	11%
Turn Type		NA		Perm	NA					Split	NA	
Protected Phases		4			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		46.0		46.0	46.0						31.0	
Effective Green, g (s)		46.0		46.0	46.0						31.0	
Actuated g/C Ratio		0.53		0.53	0.53						0.36	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		2618		85	1767						1120	
v/s Ratio Prot		0.35			0.37						c0.43	
v/s Ratio Perm				c0.86								
v/c Ratio		0.66		1.65	0.70						1.21	
Uniform Delay, d1		14.8		20.5	15.3						28.0	
Progression Factor		1.00		0.40	0.34						1.00	
Incremental Delay, d2		0.5		313.3	0.4						102.6	
Delay (s)		15.3		321.4	5.7						130.6	
Level of Service		B		F	A						F	
Approach Delay (s)		15.3			37.9			0.0			130.6	
Approach LOS		B			D			A			F	

Intersection Summary			
HCM 2000 Control Delay	57.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.46		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	156.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



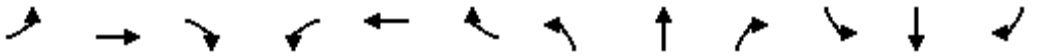
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	388	1752	0	0	1221	462	151	438	117	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0				
Lane Util. Factor	1.00	0.95			0.95			0.95				
Frpb, ped/bikes	1.00	1.00			0.99			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.96			0.98				
Flt Protected	0.95	1.00			1.00			0.99				
Satd. Flow (prot)	1770	3539			3366			3402				
Flt Permitted	0.09	1.00			1.00			0.99				
Satd. Flow (perm)	162	3539			3366			3402				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	388	1752	0	0	1221	462	151	438	117	0	0	0
RTOR Reduction (vph)	0	0	0	0	45	0	0	8	0	0	0	0
Lane Group Flow (vph)	388	1752	0	0	1638	0	0	698	0	0	0	0
Confl. Peds. (#/hr)	10					10			10			
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)	46.0	46.0			46.0			31.0				
Effective Green, g (s)	46.0	46.0			46.0			31.0				
Actuated g/C Ratio	0.53	0.53			0.53			0.36				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Vehicle Extension (s)	2.0	2.0			2.0			2.0				
Lane Grp Cap (vph)	85	1871			1779			1212				
v/s Ratio Prot		0.50			0.49			c0.21				
v/s Ratio Perm	c2.40											
v/c Ratio	4.56	0.94			0.92			0.58				
Uniform Delay, d1	20.5	19.1			18.8			22.7				
Progression Factor	0.66	0.63			1.00			1.00				
Incremental Delay, d2	1620.1	6.1			8.2			0.4				
Delay (s)	1633.7	18.1			27.0			23.1				
Level of Service	F	B			C			C				
Approach Delay (s)		311.0			27.0			23.1			0.0	
Approach LOS		F			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	160.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.94		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	156.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	1318	127	107	1865	20	61	101	45	22	145	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.95		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3420		1768	3400		1755	1762		1758	1776	
Flt Permitted	0.08	1.00		0.11	1.00		0.59	1.00		0.66	1.00	
Satd. Flow (perm)	157	3420		196	3400		1082	1762		1229	1776	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	48	1318	127	107	1865	20	61	101	45	22	145	51
RTOR Reduction (vph)	0	9	0	0	1	0	0	20	0	0	10	0
Lane Group Flow (vph)	48	1436	0	107	1884	0	61	126	0	22	186	0
Confl. Peds. (#/hr)	8		7	7		8	11		8	8		11
Confl. Bikes (#/hr)			9			11			8			10
Heavy Vehicles (%)	2%	4%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	47.5	47.5		47.5	47.5		24.0	24.0		24.0	24.0	
Effective Green, g (s)	47.5	47.5		47.5	47.5		24.0	24.0		24.0	24.0	
Actuated g/C Ratio	0.59	0.59		0.59	0.59		0.30	0.30		0.30	0.30	
Clearance Time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	93	2030		116	2018		324	528		368	532	
v/s Ratio Prot		0.42			c0.55			0.07			c0.10	
v/s Ratio Perm	0.31			0.55			0.06			0.02		
v/c Ratio	0.52	0.71		0.92	0.93		0.19	0.24		0.06	0.35	
Uniform Delay, d1	9.5	11.4		14.6	14.8		20.8	21.1		20.0	21.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	19.0	2.1		64.7	9.5		1.3	1.1		0.3	1.8	
Delay (s)	28.5	13.5		79.3	24.3		22.1	22.2		20.3	23.7	
Level of Service	C	B		E	C		C	C		C	C	
Approach Delay (s)		14.0			27.3			22.1			23.4	
Approach LOS		B			C			C			C	

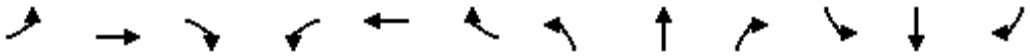
Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	140.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	1060	251	56	1373	13	495	281	107	4	120	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Lane Util. Factor		0.95			0.95	1.00	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes		0.99			1.00	0.94	1.00	1.00	0.95		1.00	0.95
Flpb, ped/bikes		1.00			1.00	1.00	0.98	1.00	1.00		1.00	1.00
Frt		0.97			1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected		1.00			1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)		3319			3299	1488	1646	1845	1508		1859	1519
Flt Permitted		0.72			0.72	1.00	0.66	1.00	1.00		0.99	1.00
Satd. Flow (perm)		2392			2378	1488	1150	1845	1508		1848	1519
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	1060	251	56	1373	13	495	281	107	4	120	149
RTOR Reduction (vph)	0	22	0	0	0	3	0	0	43	0	0	19
Lane Group Flow (vph)	0	1339	0	0	1429	10	495	281	64	0	124	130
Confl. Peds. (#/hr)	21		15	15		21	27		25	25		27
Confl. Bikes (#/hr)			18			17			16			17
Heavy Vehicles (%)	2%	5%	3%	39%	8%	2%	7%	3%	2%	2%	2%	1%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		4
Actuated Green, G (s)		47.5			47.5	47.5	33.5	33.5	33.5		33.5	33.5
Effective Green, g (s)		47.5			47.5	47.5	33.5	33.5	33.5		33.5	33.5
Actuated g/C Ratio		0.53			0.53	0.53	0.37	0.37	0.37		0.37	0.37
Clearance Time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Vehicle Extension (s)		2.0			2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1262			1255	785	428	686	561		687	565
v/s Ratio Prot								0.15				
v/s Ratio Perm		0.56			c0.60	0.01	c0.43		0.04		0.07	0.09
v/c Ratio		1.06			1.14	0.01	1.16	0.41	0.11		0.18	0.23
Uniform Delay, d1		21.2			21.2	10.1	28.2	20.9	18.5		19.0	19.4
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2		43.3			72.5	0.0	93.8	0.1	0.0		0.0	0.1
Delay (s)		64.5			93.8	10.1	122.0	21.1	18.6		19.1	19.5
Level of Service		E			F	B	F	C	B		B	B
Approach Delay (s)		64.5			93.0			77.4			19.3	
Approach LOS		E			F			E			B	

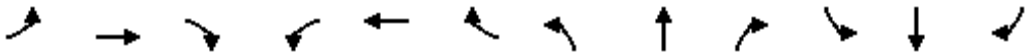
Intersection Summary			
HCM 2000 Control Delay	74.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	121.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	74	884	247	69	1335	220	101	691	32	60	1218	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3432	1510	1764	3252	1540	1669	3512		1762	3538	
Flt Permitted		0.59	1.00	0.18	1.00	1.00	0.11	1.00		0.31	1.00	
Satd. Flow (perm)		2042	1510	335	3252	1540	191	3512		573	3538	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	74	884	247	69	1335	220	101	691	32	60	1218	3
RTOR Reduction (vph)	0	0	18	0	0	66	0	4	0	0	0	0
Lane Group Flow (vph)	0	958	229	69	1335	154	101	719	0	60	1221	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Heavy Vehicles (%)	2%	5%	4%	2%	11%	2%	8%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4		4	2			6		
Actuated Green, G (s)		37.0	37.0	37.0	37.0	37.0	38.5	38.5		38.5	38.5	
Effective Green, g (s)		37.0	37.0	37.0	37.0	37.0	38.5	38.5		38.5	38.5	
Actuated g/C Ratio		0.44	0.44	0.44	0.44	0.44	0.45	0.45		0.45	0.45	
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0		4.0	4.0	
Lane Grp Cap (vph)		888	657	145	1415	670	86	1590		259	1602	
v/s Ratio Prot					0.41			0.20			0.35	
v/s Ratio Perm		c0.47	0.15	0.21		0.10	c0.53			0.10		
v/c Ratio		1.08	0.35	0.48	0.94	0.23	1.17	0.45		0.23	0.76	
Uniform Delay, d1		24.0	16.0	17.1	23.0	15.1	23.2	16.0		14.2	19.4	
Progression Factor		1.00	1.00	1.42	1.01	1.89	1.00	1.00		1.00	1.00	
Incremental Delay, d2		53.8	1.5	8.9	11.8	0.7	151.5	0.4		0.6	2.3	
Delay (s)		77.8	17.4	33.1	35.0	29.0	174.8	16.4		14.8	21.8	
Level of Service		E	B	C	D	C	F	B		B	C	
Approach Delay (s)		65.4			34.1			35.8			21.4	
Approach LOS		E			C			D			C	

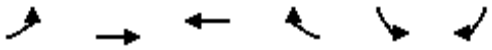
Intersection Summary			
HCM 2000 Control Delay	38.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	121.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	863	27	119	1447	32	18	109	263	37	99	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.97		1.00	0.94		0.97	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1589	3124	1361	1505	3185	1375		3152	1174		2853	
Flt Permitted	0.14	1.00	1.00	0.31	1.00	1.00		0.90	1.00		0.89	
Satd. Flow (perm)	242	3124	1361	491	3185	1375		2843	1174		2565	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	55	863	27	119	1447	32	18	109	263	37	99	105
RTOR Reduction (vph)	0	0	7	0	0	5	0	0	120	0	33	0
Lane Group Flow (vph)	55	863	20	119	1447	27	0	127	143	0	208	0
Confl. Peds. (#/hr)	22		31	31		22	34		37	37		34
Confl. Bikes (#/hr)			7			3			12			19
Heavy Vehicles (%)	2%	4%	2%	7%	2%	2%	2%	2%	16%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4		4	2		2	2		
Actuated Green, G (s)	61.4	61.4	61.4	61.4	61.4	61.4		15.1	15.1		15.1	
Effective Green, g (s)	61.4	61.4	61.4	61.4	61.4	61.4		15.1	15.1		15.1	
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72	0.72		0.18	0.18		0.18	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	174	2256	983	354	2300	993		505	208		455	
v/s Ratio Prot		0.28			c0.45							
v/s Ratio Perm	0.23		0.01	0.24		0.02		0.04	c0.12		0.08	
v/c Ratio	0.32	0.38	0.02	0.34	0.63	0.03		0.25	0.69		0.46	
Uniform Delay, d1	4.2	4.5	3.3	4.3	6.0	3.3		30.1	32.7		31.3	
Progression Factor	1.06	0.78	0.71	2.78	2.63	3.05		1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.0	0.0	0.2	0.1	0.0		0.1	7.3		0.3	
Delay (s)	4.9	3.6	2.4	12.2	15.9	10.2		30.2	40.0		31.5	
Level of Service	A	A	A	B	B	B		C	D		C	
Approach Delay (s)		3.6			15.5			36.8			31.5	
Approach LOS		A			B			D			C	

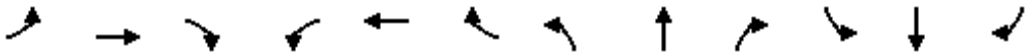
Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



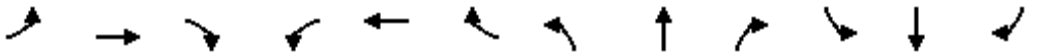
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	503	601	1428	122	663	242
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.99	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1593	3008	3036	1343	3048	1191
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1593	3008	3036	1343	3048	1191
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	503	601	1428	122	663	242
RTOR Reduction (vph)	0	0	0	34	3	162
Lane Group Flow (vph)	503	601	1428	88	684	56
Confl. Peds. (#/hr)				15	15	15
Heavy Vehicles (%)	2%	8%	7%	5%	3%	8%
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	19.0	55.0	32.0	32.0	22.0	22.0
Effective Green, g (s)	19.0	55.0	32.0	32.0	22.0	22.0
Actuated g/C Ratio	0.22	0.65	0.38	0.38	0.26	0.26
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	356	1946	1142	505	788	308
v/s Ratio Prot	c0.32	0.20	c0.47		c0.22	
v/s Ratio Perm				0.07		0.05
v/c Ratio	1.41	0.31	1.25	0.17	0.87	0.18
Uniform Delay, d1	33.0	6.6	26.5	17.7	30.1	24.5
Progression Factor	0.68	1.52	0.97	1.15	1.00	1.00
Incremental Delay, d2	200.6	0.4	115.0	0.0	9.7	0.1
Delay (s)	223.1	10.4	140.6	20.4	39.8	24.6
Level of Service	F	B	F	C	D	C
Approach Delay (s)		107.3	131.1		36.1	
Approach LOS		F	F		D	

Intersection Summary			
HCM 2000 Control Delay	99.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	108.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	72	864	53	136	1132	112	173	481	158	116	424	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00	0.92	1.00	0.98	
Flpb, ped/bikes	1.00	1.00			1.00		0.98	1.00	1.00	0.97	1.00	
Frt	1.00	0.99			0.99		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00			1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1586	3148			3112		1562	3185	1306	1546	3008	
Flt Permitted	0.11	1.00			0.69		0.32	1.00	1.00	0.39	1.00	
Satd. Flow (perm)	190	3148			2143		534	3185	1306	630	3008	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	72	864	53	136	1132	112	173	481	158	116	424	143
RTOR Reduction (vph)	0	5	0	0	7	0	0	0	74	0	37	0
Lane Group Flow (vph)	72	912	0	0	1373	0	173	481	84	116	530	0
Confl. Peds. (#/hr)	46		47	47		46	57		65	65		57
Confl. Bikes (#/hr)			9			21			15			22
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	48.9	48.9			48.9		28.1	28.1	28.1	28.1	28.1	
Effective Green, g (s)	48.9	48.9			48.9		28.1	28.1	28.1	28.1	28.1	
Actuated g/C Ratio	0.58	0.58			0.58		0.33	0.33	0.33	0.33	0.33	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	109	1811			1232		176	1052	431	208	994	
v/s Ratio Prot		0.29						0.15			0.18	
v/s Ratio Perm	0.38				c0.64		c0.32		0.06	0.18		
v/c Ratio	0.66	0.50			1.11		0.98	0.46	0.20	0.56	0.53	
Uniform Delay, d1	12.4	10.8			18.1		28.2	22.4	20.4	23.3	23.1	
Progression Factor	0.35	0.27			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	23.2	0.8			63.0		62.3	0.1	0.1	1.8	0.3	
Delay (s)	27.6	3.8			81.1		90.5	22.6	20.4	25.2	23.4	
Level of Service	C	A			F		F	C	C	C	C	
Approach Delay (s)		5.5			81.1			36.6			23.7	
Approach LOS		A			F			D			C	

Intersection Summary			
HCM 2000 Control Delay	42.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	120.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	90	158	165	465	866	101	421	1249	423	28	1179	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	5.5		5.5	5.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		1.00	1.00
Satd. Flow (prot)	3090	3154	1352	3090	3185	1352		4513	1352		4571	1352
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.66	1.00		0.81	1.00
Satd. Flow (perm)	3090	3154	1352	3090	3185	1352		3032	1352		3713	1352
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	90	158	165	465	866	101	421	1249	423	28	1179	207
RTOR Reduction (vph)	0	0	81	0	0	50	0	0	242	0	0	83
Lane Group Flow (vph)	90	158	84	465	866	51	0	1670	181	0	1207	124
Confl. Peds. (#/hr)			40			40	40		40	40		40
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases			8			4	2		2	6		6
Actuated Green, G (s)	4.0	15.2	15.2	21.3	32.5	32.5		38.5	38.5		38.5	38.5
Effective Green, g (s)	4.0	15.2	15.2	21.3	32.5	32.5		38.5	38.5		38.5	38.5
Actuated g/C Ratio	0.04	0.17	0.17	0.24	0.36	0.36		0.43	0.43		0.43	0.43
Clearance Time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	5.5		5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	137	532	228	731	1150	488		1297	578		1588	578
v/s Ratio Prot	c0.03	0.05		0.15	c0.27							
v/s Ratio Perm			0.06			0.04		c0.55	0.13		0.33	0.09
v/c Ratio	0.66	0.30	0.37	0.64	0.75	0.10		3.79dl	0.31		0.76	0.21
Uniform Delay, d1	42.3	32.7	33.2	30.9	25.2	19.1		25.8	17.0		21.8	16.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	10.8	1.4	4.6	1.8	4.6	0.4		135.4	0.3		2.2	0.2
Delay (s)	53.1	34.1	37.7	32.7	29.8	19.5		161.1	17.3		24.0	16.4
Level of Service	D	C	D	C	C	B		F	B		C	B
Approach Delay (s)		39.7			30.0			132.0			22.9	
Approach LOS		D			C			F			C	

Intersection Summary			
HCM 2000 Control Delay	68.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	116.6%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

MOVEMENT SUMMARY

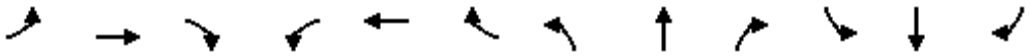
Site: 2035 + Proj Com Alt AM

Adeline & 18th
2035 + Project Commercial Alternative AM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	49	2.0	0.914	35.7	LOS E	16.2	410.6	1.00	1.43	17.8
8	T	631	2.0	0.914	35.7	LOS E	16.2	410.6	1.00	1.43	18.2
18	R	88	2.0	0.914	35.7	LOS E	16.2	410.6	1.00	1.43	18.1
Approach		768	2.0	0.914	35.7	LOS E	16.2	410.6	1.00	1.43	18.2
East: 18th Street (WB)											
1	L	27	2.0	0.761	24.2	LOS C	6.8	172.3	0.90	1.20	20.6
6	T	215	2.0	0.761	24.2	LOS C	6.8	172.3	0.90	1.16	21.4
16	R	267	2.0	0.761	24.2	LOS C	6.8	172.3	0.90	1.17	21.3
Approach		509	2.0	0.761	24.2	LOS C	6.8	172.3	0.90	1.16	21.3
North: Adeline Street (SB)											
7	L	251	2.0	0.480	9.0	LOS A	3.0	75.0	0.60	0.83	25.7
4	T	211	2.0	0.480	9.0	LOS A	3.0	75.0	0.60	0.65	27.9
14	R	40	2.0	0.480	9.0	LOS A	3.0	75.0	0.60	0.69	27.6
Approach		502	2.0	0.480	9.0	LOS A	3.0	75.0	0.60	0.74	26.7
West: 18th Street (EB)											
5	L	50	2.0	0.305	7.6	LOS A	1.4	36.7	0.61	0.94	26.6
2	T	206	2.0	0.305	7.6	LOS A	1.4	36.7	0.61	0.73	29.0
12	R	5	2.0	0.305	7.6	LOS A	1.4	36.7	0.61	0.78	28.7
Approach		261	2.0	0.305	7.6	LOS A	1.4	36.7	0.61	0.77	28.5
All Vehicles		2040	2.0	0.914	22.6	LOS C	16.2	410.6	0.83	1.11	21.7

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	206	5	27	215	267	49	631	88	251	211	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99			1.00	
Flpb, ped/bikes	1.00	1.00		0.98	1.00		0.98	1.00			0.99	
Frt	1.00	1.00		1.00	0.92		1.00	0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1762	1854		1726	1685		1741	3439			3359	
Flt Permitted	0.21	1.00		0.56	1.00		0.46	1.00			0.56	
Satd. Flow (perm)	384	1854		1019	1685		841	3439			1932	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	206	5	27	215	267	49	631	88	251	211	40
RTOR Reduction (vph)	0	1	0	0	69	0	0	14	0	0	8	0
Lane Group Flow (vph)	50	210	0	27	413	0	49	705	0	0	494	0
Confl. Peds. (#/hr)	14		44	44		14	37		71	71		37
Confl. Bikes (#/hr)			6			2			2			11
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	19.3	19.3		19.3	19.3		37.3	37.3			37.3	
Effective Green, g (s)	19.3	19.3		19.3	19.3		37.3	37.3			37.3	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.58	0.58			0.58	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Lane Grp Cap (vph)	114	553		304	503		485	1985			1115	
v/s Ratio Prot		0.11			c0.24			0.20				
v/s Ratio Perm	0.13			0.03			0.06				c0.26	
v/c Ratio	0.44	0.38		0.09	0.82		0.10	0.36			0.44	
Uniform Delay, d1	18.3	17.9		16.3	21.0		6.1	7.3			7.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	1.0	0.2		0.0	9.8		0.4	0.5			1.3	
Delay (s)	19.3	18.1		16.4	30.9		6.5	7.8			9.0	
Level of Service	B	B		B	C		A	A			A	
Approach Delay (s)		18.3			30.1			7.7			9.0	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	64.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	107.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

Site: 2035 + Proj Com Alt AM

Adeline & 14th
2035 + Project Commercial Alternative AM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	18	2.0	0.309	6.1	LOS A	1.7	42.3	0.44	0.85	27.2
8	T	309	2.0	0.309	6.1	LOS A	1.7	42.3	0.44	0.54	30.1
18	R	25	2.0	0.309	6.1	LOS A	1.7	42.3	0.44	0.61	29.6
Approach		352	2.0	0.309	6.1	LOS A	1.7	42.3	0.44	0.56	29.9
East: 14th Street (WB)											
1	L	34	2.0	0.227	5.9	LOS A	1.1	27.2	0.51	0.87	27.3
6	T	148	2.0	0.227	5.9	LOS A	1.1	27.2	0.51	0.62	30.1
16	R	42	2.0	0.227	5.9	LOS A	1.1	27.2	0.51	0.67	29.7
Approach		224	2.0	0.227	5.9	LOS A	1.1	27.2	0.51	0.66	29.6
North: Adeline Street (SB)											
7	L	32	2.0	0.280	5.7	LOS A	1.5	37.3	0.42	0.84	27.3
4	T	264	2.0	0.280	5.7	LOS A	1.5	37.3	0.42	0.53	30.3
14	R	26	2.0	0.280	5.7	LOS A	1.5	37.3	0.42	0.59	29.8
Approach		322	2.0	0.280	5.7	LOS A	1.5	37.3	0.42	0.56	29.9
West: 14th Street (EB)											
5	L	24	2.0	0.194	5.4	LOS A	0.9	22.8	0.48	0.87	27.6
2	T	154	2.0	0.194	5.4	LOS A	0.9	22.8	0.48	0.59	30.5
12	R	18	2.0	0.194	5.4	LOS A	0.9	22.8	0.48	0.65	30.1
Approach		196	2.0	0.194	5.4	LOS A	0.9	22.8	0.48	0.63	30.0
All Vehicles		1094	2.0	0.309	5.8	LOS A	1.7	42.3	0.45	0.60	29.8

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.

MOVEMENT SUMMARY

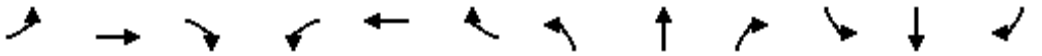
Site: 2035 + Proj Com Alt AM

Adeline & 12th
2035 + Project Commercial Alternative AM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	1	2.0	0.205	4.4	LOS A	1.1	27.0	0.16	0.90	27.8
8	T	272	2.0	0.205	4.4	LOS A	1.1	27.0	0.16	0.42	31.3
18	R	5	2.0	0.205	4.4	LOS A	1.1	27.0	0.16	0.52	30.7
Approach		278	2.0	0.205	4.4	LOS A	1.1	27.0	0.16	0.42	31.3
East: 12th Street (WB)											
1	L	8	2.0	0.101	4.3	LOS A	0.4	11.2	0.41	0.81	28.0
6	T	29	2.0	0.101	4.3	LOS A	0.4	11.2	0.41	0.52	31.2
16	R	71	2.0	0.101	4.3	LOS A	0.4	11.2	0.41	0.58	30.7
Approach		108	2.0	0.101	4.3	LOS A	0.4	11.2	0.41	0.58	30.6
North: Adeline Street (SB)											
7	L	30	2.0	0.236	4.6	LOS A	1.3	32.2	0.16	0.87	27.6
4	T	285	2.0	0.236	4.6	LOS A	1.3	32.2	0.16	0.41	31.1
14	R	5	2.0	0.236	4.6	LOS A	1.3	32.2	0.16	0.51	30.5
Approach		320	2.0	0.236	4.6	LOS A	1.3	32.2	0.16	0.46	30.7
West: 12th Street (EB)											
5	L	2	2.0	0.010	3.6	LOS A	0.0	1.0	0.42	0.78	28.4
2	T	7	2.0	0.010	3.6	LOS A	0.0	1.0	0.42	0.48	31.7
12	R	1	2.0	0.010	3.6	LOS A	0.0	1.0	0.42	0.54	31.2
Approach		10	2.0	0.010	3.6	LOS A	0.0	1.0	0.42	0.55	30.9
All Vehicles		716	2.0	0.236	4.5	LOS A	1.3	32.2	0.20	0.46	30.9

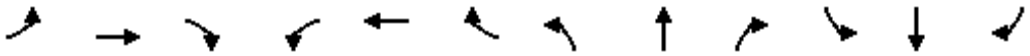
Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	141	46	0	0	355	376	443	452	93	116	0	558
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			0.98		1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frt	1.00	1.00			0.92		1.00	0.98		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	0.99		0.95		1.00
Satd. Flow (prot)	1020	3282			2913		1173	2815		1543		1960
Flt Permitted	0.95	1.00			1.00		0.95	0.99		0.95		1.00
Satd. Flow (perm)	1020	3282			2913		1173	2815		1543		1960
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	141	46	0	0	355	376	443	452	93	116	0	558
RTOR Reduction (vph)	0	0	0	0	183	0	0	12	0	0	0	499
Lane Group Flow (vph)	141	46	0	0	548	0	328	648	0	116	0	59
Confl. Peds. (#/hr)						14						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	77%	10%	0%	0%	8%	17%	40%	15%	14%	17%	0%	45%
Turn Type	Prot	NA			NA		Split	NA		Prot		custom
Protected Phases	1	6			2		4	4		3		3
Permitted Phases												
Actuated Green, G (s)	16.3	42.6			22.8		30.9	30.9		10.3		10.3
Effective Green, g (s)	16.3	42.6			22.8		30.9	30.9		10.3		10.3
Actuated g/C Ratio	0.17	0.44			0.24		0.32	0.32		0.11		0.11
Clearance Time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	171	1444			686		374	898		164		208
v/s Ratio Prot	c0.14	0.01			c0.19		c0.28	0.23		c0.08		0.03
v/s Ratio Perm												
v/c Ratio	0.82	0.03			0.80		0.88	0.72		0.71		0.29
Uniform Delay, d1	38.9	15.4			34.8		31.2	29.2		41.8		39.9
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	25.3	0.0			6.3		19.9	2.7		12.1		0.6
Delay (s)	64.2	15.4			41.1		51.0	31.9		53.9		40.4
Level of Service	E	B			D		D	C		D		D
Approach Delay (s)		52.2			41.1			38.2			42.7	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	41.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	96.8	Sum of lost time (s)	16.5
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		

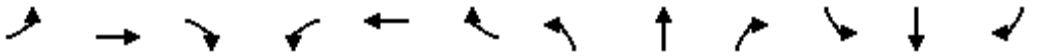
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	76	479	26	124	560	242	17	64	61	227	126	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.98			0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		0.99	1.00	
Frt	1.00	0.99		1.00	0.95			0.94		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1770	3187		1770	3234			1706		1755	1751	
Flt Permitted	0.95	1.00		0.95	1.00			0.96		0.58	1.00	
Satd. Flow (perm)	1770	3187		1770	3234			1646		1074	1751	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	76	479	26	124	560	242	17	64	61	227	126	33
RTOR Reduction (vph)	0	3	0	0	35	0	0	33	0	0	11	0
Lane Group Flow (vph)	76	502	0	124	767	0	0	109	0	227	148	0
Confl. Peds. (#/hr)			58			47	70		8	8		70
Confl. Bikes (#/hr)			15			6			9			38
Heavy Vehicles (%)	2%	12%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	8.4	53.7		11.3	56.6			24.0		24.0	24.0	
Effective Green, g (s)	8.4	53.7		11.3	56.6			24.0		24.0	24.0	
Actuated g/C Ratio	0.08	0.54		0.11	0.57			0.24		0.24	0.24	
Clearance Time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	148	1711		200	1830			395		257	420	
v/s Ratio Prot	c0.04	0.16		c0.07	c0.24						0.08	
v/s Ratio Perm								0.07		c0.21		
v/c Ratio	0.51	0.29		0.62	0.42			0.28		0.88	0.35	
Uniform Delay, d1	43.8	12.7		42.3	12.3			30.9		36.6	31.5	
Progression Factor	1.13	1.25		0.94	0.75			1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.0		3.9	0.7			0.1		27.3	0.2	
Delay (s)	51.0	15.9		43.6	10.0			31.1		64.0	31.7	
Level of Service	D	B		D	A			C		E	C	
Approach Delay (s)		20.5			14.5			31.1			50.7	
Approach LOS		C			B			C			D	

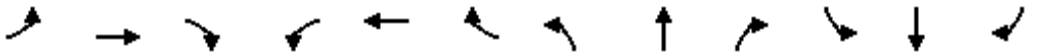
Intersection Summary			
HCM 2000 Control Delay	24.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	677	77	126	1340	198	32	68	66	91	82	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00	0.99	1.00		0.99	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.93		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1766	3250		1025	3471	1492	1347	919		1753	1476	
Flt Permitted	0.14	1.00		0.33	1.00	1.00	0.59	1.00		0.63	1.00	
Satd. Flow (perm)	265	3250		356	3471	1492	839	919		1159	1476	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	27	677	77	126	1340	198	32	68	66	91	82	74
RTOR Reduction (vph)	0	9	0	0	0	71	0	35	0	0	32	0
Lane Group Flow (vph)	27	745	0	126	1340	127	32	99	0	91	124	0
Confl. Peds. (#/hr)	21		23	23		21	9		11	11		9
Confl. Bikes (#/hr)			4			5						1
Heavy Vehicles (%)	2%	8%	17%	75%	4%	4%	33%	100%	78%	2%	33%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	64.0	64.0		64.0	64.0	64.0	28.0	28.0		28.0	28.0	
Effective Green, g (s)	64.0	64.0		64.0	64.0	64.0	28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64	0.64	0.28	0.28		0.28	0.28	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	169	2080		227	2221	954	234	257		324	413	
v/s Ratio Prot		0.23			c0.39			c0.11			0.08	
v/s Ratio Perm	0.10			0.35		0.08	0.04			0.08		
v/c Ratio	0.16	0.36		0.56	0.60	0.13	0.14	0.38		0.28	0.30	
Uniform Delay, d1	7.2	8.4		10.1	10.6	7.1	27.0	29.0		28.1	28.3	
Progression Factor	0.41	0.39		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	0.5		9.4	1.2	0.3	1.2	4.3		2.2	1.9	
Delay (s)	5.0	3.7		19.5	11.8	7.4	28.2	33.3		30.3	30.1	
Level of Service	A	A		B	B	A	C	C		C	C	
Approach Delay (s)		3.8			11.8			32.3			30.2	
Approach LOS		A			B			C			C	

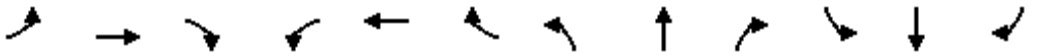
Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	102.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	104	639	71	51	1228	52	297	249	15	81	103	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1582	4091		1760	4576		1761	1810	1541	1752	3539	1245
Flt Permitted	0.14	1.00		0.34	1.00		0.69	1.00	1.00	0.56	1.00	1.00
Satd. Flow (perm)	235	4091		639	4576		1273	1810	1541	1041	3539	1245
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	104	639	71	51	1228	52	297	249	15	81	103	183
RTOR Reduction (vph)	0	19	0	0	6	0	0	0	8	0	0	16
Lane Group Flow (vph)	104	691	0	51	1274	0	297	249	7	81	103	167
Confl. Peds. (#/hr)	10		20	20		10	8		20	20		8
Confl. Bikes (#/hr)			7			3						6
Heavy Vehicles (%)	14%	27%	2%	2%	13%	2%	2%	5%	2%	2%	2%	27%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	32.3	32.3		32.3	32.3		33.2	33.2	33.2	33.2	33.2	33.2
Effective Green, g (s)	32.3	32.3		32.3	32.3		33.2	33.2	33.2	33.2	33.2	33.2
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.44	0.44	0.44	0.44	0.44	0.44
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	101	1761		275	1970		563	801	682	460	1566	551
v/s Ratio Prot		0.17			0.28			0.14			0.03	
v/s Ratio Perm	c0.44			0.08			c0.23		0.00	0.08		0.13
v/c Ratio	1.03	0.39		0.19	0.65		0.53	0.31	0.01	0.18	0.07	0.30
Uniform Delay, d1	21.4	14.6		13.2	16.8		15.2	13.5	11.7	12.6	12.0	13.5
Progression Factor	1.00	1.00		1.00	1.00		1.08	1.09	1.46	1.00	1.00	1.00
Incremental Delay, d2	97.8	0.1		0.1	0.6		3.5	1.0	0.0	0.8	0.1	1.4
Delay (s)	119.2	14.7		13.3	17.4		19.9	15.7	17.0	13.5	12.1	14.9
Level of Service	F	B		B	B		B	B	B	B	B	B
Approach Delay (s)		28.0			17.2			18.0			13.8	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		

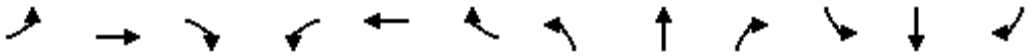
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	112	243	267	28	76	0	0	131	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	1.00			0.95	1.00
Frpb, ped/bikes					1.00	0.99	1.00	1.00			1.00	0.98
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3483	1562	1770	990			3167	1558
Flt Permitted					0.98	1.00	0.67	1.00			1.00	1.00
Satd. Flow (perm)					3483	1562	1246	990			3167	1558
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	112	243	267	28	76	0	0	131	67
RTOR Reduction (vph)	0	0	0	0	0	213	0	0	0	0	0	22
Lane Group Flow (vph)	0	0	0	0	355	54	28	76	0	0	131	45
Confl. Peds. (#/hr)				1		2			8	8		
Confl. Bikes (#/hr)												13
Heavy Vehicles (%)	2%	15%	88%	2%	2%	2%	2%	92%	0%	2%	14%	2%
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					4			6			2	
Permitted Phases				4		4	6					2
Actuated Green, G (s)					15.2	15.2	50.3	50.3			50.3	50.3
Effective Green, g (s)					15.2	15.2	50.3	50.3			50.3	50.3
Actuated g/C Ratio					0.20	0.20	0.67	0.67			0.67	0.67
Clearance Time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Vehicle Extension (s)					2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)					705	316	835	663			2124	1044
v/s Ratio Prot								c0.08			0.04	
v/s Ratio Perm					0.10	0.03	0.02					0.03
v/c Ratio					0.50	0.17	0.03	0.11			0.06	0.04
Uniform Delay, d1					26.5	24.7	4.2	4.4			4.2	4.2
Progression Factor					1.00	1.00	1.00	1.00			1.26	1.65
Incremental Delay, d2					0.2	0.1	0.0	0.0			0.1	0.1
Delay (s)					26.8	24.8	4.2	4.4			5.4	7.0
Level of Service					C	C	A	A			A	A
Approach Delay (s)		0.0			25.9			4.4			6.0	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	33.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

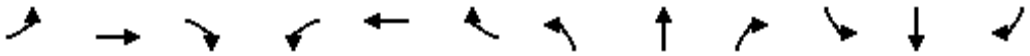


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	634	114	85	177	24	56	141	137	159	172	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.98		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.93		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3301		1770	3397		1770	944		1770	1126	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3301		1770	3397		1770	944		1770	1126	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	26	634	114	85	177	24	56	141	137	159	172	37
RTOR Reduction (vph)	0	9	0	0	7	0	0	24	0	0	5	0
Lane Group Flow (vph)	26	739	0	85	194	0	56	254	0	159	204	0
Confl. Peds. (#/hr)						50			3			3
Confl. Bikes (#/hr)			4						1			
Heavy Vehicles (%)	2%	6%	9%	2%	2%	2%	2%	74%	96%	2%	77%	2%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Actuated Green, G (s)	3.5	36.9		10.1	44.0		40.8	40.8		28.7	28.7	
Effective Green, g (s)	3.5	36.9		10.1	44.0		40.8	40.8		28.7	28.7	
Actuated g/C Ratio	0.03	0.28		0.08	0.33		0.31	0.31		0.22	0.22	
Clearance Time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.5	3.0		3.2	3.2		3.0	3.0	
Lane Grp Cap (vph)	46	919		134	1128		545	290		383	243	
v/s Ratio Prot	0.01	c0.22		c0.05	0.06		0.03	c0.27		0.09	c0.18	
v/s Ratio Perm												
v/c Ratio	0.57	0.80		0.63	0.17		0.10	0.88		0.42	0.84	
Uniform Delay, d1	63.7	44.4		59.4	31.3		32.8	43.5		44.7	49.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.1	5.2		8.3	0.1		0.1	24.6		0.7	22.2	
Delay (s)	72.9	49.6		67.7	31.4		32.9	68.1		45.4	71.9	
Level of Service	E	D		E	C		C	E		D	E	
Approach Delay (s)		50.4			42.2			62.2			60.5	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	53.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	132.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

2035 + Project Commercial Alternative PM

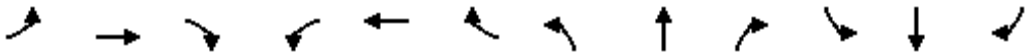


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	124	1001	212	365	1261	183	96	438	273	139	425	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.95	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3416		1770	3539	1511	1770	1863	1542	1770	1814	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3416		1770	3539	1511	1770	1863	1542	1770	1814	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	135	1088	230	397	1371	199	104	476	297	151	462	84
RTOR Reduction (vph)	0	30	0	0	0	121	0	0	179	0	10	0
Lane Group Flow (vph)	135	1288	0	397	1371	78	104	476	118	151	536	0
Confl. Peds. (#/hr)			32			7			5			6
Confl. Bikes (#/hr)			4			9			11			3
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			
Actuated Green, G (s)	5.0	16.0		5.0	16.0	16.0	4.8	16.8	16.8	7.0	19.0	
Effective Green, g (s)	5.0	16.0		5.0	16.0	16.0	4.8	16.8	16.8	7.0	19.0	
Actuated g/C Ratio	0.08	0.26		0.08	0.26	0.26	0.08	0.28	0.28	0.12	0.31	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	145	898		145	931	397	139	514	426	203	566	
v/s Ratio Prot	0.08	0.38		c0.22	c0.39		0.06	0.26		c0.09	c0.30	
v/s Ratio Perm						0.05			0.08			
v/c Ratio	0.93	1.43		2.74	1.47	0.20	0.75	0.93	0.28	0.74	0.95	
Uniform Delay, d1	27.7	22.4		27.9	22.4	17.4	27.4	21.4	17.2	26.0	20.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	54.2	201.7		801.2	218.5	0.2	19.6	22.7	0.4	13.7	25.0	
Delay (s)	81.9	224.1		829.1	240.9	17.7	47.0	44.1	17.6	39.7	45.4	
Level of Service	F	F		F	F	B	D	D	B	D	D	
Approach Delay (s)		210.9			337.0			35.5			44.1	
Approach LOS		F			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	206.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	60.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	100.9%	ICU Level of Service	G
Analysis Period (min)	15		

Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group

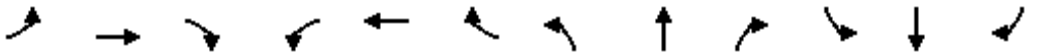


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	198	1064	476	57	870	142	913	1037	43	280	1186	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.96		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.98		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3250		1770	3426		3433	3508		1770	3432	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3250		1770	3426		3433	3508		1770	3432	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	215	1157	517	62	946	154	992	1127	47	304	1289	191
RTOR Reduction (vph)	0	45	0	0	12	0	0	3	0	0	11	0
Lane Group Flow (vph)	215	1629	0	62	1088	0	992	1171	0	304	1469	0
Confl. Peds. (#/hr)			83			52			53			68
Confl. Bikes (#/hr)			15			8			15			12
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	14.0	33.8		8.8	28.6		13.0	39.4		15.0	40.4	
Effective Green, g (s)	14.0	33.8		8.8	28.6		13.0	39.4		15.0	40.4	
Actuated g/C Ratio	0.13	0.31		0.08	0.26		0.12	0.36		0.14	0.37	
Clearance Time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.0	2.0		2.0	4.0		2.5	4.0	
Lane Grp Cap (vph)	225	998		141	890		405	1256		241	1260	
v/s Ratio Prot	c0.12	c0.50		0.04	0.32		c0.29	0.33		0.17	c0.43	
v/s Ratio Perm												
v/c Ratio	0.96	1.63		0.44	1.22		2.45	0.93		1.26	1.17	
Uniform Delay, d1	47.7	38.1		48.2	40.7		48.5	34.0		47.5	34.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	46.8	289.1		0.8	110.3		659.6	13.7		146.6	83.7	
Delay (s)	94.5	327.2		49.0	151.0		708.1	47.7		194.1	118.5	
Level of Service	F	F		D	F		F	D		F	F	
Approach Delay (s)		300.7			145.5			350.2			131.4	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	247.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.49		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	133.9%	ICU Level of Service	H
Analysis Period (min)	15		

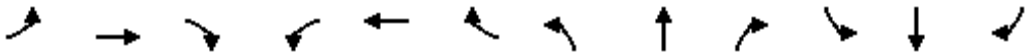
Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group



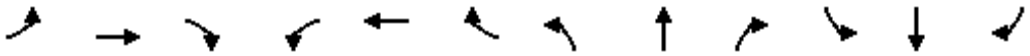
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1012	110	9	267	0	0	0	0	582	527	427
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5					6.5	6.5	6.5
Lane Util. Factor		0.95			0.91					0.91	0.91	1.00
Frpb, ped/bikes		1.00			1.00					1.00	1.00	0.97
Flpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Frt		0.99			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	0.99	1.00
Satd. Flow (prot)		3472			5077					1610	3341	1540
Flt Permitted		1.00			0.90					0.95	0.99	1.00
Satd. Flow (perm)		3472			4596					1610	3341	1540
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1012	110	9	267	0	0	0	0	582	527	427
RTOR Reduction (vph)	0	10	0	0	0	0	0	0	0	0	0	264
Lane Group Flow (vph)	0	1112	0	0	276	0	0	0	0	361	748	163
Confl. Peds. (#/hr)	20		20	20								20
Turn Type		NA		Perm	NA					Perm	NA	Perm
Protected Phases		1			1						2	
Permitted Phases				1						2		2
Actuated Green, G (s)		37.5			37.5					30.5	30.5	30.5
Effective Green, g (s)		37.5			37.5					30.5	30.5	30.5
Actuated g/C Ratio		0.47			0.47					0.38	0.38	0.38
Clearance Time (s)		5.5			5.5					6.5	6.5	6.5
Lane Grp Cap (vph)		1627			2154					613	1273	587
v/s Ratio Prot		c0.32										
v/s Ratio Perm					0.06					c0.22	0.22	0.11
v/c Ratio		0.68			0.13					0.59	0.59	0.28
Uniform Delay, d1		16.6			12.0					19.7	19.7	17.1
Progression Factor		1.00			0.35					1.00	1.00	1.00
Incremental Delay, d2		2.3			0.1					4.1	2.0	1.2
Delay (s)		19.0			4.3					23.9	21.7	18.3
Level of Service		B			A					C	C	B
Approach Delay (s)		19.0			4.3			0.0			21.3	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



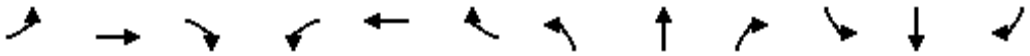
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	569	1030	0	0	260	936	35	1254	61	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1610	3381			3539	2700		5036				
Flt Permitted	0.95	0.93			1.00	1.00		1.00				
Satd. Flow (perm)	1610	3157			3539	2700		5036				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	569	1030	0	0	260	936	35	1254	61	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	57	0	6	0	0	0	0
Lane Group Flow (vph)	512	1087	0	0	260	879	0	1344	0	0	0	0
Confl. Peds. (#/hr)						20			20			
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	22.5	50.5			24.5	24.5		18.5				
Effective Green, g (s)	22.5	50.5			24.5	24.5		18.5				
Actuated g/C Ratio	0.28	0.63			0.31	0.31		0.23				
Clearance Time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Grp Cap (vph)	452	2055			1083	826		1164				
v/s Ratio Prot	c0.32	0.15			0.07							
v/s Ratio Perm		0.19				c0.33		0.27				
v/c Ratio	1.13	0.53			0.24	1.06		1.15				
Uniform Delay, d1	28.8	8.2			20.8	27.8		30.8				
Progression Factor	0.88	1.89			1.00	1.00		1.00				
Incremental Delay, d2	79.2	0.7			0.5	49.9		79.6				
Delay (s)	104.5	16.2			21.3	77.6		110.4				
Level of Service	F	B			C	E		F				
Approach Delay (s)		44.5			65.4			110.4			0.0	
Approach LOS		D			E			F			A	

Intersection Summary			
HCM 2000 Control Delay	72.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	104.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



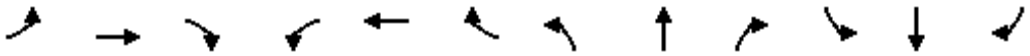
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	916	412	261	1649	37	757	32	482	77	35	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3312	1214	1289	3383		1649	1575	1240	1480	1389	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3312	1214	1289	3383		1649	1575	1240	1480	1389	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	916	412	261	1649	37	757	32	482	77	35	73
RTOR Reduction (vph)	0	0	248	0	1	0	0	0	287	0	55	0
Lane Group Flow (vph)	15	916	164	261	1685	0	394	395	195	77	53	0
Confl. Peds. (#/hr)						1			3			
Heavy Vehicles (%)	0%	9%	33%	40%	5%	65%	4%	73%	28%	22%	50%	10%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases			2						8			
Actuated Green, G (s)	2.3	46.6	46.6	28.7	73.0		35.1	35.1	35.1	8.5	8.5	
Effective Green, g (s)	2.3	46.6	46.6	28.7	73.0		35.1	35.1	35.1	8.5	8.5	
Actuated g/C Ratio	0.02	0.34	0.34	0.21	0.54		0.26	0.26	0.26	0.06	0.06	
Clearance Time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	3.0	4.5	4.5	3.0	4.5		4.0	4.0	4.0	3.0	3.0	
Lane Grp Cap (vph)	30	1139	417	273	1823		427	408	321	92	87	
v/s Ratio Prot	0.01	0.28		c0.20	c0.50		0.24	c0.25		c0.05	0.04	
v/s Ratio Perm			0.14						0.16			
v/c Ratio	0.50	0.80	0.39	0.96	0.92		0.92	0.97	0.61	0.84	0.61	
Uniform Delay, d1	66.0	40.3	33.7	52.7	28.7		48.8	49.6	44.1	62.8	61.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	12.5	4.7	1.1	42.1	8.7		25.7	36.0	3.7	45.2	11.4	
Delay (s)	78.5	44.9	34.7	94.9	37.4		74.5	85.6	47.8	108.0	73.2	
Level of Service	E	D	C	F	D		E	F	D	F	E	
Approach Delay (s)		42.2			45.1			67.8			87.7	
Approach LOS		D			D			E			F	

Intersection Summary			
HCM 2000 Control Delay	52.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	135.4	Sum of lost time (s)	16.5
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



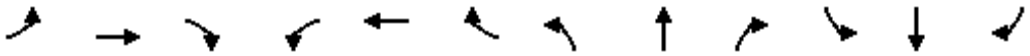
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	251	760	460	451	1494	319	388	366	457	210	171	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	0.92		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.99	
Satd. Flow (prot)	1337	3004		1687	3406	1509	1444	2896		1369	2596	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.99	
Satd. Flow (perm)	1337	3004		1687	3406	1509	1444	2896		1369	2596	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	251	760	460	451	1494	319	388	366	457	210	171	76
RTOR Reduction (vph)	0	65	0	0	0	145	0	162	0	0	22	0
Lane Group Flow (vph)	251	1155	0	451	1494	174	388	661	0	153	282	0
Confl. Peds. (#/hr)									1			
Heavy Vehicles (%)	35%	13%	14%	7%	6%	7%	25%	14%	13%	20%	16%	57%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	22.5	44.0		31.5	53.0	53.0	34.5	34.5		13.0	13.0	
Effective Green, g (s)	22.5	44.0		31.5	53.0	53.0	34.5	34.5		13.0	13.0	
Actuated g/C Ratio	0.16	0.32		0.23	0.38	0.38	0.25	0.25		0.09	0.09	
Clearance Time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	215	947		380	1294	573	357	716		127	241	
v/s Ratio Prot	0.19	0.38		c0.27	c0.44		c0.27	0.23		c0.11	0.11	
v/s Ratio Perm						0.12						
v/c Ratio	1.17	1.22		1.19	1.15	0.30	1.09	0.92		1.20	1.17	
Uniform Delay, d1	58.5	47.8		54.0	43.2	30.3	52.5	51.2		63.2	63.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	113.9	108.4		107.6	78.7	0.3	72.9	17.5		145.1	112.1	
Delay (s)	172.4	156.2		161.6	122.0	30.6	125.4	68.7		208.3	175.4	
Level of Service	F	F		F	F	C	F	E		F	F	
Approach Delay (s)		159.0			117.0			86.9			186.4	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	127.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	139.5	Sum of lost time (s)	16.5
Intersection Capacity Utilization	108.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1212	182	257	1556	0	0	0	0	774	706	521
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						5.0	
Lane Util. Factor		0.91		1.00	0.95						0.95	
Frpb, ped/bikes		1.00		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.98		1.00	1.00						0.96	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		4845		1768	3312						3276	
Flt Permitted		1.00		0.12	1.00						0.98	
Satd. Flow (perm)		4845		229	3312						3276	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1212	182	257	1556	0	0	0	0	774	706	521
RTOR Reduction (vph)	0	23	0	0	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	0	1371	0	257	1556	0	0	0	0	0	1994	0
Confl. Peds. (#/hr)			8	8						10		10
Heavy Vehicles (%)	16%	5%	2%	2%	9%	2%	1%	0%	0%	2%	2%	7%
Turn Type		NA		Perm	NA					Split	NA	
Protected Phases		4			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		41.0		41.0	41.0						36.0	
Effective Green, g (s)		41.0		41.0	41.0						36.0	
Actuated g/C Ratio		0.47		0.47	0.47						0.41	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		2283		107	1560						1355	
v/s Ratio Prot		0.28			0.47						c0.61	
v/s Ratio Perm				c1.12								
v/c Ratio		0.60		2.40	1.00						1.47	
Uniform Delay, d1		17.0		23.0	22.9						25.5	
Progression Factor		1.00		0.29	0.29						1.00	
Incremental Delay, d2		0.3		633.4	6.2						216.3	
Delay (s)		17.3		640.2	12.9						241.8	
Level of Service		B		F	B						F	
Approach Delay (s)		17.3			101.8			0.0			241.8	
Approach LOS		B			F			A			F	

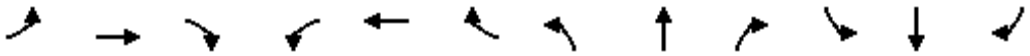
Intersection Summary			
HCM 2000 Control Delay	132.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.96		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	190.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	468	1518	0	0	1693	553	120	613	228	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0				
Lane Util. Factor	1.00	0.95			0.95			0.95				
Frpb, ped/bikes	1.00	1.00			0.99			0.99				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.96			0.96				
Flt Protected	0.95	1.00			1.00			0.99				
Satd. Flow (prot)	1770	3539			3384			3375				
Flt Permitted	0.10	1.00			1.00			0.99				
Satd. Flow (perm)	182	3539			3384			3375				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	468	1518	0	0	1693	553	120	613	228	0	0	0
RTOR Reduction (vph)	0	0	0	0	36	0	0	8	0	0	0	0
Lane Group Flow (vph)	468	1518	0	0	2210	0	0	953	0	0	0	0
Confl. Peds. (#/hr)	10					10			10			
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)	41.0	41.0			41.0			36.0				
Effective Green, g (s)	41.0	41.0			41.0			36.0				
Actuated g/C Ratio	0.47	0.47			0.47			0.41				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Vehicle Extension (s)	2.0	2.0			2.0			2.0				
Lane Grp Cap (vph)	85	1667			1594			1396				
v/s Ratio Prot		0.43			0.65			c0.28				
v/s Ratio Perm	c2.58											
v/c Ratio	5.51	0.91			1.39			0.68				
Uniform Delay, d1	23.0	21.3			23.0			20.8				
Progression Factor	0.86	0.84			1.00			1.00				
Incremental Delay, d2	2036.4	2.9			177.7			1.1				
Delay (s)	2056.2	20.7			200.7			21.9				
Level of Service	F	C			F			C				
Approach Delay (s)		500.4			200.7			21.9			0.0	
Approach LOS		F			F			C			A	

Intersection Summary			
HCM 2000 Control Delay	282.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	3.22		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	190.9%	ICU Level of Service	H
Analysis Period (min)	15		

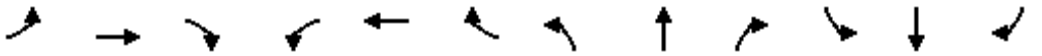
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	1357	388	107	1787	30	283	222	127	149	395	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00		1.00	0.95		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	3346		1769	3366		1763	1744		1762	1801	
Flt Permitted	0.08	1.00		0.08	1.00		0.17	1.00		0.34	1.00	
Satd. Flow (perm)	154	3346		154	3366		323	1744		636	1801	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	61	1357	388	107	1787	30	283	222	127	149	395	89
RTOR Reduction (vph)	0	33	0	0	2	0	0	26	0	0	10	0
Lane Group Flow (vph)	61	1712	0	107	1815	0	283	323	0	149	474	0
Confl. Peds. (#/hr)	8		7	7		8	11		8	8		11
Confl. Bikes (#/hr)			9			11			8			10
Heavy Vehicles (%)	2%	4%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	48.5	48.5		48.5	48.5		23.0	23.0		23.0	23.0	
Effective Green, g (s)	48.5	48.5		48.5	48.5		23.0	23.0		23.0	23.0	
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.29	0.29		0.29	0.29	
Clearance Time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	93	2028		93	2040		92	501		182	517	
v/s Ratio Prot		0.51			0.54			0.19			0.26	
v/s Ratio Perm	0.40			c0.70			c0.88			0.23		
v/c Ratio	0.66	0.84		1.15	0.89		3.08	0.65		0.82	0.92	
Uniform Delay, d1	10.3	12.7		15.8	13.5		28.5	24.9		26.6	27.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	30.8	4.5		139.5	6.3		962.4	6.3		32.1	23.6	
Delay (s)	41.1	17.2		155.3	19.8		990.9	31.2		58.6	51.1	
Level of Service	D	B		F	B		F	C		E	D	
Approach Delay (s)		18.0			27.3			460.9			52.9	
Approach LOS		B			C			F			D	

Intersection Summary			
HCM 2000 Control Delay	82.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.76		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	142.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



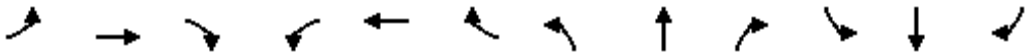
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	115	1499	126	58	1321	9	396	550	177	7	23	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Lane Util. Factor		0.95			0.95	1.00	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00			1.00	0.94	1.00	1.00	0.95		1.00	0.95
Flpb, ped/bikes		1.00			1.00	1.00	0.97	1.00	1.00		1.00	1.00
Frt		0.99			1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected		1.00			1.00	1.00	0.95	1.00	1.00		0.99	1.00
Satd. Flow (prot)		3415			3307	1490	1640	1827	1503		1839	1499
Flt Permitted		0.62			0.67	1.00	0.74	1.00	1.00		0.61	1.00
Satd. Flow (perm)		2113			2228	1490	1273	1827	1503		1135	1499
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	115	1499	126	58	1321	9	396	550	177	7	23	55
RTOR Reduction (vph)	0	6	0	0	0	2	0	0	29	0	0	40
Lane Group Flow (vph)	0	1734	0	0	1379	7	396	550	148	0	30	15
Confl. Peds. (#/hr)	21		15	15		21	27		25	25		27
Confl. Bikes (#/hr)			18			17			16			17
Heavy Vehicles (%)	2%	4%	3%	30%	8%	2%	7%	4%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		4
Actuated Green, G (s)		56.0			56.0	56.0	25.0	25.0	25.0		25.0	25.0
Effective Green, g (s)		56.0			56.0	56.0	25.0	25.0	25.0		25.0	25.0
Actuated g/C Ratio		0.62			0.62	0.62	0.28	0.28	0.28		0.28	0.28
Clearance Time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Vehicle Extension (s)		2.0			2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1314			1386	927	353	507	417		315	416
v/s Ratio Prot								0.30				
v/s Ratio Perm		c0.82			0.62	0.00	c0.31		0.10		0.03	0.01
v/c Ratio		1.32			0.99	0.01	1.12	1.08	0.36		0.10	0.04
Uniform Delay, d1		17.0			16.9	6.5	32.5	32.5	26.0		24.1	23.7
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2		149.1			23.0	0.0	85.1	64.9	0.2		0.0	0.0
Delay (s)		166.1			39.9	6.5	117.6	97.4	26.2		24.2	23.7
Level of Service		F			D	A	F	F	C		C	C
Approach Delay (s)		166.1			39.6			93.3			23.9	
Approach LOS		F			D			F			C	

Intersection Summary			
HCM 2000 Control Delay	104.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	128.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	204	1282	382	96	930	46	569	697	157	204	909	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.97	
Flt Protected		0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3484	1482	1770	3195	1540	1732	3426		1764	3428	
Flt Permitted		0.55	1.00	0.12	1.00	1.00	0.17	1.00		0.26	1.00	
Satd. Flow (perm)		1943	1482	226	3195	1540	304	3426		490	3428	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	204	1282	382	96	930	46	569	697	157	204	909	201
RTOR Reduction (vph)	0	0	55	0	0	20	0	5	0	0	20	0
Lane Group Flow (vph)	0	1486	327	96	930	26	569	849	0	204	1091	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Heavy Vehicles (%)	2%	3%	6%	2%	13%	2%	4%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4		4	2			6		
Actuated Green, G (s)		33.0	33.0	33.0	33.0	33.0	42.5	42.5		42.5	42.5	
Effective Green, g (s)		33.0	33.0	33.0	33.0	33.0	42.5	42.5		42.5	42.5	
Actuated g/C Ratio		0.39	0.39	0.39	0.39	0.39	0.50	0.50		0.50	0.50	
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0		4.0	4.0	
Lane Grp Cap (vph)		754	575	87	1240	597	152	1713		245	1714	
v/s Ratio Prot					0.29			0.25			0.32	
v/s Ratio Perm		c0.76	0.22	0.43		0.02	c1.87			0.42		
v/c Ratio		1.97	0.57	1.10	0.75	0.04	3.74	0.50		0.83	0.64	
Uniform Delay, d1		26.0	20.4	26.0	22.4	16.2	21.2	14.1		18.2	15.6	
Progression Factor		1.00	1.00	0.41	0.43	0.06	1.00	1.00		1.00	1.00	
Incremental Delay, d2		441.7	4.0	117.8	3.5	0.1	1250.5	0.5		21.6	0.9	
Delay (s)		467.7	24.5	128.4	13.0	1.1	1271.7	14.6		39.8	16.5	
Level of Service		F	C	F	B	A	F	B		D	B	
Approach Delay (s)		377.0			22.8			517.3			20.1	
Approach LOS		F			C			F			C	

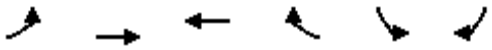
Intersection Summary			
HCM 2000 Control Delay	262.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.97		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	146.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	1334	25	60	1124	57	27	222	354	36	81	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.96		1.00	0.94		0.97	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1587	3154	1360	1588	3065	1375		3159	1171		2851	
Flt Permitted	0.19	1.00	1.00	0.13	1.00	1.00		0.91	1.00		0.88	
Satd. Flow (perm)	317	3154	1360	222	3065	1375		2889	1171		2518	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	119	1334	25	60	1124	57	27	222	354	36	81	98
RTOR Reduction (vph)	0	0	6	0	0	16	0	0	26	0	46	0
Lane Group Flow (vph)	119	1334	19	60	1124	41	0	249	328	0	169	0
Confl. Peds. (#/hr)	22		31	31		22	34		37	37		34
Confl. Bikes (#/hr)			7			3			12			19
Heavy Vehicles (%)	2%	3%	2%	2%	6%	2%	2%	2%	17%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4		4	2		2	2		
Actuated Green, G (s)	50.2	50.2	50.2	50.2	50.2	50.2		26.3	26.3		26.3	
Effective Green, g (s)	50.2	50.2	50.2	50.2	50.2	50.2		26.3	26.3		26.3	
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59		0.31	0.31		0.31	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	187	1862	803	131	1810	812		893	362		779	
v/s Ratio Prot		c0.42			0.37							
v/s Ratio Perm	0.37		0.01	0.27		0.03		0.09	c0.28		0.07	
v/c Ratio	0.64	0.72	0.02	0.46	0.62	0.05		0.28	0.91		0.22	
Uniform Delay, d1	11.4	12.3	7.2	9.8	11.2	7.3		22.2	28.2		21.7	
Progression Factor	0.78	0.83	0.90	1.46	1.43	1.46		1.00	1.00		1.00	
Incremental Delay, d2	1.5	0.2	0.0	6.1	0.9	0.1		0.1	24.7		0.1	
Delay (s)	10.4	10.5	6.5	20.4	17.0	10.8		22.2	52.9		21.8	
Level of Service	B	B	A	C	B	B		C	D		C	
Approach Delay (s)		10.4			16.9			40.2			21.8	
Approach LOS		B			B			D			C	

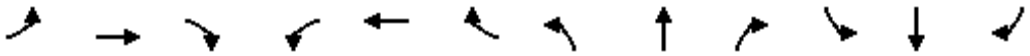
Intersection Summary			
HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	95.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	607	1024	882	525	260	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	0.99	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.97	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.96	1.00
Satd. Flow (prot)	1577	3094	3065	1382	2957	1213
Flt Permitted	0.95	1.00	1.00	1.00	0.96	1.00
Satd. Flow (perm)	1577	3094	3065	1382	2957	1213
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	607	1024	882	525	260	230
RTOR Reduction (vph)	0	0	0	239	38	128
Lane Group Flow (vph)	607	1024	882	286	298	26
Confl. Peds. (#/hr)				15	15	15
Heavy Vehicles (%)	3%	5%	6%	2%	3%	6%
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	35.8	62.8	23.0	23.0	14.2	14.2
Effective Green, g (s)	35.8	62.8	23.0	23.0	14.2	14.2
Actuated g/C Ratio	0.42	0.74	0.27	0.27	0.17	0.17
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	664	2285	829	373	493	202
v/s Ratio Prot	c0.38	0.33	c0.29		c0.10	
v/s Ratio Perm				0.21		0.02
v/c Ratio	0.91	0.45	1.06	0.77	0.60	0.13
Uniform Delay, d1	23.2	4.3	31.0	28.5	32.8	30.1
Progression Factor	0.79	0.84	1.10	1.32	1.00	1.00
Incremental Delay, d2	12.2	0.4	31.7	0.8	1.4	0.1
Delay (s)	30.5	4.1	65.9	38.4	34.2	30.2
Level of Service	C	A	E	D	C	C
Approach Delay (s)		13.9	55.7		33.0	
Approach LOS		B	E		C	

Intersection Summary			
HCM 2000 Control Delay	33.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	170	958	33	132	830	92	413	1113	307	91	438	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00	0.92	1.00	0.98	
Flpb, ped/bikes	0.99	1.00			1.00		0.98	1.00	1.00	0.99	1.00	
Frt	1.00	1.00			0.99		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1581	3163			3103		1563	3185	1309	1579	2984	
Flt Permitted	0.16	1.00			0.59		0.35	1.00	1.00	0.13	1.00	
Satd. Flow (perm)	261	3163			1853		571	3185	1309	216	2984	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	170	958	33	132	830	92	413	1113	307	91	438	181
RTOR Reduction (vph)	0	3	0	0	9	0	0	0	28	0	41	0
Lane Group Flow (vph)	170	988	0	0	1045	0	413	1113	279	91	578	0
Confl. Peds. (#/hr)	46		47	47		46	57		65	65		57
Confl. Bikes (#/hr)			9			21			15			22
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	39.0	39.0			39.0		38.0	38.0	38.0	38.0	38.0	
Effective Green, g (s)	39.0	39.0			39.0		38.0	38.0	38.0	38.0	38.0	
Actuated g/C Ratio	0.46	0.46			0.46		0.45	0.45	0.45	0.45	0.45	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	119	1451			850		255	1423	585	96	1334	
v/s Ratio Prot		0.31						0.35			0.19	
v/s Ratio Perm	c0.65				0.56		c0.72		0.21	0.42		
v/c Ratio	1.43	0.68			1.23		1.62	0.78	0.48	0.95	0.43	
Uniform Delay, d1	23.0	18.1			23.0		23.5	20.0	16.5	22.6	16.1	
Progression Factor	0.87	0.87			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	231.4	2.4			113.7		296.2	2.7	0.2	73.6	0.1	
Delay (s)	251.3	18.2			136.7		319.7	22.6	16.7	96.1	16.2	
Level of Service	F	B			F		F	C	B	F	B	
Approach Delay (s)		52.3			136.7			88.6			26.4	
Approach LOS		D			F			F			C	

Intersection Summary			
HCM 2000 Control Delay	81.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.52		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	127.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	331	910	237	463	735	76	10	1948	731	3	1255	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	4.0		5.5	5.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.98		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)	3090	3154	1349	3090	3185	1349		4575	1391		4576	1349
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.93	1.00		0.93	1.00
Satd. Flow (perm)	3090	3154	1349	3090	3185	1349		4254	1391		4237	1349
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	331	910	237	463	735	76	10	1948	731	3	1255	212
RTOR Reduction (vph)	0	0	65	0	0	53	0	0	0	0	0	79
Lane Group Flow (vph)	331	910	172	463	735	24	0	1958	731	0	1258	133
Confl. Peds. (#/hr)			40			40	40		40	40		40
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Free	Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases			8			4	2		Free	6		6
Actuated Green, G (s)	11.0	27.5	27.5	12.0	28.5	28.5		40.5	95.0		40.5	40.5
Effective Green, g (s)	11.0	27.5	27.5	12.0	28.5	28.5		40.5	95.0		40.5	40.5
Actuated g/C Ratio	0.12	0.29	0.29	0.13	0.30	0.30		0.43	1.00		0.43	0.43
Clearance Time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	357	913	390	390	955	404		1813	1391		1806	575
v/s Ratio Prot	0.11	c0.29		c0.15	0.23							
v/s Ratio Perm			0.13			0.02		c0.46	0.53		0.30	0.10
v/c Ratio	0.93	1.00	0.44	1.19	0.77	0.06		1.08	0.53		0.70	0.23
Uniform Delay, d1	41.6	33.7	27.5	41.5	30.3	23.7		27.2	0.0		22.2	17.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	29.5	29.0	3.6	107.2	6.0	0.3		46.4	1.4		1.2	0.2
Delay (s)	71.1	62.7	31.1	148.7	36.2	24.0		73.6	1.4		23.4	17.5
Level of Service	E	E	C	F	D	C		E	A		C	B
Approach Delay (s)		59.5			76.4			54.0			22.6	
Approach LOS		E			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	52.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	104.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

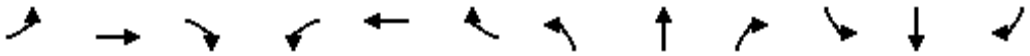
Site: 2035 + Proj Com Alt PM

Adeline & 18th
2035 + Project Commercial Alternative PM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	59	2.0	1.392	204.6	LOS F	94.4	2396.6	1.00	4.42	5.9
8	T	794	2.0	1.392	204.6	LOS F	94.4	2396.6	1.00	4.42	5.6
18	R	64	2.0	1.392	204.6	LOS F	94.4	2396.6	1.00	4.42	5.6
Approach		917	2.0	1.392	204.6	LOS F	94.4	2396.6	1.00	4.42	5.6
East: 18th Street (WB)											
1	L	16	2.0	0.429	12.0	LOS B	2.2	55.5	0.74	1.03	24.7
6	T	144	2.0	0.429	12.0	LOS B	2.2	55.5	0.74	0.90	26.5
16	R	113	2.0	0.429	12.0	LOS B	2.2	55.5	0.74	0.92	26.3
Approach		273	2.0	0.429	12.0	LOS B	2.2	55.5	0.74	0.91	26.3
North: Adeline Street (SB)											
7	L	42	2.0	0.234	5.3	LOS A	1.2	29.7	0.40	0.83	27.5
4	T	202	2.0	0.234	5.3	LOS A	1.2	29.7	0.40	0.52	30.6
14	R	24	2.0	0.234	5.3	LOS A	1.2	29.7	0.40	0.58	30.1
Approach		268	2.0	0.234	5.3	LOS A	1.2	29.7	0.40	0.57	30.0
West: 18th Street (EB)											
5	L	166	2.0	0.693	14.0	LOS B	7.2	182.5	0.77	0.89	23.9
2	T	538	2.0	0.693	14.0	LOS B	7.2	182.5	0.77	0.78	25.5
12	R	45	2.0	0.693	14.0	LOS B	7.2	182.5	0.77	0.80	25.3
Approach		749	2.0	0.693	14.0	LOS B	7.2	182.5	0.77	0.80	25.1
All Vehicles		2207	2.0	1.392	91.9	LOS F	94.4	2396.6	0.82	2.29	10.4

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	166	538	45	16	144	113	59	794	64	42	202	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99			0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.98	1.00			1.00	
Frt	1.00	0.99		1.00	0.93		1.00	0.99			0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1756	1834		1751	1721		1728	3477			3436	
Flt Permitted	0.51	1.00		0.17	1.00		0.59	1.00			0.80	
Satd. Flow (perm)	948	1834		307	1721		1067	3477			2771	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	166	538	45	16	144	113	59	794	64	42	202	24
RTOR Reduction (vph)	0	5	0	0	41	0	0	8	0	0	10	0
Lane Group Flow (vph)	166	578	0	16	216	0	59	850	0	0	258	0
Confl. Peds. (#/hr)	14		44	44		14	37		71	71		37
Confl. Bikes (#/hr)			6			2			2			11
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	24.0	24.0		24.0	24.0		37.0	37.0			37.0	
Effective Green, g (s)	24.0	24.0		24.0	24.0		37.0	37.0			37.0	
Actuated g/C Ratio	0.35	0.35		0.35	0.35		0.54	0.54			0.54	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	329	637		106	598		572	1864			1485	
v/s Ratio Prot		c0.32			0.13			c0.24				
v/s Ratio Perm	0.18			0.05			0.06				0.09	
v/c Ratio	0.50	0.91		0.15	0.36		0.10	0.46			0.17	
Uniform Delay, d1	17.8	21.4		15.5	16.8		7.9	9.8			8.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	1.2	16.7		0.7	0.4		0.4	0.8			0.3	
Delay (s)	19.0	38.1		16.2	17.2		8.2	10.6			8.4	
Level of Service	B	D		B	B		A	B			A	
Approach Delay (s)		33.9			17.1			10.5			8.4	
Approach LOS		C			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	69.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	94.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

Site: 2035 + Proj Com Alt PM

Adeline & 14th
2035 + Project Commercial Alternative PM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	19	2.0	0.741	18.2	LOS C	7.9	200.2	0.89	1.13	22.6
8	T	598	2.0	0.741	18.2	LOS C	7.9	200.2	0.89	1.06	23.8
18	R	53	2.0	0.741	18.2	LOS C	7.9	200.2	0.89	1.08	23.7
Approach		670	2.0	0.741	18.2	LOS C	7.9	200.2	0.89	1.07	23.7
East: 14th Street (WB)											
1	L	90	2.0	0.481	12.1	LOS B	2.7	69.6	0.74	1.03	24.6
6	T	205	2.0	0.481	12.1	LOS B	2.7	69.6	0.74	0.91	26.3
16	R	46	2.0	0.481	12.1	LOS B	2.7	69.6	0.74	0.93	26.1
Approach		341	2.0	0.481	12.1	LOS B	2.7	69.6	0.74	0.94	25.8
North: Adeline Street (SB)											
7	L	95	2.0	0.540	10.3	LOS B	3.8	96.7	0.66	0.90	25.4
4	T	424	2.0	0.540	10.3	LOS B	3.8	96.7	0.66	0.72	27.4
14	R	34	2.0	0.540	10.3	LOS B	3.8	96.7	0.66	0.76	27.2
Approach		553	2.0	0.540	10.3	LOS B	3.8	96.7	0.66	0.76	27.0
West: 14th Street (EB)											
5	L	57	2.0	0.541	12.9	LOS B	3.5	88.2	0.76	1.06	24.4
2	T	284	2.0	0.541	12.9	LOS B	3.5	88.2	0.76	0.93	26.0
12	R	69	2.0	0.541	12.9	LOS B	3.5	88.2	0.76	0.96	25.8
Approach		410	2.0	0.541	12.9	LOS B	3.5	88.2	0.76	0.96	25.7
All Vehicles		1974	2.0	0.741	13.8	LOS B	7.9	200.2	0.77	0.93	25.4

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.

MOVEMENT SUMMARY

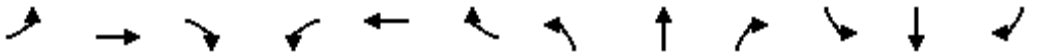
Site: 2035 + Proj Com Alt PM

Adeline & 12th
2035 + Project Commercial Alternative PM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	1	2.0	0.425	7.3	LOS A	2.7	69.1	0.43	0.84	26.7
8	T	508	2.0	0.425	7.3	LOS A	2.7	69.1	0.43	0.52	29.4
18	R	7	2.0	0.425	7.3	LOS A	2.7	69.1	0.43	0.58	29.0
Approach		516	2.0	0.425	7.3	LOS A	2.7	69.1	0.43	0.52	29.4
East: 12th Street (WB)											
1	L	10	2.0	0.216	6.6	LOS A	1.0	24.3	0.58	0.91	26.9
6	T	21	2.0	0.216	6.6	LOS A	1.0	24.3	0.58	0.71	29.5
16	R	149	2.0	0.216	6.6	LOS A	1.0	24.3	0.58	0.75	29.1
Approach		180	2.0	0.216	6.6	LOS A	1.0	24.3	0.58	0.75	29.0
North: Adeline Street (SB)											
7	L	133	2.0	0.415	6.6	LOS A	2.9	72.8	0.19	0.82	26.7
4	T	426	2.0	0.415	6.6	LOS A	2.9	72.8	0.19	0.40	29.8
14	R	8	2.0	0.415	6.6	LOS A	2.9	72.8	0.19	0.49	29.2
Approach		567	2.0	0.415	6.6	LOS A	2.9	72.8	0.19	0.50	28.9
West: 12th Street (EB)											
5	L	8	2.0	0.020	4.7	LOS A	0.1	2.0	0.54	0.79	27.7
2	T	5	2.0	0.020	4.7	LOS A	0.1	2.0	0.54	0.58	30.6
12	R	3	2.0	0.020	4.7	LOS A	0.1	2.0	0.54	0.63	30.2
Approach		16	2.0	0.020	4.7	LOS A	0.1	2.0	0.54	0.69	29.0
All Vehicles		1279	2.0	0.425	6.8	LOS A	2.9	72.8	0.34	0.54	29.1

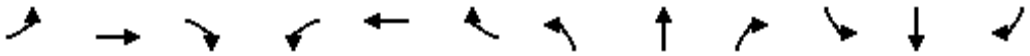
Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	258	185	0	0	191	263	155	505	219	277	0	520
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			0.98		1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frt	1.00	1.00			0.91		1.00	0.96		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1367	3312			2603		972	2915		1556		2472
Flt Permitted	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (perm)	1367	3312			2603		972	2915		1556		2472
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	258	185	0	0	191	263	155	505	219	277	0	520
RTOR Reduction (vph)	0	0	0	0	226	0	0	37	0	0	0	414
Lane Group Flow (vph)	258	185	0	0	228	0	139	703	0	277	0	106
Confl. Peds. (#/hr)						14						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	32%	9%	0%	0%	25%	24%	69%	12%	12%	16%	0%	15%
Turn Type	Prot	NA			NA		Split	NA		Prot		custom
Protected Phases	1	6			2		4	4		3		3
Permitted Phases												
Actuated Green, G (s)	21.2	38.5			13.8		26.7	26.7		20.1		20.1
Effective Green, g (s)	21.2	38.5			13.8		26.7	26.7		20.1		20.1
Actuated g/C Ratio	0.22	0.39			0.14		0.27	0.27		0.20		0.20
Clearance Time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	294	1297			365		264	791		318		505
v/s Ratio Prot	c0.19	0.06			c0.09		0.14	c0.24		c0.18		0.04
v/s Ratio Perm												
v/c Ratio	0.88	0.14			0.62		0.53	0.89		0.87		0.21
Uniform Delay, d1	37.3	19.3			39.8		30.4	34.4		37.8		32.5
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	23.5	0.0			2.9		1.4	11.8		21.8		0.2
Delay (s)	60.8	19.3			42.7		31.9	46.2		59.7		32.7
Level of Service	E	B			D		C	D		E		C
Approach Delay (s)		43.5			42.7			43.9			42.0	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	43.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	98.3	Sum of lost time (s)	16.5
Intersection Capacity Utilization	77.4%	ICU Level of Service	D
Analysis Period (min)	15		

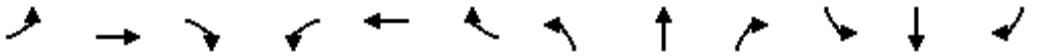
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	679	22	102	713	414	20	113	68	464	163	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.97			0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		0.99	1.00	
Frt	1.00	1.00		1.00	0.94			0.95		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1770	3378		1770	3177			1745		1757	1720	
Flt Permitted	0.95	1.00		0.95	1.00			0.96		0.60	1.00	
Satd. Flow (perm)	1770	3378		1770	3177			1689		1114	1720	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	80	679	22	102	713	414	20	113	68	464	163	66
RTOR Reduction (vph)	0	3	0	0	91	0	0	22	0	0	17	0
Lane Group Flow (vph)	80	698	0	102	1036	0	0	179	0	464	212	0
Confl. Peds. (#/hr)			58			47	70		8	8		70
Confl. Bikes (#/hr)			15			6			9			38
Heavy Vehicles (%)	2%	6%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	6.0	33.0		7.0	34.0			39.0		39.0	39.0	
Effective Green, g (s)	6.0	33.0		7.0	34.0			39.0		39.0	39.0	
Actuated g/C Ratio	0.07	0.37		0.08	0.38			0.43		0.43	0.43	
Clearance Time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	118	1238		137	1200			731		482	745	
v/s Ratio Prot	0.05	c0.21		0.06	c0.33						0.12	
v/s Ratio Perm								0.11		c0.42		
v/c Ratio	0.68	0.56		0.74	0.86			0.25		0.96	0.28	
Uniform Delay, d1	41.1	22.8		40.6	25.9			16.2		24.8	16.5	
Progression Factor	0.95	0.91		0.96	0.71			1.00		1.00	1.00	
Incremental Delay, d2	11.5	0.4		17.2	8.3			0.1		31.2	0.1	
Delay (s)	50.3	21.1		56.4	26.6			16.2		56.0	16.6	
Level of Service	D	C		E	C			B		E	B	
Approach Delay (s)		24.1			29.1			16.2			43.0	
Approach LOS		C			C			B			D	

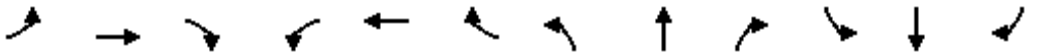
Intersection Summary			
HCM 2000 Control Delay	30.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	58	1661	48	70	1437	305	52	120	122	159	128	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.99	1.00		0.99	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.92		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1766	3383		1054	3471	1460	1574	1065		1759	1574	
Flt Permitted	0.09	1.00		0.09	1.00	1.00	0.61	1.00		0.52	1.00	
Satd. Flow (perm)	171	3383		101	3471	1460	1004	1065		962	1574	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	58	1661	48	70	1437	305	52	120	122	159	128	50
RTOR Reduction (vph)	0	3	0	0	0	137	0	10	0	0	18	0
Lane Group Flow (vph)	58	1706	0	70	1437	168	52	232	0	159	160	0
Confl. Peds. (#/hr)	21		23	23		21	9		11	11		9
Confl. Bikes (#/hr)			4			5						1
Heavy Vehicles (%)	2%	6%	11%	71%	4%	6%	14%	50%	76%	2%	20%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	44.0	44.0		44.0	44.0	44.0	28.0	28.0		28.0	28.0	
Effective Green, g (s)	44.0	44.0		44.0	44.0	44.0	28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.55	0.55		0.55	0.55	0.55	0.35	0.35		0.35	0.35	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	94	1860		55	1909	803	351	372		336	550	
v/s Ratio Prot		0.50			0.41			c0.22			0.10	
v/s Ratio Perm	0.34			c0.69		0.11	0.05			0.17		
v/c Ratio	0.62	0.92		1.27	0.75	0.21	0.15	0.62		0.47	0.29	
Uniform Delay, d1	12.3	16.3		18.0	13.8	9.2	17.8	21.6		20.3	18.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	26.7	8.7		211.4	2.8	0.6	0.9	7.6		4.7	1.3	
Delay (s)	39.0	25.1		229.4	16.6	9.7	18.7	29.2		25.0	20.2	
Level of Service	D	C		F	B	A	B	C		C	C	
Approach Delay (s)		25.5			23.7			27.4			22.4	
Approach LOS		C			C			C			C	

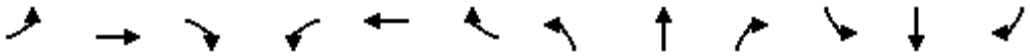
Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	107	1505	87	25	1051	68	591	396	63	84	60	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1669	4281		1767	4531		1742	1863	1538	1755	3539	1216
Flt Permitted	0.18	1.00		0.11	1.00		0.72	1.00	1.00	0.41	1.00	1.00
Satd. Flow (perm)	320	4281		201	4531		1312	1863	1538	758	3539	1216
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	107	1505	87	25	1051	68	591	396	63	84	60	132
RTOR Reduction (vph)	0	7	0	0	8	0	0	0	14	0	0	22
Lane Group Flow (vph)	107	1585	0	25	1111	0	591	396	49	84	60	110
Confl. Peds. (#/hr)	10		20	20		10	8		20	20		8
Confl. Bikes (#/hr)			7			3						6
Heavy Vehicles (%)	8%	21%	2%	2%	14%	2%	3%	2%	2%	2%	2%	30%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	37.0	37.0		37.0	37.0		38.5	38.5	38.5	38.5	38.5	38.5
Effective Green, g (s)	37.0	37.0		37.0	37.0		38.5	38.5	38.5	38.5	38.5	38.5
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.45	0.45	0.45	0.45	0.45	0.45
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	139	1863		87	1972		594	843	696	343	1602	550
v/s Ratio Prot		c0.37			0.25			0.21			0.02	
v/s Ratio Perm	0.33			0.12			c0.45		0.03	0.11		0.09
v/c Ratio	0.77	0.85		0.29	0.56		0.99	0.47	0.07	0.24	0.04	0.20
Uniform Delay, d1	20.4	21.5		15.5	18.0		23.2	16.2	13.1	14.3	12.9	14.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	32.9	5.1		0.7	0.2		35.7	1.9	0.2	1.7	0.0	0.8
Delay (s)	53.3	26.6		16.2	18.2		58.9	18.0	13.3	16.0	13.0	14.8
Level of Service	D	C		B	B		E	B	B	B	B	B
Approach Delay (s)		28.3			18.1			40.7			14.8	
Approach LOS		C			B			D			B	

Intersection Summary			
HCM 2000 Control Delay	27.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	109.3%	ICU Level of Service	H
Analysis Period (min)	15		

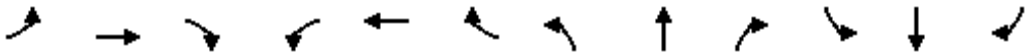
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	34	162	561	48	172	0	0	133	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	1.00			0.95	1.00
Frpb, ped/bikes					1.00	0.99	1.00	1.00			1.00	0.98
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3508	1561	1770	1111			2865	1558
Flt Permitted					0.99	1.00	0.67	1.00			1.00	1.00
Satd. Flow (perm)					3508	1561	1244	1111			2865	1558
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	34	162	561	48	172	0	0	133	24
RTOR Reduction (vph)	0	0	0	0	0	476	0	0	0	0	0	6
Lane Group Flow (vph)	0	0	0	0	196	85	48	172	0	0	133	18
Confl. Peds. (#/hr)				1		2			8	8		
Confl. Bikes (#/hr)												13
Heavy Vehicles (%)	0%	13%	100%	2%	2%	2%	2%	71%	83%	0%	26%	2%
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					4			6			2	
Permitted Phases				4		4	6					2
Actuated Green, G (s)					13.7	13.7	66.8	66.8			66.8	66.8
Effective Green, g (s)					13.7	13.7	66.8	66.8			66.8	66.8
Actuated g/C Ratio					0.15	0.15	0.74	0.74			0.74	0.74
Clearance Time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Vehicle Extension (s)					2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)					533	237	923	824			2126	1156
v/s Ratio Prot								c0.15			0.05	
v/s Ratio Perm					0.06	0.05	0.04					0.01
v/c Ratio					0.37	0.36	0.05	0.21			0.06	0.02
Uniform Delay, d1					34.3	34.2	3.1	3.5			3.1	3.0
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					0.2	0.3	0.0	0.0			0.1	0.0
Delay (s)					34.4	34.6	3.1	3.6			3.2	3.0
Level of Service					C	C	A	A			A	A
Approach Delay (s)		0.0			34.5			3.5			3.2	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	24.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

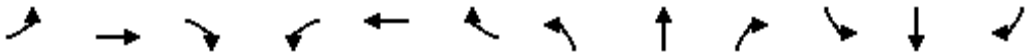


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	944	65	41	112	26	107	312	148	166	162	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.96		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.97		1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3366		1770	3295		1770	1077		1770	1090	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3366		1770	3295		1770	1077		1770	1090	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	26	944	65	41	112	26	107	312	148	166	162	14
RTOR Reduction (vph)	0	3	0	0	12	0	0	11	0	0	2	0
Lane Group Flow (vph)	26	1006	0	41	126	0	107	449	0	166	174	0
Confl. Peds. (#/hr)						50			3			3
Confl. Bikes (#/hr)			4						1			
Heavy Vehicles (%)	2%	5%	21%	2%	2%	2%	2%	57%	88%	2%	78%	2%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Actuated Green, G (s)	4.0	49.2		4.0	49.7		64.0	64.0		24.0	24.0	
Effective Green, g (s)	4.0	49.2		4.0	49.7		64.0	64.0		24.0	24.0	
Actuated g/C Ratio	0.03	0.31		0.03	0.32		0.41	0.41		0.15	0.15	
Clearance Time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.5	3.0		3.2	3.2		3.0	3.0	
Lane Grp Cap (vph)	45	1053		45	1041		720	438		270	166	
v/s Ratio Prot	0.01	c0.30		c0.02	0.04		0.06	c0.42		0.09	c0.16	
v/s Ratio Perm												
v/c Ratio	0.58	0.95		0.91	0.12		0.15	1.02		0.61	1.05	
Uniform Delay, d1	75.8	52.9		76.4	38.2		29.4	46.6		62.3	66.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.7	17.8		100.2	0.1		0.1	49.4		4.1	83.7	
Delay (s)	86.4	70.7		176.6	38.3		29.5	96.0		66.4	150.3	
Level of Service	F	E		F	D		C	F		E	F	
Approach Delay (s)		71.1			69.9			83.4			109.6	
Approach LOS		E			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	80.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	157.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

2035 + Project Commercial Alternative AM Mitigated

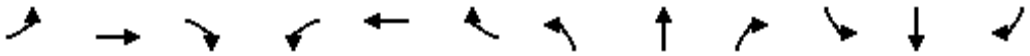


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	66	1265	79	279	1368	247	62	169	197	370	564	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3498		1770	3539	1518	1770	1863	1540	1770	1793	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3498		1770	3539	1518	1770	1863	1540	1770	1793	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	1375	86	303	1487	268	67	184	214	402	613	174
RTOR Reduction (vph)	0	7	0	0	0	100	0	0	138	0	17	0
Lane Group Flow (vph)	72	1454	0	303	1487	168	67	184	76	402	770	0
Confl. Peds. (#/hr)			32			7			5			6
Confl. Bikes (#/hr)			4			9			11			3
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			
Actuated Green, G (s)	2.3	17.9		8.0	23.6	23.6	2.3	14.6	14.6	4.0	16.3	
Effective Green, g (s)	2.3	17.9		8.0	23.6	23.6	2.3	14.6	14.6	4.0	16.3	
Actuated g/C Ratio	0.04	0.30		0.13	0.39	0.39	0.04	0.24	0.24	0.07	0.27	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	67	1034		234	1380	592	67	449	371	117	483	
v/s Ratio Prot	0.04	c0.42		c0.17	0.42		0.04	0.10		c0.23	c0.43	
v/s Ratio Perm						0.11			0.05			
v/c Ratio	1.07	1.41		1.29	1.08	0.28	1.00	0.41	0.20	3.44	1.59	
Uniform Delay, d1	29.1	21.3		26.2	18.4	12.7	29.1	19.3	18.3	28.2	22.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	132.0	188.6		160.6	48.1	0.3	110.0	0.6	0.3	1117.4	277.2	
Delay (s)	161.1	209.9		186.9	66.5	12.9	139.1	19.9	18.6	1145.7	299.3	
Level of Service	F	F		F	E	B	F	B	B	F	F	
Approach Delay (s)		207.6			77.2			36.5			585.5	
Approach LOS		F			E			D			F	

Intersection Summary			
HCM 2000 Control Delay	226.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.68		
Actuated Cycle Length (s)	60.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	109.4%	ICU Level of Service	H
Analysis Period (min)	15		

Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group

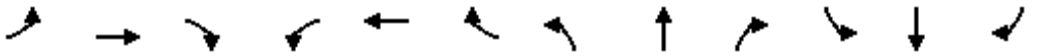


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	249	941	912	128	1149	190	864	784	45	165	1350	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.94		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.98		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3084		1770	3424		3433	3496		1770	3407	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3084		1770	3424		3433	3496		1770	3407	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	271	1023	991	139	1249	207	939	852	49	179	1467	277
RTOR Reduction (vph)	0	159	0	0	12	0	0	4	0	0	14	0
Lane Group Flow (vph)	271	1855	0	139	1444	0	939	897	0	179	1730	0
Confl. Peds. (#/hr)			83			52			53			68
Confl. Bikes (#/hr)			15			8			15			12
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	18.3	35.0		11.0	27.7		15.0	37.1		13.9	35.0	
Effective Green, g (s)	18.3	35.0		11.0	27.7		15.0	37.1		13.9	35.0	
Actuated g/C Ratio	0.17	0.32		0.10	0.25		0.14	0.34		0.13	0.32	
Clearance Time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.0	2.0		2.0	4.0		2.5	4.0	
Lane Grp Cap (vph)	294	981		177	862		468	1179		223	1084	
v/s Ratio Prot	c0.15	c0.60		0.08	0.42		c0.27	0.26		0.10	c0.51	
v/s Ratio Perm												
v/c Ratio	0.92	1.89		0.79	1.68		2.01	0.76		0.80	1.60	
Uniform Delay, d1	45.1	37.5		48.3	41.1		47.5	32.5		46.7	37.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	32.2	404.8		18.7	308.9		460.4	4.7		18.0	272.4	
Delay (s)	77.4	442.3		67.0	350.1		507.9	37.2		64.7	309.9	
Level of Service	E	F		E	F		F	D		E	F	
Approach Delay (s)		399.1			325.4			277.4			287.1	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	326.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.68		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	151.3%	ICU Level of Service	H
Analysis Period (min)	15		

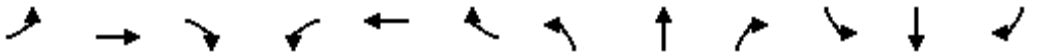
Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group



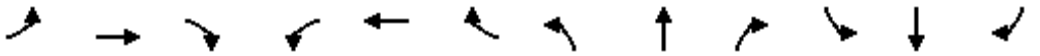
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	538	81	12	299	0	0	0	0	631	897	576
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5					6.5	6.5	6.5
Lane Util. Factor		0.95			0.91					0.91	0.91	1.00
Frpb, ped/bikes		0.99			1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Frt		0.98			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	0.99	1.00
Satd. Flow (prot)		3449			5074					1610	3368	1550
Flt Permitted		1.00			0.87					0.95	0.99	1.00
Satd. Flow (perm)		3449			4440					1610	3368	1550
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	538	81	12	299	0	0	0	0	631	897	576
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	0	0	0	62
Lane Group Flow (vph)	0	604	0	0	311	0	0	0	0	492	1036	514
Confl. Peds. (#/hr)	20		20	20								20
Turn Type		NA		Perm	NA					Perm	NA	Perm
Protected Phases		1			1						2	
Permitted Phases				1						2		2
Actuated Green, G (s)		17.0			17.0					51.0	51.0	51.0
Effective Green, g (s)		17.0			17.0					51.0	51.0	51.0
Actuated g/C Ratio		0.21			0.21					0.64	0.64	0.64
Clearance Time (s)		5.5			5.5					6.5	6.5	6.5
Lane Grp Cap (vph)		732			943					1026	2147	988
v/s Ratio Prot		c0.18										
v/s Ratio Perm					0.07					0.31	0.31	c0.33
v/c Ratio		0.83			0.33					0.48	0.48	0.52
Uniform Delay, d1		30.1			26.7					7.6	7.6	7.9
Progression Factor		1.00			1.12					1.00	1.00	1.00
Incremental Delay, d2		10.3			0.9					1.6	0.8	2.0
Delay (s)		40.3			30.9					9.2	8.4	9.8
Level of Service		D			C					A	A	A
Approach Delay (s)		40.3			30.9			0.0			9.0	
Approach LOS		D			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



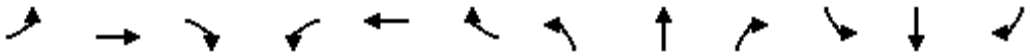
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	297	888	0	0	293	737	8	756	31	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1610	3385			3539	2704		5045				
Flt Permitted	0.95	0.95			1.00	1.00		1.00				
Satd. Flow (perm)	1610	3210			3539	2704		5045				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	297	888	0	0	293	737	8	756	31	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	180	0	5	0	0	0	0
Lane Group Flow (vph)	267	918	0	0	293	557	0	790	0	0	0	0
Confl. Peds. (#/hr)						20			20			
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	21.5	51.5			26.5	26.5		17.5				
Effective Green, g (s)	21.5	51.5			26.5	26.5		17.5				
Actuated g/C Ratio	0.27	0.64			0.33	0.33		0.22				
Clearance Time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Grp Cap (vph)	432	2113			1172	895		1103				
v/s Ratio Prot	c0.17	0.12			0.08							
v/s Ratio Perm		0.16				c0.21		0.16				
v/c Ratio	0.62	0.43			0.25	0.62		0.72				
Uniform Delay, d1	25.6	7.0			19.5	22.5		28.9				
Progression Factor	0.90	0.75			1.00	1.00		1.00				
Incremental Delay, d2	5.1	0.5			0.5	3.3		4.0				
Delay (s)	28.2	5.8			20.0	25.8		32.9				
Level of Service	C	A			C	C		C				
Approach Delay (s)		10.8			24.1			32.9			0.0	
Approach LOS		B			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



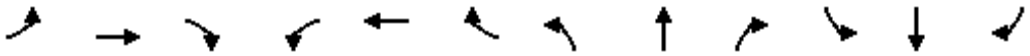
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	933	748	388	1621	69	213	45	335	31	21	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3312	1404	1543	3333		1243	1248	946	1203	1115	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3312	1404	1543	3333		1243	1248	946	1203	1115	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	61	933	748	388	1621	69	213	45	335	31	21	20
RTOR Reduction (vph)	0	0	337	0	2	0	0	0	285	0	19	0
Lane Group Flow (vph)	61	933	411	388	1688	0	128	130	50	31	22	0
Confl. Peds. (#/hr)						1			3			
Heavy Vehicles (%)	0%	9%	15%	17%	7%	21%	38%	44%	68%	50%	75%	40%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases			2						8			
Actuated Green, G (s)	5.5	46.5	46.5	33.9	74.9		17.9	17.9	17.9	4.5	4.5	
Effective Green, g (s)	5.5	46.5	46.5	33.9	74.9		17.9	17.9	17.9	4.5	4.5	
Actuated g/C Ratio	0.05	0.39	0.39	0.28	0.63		0.15	0.15	0.15	0.04	0.04	
Clearance Time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.5	3.5	3.5	2.0	3.5		3.0	3.0	3.0	2.0	2.0	
Lane Grp Cap (vph)	83	1290	547	438	2092		186	187	141	45	42	
v/s Ratio Prot	0.03	0.28		c0.25	c0.51		0.10	c0.10		c0.03	0.02	
v/s Ratio Perm			0.29						0.05			
v/c Ratio	0.73	0.72	0.75	0.89	0.81		0.69	0.70	0.36	0.69	0.52	
Uniform Delay, d1	56.2	30.9	31.4	40.8	16.7		48.1	48.1	45.5	56.7	56.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	26.9	2.1	5.9	18.4	2.4		10.1	10.7	1.5	29.5	4.4	
Delay (s)	83.1	33.0	37.3	59.3	19.2		58.2	58.8	47.1	86.3	60.8	
Level of Service	F	C	D	E	B		E	E	D	F	E	
Approach Delay (s)		36.6			26.7			52.0			71.7	
Approach LOS		D			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	34.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	119.3	Sum of lost time (s)	16.5
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



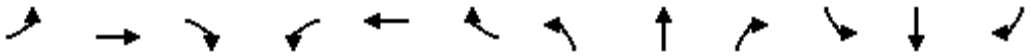
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	865	284	284	1387	343	526	233	514	324	241	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	0.91	0.91		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.91		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.99		0.95	0.99	
Satd. Flow (prot)	1014	2904		1299	3438	1369	1346	2462		1480	2316	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.99		0.95	0.99	
Satd. Flow (perm)	1014	2904		1299	3438	1369	1346	2462		1480	2316	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	155	865	284	284	1387	343	526	233	514	324	241	180
RTOR Reduction (vph)	0	23	0	0	0	168	0	201	0	0	52	0
Lane Group Flow (vph)	155	1126	0	284	1387	175	442	630	0	253	440	0
Confl. Peds. (#/hr)									1			
Heavy Vehicles (%)	78%	14%	37%	39%	5%	18%	22%	42%	19%	11%	45%	45%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	16.5	42.0		22.5	48.0	48.0	39.5	39.5		19.0	19.0	
Effective Green, g (s)	16.5	42.0		22.5	48.0	48.0	39.5	39.5		19.0	19.0	
Actuated g/C Ratio	0.12	0.30		0.16	0.34	0.34	0.28	0.28		0.14	0.14	
Clearance Time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	119	874		209	1182	471	381	697		201	315	
v/s Ratio Prot	0.15	c0.39		c0.22	0.40		c0.33	0.26		0.17	c0.19	
v/s Ratio Perm						0.13						
v/c Ratio	1.30	1.29		1.36	1.17	0.37	1.16	0.90		1.26	1.40	
Uniform Delay, d1	61.5	48.8		58.5	45.8	34.4	50.0	48.2		60.2	60.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	184.3	138.3		189.3	87.3	0.5	97.4	15.1		150.2	197.1	
Delay (s)	245.8	187.1		247.8	133.0	34.9	147.4	63.2		210.4	257.3	
Level of Service	F	F		F	F	C	F	E		F	F	
Approach Delay (s)		194.1			132.5			92.4			241.4	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	153.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	139.5	Sum of lost time (s)	16.5
Intersection Capacity Utilization	103.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1646	79	140	1232	0	0	0	0	494	361	530
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						5.0	
Lane Util. Factor		0.91		1.00	0.95						0.95	
Frpb, ped/bikes		1.00		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.99		1.00	1.00						0.94	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		4952		1770	3343						3145	
Flt Permitted		1.00		0.09	1.00						0.98	
Satd. Flow (perm)		4952		162	3343						3145	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1646	79	140	1232	0	0	0	0	494	361	530
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	31	0
Lane Group Flow (vph)	0	1719	0	140	1232	0	0	0	0	0	1354	0
Confl. Peds. (#/hr)			8	8						10		10
Heavy Vehicles (%)	6%	4%	2%	2%	8%	2%	0%	0%	0%	2%	2%	11%
Turn Type		NA		Perm	NA					Split	NA	
Protected Phases		4			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		46.0		46.0	46.0						31.0	
Effective Green, g (s)		46.0		46.0	46.0						31.0	
Actuated g/C Ratio		0.53		0.53	0.53						0.36	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		2618		85	1767						1120	
v/s Ratio Prot		0.35			0.37						c0.43	
v/s Ratio Perm				c0.86								
v/c Ratio		0.66		1.65	0.70						1.21	
Uniform Delay, d1		14.8		20.5	15.3						28.0	
Progression Factor		1.00		0.40	0.34						1.00	
Incremental Delay, d2		0.5		313.3	0.4						102.6	
Delay (s)		15.3		321.4	5.7						130.6	
Level of Service		B		F	A						F	
Approach Delay (s)		15.3			37.9			0.0			130.6	
Approach LOS		B			D			A			F	

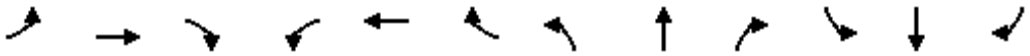
Intersection Summary			
HCM 2000 Control Delay	57.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.46		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	156.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	388	1752	0	0	1221	462	151	438	117	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0				
Lane Util. Factor	1.00	0.95			0.95			0.95				
Frpb, ped/bikes	1.00	1.00			0.99			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.96			0.98				
Flt Protected	0.95	1.00			1.00			0.99				
Satd. Flow (prot)	1770	3539			3366			3402				
Flt Permitted	0.09	1.00			1.00			0.99				
Satd. Flow (perm)	162	3539			3366			3402				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	388	1752	0	0	1221	462	151	438	117	0	0	0
RTOR Reduction (vph)	0	0	0	0	45	0	0	8	0	0	0	0
Lane Group Flow (vph)	388	1752	0	0	1638	0	0	698	0	0	0	0
Confl. Peds. (#/hr)	10					10			10			
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)	46.0	46.0			46.0			31.0				
Effective Green, g (s)	46.0	46.0			46.0			31.0				
Actuated g/C Ratio	0.53	0.53			0.53			0.36				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Vehicle Extension (s)	2.0	2.0			2.0			2.0				
Lane Grp Cap (vph)	85	1871			1779			1212				
v/s Ratio Prot		0.50			0.49			c0.21				
v/s Ratio Perm	c2.40											
v/c Ratio	4.56	0.94			0.92			0.58				
Uniform Delay, d1	20.5	19.1			18.8			22.7				
Progression Factor	0.66	0.63			1.00			1.00				
Incremental Delay, d2	1620.1	6.1			8.2			0.4				
Delay (s)	1633.7	18.1			27.0			23.1				
Level of Service	F	B			C			C				
Approach Delay (s)		311.0			27.0			23.1			0.0	
Approach LOS		F			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	160.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.94		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	156.6%	ICU Level of Service	H
Analysis Period (min)	15		

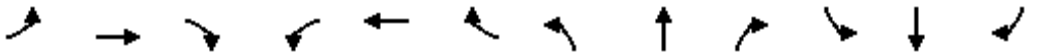
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	1318	127	107	1865	20	61	101	45	22	145	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		3.5	3.5		4.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.95		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3419		1770	3400		1770	1762		1770	1775	
Flt Permitted	0.08	1.00		0.08	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	158	3419		157	3400		1770	1762		1770	1775	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	48	1318	127	107	1865	20	61	101	45	22	145	51
RTOR Reduction (vph)	0	8	0	0	1	0	0	17	0	0	14	0
Lane Group Flow (vph)	48	1437	0	107	1884	0	61	129	0	22	182	0
Confl. Peds. (#/hr)	8		7	7		8	11		8	8		11
Confl. Bikes (#/hr)			9			11			8			10
Heavy Vehicles (%)	2%	4%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2			6								
Actuated Green, G (s)	47.2	47.2		48.7	48.7		3.2	27.2		1.6	25.6	
Effective Green, g (s)	47.2	47.2		48.7	48.7		3.2	27.2		1.6	25.6	
Actuated g/C Ratio	0.52	0.52		0.54	0.54		0.04	0.30		0.02	0.28	
Clearance Time (s)	5.0	5.0		3.5	3.5		4.0	5.0		4.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	82	1793		84	1839		62	532		31	504	
v/s Ratio Prot		0.42			0.55		c0.03	0.07		0.01	c0.10	
v/s Ratio Perm	0.30			c0.68								
v/c Ratio	0.59	0.80		1.27	1.02		0.98	0.24		0.71	0.36	
Uniform Delay, d1	14.7	17.6		20.6	20.6		43.4	23.6		44.0	25.7	
Progression Factor	1.00	1.00		0.86	0.85		1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.2	2.7		131.6	13.9		108.0	0.2		54.2	0.4	
Delay (s)	24.9	20.2		149.4	31.6		151.4	23.9		98.1	26.1	
Level of Service	C	C		F	C		F	C		F	C	
Approach Delay (s)		20.4			37.9			61.4			33.4	
Approach LOS		C			D			E			C	

Intersection Summary			
HCM 2000 Control Delay	32.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	118.5%	ICU Level of Service	H
Analysis Period (min)	15		

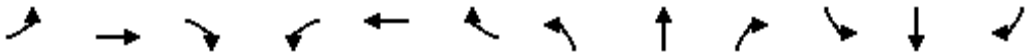
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	1060	251	56	1373	13	495	281	107	4	120	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Lane Util. Factor		0.95			0.95	1.00	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes		0.99			1.00	0.94	1.00	1.00	0.95		1.00	0.95
Flpb, ped/bikes		1.00			1.00	1.00	0.98	1.00	1.00		1.00	1.00
Frt		0.97			1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected		1.00			1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)		3319			3299	1488	1646	1845	1508		1859	1519
Flt Permitted		0.72			0.72	1.00	0.66	1.00	1.00		0.99	1.00
Satd. Flow (perm)		2392			2378	1488	1150	1845	1508		1848	1519
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	1060	251	56	1373	13	495	281	107	4	120	149
RTOR Reduction (vph)	0	22	0	0	0	3	0	0	43	0	0	19
Lane Group Flow (vph)	0	1339	0	0	1429	10	495	281	64	0	124	130
Confl. Peds. (#/hr)	21		15	15		21	27		25	25		27
Confl. Bikes (#/hr)			18			17			16			17
Heavy Vehicles (%)	2%	5%	3%	39%	8%	2%	7%	3%	2%	2%	2%	1%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		4
Actuated Green, G (s)		47.5			47.5	47.5	33.5	33.5	33.5		33.5	33.5
Effective Green, g (s)		47.5			47.5	47.5	33.5	33.5	33.5		33.5	33.5
Actuated g/C Ratio		0.53			0.53	0.53	0.37	0.37	0.37		0.37	0.37
Clearance Time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Vehicle Extension (s)		2.0			2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1262			1255	785	428	686	561		687	565
v/s Ratio Prot								0.15				
v/s Ratio Perm		0.56			c0.60	0.01	c0.43		0.04		0.07	0.09
v/c Ratio		1.06			1.14	0.01	1.16	0.41	0.11		0.18	0.23
Uniform Delay, d1		21.2			21.2	10.1	28.2	20.9	18.5		19.0	19.4
Progression Factor		0.54			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2		39.0			72.5	0.0	93.8	0.1	0.0		0.0	0.1
Delay (s)		50.4			93.8	10.1	122.0	21.1	18.6		19.1	19.5
Level of Service		D			F	B	F	C	B		B	B
Approach Delay (s)		50.4			93.0			77.4			19.3	
Approach LOS		D			F			E			B	

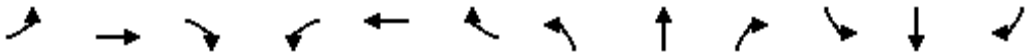
Intersection Summary			
HCM 2000 Control Delay	69.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	121.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	74	884	247	69	1335	220	101	691	32	60	1218	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3432	1510	1764	3252	1540	1669	3512		1762	3538	
Flt Permitted		0.59	1.00	0.18	1.00	1.00	0.11	1.00		0.31	1.00	
Satd. Flow (perm)		2042	1510	335	3252	1540	191	3512		573	3538	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	74	884	247	69	1335	220	101	691	32	60	1218	3
RTOR Reduction (vph)	0	0	18	0	0	66	0	4	0	0	0	0
Lane Group Flow (vph)	0	958	229	69	1335	154	101	719	0	60	1221	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Heavy Vehicles (%)	2%	5%	4%	2%	11%	2%	8%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4		4	2			6		
Actuated Green, G (s)		37.0	37.0	37.0	37.0	37.0	38.5	38.5		38.5	38.5	
Effective Green, g (s)		37.0	37.0	37.0	37.0	37.0	38.5	38.5		38.5	38.5	
Actuated g/C Ratio		0.44	0.44	0.44	0.44	0.44	0.45	0.45		0.45	0.45	
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0		4.0	4.0	
Lane Grp Cap (vph)		888	657	145	1415	670	86	1590		259	1602	
v/s Ratio Prot					0.41			0.20			0.35	
v/s Ratio Perm		c0.47	0.15	0.21		0.10	c0.53			0.10		
v/c Ratio		1.08	0.35	0.48	0.94	0.23	1.17	0.45		0.23	0.76	
Uniform Delay, d1		24.0	16.0	17.1	23.0	15.1	23.2	16.0		14.2	19.4	
Progression Factor		1.00	1.00	1.42	1.01	1.89	1.00	1.00		1.00	1.00	
Incremental Delay, d2		53.8	1.5	8.9	11.8	0.7	151.5	0.4		0.6	2.3	
Delay (s)		77.8	17.4	33.1	35.0	29.0	174.8	16.4		14.8	21.8	
Level of Service		E	B	C	D	C	F	B		B	C	
Approach Delay (s)		65.4			34.1			35.8			21.4	
Approach LOS		E			C			D			C	

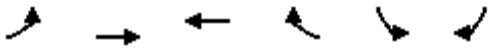
Intersection Summary			
HCM 2000 Control Delay	38.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	121.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	863	27	119	1447	32	18	109	263	37	99	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.97		1.00	0.94		0.97	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1589	3124	1361	1505	3185	1375		3152	1174		2853	
Flt Permitted	0.14	1.00	1.00	0.31	1.00	1.00		0.90	1.00		0.89	
Satd. Flow (perm)	242	3124	1361	491	3185	1375		2843	1174		2565	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	55	863	27	119	1447	32	18	109	263	37	99	105
RTOR Reduction (vph)	0	0	7	0	0	5	0	0	120	0	33	0
Lane Group Flow (vph)	55	863	20	119	1447	27	0	127	143	0	208	0
Confl. Peds. (#/hr)	22		31	31		22	34		37	37		34
Confl. Bikes (#/hr)			7			3			12			19
Heavy Vehicles (%)	2%	4%	2%	7%	2%	2%	2%	2%	16%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4		4	2		2	2		
Actuated Green, G (s)	61.4	61.4	61.4	61.4	61.4	61.4		15.1	15.1		15.1	
Effective Green, g (s)	61.4	61.4	61.4	61.4	61.4	61.4		15.1	15.1		15.1	
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72	0.72		0.18	0.18		0.18	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	174	2256	983	354	2300	993		505	208		455	
v/s Ratio Prot		0.28			c0.45							
v/s Ratio Perm	0.23		0.01	0.24		0.02		0.04	c0.12		0.08	
v/c Ratio	0.32	0.38	0.02	0.34	0.63	0.03		0.25	0.69		0.46	
Uniform Delay, d1	4.2	4.5	3.3	4.3	6.0	3.3		30.1	32.7		31.3	
Progression Factor	1.06	0.78	0.71	2.77	2.63	3.05		1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.0	0.0	0.2	0.1	0.0		0.1	7.3		0.3	
Delay (s)	4.9	3.6	2.4	12.2	15.9	10.2		30.2	40.0		31.5	
Level of Service	A	A	A	B	B	B		C	D		C	
Approach Delay (s)		3.6			15.5			36.8			31.5	
Approach LOS		A			B			D			C	

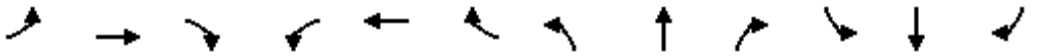
Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



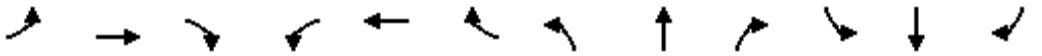
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	503	601	1428	122	663	242
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.99	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1593	3008	3036	1343	3048	1191
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1593	3008	3036	1343	3048	1191
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	503	601	1428	122	663	242
RTOR Reduction (vph)	0	0	0	34	3	162
Lane Group Flow (vph)	503	601	1428	88	684	56
Confl. Peds. (#/hr)				15	15	15
Heavy Vehicles (%)	2%	8%	7%	5%	3%	8%
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	19.0	55.0	32.0	32.0	22.0	22.0
Effective Green, g (s)	19.0	55.0	32.0	32.0	22.0	22.0
Actuated g/C Ratio	0.22	0.65	0.38	0.38	0.26	0.26
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	356	1946	1142	505	788	308
v/s Ratio Prot	c0.32	0.20	c0.47		c0.22	
v/s Ratio Perm				0.07		0.05
v/c Ratio	1.41	0.31	1.25	0.17	0.87	0.18
Uniform Delay, d1	33.0	6.6	26.5	17.7	30.1	24.5
Progression Factor	0.68	1.52	0.99	0.77	1.00	1.00
Incremental Delay, d2	200.6	0.4	114.5	0.0	9.7	0.1
Delay (s)	223.1	10.4	140.7	13.7	39.8	24.6
Level of Service	F	B	F	B	D	C
Approach Delay (s)		107.3	130.7		36.1	
Approach LOS		F	F		D	

Intersection Summary			
HCM 2000 Control Delay	99.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	108.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	72	864	53	136	1132	112	173	481	158	116	424	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00	0.91	1.00	0.98	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	1.00	0.99	1.00	
Frt	1.00	0.99			0.99		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00			1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1586	3147			3112		1585	3185	1301	1581	3005	
Flt Permitted	0.11	1.00			0.68		0.29	1.00	1.00	0.30	1.00	
Satd. Flow (perm)	176	3147			2116		484	3185	1301	499	3005	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	72	864	53	136	1132	112	173	481	158	116	424	143
RTOR Reduction (vph)	0	4	0	0	6	0	0	0	81	0	35	0
Lane Group Flow (vph)	72	913	0	0	1374	0	173	481	77	116	532	0
Confl. Peds. (#/hr)	46		47	47		46	57		65	65		57
Confl. Bikes (#/hr)			9			21			15			22
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	47.0	47.0			47.0		24.4	20.4	20.4	27.6	22.0	
Effective Green, g (s)	47.0	47.0			47.0		24.4	20.4	20.4	27.6	22.0	
Actuated g/C Ratio	0.55	0.55			0.55		0.29	0.24	0.24	0.32	0.26	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		3.0	2.0	2.0	3.0	2.0	
Lane Grp Cap (vph)	97	1740			1170		190	764	312	233	777	
v/s Ratio Prot		0.29					c0.04	0.15		c0.03	0.18	
v/s Ratio Perm	0.41				c0.65		c0.22		0.06	0.13		
v/c Ratio	0.74	0.52			1.17		0.91	0.63	0.25	0.50	0.68	
Uniform Delay, d1	14.4	12.0			19.0		28.5	28.9	26.1	21.4	28.4	
Progression Factor	1.78	1.97			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	34.3	0.9			87.6		40.9	1.2	0.2	1.7	2.0	
Delay (s)	59.9	24.5			106.6		69.4	30.1	26.2	23.0	30.4	
Level of Service	E	C			F		E	C	C	C	C	
Approach Delay (s)		27.1			106.6			37.7			29.1	
Approach LOS		C			F			D			C	

Intersection Summary			
HCM 2000 Control Delay	58.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	120.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

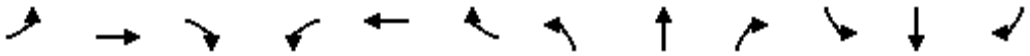


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	90	158	165	465	866	101	421	1249	423	28	1179	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	5.5		5.5	5.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		1.00	1.00
Satd. Flow (prot)	3090	3154	1352	3090	3185	1352		4513	1352		4571	1352
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.66	1.00		0.81	1.00
Satd. Flow (perm)	3090	3154	1352	3090	3185	1352		3032	1352		3713	1352
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	90	158	165	465	866	101	421	1249	423	28	1179	207
RTOR Reduction (vph)	0	0	81	0	0	50	0	0	242	0	0	83
Lane Group Flow (vph)	90	158	84	465	866	51	0	1670	181	0	1207	124
Confl. Peds. (#/hr)			40			40	40		40	40		40
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases			8			4	2		2	6		6
Actuated Green, G (s)	4.0	15.2	15.2	21.3	32.5	32.5		38.5	38.5		38.5	38.5
Effective Green, g (s)	4.0	15.2	15.2	21.3	32.5	32.5		38.5	38.5		38.5	38.5
Actuated g/C Ratio	0.04	0.17	0.17	0.24	0.36	0.36		0.43	0.43		0.43	0.43
Clearance Time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	5.5		5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	137	532	228	731	1150	488		1297	578		1588	578
v/s Ratio Prot	c0.03	0.05		0.15	c0.27							
v/s Ratio Perm			0.06			0.04		c0.55	0.13		0.33	0.09
v/c Ratio	0.66	0.30	0.37	0.64	0.75	0.10		3.79dl	0.31		0.76	0.21
Uniform Delay, d1	42.3	32.7	33.2	30.9	25.2	19.1		25.8	17.0		21.8	16.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	10.8	1.4	4.6	1.8	4.6	0.4		135.4	0.3		2.2	0.2
Delay (s)	53.1	34.1	37.7	32.7	29.8	19.5		161.1	17.3		24.0	16.4
Level of Service	D	C	D	C	C	B		F	B		C	B
Approach Delay (s)		39.7			30.0			132.0			22.9	
Approach LOS		D			C			F			C	

Intersection Summary			
HCM 2000 Control Delay	68.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	116.6%	ICU Level of Service	H
Analysis Period (min)	15		

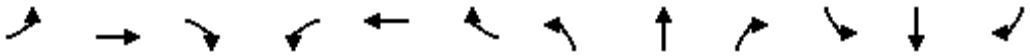
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	109	14	30	265	45	94	213	63	85	281	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.98	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1742	1822		1744	1809		1752	1784		1751	1808	
Flt Permitted	0.52	1.00		0.68	1.00		0.56	1.00		0.59	1.00	
Satd. Flow (perm)	951	1822		1245	1809		1029	1784		1087	1808	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	11	109	14	30	265	45	94	213	63	85	281	51
RTOR Reduction (vph)	0	10	0	0	15	0	0	28	0	0	18	0
Lane Group Flow (vph)	11	113	0	30	295	0	94	248	0	85	314	0
Confl. Peds. (#/hr)	15		10	10		15	15		15	15		15
Confl. Bikes (#/hr)			5			4						9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	10.0	10.0		10.0	10.0		15.7	15.7		15.7	15.7	
Effective Green, g (s)	10.0	10.0		10.0	10.0		15.7	15.7		15.7	15.7	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.47	0.47		0.47	0.47	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	282	540		369	536		479	831		506	842	
v/s Ratio Prot		0.06			c0.16			0.14			c0.17	
v/s Ratio Perm	0.01			0.02			0.09			0.08		
v/c Ratio	0.04	0.21		0.08	0.55		0.20	0.30		0.17	0.37	
Uniform Delay, d1	8.4	8.9		8.5	10.0		5.3	5.6		5.2	5.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.2		0.1	1.2		0.2	0.2		0.2	0.3	
Delay (s)	8.5	9.1		8.6	11.1		5.5	5.8		5.4	6.1	
Level of Service	A	A		A	B		A	A		A	A	
Approach Delay (s)		9.0			10.9			5.7			6.0	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	33.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	206	5	27	215	267	49	631	88	251	211	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99			1.00	
Flpb, ped/bikes	1.00	1.00		0.98	1.00		0.98	1.00			0.99	
Frt	1.00	1.00		1.00	0.92		1.00	0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1762	1854		1726	1685		1741	3439			3359	
Flt Permitted	0.21	1.00		0.56	1.00		0.46	1.00			0.56	
Satd. Flow (perm)	384	1854		1019	1685		841	3439			1932	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	206	5	27	215	267	49	631	88	251	211	40
RTOR Reduction (vph)	0	1	0	0	69	0	0	14	0	0	8	0
Lane Group Flow (vph)	50	210	0	27	413	0	49	705	0	0	494	0
Confl. Peds. (#/hr)	14		44	44		14	37		71	71		37
Confl. Bikes (#/hr)			6			2			2			11
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	19.3	19.3		19.3	19.3		37.3	37.3			37.3	
Effective Green, g (s)	19.3	19.3		19.3	19.3		37.3	37.3			37.3	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.58	0.58			0.58	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Lane Grp Cap (vph)	114	553		304	503		485	1985			1115	
v/s Ratio Prot		0.11			c0.24			0.20				
v/s Ratio Perm	0.13			0.03			0.06				c0.26	
v/c Ratio	0.44	0.38		0.09	0.82		0.10	0.36			0.44	
Uniform Delay, d1	18.3	17.9		16.3	21.0		6.1	7.3			7.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	1.0	0.2		0.0	9.8		0.4	0.5			1.3	
Delay (s)	19.3	18.1		16.4	30.9		6.5	7.8			9.0	
Level of Service	B	B		B	C		A	A			A	
Approach Delay (s)		18.3			30.1			7.7			9.0	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	64.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	107.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

Site: 2035 + Proj Com Alt AM

Adeline & 14th
2035 + Project Commercial Alternative AM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	18	2.0	0.309	6.1	LOS A	1.7	42.3	0.44	0.85	27.2
8	T	309	2.0	0.309	6.1	LOS A	1.7	42.3	0.44	0.54	30.1
18	R	25	2.0	0.309	6.1	LOS A	1.7	42.3	0.44	0.61	29.6
Approach		352	2.0	0.309	6.1	LOS A	1.7	42.3	0.44	0.56	29.9
East: 14th Street (WB)											
1	L	34	2.0	0.227	5.9	LOS A	1.1	27.2	0.51	0.87	27.3
6	T	148	2.0	0.227	5.9	LOS A	1.1	27.2	0.51	0.62	30.1
16	R	42	2.0	0.227	5.9	LOS A	1.1	27.2	0.51	0.67	29.7
Approach		224	2.0	0.227	5.9	LOS A	1.1	27.2	0.51	0.66	29.6
North: Adeline Street (SB)											
7	L	32	2.0	0.280	5.7	LOS A	1.5	37.3	0.42	0.84	27.3
4	T	264	2.0	0.280	5.7	LOS A	1.5	37.3	0.42	0.53	30.3
14	R	26	2.0	0.280	5.7	LOS A	1.5	37.3	0.42	0.59	29.8
Approach		322	2.0	0.280	5.7	LOS A	1.5	37.3	0.42	0.56	29.9
West: 14th Street (EB)											
5	L	24	2.0	0.194	5.4	LOS A	0.9	22.8	0.48	0.87	27.6
2	T	154	2.0	0.194	5.4	LOS A	0.9	22.8	0.48	0.59	30.5
12	R	18	2.0	0.194	5.4	LOS A	0.9	22.8	0.48	0.65	30.1
Approach		196	2.0	0.194	5.4	LOS A	0.9	22.8	0.48	0.63	30.0
All Vehicles		1094	2.0	0.309	5.8	LOS A	1.7	42.3	0.45	0.60	29.8

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.

MOVEMENT SUMMARY

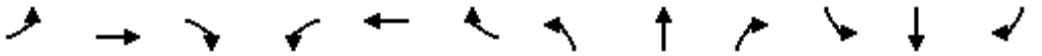
Site: 2035 + Proj Com Alt AM

Adeline & 12th
2035 + Project Commercial Alternative AM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	1	2.0	0.205	4.4	LOS A	1.1	27.0	0.16	0.90	27.8
8	T	272	2.0	0.205	4.4	LOS A	1.1	27.0	0.16	0.42	31.3
18	R	5	2.0	0.205	4.4	LOS A	1.1	27.0	0.16	0.52	30.7
Approach		278	2.0	0.205	4.4	LOS A	1.1	27.0	0.16	0.42	31.3
East: 12th Street (WB)											
1	L	8	2.0	0.101	4.3	LOS A	0.4	11.2	0.41	0.81	28.0
6	T	29	2.0	0.101	4.3	LOS A	0.4	11.2	0.41	0.52	31.2
16	R	71	2.0	0.101	4.3	LOS A	0.4	11.2	0.41	0.58	30.7
Approach		108	2.0	0.101	4.3	LOS A	0.4	11.2	0.41	0.58	30.6
North: Adeline Street (SB)											
7	L	30	2.0	0.236	4.6	LOS A	1.3	32.2	0.16	0.87	27.6
4	T	285	2.0	0.236	4.6	LOS A	1.3	32.2	0.16	0.41	31.1
14	R	5	2.0	0.236	4.6	LOS A	1.3	32.2	0.16	0.51	30.5
Approach		320	2.0	0.236	4.6	LOS A	1.3	32.2	0.16	0.46	30.7
West: 12th Street (EB)											
5	L	2	2.0	0.010	3.6	LOS A	0.0	1.0	0.42	0.78	28.4
2	T	7	2.0	0.010	3.6	LOS A	0.0	1.0	0.42	0.48	31.7
12	R	1	2.0	0.010	3.6	LOS A	0.0	1.0	0.42	0.54	31.2
Approach		10	2.0	0.010	3.6	LOS A	0.0	1.0	0.42	0.55	30.9
All Vehicles		716	2.0	0.236	4.5	LOS A	1.3	32.2	0.20	0.46	30.9

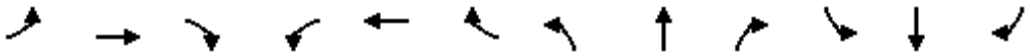
Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	141	46	0	0	355	376	443	452	93	116	0	558
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			0.98		1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frt	1.00	1.00			0.92		1.00	0.98		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	0.99		0.95		1.00
Satd. Flow (prot)	1020	3282			2913		1173	2815		1543		1960
Flt Permitted	0.95	1.00			1.00		0.95	0.99		0.95		1.00
Satd. Flow (perm)	1020	3282			2913		1173	2815		1543		1960
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	141	46	0	0	355	376	443	452	93	116	0	558
RTOR Reduction (vph)	0	0	0	0	183	0	0	12	0	0	0	499
Lane Group Flow (vph)	141	46	0	0	548	0	328	648	0	116	0	59
Confl. Peds. (#/hr)						14						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	77%	10%	0%	0%	8%	17%	40%	15%	14%	17%	0%	45%
Turn Type	Prot	NA			NA		Split	NA		Prot		custom
Protected Phases	1	6			2		4	4		3		3
Permitted Phases												
Actuated Green, G (s)	16.3	42.6			22.8		30.9	30.9		10.3		10.3
Effective Green, g (s)	16.3	42.6			22.8		30.9	30.9		10.3		10.3
Actuated g/C Ratio	0.17	0.44			0.24		0.32	0.32		0.11		0.11
Clearance Time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	171	1444			686		374	898		164		208
v/s Ratio Prot	c0.14	0.01			c0.19		c0.28	0.23		c0.08		0.03
v/s Ratio Perm												
v/c Ratio	0.82	0.03			0.80		0.88	0.72		0.71		0.29
Uniform Delay, d1	38.9	15.4			34.8		31.2	29.2		41.8		39.9
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	25.3	0.0			6.3		19.9	2.7		12.1		0.6
Delay (s)	64.2	15.4			41.1		51.0	31.9		53.9		40.4
Level of Service	E	B			D		D	C		D		D
Approach Delay (s)		52.2			41.1			38.2			42.7	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	41.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	96.8	Sum of lost time (s)	16.5
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		

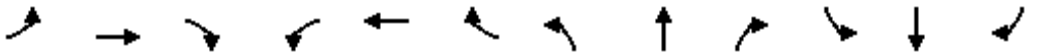
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	76	479	26	124	560	242	17	64	61	227	126	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.98			0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		0.99	1.00	
Frt	1.00	0.99		1.00	0.95			0.94		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1770	3187		1770	3234			1706		1755	1751	
Flt Permitted	0.95	1.00		0.95	1.00			0.96		0.58	1.00	
Satd. Flow (perm)	1770	3187		1770	3234			1646		1074	1751	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	76	479	26	124	560	242	17	64	61	227	126	33
RTOR Reduction (vph)	0	3	0	0	35	0	0	33	0	0	11	0
Lane Group Flow (vph)	76	502	0	124	767	0	0	109	0	227	148	0
Confl. Peds. (#/hr)			58			47	70		8	8		70
Confl. Bikes (#/hr)			15			6			9			38
Heavy Vehicles (%)	2%	12%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	8.4	53.7		11.3	56.6			24.0		24.0	24.0	
Effective Green, g (s)	8.4	53.7		11.3	56.6			24.0		24.0	24.0	
Actuated g/C Ratio	0.08	0.54		0.11	0.57			0.24		0.24	0.24	
Clearance Time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	148	1711		200	1830			395		257	420	
v/s Ratio Prot	c0.04	0.16		c0.07	c0.24						0.08	
v/s Ratio Perm								0.07		c0.21		
v/c Ratio	0.51	0.29		0.62	0.42			0.28		0.88	0.35	
Uniform Delay, d1	43.8	12.7		42.3	12.3			30.9		36.6	31.5	
Progression Factor	1.13	1.25		0.94	0.75			1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.0		3.9	0.7			0.1		27.3	0.2	
Delay (s)	51.0	15.9		43.6	10.0			31.1		64.0	31.7	
Level of Service	D	B		D	A			C		E	C	
Approach Delay (s)		20.5			14.5			31.1			50.7	
Approach LOS		C			B			C			D	

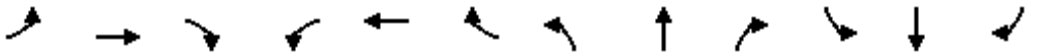
Intersection Summary			
HCM 2000 Control Delay	24.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	677	77	126	1340	198	32	68	66	91	82	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00	0.99	1.00		0.99	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.93		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1766	3250		1025	3471	1492	1347	919		1753	1476	
Flt Permitted	0.14	1.00		0.33	1.00	1.00	0.59	1.00		0.63	1.00	
Satd. Flow (perm)	265	3250		356	3471	1492	839	919		1159	1476	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	27	677	77	126	1340	198	32	68	66	91	82	74
RTOR Reduction (vph)	0	9	0	0	0	71	0	35	0	0	32	0
Lane Group Flow (vph)	27	745	0	126	1340	127	32	99	0	91	124	0
Confl. Peds. (#/hr)	21		23	23		21	9		11	11		9
Confl. Bikes (#/hr)			4			5						1
Heavy Vehicles (%)	2%	8%	17%	75%	4%	4%	33%	100%	78%	2%	33%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	64.0	64.0		64.0	64.0	64.0	28.0	28.0		28.0	28.0	
Effective Green, g (s)	64.0	64.0		64.0	64.0	64.0	28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64	0.64	0.28	0.28		0.28	0.28	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	169	2080		227	2221	954	234	257		324	413	
v/s Ratio Prot		0.23			c0.39			c0.11			0.08	
v/s Ratio Perm	0.10			0.35		0.08	0.04			0.08		
v/c Ratio	0.16	0.36		0.56	0.60	0.13	0.14	0.38		0.28	0.30	
Uniform Delay, d1	7.2	8.4		10.1	10.6	7.1	27.0	29.0		28.1	28.3	
Progression Factor	0.41	0.39		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	0.5		9.4	1.2	0.3	1.2	4.3		2.2	1.9	
Delay (s)	5.0	3.7		19.5	11.8	7.4	28.2	33.3		30.3	30.1	
Level of Service	A	A		B	B	A	C	C		C	C	
Approach Delay (s)		3.8			11.8			32.3			30.2	
Approach LOS		A			B			C			C	

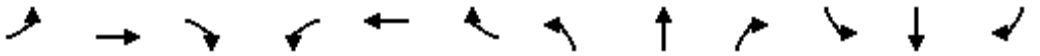
Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	102.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	104	639	71	51	1228	52	297	249	15	81	103	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1582	4091		1760	4576		1761	1810	1541	1752	3539	1245
Flt Permitted	0.14	1.00		0.34	1.00		0.69	1.00	1.00	0.56	1.00	1.00
Satd. Flow (perm)	235	4091		639	4576		1273	1810	1541	1041	3539	1245
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	104	639	71	51	1228	52	297	249	15	81	103	183
RTOR Reduction (vph)	0	19	0	0	6	0	0	0	8	0	0	16
Lane Group Flow (vph)	104	691	0	51	1274	0	297	249	7	81	103	167
Confl. Peds. (#/hr)	10		20	20		10	8		20	20		8
Confl. Bikes (#/hr)			7			3						6
Heavy Vehicles (%)	14%	27%	2%	2%	13%	2%	2%	5%	2%	2%	2%	27%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	32.3	32.3		32.3	32.3		33.2	33.2	33.2	33.2	33.2	33.2
Effective Green, g (s)	32.3	32.3		32.3	32.3		33.2	33.2	33.2	33.2	33.2	33.2
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.44	0.44	0.44	0.44	0.44	0.44
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	101	1761		275	1970		563	801	682	460	1566	551
v/s Ratio Prot		0.17			0.28			0.14			0.03	
v/s Ratio Perm	c0.44			0.08			c0.23		0.00	0.08		0.13
v/c Ratio	1.03	0.39		0.19	0.65		0.53	0.31	0.01	0.18	0.07	0.30
Uniform Delay, d1	21.4	14.6		13.2	16.8		15.2	13.5	11.7	12.6	12.0	13.5
Progression Factor	1.00	1.00		1.00	1.00		1.08	1.09	1.46	1.00	1.00	1.00
Incremental Delay, d2	97.8	0.1		0.1	0.6		3.5	1.0	0.0	0.8	0.1	1.4
Delay (s)	119.2	14.7		13.3	17.4		19.9	15.7	17.0	13.5	12.1	14.9
Level of Service	F	B		B	B		B	B	B	B	B	B
Approach Delay (s)		28.0			17.2			18.0			13.8	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		

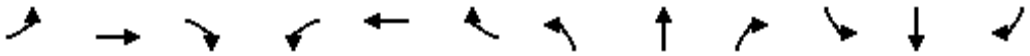
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	112	243	267	28	76	0	0	131	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	1.00			0.95	1.00
Frpb, ped/bikes					1.00	0.99	1.00	1.00			1.00	0.98
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3483	1562	1770	990			3167	1558
Flt Permitted					0.98	1.00	0.67	1.00			1.00	1.00
Satd. Flow (perm)					3483	1562	1246	990			3167	1558
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	112	243	267	28	76	0	0	131	67
RTOR Reduction (vph)	0	0	0	0	0	213	0	0	0	0	0	22
Lane Group Flow (vph)	0	0	0	0	355	54	28	76	0	0	131	45
Confl. Peds. (#/hr)				1		2			8	8		
Confl. Bikes (#/hr)												13
Heavy Vehicles (%)	2%	15%	88%	2%	2%	2%	2%	92%	0%	2%	14%	2%
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					4			6			2	
Permitted Phases				4		4	6					2
Actuated Green, G (s)					15.2	15.2	50.3	50.3			50.3	50.3
Effective Green, g (s)					15.2	15.2	50.3	50.3			50.3	50.3
Actuated g/C Ratio					0.20	0.20	0.67	0.67			0.67	0.67
Clearance Time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Vehicle Extension (s)					2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)					705	316	835	663			2124	1044
v/s Ratio Prot								c0.08			0.04	
v/s Ratio Perm					0.10	0.03	0.02					0.03
v/c Ratio					0.50	0.17	0.03	0.11			0.06	0.04
Uniform Delay, d1					26.5	24.7	4.2	4.4			4.2	4.2
Progression Factor					1.00	1.00	1.00	1.00			1.26	1.65
Incremental Delay, d2					0.2	0.1	0.0	0.0			0.1	0.1
Delay (s)					26.8	24.8	4.2	4.4			5.4	7.0
Level of Service					C	C	A	A			A	A
Approach Delay (s)		0.0			25.9			4.4			6.0	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	33.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

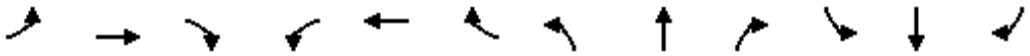


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	634	114	85	177	24	56	141	137	159	172	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.93		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3301		1770	3437		1770	945		1770	1127	
Flt Permitted	0.95	1.00		0.95	1.00		0.59	1.00		0.50	1.00	
Satd. Flow (perm)	1770	3301		1770	3437		1107	945		925	1127	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	26	634	114	85	177	24	56	141	137	159	172	37
RTOR Reduction (vph)	0	17	0	0	11	0	0	53	0	0	12	0
Lane Group Flow (vph)	26	731	0	85	190	0	56	225	0	159	197	0
Confl. Peds. (#/hr)						50			3			3
Confl. Bikes (#/hr)			4						1			
Heavy Vehicles (%)	2%	6%	9%	2%	2%	2%	2%	74%	96%	2%	77%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Actuated Green, G (s)	1.7	21.5		4.3	24.6		18.5	18.5		18.5	18.5	
Effective Green, g (s)	1.7	21.5		4.3	24.6		18.5	18.5		18.5	18.5	
Actuated g/C Ratio	0.03	0.38		0.08	0.44		0.33	0.33		0.33	0.33	
Clearance Time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.5	3.0		3.2	3.2		3.0	3.0	
Lane Grp Cap (vph)	53	1260		135	1501		363	310		303	370	
v/s Ratio Prot	0.01	c0.22		c0.05	c0.06			c0.24			0.17	
v/s Ratio Perm							0.05			0.17		
v/c Ratio	0.49	0.58		0.63	0.13		0.15	0.73		0.52	0.53	
Uniform Delay, d1	26.9	13.8		25.2	9.4		13.4	16.7		15.3	15.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.6	0.7		7.7	0.0		0.2	8.3		1.6	1.5	
Delay (s)	29.5	14.5		32.9	9.5		13.6	25.0		17.0	16.9	
Level of Service	C	B		C	A		B	C		B	B	
Approach Delay (s)		15.0			16.5			23.0			16.9	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	56.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

2035 + Project Commercial
Alternative PM Mitigated

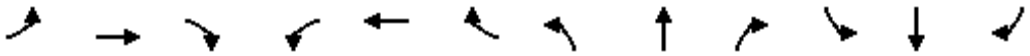


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	124	1001	212	365	1261	183	96	438	273	139	425	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3416		1770	3539	1514	1770	1863	1541	1770	1814	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3416		1770	3539	1514	1770	1863	1541	1770	1814	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	135	1088	230	397	1371	199	104	476	297	151	462	84
RTOR Reduction (vph)	0	30	0	0	0	115	0	0	191	0	11	0
Lane Group Flow (vph)	135	1288	0	397	1371	84	104	476	106	151	535	0
Confl. Peds. (#/hr)			32			7			5			6
Confl. Bikes (#/hr)			4			9			11			3
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			
Actuated Green, G (s)	6.0	16.0		8.0	18.0	18.0	4.0	16.0	16.0	4.0	16.0	
Effective Green, g (s)	6.0	16.0		8.0	18.0	18.0	4.0	16.0	16.0	4.0	16.0	
Actuated g/C Ratio	0.10	0.27		0.13	0.30	0.30	0.07	0.27	0.27	0.07	0.27	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	177	910		236	1061	454	118	496	410	118	483	
v/s Ratio Prot	0.08	0.38		c0.22	c0.39		0.06	0.26		c0.09	c0.29	
v/s Ratio Perm						0.06			0.07			
v/c Ratio	0.76	1.42		1.68	1.29	0.19	0.88	0.96	0.26	1.28	1.11	
Uniform Delay, d1	26.3	22.0		26.0	21.0	15.6	27.8	21.7	17.3	28.0	22.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	17.5	193.4		324.8	138.6	0.2	48.1	30.0	0.3	175.8	73.7	
Delay (s)	43.8	215.4		350.8	159.6	15.8	75.9	51.6	17.7	203.8	95.7	
Level of Service	D	F		F	F	B	E	D	B	F	F	
Approach Delay (s)		199.5			183.6			43.0			119.1	
Approach LOS		F			F			D			F	

Intersection Summary			
HCM 2000 Control Delay	154.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	100.9%	ICU Level of Service	G
Analysis Period (min)	15		

Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group

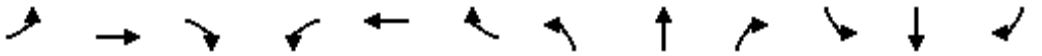


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	198	1064	476	57	870	142	913	1037	43	280	1186	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.96		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.98		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3250		1770	3426		3433	3507		1770	3432	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3250		1770	3426		3433	3507		1770	3432	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	215	1157	517	62	946	154	992	1127	47	304	1289	191
RTOR Reduction (vph)	0	45	0	0	12	0	0	3	0	0	11	0
Lane Group Flow (vph)	215	1629	0	62	1088	0	992	1171	0	304	1469	0
Confl. Peds. (#/hr)			83			52			53			68
Confl. Bikes (#/hr)			15			8			15			12
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	15.3	34.6		9.0	28.3		13.0	37.4		16.0	39.4	
Effective Green, g (s)	15.3	34.6		9.0	28.3		13.0	37.4		16.0	39.4	
Actuated g/C Ratio	0.14	0.31		0.08	0.26		0.12	0.34		0.15	0.36	
Clearance Time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.0	2.0		2.0	4.0		2.5	4.0	
Lane Grp Cap (vph)	246	1022		144	881		405	1192		257	1229	
v/s Ratio Prot	c0.12	c0.50		0.04	0.32		c0.29	0.33		0.17	c0.43	
v/s Ratio Perm												
v/c Ratio	0.87	1.59		0.43	1.24		2.45	0.98		1.18	1.20	
Uniform Delay, d1	46.4	37.7		48.1	40.9		48.5	36.0		47.0	35.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	26.5	272.1		0.8	115.6		659.6	22.2		114.8	96.1	
Delay (s)	72.9	309.8		48.8	156.5		708.1	58.2		161.8	131.4	
Level of Service	E	F		D	F		F	E		F	F	
Approach Delay (s)		282.8			150.7			355.9			136.6	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	246.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.48		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	133.9%	ICU Level of Service	H
Analysis Period (min)	15		

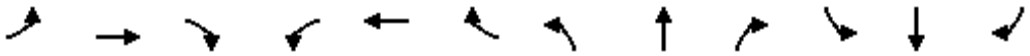
Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group



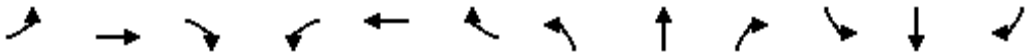
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1012	110	9	267	0	0	0	0	582	527	427
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5					6.5	6.5	6.5
Lane Util. Factor		0.95			0.91					0.91	0.91	1.00
Frpb, ped/bikes		1.00			1.00					1.00	1.00	0.97
Flpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Frt		0.99			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	0.99	1.00
Satd. Flow (prot)		3472			5077					1610	3341	1540
Flt Permitted		1.00			0.90					0.95	0.99	1.00
Satd. Flow (perm)		3472			4596					1610	3341	1540
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1012	110	9	267	0	0	0	0	582	527	427
RTOR Reduction (vph)	0	10	0	0	0	0	0	0	0	0	0	264
Lane Group Flow (vph)	0	1112	0	0	276	0	0	0	0	361	748	163
Confl. Peds. (#/hr)	20		20	20								20
Turn Type		NA		Perm	NA					Perm	NA	Perm
Protected Phases		1			1						2	
Permitted Phases				1						2		2
Actuated Green, G (s)		37.5			37.5					30.5	30.5	30.5
Effective Green, g (s)		37.5			37.5					30.5	30.5	30.5
Actuated g/C Ratio		0.47			0.47					0.38	0.38	0.38
Clearance Time (s)		5.5			5.5					6.5	6.5	6.5
Lane Grp Cap (vph)		1627			2154					613	1273	587
v/s Ratio Prot		c0.32										
v/s Ratio Perm					0.06					c0.22	0.22	0.11
v/c Ratio		0.68			0.13					0.59	0.59	0.28
Uniform Delay, d1		16.6			12.0					19.7	19.7	17.1
Progression Factor		1.00			0.35					1.00	1.00	1.00
Incremental Delay, d2		2.3			0.1					4.1	2.0	1.2
Delay (s)		19.0			4.3					23.9	21.7	18.3
Level of Service		B			A					C	C	B
Approach Delay (s)		19.0			4.3			0.0			21.3	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



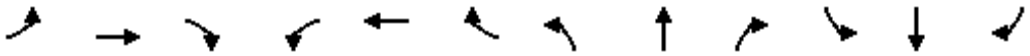
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	569	1030	0	0	260	936	35	1254	61	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1610	3381			3539	2700		5036				
Flt Permitted	0.95	0.93			1.00	1.00		1.00				
Satd. Flow (perm)	1610	3157			3539	2700		5036				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	569	1030	0	0	260	936	35	1254	61	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	57	0	6	0	0	0	0
Lane Group Flow (vph)	512	1087	0	0	260	879	0	1344	0	0	0	0
Confl. Peds. (#/hr)						20			20			
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	22.5	50.5			24.5	24.5		18.5				
Effective Green, g (s)	22.5	50.5			24.5	24.5		18.5				
Actuated g/C Ratio	0.28	0.63			0.31	0.31		0.23				
Clearance Time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Grp Cap (vph)	452	2055			1083	826		1164				
v/s Ratio Prot	c0.32	0.15			0.07							
v/s Ratio Perm		0.19				c0.33		0.27				
v/c Ratio	1.13	0.53			0.24	1.06		1.15				
Uniform Delay, d1	28.8	8.2			20.8	27.8		30.8				
Progression Factor	0.88	1.89			1.00	1.00		1.00				
Incremental Delay, d2	79.2	0.7			0.5	49.9		79.6				
Delay (s)	104.5	16.2			21.3	77.6		110.4				
Level of Service	F	B			C	E		F				
Approach Delay (s)		44.5			65.4			110.4			0.0	
Approach LOS		D			E			F			A	

Intersection Summary			
HCM 2000 Control Delay	72.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	104.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



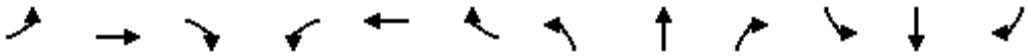
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	916	412	261	1649	37	757	32	482	77	35	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3312	1214	1289	3383		1649	1575	1240	1480	1389	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3312	1214	1289	3383		1649	1575	1240	1480	1389	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	916	412	261	1649	37	757	32	482	77	35	73
RTOR Reduction (vph)	0	0	248	0	1	0	0	0	287	0	55	0
Lane Group Flow (vph)	15	916	164	261	1685	0	394	395	195	77	53	0
Confl. Peds. (#/hr)						1			3			
Heavy Vehicles (%)	0%	9%	33%	40%	5%	65%	4%	73%	28%	22%	50%	10%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases			2						8			
Actuated Green, G (s)	2.3	46.6	46.6	28.7	73.0		35.1	35.1	35.1	8.5	8.5	
Effective Green, g (s)	2.3	46.6	46.6	28.7	73.0		35.1	35.1	35.1	8.5	8.5	
Actuated g/C Ratio	0.02	0.34	0.34	0.21	0.54		0.26	0.26	0.26	0.06	0.06	
Clearance Time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	3.0	4.5	4.5	3.0	4.5		4.0	4.0	4.0	3.0	3.0	
Lane Grp Cap (vph)	30	1139	417	273	1823		427	408	321	92	87	
v/s Ratio Prot	0.01	0.28		c0.20	c0.50		0.24	c0.25		c0.05	0.04	
v/s Ratio Perm			0.14						0.16			
v/c Ratio	0.50	0.80	0.39	0.96	0.92		0.92	0.97	0.61	0.84	0.61	
Uniform Delay, d1	66.0	40.3	33.7	52.7	28.7		48.8	49.6	44.1	62.8	61.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	12.5	4.7	1.1	42.1	8.7		25.7	36.0	3.7	45.2	11.4	
Delay (s)	78.5	44.9	34.7	94.9	37.4		74.5	85.6	47.8	108.0	73.2	
Level of Service	E	D	C	F	D		E	F	D	F	E	
Approach Delay (s)		42.2			45.1			67.8			87.7	
Approach LOS		D			D			E			F	

Intersection Summary			
HCM 2000 Control Delay	52.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	135.4	Sum of lost time (s)	16.5
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



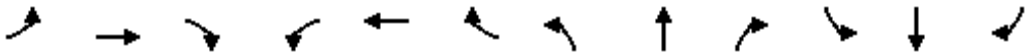
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	251	760	460	451	1494	319	388	366	457	210	171	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	0.91	0.91		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	0.92		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.99	
Satd. Flow (prot)	1337	3004		1687	3406	1509	1314	2767		1369	2596	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.99	
Satd. Flow (perm)	1337	3004		1687	3406	1509	1314	2767		1369	2596	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	251	760	460	451	1494	319	388	366	457	210	171	76
RTOR Reduction (vph)	0	70	0	0	0	156	0	156	0	0	23	0
Lane Group Flow (vph)	251	1150	0	451	1494	163	349	706	0	153	281	0
Confl. Peds. (#/hr)									1			
Heavy Vehicles (%)	35%	13%	14%	7%	6%	7%	25%	14%	13%	20%	16%	57%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	18.5	41.0		28.5	51.0	51.0	30.0	30.0		14.0	14.0	
Effective Green, g (s)	18.5	41.0		28.5	51.0	51.0	30.0	30.0		14.0	14.0	
Actuated g/C Ratio	0.14	0.32		0.22	0.39	0.39	0.23	0.23		0.11	0.11	
Clearance Time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	190	947		369	1336	591	303	638		147	279	
v/s Ratio Prot	c0.19	c0.38		c0.27	0.44		c0.27	0.26		c0.11	0.11	
v/s Ratio Perm						0.11						
v/c Ratio	1.32	1.21		1.22	1.12	0.28	1.15	1.11		1.04	1.01	
Uniform Delay, d1	55.8	44.5		50.8	39.5	26.9	50.0	50.0		58.0	58.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	176.4	106.3		122.0	63.8	0.3	99.3	68.4		85.5	55.5	
Delay (s)	232.2	150.8		172.7	103.3	27.2	149.3	118.4		143.5	113.5	
Level of Service	F	F		F	F	C	F	F		F	F	
Approach Delay (s)		164.7			106.4			127.3			123.6	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	128.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	107.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1212	182	257	1556	0	0	0	0	774	706	521
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						5.0	
Lane Util. Factor		0.91		1.00	0.95						0.95	
Frpb, ped/bikes		1.00		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.98		1.00	1.00						0.96	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		4845		1768	3312						3276	
Flt Permitted		1.00		0.12	1.00						0.98	
Satd. Flow (perm)		4845		229	3312						3276	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1212	182	257	1556	0	0	0	0	774	706	521
RTOR Reduction (vph)	0	23	0	0	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	0	1371	0	257	1556	0	0	0	0	0	1994	0
Confl. Peds. (#/hr)			8	8						10		10
Heavy Vehicles (%)	16%	5%	2%	2%	9%	2%	1%	0%	0%	2%	2%	7%
Turn Type		NA		Perm	NA					Split	NA	
Protected Phases		4			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		41.0		41.0	41.0						36.0	
Effective Green, g (s)		41.0		41.0	41.0						36.0	
Actuated g/C Ratio		0.47		0.47	0.47						0.41	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		2283		107	1560						1355	
v/s Ratio Prot		0.28			0.47						c0.61	
v/s Ratio Perm				c1.12								
v/c Ratio		0.60		2.40	1.00						1.47	
Uniform Delay, d1		17.0		23.0	22.9						25.5	
Progression Factor		1.00		0.29	0.29						1.00	
Incremental Delay, d2		0.3		633.4	6.2						216.3	
Delay (s)		17.3		640.2	12.9						241.8	
Level of Service		B		F	B						F	
Approach Delay (s)		17.3			101.8			0.0			241.8	
Approach LOS		B			F			A			F	

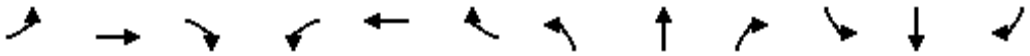
Intersection Summary			
HCM 2000 Control Delay	132.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.96		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	190.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	468	1518	0	0	1693	553	120	613	228	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0				
Lane Util. Factor	1.00	0.95			0.95			0.95				
Frpb, ped/bikes	1.00	1.00			0.99			0.99				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.96			0.96				
Flt Protected	0.95	1.00			1.00			0.99				
Satd. Flow (prot)	1770	3539			3384			3375				
Flt Permitted	0.10	1.00			1.00			0.99				
Satd. Flow (perm)	182	3539			3384			3375				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	468	1518	0	0	1693	553	120	613	228	0	0	0
RTOR Reduction (vph)	0	0	0	0	36	0	0	8	0	0	0	0
Lane Group Flow (vph)	468	1518	0	0	2210	0	0	953	0	0	0	0
Confl. Peds. (#/hr)	10					10			10			
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)	41.0	41.0			41.0			36.0				
Effective Green, g (s)	41.0	41.0			41.0			36.0				
Actuated g/C Ratio	0.47	0.47			0.47			0.41				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Vehicle Extension (s)	2.0	2.0			2.0			2.0				
Lane Grp Cap (vph)	85	1667			1594			1396				
v/s Ratio Prot		0.43			0.65			c0.28				
v/s Ratio Perm	c2.58											
v/c Ratio	5.51	0.91			1.39			0.68				
Uniform Delay, d1	23.0	21.3			23.0			20.8				
Progression Factor	0.86	0.84			1.00			1.00				
Incremental Delay, d2	2036.4	2.9			177.7			1.1				
Delay (s)	2056.2	20.7			200.7			21.9				
Level of Service	F	C			F			C				
Approach Delay (s)		500.4			200.7			21.9			0.0	
Approach LOS		F			F			C			A	

Intersection Summary			
HCM 2000 Control Delay	282.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	3.22		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	190.9%	ICU Level of Service	H
Analysis Period (min)	15		

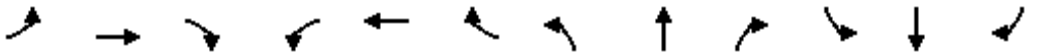
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	1357	388	107	1787	30	283	222	127	149	395	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00		1.00	0.95		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	3340		1770	3366		1762	1744		1761	1801	
Flt Permitted	0.08	1.00		0.08	1.00		0.21	1.00		0.38	1.00	
Satd. Flow (perm)	141	3340		141	3366		391	1744		698	1801	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	61	1357	388	107	1787	30	283	222	127	149	395	89
RTOR Reduction (vph)	0	28	0	0	1	0	0	22	0	0	9	0
Lane Group Flow (vph)	61	1717	0	107	1816	0	283	327	0	149	475	0
Confl. Peds. (#/hr)	8		7	7		8	11		8	8		11
Confl. Bikes (#/hr)			9			11			8			10
Heavy Vehicles (%)	2%	4%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	53.0	53.0		53.0	53.0		32.0	32.0		32.0	32.0	
Effective Green, g (s)	53.0	53.0		53.0	53.0		32.0	32.0		32.0	32.0	
Actuated g/C Ratio	0.56	0.56		0.56	0.56		0.34	0.34		0.34	0.34	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	78	1863		78	1877		131	587		235	606	
v/s Ratio Prot		0.51			0.54			0.19			0.26	
v/s Ratio Perm	0.43			c0.76			c0.72			0.21		
v/c Ratio	0.78	0.92		1.37	0.97		2.16	0.56		0.63	0.78	
Uniform Delay, d1	16.5	19.1		21.0	20.2		31.5	25.7		26.6	28.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	38.7	8.1		229.4	14.4		546.6	1.2		5.5	6.6	
Delay (s)	55.2	27.2		250.4	34.5		578.1	26.9		32.1	35.0	
Level of Service	E	C		F	C		F	C		C	C	
Approach Delay (s)		28.1			46.5			273.7			34.3	
Approach LOS		C			D			F			C	

Intersection Summary			
HCM 2000 Control Delay	67.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.66		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	143.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



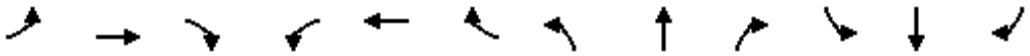
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	115	1499	126	58	1321	9	396	550	177	7	23	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Lane Util. Factor		0.95			0.95	1.00	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00			1.00	0.94	1.00	1.00	0.95		1.00	0.95
Flpb, ped/bikes		1.00			1.00	1.00	0.97	1.00	1.00		1.00	1.00
Frt		0.99			1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected		1.00			1.00	1.00	0.95	1.00	1.00		0.99	1.00
Satd. Flow (prot)		3415			3307	1490	1640	1827	1503		1839	1499
Flt Permitted		0.62			0.67	1.00	0.74	1.00	1.00		0.61	1.00
Satd. Flow (perm)		2113			2228	1490	1273	1827	1503		1135	1499
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	115	1499	126	58	1321	9	396	550	177	7	23	55
RTOR Reduction (vph)	0	6	0	0	0	2	0	0	29	0	0	40
Lane Group Flow (vph)	0	1734	0	0	1379	7	396	550	148	0	30	15
Confl. Peds. (#/hr)	21		15	15		21	27		25	25		27
Confl. Bikes (#/hr)			18			17			16			17
Heavy Vehicles (%)	2%	4%	3%	30%	8%	2%	7%	4%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		4
Actuated Green, G (s)		56.0			56.0	56.0	25.0	25.0	25.0		25.0	25.0
Effective Green, g (s)		56.0			56.0	56.0	25.0	25.0	25.0		25.0	25.0
Actuated g/C Ratio		0.62			0.62	0.62	0.28	0.28	0.28		0.28	0.28
Clearance Time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Vehicle Extension (s)		2.0			2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1314			1386	927	353	507	417		315	416
v/s Ratio Prot								0.30				
v/s Ratio Perm		c0.82			0.62	0.00	c0.31		0.10		0.03	0.01
v/c Ratio		1.32			0.99	0.01	1.12	1.08	0.36		0.10	0.04
Uniform Delay, d1		17.0			16.9	6.5	32.5	32.5	26.0		24.1	23.7
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2		149.1			23.0	0.0	85.1	64.9	0.2		0.0	0.0
Delay (s)		166.1			39.9	6.5	117.6	97.4	26.2		24.2	23.7
Level of Service		F			D	A	F	F	C		C	C
Approach Delay (s)		166.1			39.6			93.3			23.9	
Approach LOS		F			D			F			C	

Intersection Summary			
HCM 2000 Control Delay	104.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	128.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	204	1282	382	96	930	46	569	697	157	204	909	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.97	
Flt Protected		0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3484	1482	1770	3195	1540	1732	3426		1764	3428	
Flt Permitted		0.55	1.00	0.12	1.00	1.00	0.17	1.00		0.26	1.00	
Satd. Flow (perm)		1943	1482	226	3195	1540	304	3426		490	3428	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	204	1282	382	96	930	46	569	697	157	204	909	201
RTOR Reduction (vph)	0	0	55	0	0	20	0	5	0	0	20	0
Lane Group Flow (vph)	0	1486	327	96	930	26	569	849	0	204	1091	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Heavy Vehicles (%)	2%	3%	6%	2%	13%	2%	4%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4		4	2			6		
Actuated Green, G (s)		33.0	33.0	33.0	33.0	33.0	42.5	42.5		42.5	42.5	
Effective Green, g (s)		33.0	33.0	33.0	33.0	33.0	42.5	42.5		42.5	42.5	
Actuated g/C Ratio		0.39	0.39	0.39	0.39	0.39	0.50	0.50		0.50	0.50	
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0		4.0	4.0	
Lane Grp Cap (vph)		754	575	87	1240	597	152	1713		245	1714	
v/s Ratio Prot					0.29			0.25			0.32	
v/s Ratio Perm		c0.76	0.22	0.43		0.02	c1.87			0.42		
v/c Ratio		1.97	0.57	1.10	0.75	0.04	3.74	0.50		0.83	0.64	
Uniform Delay, d1		26.0	20.4	26.0	22.4	16.2	21.2	14.1		18.2	15.6	
Progression Factor		1.00	1.00	0.41	0.43	0.06	1.00	1.00		1.00	1.00	
Incremental Delay, d2		441.7	4.0	117.8	3.5	0.1	1250.5	0.5		21.6	0.9	
Delay (s)		467.7	24.5	128.4	13.0	1.1	1271.7	14.6		39.8	16.5	
Level of Service		F	C	F	B	A	F	B		D	B	
Approach Delay (s)		377.0			22.8			517.3			20.1	
Approach LOS		F			C			F			C	

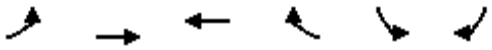
Intersection Summary			
HCM 2000 Control Delay	262.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.97		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	146.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	1334	25	60	1124	57	27	222	354	36	81	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.96		1.00	0.94		0.97	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1587	3154	1360	1588	3065	1375		3159	1171		2851	
Flt Permitted	0.19	1.00	1.00	0.13	1.00	1.00		0.91	1.00		0.88	
Satd. Flow (perm)	317	3154	1360	222	3065	1375		2889	1171		2518	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	119	1334	25	60	1124	57	27	222	354	36	81	98
RTOR Reduction (vph)	0	0	6	0	0	16	0	0	26	0	46	0
Lane Group Flow (vph)	119	1334	19	60	1124	41	0	249	328	0	169	0
Confl. Peds. (#/hr)	22		31	31		22	34		37	37		34
Confl. Bikes (#/hr)			7			3			12			19
Heavy Vehicles (%)	2%	3%	2%	2%	6%	2%	2%	2%	17%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4		4	2		2	2		
Actuated Green, G (s)	50.2	50.2	50.2	50.2	50.2	50.2		26.3	26.3		26.3	
Effective Green, g (s)	50.2	50.2	50.2	50.2	50.2	50.2		26.3	26.3		26.3	
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59	0.59		0.31	0.31		0.31	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	187	1862	803	131	1810	812		893	362		779	
v/s Ratio Prot		c0.42			0.37							
v/s Ratio Perm	0.37		0.01	0.27		0.03		0.09	c0.28		0.07	
v/c Ratio	0.64	0.72	0.02	0.46	0.62	0.05		0.28	0.91		0.22	
Uniform Delay, d1	11.4	12.3	7.2	9.8	11.2	7.3		22.2	28.2		21.7	
Progression Factor	0.78	0.83	0.90	1.47	1.43	1.46		1.00	1.00		1.00	
Incremental Delay, d2	1.5	0.2	0.0	6.1	0.9	0.1		0.1	24.7		0.1	
Delay (s)	10.4	10.5	6.5	20.4	17.0	10.8		22.2	52.9		21.8	
Level of Service	B	B	A	C	B	B		C	D		C	
Approach Delay (s)		10.4			16.9			40.2			21.8	
Approach LOS		B			B			D			C	

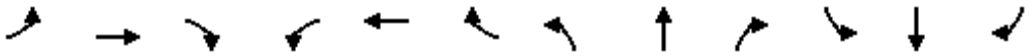
Intersection Summary			
HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	95.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



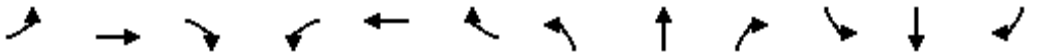
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	607	1024	882	525	260	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	0.99	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.97	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.96	1.00
Satd. Flow (prot)	1577	3094	3065	1382	2957	1213
Flt Permitted	0.95	1.00	1.00	1.00	0.96	1.00
Satd. Flow (perm)	1577	3094	3065	1382	2957	1213
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	607	1024	882	525	260	230
RTOR Reduction (vph)	0	0	0	239	38	128
Lane Group Flow (vph)	607	1024	882	286	298	26
Confl. Peds. (#/hr)				15	15	15
Heavy Vehicles (%)	3%	5%	6%	2%	3%	6%
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	35.8	62.8	23.0	23.0	14.2	14.2
Effective Green, g (s)	35.8	62.8	23.0	23.0	14.2	14.2
Actuated g/C Ratio	0.42	0.74	0.27	0.27	0.17	0.17
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	664	2285	829	373	493	202
v/s Ratio Prot	c0.38	0.33	c0.29		c0.10	
v/s Ratio Perm				0.21		0.02
v/c Ratio	0.91	0.45	1.06	0.77	0.60	0.13
Uniform Delay, d1	23.2	4.3	31.0	28.5	32.8	30.1
Progression Factor	0.79	0.84	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.2	0.4	49.7	8.2	1.4	0.1
Delay (s)	30.5	4.1	80.7	36.7	34.2	30.2
Level of Service	C	A	F	D	C	C
Approach Delay (s)		13.9	64.3		33.0	
Approach LOS		B	E		C	

Intersection Summary			
HCM 2000 Control Delay	36.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



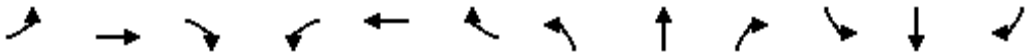
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	170	958	33	132	830	92	413	1113	307	91	438	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00	0.90	1.00	0.97	
Flpb, ped/bikes	0.99	1.00			1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00			0.99		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1580	3162			3099		1588	3185	1281	1591	2966	
Flt Permitted	0.17	1.00			0.59		0.20	1.00	1.00	0.13	1.00	
Satd. Flow (perm)	283	3162			1829		335	3185	1281	223	2966	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	170	958	33	132	830	92	413	1113	307	91	438	181
RTOR Reduction (vph)	0	2	0	0	7	0	0	0	49	0	41	0
Lane Group Flow (vph)	170	989	0	0	1048	0	413	1113	258	91	578	0
Confl. Peds. (#/hr)	46		47	47		46	57		65	65		57
Confl. Bikes (#/hr)			9			21			15			22
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	55.0	55.0			55.0		47.0	39.0	39.0	34.0	30.0	
Effective Green, g (s)	55.0	55.0			55.0		47.0	39.0	39.0	34.0	30.0	
Actuated g/C Ratio	0.50	0.50			0.50		0.43	0.35	0.35	0.31	0.27	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		3.0	2.0	2.0	3.0	2.0	
Lane Grp Cap (vph)	141	1581			914		291	1129	454	118	808	
v/s Ratio Prot		0.31					c0.17	0.35		0.03	0.19	
v/s Ratio Perm	c0.60				0.57		c0.44		0.20	0.21		
v/c Ratio	1.21	0.63			1.15		1.42	0.99	0.57	0.77	0.72	
Uniform Delay, d1	27.5	20.0			27.5		26.0	35.2	28.7	32.4	36.1	
Progression Factor	1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	141.5	1.9			78.6		207.7	23.1	1.0	26.2	2.5	
Delay (s)	169.0	21.9			106.1		233.7	58.3	29.7	58.6	38.7	
Level of Service	F	C			F		F	E	C	E	D	
Approach Delay (s)		43.4			106.1			93.0			41.2	
Approach LOS		D			F			F			D	

Intersection Summary			
HCM 2000 Control Delay	76.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	127.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



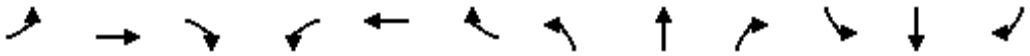
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	331	910	237	463	735	76	10	1948	731	3	1255	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	4.0		5.5	5.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.98		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)	3090	3154	1349	3090	3185	1349		4575	1391		4576	1349
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.93	1.00		0.93	1.00
Satd. Flow (perm)	3090	3154	1349	3090	3185	1349		4254	1391		4237	1349
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	331	910	237	463	735	76	10	1948	731	3	1255	212
RTOR Reduction (vph)	0	0	65	0	0	53	0	0	0	0	0	79
Lane Group Flow (vph)	331	910	172	463	735	24	0	1958	731	0	1258	133
Confl. Peds. (#/hr)			40			40	40		40	40		40
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Free	Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases			8			4	2		Free	6		6
Actuated Green, G (s)	11.0	27.5	27.5	12.0	28.5	28.5		40.5	95.0		40.5	40.5
Effective Green, g (s)	11.0	27.5	27.5	12.0	28.5	28.5		40.5	95.0		40.5	40.5
Actuated g/C Ratio	0.12	0.29	0.29	0.13	0.30	0.30		0.43	1.00		0.43	0.43
Clearance Time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	357	913	390	390	955	404		1813	1391		1806	575
v/s Ratio Prot	0.11	c0.29		c0.15	0.23							
v/s Ratio Perm			0.13			0.02		c0.46	0.53		0.30	0.10
v/c Ratio	0.93	1.00	0.44	1.19	0.77	0.06		1.08	0.53		0.70	0.23
Uniform Delay, d1	41.6	33.7	27.5	41.5	30.3	23.7		27.2	0.0		22.2	17.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	29.5	29.0	3.6	107.2	6.0	0.3		46.4	1.4		1.2	0.2
Delay (s)	71.1	62.7	31.1	148.7	36.2	24.0		73.6	1.4		23.4	17.5
Level of Service	E	E	C	F	D	C		E	A		C	B
Approach Delay (s)		59.5			76.4			54.0			22.6	
Approach LOS		E			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	52.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	104.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	348	97	12	157	54	65	547	101	366	459	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.98	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.97		1.00	0.96		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1733	1783		1758	1766		1747	1805		1754	1815	
Flt Permitted	0.52	1.00		0.24	1.00		0.40	1.00		0.32	1.00	
Satd. Flow (perm)	948	1783		435	1766		739	1805		595	1815	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	348	97	12	157	54	65	547	101	366	459	66
RTOR Reduction (vph)	0	14	0	0	17	0	0	10	0	0	8	0
Lane Group Flow (vph)	50	431	0	12	194	0	65	638	0	366	517	0
Confl. Peds. (#/hr)	15		10	10		15	15		15	15		15
Confl. Bikes (#/hr)			5			4						9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	17.0	17.0		17.0	17.0		43.8	43.8		43.8	43.8	
Effective Green, g (s)	17.0	17.0		17.0	17.0		43.8	43.8		43.8	43.8	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.64	0.64		0.64	0.64	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	234	440		107	436		470	1149		378	1155	
v/s Ratio Prot		c0.24			0.11			0.35			0.29	
v/s Ratio Perm	0.05			0.03			0.09			c0.61		
v/c Ratio	0.21	0.98		0.11	0.44		0.14	0.56		0.97	0.45	
Uniform Delay, d1	20.6	25.7		20.1	21.9		5.0	7.0		11.8	6.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	36.9		0.5	0.7		0.1	0.6		37.5	0.3	
Delay (s)	21.0	62.7		20.5	22.6		5.1	7.6		49.3	6.6	
Level of Service	C	E		C	C		A	A		D	A	
Approach Delay (s)		58.5			22.5			7.4			24.2	
Approach LOS		E			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	68.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	96.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	166	538	45	16	144	113	59	794	64	42	202	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99			0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.98	1.00			1.00	
Frt	1.00	0.99		1.00	0.93		1.00	0.99			0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1756	1834		1751	1721		1728	3477			3436	
Flt Permitted	0.51	1.00		0.17	1.00		0.59	1.00			0.80	
Satd. Flow (perm)	948	1834		307	1721		1067	3477			2771	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	166	538	45	16	144	113	59	794	64	42	202	24
RTOR Reduction (vph)	0	5	0	0	41	0	0	8	0	0	10	0
Lane Group Flow (vph)	166	578	0	16	216	0	59	850	0	0	258	0
Confl. Peds. (#/hr)	14		44	44		14	37		71	71		37
Confl. Bikes (#/hr)			6			2			2			11
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	24.0	24.0		24.0	24.0		37.0	37.0			37.0	
Effective Green, g (s)	24.0	24.0		24.0	24.0		37.0	37.0			37.0	
Actuated g/C Ratio	0.35	0.35		0.35	0.35		0.54	0.54			0.54	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	329	637		106	598		572	1864			1485	
v/s Ratio Prot		c0.32			0.13			c0.24				
v/s Ratio Perm	0.18			0.05			0.06				0.09	
v/c Ratio	0.50	0.91		0.15	0.36		0.10	0.46			0.17	
Uniform Delay, d1	17.8	21.4		15.5	16.8		7.9	9.8			8.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	1.2	16.7		0.7	0.4		0.4	0.8			0.3	
Delay (s)	19.0	38.1		16.2	17.2		8.2	10.6			8.4	
Level of Service	B	D		B	B		A	B			A	
Approach Delay (s)		33.9			17.1			10.5			8.4	
Approach LOS		C			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	69.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	94.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

Site: 2035 + Proj Com Alt PM

Adeline & 14th
2035 + Project Commercial Alternative PM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	19	2.0	0.741	18.2	LOS C	7.9	200.2	0.89	1.13	22.6
8	T	598	2.0	0.741	18.2	LOS C	7.9	200.2	0.89	1.06	23.8
18	R	53	2.0	0.741	18.2	LOS C	7.9	200.2	0.89	1.08	23.7
Approach		670	2.0	0.741	18.2	LOS C	7.9	200.2	0.89	1.07	23.7
East: 14th Street (WB)											
1	L	90	2.0	0.481	12.1	LOS B	2.7	69.6	0.74	1.03	24.6
6	T	205	2.0	0.481	12.1	LOS B	2.7	69.6	0.74	0.91	26.3
16	R	46	2.0	0.481	12.1	LOS B	2.7	69.6	0.74	0.93	26.1
Approach		341	2.0	0.481	12.1	LOS B	2.7	69.6	0.74	0.94	25.8
North: Adeline Street (SB)											
7	L	95	2.0	0.540	10.3	LOS B	3.8	96.7	0.66	0.90	25.4
4	T	424	2.0	0.540	10.3	LOS B	3.8	96.7	0.66	0.72	27.4
14	R	34	2.0	0.540	10.3	LOS B	3.8	96.7	0.66	0.76	27.2
Approach		553	2.0	0.540	10.3	LOS B	3.8	96.7	0.66	0.76	27.0
West: 14th Street (EB)											
5	L	57	2.0	0.541	12.9	LOS B	3.5	88.2	0.76	1.06	24.4
2	T	284	2.0	0.541	12.9	LOS B	3.5	88.2	0.76	0.93	26.0
12	R	69	2.0	0.541	12.9	LOS B	3.5	88.2	0.76	0.96	25.8
Approach		410	2.0	0.541	12.9	LOS B	3.5	88.2	0.76	0.96	25.7
All Vehicles		1974	2.0	0.741	13.8	LOS B	7.9	200.2	0.77	0.93	25.4

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.

MOVEMENT SUMMARY

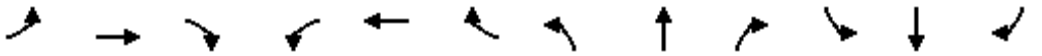
Site: 2035 + Proj Com Alt PM

Adeline & 12th
2035 + Project Commercial Alternative PM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	1	2.0	0.425	7.3	LOS A	2.7	69.1	0.43	0.84	26.7
8	T	508	2.0	0.425	7.3	LOS A	2.7	69.1	0.43	0.52	29.4
18	R	7	2.0	0.425	7.3	LOS A	2.7	69.1	0.43	0.58	29.0
Approach		516	2.0	0.425	7.3	LOS A	2.7	69.1	0.43	0.52	29.4
East: 12th Street (WB)											
1	L	10	2.0	0.216	6.6	LOS A	1.0	24.3	0.58	0.91	26.9
6	T	21	2.0	0.216	6.6	LOS A	1.0	24.3	0.58	0.71	29.5
16	R	149	2.0	0.216	6.6	LOS A	1.0	24.3	0.58	0.75	29.1
Approach		180	2.0	0.216	6.6	LOS A	1.0	24.3	0.58	0.75	29.0
North: Adeline Street (SB)											
7	L	133	2.0	0.415	6.6	LOS A	2.9	72.8	0.19	0.82	26.7
4	T	426	2.0	0.415	6.6	LOS A	2.9	72.8	0.19	0.40	29.8
14	R	8	2.0	0.415	6.6	LOS A	2.9	72.8	0.19	0.49	29.2
Approach		567	2.0	0.415	6.6	LOS A	2.9	72.8	0.19	0.50	28.9
West: 12th Street (EB)											
5	L	8	2.0	0.020	4.7	LOS A	0.1	2.0	0.54	0.79	27.7
2	T	5	2.0	0.020	4.7	LOS A	0.1	2.0	0.54	0.58	30.6
12	R	3	2.0	0.020	4.7	LOS A	0.1	2.0	0.54	0.63	30.2
Approach		16	2.0	0.020	4.7	LOS A	0.1	2.0	0.54	0.69	29.0
All Vehicles		1279	2.0	0.425	6.8	LOS A	2.9	72.8	0.34	0.54	29.1

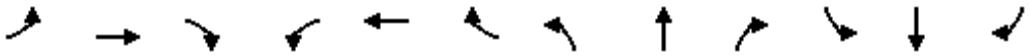
Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	258	185	0	0	191	263	155	505	219	277	0	520
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			0.98		1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frt	1.00	1.00			0.91		1.00	0.96		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1367	3312			2603		972	2915		1556		2472
Flt Permitted	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (perm)	1367	3312			2603		972	2915		1556		2472
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	258	185	0	0	191	263	155	505	219	277	0	520
RTOR Reduction (vph)	0	0	0	0	226	0	0	37	0	0	0	414
Lane Group Flow (vph)	258	185	0	0	228	0	139	703	0	277	0	106
Confl. Peds. (#/hr)						14						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	32%	9%	0%	0%	25%	24%	69%	12%	12%	16%	0%	15%
Turn Type	Prot	NA			NA		Split	NA		Prot		custom
Protected Phases	1	6			2		4	4		3		3
Permitted Phases												
Actuated Green, G (s)	21.2	38.5			13.8		26.7	26.7		20.1		20.1
Effective Green, g (s)	21.2	38.5			13.8		26.7	26.7		20.1		20.1
Actuated g/C Ratio	0.22	0.39			0.14		0.27	0.27		0.20		0.20
Clearance Time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	294	1297			365		264	791		318		505
v/s Ratio Prot	c0.19	0.06			c0.09		0.14	c0.24		c0.18		0.04
v/s Ratio Perm												
v/c Ratio	0.88	0.14			0.62		0.53	0.89		0.87		0.21
Uniform Delay, d1	37.3	19.3			39.8		30.4	34.4		37.8		32.5
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	23.5	0.0			2.9		1.4	11.8		21.8		0.2
Delay (s)	60.8	19.3			42.7		31.9	46.2		59.7		32.7
Level of Service	E	B			D		C	D		E		C
Approach Delay (s)		43.5			42.7			43.9			42.0	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	43.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	98.3	Sum of lost time (s)	16.5
Intersection Capacity Utilization	77.4%	ICU Level of Service	D
Analysis Period (min)	15		

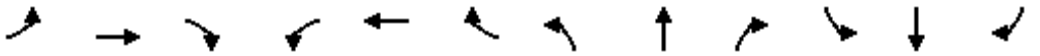
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	679	22	102	713	414	20	113	68	464	163	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.97			0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		0.99	1.00	
Frt	1.00	1.00		1.00	0.94			0.95		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1770	3378		1770	3177			1745		1757	1720	
Flt Permitted	0.95	1.00		0.95	1.00			0.96		0.60	1.00	
Satd. Flow (perm)	1770	3378		1770	3177			1689		1114	1720	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	80	679	22	102	713	414	20	113	68	464	163	66
RTOR Reduction (vph)	0	3	0	0	91	0	0	22	0	0	17	0
Lane Group Flow (vph)	80	698	0	102	1036	0	0	179	0	464	212	0
Confl. Peds. (#/hr)			58			47	70		8	8		70
Confl. Bikes (#/hr)			15			6			9			38
Heavy Vehicles (%)	2%	6%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	6.0	33.0		7.0	34.0			39.0		39.0	39.0	
Effective Green, g (s)	6.0	33.0		7.0	34.0			39.0		39.0	39.0	
Actuated g/C Ratio	0.07	0.37		0.08	0.38			0.43		0.43	0.43	
Clearance Time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	118	1238		137	1200			731		482	745	
v/s Ratio Prot	0.05	c0.21		0.06	c0.33						0.12	
v/s Ratio Perm								0.11		c0.42		
v/c Ratio	0.68	0.56		0.74	0.86			0.25		0.96	0.28	
Uniform Delay, d1	41.1	22.8		40.6	25.9			16.2		24.8	16.5	
Progression Factor	0.95	0.91		0.96	0.71			1.00		1.00	1.00	
Incremental Delay, d2	11.5	0.4		17.2	8.3			0.1		31.2	0.1	
Delay (s)	50.3	21.1		56.4	26.6			16.2		56.0	16.6	
Level of Service	D	C		E	C			B		E	B	
Approach Delay (s)		24.1			29.1			16.2			43.0	
Approach LOS		C			C			B			D	

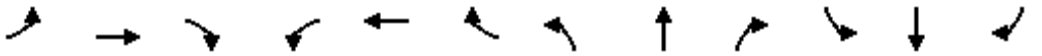
Intersection Summary			
HCM 2000 Control Delay	30.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	58	1661	48	70	1437	305	52	120	122	159	128	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.99	1.00		0.99	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.92		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1766	3383		1054	3471	1460	1574	1065		1759	1574	
Flt Permitted	0.09	1.00		0.09	1.00	1.00	0.61	1.00		0.52	1.00	
Satd. Flow (perm)	171	3383		101	3471	1460	1004	1065		962	1574	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	58	1661	48	70	1437	305	52	120	122	159	128	50
RTOR Reduction (vph)	0	3	0	0	0	137	0	10	0	0	18	0
Lane Group Flow (vph)	58	1706	0	70	1437	168	52	232	0	159	160	0
Confl. Peds. (#/hr)	21		23	23		21	9		11	11		9
Confl. Bikes (#/hr)			4			5						1
Heavy Vehicles (%)	2%	6%	11%	71%	4%	6%	14%	50%	76%	2%	20%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	44.0	44.0		44.0	44.0	44.0	28.0	28.0		28.0	28.0	
Effective Green, g (s)	44.0	44.0		44.0	44.0	44.0	28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.55	0.55		0.55	0.55	0.55	0.35	0.35		0.35	0.35	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	94	1860		55	1909	803	351	372		336	550	
v/s Ratio Prot		0.50			0.41			c0.22			0.10	
v/s Ratio Perm	0.34			c0.69		0.11	0.05			0.17		
v/c Ratio	0.62	0.92		1.27	0.75	0.21	0.15	0.62		0.47	0.29	
Uniform Delay, d1	12.3	16.3		18.0	13.8	9.2	17.8	21.6		20.3	18.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	26.7	8.7		211.4	2.8	0.6	0.9	7.6		4.7	1.3	
Delay (s)	39.0	25.1		229.4	16.6	9.7	18.7	29.2		25.0	20.2	
Level of Service	D	C		F	B	A	B	C		C	C	
Approach Delay (s)		25.5			23.7			27.4			22.4	
Approach LOS		C			C			C			C	

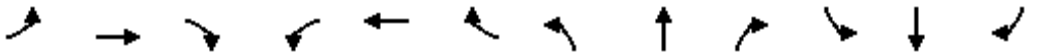
Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	107	1505	87	25	1051	68	591	396	63	84	60	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1669	4281		1767	4531		1742	1863	1538	1755	3539	1216
Flt Permitted	0.18	1.00		0.11	1.00		0.72	1.00	1.00	0.41	1.00	1.00
Satd. Flow (perm)	320	4281		201	4531		1312	1863	1538	758	3539	1216
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	107	1505	87	25	1051	68	591	396	63	84	60	132
RTOR Reduction (vph)	0	7	0	0	8	0	0	0	14	0	0	22
Lane Group Flow (vph)	107	1585	0	25	1111	0	591	396	49	84	60	110
Confl. Peds. (#/hr)	10		20	20		10	8		20	20		8
Confl. Bikes (#/hr)			7			3						6
Heavy Vehicles (%)	8%	21%	2%	2%	14%	2%	3%	2%	2%	2%	2%	30%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	37.0	37.0		37.0	37.0		38.5	38.5	38.5	38.5	38.5	38.5
Effective Green, g (s)	37.0	37.0		37.0	37.0		38.5	38.5	38.5	38.5	38.5	38.5
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.45	0.45	0.45	0.45	0.45	0.45
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	139	1863		87	1972		594	843	696	343	1602	550
v/s Ratio Prot		c0.37			0.25			0.21			0.02	
v/s Ratio Perm	0.33			0.12			c0.45		0.03	0.11		0.09
v/c Ratio	0.77	0.85		0.29	0.56		0.99	0.47	0.07	0.24	0.04	0.20
Uniform Delay, d1	20.4	21.5		15.5	18.0		23.2	16.2	13.1	14.3	12.9	14.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	32.9	5.1		0.7	0.2		35.7	1.9	0.2	1.7	0.0	0.8
Delay (s)	53.3	26.6		16.2	18.2		58.9	18.0	13.3	16.0	13.0	14.8
Level of Service	D	C		B	B		E	B	B	B	B	B
Approach Delay (s)		28.3			18.1			40.7			14.8	
Approach LOS		C			B			D			B	

Intersection Summary			
HCM 2000 Control Delay	27.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	109.3%	ICU Level of Service	H
Analysis Period (min)	15		

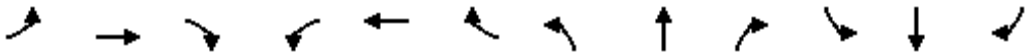
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	34	162	561	48	172	0	0	133	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	1.00			0.95	1.00
Frpb, ped/bikes					1.00	0.99	1.00	1.00			1.00	0.98
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3508	1561	1770	1111			2865	1558
Flt Permitted					0.99	1.00	0.67	1.00			1.00	1.00
Satd. Flow (perm)					3508	1561	1244	1111			2865	1558
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	34	162	561	48	172	0	0	133	24
RTOR Reduction (vph)	0	0	0	0	0	476	0	0	0	0	0	6
Lane Group Flow (vph)	0	0	0	0	196	85	48	172	0	0	133	18
Confl. Peds. (#/hr)				1		2			8	8		
Confl. Bikes (#/hr)												13
Heavy Vehicles (%)	0%	13%	100%	2%	2%	2%	2%	71%	83%	0%	26%	2%
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					4			6			2	
Permitted Phases				4		4	6					2
Actuated Green, G (s)					13.7	13.7	66.8	66.8			66.8	66.8
Effective Green, g (s)					13.7	13.7	66.8	66.8			66.8	66.8
Actuated g/C Ratio					0.15	0.15	0.74	0.74			0.74	0.74
Clearance Time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Vehicle Extension (s)					2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)					533	237	923	824			2126	1156
v/s Ratio Prot								c0.15			0.05	
v/s Ratio Perm					0.06	0.05	0.04					0.01
v/c Ratio					0.37	0.36	0.05	0.21			0.06	0.02
Uniform Delay, d1					34.3	34.2	3.1	3.5			3.1	3.0
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					0.2	0.3	0.0	0.0			0.1	0.0
Delay (s)					34.4	34.6	3.1	3.6			3.2	3.0
Level of Service					C	C	A	A			A	A
Approach Delay (s)		0.0			34.5			3.5			3.2	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	24.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

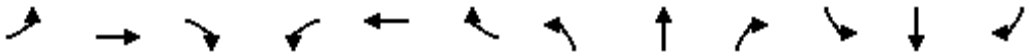


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	944	65	41	112	26	107	312	148	166	162	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.97		1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3367		1770	3366		1770	1078		1770	1090	
Flt Permitted	0.95	1.00		0.95	1.00		0.64	1.00		0.35	1.00	
Satd. Flow (perm)	1770	3367		1770	3366		1192	1078		650	1090	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	26	944	65	41	112	26	107	312	148	166	162	14
RTOR Reduction (vph)	0	6	0	0	16	0	0	22	0	0	4	0
Lane Group Flow (vph)	26	1003	0	41	122	0	107	438	0	166	172	0
Confl. Peds. (#/hr)						50			3			3
Confl. Bikes (#/hr)			4						1			
Heavy Vehicles (%)	2%	5%	21%	2%	2%	2%	2%	57%	88%	2%	78%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Actuated Green, G (s)	1.9	25.7		2.1	26.4		32.2	32.2		32.2	32.2	
Effective Green, g (s)	1.9	25.7		2.1	26.4		32.2	32.2		32.2	32.2	
Actuated g/C Ratio	0.03	0.36		0.03	0.37		0.45	0.45		0.45	0.45	
Clearance Time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.5	3.0		3.2	3.2		3.0	3.0	
Lane Grp Cap (vph)	46	1201		51	1234		533	482		290	487	
v/s Ratio Prot	0.01	c0.30		c0.02	0.04			c0.41			0.16	
v/s Ratio Perm							0.09			0.26		
v/c Ratio	0.57	0.83		0.80	0.10		0.20	0.91		0.57	0.35	
Uniform Delay, d1	34.6	21.2		34.7	15.0		12.1	18.5		14.8	13.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.1	5.2		57.7	0.0		0.2	21.0		2.7	0.4	
Delay (s)	43.8	26.4		92.5	15.0		12.3	39.6		17.5	13.5	
Level of Service	D	C		F	B		B	D		B	B	
Approach Delay (s)		26.8			32.8			34.4			15.4	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

2035 + Project Mid-Range
Alternative AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	47	1258	66	286	1369	250	62	166	189	374	511	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3504		1770	3539	1518	1770	1863	1540	1770	1792	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3504		1770	3539	1518	1770	1863	1540	1770	1792	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	51	1367	72	311	1488	272	67	180	205	407	555	159
RTOR Reduction (vph)	0	6	0	0	0	100	0	0	133	0	17	0
Lane Group Flow (vph)	51	1433	0	311	1488	172	67	180	72	407	697	0
Confl. Peds. (#/hr)			32			7			5			6
Confl. Bikes (#/hr)			4			9			11			3
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			
Actuated Green, G (s)	2.3	18.9		7.0	23.6	23.6	2.3	14.5	14.5	4.0	16.2	
Effective Green, g (s)	2.3	18.9		7.0	23.6	23.6	2.3	14.5	14.5	4.0	16.2	
Actuated g/C Ratio	0.04	0.31		0.12	0.39	0.39	0.04	0.24	0.24	0.07	0.27	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	67	1096		205	1382	593	67	447	369	117	480	
v/s Ratio Prot	0.03	c0.41		c0.18	0.42		0.04	0.10		c0.23	c0.39	
v/s Ratio Perm						0.11			0.05			
v/c Ratio	0.76	1.31		1.52	1.08	0.29	1.00	0.40	0.20	3.48	1.45	
Uniform Delay, d1	28.8	20.8		26.7	18.4	12.6	29.1	19.3	18.3	28.2	22.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	39.2	145.0		256.1	47.7	0.3	110.0	0.6	0.3	1136.6	215.0	
Delay (s)	67.9	165.7		282.8	66.1	12.9	139.0	19.9	18.6	1164.8	237.1	
Level of Service	E	F		F	E	B	F	B	B	F	F	
Approach Delay (s)		162.4			91.7			36.9			573.9	
Approach LOS		F			F			D			F	

Intersection Summary			
HCM 2000 Control Delay	212.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.62		
Actuated Cycle Length (s)	60.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	105.5%	ICU Level of Service	G
Analysis Period (min)	15		

Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

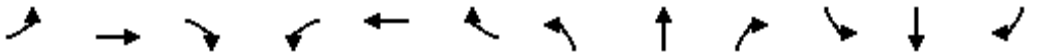
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	256	922	914	126	1163	190	861	814	44	165	1320	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.94		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.98		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3079		1770	3425		3433	3498		1770	3402	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3079		1770	3425		3433	3498		1770	3402	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	278	1002	993	137	1264	207	936	885	48	179	1435	283
RTOR Reduction (vph)	0	162	0	0	12	0	0	3	0	0	15	0
Lane Group Flow (vph)	278	1833	0	137	1459	0	936	930	0	179	1703	0
Confl. Peds. (#/hr)			83			52			53			68
Confl. Bikes (#/hr)			15			8			15			12
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	17.0	35.0		11.0	29.0		15.0	37.1		13.9	35.0	
Effective Green, g (s)	17.0	35.0		11.0	29.0		15.0	37.1		13.9	35.0	
Actuated g/C Ratio	0.15	0.32		0.10	0.26		0.14	0.34		0.13	0.32	
Clearance Time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.0	2.0		2.0	4.0		2.5	4.0	
Lane Grp Cap (vph)	273	979		177	902		468	1179		223	1082	
v/s Ratio Prot	c0.16	c0.60		0.08	0.43		c0.27	0.27		0.10	c0.50	
v/s Ratio Perm												
v/c Ratio	1.02	1.87		0.77	1.62		2.00	0.79		0.80	1.57	
Uniform Delay, d1	46.5	37.5		48.3	40.5		47.5	32.9		46.7	37.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	59.2	396.3		17.3	283.1		457.6	5.4		18.0	262.8	
Delay (s)	105.7	433.8		65.6	323.6		505.1	38.3		64.7	300.3	
Level of Service	F	F		E	F		F	D		E	F	
Approach Delay (s)		393.7			301.6			272.1			278.0	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	315.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.68		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	150.2%	ICU Level of Service	H
Analysis Period (min)	15		

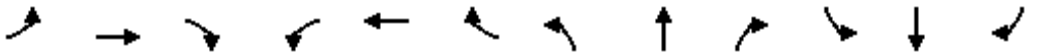
Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group



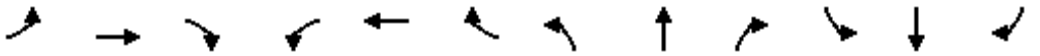
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	519	81	12	278	0	0	0	0	631	883	399
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5					6.5	6.5	6.5
Lane Util. Factor		0.95			0.91					0.91	0.91	1.00
Frpb, ped/bikes		0.99			1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Frt		0.98			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	0.99	1.00
Satd. Flow (prot)		3446			5073					1610	3367	1550
Flt Permitted		1.00			0.88					0.95	0.99	1.00
Satd. Flow (perm)		3446			4479					1610	3367	1550
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	519	81	12	278	0	0	0	0	631	883	399
RTOR Reduction (vph)	0	16	0	0	0	0	0	0	0	0	0	71
Lane Group Flow (vph)	0	584	0	0	290	0	0	0	0	492	1022	328
Confl. Peds. (#/hr)	20		20	20								20
Turn Type		NA		Perm	NA					Perm	NA	Perm
Protected Phases		1			1						2	
Permitted Phases				1						2		2
Actuated Green, G (s)		17.0			17.0					51.0	51.0	51.0
Effective Green, g (s)		17.0			17.0					51.0	51.0	51.0
Actuated g/C Ratio		0.21			0.21					0.64	0.64	0.64
Clearance Time (s)		5.5			5.5					6.5	6.5	6.5
Lane Grp Cap (vph)		732			951					1026	2146	988
v/s Ratio Prot		c0.17										
v/s Ratio Perm					0.06					c0.31	0.30	0.21
v/c Ratio		0.80			0.30					0.48	0.48	0.33
Uniform Delay, d1		29.9			26.5					7.6	7.5	6.7
Progression Factor		1.00			1.12					1.00	1.00	1.00
Incremental Delay, d2		8.9			0.8					1.6	0.8	0.9
Delay (s)		38.7			30.4					9.2	8.3	7.6
Level of Service		D			C					A	A	A
Approach Delay (s)		38.7			30.4			0.0			8.4	
Approach LOS		D			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



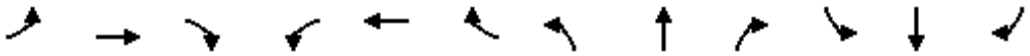
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	284	882	0	0	270	737	7	747	28	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1610	3385			3539	2706		5048				
Flt Permitted	0.95	0.95			1.00	1.00		1.00				
Satd. Flow (perm)	1610	3215			3539	2706		5048				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	284	882	0	0	270	737	7	747	28	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	192	0	5	0	0	0	0
Lane Group Flow (vph)	256	910	0	0	270	545	0	777	0	0	0	0
Confl. Peds. (#/hr)						20			20			
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	21.5	52.5			27.5	27.5		16.5				
Effective Green, g (s)	21.5	52.5			27.5	27.5		16.5				
Actuated g/C Ratio	0.27	0.66			0.34	0.34		0.21				
Clearance Time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Grp Cap (vph)	432	2155			1216	930		1041				
v/s Ratio Prot	c0.16	0.11			0.08							
v/s Ratio Perm		0.16				c0.20		0.15				
v/c Ratio	0.59	0.42			0.22	0.59		0.75				
Uniform Delay, d1	25.4	6.5			18.7	21.6		29.8				
Progression Factor	0.92	0.77			1.00	1.00		1.00				
Incremental Delay, d2	4.7	0.5			0.4	2.7		4.9				
Delay (s)	28.0	5.5			19.1	24.3		34.7				
Level of Service	C	A			B	C		C				
Approach Delay (s)		10.4			22.9			34.7			0.0	
Approach LOS		B			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	21.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



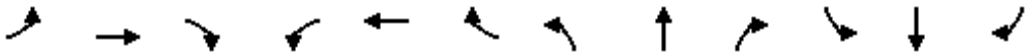
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	816	747	387	1605	69	212	45	325	30	21	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3312	1404	1543	3332		1243	1248	946	1203	1115	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3312	1404	1543	3332		1243	1248	946	1203	1115	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	61	816	747	387	1605	69	212	45	325	30	21	20
RTOR Reduction (vph)	0	0	347	0	2	0	0	0	275	0	19	0
Lane Group Flow (vph)	61	816	400	387	1672	0	127	130	50	30	22	0
Confl. Peds. (#/hr)						1			3			
Heavy Vehicles (%)	0%	9%	15%	17%	7%	21%	38%	44%	68%	50%	75%	40%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases			2						8			
Actuated Green, G (s)	5.5	43.4	43.4	33.0	70.9		17.7	17.7	17.7	4.7	4.7	
Effective Green, g (s)	5.5	43.4	43.4	33.0	70.9		17.7	17.7	17.7	4.7	4.7	
Actuated g/C Ratio	0.05	0.38	0.38	0.29	0.61		0.15	0.15	0.15	0.04	0.04	
Clearance Time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.5	3.5	3.5	2.0	3.5		3.0	3.0	3.0	2.0	2.0	
Lane Grp Cap (vph)	86	1246	528	441	2048		190	191	145	49	45	
v/s Ratio Prot	0.03	0.25		c0.25	c0.50		0.10	c0.10		c0.02	0.02	
v/s Ratio Perm			0.29						0.05			
v/c Ratio	0.71	0.65	0.76	0.88	0.82		0.67	0.68	0.34	0.61	0.48	
Uniform Delay, d1	54.1	29.8	31.4	39.2	17.2		46.0	46.1	43.6	54.4	54.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	21.9	1.3	6.4	17.1	2.7		8.6	9.6	1.4	14.9	3.0	
Delay (s)	76.0	31.1	37.7	56.3	19.9		54.6	55.7	45.0	69.3	57.1	
Level of Service	E	C	D	E	B		D	E	D	E	E	
Approach Delay (s)		35.8			26.7			49.5			62.2	
Approach LOS		D			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	115.3	Sum of lost time (s)	16.5
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



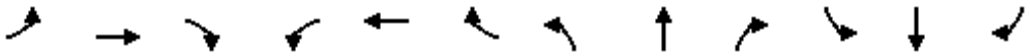
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	748	275	284	1380	335	515	242	507	230	234	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.90		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1014	2883		1299	3438	1369	1480	2543		1480	2259	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1014	2883		1299	3438	1369	1480	2543		1480	2259	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	155	748	275	284	1380	335	515	242	507	230	234	180
RTOR Reduction (vph)	0	27	0	0	0	165	0	245	0	0	78	0
Lane Group Flow (vph)	155	996	0	284	1380	170	515	504	0	207	359	0
Confl. Peds. (#/hr)									1			
Heavy Vehicles (%)	78%	14%	37%	39%	5%	18%	22%	42%	19%	11%	45%	45%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	15.5	40.0		25.5	50.0	50.0	38.5	38.5		19.0	19.0	
Effective Green, g (s)	15.5	40.0		25.5	50.0	50.0	38.5	38.5		19.0	19.0	
Actuated g/C Ratio	0.11	0.29		0.18	0.36	0.36	0.28	0.28		0.14	0.14	
Clearance Time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	112	826		237	1232	490	408	701		201	307	
v/s Ratio Prot	c0.15	c0.35		c0.22	0.40		c0.35	0.20		0.14	c0.16	
v/s Ratio Perm						0.12						
v/c Ratio	1.38	1.21		1.20	1.12	0.35	1.26	0.72		1.03	1.17	
Uniform Delay, d1	62.0	49.8		57.0	44.8	32.8	50.5	45.6		60.2	60.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	218.6	103.9		122.6	65.3	0.4	136.4	3.3		71.5	105.8	
Delay (s)	280.6	153.7		179.6	110.1	33.2	186.9	48.9		131.7	166.0	
Level of Service	F	F		F	F	C	F	D		F	F	
Approach Delay (s)		170.4			107.1			105.1			155.0	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	127.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	139.5	Sum of lost time (s)	16.5
Intersection Capacity Utilization	102.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1455	51	116	1232	0	0	0	0	449	322	515
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						5.0	
Lane Util. Factor		0.91		1.00	0.95						0.95	
Frpb, ped/bikes		1.00		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.99		1.00	1.00						0.94	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		4961		1768	3343						3131	
Flt Permitted		1.00		0.12	1.00						0.98	
Satd. Flow (perm)		4961		219	3343						3131	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1455	51	116	1232	0	0	0	0	449	322	515
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	33	0
Lane Group Flow (vph)	0	1502	0	116	1232	0	0	0	0	0	1253	0
Confl. Peds. (#/hr)			8	8						10		10
Heavy Vehicles (%)	6%	4%	2%	2%	8%	2%	0%	0%	0%	2%	2%	11%
Turn Type		NA		Perm	NA					Split	NA	
Protected Phases		4			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		47.0		47.0	47.0						30.0	
Effective Green, g (s)		47.0		47.0	47.0						30.0	
Actuated g/C Ratio		0.54		0.54	0.54						0.34	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		2680		118	1805						1079	
v/s Ratio Prot		0.30			0.37						c0.40	
v/s Ratio Perm				c0.53								
v/c Ratio		0.56		0.98	0.68						1.16	
Uniform Delay, d1		13.2		19.6	14.6						28.5	
Progression Factor		1.00		0.43	0.36						1.00	
Incremental Delay, d2		0.2		58.5	0.5						82.9	
Delay (s)		13.3		67.0	5.8						111.4	
Level of Service		B		E	A						F	
Approach Delay (s)		13.3			11.0			0.0			111.4	
Approach LOS		B			B			A			F	

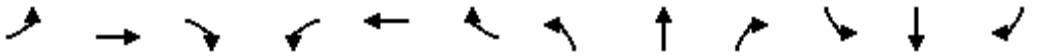
Intersection Summary			
HCM 2000 Control Delay	43.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	144.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	340	1564	0	0	1168	351	180	389	123	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0				
Lane Util. Factor	1.00	0.95			0.95			0.95				
Frpb, ped/bikes	1.00	1.00			0.99			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.97			0.97				
Flt Protected	0.95	1.00			1.00			0.99				
Satd. Flow (prot)	1770	3539			3394			3387				
Flt Permitted	0.09	1.00			1.00			0.99				
Satd. Flow (perm)	159	3539			3394			3387				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	340	1564	0	0	1168	351	180	389	123	0	0	0
RTOR Reduction (vph)	0	0	0	0	33	0	0	14	0	0	0	0
Lane Group Flow (vph)	340	1564	0	0	1486	0	0	678	0	0	0	0
Confl. Peds. (#/hr)	10					10			10			
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)	47.0	47.0			47.0			30.0				
Effective Green, g (s)	47.0	47.0			47.0			30.0				
Actuated g/C Ratio	0.54	0.54			0.54			0.34				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Vehicle Extension (s)	2.0	2.0			2.0			2.0				
Lane Grp Cap (vph)	85	1911			1833			1167				
v/s Ratio Prot		0.44			0.44			c0.20				
v/s Ratio Perm	c2.14											
v/c Ratio	4.00	0.82			0.81			0.58				
Uniform Delay, d1	20.0	16.5			16.4			23.4				
Progression Factor	0.74	0.66			1.00			1.00				
Incremental Delay, d2	1369.5	1.9			2.7			0.5				
Delay (s)	1384.2	12.8			19.0			23.8				
Level of Service	F	B			B			C				
Approach Delay (s)		257.7			19.0			23.8			0.0	
Approach LOS		F			B			C			A	

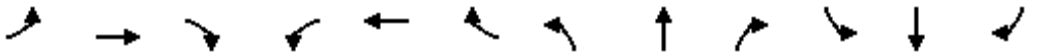
Intersection Summary			
HCM 2000 Control Delay	130.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.64		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	144.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	1264	115	111	1587	16	50	80	44	21	139	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.95		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1768	3423		1768	3401		1755	1747		1757	1774	
Flt Permitted	0.08	1.00		0.12	1.00		0.60	1.00		0.68	1.00	
Satd. Flow (perm)	157	3423		223	3401		1102	1747		1253	1774	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	48	1264	115	111	1587	16	50	80	44	21	139	50
RTOR Reduction (vph)	0	9	0	0	1	0	0	25	0	0	16	0
Lane Group Flow (vph)	48	1370	0	111	1602	0	50	100	0	21	173	0
Confl. Peds. (#/hr)	8		7	7		8	11		8	8		11
Confl. Bikes (#/hr)			9			11			8			10
Heavy Vehicles (%)	2%	4%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	47.5	47.5		47.5	47.5		24.0	24.0		24.0	24.0	
Effective Green, g (s)	47.5	47.5		47.5	47.5		24.0	24.0		24.0	24.0	
Actuated g/C Ratio	0.59	0.59		0.59	0.59		0.30	0.30		0.30	0.30	
Clearance Time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	93	2032		132	2019		330	524		375	532	
v/s Ratio Prot		0.40			0.47			0.06			c0.10	
v/s Ratio Perm	0.31			c0.50			0.05			0.02		
v/c Ratio	0.52	0.67		0.84	0.79		0.15	0.19		0.06	0.33	
Uniform Delay, d1	9.5	11.0		13.2	12.5		20.5	20.8		19.9	21.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	19.0	1.8		44.5	3.3		1.0	0.8		0.3	1.6	
Delay (s)	28.5	12.8		57.6	15.8		21.5	21.6		20.2	23.3	
Level of Service	C	B		E	B		C	C		C	C	
Approach Delay (s)		13.4			18.5			21.6			23.0	
Approach LOS		B			B			C			C	

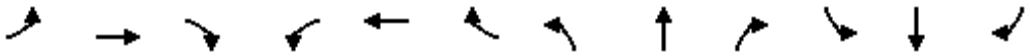
Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	136.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	1028	229	51	1250	13	365	286	108	3	111	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Lane Util. Factor		0.95			0.95	1.00	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes		0.99			1.00	0.94	1.00	1.00	0.95		1.00	0.95
Flpb, ped/bikes		1.00			1.00	1.00	0.98	1.00	1.00		1.00	1.00
Frt		0.97			1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected		1.00			1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)		3325			3299	1489	1645	1845	1506		1860	1517
Flt Permitted		0.79			0.78	1.00	0.67	1.00	1.00		0.99	1.00
Satd. Flow (perm)		2634			2590	1489	1161	1845	1506		1851	1517
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	1028	229	51	1250	13	365	286	108	3	111	103
RTOR Reduction (vph)	0	19	0	0	0	3	0	0	60	0	0	34
Lane Group Flow (vph)	0	1288	0	0	1301	10	365	286	48	0	114	69
Confl. Peds. (#/hr)	21		15	15		21	27		25	25		27
Confl. Bikes (#/hr)			18			17			16			17
Heavy Vehicles (%)	2%	5%	3%	39%	8%	2%	7%	3%	2%	2%	2%	1%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		4
Actuated Green, G (s)		51.4			51.4	51.4	29.6	29.6	29.6		29.6	29.6
Effective Green, g (s)		51.4			51.4	51.4	29.6	29.6	29.6		29.6	29.6
Actuated g/C Ratio		0.57			0.57	0.57	0.33	0.33	0.33		0.33	0.33
Clearance Time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Vehicle Extension (s)		2.0			2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1504			1479	850	381	606	495		608	498
v/s Ratio Prot								0.16				
v/s Ratio Perm		0.49			c0.50	0.01	c0.31		0.03		0.06	0.05
v/c Ratio		0.86			0.88	0.01	0.96	0.47	0.10		0.19	0.14
Uniform Delay, d1		16.2			16.6	8.3	29.6	24.0	20.9		21.6	21.2
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2		6.5			7.8	0.0	34.6	0.2	0.0		0.1	0.0
Delay (s)		22.7			24.4	8.4	64.2	24.2	21.0		21.7	21.3
Level of Service		C			C	A	E	C	C		C	C
Approach Delay (s)		22.7			24.3			43.0			21.5	
Approach LOS		C			C			D			C	

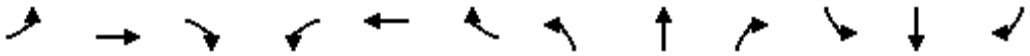
Intersection Summary			
HCM 2000 Control Delay	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	108.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	74	865	233	69	1214	213	95	672	32	60	1212	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3432	1510	1764	3252	1540	1669	3511		1762	3538	
Flt Permitted		0.62	1.00	0.19	1.00	1.00	0.11	1.00		0.32	1.00	
Satd. Flow (perm)		2145	1510	344	3252	1540	198	3511		594	3538	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	74	865	233	69	1214	213	95	672	32	60	1212	3
RTOR Reduction (vph)	0	0	18	0	0	71	0	4	0	0	0	0
Lane Group Flow (vph)	0	939	215	69	1214	142	95	700	0	60	1215	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Heavy Vehicles (%)	2%	5%	4%	2%	11%	2%	8%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4		4	2			6		
Actuated Green, G (s)		36.6	36.6	36.6	36.6	36.6	38.9	38.9		38.9	38.9	
Effective Green, g (s)		36.6	36.6	36.6	36.6	36.6	38.9	38.9		38.9	38.9	
Actuated g/C Ratio		0.43	0.43	0.43	0.43	0.43	0.46	0.46		0.46	0.46	
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0		4.0	4.0	
Lane Grp Cap (vph)		923	650	148	1400	663	90	1606		271	1619	
v/s Ratio Prot					0.37			0.20			0.34	
v/s Ratio Perm		c0.44	0.14	0.20		0.09	c0.48			0.10		
v/c Ratio		1.02	0.33	0.47	0.87	0.21	1.06	0.44		0.22	0.75	
Uniform Delay, d1		24.2	16.1	17.2	22.0	15.2	23.1	15.6		13.9	19.0	
Progression Factor		1.00	1.00	1.34	0.97	1.84	1.00	1.00		1.00	1.00	
Incremental Delay, d2		34.0	1.4	8.9	6.5	0.6	110.8	0.4		0.6	2.1	
Delay (s)		58.2	17.4	32.0	27.8	28.5	133.8	16.0		14.5	21.2	
Level of Service		E	B	C	C	C	F	B		B	C	
Approach Delay (s)		50.1			28.1			30.0			20.9	
Approach LOS		D			C			C			C	

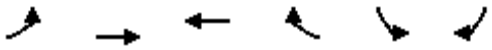
Intersection Summary			
HCM 2000 Control Delay	31.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	117.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	842	27	114	1316	32	18	109	260	37	99	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.97		1.00	0.94		0.97	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1588	3124	1361	1504	3185	1375		3152	1173		2852	
Flt Permitted	0.18	1.00	1.00	0.32	1.00	1.00		0.89	1.00		0.89	
Satd. Flow (perm)	293	3124	1361	505	3185	1375		2841	1173		2563	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	55	842	27	114	1316	32	18	109	260	37	99	105
RTOR Reduction (vph)	0	0	7	0	0	6	0	0	127	0	45	0
Lane Group Flow (vph)	55	842	20	114	1316	26	0	127	133	0	196	0
Confl. Peds. (#/hr)	22		31	31		22	34		37	37		34
Confl. Bikes (#/hr)			7			3			12			19
Heavy Vehicles (%)	2%	4%	2%	7%	2%	2%	2%	2%	16%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4		4	2		2	2		
Actuated Green, G (s)	61.9	61.9	61.9	61.9	61.9	61.9		14.6	14.6		14.6	
Effective Green, g (s)	61.9	61.9	61.9	61.9	61.9	61.9		14.6	14.6		14.6	
Actuated g/C Ratio	0.73	0.73	0.73	0.73	0.73	0.73		0.17	0.17		0.17	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	213	2275	991	367	2319	1001		487	201		440	
v/s Ratio Prot		0.27			c0.41							
v/s Ratio Perm	0.19		0.01	0.23		0.02		0.04	c0.11		0.08	
v/c Ratio	0.26	0.37	0.02	0.31	0.57	0.03		0.26	0.66		0.45	
Uniform Delay, d1	3.9	4.3	3.2	4.1	5.3	3.2		30.5	32.9		31.6	
Progression Factor	0.91	0.71	0.66	2.58	2.46	2.90		1.00	1.00		1.00	
Incremental Delay, d2	1.0	0.2	0.0	0.2	0.1	0.0		0.1	6.2		0.3	
Delay (s)	4.5	3.2	2.1	10.7	13.2	9.3		30.6	39.1		31.8	
Level of Service	A	A	A	B	B	A		C	D		C	
Approach Delay (s)		3.2			12.9			36.3			31.8	
Approach LOS		A			B			D			C	

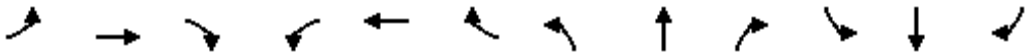
Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



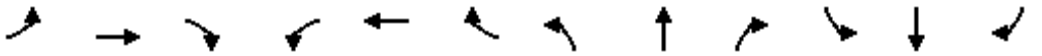
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	492	589	1310	122	664	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1593	3008	3036	1343	3050	1191
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1593	3008	3036	1343	3050	1191
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	492	589	1310	122	664	224
RTOR Reduction (vph)	0	0	0	37	3	150
Lane Group Flow (vph)	492	589	1310	85	683	52
Confl. Peds. (#/hr)				15	15	15
Heavy Vehicles (%)	2%	8%	7%	5%	3%	8%
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	20.0	55.0	31.0	31.0	22.0	22.0
Effective Green, g (s)	20.0	55.0	31.0	31.0	22.0	22.0
Actuated g/C Ratio	0.24	0.65	0.36	0.36	0.26	0.26
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	374	1946	1107	489	789	308
v/s Ratio Prot	c0.31	0.20	c0.43		c0.22	
v/s Ratio Perm				0.06		0.04
v/c Ratio	1.32	0.30	1.18	0.17	0.87	0.17
Uniform Delay, d1	32.5	6.6	27.0	18.3	30.1	24.4
Progression Factor	0.71	1.57	0.97	1.12	1.00	1.00
Incremental Delay, d2	158.6	0.4	86.8	0.0	9.5	0.1
Delay (s)	181.7	10.7	113.0	20.6	39.6	24.5
Level of Service	F	B	F	C	D	C
Approach Delay (s)		88.6	105.1		36.2	
Approach LOS		F	F		D	

Intersection Summary			
HCM 2000 Control Delay	81.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	104.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	71	855	53	136	1047	112	167	481	158	116	423	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00	0.92	1.00	0.98	
Flpb, ped/bikes	1.00	1.00			1.00		0.98	1.00	1.00	0.97	1.00	
Frt	1.00	0.99			0.99		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1585	3147			3107		1561	3185	1305	1546	3023	
Flt Permitted	0.14	1.00			0.69		0.33	1.00	1.00	0.38	1.00	
Satd. Flow (perm)	233	3147			2144		539	3185	1305	618	3023	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	71	855	53	136	1047	112	167	481	158	116	423	127
RTOR Reduction (vph)	0	5	0	0	8	0	0	0	77	0	35	0
Lane Group Flow (vph)	71	903	0	0	1287	0	167	481	81	116	515	0
Confl. Peds. (#/hr)	46		47	47		46	57		65	65		57
Confl. Bikes (#/hr)			9			21			15			22
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	50.1	50.1			50.1		26.9	26.9	26.9	26.9	26.9	
Effective Green, g (s)	50.1	50.1			50.1		26.9	26.9	26.9	26.9	26.9	
Actuated g/C Ratio	0.59	0.59			0.59		0.32	0.32	0.32	0.32	0.32	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	137	1854			1263		170	1007	412	195	956	
v/s Ratio Prot		0.29						0.15			0.17	
v/s Ratio Perm	0.30				c0.60		c0.31		0.06	0.19		
v/c Ratio	0.52	0.49			1.02		0.98	0.48	0.20	0.59	0.54	
Uniform Delay, d1	10.3	10.1			17.4		28.8	23.4	21.2	24.5	23.9	
Progression Factor	0.31	0.27			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	11.2	0.8			30.2		63.3	0.1	0.1	3.2	0.3	
Delay (s)	14.4	3.5			47.7		92.1	23.5	21.3	27.7	24.2	
Level of Service	B	A			D		F	C	C	C	C	
Approach Delay (s)		4.3			47.7			37.3			24.8	
Approach LOS		A			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	30.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	116.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	157	165	465	825	101	390	1249	423	28	1180	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	5.5		5.5	5.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		1.00	1.00
Satd. Flow (prot)	3090	3154	1352	3090	3185	1352		4517	1352		4571	1352
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.66	1.00		0.82	1.00
Satd. Flow (perm)	3090	3154	1352	3090	3185	1352		3021	1352		3740	1352
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	89	157	165	465	825	101	390	1249	423	28	1180	201
RTOR Reduction (vph)	0	0	81	0	0	51	0	0	242	0	0	83
Lane Group Flow (vph)	89	157	84	465	825	50	0	1639	181	0	1208	118
Confl. Peds. (#/hr)			40			40	40		40	40		40
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases			8			4	2		2	6		6
Actuated Green, G (s)	4.0	15.2	15.2	21.2	32.4	32.4		38.6	38.6		38.6	38.6
Effective Green, g (s)	4.0	15.2	15.2	21.2	32.4	32.4		38.6	38.6		38.6	38.6
Actuated g/C Ratio	0.04	0.17	0.17	0.24	0.36	0.36		0.43	0.43		0.43	0.43
Clearance Time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	5.5		5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	137	532	228	727	1146	486		1295	579		1604	579
v/s Ratio Prot	c0.03	0.05		0.15	c0.26							
v/s Ratio Perm			0.06			0.04		c0.54	0.13		0.32	0.09
v/c Ratio	0.65	0.30	0.37	0.64	0.72	0.10		3.51dl	0.31		0.75	0.20
Uniform Delay, d1	42.3	32.7	33.2	31.0	24.9	19.1		25.7	17.0		21.7	16.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	10.2	1.4	4.6	1.9	3.9	0.4		125.8	0.3		2.1	0.2
Delay (s)	52.5	34.1	37.7	32.8	28.8	19.6		151.5	17.3		23.7	16.3
Level of Service	D	C	D	C	C	B		F	B		C	B
Approach Delay (s)		39.5			29.5			124.0			22.7	
Approach LOS		D			C			F			C	

Intersection Summary			
HCM 2000 Control Delay	65.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	115.9%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

MOVEMENT SUMMARY

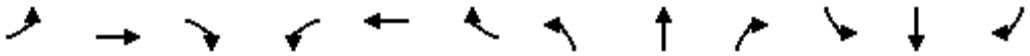
Site: 2035 + Proj Mid Alt AM

Adeline & 18th
2035 + Project Mid-Range Alternative AM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	43	2.0	0.245	5.3	LOS A	1.3	31.9	0.37	0.82	27.5
8	T	184	2.0	0.245	5.3	LOS A	1.3	31.9	0.37	0.50	30.6
18	R	63	2.0	0.245	5.3	LOS A	1.3	31.9	0.37	0.56	30.1
Approach		290	2.0	0.245	5.3	LOS A	1.3	31.9	0.37	0.56	29.9
East: 18th Street (WB)											
1	L	30	2.0	0.223	5.3	LOS A	1.1	27.7	0.43	0.84	27.5
6	T	172	2.0	0.223	5.3	LOS A	1.1	27.7	0.43	0.54	30.5
16	R	45	2.0	0.223	5.3	LOS A	1.1	27.7	0.43	0.60	30.1
Approach		247	2.0	0.223	5.3	LOS A	1.1	27.7	0.43	0.59	30.0
North: Adeline Street (SB)											
7	L	71	2.0	0.365	7.0	LOS A	2.0	52.0	0.50	0.84	26.7
4	T	279	2.0	0.365	7.0	LOS A	2.0	52.0	0.50	0.58	29.4
14	R	51	2.0	0.365	7.0	LOS A	2.0	52.0	0.50	0.63	29.0
Approach		401	2.0	0.365	7.0	LOS A	2.0	52.0	0.50	0.63	28.8
West: 18th Street (EB)											
5	L	9	2.0	0.115	4.8	LOS A	0.5	12.5	0.48	0.88	27.9
2	T	93	2.0	0.115	4.8	LOS A	0.5	12.5	0.48	0.60	30.9
12	R	8	2.0	0.115	4.8	LOS A	0.5	12.5	0.48	0.65	30.5
Approach		110	2.0	0.115	4.8	LOS A	0.5	12.5	0.48	0.62	30.6
All Vehicles		1048	2.0	0.365	5.9	LOS A	2.0	52.0	0.45	0.60	29.6

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	187	4	27	125	209	49	564	88	235	191	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99			1.00	
Flpb, ped/bikes	0.99	1.00		0.98	1.00		0.98	1.00			0.99	
Frt	1.00	1.00		1.00	0.91		1.00	0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1760	1855		1729	1663		1742	3432			3354	
Flt Permitted	0.31	1.00		0.57	1.00		0.48	1.00			0.58	
Satd. Flow (perm)	566	1855		1037	1663		889	3432			2006	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	187	4	27	125	209	49	564	88	235	191	39
RTOR Reduction (vph)	0	2	0	0	104	0	0	14	0	0	8	0
Lane Group Flow (vph)	50	189	0	27	230	0	49	638	0	0	457	0
Confl. Peds. (#/hr)	14		44	44		14	37		71	71		37
Confl. Bikes (#/hr)			6			2			2			11
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	13.1	13.1		13.1	13.1		37.4	37.4			37.4	
Effective Green, g (s)	13.1	13.1		13.1	13.1		37.4	37.4			37.4	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.64	0.64			0.64	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Lane Grp Cap (vph)	126	415		232	372		568	2194			1282	
v/s Ratio Prot		0.10			c0.14			0.19				
v/s Ratio Perm	0.09			0.03			0.06				c0.23	
v/c Ratio	0.40	0.46		0.12	0.62		0.09	0.29			0.36	
Uniform Delay, d1	19.3	19.6		18.1	20.4		4.0	4.7			4.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.7	0.3		0.1	2.2		0.3	0.3			0.8	
Delay (s)	20.1	19.9		18.2	22.6		4.3	5.0			5.7	
Level of Service	C	B		B	C		A	A			A	
Approach Delay (s)		19.9			22.3			5.0			5.7	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	58.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	99.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

Site: 2035 + Proj Mid Alt AM

Adeline & 14th
2035 + Project Mid-Range Alternative AM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	9	2.0	0.234	5.3	LOS A	1.2	29.6	0.41	0.86	27.6
8	T	232	2.0	0.234	5.3	LOS A	1.2	29.6	0.41	0.53	30.6
18	R	25	2.0	0.234	5.3	LOS A	1.2	29.6	0.41	0.60	30.2
Approach		266	2.0	0.234	5.3	LOS A	1.2	29.6	0.41	0.55	30.5
East: 14th Street (WB)											
1	L	34	2.0	0.208	5.3	LOS A	1.0	25.2	0.44	0.84	27.5
6	T	148	2.0	0.208	5.3	LOS A	1.0	25.2	0.44	0.55	30.5
16	R	42	2.0	0.208	5.3	LOS A	1.0	25.2	0.44	0.61	30.1
Approach		224	2.0	0.208	5.3	LOS A	1.0	25.2	0.44	0.61	29.9
North: Adeline Street (SB)											
7	L	32	2.0	0.272	5.6	LOS A	1.4	36.1	0.40	0.84	27.4
4	T	258	2.0	0.272	5.6	LOS A	1.4	36.1	0.40	0.52	30.4
14	R	26	2.0	0.272	5.6	LOS A	1.4	36.1	0.40	0.59	29.9
Approach		316	2.0	0.272	5.6	LOS A	1.4	36.1	0.40	0.56	30.0
West: 14th Street (EB)											
5	L	24	2.0	0.193	5.4	LOS A	0.9	22.7	0.48	0.87	27.6
2	T	154	2.0	0.193	5.4	LOS A	0.9	22.7	0.48	0.59	30.5
12	R	18	2.0	0.193	5.4	LOS A	0.9	22.7	0.48	0.65	30.1
Approach		196	2.0	0.193	5.4	LOS A	0.9	22.7	0.48	0.63	30.1
All Vehicles		1002	2.0	0.272	5.4	LOS A	1.4	36.1	0.43	0.58	30.1

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.

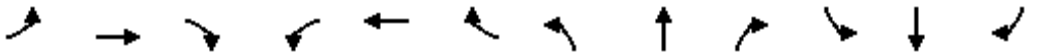
MOVEMENT SUMMARY

Adeline & 12th
2035 + Project Mid-Range Alternative AM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	1	2.0	0.155	3.9	LOS A	0.8	19.3	0.15	0.90	28.0
8	T	204	2.0	0.155	3.9	LOS A	0.8	19.3	0.15	0.42	31.7
18	R	5	2.0	0.155	3.9	LOS A	0.8	19.3	0.15	0.52	31.0
Approach		210	2.0	0.155	3.9	LOS A	0.8	19.3	0.15	0.42	31.6
East: 12th Street (WB)											
1	L	8	2.0	0.079	3.8	LOS A	0.3	8.7	0.35	0.79	28.2
6	T	29	2.0	0.079	3.8	LOS A	0.3	8.7	0.35	0.48	31.5
16	R	53	2.0	0.079	3.8	LOS A	0.3	8.7	0.35	0.54	31.0
Approach		90	2.0	0.079	3.8	LOS A	0.3	8.7	0.35	0.54	30.9
North: Adeline Street (SB)											
7	L	30	2.0	0.231	4.6	LOS A	1.2	31.4	0.16	0.87	27.7
4	T	279	2.0	0.231	4.6	LOS A	1.2	31.4	0.16	0.41	31.1
14	R	5	2.0	0.231	4.6	LOS A	1.2	31.4	0.16	0.51	30.5
Approach		314	2.0	0.231	4.6	LOS A	1.2	31.4	0.16	0.46	30.7
West: 12th Street (EB)											
5	L	2	2.0	0.010	3.6	LOS A	0.0	1.0	0.41	0.78	28.4
2	T	7	2.0	0.010	3.6	LOS A	0.0	1.0	0.41	0.48	31.7
12	R	1	2.0	0.010	3.6	LOS A	0.0	1.0	0.41	0.54	31.2
Approach		10	2.0	0.010	3.6	LOS A	0.0	1.0	0.41	0.55	30.9
All Vehicles		624	2.0	0.231	4.2	LOS A	1.2	31.4	0.19	0.46	31.1

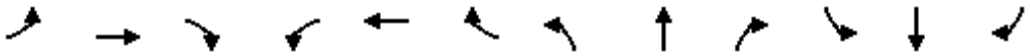
Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	138	44	0	0	347	352	443	447	95	107	0	553
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frt	1.00	1.00			0.92		1.00	0.98		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	0.99		0.95		1.00
Satd. Flow (prot)	1020	3282			2922		1173	2809		1543		1960
Flt Permitted	0.95	1.00			1.00		0.95	0.99		0.95		1.00
Satd. Flow (perm)	1020	3282			2922		1173	2809		1543		1960
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	138	44	0	0	347	352	443	447	95	107	0	553
RTOR Reduction (vph)	0	0	0	0	178	0	0	12	0	0	0	495
Lane Group Flow (vph)	138	44	0	0	521	0	323	650	0	107	0	58
Confl. Peds. (#/hr)						14						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	77%	10%	0%	0%	8%	17%	40%	15%	14%	17%	0%	45%
Turn Type	Prot	NA			NA		Split	NA		Prot		custom
Protected Phases	1	6			2		4	4		3		3
Permitted Phases												
Actuated Green, G (s)	15.9	41.2			21.8		30.4	30.4		10.0		10.0
Effective Green, g (s)	15.9	41.2			21.8		30.4	30.4		10.0		10.0
Actuated g/C Ratio	0.17	0.44			0.23		0.32	0.32		0.11		0.11
Clearance Time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	171	1429			673		376	902		163		207
v/s Ratio Prot	c0.14	0.01			c0.18		c0.28	0.23		c0.07		0.03
v/s Ratio Perm												
v/c Ratio	0.81	0.03			0.77		0.86	0.72		0.66		0.28
Uniform Delay, d1	37.9	15.3			34.1		30.1	28.4		40.6		39.0
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	22.4	0.0			5.3		17.2	2.7		8.2		0.5
Delay (s)	60.3	15.3			39.4		47.3	31.0		48.9		39.5
Level of Service	E	B			D		D	C		D		D
Approach Delay (s)		49.4			39.4			36.4			41.1	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	39.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	94.6	Sum of lost time (s)	16.5
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		

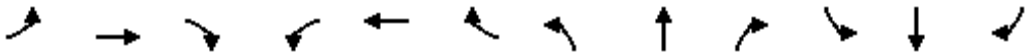
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	429	26	124	505	182	17	64	61	217	126	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.98			0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		0.99	1.00	
Frt	1.00	0.99		1.00	0.96			0.94		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1770	3183		1770	3259			1705		1755	1761	
Flt Permitted	0.95	1.00		0.95	1.00			0.96		0.57	1.00	
Satd. Flow (perm)	1770	3183		1770	3259			1646		1061	1761	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	62	429	26	124	505	182	17	64	61	217	126	29
RTOR Reduction (vph)	0	3	0	0	27	0	0	34	0	0	10	0
Lane Group Flow (vph)	62	452	0	124	660	0	0	108	0	217	145	0
Confl. Peds. (#/hr)			58			47	70		8	8		70
Confl. Bikes (#/hr)			15			6			9			38
Heavy Vehicles (%)	2%	12%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	10.1	54.5		11.4	55.8			23.1		23.1	23.1	
Effective Green, g (s)	10.1	54.5		11.4	55.8			23.1		23.1	23.1	
Actuated g/C Ratio	0.10	0.54		0.11	0.56			0.23		0.23	0.23	
Clearance Time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	178	1734		201	1818			380		245	406	
v/s Ratio Prot	c0.04	0.14		c0.07	c0.20						0.08	
v/s Ratio Perm								0.07		c0.20		
v/c Ratio	0.35	0.26		0.62	0.36			0.28		0.89	0.36	
Uniform Delay, d1	41.9	12.1		42.2	12.2			31.6		37.2	32.2	
Progression Factor	1.26	1.38		0.95	0.58			1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.0		3.8	0.6			0.2		28.7	0.2	
Delay (s)	53.2	16.7		43.8	7.6			31.8		65.8	32.4	
Level of Service	D	B		D	A			C		E	C	
Approach Delay (s)		21.1			13.1			31.8			51.9	
Approach LOS		C			B			C			D	

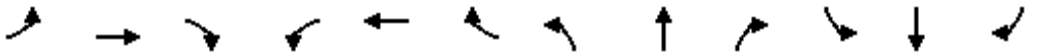
Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	629	74	126	1233	139	26	64	66	84	82	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00	0.99	1.00		0.99	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.92		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1765	3248		1025	3471	1492	1347	918		1753	1477	
Flt Permitted	0.17	1.00		0.35	1.00	1.00	0.59	1.00		0.64	1.00	
Satd. Flow (perm)	314	3248		380	3471	1492	836	918		1172	1477	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	27	629	74	126	1233	139	26	64	66	84	82	75
RTOR Reduction (vph)	0	9	0	0	0	50	0	37	0	0	33	0
Lane Group Flow (vph)	27	694	0	126	1233	89	26	93	0	84	124	0
Confl. Peds. (#/hr)	21		23	23		21	9		11	11		9
Confl. Bikes (#/hr)			4			5						1
Heavy Vehicles (%)	2%	8%	17%	75%	4%	4%	33%	100%	78%	2%	33%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	64.0	64.0		64.0	64.0	64.0	28.0	28.0		28.0	28.0	
Effective Green, g (s)	64.0	64.0		64.0	64.0	64.0	28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64	0.64	0.28	0.28		0.28	0.28	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	200	2078		243	2221	954	234	257		328	413	
v/s Ratio Prot		0.21			c0.36			c0.10			0.08	
v/s Ratio Perm	0.09			0.33		0.06	0.03			0.07		
v/c Ratio	0.14	0.33		0.52	0.56	0.09	0.11	0.36		0.26	0.30	
Uniform Delay, d1	7.1	8.2		9.7	10.1	6.9	26.8	28.8		27.9	28.3	
Progression Factor	0.39	0.35		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.4	0.4		7.7	1.0	0.2	1.0	3.9		1.9	1.9	
Delay (s)	4.1	3.3		17.4	11.1	7.1	27.7	32.7		29.8	30.2	
Level of Service	A	A		B	B	A	C	C		C	C	
Approach Delay (s)		3.3			11.2			31.9			30.0	
Approach LOS		A			B			C			C	

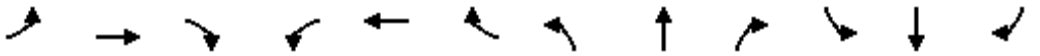
Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	101.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	95	610	56	51	1176	51	206	242	14	79	96	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1581	4090		1759	4576		1760	1810	1541	1751	3539	1245
Flt Permitted	0.15	1.00		0.36	1.00		0.69	1.00	1.00	0.58	1.00	1.00
Satd. Flow (perm)	246	4090		672	4576		1282	1810	1541	1066	3539	1245
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	95	610	56	51	1176	51	206	242	14	79	96	158
RTOR Reduction (vph)	0	16	0	0	7	0	0	0	8	0	0	18
Lane Group Flow (vph)	95	650	0	51	1220	0	206	242	6	79	96	140
Confl. Peds. (#/hr)	10		20	20		10	8		20	20		8
Confl. Bikes (#/hr)			7			3						6
Heavy Vehicles (%)	14%	27%	2%	2%	13%	2%	2%	5%	2%	2%	2%	27%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	30.7	30.7		30.7	30.7		34.8	34.8	34.8	34.8	34.8	34.8
Effective Green, g (s)	30.7	30.7		30.7	30.7		34.8	34.8	34.8	34.8	34.8	34.8
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.46	0.46	0.46	0.46	0.46	0.46
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	100	1674		275	1873		594	839	715	494	1642	577
v/s Ratio Prot		0.16			0.27			0.13			0.03	
v/s Ratio Perm	c0.39			0.08			c0.16		0.00	0.07		0.11
v/c Ratio	0.95	0.39		0.19	0.65		0.35	0.29	0.01	0.16	0.06	0.24
Uniform Delay, d1	21.4	15.6		14.2	17.8		12.8	12.4	10.8	11.6	11.1	12.1
Progression Factor	1.00	1.00		1.00	1.00		1.09	1.09	1.45	1.00	1.00	1.00
Incremental Delay, d2	72.4	0.1		0.1	0.6		1.6	0.9	0.0	0.7	0.1	1.0
Delay (s)	93.8	15.6		14.3	18.5		15.6	14.4	15.8	12.3	11.1	13.1
Level of Service	F	B		B	B		B	B	B	B	B	B
Approach Delay (s)		25.4			18.3			15.0			12.4	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	82.0%	ICU Level of Service	E
Analysis Period (min)	15		

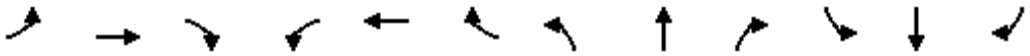
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	88	243	185	28	74	0	0	108	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	1.00			0.95	1.00
Frpb, ped/bikes					1.00	0.99	1.00	1.00			1.00	0.98
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3492	1562	1770	990			3167	1558
Flt Permitted					0.99	1.00	0.68	1.00			1.00	1.00
Satd. Flow (perm)					3492	1562	1274	990			3167	1558
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	88	243	185	28	74	0	0	108	67
RTOR Reduction (vph)	0	0	0	0	0	149	0	0	0	0	0	22
Lane Group Flow (vph)	0	0	0	0	331	36	28	74	0	0	108	45
Confl. Peds. (#/hr)				1		2			8	8		
Confl. Bikes (#/hr)												13
Heavy Vehicles (%)	2%	15%	88%	2%	2%	2%	2%	92%	0%	2%	14%	2%
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					4			6			2	
Permitted Phases				4		4	6					2
Actuated Green, G (s)					14.6	14.6	50.9	50.9			50.9	50.9
Effective Green, g (s)					14.6	14.6	50.9	50.9			50.9	50.9
Actuated g/C Ratio					0.19	0.19	0.68	0.68			0.68	0.68
Clearance Time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Vehicle Extension (s)					2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)					679	304	864	671			2149	1057
v/s Ratio Prot								c0.07			0.03	
v/s Ratio Perm					0.09	0.02	0.02					0.03
v/c Ratio					0.49	0.12	0.03	0.11			0.05	0.04
Uniform Delay, d1					26.9	24.9	4.0	4.2			4.0	4.0
Progression Factor					1.00	1.00	1.00	1.00			1.22	1.72
Incremental Delay, d2					0.2	0.1	0.0	0.0			0.0	0.1
Delay (s)					27.1	25.0	4.0	4.2			4.9	6.9
Level of Service					C	C	A	A			A	A
Approach Delay (s)		0.0			26.3			4.1			5.7	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	30.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

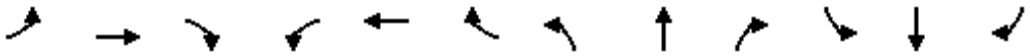


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	634	114	85	177	24	56	129	137	137	170	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.98		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.92		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3301		1770	3398		1770	937		1770	1127	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3301		1770	3398		1770	937		1770	1127	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	26	634	114	85	177	24	56	129	137	137	170	37
RTOR Reduction (vph)	0	9	0	0	7	0	0	25	0	0	5	0
Lane Group Flow (vph)	26	739	0	85	194	0	56	241	0	137	202	0
Confl. Peds. (#/hr)						50			3			3
Confl. Bikes (#/hr)			4						1			
Heavy Vehicles (%)	2%	6%	9%	2%	2%	2%	2%	74%	96%	2%	77%	2%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Actuated Green, G (s)	3.4	36.6		10.1	43.8		38.6	38.6		28.3	28.3	
Effective Green, g (s)	3.4	36.6		10.1	43.8		38.6	38.6		28.3	28.3	
Actuated g/C Ratio	0.03	0.28		0.08	0.34		0.30	0.30		0.22	0.22	
Clearance Time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.5	3.0		3.2	3.2		3.0	3.0	
Lane Grp Cap (vph)	46	932		137	1148		527	279		386	246	
v/s Ratio Prot	0.01	c0.22		c0.05	0.06		0.03	c0.26		0.08	c0.18	
v/s Ratio Perm												
v/c Ratio	0.57	0.79		0.62	0.17		0.11	0.86		0.35	0.82	
Uniform Delay, d1	62.4	43.0		57.9	30.1		33.0	43.0		42.9	48.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.1	4.7		7.3	0.1		0.1	23.1		0.6	18.8	
Delay (s)	71.5	47.7		65.2	30.2		33.1	66.1		43.5	67.0	
Level of Service	E	D		E	C		C	E		D	E	
Approach Delay (s)		48.5			40.6			60.4			57.6	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	51.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	129.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

2035 + Project Mid-Range
Alternative PM

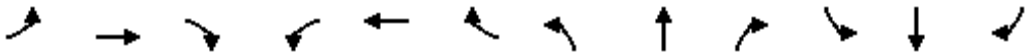


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	183	1007	199	321	1247	174	89	398	226	136	421	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3424		1770	3539	1513	1770	1863	1542	1770	1819	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3424		1770	3539	1513	1770	1863	1542	1770	1819	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	199	1095	216	349	1355	189	97	433	246	148	458	74
RTOR Reduction (vph)	0	27	0	0	0	119	0	0	178	0	10	0
Lane Group Flow (vph)	199	1284	0	349	1355	70	97	433	68	148	522	0
Confl. Peds. (#/hr)			32			7			5			6
Confl. Bikes (#/hr)			4			9			11			3
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			
Actuated Green, G (s)	5.0	16.1		5.0	16.1	16.1	4.6	16.3	16.3	5.4	17.1	
Effective Green, g (s)	5.0	16.1		5.0	16.1	16.1	4.6	16.3	16.3	5.4	17.1	
Actuated g/C Ratio	0.09	0.27		0.09	0.27	0.27	0.08	0.28	0.28	0.09	0.29	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	150	937		150	969	414	138	516	427	162	528	
v/s Ratio Prot	0.11	0.38		c0.20	c0.38		0.05	0.23		c0.08	c0.29	
v/s Ratio Perm						0.05			0.04			
v/c Ratio	1.33	1.37		2.33	1.40	0.17	0.70	0.84	0.16	0.91	0.99	
Uniform Delay, d1	26.9	21.3		26.9	21.3	16.3	26.4	20.0	16.1	26.5	20.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	185.6	173.5		617.4	185.6	0.2	15.0	11.4	0.2	46.0	35.9	
Delay (s)	212.5	194.9		644.3	206.9	16.4	41.4	31.5	16.2	72.5	56.6	
Level of Service	F	F		F	F	B	D	C	B	E	E	
Approach Delay (s)		197.2			268.5			27.9			60.1	
Approach LOS		F			F			C			E	

Intersection Summary			
HCM 2000 Control Delay	178.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	58.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	97.1%	ICU Level of Service	F
Analysis Period (min)	15		

Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group

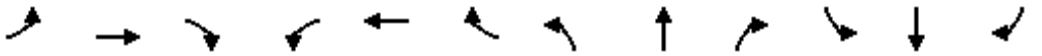


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	183	1034	470	56	846	142	914	1005	42	277	1178	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.96		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.98		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3246		1770	3423		3433	3507		1770	3443	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3246		1770	3423		3433	3507		1770	3443	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	199	1124	511	61	920	154	993	1092	46	301	1280	166
RTOR Reduction (vph)	0	46	0	0	12	0	0	3	0	0	9	0
Lane Group Flow (vph)	199	1589	0	61	1062	0	993	1135	0	301	1437	0
Confl. Peds. (#/hr)			83			52			53			68
Confl. Bikes (#/hr)			15			8			15			12
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.7	33.8		8.8	28.9		13.0	39.4		15.0	40.4	
Effective Green, g (s)	13.7	33.8		8.8	28.9		13.0	39.4		15.0	40.4	
Actuated g/C Ratio	0.12	0.31		0.08	0.26		0.12	0.36		0.14	0.37	
Clearance Time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.0	2.0		2.0	4.0		2.5	4.0	
Lane Grp Cap (vph)	220	997		141	899		405	1256		241	1264	
v/s Ratio Prot	c0.11	c0.49		0.03	0.31		c0.29	0.32		0.17	c0.42	
v/s Ratio Perm												
v/c Ratio	0.90	1.59		0.43	1.18		2.45	0.90		1.25	1.14	
Uniform Delay, d1	47.5	38.1		48.2	40.5		48.5	33.5		47.5	34.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	35.0	271.8		0.8	93.1		660.8	10.8		141.7	71.6	
Delay (s)	82.5	309.9		49.0	133.7		709.3	44.3		189.2	106.4	
Level of Service	F	F		D	F		F	D		F	F	
Approach Delay (s)		285.2			129.1			354.2			120.7	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	238.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.46		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	131.9%	ICU Level of Service	H
Analysis Period (min)	15		

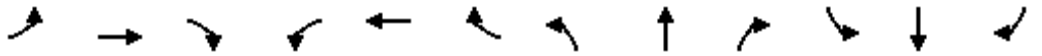
Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group



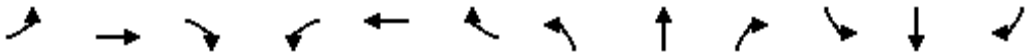
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	854	120	7	259	0	0	0	0	581	508	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5					6.5	6.5	6.5
Lane Util. Factor		0.95			0.91					0.91	0.91	1.00
Frpb, ped/bikes		0.99			1.00					1.00	1.00	0.97
Flpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Frt		0.98			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	0.98	1.00
Satd. Flow (prot)		3454			5078					1610	3339	1540
Flt Permitted		1.00			0.92					0.95	0.98	1.00
Satd. Flow (perm)		3454			4659					1610	3339	1540
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	854	120	7	259	0	0	0	0	581	508	380
RTOR Reduction (vph)	0	14	0	0	0	0	0	0	0	0	0	230
Lane Group Flow (vph)	0	960	0	0	266	0	0	0	0	354	735	150
Confl. Peds. (#/hr)	20		20	20								20
Turn Type		NA		Perm	NA					Perm	NA	Perm
Protected Phases		1			1						2	
Permitted Phases				1						2		2
Actuated Green, G (s)		36.5			36.5					31.5	31.5	31.5
Effective Green, g (s)		36.5			36.5					31.5	31.5	31.5
Actuated g/C Ratio		0.46			0.46					0.39	0.39	0.39
Clearance Time (s)		5.5			5.5					6.5	6.5	6.5
Lane Grp Cap (vph)		1575			2125					633	1314	606
v/s Ratio Prot		c0.28										
v/s Ratio Perm					0.06					0.22	0.22	0.10
v/c Ratio		0.61			0.13					0.56	0.56	0.25
Uniform Delay, d1		16.4			12.5					18.9	18.9	16.3
Progression Factor		1.00			0.38					1.00	1.00	1.00
Incremental Delay, d2		1.8			0.1					3.5	1.7	1.0
Delay (s)		18.2			4.9					22.4	20.6	17.3
Level of Service		B			A					C	C	B
Approach Delay (s)		18.2			4.9			0.0			20.2	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



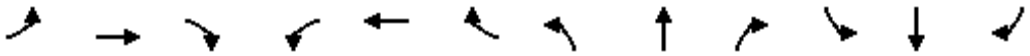
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	447	997	0	0	250	934	34	1135	55	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1610	3383			3539	2703		5036				
Flt Permitted	0.95	0.94			1.00	1.00		1.00				
Satd. Flow (perm)	1610	3182			3539	2703		5036				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	447	997	0	0	250	934	34	1135	55	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	73	0	6	0	0	0	0
Lane Group Flow (vph)	402	1042	0	0	250	861	0	1218	0	0	0	0
Confl. Peds. (#/hr)						20			20			
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	20.5	49.9			25.9	25.9		19.1				
Effective Green, g (s)	20.5	49.9			25.9	25.9		19.1				
Actuated g/C Ratio	0.26	0.62			0.32	0.32		0.24				
Clearance Time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Grp Cap (vph)	412	2036			1145	875		1202				
v/s Ratio Prot	c0.25	0.13			0.07							
v/s Ratio Perm		0.19				c0.32		0.24				
v/c Ratio	0.98	0.51			0.22	0.98		1.01				
Uniform Delay, d1	29.5	8.3			19.7	26.8		30.4				
Progression Factor	0.87	1.78			1.00	1.00		1.00				
Incremental Delay, d2	34.4	0.8			0.4	26.8		29.3				
Delay (s)	60.1	15.6			20.1	53.6		59.7				
Level of Service	E	B			C	D		E				
Approach Delay (s)		28.0			46.6			59.7			0.0	
Approach LOS		C			D			E			A	

Intersection Summary			
HCM 2000 Control Delay	43.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	99.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



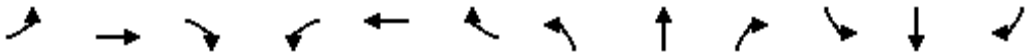
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	878	410	248	1555	35	756	32	468	75	35	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3312	1214	1289	3383		1649	1575	1240	1480	1389	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3312	1214	1289	3383		1649	1575	1240	1480	1389	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	878	410	248	1555	35	756	32	468	75	35	73
RTOR Reduction (vph)	0	0	256	0	1	0	0	0	290	0	55	0
Lane Group Flow (vph)	15	878	154	248	1589	0	393	395	178	75	53	0
Confl. Peds. (#/hr)						1			3			
Heavy Vehicles (%)	0%	9%	33%	40%	5%	65%	4%	73%	28%	22%	50%	10%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases			2						8			
Actuated Green, G (s)	2.3	44.1	44.1	27.8	69.6		35.9	35.9	35.9	8.5	8.5	
Effective Green, g (s)	2.3	44.1	44.1	27.8	69.6		35.9	35.9	35.9	8.5	8.5	
Actuated g/C Ratio	0.02	0.33	0.33	0.21	0.52		0.27	0.27	0.27	0.06	0.06	
Clearance Time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	3.0	4.5	4.5	3.0	4.5		4.0	4.0	4.0	3.0	3.0	
Lane Grp Cap (vph)	31	1099	403	269	1773		445	425	335	94	88	
v/s Ratio Prot	0.01	0.27		c0.19	c0.47		0.24	c0.25		c0.05	0.04	
v/s Ratio Perm			0.13						0.14			
v/c Ratio	0.48	0.80	0.38	0.92	0.90		0.88	0.93	0.53	0.80	0.60	
Uniform Delay, d1	64.7	40.3	33.9	51.4	28.4		46.4	47.2	41.3	61.3	60.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	11.4	4.6	1.0	34.7	6.7		18.7	26.8	2.1	36.1	10.5	
Delay (s)	76.1	44.9	35.0	86.1	35.0		65.2	74.1	43.3	97.4	71.0	
Level of Service	E	D	C	F	D		E	E	D	F	E	
Approach Delay (s)		42.2			41.9			59.8			81.8	
Approach LOS		D			D			E			F	

Intersection Summary			
HCM 2000 Control Delay	48.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	132.8	Sum of lost time (s)	16.5
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



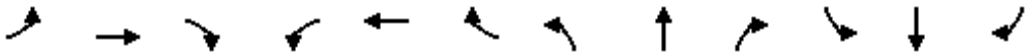
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	251	718	449	446	1405	240	365	354	450	152	170	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	0.92		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1337	3000		1687	3406	1509	1444	2894		1369	2575	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1337	3000		1687	3406	1509	1444	2894		1369	2575	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	251	718	449	446	1405	240	365	354	450	152	170	76
RTOR Reduction (vph)	0	71	0	0	0	116	0	166	0	0	28	0
Lane Group Flow (vph)	251	1096	0	446	1405	124	365	638	0	134	236	0
Confl. Peds. (#/hr)									1			
Heavy Vehicles (%)	35%	13%	14%	7%	6%	7%	25%	14%	13%	20%	16%	57%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	20.5	44.0		31.5	55.0	55.0	35.5	35.5		12.0	12.0	
Effective Green, g (s)	20.5	44.0		31.5	55.0	55.0	35.5	35.5		12.0	12.0	
Actuated g/C Ratio	0.15	0.32		0.23	0.39	0.39	0.25	0.25		0.09	0.09	
Clearance Time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	196	946		380	1342	594	367	736		117	221	
v/s Ratio Prot	c0.19	c0.37		c0.26	0.41		c0.25	0.22		c0.10	0.09	
v/s Ratio Perm						0.08						
v/c Ratio	1.28	1.16		1.17	1.05	0.21	0.99	0.87		1.15	1.07	
Uniform Delay, d1	59.5	47.8		54.0	42.2	27.9	51.9	49.7		63.8	63.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	159.5	83.5		102.6	37.8	0.2	45.3	10.4		127.5	79.2	
Delay (s)	219.0	131.2		156.6	80.1	28.1	97.2	60.1		191.3	143.0	
Level of Service	F	F		F	F	C	F	E		F	F	
Approach Delay (s)		146.8			90.4			71.7			159.2	
Approach LOS		F			F			E			F	

Intersection Summary			
HCM 2000 Control Delay	107.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	139.5	Sum of lost time (s)	16.5
Intersection Capacity Utilization	105.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1105	178	235	1427	0	0	0	0	654	618	480
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						5.0	
Lane Util. Factor		0.91		1.00	0.95						0.95	
Frpb, ped/bikes		1.00		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.98		1.00	1.00						0.96	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		4839		1767	3312						3268	
Flt Permitted		1.00		0.15	1.00						0.98	
Satd. Flow (perm)		4839		286	3312						3268	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1105	178	235	1427	0	0	0	0	654	618	480
RTOR Reduction (vph)	0	25	0	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	1258	0	235	1427	0	0	0	0	0	1739	0
Confl. Peds. (#/hr)			8	8						10		10
Heavy Vehicles (%)	16%	5%	2%	2%	9%	2%	1%	0%	0%	2%	2%	7%
Turn Type		NA		Perm	NA					Split	NA	
Protected Phases		4			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		43.0		43.0	43.0						34.0	
Effective Green, g (s)		43.0		43.0	43.0						34.0	
Actuated g/C Ratio		0.49		0.49	0.49						0.39	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		2391		141	1636						1277	
v/s Ratio Prot		0.26			0.43						c0.53	
v/s Ratio Perm				c0.82								
v/c Ratio		0.53		1.67	0.87						1.36	
Uniform Delay, d1		15.0		22.0	19.6						26.5	
Progression Factor		1.00		0.28	0.27						1.00	
Incremental Delay, d2		0.1		302.8	0.5						168.0	
Delay (s)		15.1		309.0	5.7						194.5	
Level of Service		B		F	A						F	
Approach Delay (s)		15.1			48.6			0.0			194.5	
Approach LOS		B			D			A			F	

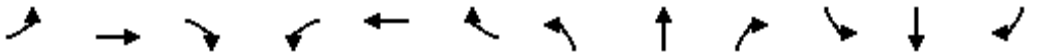
Intersection Summary			
HCM 2000 Control Delay	93.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.53		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	170.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	424	1335	0	0	1555	443	107	542	178	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0				
Lane Util. Factor	1.00	0.95			0.95			0.95				
Frpb, ped/bikes	1.00	1.00			0.99			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.97			0.97				
Flt Protected	0.95	1.00			1.00			0.99				
Satd. Flow (prot)	1770	3539			3399			3387				
Flt Permitted	0.09	1.00			1.00			0.99				
Satd. Flow (perm)	173	3539			3399			3387				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	424	1335	0	0	1555	443	107	542	178	0	0	0
RTOR Reduction (vph)	0	0	0	0	30	0	0	17	0	0	0	0
Lane Group Flow (vph)	424	1335	0	0	1968	0	0	810	0	0	0	0
Confl. Peds. (#/hr)	10					10			10			
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)	43.0	43.0			43.0			34.0				
Effective Green, g (s)	43.0	43.0			43.0			34.0				
Actuated g/C Ratio	0.49	0.49			0.49			0.39				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Vehicle Extension (s)	2.0	2.0			2.0			2.0				
Lane Grp Cap (vph)	85	1749			1679			1323				
v/s Ratio Prot		0.38			0.58			c0.24				
v/s Ratio Perm	c2.45											
v/c Ratio	4.99	0.76			1.17			0.61				
Uniform Delay, d1	22.0	17.9			22.0			21.2				
Progression Factor	0.90	0.85			1.00			1.00				
Incremental Delay, d2	1808.3	1.0			84.1			0.6				
Delay (s)	1828.0	16.1			106.1			21.8				
Level of Service	F	B			F			C				
Approach Delay (s)		452.8			106.1			21.8			0.0	
Approach LOS		F			F			C			A	

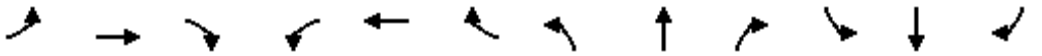
Intersection Summary			
HCM 2000 Control Delay	223.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	3.04		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	170.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	1107	369	103	1626	26	248	214	166	104	281	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	1.00		1.00	0.93		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	3331		1769	3367		1760	1721		1763	1781	
Flt Permitted	0.08	1.00		0.10	1.00		0.31	1.00		0.30	1.00	
Satd. Flow (perm)	154	3331		192	3367		572	1721		551	1781	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	60	1107	369	103	1626	26	248	214	166	104	281	91
RTOR Reduction (vph)	0	41	0	0	2	0	0	35	0	0	14	0
Lane Group Flow (vph)	60	1435	0	103	1650	0	248	345	0	104	358	0
Confl. Peds. (#/hr)	8		7	7		8	11		8	8		11
Confl. Bikes (#/hr)			9			11			8			10
Heavy Vehicles (%)	2%	4%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	48.5	48.5		48.5	48.5		23.0	23.0		23.0	23.0	
Effective Green, g (s)	48.5	48.5		48.5	48.5		23.0	23.0		23.0	23.0	
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.29	0.29		0.29	0.29	
Clearance Time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	93	2019		116	2041		164	494		158	512	
v/s Ratio Prot		0.43			0.49			0.20			0.20	
v/s Ratio Perm	0.39			c0.54			c0.43			0.19		
v/c Ratio	0.65	0.71		0.89	0.81		1.51	0.70		0.66	0.70	
Uniform Delay, d1	10.2	10.9		13.4	12.2		28.5	25.4		25.0	25.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	29.7	2.2		57.5	3.6		259.3	8.0		19.5	7.7	
Delay (s)	39.9	13.1		70.9	15.7		287.8	33.4		44.5	33.1	
Level of Service	D	B		E	B		F	C		D	C	
Approach Delay (s)		14.1			19.0			133.9			35.6	
Approach LOS		B			B			F			D	

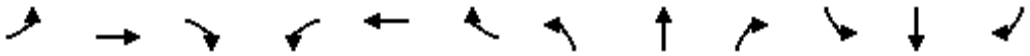
Intersection Summary			
HCM 2000 Control Delay	35.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	131.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	1328	80	55	1203	9	357	565	133	29	12	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Lane Util. Factor		0.95			0.95	1.00	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00			1.00	0.94	1.00	1.00	0.95		1.00	0.95
Flpb, ped/bikes		1.00			1.00	1.00	0.97	1.00	1.00		1.00	1.00
Frt		0.99			1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected		1.00			1.00	1.00	0.95	1.00	1.00		0.97	1.00
Satd. Flow (prot)		3429			3306	1490	1640	1827	1505		1799	1500
Flt Permitted		0.72			0.73	1.00	0.73	1.00	1.00		0.41	1.00
Satd. Flow (perm)		2464			2413	1490	1261	1827	1505		755	1500
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	79	1328	80	55	1203	9	357	565	133	29	12	44
RTOR Reduction (vph)	0	4	0	0	0	2	0	0	36	0	0	31
Lane Group Flow (vph)	0	1483	0	0	1258	7	357	565	97	0	41	13
Confl. Peds. (#/hr)	21		15	15		21	27		25	25		27
Confl. Bikes (#/hr)			18			17			16			17
Heavy Vehicles (%)	2%	4%	3%	30%	8%	2%	7%	4%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		4
Actuated Green, G (s)		53.7			53.7	53.7	27.3	27.3	27.3		27.3	27.3
Effective Green, g (s)		53.7			53.7	53.7	27.3	27.3	27.3		27.3	27.3
Actuated g/C Ratio		0.60			0.60	0.60	0.30	0.30	0.30		0.30	0.30
Clearance Time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Vehicle Extension (s)		2.0			2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1470			1439	889	382	554	456		229	455
v/s Ratio Prot								c0.31				
v/s Ratio Perm		c0.60			0.52	0.00	0.28		0.06		0.05	0.01
v/c Ratio		1.01			0.87	0.01	0.93	1.02	0.21		0.18	0.03
Uniform Delay, d1		18.1			15.3	7.4	30.5	31.4	23.4		23.1	22.0
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2		25.6			7.7	0.0	29.4	43.3	0.1		0.1	0.0
Delay (s)		43.7			23.0	7.4	59.9	74.7	23.4		23.2	22.0
Level of Service		D			C	A	E	E	C		C	C
Approach Delay (s)		43.7			22.8			63.2			22.6	
Approach LOS		D			C			E			C	

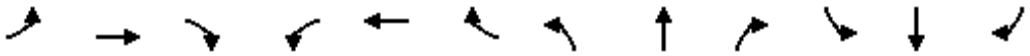
Intersection Summary			
HCM 2000 Control Delay	41.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	118.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	203	1101	338	96	839	39	545	686	157	176	890	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.97	
Flt Protected		0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3481	1482	1770	3195	1540	1732	3425		1764	3427	
Flt Permitted		0.57	1.00	0.12	1.00	1.00	0.18	1.00		0.27	1.00	
Satd. Flow (perm)		2001	1482	233	3195	1540	326	3425		506	3427	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	203	1101	338	96	839	39	545	686	157	176	890	199
RTOR Reduction (vph)	0	0	63	0	0	20	0	9	0	0	22	0
Lane Group Flow (vph)	0	1304	275	96	839	19	545	834	0	176	1067	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Heavy Vehicles (%)	2%	3%	6%	2%	13%	2%	4%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4		4	2			6		
Actuated Green, G (s)		32.0	32.0	32.0	32.0	32.0	43.5	43.5		43.5	43.5	
Effective Green, g (s)		32.0	32.0	32.0	32.0	32.0	43.5	43.5		43.5	43.5	
Actuated g/C Ratio		0.38	0.38	0.38	0.38	0.38	0.51	0.51		0.51	0.51	
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0		4.0	4.0	
Lane Grp Cap (vph)		753	557	87	1202	579	166	1752		258	1753	
v/s Ratio Prot					0.26			0.24			0.31	
v/s Ratio Perm		c0.65	0.19	0.41		0.01	c1.67			0.35		
v/c Ratio		1.73	0.49	1.10	0.70	0.03	3.28	0.48		0.68	0.61	
Uniform Delay, d1		26.5	20.3	26.5	22.4	16.7	20.8	13.4		15.6	14.7	
Progression Factor		1.00	1.00	0.57	0.61	0.12	1.00	1.00		1.00	1.00	
Incremental Delay, d2		334.8	3.1	120.5	2.9	0.1	1042.8	0.4		7.8	0.7	
Delay (s)		361.3	23.4	135.6	16.7	2.2	1063.5	13.8		23.4	15.4	
Level of Service		F	C	F	B	A	F	B		C	B	
Approach Delay (s)		291.8			27.8			426.0			16.5	
Approach LOS		F			C			F			B	

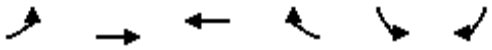
Intersection Summary			
HCM 2000 Control Delay	212.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.62		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	136.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	1124	25	63	1023	57	27	225	346	35	77	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.96		1.00	0.94		0.97	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1586	3154	1360	1585	3065	1375		3160	1171		2844	
Flt Permitted	0.23	1.00	1.00	0.20	1.00	1.00		0.91	1.00		0.88	
Satd. Flow (perm)	379	3154	1360	325	3065	1375		2890	1171		2511	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	119	1124	25	63	1023	57	27	225	346	35	77	98
RTOR Reduction (vph)	0	0	6	0	0	17	0	0	45	0	61	0
Lane Group Flow (vph)	119	1124	19	63	1023	40	0	252	301	0	149	0
Confl. Peds. (#/hr)	22		31	31		22	34		37	37		34
Confl. Bikes (#/hr)			7			3			12			19
Heavy Vehicles (%)	2%	3%	2%	2%	6%	2%	2%	2%	17%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4		4	2		2	2		
Actuated Green, G (s)	51.6	51.6	51.6	51.6	51.6	51.6		24.9	24.9		24.9	
Effective Green, g (s)	51.6	51.6	51.6	51.6	51.6	51.6		24.9	24.9		24.9	
Actuated g/C Ratio	0.61	0.61	0.61	0.61	0.61	0.61		0.29	0.29		0.29	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	230	1914	825	197	1860	834		846	343		735	
v/s Ratio Prot		c0.36			0.33							
v/s Ratio Perm	0.31		0.01	0.19		0.03		0.09	c0.26		0.06	
v/c Ratio	0.52	0.59	0.02	0.32	0.55	0.05		0.30	0.88		0.20	
Uniform Delay, d1	9.6	10.2	6.7	8.1	9.9	6.8		23.3	28.6		22.6	
Progression Factor	0.92	1.01	0.97	1.45	1.43	1.62		1.00	1.00		1.00	
Incremental Delay, d2	0.8	0.1	0.0	3.3	0.9	0.1		0.1	20.8		0.0	
Delay (s)	9.5	10.4	6.4	15.1	15.1	11.0		23.4	49.4		22.6	
Level of Service	A	B	A	B	B	B		C	D		C	
Approach Delay (s)		10.2			14.9			38.4			22.6	
Approach LOS		B			B			D			C	

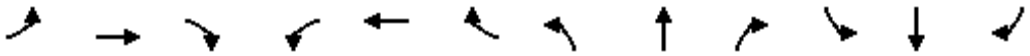
Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



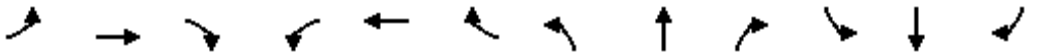
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	475	938	805	525	267	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	0.99	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.97	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.96	1.00
Satd. Flow (prot)	1577	3094	3065	1382	2977	1213
Flt Permitted	0.95	1.00	1.00	1.00	0.96	1.00
Satd. Flow (perm)	1577	3094	3065	1382	2977	1213
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	475	938	805	525	267	212
RTOR Reduction (vph)	0	0	0	240	27	126
Lane Group Flow (vph)	475	938	805	285	301	25
Confl. Peds. (#/hr)				15	15	15
Heavy Vehicles (%)	3%	5%	6%	2%	3%	6%
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	30.6	62.7	28.1	28.1	14.3	14.3
Effective Green, g (s)	30.6	62.7	28.1	28.1	14.3	14.3
Actuated g/C Ratio	0.36	0.74	0.33	0.33	0.17	0.17
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	567	2282	1013	456	500	204
v/s Ratio Prot	c0.30	0.30	c0.26		c0.10	
v/s Ratio Perm				0.21		0.02
v/c Ratio	0.84	0.41	0.79	0.62	0.60	0.12
Uniform Delay, d1	24.9	4.2	25.8	24.0	32.7	30.0
Progression Factor	0.92	0.95	1.12	1.36	1.00	1.00
Incremental Delay, d2	8.0	0.4	0.4	0.2	1.4	0.1
Delay (s)	31.0	4.4	29.4	32.9	34.1	30.1
Level of Service	C	A	C	C	C	C
Approach Delay (s)		13.3	30.8		32.9	
Approach LOS		B	C		C	

Intersection Summary			
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	148	906	33	125	797	92	402	1104	298	91	438	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00	0.92	1.00	0.98	
Flpb, ped/bikes	0.99	1.00			1.00		0.98	1.00	1.00	0.99	1.00	
Frt	1.00	0.99			0.99		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1580	3162			3101		1563	3185	1309	1578	2991	
Flt Permitted	0.17	1.00			0.62		0.35	1.00	1.00	0.13	1.00	
Satd. Flow (perm)	285	3162			1928		580	3185	1309	221	2991	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	148	906	33	125	797	92	402	1104	298	91	438	172
RTOR Reduction (vph)	0	3	0	0	9	0	0	0	33	0	46	0
Lane Group Flow (vph)	148	936	0	0	1005	0	402	1104	265	91	564	0
Confl. Peds. (#/hr)	46		47	47		46	57		65	65		57
Confl. Bikes (#/hr)			9			21			15			22
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	39.0	39.0			39.0		38.0	38.0	38.0	38.0	38.0	
Effective Green, g (s)	39.0	39.0			39.0		38.0	38.0	38.0	38.0	38.0	
Actuated g/C Ratio	0.46	0.46			0.46		0.45	0.45	0.45	0.45	0.45	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	130	1450			884		259	1423	585	98	1337	
v/s Ratio Prot		0.30						0.35			0.19	
v/s Ratio Perm	0.52				c0.52		c0.69		0.20	0.41		
v/c Ratio	1.14	0.65			1.14		1.55	0.78	0.45	0.93	0.42	
Uniform Delay, d1	23.0	17.7			23.0		23.5	19.9	16.3	22.2	16.0	
Progression Factor	0.83	0.86			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	118.2	2.1			75.6		266.7	2.5	0.2	66.6	0.1	
Delay (s)	137.2	17.2			98.6		290.2	22.4	16.5	88.8	16.1	
Level of Service	F	B			F		F	C	B	F	B	
Approach Delay (s)		33.6			98.6			81.1			25.5	
Approach LOS		C			F			F			C	

Intersection Summary			
HCM 2000 Control Delay	65.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	123.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	324	871	233	463	720	76	10	1944	730	3	1257	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	4.0		5.5	5.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.98		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)	3090	3154	1349	3090	3185	1349		4575	1391		4576	1349
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.93	1.00		0.93	1.00
Satd. Flow (perm)	3090	3154	1349	3090	3185	1349		4253	1391		4241	1349
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	324	871	233	463	720	76	10	1944	730	3	1257	211
RTOR Reduction (vph)	0	0	65	0	0	53	0	0	0	0	0	79
Lane Group Flow (vph)	324	871	168	463	720	24	0	1954	730	0	1260	132
Confl. Peds. (#/hr)			40			40	40		40	40		40
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Free	Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases			8			4	2		Free	6		6
Actuated Green, G (s)	11.0	27.5	27.5	12.0	28.5	28.5		40.5	95.0		40.5	40.5
Effective Green, g (s)	11.0	27.5	27.5	12.0	28.5	28.5		40.5	95.0		40.5	40.5
Actuated g/C Ratio	0.12	0.29	0.29	0.13	0.30	0.30		0.43	1.00		0.43	0.43
Clearance Time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	357	913	390	390	955	404		1813	1391		1808	575
v/s Ratio Prot	0.10	c0.28		c0.15	0.23							
v/s Ratio Perm			0.12			0.02		c0.46	0.52		0.30	0.10
v/c Ratio	0.91	0.95	0.43	1.19	0.75	0.06		1.08	0.52		0.70	0.23
Uniform Delay, d1	41.5	33.1	27.4	41.5	30.1	23.7		27.2	0.0		22.2	17.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	25.7	20.5	3.4	107.2	5.5	0.3		45.6	1.4		1.2	0.2
Delay (s)	67.2	53.7	30.8	148.7	35.6	24.0		72.8	1.4		23.4	17.5
Level of Service	E	D	C	F	D	C		E	A		C	B
Approach Delay (s)		53.0			76.5			53.4			22.6	
Approach LOS		D			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	50.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	103.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

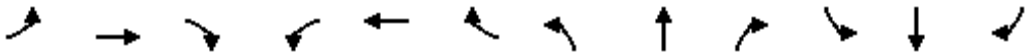
Site: 2035 + Proj Mid Alt PM

Adeline & 18th
2035 + Project Mid-Range Alternative PM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	21	2.0	0.930	43.2	LOS E	14.8	376.5	1.00	1.53	16.4
8	T	526	2.0	0.930	43.2	LOS E	14.8	376.5	1.00	1.53	16.6
18	R	101	2.0	0.930	43.2	LOS E	14.8	376.5	1.00	1.53	16.5
Approach		648	2.0	0.930	43.2	LOS E	14.8	376.5	1.00	1.53	16.5
East: 18th Street (WB)											
1	L	13	2.0	0.252	7.7	LOS A	1.1	28.0	0.63	0.98	26.6
6	T	122	2.0	0.252	7.7	LOS A	1.1	28.0	0.63	0.78	29.0
16	R	54	2.0	0.252	7.7	LOS A	1.1	28.0	0.63	0.82	28.7
Approach		189	2.0	0.252	7.7	LOS A	1.1	28.0	0.63	0.81	28.7
North: Adeline Street (SB)											
7	L	325	2.0	0.627	11.0	LOS B	5.4	136.8	0.59	0.74	24.9
4	T	364	2.0	0.627	11.0	LOS B	5.4	136.8	0.59	0.56	26.9
14	R	64	2.0	0.627	11.0	LOS B	5.4	136.8	0.59	0.60	26.6
Approach		753	2.0	0.627	11.0	LOS B	5.4	136.8	0.59	0.64	25.9
West: 18th Street (EB)											
5	L	72	2.0	0.601	15.8	LOS C	4.1	103.0	0.81	1.09	23.3
2	T	294	2.0	0.601	15.8	LOS C	4.1	103.0	0.81	0.99	24.7
12	R	48	2.0	0.601	15.8	LOS C	4.1	103.0	0.81	1.02	24.5
Approach		414	2.0	0.601	15.8	LOS C	4.1	103.0	0.81	1.01	24.4
All Vehicles		2004	2.0	0.930	22.1	LOS C	14.8	376.5	0.77	1.02	21.9

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	134	483	45	16	114	102	59	765	52	45	191	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99			0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.98	1.00			1.00	
Frt	1.00	0.99		1.00	0.93		1.00	0.99			0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1755	1831		1748	1711		1728	3486			3429	
Flt Permitted	0.56	1.00		0.18	1.00		0.59	1.00			0.79	
Satd. Flow (perm)	1043	1831		323	1711		1075	3486			2745	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	134	483	45	16	114	102	59	765	52	45	191	24
RTOR Reduction (vph)	0	5	0	0	48	0	0	7	0	0	10	0
Lane Group Flow (vph)	134	523	0	16	168	0	59	810	0	0	250	0
Confl. Peds. (#/hr)	14		44	44		14	37		71	71		37
Confl. Bikes (#/hr)			6			2			2			11
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	22.8	22.8		22.8	22.8		37.1	37.1			37.1	
Effective Green, g (s)	22.8	22.8		22.8	22.8		37.1	37.1			37.1	
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.55	0.55			0.55	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	350	614		108	574		587	1904			1499	
v/s Ratio Prot		c0.29			0.10			c0.23				
v/s Ratio Perm	0.13			0.05			0.05				0.09	
v/c Ratio	0.38	0.85		0.15	0.29		0.10	0.43			0.17	
Uniform Delay, d1	17.2	21.0		15.8	16.6		7.4	9.1			7.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.7	11.0		0.6	0.3		0.3	0.7			0.2	
Delay (s)	17.9	32.0		16.4	16.9		7.7	9.8			7.9	
Level of Service	B	C		B	B		A	A			A	
Approach Delay (s)		29.2			16.9			9.7			7.9	
Approach LOS		C			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	67.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	91.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

Adeline & 14th
2035 + Project Mid-Range Alternative PM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	18	2.0	0.623	12.6	LOS B	5.3	133.5	0.75	0.98	24.6
8	T	542	2.0	0.623	12.6	LOS B	5.3	133.5	0.75	0.84	26.3
18	R	53	2.0	0.623	12.6	LOS B	5.3	133.5	0.75	0.87	26.1
Approach		613	2.0	0.623	12.6	LOS B	5.3	133.5	0.75	0.84	26.2
East: 14th Street (WB)											
1	L	90	2.0	0.437	10.7	LOS B	2.4	60.3	0.71	1.01	25.2
6	T	203	2.0	0.437	10.7	LOS B	2.4	60.3	0.71	0.87	27.1
16	R	35	2.0	0.437	10.7	LOS B	2.4	60.3	0.71	0.90	26.9
Approach		328	2.0	0.437	10.7	LOS B	2.4	60.3	0.71	0.91	26.5
North: Adeline Street (SB)											
7	L	63	2.0	0.399	7.8	LOS A	2.2	56.7	0.57	0.87	26.4
4	T	313	2.0	0.399	7.8	LOS A	2.2	56.7	0.57	0.65	28.9
14	R	34	2.0	0.399	7.8	LOS A	2.2	56.7	0.57	0.69	28.6
Approach		410	2.0	0.399	7.8	LOS A	2.2	56.7	0.57	0.69	28.4
West: 14th Street (EB)											
5	L	58	2.0	0.368	8.3	LOS A	1.9	47.0	0.63	0.94	26.2
2	T	231	2.0	0.368	8.3	LOS A	1.9	47.0	0.63	0.75	28.5
12	R	34	2.0	0.368	8.3	LOS A	1.9	47.0	0.63	0.79	28.3
Approach		323	2.0	0.368	8.3	LOS A	1.9	47.0	0.63	0.78	28.0
All Vehicles		1674	2.0	0.623	10.2	LOS B	5.3	133.5	0.67	0.81	27.1

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.

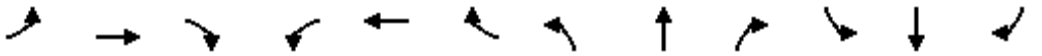
MOVEMENT SUMMARY

Adeline & 12th
2035 + Project Mid-Range Alternative PM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	1	2.0	0.363	6.1	LOS A	2.3	57.4	0.27	0.86	27.0
8	T	469	2.0	0.363	6.1	LOS A	2.3	57.4	0.27	0.44	30.1
18	R	7	2.0	0.363	6.1	LOS A	2.3	57.4	0.27	0.53	29.6
Approach		477	2.0	0.363	6.1	LOS A	2.3	57.4	0.27	0.44	30.1
East: 12th Street (WB)											
1	L	10	2.0	0.188	6.1	LOS A	0.8	21.0	0.56	0.88	27.1
6	T	21	2.0	0.188	6.1	LOS A	0.8	21.0	0.56	0.67	29.8
16	R	132	2.0	0.188	6.1	LOS A	0.8	21.0	0.56	0.72	29.5
Approach		163	2.0	0.188	6.1	LOS A	0.8	21.0	0.56	0.72	29.4
North: Adeline Street (SB)											
7	L	57	2.0	0.306	5.3	LOS A	1.8	45.9	0.16	0.86	27.3
4	T	353	2.0	0.306	5.3	LOS A	1.8	45.9	0.16	0.41	30.6
14	R	8	2.0	0.306	5.3	LOS A	1.8	45.9	0.16	0.50	30.0
Approach		418	2.0	0.306	5.3	LOS A	1.8	45.9	0.16	0.47	30.1
West: 12th Street (EB)											
5	L	8	2.0	0.017	4.0	LOS A	0.1	1.8	0.47	0.75	28.0
2	T	5	2.0	0.017	4.0	LOS A	0.1	1.8	0.47	0.52	31.1
12	R	3	2.0	0.017	4.0	LOS A	0.1	1.8	0.47	0.57	30.7
Approach		16	2.0	0.017	4.0	LOS A	0.1	1.8	0.47	0.65	29.4
All Vehicles		1074	2.0	0.363	5.8	LOS A	2.3	57.4	0.27	0.50	30.0

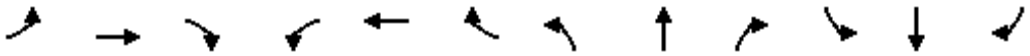
Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	253	185	0	0	173	232	156	505	219	239	0	507
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			0.98		1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frt	1.00	1.00			0.91		1.00	0.96		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1367	3312			2607		972	2915		1556		2472
Flt Permitted	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (perm)	1367	3312			2607		972	2915		1556		2472
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	253	185	0	0	173	232	156	505	219	239	0	507
RTOR Reduction (vph)	0	0	0	0	200	0	0	37	0	0	0	415
Lane Group Flow (vph)	253	185	0	0	205	0	140	703	0	239	0	92
Confl. Peds. (#/hr)						14						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	32%	9%	0%	0%	25%	24%	69%	12%	12%	16%	0%	15%
Turn Type	Prot	NA			NA		Split	NA		Prot		custom
Protected Phases	1	6			2		4	4		3		3
Permitted Phases												
Actuated Green, G (s)	20.9	37.5			13.1		26.5	26.5		17.1		17.1
Effective Green, g (s)	20.9	37.5			13.1		26.5	26.5		17.1		17.1
Actuated g/C Ratio	0.22	0.40			0.14		0.28	0.28		0.18		0.18
Clearance Time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	303	1319			362		273	820		282		449
v/s Ratio Prot	c0.19	0.06			c0.08		0.14	c0.24		c0.15		0.04
v/s Ratio Perm												
v/c Ratio	0.83	0.14			0.57		0.51	0.86		0.85		0.21
Uniform Delay, d1	35.0	18.0			37.9		28.4	32.0		37.2		32.7
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	17.0	0.0			1.7		1.2	8.7		20.1		0.2
Delay (s)	51.9	18.1			39.5		29.6	40.8		57.3		32.9
Level of Service	D	B			D		C	D		E		C
Approach Delay (s)		37.6			39.5			39.0			40.7	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	39.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	94.1	Sum of lost time (s)	16.5
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

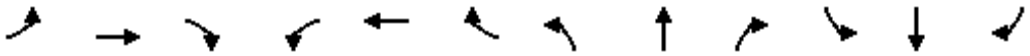
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	679	22	102	635	380	20	108	30	405	162	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.97			1.00		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		0.99	1.00	
Frt	1.00	1.00		1.00	0.94			0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1770	3378		1770	3173			1781		1756	1752	
Flt Permitted	0.95	1.00		0.95	1.00			0.96		0.63	1.00	
Satd. Flow (perm)	1770	3378		1770	3173			1711		1172	1752	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	85	679	22	102	635	380	20	108	30	405	162	46
RTOR Reduction (vph)	0	2	0	0	89	0	0	11	0	0	12	0
Lane Group Flow (vph)	85	699	0	102	926	0	0	147	0	405	196	0
Confl. Peds. (#/hr)			58			47	70		8	8		70
Confl. Bikes (#/hr)			15			6			9			38
Heavy Vehicles (%)	2%	6%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	6.2	37.0		7.9	38.7			34.1		34.1	34.1	
Effective Green, g (s)	6.2	37.0		7.9	38.7			34.1		34.1	34.1	
Actuated g/C Ratio	0.07	0.41		0.09	0.43			0.38		0.38	0.38	
Clearance Time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	121	1388		155	1364			648		444	663	
v/s Ratio Prot	c0.05	0.21		0.06	c0.29						0.11	
v/s Ratio Perm								0.09		c0.35		
v/c Ratio	0.70	0.50		0.66	0.68			0.23		0.91	0.29	
Uniform Delay, d1	41.0	19.7		39.7	20.6			19.0		26.5	19.5	
Progression Factor	0.95	0.92		0.98	0.67			1.00		1.00	1.00	
Incremental Delay, d2	14.0	0.1		7.4	2.7			0.1		22.5	0.1	
Delay (s)	52.8	18.1		46.3	16.6			19.1		49.0	19.6	
Level of Service	D	B		D	B			B		D	B	
Approach Delay (s)		21.9			19.3			19.1			39.0	
Approach LOS		C			B			B			D	

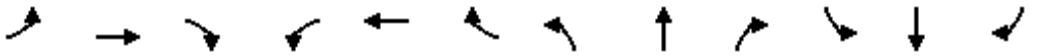
Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	1571	44	70	1335	254	42	116	122	92	116	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.99	1.00		0.99	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.92		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1765	3383		1054	3471	1460	1574	1062		1758	1574	
Flt Permitted	0.12	1.00		0.09	1.00	1.00	0.63	1.00		0.53	1.00	
Satd. Flow (perm)	216	3383		101	3471	1460	1042	1062		972	1574	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	62	1571	44	70	1335	254	42	116	122	92	116	45
RTOR Reduction (vph)	0	2	0	0	0	114	0	13	0	0	18	0
Lane Group Flow (vph)	62	1613	0	70	1335	140	42	225	0	92	143	0
Confl. Peds. (#/hr)	21		23	23		21	9		11	11		9
Confl. Bikes (#/hr)			4			5						1
Heavy Vehicles (%)	2%	6%	11%	71%	4%	6%	14%	50%	76%	2%	20%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	44.0	44.0		44.0	44.0	44.0	28.0	28.0		28.0	28.0	
Effective Green, g (s)	44.0	44.0		44.0	44.0	44.0	28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.55	0.55		0.55	0.55	0.55	0.35	0.35		0.35	0.35	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	118	1860		55	1909	803	364	371		340	550	
v/s Ratio Prot		0.48			0.38			c0.21			0.09	
v/s Ratio Perm	0.29			c0.69		0.10	0.04			0.09		
v/c Ratio	0.53	0.87		1.27	0.70	0.17	0.12	0.61		0.27	0.26	
Uniform Delay, d1	11.4	15.5		18.0	13.2	9.0	17.6	21.5		18.7	18.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	15.7	5.8		211.4	2.2	0.5	0.6	7.2		2.0	1.2	
Delay (s)	27.1	21.2		229.4	15.3	9.4	18.3	28.6		20.6	19.7	
Level of Service	C	C		F	B	A	B	C		C	B	
Approach Delay (s)		21.5			23.5			27.1			20.1	
Approach LOS		C			C			C			C	

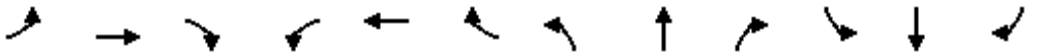
Intersection Summary			
HCM 2000 Control Delay	22.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	104	1366	74	25	998	68	513	385	35	78	57	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1668	4281		1767	4531		1742	1863	1538	1755	3539	1216
Flt Permitted	0.20	1.00		0.11	1.00		0.72	1.00	1.00	0.42	1.00	1.00
Satd. Flow (perm)	349	4281		201	4531		1316	1863	1538	777	3539	1216
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	104	1366	74	25	998	68	513	385	35	78	57	111
RTOR Reduction (vph)	0	7	0	0	9	0	0	0	14	0	0	26
Lane Group Flow (vph)	104	1433	0	25	1057	0	513	385	21	78	57	85
Confl. Peds. (#/hr)	10		20	20		10	8		20	20		8
Confl. Bikes (#/hr)			7			3						6
Heavy Vehicles (%)	8%	21%	2%	2%	14%	2%	3%	2%	2%	2%	2%	30%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	37.0	37.0		37.0	37.0		38.5	38.5	38.5	38.5	38.5	38.5
Effective Green, g (s)	37.0	37.0		37.0	37.0		38.5	38.5	38.5	38.5	38.5	38.5
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.45	0.45	0.45	0.45	0.45	0.45
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	151	1863		87	1972		596	843	696	351	1602	550
v/s Ratio Prot		c0.33			0.23			0.21			0.02	
v/s Ratio Perm	0.30			0.12			c0.39		0.01	0.10		0.07
v/c Ratio	0.69	0.77		0.29	0.54		0.86	0.46	0.03	0.22	0.04	0.16
Uniform Delay, d1	19.4	20.4		15.5	17.7		20.8	16.0	12.9	14.1	12.9	13.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	22.7	3.1		0.7	0.1		15.1	1.8	0.1	1.5	0.0	0.6
Delay (s)	42.1	23.5		16.2	17.8		35.9	17.8	13.0	15.6	13.0	14.3
Level of Service	D	C		B	B		D	B	B	B	B	B
Approach Delay (s)		24.8			17.8			27.6			14.4	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	102.0%	ICU Level of Service	G
Analysis Period (min)	15		

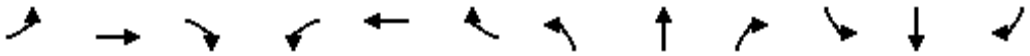
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	24	162	500	47	133	0	0	118	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	1.00			0.95	1.00
Frpb, ped/bikes					1.00	0.99	1.00	1.00			1.00	0.98
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3516	1561	1770	1111			2865	1558
Flt Permitted					0.99	1.00	0.68	1.00			1.00	1.00
Satd. Flow (perm)					3516	1561	1262	1111			2865	1558
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	24	162	500	47	133	0	0	118	24
RTOR Reduction (vph)	0	0	0	0	0	427	0	0	0	0	0	6
Lane Group Flow (vph)	0	0	0	0	186	73	47	133	0	0	118	18
Confl. Peds. (#/hr)				1		2			8	8		
Confl. Bikes (#/hr)												13
Heavy Vehicles (%)	0%	13%	100%	2%	2%	2%	2%	71%	83%	0%	26%	2%
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					4			6			2	
Permitted Phases				4		4	6					2
Actuated Green, G (s)					13.2	13.2	67.3	67.3			67.3	67.3
Effective Green, g (s)					13.2	13.2	67.3	67.3			67.3	67.3
Actuated g/C Ratio					0.15	0.15	0.75	0.75			0.75	0.75
Clearance Time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Vehicle Extension (s)					2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)					515	228	943	830			2142	1165
v/s Ratio Prot								c0.12			0.04	
v/s Ratio Perm					0.05	0.05	0.04					0.01
v/c Ratio					0.36	0.32	0.05	0.16			0.06	0.02
Uniform Delay, d1					34.6	34.4	3.0	3.3			3.0	2.9
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					0.2	0.3	0.0	0.0			0.0	0.0
Delay (s)					34.8	34.7	3.0	3.3			3.0	2.9
Level of Service					C	C	A	A			A	A
Approach Delay (s)		0.0			34.7			3.2			3.0	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

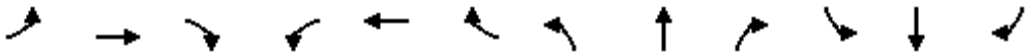


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	944	65	41	112	26	107	283	148	143	158	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.96		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.97		1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3366		1770	3295		1770	1068		1770	1091	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3366		1770	3295		1770	1068		1770	1091	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	26	944	65	41	112	26	107	283	148	143	158	14
RTOR Reduction (vph)	0	3	0	0	12	0	0	12	0	0	2	0
Lane Group Flow (vph)	26	1006	0	41	126	0	107	419	0	143	170	0
Confl. Peds. (#/hr)						50			3			3
Confl. Bikes (#/hr)			4						1			
Heavy Vehicles (%)	2%	5%	21%	2%	2%	2%	2%	57%	88%	2%	78%	2%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Actuated Green, G (s)	4.0	49.6		4.0	50.1		62.0	62.0		25.0	25.0	
Effective Green, g (s)	4.0	49.6		4.0	50.1		62.0	62.0		25.0	25.0	
Actuated g/C Ratio	0.03	0.32		0.03	0.32		0.40	0.40		0.16	0.16	
Clearance Time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.5	3.0		3.2	3.2		3.0	3.0	
Lane Grp Cap (vph)	45	1066		45	1054		700	422		282	174	
v/s Ratio Prot	0.01	c0.30		c0.02	0.04		0.06	c0.39		0.08	c0.16	
v/s Ratio Perm												
v/c Ratio	0.58	0.94		0.91	0.12		0.15	0.99		0.51	0.98	
Uniform Delay, d1	75.5	52.1		76.1	37.7		30.4	47.1		60.2	65.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.7	15.7		100.2	0.1		0.1	41.7		1.4	61.3	
Delay (s)	86.1	67.8		176.3	37.7		30.5	88.8		61.6	126.8	
Level of Service	F	E		F	D		C	F		E	F	
Approach Delay (s)		68.3			69.4			77.2			97.2	
Approach LOS		E			E			E			F	

Intersection Summary			
HCM 2000 Control Delay	75.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	156.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

2035 + Project Mid-Range
Alternative AM Mitigated

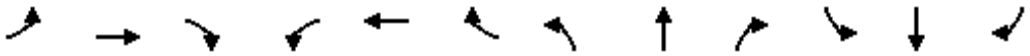


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	47	1258	66	286	1369	250	62	166	189	374	511	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3504		1770	3539	1518	1770	1863	1540	1770	1792	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3504		1770	3539	1518	1770	1863	1540	1770	1792	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	51	1367	72	311	1488	272	67	180	205	407	555	159
RTOR Reduction (vph)	0	6	0	0	0	100	0	0	138	0	17	0
Lane Group Flow (vph)	51	1433	0	311	1488	172	67	180	67	407	697	0
Confl. Peds. (#/hr)			32			7			5			6
Confl. Bikes (#/hr)			4			9			11			3
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			
Actuated Green, G (s)	2.3	17.9		8.0	23.6	23.6	2.3	14.5	14.5	4.0	16.2	
Effective Green, g (s)	2.3	17.9		8.0	23.6	23.6	2.3	14.5	14.5	4.0	16.2	
Actuated g/C Ratio	0.04	0.30		0.13	0.39	0.39	0.04	0.24	0.24	0.07	0.27	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	67	1038		234	1382	593	67	447	369	117	480	
v/s Ratio Prot	0.03	c0.41		c0.18	0.42		0.04	0.10		c0.23	c0.39	
v/s Ratio Perm						0.11			0.04			
v/c Ratio	0.76	1.38		1.33	1.08	0.29	1.00	0.40	0.18	3.48	1.45	
Uniform Delay, d1	28.8	21.2		26.2	18.4	12.6	29.1	19.3	18.2	28.2	22.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	39.2	177.2		174.4	47.7	0.3	110.0	0.6	0.2	1136.6	215.0	
Delay (s)	67.9	198.4		200.6	66.1	12.9	139.0	19.9	18.5	1164.8	237.1	
Level of Service	E	F		F	E	B	F	B	B	F	F	
Approach Delay (s)		194.0			79.3			36.9			573.9	
Approach LOS		F			E			D			F	

Intersection Summary			
HCM 2000 Control Delay	216.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.62		
Actuated Cycle Length (s)	60.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	105.5%	ICU Level of Service	G
Analysis Period (min)	15		

Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group

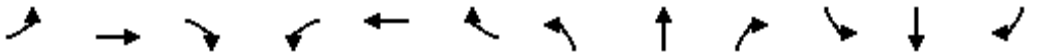


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	256	922	914	126	1163	190	861	814	44	165	1320	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.94		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.98		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3079		1770	3425		3433	3498		1770	3402	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3079		1770	3425		3433	3498		1770	3402	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	278	1002	993	137	1264	207	936	885	48	179	1435	283
RTOR Reduction (vph)	0	162	0	0	12	0	0	3	0	0	15	0
Lane Group Flow (vph)	278	1833	0	137	1459	0	936	930	0	179	1703	0
Confl. Peds. (#/hr)			83			52			53			68
Confl. Bikes (#/hr)			15			8			15			12
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	18.6	35.0		11.0	27.4		15.0	37.1		13.9	35.0	
Effective Green, g (s)	18.6	35.0		11.0	27.4		15.0	37.1		13.9	35.0	
Actuated g/C Ratio	0.17	0.32		0.10	0.25		0.14	0.34		0.13	0.32	
Clearance Time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.0	2.0		2.0	4.0		2.5	4.0	
Lane Grp Cap (vph)	299	979		177	853		468	1179		223	1082	
v/s Ratio Prot	c0.16	c0.60		0.08	0.43		c0.27	0.27		0.10	c0.50	
v/s Ratio Perm												
v/c Ratio	0.93	1.87		0.77	1.71		2.00	0.79		0.80	1.57	
Uniform Delay, d1	45.1	37.5		48.3	41.3		47.5	32.9		46.7	37.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	33.2	396.3		17.3	324.7		457.6	5.4		18.0	262.8	
Delay (s)	78.3	433.8		65.6	366.0		505.1	38.3		64.7	300.3	
Level of Service	E	F		E	F		F	D		E	F	
Approach Delay (s)		390.3			340.4			272.1			278.0	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	323.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.67		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	150.2%	ICU Level of Service	H
Analysis Period (min)	15		

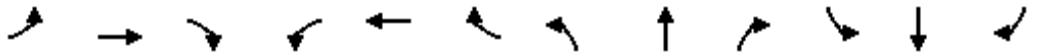
Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group



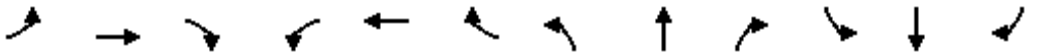
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	519	81	12	278	0	0	0	0	631	883	399
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5					6.5	6.5	6.5
Lane Util. Factor		0.95			0.91					0.91	0.91	1.00
Frpb, ped/bikes		0.99			1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Frt		0.98			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	0.99	1.00
Satd. Flow (prot)		3446			5073					1610	3367	1550
Flt Permitted		1.00			0.88					0.95	0.99	1.00
Satd. Flow (perm)		3446			4479					1610	3367	1550
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	519	81	12	278	0	0	0	0	631	883	399
RTOR Reduction (vph)	0	16	0	0	0	0	0	0	0	0	0	71
Lane Group Flow (vph)	0	584	0	0	290	0	0	0	0	492	1022	328
Confl. Peds. (#/hr)	20		20	20								20
Turn Type		NA		Perm	NA					Perm	NA	Perm
Protected Phases		1			1						2	
Permitted Phases				1						2		2
Actuated Green, G (s)		17.0			17.0					51.0	51.0	51.0
Effective Green, g (s)		17.0			17.0					51.0	51.0	51.0
Actuated g/C Ratio		0.21			0.21					0.64	0.64	0.64
Clearance Time (s)		5.5			5.5					6.5	6.5	6.5
Lane Grp Cap (vph)		732			951					1026	2146	988
v/s Ratio Prot		c0.17										
v/s Ratio Perm					0.06					c0.31	0.30	0.21
v/c Ratio		0.80			0.30					0.48	0.48	0.33
Uniform Delay, d1		29.9			26.5					7.6	7.5	6.7
Progression Factor		1.00			1.12					1.00	1.00	1.00
Incremental Delay, d2		8.9			0.8					1.6	0.8	0.9
Delay (s)		38.7			30.4					9.2	8.3	7.6
Level of Service		D			C					A	A	A
Approach Delay (s)		38.7			30.4			0.0			8.4	
Approach LOS		D			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



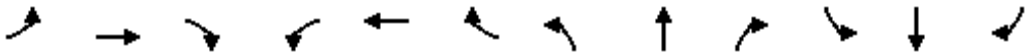
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	284	882	0	0	270	737	7	747	28	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1610	3385			3539	2706		5048				
Flt Permitted	0.95	0.95			1.00	1.00		1.00				
Satd. Flow (perm)	1610	3215			3539	2706		5048				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	284	882	0	0	270	737	7	747	28	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	192	0	5	0	0	0	0
Lane Group Flow (vph)	256	910	0	0	270	545	0	777	0	0	0	0
Confl. Peds. (#/hr)						20			20			
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	21.5	52.5			27.5	27.5		16.5				
Effective Green, g (s)	21.5	52.5			27.5	27.5		16.5				
Actuated g/C Ratio	0.27	0.66			0.34	0.34		0.21				
Clearance Time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Grp Cap (vph)	432	2155			1216	930		1041				
v/s Ratio Prot	c0.16	0.11			0.08							
v/s Ratio Perm		0.16				c0.20		0.15				
v/c Ratio	0.59	0.42			0.22	0.59		0.75				
Uniform Delay, d1	25.4	6.5			18.7	21.6		29.8				
Progression Factor	0.92	0.77			1.00	1.00		1.00				
Incremental Delay, d2	4.7	0.5			0.4	2.7		4.9				
Delay (s)	28.0	5.5			19.1	24.3		34.7				
Level of Service	C	A			B	C		C				
Approach Delay (s)		10.4			22.9			34.7			0.0	
Approach LOS		B			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	21.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



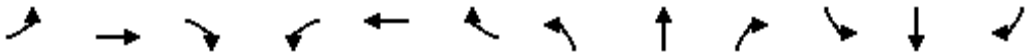
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	816	747	387	1605	69	212	45	325	30	21	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3312	1404	1543	3332		1243	1248	946	1203	1115	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3312	1404	1543	3332		1243	1248	946	1203	1115	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	61	816	747	387	1605	69	212	45	325	30	21	20
RTOR Reduction (vph)	0	0	347	0	2	0	0	0	275	0	19	0
Lane Group Flow (vph)	61	816	400	387	1672	0	127	130	50	30	22	0
Confl. Peds. (#/hr)						1			3			
Heavy Vehicles (%)	0%	9%	15%	17%	7%	21%	38%	44%	68%	50%	75%	40%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases			2						8			
Actuated Green, G (s)	5.5	43.4	43.4	33.0	70.9		17.7	17.7	17.7	4.7	4.7	
Effective Green, g (s)	5.5	43.4	43.4	33.0	70.9		17.7	17.7	17.7	4.7	4.7	
Actuated g/C Ratio	0.05	0.38	0.38	0.29	0.61		0.15	0.15	0.15	0.04	0.04	
Clearance Time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.5	3.5	3.5	2.0	3.5		3.0	3.0	3.0	2.0	2.0	
Lane Grp Cap (vph)	86	1246	528	441	2048		190	191	145	49	45	
v/s Ratio Prot	0.03	0.25		c0.25	c0.50		0.10	c0.10		c0.02	0.02	
v/s Ratio Perm			0.29						0.05			
v/c Ratio	0.71	0.65	0.76	0.88	0.82		0.67	0.68	0.34	0.61	0.48	
Uniform Delay, d1	54.1	29.8	31.4	39.2	17.2		46.0	46.1	43.6	54.4	54.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	21.9	1.3	6.4	17.1	2.7		8.6	9.6	1.4	14.9	3.0	
Delay (s)	76.0	31.1	37.7	56.3	19.9		54.6	55.7	45.0	69.3	57.1	
Level of Service	E	C	D	E	B		D	E	D	E	E	
Approach Delay (s)		35.8			26.7			49.5			62.2	
Approach LOS		D			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	115.3	Sum of lost time (s)	16.5
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



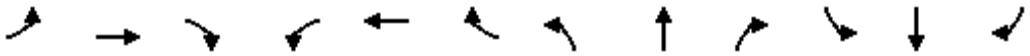
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	748	275	284	1380	335	515	242	507	230	234	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.90		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1014	2883		1299	3438	1369	1480	2543		1480	2259	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1014	2883		1299	3438	1369	1480	2543		1480	2259	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	155	748	275	284	1380	335	515	242	507	230	234	180
RTOR Reduction (vph)	0	27	0	0	0	165	0	245	0	0	78	0
Lane Group Flow (vph)	155	996	0	284	1380	170	515	504	0	207	359	0
Confl. Peds. (#/hr)									1			
Heavy Vehicles (%)	78%	14%	37%	39%	5%	18%	22%	42%	19%	11%	45%	45%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	15.5	40.0		25.5	50.0	50.0	38.5	38.5		19.0	19.0	
Effective Green, g (s)	15.5	40.0		25.5	50.0	50.0	38.5	38.5		19.0	19.0	
Actuated g/C Ratio	0.11	0.29		0.18	0.36	0.36	0.28	0.28		0.14	0.14	
Clearance Time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	112	826		237	1232	490	408	701		201	307	
v/s Ratio Prot	c0.15	c0.35		c0.22	0.40		c0.35	0.20		0.14	c0.16	
v/s Ratio Perm						0.12						
v/c Ratio	1.38	1.21		1.20	1.12	0.35	1.26	0.72		1.03	1.17	
Uniform Delay, d1	62.0	49.8		57.0	44.8	32.8	50.5	45.6		60.2	60.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	218.6	103.9		122.6	65.3	0.4	136.4	3.3		71.5	105.8	
Delay (s)	280.6	153.7		179.6	110.1	33.2	186.9	48.9		131.7	166.0	
Level of Service	F	F		F	F	C	F	D		F	F	
Approach Delay (s)		170.4			107.1			105.1			155.0	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	127.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	139.5	Sum of lost time (s)	16.5
Intersection Capacity Utilization	102.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1455	51	116	1232	0	0	0	0	449	322	515
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						5.0	
Lane Util. Factor		0.91		1.00	0.95						0.95	
Frpb, ped/bikes		1.00		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.99		1.00	1.00						0.94	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		4961		1768	3343						3131	
Flt Permitted		1.00		0.12	1.00						0.98	
Satd. Flow (perm)		4961		219	3343						3131	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1455	51	116	1232	0	0	0	0	449	322	515
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	33	0
Lane Group Flow (vph)	0	1502	0	116	1232	0	0	0	0	0	1253	0
Confl. Peds. (#/hr)			8	8						10		10
Heavy Vehicles (%)	6%	4%	2%	2%	8%	2%	0%	0%	0%	2%	2%	11%
Turn Type		NA		Perm	NA					Split	NA	
Protected Phases		4			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		47.0		47.0	47.0						30.0	
Effective Green, g (s)		47.0		47.0	47.0						30.0	
Actuated g/C Ratio		0.54		0.54	0.54						0.34	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		2680		118	1805						1079	
v/s Ratio Prot		0.30			0.37						c0.40	
v/s Ratio Perm				c0.53								
v/c Ratio		0.56		0.98	0.68						1.16	
Uniform Delay, d1		13.2		19.6	14.6						28.5	
Progression Factor		1.00		0.43	0.36						1.00	
Incremental Delay, d2		0.2		58.5	0.5						82.9	
Delay (s)		13.3		67.0	5.8						111.4	
Level of Service		B		E	A						F	
Approach Delay (s)		13.3			11.0			0.0			111.4	
Approach LOS		B			B			A			F	

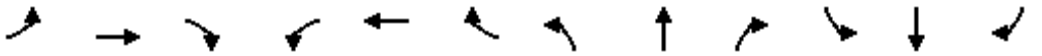
Intersection Summary			
HCM 2000 Control Delay	43.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	144.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	340	1564	0	0	1168	351	180	389	123	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0				
Lane Util. Factor	1.00	0.95			0.95			0.95				
Frpb, ped/bikes	1.00	1.00			0.99			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.97			0.97				
Flt Protected	0.95	1.00			1.00			0.99				
Satd. Flow (prot)	1770	3539			3394			3387				
Flt Permitted	0.09	1.00			1.00			0.99				
Satd. Flow (perm)	159	3539			3394			3387				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	340	1564	0	0	1168	351	180	389	123	0	0	0
RTOR Reduction (vph)	0	0	0	0	33	0	0	14	0	0	0	0
Lane Group Flow (vph)	340	1564	0	0	1486	0	0	678	0	0	0	0
Confl. Peds. (#/hr)	10					10			10			
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)	47.0	47.0			47.0			30.0				
Effective Green, g (s)	47.0	47.0			47.0			30.0				
Actuated g/C Ratio	0.54	0.54			0.54			0.34				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Vehicle Extension (s)	2.0	2.0			2.0			2.0				
Lane Grp Cap (vph)	85	1911			1833			1167				
v/s Ratio Prot		0.44			0.44			c0.20				
v/s Ratio Perm	c2.14											
v/c Ratio	4.00	0.82			0.81			0.58				
Uniform Delay, d1	20.0	16.5			16.4			23.4				
Progression Factor	0.74	0.66			1.00			1.00				
Incremental Delay, d2	1369.5	1.9			2.7			0.5				
Delay (s)	1384.2	12.8			19.0			23.8				
Level of Service	F	B			B			C				
Approach Delay (s)		257.7			19.0			23.8			0.0	
Approach LOS		F			B			C			A	

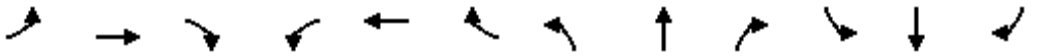
Intersection Summary			
HCM 2000 Control Delay	130.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.64		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	144.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	1264	115	111	1587	16	50	80	44	21	139	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.95		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1768	3423		1768	3401		1755	1747		1757	1774	
Flt Permitted	0.08	1.00		0.12	1.00		0.60	1.00		0.68	1.00	
Satd. Flow (perm)	157	3423		223	3401		1102	1747		1253	1774	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	48	1264	115	111	1587	16	50	80	44	21	139	50
RTOR Reduction (vph)	0	9	0	0	1	0	0	25	0	0	16	0
Lane Group Flow (vph)	48	1370	0	111	1602	0	50	100	0	21	173	0
Confl. Peds. (#/hr)	8		7	7		8	11		8	8		11
Confl. Bikes (#/hr)			9			11			8			10
Heavy Vehicles (%)	2%	4%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	47.5	47.5		47.5	47.5		24.0	24.0		24.0	24.0	
Effective Green, g (s)	47.5	47.5		47.5	47.5		24.0	24.0		24.0	24.0	
Actuated g/C Ratio	0.59	0.59		0.59	0.59		0.30	0.30		0.30	0.30	
Clearance Time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	93	2032		132	2019		330	524		375	532	
v/s Ratio Prot		0.40			0.47			0.06			c0.10	
v/s Ratio Perm	0.31			c0.50			0.05			0.02		
v/c Ratio	0.52	0.67		0.84	0.79		0.15	0.19		0.06	0.33	
Uniform Delay, d1	9.5	11.0		13.2	12.5		20.5	20.8		19.9	21.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	19.0	1.8		44.5	3.3		1.0	0.8		0.3	1.6	
Delay (s)	28.5	12.8		57.6	15.8		21.5	21.6		20.2	23.3	
Level of Service	C	B		E	B		C	C		C	C	
Approach Delay (s)		13.4			18.5			21.6			23.0	
Approach LOS		B			B			C			C	

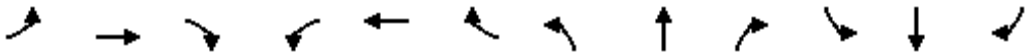
Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	136.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	1028	229	51	1250	13	365	286	108	3	111	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Lane Util. Factor		0.95			0.95	1.00	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes		0.99			1.00	0.94	1.00	1.00	0.95		1.00	0.95
Flpb, ped/bikes		1.00			1.00	1.00	0.98	1.00	1.00		1.00	1.00
Frt		0.97			1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected		1.00			1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)		3325			3299	1489	1645	1845	1506		1860	1517
Flt Permitted		0.79			0.78	1.00	0.67	1.00	1.00		0.99	1.00
Satd. Flow (perm)		2634			2590	1489	1161	1845	1506		1851	1517
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	1028	229	51	1250	13	365	286	108	3	111	103
RTOR Reduction (vph)	0	19	0	0	0	3	0	0	60	0	0	34
Lane Group Flow (vph)	0	1288	0	0	1301	10	365	286	48	0	114	69
Confl. Peds. (#/hr)	21		15	15		21	27		25	25		27
Confl. Bikes (#/hr)			18			17			16			17
Heavy Vehicles (%)	2%	5%	3%	39%	8%	2%	7%	3%	2%	2%	2%	1%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		4
Actuated Green, G (s)		51.4			51.4	51.4	29.6	29.6	29.6		29.6	29.6
Effective Green, g (s)		51.4			51.4	51.4	29.6	29.6	29.6		29.6	29.6
Actuated g/C Ratio		0.57			0.57	0.57	0.33	0.33	0.33		0.33	0.33
Clearance Time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Vehicle Extension (s)		2.0			2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1504			1479	850	381	606	495		608	498
v/s Ratio Prot								0.16				
v/s Ratio Perm		0.49			c0.50	0.01	c0.31		0.03		0.06	0.05
v/c Ratio		0.86			0.88	0.01	0.96	0.47	0.10		0.19	0.14
Uniform Delay, d1		16.2			16.6	8.3	29.6	24.0	20.9		21.6	21.2
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2		6.5			7.8	0.0	34.6	0.2	0.0		0.1	0.0
Delay (s)		22.7			24.4	8.4	64.2	24.2	21.0		21.7	21.3
Level of Service		C			C	A	E	C	C		C	C
Approach Delay (s)		22.7			24.3			43.0			21.5	
Approach LOS		C			C			D			C	

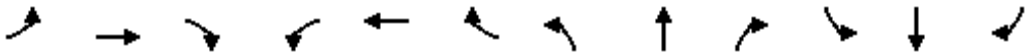
Intersection Summary			
HCM 2000 Control Delay	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	108.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	74	865	233	69	1214	213	95	672	32	60	1212	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3432	1510	1764	3252	1540	1669	3511		1762	3538	
Flt Permitted		0.62	1.00	0.19	1.00	1.00	0.11	1.00		0.32	1.00	
Satd. Flow (perm)		2145	1510	344	3252	1540	198	3511		594	3538	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	74	865	233	69	1214	213	95	672	32	60	1212	3
RTOR Reduction (vph)	0	0	18	0	0	71	0	4	0	0	0	0
Lane Group Flow (vph)	0	939	215	69	1214	142	95	700	0	60	1215	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Heavy Vehicles (%)	2%	5%	4%	2%	11%	2%	8%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4		4	2			6		
Actuated Green, G (s)		36.6	36.6	36.6	36.6	36.6	38.9	38.9		38.9	38.9	
Effective Green, g (s)		36.6	36.6	36.6	36.6	36.6	38.9	38.9		38.9	38.9	
Actuated g/C Ratio		0.43	0.43	0.43	0.43	0.43	0.46	0.46		0.46	0.46	
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0		4.0	4.0	
Lane Grp Cap (vph)		923	650	148	1400	663	90	1606		271	1619	
v/s Ratio Prot					0.37			0.20			0.34	
v/s Ratio Perm		c0.44	0.14	0.20		0.09	c0.48			0.10		
v/c Ratio		1.02	0.33	0.47	0.87	0.21	1.06	0.44		0.22	0.75	
Uniform Delay, d1		24.2	16.1	17.2	22.0	15.2	23.1	15.6		13.9	19.0	
Progression Factor		1.00	1.00	1.34	0.97	1.84	1.00	1.00		1.00	1.00	
Incremental Delay, d2		34.0	1.4	8.9	6.5	0.6	110.8	0.4		0.6	2.1	
Delay (s)		58.2	17.4	32.0	27.8	28.5	133.8	16.0		14.5	21.2	
Level of Service		E	B	C	C	C	F	B		B	C	
Approach Delay (s)		50.1			28.1			30.0			20.9	
Approach LOS		D			C			C			C	

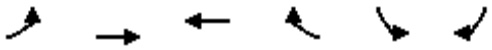
Intersection Summary			
HCM 2000 Control Delay	31.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	117.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	842	27	114	1316	32	18	109	260	37	99	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.97		1.00	0.94		0.97	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1588	3124	1361	1504	3185	1375		3152	1173		2852	
Flt Permitted	0.18	1.00	1.00	0.32	1.00	1.00		0.89	1.00		0.89	
Satd. Flow (perm)	293	3124	1361	505	3185	1375		2841	1173		2563	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	55	842	27	114	1316	32	18	109	260	37	99	105
RTOR Reduction (vph)	0	0	7	0	0	6	0	0	127	0	45	0
Lane Group Flow (vph)	55	842	20	114	1316	26	0	127	133	0	196	0
Confl. Peds. (#/hr)	22		31	31		22	34		37	37		34
Confl. Bikes (#/hr)			7			3			12			19
Heavy Vehicles (%)	2%	4%	2%	7%	2%	2%	2%	2%	16%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4		4	2		2	2		
Actuated Green, G (s)	61.9	61.9	61.9	61.9	61.9	61.9		14.6	14.6		14.6	
Effective Green, g (s)	61.9	61.9	61.9	61.9	61.9	61.9		14.6	14.6		14.6	
Actuated g/C Ratio	0.73	0.73	0.73	0.73	0.73	0.73		0.17	0.17		0.17	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	213	2275	991	367	2319	1001		487	201		440	
v/s Ratio Prot		0.27			c0.41							
v/s Ratio Perm	0.19		0.01	0.23		0.02		0.04	c0.11		0.08	
v/c Ratio	0.26	0.37	0.02	0.31	0.57	0.03		0.26	0.66		0.45	
Uniform Delay, d1	3.9	4.3	3.2	4.1	5.3	3.2		30.5	32.9		31.6	
Progression Factor	0.91	0.71	0.66	2.58	2.46	2.90		1.00	1.00		1.00	
Incremental Delay, d2	1.0	0.2	0.0	0.2	0.1	0.0		0.1	6.2		0.3	
Delay (s)	4.5	3.2	2.1	10.7	13.2	9.3		30.6	39.1		31.8	
Level of Service	A	A	A	B	B	A		C	D		C	
Approach Delay (s)		3.2			12.9			36.3			31.8	
Approach LOS		A			B			D			C	

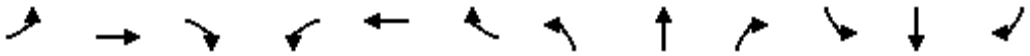
Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



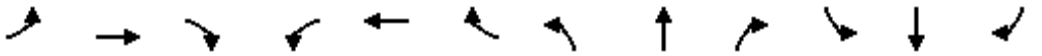
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	492	589	1310	122	664	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1593	3008	3036	1343	3050	1191
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1593	3008	3036	1343	3050	1191
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	492	589	1310	122	664	224
RTOR Reduction (vph)	0	0	0	37	3	150
Lane Group Flow (vph)	492	589	1310	85	683	52
Confl. Peds. (#/hr)				15	15	15
Heavy Vehicles (%)	2%	8%	7%	5%	3%	8%
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	20.0	55.0	31.0	31.0	22.0	22.0
Effective Green, g (s)	20.0	55.0	31.0	31.0	22.0	22.0
Actuated g/C Ratio	0.24	0.65	0.36	0.36	0.26	0.26
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	374	1946	1107	489	789	308
v/s Ratio Prot	c0.31	0.20	c0.43		c0.22	
v/s Ratio Perm				0.06		0.04
v/c Ratio	1.32	0.30	1.18	0.17	0.87	0.17
Uniform Delay, d1	32.5	6.6	27.0	18.3	30.1	24.4
Progression Factor	0.71	1.57	0.97	1.12	1.00	1.00
Incremental Delay, d2	158.6	0.4	86.8	0.0	9.5	0.1
Delay (s)	181.7	10.7	113.0	20.6	39.6	24.5
Level of Service	F	B	F	C	D	C
Approach Delay (s)		88.6	105.1		36.2	
Approach LOS		F	F		D	

Intersection Summary			
HCM 2000 Control Delay	81.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	104.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	71	855	53	136	1047	112	167	481	158	116	423	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00	0.92	1.00	0.98	
Flpb, ped/bikes	1.00	1.00			1.00		0.98	1.00	1.00	0.97	1.00	
Frt	1.00	0.99			0.99		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1585	3147			3107		1561	3185	1305	1546	3023	
Flt Permitted	0.14	1.00			0.69		0.33	1.00	1.00	0.38	1.00	
Satd. Flow (perm)	233	3147			2144		539	3185	1305	618	3023	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	71	855	53	136	1047	112	167	481	158	116	423	127
RTOR Reduction (vph)	0	5	0	0	8	0	0	0	77	0	35	0
Lane Group Flow (vph)	71	903	0	0	1287	0	167	481	81	116	515	0
Confl. Peds. (#/hr)	46		47	47		46	57		65	65		57
Confl. Bikes (#/hr)			9			21			15			22
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	50.1	50.1			50.1		26.9	26.9	26.9	26.9	26.9	
Effective Green, g (s)	50.1	50.1			50.1		26.9	26.9	26.9	26.9	26.9	
Actuated g/C Ratio	0.59	0.59			0.59		0.32	0.32	0.32	0.32	0.32	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	137	1854			1263		170	1007	412	195	956	
v/s Ratio Prot		0.29						0.15			0.17	
v/s Ratio Perm	0.30				c0.60		c0.31		0.06	0.19		
v/c Ratio	0.52	0.49			1.02		0.98	0.48	0.20	0.59	0.54	
Uniform Delay, d1	10.3	10.1			17.4		28.8	23.4	21.2	24.5	23.9	
Progression Factor	0.31	0.27			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	11.2	0.8			30.2		63.3	0.1	0.1	3.2	0.3	
Delay (s)	14.4	3.5			47.7		92.1	23.5	21.3	27.7	24.2	
Level of Service	B	A			D		F	C	C	C	C	
Approach Delay (s)		4.3			47.7			37.3			24.8	
Approach LOS		A			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	30.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	116.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	157	165	465	825	101	390	1249	423	28	1180	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	5.5		5.5	5.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		1.00	1.00
Satd. Flow (prot)	3090	3154	1352	3090	3185	1352		4517	1352		4571	1352
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.66	1.00		0.82	1.00
Satd. Flow (perm)	3090	3154	1352	3090	3185	1352		3021	1352		3740	1352
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	89	157	165	465	825	101	390	1249	423	28	1180	201
RTOR Reduction (vph)	0	0	81	0	0	51	0	0	242	0	0	83
Lane Group Flow (vph)	89	157	84	465	825	50	0	1639	181	0	1208	118
Confl. Peds. (#/hr)			40			40	40		40	40		40
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases			8			4	2		2	6		6
Actuated Green, G (s)	4.0	15.2	15.2	21.2	32.4	32.4		38.6	38.6		38.6	38.6
Effective Green, g (s)	4.0	15.2	15.2	21.2	32.4	32.4		38.6	38.6		38.6	38.6
Actuated g/C Ratio	0.04	0.17	0.17	0.24	0.36	0.36		0.43	0.43		0.43	0.43
Clearance Time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	5.5		5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	137	532	228	727	1146	486		1295	579		1604	579
v/s Ratio Prot	c0.03	0.05		0.15	c0.26							
v/s Ratio Perm			0.06			0.04		c0.54	0.13		0.32	0.09
v/c Ratio	0.65	0.30	0.37	0.64	0.72	0.10		3.51dl	0.31		0.75	0.20
Uniform Delay, d1	42.3	32.7	33.2	31.0	24.9	19.1		25.7	17.0		21.7	16.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	10.2	1.4	4.6	1.9	3.9	0.4		125.8	0.3		2.1	0.2
Delay (s)	52.5	34.1	37.7	32.8	28.8	19.6		151.5	17.3		23.7	16.3
Level of Service	D	C	D	C	C	B		F	B		C	B
Approach Delay (s)		39.5			29.5			124.0			22.7	
Approach LOS		D			C			F			C	

Intersection Summary			
HCM 2000 Control Delay	65.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	115.9%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

MOVEMENT SUMMARY

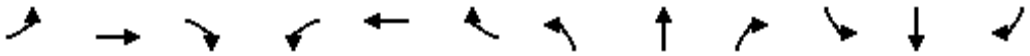
Site: 2035 + Proj Mid Alt AM

Adeline & 18th
2035 + Project Mid-Range Alternative AM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	43	2.0	0.245	5.3	LOS A	1.3	31.9	0.37	0.82	27.5
8	T	184	2.0	0.245	5.3	LOS A	1.3	31.9	0.37	0.50	30.6
18	R	63	2.0	0.245	5.3	LOS A	1.3	31.9	0.37	0.56	30.1
Approach		290	2.0	0.245	5.3	LOS A	1.3	31.9	0.37	0.56	29.9
East: 18th Street (WB)											
1	L	30	2.0	0.223	5.3	LOS A	1.1	27.7	0.43	0.84	27.5
6	T	172	2.0	0.223	5.3	LOS A	1.1	27.7	0.43	0.54	30.5
16	R	45	2.0	0.223	5.3	LOS A	1.1	27.7	0.43	0.60	30.1
Approach		247	2.0	0.223	5.3	LOS A	1.1	27.7	0.43	0.59	30.0
North: Adeline Street (SB)											
7	L	71	2.0	0.365	7.0	LOS A	2.0	52.0	0.50	0.84	26.7
4	T	279	2.0	0.365	7.0	LOS A	2.0	52.0	0.50	0.58	29.4
14	R	51	2.0	0.365	7.0	LOS A	2.0	52.0	0.50	0.63	29.0
Approach		401	2.0	0.365	7.0	LOS A	2.0	52.0	0.50	0.63	28.8
West: 18th Street (EB)											
5	L	9	2.0	0.115	4.8	LOS A	0.5	12.5	0.48	0.88	27.9
2	T	93	2.0	0.115	4.8	LOS A	0.5	12.5	0.48	0.60	30.9
12	R	8	2.0	0.115	4.8	LOS A	0.5	12.5	0.48	0.65	30.5
Approach		110	2.0	0.115	4.8	LOS A	0.5	12.5	0.48	0.62	30.6
All Vehicles		1048	2.0	0.365	5.9	LOS A	2.0	52.0	0.45	0.60	29.6

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	187	4	27	125	209	49	564	88	235	191	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99			1.00	
Flpb, ped/bikes	0.99	1.00		0.98	1.00		0.98	1.00			0.99	
Frt	1.00	1.00		1.00	0.91		1.00	0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1760	1855		1729	1663		1742	3432			3354	
Flt Permitted	0.31	1.00		0.57	1.00		0.48	1.00			0.58	
Satd. Flow (perm)	566	1855		1037	1663		889	3432			2006	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	187	4	27	125	209	49	564	88	235	191	39
RTOR Reduction (vph)	0	2	0	0	104	0	0	14	0	0	8	0
Lane Group Flow (vph)	50	189	0	27	230	0	49	638	0	0	457	0
Confl. Peds. (#/hr)	14		44	44		14	37		71	71		37
Confl. Bikes (#/hr)			6			2			2			11
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	13.1	13.1		13.1	13.1		37.4	37.4			37.4	
Effective Green, g (s)	13.1	13.1		13.1	13.1		37.4	37.4			37.4	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.64	0.64			0.64	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Lane Grp Cap (vph)	126	415		232	372		568	2194			1282	
v/s Ratio Prot		0.10			c0.14			0.19				
v/s Ratio Perm	0.09			0.03			0.06				c0.23	
v/c Ratio	0.40	0.46		0.12	0.62		0.09	0.29			0.36	
Uniform Delay, d1	19.3	19.6		18.1	20.4		4.0	4.7			4.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.7	0.3		0.1	2.2		0.3	0.3			0.8	
Delay (s)	20.1	19.9		18.2	22.6		4.3	5.0			5.7	
Level of Service	C	B		B	C		A	A			A	
Approach Delay (s)		19.9			22.3			5.0			5.7	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	58.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	99.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

Site: 2035 + Proj Mid Alt AM

Adeline & 14th
2035 + Project Mid-Range Alternative AM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	9	2.0	0.234	5.3	LOS A	1.2	29.6	0.41	0.86	27.6
8	T	232	2.0	0.234	5.3	LOS A	1.2	29.6	0.41	0.53	30.6
18	R	25	2.0	0.234	5.3	LOS A	1.2	29.6	0.41	0.60	30.2
Approach		266	2.0	0.234	5.3	LOS A	1.2	29.6	0.41	0.55	30.5
East: 14th Street (WB)											
1	L	34	2.0	0.208	5.3	LOS A	1.0	25.2	0.44	0.84	27.5
6	T	148	2.0	0.208	5.3	LOS A	1.0	25.2	0.44	0.55	30.5
16	R	42	2.0	0.208	5.3	LOS A	1.0	25.2	0.44	0.61	30.1
Approach		224	2.0	0.208	5.3	LOS A	1.0	25.2	0.44	0.61	29.9
North: Adeline Street (SB)											
7	L	32	2.0	0.272	5.6	LOS A	1.4	36.1	0.40	0.84	27.4
4	T	258	2.0	0.272	5.6	LOS A	1.4	36.1	0.40	0.52	30.4
14	R	26	2.0	0.272	5.6	LOS A	1.4	36.1	0.40	0.59	29.9
Approach		316	2.0	0.272	5.6	LOS A	1.4	36.1	0.40	0.56	30.0
West: 14th Street (EB)											
5	L	24	2.0	0.193	5.4	LOS A	0.9	22.7	0.48	0.87	27.6
2	T	154	2.0	0.193	5.4	LOS A	0.9	22.7	0.48	0.59	30.5
12	R	18	2.0	0.193	5.4	LOS A	0.9	22.7	0.48	0.65	30.1
Approach		196	2.0	0.193	5.4	LOS A	0.9	22.7	0.48	0.63	30.1
All Vehicles		1002	2.0	0.272	5.4	LOS A	1.4	36.1	0.43	0.58	30.1

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.

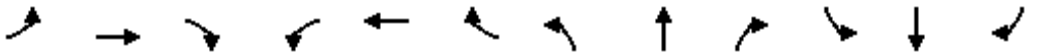
MOVEMENT SUMMARY

Adeline & 12th
2035 + Project Mid-Range Alternative AM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	1	2.0	0.155	3.9	LOS A	0.8	19.3	0.15	0.90	28.0
8	T	204	2.0	0.155	3.9	LOS A	0.8	19.3	0.15	0.42	31.7
18	R	5	2.0	0.155	3.9	LOS A	0.8	19.3	0.15	0.52	31.0
Approach		210	2.0	0.155	3.9	LOS A	0.8	19.3	0.15	0.42	31.6
East: 12th Street (WB)											
1	L	8	2.0	0.079	3.8	LOS A	0.3	8.7	0.35	0.79	28.2
6	T	29	2.0	0.079	3.8	LOS A	0.3	8.7	0.35	0.48	31.5
16	R	53	2.0	0.079	3.8	LOS A	0.3	8.7	0.35	0.54	31.0
Approach		90	2.0	0.079	3.8	LOS A	0.3	8.7	0.35	0.54	30.9
North: Adeline Street (SB)											
7	L	30	2.0	0.231	4.6	LOS A	1.2	31.4	0.16	0.87	27.7
4	T	279	2.0	0.231	4.6	LOS A	1.2	31.4	0.16	0.41	31.1
14	R	5	2.0	0.231	4.6	LOS A	1.2	31.4	0.16	0.51	30.5
Approach		314	2.0	0.231	4.6	LOS A	1.2	31.4	0.16	0.46	30.7
West: 12th Street (EB)											
5	L	2	2.0	0.010	3.6	LOS A	0.0	1.0	0.41	0.78	28.4
2	T	7	2.0	0.010	3.6	LOS A	0.0	1.0	0.41	0.48	31.7
12	R	1	2.0	0.010	3.6	LOS A	0.0	1.0	0.41	0.54	31.2
Approach		10	2.0	0.010	3.6	LOS A	0.0	1.0	0.41	0.55	30.9
All Vehicles		624	2.0	0.231	4.2	LOS A	1.2	31.4	0.19	0.46	31.1

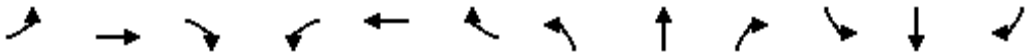
Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	138	44	0	0	347	352	443	447	95	107	0	553
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frt	1.00	1.00			0.92		1.00	0.98		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	0.99		0.95		1.00
Satd. Flow (prot)	1020	3282			2922		1173	2809		1543		1960
Flt Permitted	0.95	1.00			1.00		0.95	0.99		0.95		1.00
Satd. Flow (perm)	1020	3282			2922		1173	2809		1543		1960
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	138	44	0	0	347	352	443	447	95	107	0	553
RTOR Reduction (vph)	0	0	0	0	178	0	0	12	0	0	0	495
Lane Group Flow (vph)	138	44	0	0	521	0	323	650	0	107	0	58
Confl. Peds. (#/hr)						14						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	77%	10%	0%	0%	8%	17%	40%	15%	14%	17%	0%	45%
Turn Type	Prot	NA			NA		Split	NA		Prot		custom
Protected Phases	1	6			2		4	4		3		3
Permitted Phases												
Actuated Green, G (s)	15.9	41.2			21.8		30.4	30.4		10.0		10.0
Effective Green, g (s)	15.9	41.2			21.8		30.4	30.4		10.0		10.0
Actuated g/C Ratio	0.17	0.44			0.23		0.32	0.32		0.11		0.11
Clearance Time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	171	1429			673		376	902		163		207
v/s Ratio Prot	c0.14	0.01			c0.18		c0.28	0.23		c0.07		0.03
v/s Ratio Perm												
v/c Ratio	0.81	0.03			0.77		0.86	0.72		0.66		0.28
Uniform Delay, d1	37.9	15.3			34.1		30.1	28.4		40.6		39.0
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	22.4	0.0			5.3		17.2	2.7		8.2		0.5
Delay (s)	60.3	15.3			39.4		47.3	31.0		48.9		39.5
Level of Service	E	B			D		D	C		D		D
Approach Delay (s)		49.4			39.4			36.4			41.1	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	39.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	94.6	Sum of lost time (s)	16.5
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		

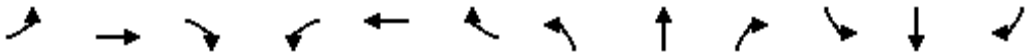
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	429	26	124	505	182	17	64	61	217	126	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.98			0.99		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		0.99	1.00	
Frt	1.00	0.99		1.00	0.96			0.94		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1770	3183		1770	3259			1705		1755	1761	
Flt Permitted	0.95	1.00		0.95	1.00			0.96		0.57	1.00	
Satd. Flow (perm)	1770	3183		1770	3259			1646		1061	1761	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	62	429	26	124	505	182	17	64	61	217	126	29
RTOR Reduction (vph)	0	3	0	0	27	0	0	34	0	0	10	0
Lane Group Flow (vph)	62	452	0	124	660	0	0	108	0	217	145	0
Confl. Peds. (#/hr)			58			47	70		8	8		70
Confl. Bikes (#/hr)			15			6			9			38
Heavy Vehicles (%)	2%	12%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	10.1	54.5		11.4	55.8			23.1		23.1	23.1	
Effective Green, g (s)	10.1	54.5		11.4	55.8			23.1		23.1	23.1	
Actuated g/C Ratio	0.10	0.54		0.11	0.56			0.23		0.23	0.23	
Clearance Time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	178	1734		201	1818			380		245	406	
v/s Ratio Prot	c0.04	0.14		c0.07	c0.20						0.08	
v/s Ratio Perm								0.07		c0.20		
v/c Ratio	0.35	0.26		0.62	0.36			0.28		0.89	0.36	
Uniform Delay, d1	41.9	12.1		42.2	12.2			31.6		37.2	32.2	
Progression Factor	1.26	1.38		0.95	0.58			1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.0		3.8	0.6			0.2		28.7	0.2	
Delay (s)	53.2	16.7		43.8	7.6			31.8		65.8	32.4	
Level of Service	D	B		D	A			C		E	C	
Approach Delay (s)		21.1			13.1			31.8			51.9	
Approach LOS		C			B			C			D	

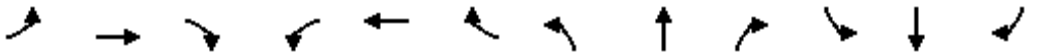
Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	629	74	126	1233	139	26	64	66	84	82	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		0.99	1.00	1.00	0.99	1.00		0.99	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.92		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1765	3248		1025	3471	1492	1347	918		1753	1477	
Flt Permitted	0.17	1.00		0.35	1.00	1.00	0.59	1.00		0.64	1.00	
Satd. Flow (perm)	314	3248		380	3471	1492	836	918		1172	1477	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	27	629	74	126	1233	139	26	64	66	84	82	75
RTOR Reduction (vph)	0	9	0	0	0	50	0	37	0	0	33	0
Lane Group Flow (vph)	27	694	0	126	1233	89	26	93	0	84	124	0
Confl. Peds. (#/hr)	21		23	23		21	9		11	11		9
Confl. Bikes (#/hr)			4			5						1
Heavy Vehicles (%)	2%	8%	17%	75%	4%	4%	33%	100%	78%	2%	33%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	64.0	64.0		64.0	64.0	64.0	28.0	28.0		28.0	28.0	
Effective Green, g (s)	64.0	64.0		64.0	64.0	64.0	28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64	0.64	0.28	0.28		0.28	0.28	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	200	2078		243	2221	954	234	257		328	413	
v/s Ratio Prot		0.21			c0.36			c0.10			0.08	
v/s Ratio Perm	0.09			0.33		0.06	0.03			0.07		
v/c Ratio	0.14	0.33		0.52	0.56	0.09	0.11	0.36		0.26	0.30	
Uniform Delay, d1	7.1	8.2		9.7	10.1	6.9	26.8	28.8		27.9	28.3	
Progression Factor	0.39	0.35		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.4	0.4		7.7	1.0	0.2	1.0	3.9		1.9	1.9	
Delay (s)	4.1	3.3		17.4	11.1	7.1	27.7	32.7		29.8	30.2	
Level of Service	A	A		B	B	A	C	C		C	C	
Approach Delay (s)		3.3			11.2			31.9			30.0	
Approach LOS		A			B			C			C	

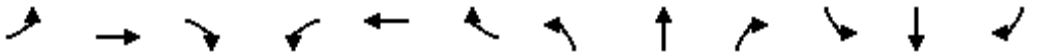
Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	101.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	95	610	56	51	1176	51	206	242	14	79	96	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		0.99	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1581	4090		1759	4576		1760	1810	1541	1751	3539	1245
Flt Permitted	0.15	1.00		0.36	1.00		0.69	1.00	1.00	0.58	1.00	1.00
Satd. Flow (perm)	246	4090		672	4576		1282	1810	1541	1066	3539	1245
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	95	610	56	51	1176	51	206	242	14	79	96	158
RTOR Reduction (vph)	0	16	0	0	7	0	0	0	8	0	0	18
Lane Group Flow (vph)	95	650	0	51	1220	0	206	242	6	79	96	140
Confl. Peds. (#/hr)	10		20	20		10	8		20	20		8
Confl. Bikes (#/hr)			7			3						6
Heavy Vehicles (%)	14%	27%	2%	2%	13%	2%	2%	5%	2%	2%	2%	27%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	30.7	30.7		30.7	30.7		34.8	34.8	34.8	34.8	34.8	34.8
Effective Green, g (s)	30.7	30.7		30.7	30.7		34.8	34.8	34.8	34.8	34.8	34.8
Actuated g/C Ratio	0.41	0.41		0.41	0.41		0.46	0.46	0.46	0.46	0.46	0.46
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	100	1674		275	1873		594	839	715	494	1642	577
v/s Ratio Prot		0.16			0.27			0.13			0.03	
v/s Ratio Perm	c0.39			0.08			c0.16		0.00	0.07		0.11
v/c Ratio	0.95	0.39		0.19	0.65		0.35	0.29	0.01	0.16	0.06	0.24
Uniform Delay, d1	21.4	15.6		14.2	17.8		12.8	12.4	10.8	11.6	11.1	12.1
Progression Factor	1.00	1.00		1.00	1.00		1.09	1.09	1.45	1.00	1.00	1.00
Incremental Delay, d2	72.4	0.1		0.1	0.6		1.6	0.9	0.0	0.7	0.1	1.0
Delay (s)	93.8	15.6		14.3	18.5		15.6	14.4	15.8	12.3	11.1	13.1
Level of Service	F	B		B	B		B	B	B	B	B	B
Approach Delay (s)		25.4			18.3			15.0			12.4	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	82.0%	ICU Level of Service	E
Analysis Period (min)	15		

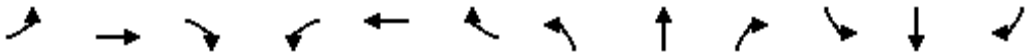
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	88	243	185	28	74	0	0	108	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	1.00			0.95	1.00
Frpb, ped/bikes					1.00	0.99	1.00	1.00			1.00	0.98
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3492	1562	1770	990			3167	1558
Flt Permitted					0.99	1.00	0.68	1.00			1.00	1.00
Satd. Flow (perm)					3492	1562	1274	990			3167	1558
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	88	243	185	28	74	0	0	108	67
RTOR Reduction (vph)	0	0	0	0	0	149	0	0	0	0	0	22
Lane Group Flow (vph)	0	0	0	0	331	36	28	74	0	0	108	45
Confl. Peds. (#/hr)				1		2			8	8		
Confl. Bikes (#/hr)												13
Heavy Vehicles (%)	2%	15%	88%	2%	2%	2%	2%	92%	0%	2%	14%	2%
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					4			6			2	
Permitted Phases				4		4	6					2
Actuated Green, G (s)					14.6	14.6	50.9	50.9			50.9	50.9
Effective Green, g (s)					14.6	14.6	50.9	50.9			50.9	50.9
Actuated g/C Ratio					0.19	0.19	0.68	0.68			0.68	0.68
Clearance Time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Vehicle Extension (s)					2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)					679	304	864	671			2149	1057
v/s Ratio Prot								c0.07			0.03	
v/s Ratio Perm					0.09	0.02	0.02					0.03
v/c Ratio					0.49	0.12	0.03	0.11			0.05	0.04
Uniform Delay, d1					26.9	24.9	4.0	4.2			4.0	4.0
Progression Factor					1.00	1.00	1.00	1.00			1.22	1.72
Incremental Delay, d2					0.2	0.1	0.0	0.0			0.0	0.1
Delay (s)					27.1	25.0	4.0	4.2			4.9	6.9
Level of Service					C	C	A	A			A	A
Approach Delay (s)		0.0			26.3			4.1			5.7	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	30.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	634	114	85	177	24	56	129	137	137	170	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.92		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3301		1770	3438		1770	939		1770	1127	
Flt Permitted	0.95	1.00		0.95	1.00		0.60	1.00		0.51	1.00	
Satd. Flow (perm)	1770	3301		1770	3438		1112	939		950	1127	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	26	634	114	85	177	24	56	129	137	137	170	37
RTOR Reduction (vph)	0	17	0	0	11	0	0	59	0	0	12	0
Lane Group Flow (vph)	26	731	0	85	190	0	56	207	0	137	195	0
Confl. Peds. (#/hr)						50			3			3
Confl. Bikes (#/hr)			4						1			
Heavy Vehicles (%)	2%	6%	9%	2%	2%	2%	2%	74%	96%	2%	77%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Actuated Green, G (s)	1.7	21.1		4.3	24.2		17.4	17.4		17.4	17.4	
Effective Green, g (s)	1.7	21.1		4.3	24.2		17.4	17.4		17.4	17.4	
Actuated g/C Ratio	0.03	0.39		0.08	0.44		0.32	0.32		0.32	0.32	
Clearance Time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.5	3.0		3.2	3.2		3.0	3.0	
Lane Grp Cap (vph)	54	1271		138	1518		353	298		301	357	
v/s Ratio Prot	0.01	c0.22		c0.05	c0.06			c0.22			0.17	
v/s Ratio Perm							0.05			0.14		
v/c Ratio	0.48	0.57		0.62	0.13		0.16	0.69		0.46	0.55	
Uniform Delay, d1	26.1	13.3		24.5	9.0		13.4	16.4		14.9	15.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.5	0.6		6.8	0.0		0.2	6.9		1.1	1.7	
Delay (s)	28.6	13.9		31.3	9.1		13.7	23.3		16.0	17.1	
Level of Service	C	B		C	A		B	C		B	B	
Approach Delay (s)		14.4			15.7			21.6			16.7	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	54.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

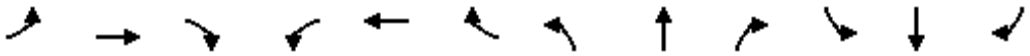
2035 + Project Mid-Range
Alternative PM Mitigated

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	183	1007	199	321	1247	174	89	398	226	136	421	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.95	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3418		1770	3539	1508	1770	1863	1536	1770	1818	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3418		1770	3539	1508	1770	1863	1536	1770	1818	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	199	1095	216	349	1355	189	97	433	246	148	458	74
RTOR Reduction (vph)	0	22	0	0	0	93	0	0	191	0	7	0
Lane Group Flow (vph)	199	1289	0	349	1355	96	97	433	55	148	525	0
Confl. Peds. (#/hr)			32			7			5			6
Confl. Bikes (#/hr)			4			9			11			3
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			
Actuated Green, G (s)	13.0	23.0		12.0	22.0	22.0	5.6	16.8	16.8	8.0	19.2	
Effective Green, g (s)	13.0	23.0		12.0	22.0	22.0	5.6	16.8	16.8	8.0	19.2	
Actuated g/C Ratio	0.17	0.30		0.16	0.29	0.29	0.07	0.22	0.22	0.11	0.25	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	303	1037		280	1027	437	130	412	340	186	460	
v/s Ratio Prot	0.11	0.38		c0.20	c0.38		0.05	0.23		c0.08	c0.29	
v/s Ratio Perm						0.06			0.04			
v/c Ratio	0.66	1.24		1.25	1.32	0.22	0.75	1.05	0.16	0.80	1.14	
Uniform Delay, d1	29.3	26.4		31.9	26.9	20.4	34.4	29.5	23.8	33.1	28.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.1	117.5		137.2	150.6	0.3	20.6	58.3	0.2	20.5	86.4	
Delay (s)	34.4	143.9		169.1	177.5	20.6	55.0	87.8	24.0	53.6	114.7	
Level of Service	C	F		F	F	C	D	F	C	D	F	
Approach Delay (s)		129.5			160.3			63.5			101.4	
Approach LOS		F			F			E			F	

Intersection Summary			
HCM 2000 Control Delay	127.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	75.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	97.1%	ICU Level of Service	F
Analysis Period (min)	15		

Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group

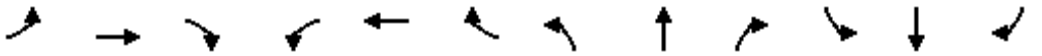


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	183	1034	470	56	846	142	914	1005	42	277	1178	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.96		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.98		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3246		1770	3423		3433	3507		1770	3443	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3246		1770	3423		3433	3507		1770	3443	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	199	1124	511	61	920	154	993	1092	46	301	1280	166
RTOR Reduction (vph)	0	46	0	0	12	0	0	3	0	0	9	0
Lane Group Flow (vph)	199	1589	0	61	1062	0	993	1135	0	301	1437	0
Confl. Peds. (#/hr)			83			52			53			68
Confl. Bikes (#/hr)			15			8			15			12
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.7	33.8		8.8	28.9		13.0	39.4		15.0	40.4	
Effective Green, g (s)	13.7	33.8		8.8	28.9		13.0	39.4		15.0	40.4	
Actuated g/C Ratio	0.12	0.31		0.08	0.26		0.12	0.36		0.14	0.37	
Clearance Time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.0	2.0		2.0	4.0		2.5	4.0	
Lane Grp Cap (vph)	220	997		141	899		405	1256		241	1264	
v/s Ratio Prot	c0.11	c0.49		0.03	0.31		c0.29	0.32		0.17	c0.42	
v/s Ratio Perm												
v/c Ratio	0.90	1.59		0.43	1.18		2.45	0.90		1.25	1.14	
Uniform Delay, d1	47.5	38.1		48.2	40.5		48.5	33.5		47.5	34.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	35.0	271.8		0.8	93.1		660.8	10.8		141.7	71.6	
Delay (s)	82.5	309.9		49.0	133.7		709.3	44.3		189.2	106.4	
Level of Service	F	F		D	F		F	D		F	F	
Approach Delay (s)		285.2			129.1			354.2			120.7	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	238.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.46		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	131.9%	ICU Level of Service	H
Analysis Period (min)	15		

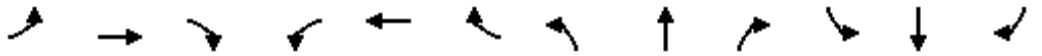
Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group



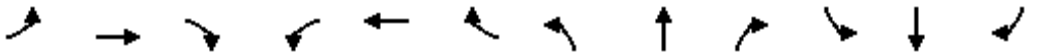
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	854	120	7	259	0	0	0	0	581	508	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5					6.5	6.5	6.5
Lane Util. Factor		0.95			0.91					0.91	0.91	1.00
Frpb, ped/bikes		0.99			1.00					1.00	1.00	0.97
Flpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Frt		0.98			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	0.98	1.00
Satd. Flow (prot)		3454			5078					1610	3339	1540
Flt Permitted		1.00			0.92					0.95	0.98	1.00
Satd. Flow (perm)		3454			4659					1610	3339	1540
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	854	120	7	259	0	0	0	0	581	508	380
RTOR Reduction (vph)	0	14	0	0	0	0	0	0	0	0	0	230
Lane Group Flow (vph)	0	960	0	0	266	0	0	0	0	354	735	150
Confl. Peds. (#/hr)	20		20	20								20
Turn Type		NA		Perm	NA					Perm	NA	Perm
Protected Phases		1			1						2	
Permitted Phases				1						2		2
Actuated Green, G (s)		36.5			36.5					31.5	31.5	31.5
Effective Green, g (s)		36.5			36.5					31.5	31.5	31.5
Actuated g/C Ratio		0.46			0.46					0.39	0.39	0.39
Clearance Time (s)		5.5			5.5					6.5	6.5	6.5
Lane Grp Cap (vph)		1575			2125					633	1314	606
v/s Ratio Prot		c0.28										
v/s Ratio Perm					0.06					0.22	0.22	0.10
v/c Ratio		0.61			0.13					0.56	0.56	0.25
Uniform Delay, d1		16.4			12.5					18.9	18.9	16.3
Progression Factor		1.00			0.38					1.00	1.00	1.00
Incremental Delay, d2		1.8			0.1					3.5	1.7	1.0
Delay (s)		18.2			4.9					22.4	20.6	17.3
Level of Service		B			A					C	C	B
Approach Delay (s)		18.2			4.9			0.0			20.2	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



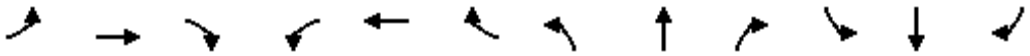
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	447	997	0	0	250	934	34	1135	55	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1610	3383			3539	2703		5036				
Flt Permitted	0.95	0.94			1.00	1.00		1.00				
Satd. Flow (perm)	1610	3182			3539	2703		5036				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	447	997	0	0	250	934	34	1135	55	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	73	0	6	0	0	0	0
Lane Group Flow (vph)	402	1042	0	0	250	861	0	1218	0	0	0	0
Confl. Peds. (#/hr)						20			20			
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	20.5	49.9			25.9	25.9		19.1				
Effective Green, g (s)	20.5	49.9			25.9	25.9		19.1				
Actuated g/C Ratio	0.26	0.62			0.32	0.32		0.24				
Clearance Time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Grp Cap (vph)	412	2036			1145	875		1202				
v/s Ratio Prot	c0.25	0.13			0.07							
v/s Ratio Perm		0.19				c0.32		0.24				
v/c Ratio	0.98	0.51			0.22	0.98		1.01				
Uniform Delay, d1	29.5	8.3			19.7	26.8		30.4				
Progression Factor	0.87	1.78			1.00	1.00		1.00				
Incremental Delay, d2	34.4	0.8			0.4	26.8		29.3				
Delay (s)	60.1	15.6			20.1	53.6		59.7				
Level of Service	E	B			C	D		E				
Approach Delay (s)		28.0			46.6			59.7			0.0	
Approach LOS		C			D			E			A	

Intersection Summary			
HCM 2000 Control Delay	43.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	99.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



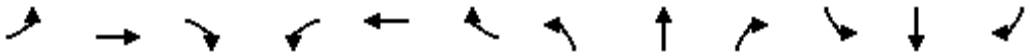
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	878	410	248	1555	35	756	32	468	75	35	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3312	1214	1289	3383		1649	1575	1240	1480	1389	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3312	1214	1289	3383		1649	1575	1240	1480	1389	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	878	410	248	1555	35	756	32	468	75	35	73
RTOR Reduction (vph)	0	0	256	0	1	0	0	0	290	0	55	0
Lane Group Flow (vph)	15	878	154	248	1589	0	393	395	178	75	53	0
Confl. Peds. (#/hr)						1			3			
Heavy Vehicles (%)	0%	9%	33%	40%	5%	65%	4%	73%	28%	22%	50%	10%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases			2						8			
Actuated Green, G (s)	2.3	44.1	44.1	27.8	69.6		35.9	35.9	35.9	8.5	8.5	
Effective Green, g (s)	2.3	44.1	44.1	27.8	69.6		35.9	35.9	35.9	8.5	8.5	
Actuated g/C Ratio	0.02	0.33	0.33	0.21	0.52		0.27	0.27	0.27	0.06	0.06	
Clearance Time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	3.0	4.5	4.5	3.0	4.5		4.0	4.0	4.0	3.0	3.0	
Lane Grp Cap (vph)	31	1099	403	269	1773		445	425	335	94	88	
v/s Ratio Prot	0.01	0.27		c0.19	c0.47		0.24	c0.25		c0.05	0.04	
v/s Ratio Perm			0.13						0.14			
v/c Ratio	0.48	0.80	0.38	0.92	0.90		0.88	0.93	0.53	0.80	0.60	
Uniform Delay, d1	64.7	40.3	33.9	51.4	28.4		46.4	47.2	41.3	61.3	60.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	11.4	4.6	1.0	34.7	6.7		18.7	26.8	2.1	36.1	10.5	
Delay (s)	76.1	44.9	35.0	86.1	35.0		65.2	74.1	43.3	97.4	71.0	
Level of Service	E	D	C	F	D		E	E	D	F	E	
Approach Delay (s)		42.2			41.9			59.8			81.8	
Approach LOS		D			D			E			F	

Intersection Summary			
HCM 2000 Control Delay	48.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	132.8	Sum of lost time (s)	16.5
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



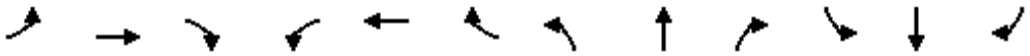
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	251	718	449	446	1405	240	365	354	450	152	170	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	0.92		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1337	3000		1687	3406	1509	1444	2894		1369	2575	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1337	3000		1687	3406	1509	1444	2894		1369	2575	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	251	718	449	446	1405	240	365	354	450	152	170	76
RTOR Reduction (vph)	0	71	0	0	0	116	0	166	0	0	28	0
Lane Group Flow (vph)	251	1096	0	446	1405	124	365	638	0	134	236	0
Confl. Peds. (#/hr)									1			
Heavy Vehicles (%)	35%	13%	14%	7%	6%	7%	25%	14%	13%	20%	16%	57%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	20.5	44.0		31.5	55.0	55.0	35.5	35.5		12.0	12.0	
Effective Green, g (s)	20.5	44.0		31.5	55.0	55.0	35.5	35.5		12.0	12.0	
Actuated g/C Ratio	0.15	0.32		0.23	0.39	0.39	0.25	0.25		0.09	0.09	
Clearance Time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	196	946		380	1342	594	367	736		117	221	
v/s Ratio Prot	c0.19	c0.37		c0.26	0.41		c0.25	0.22		c0.10	0.09	
v/s Ratio Perm						0.08						
v/c Ratio	1.28	1.16		1.17	1.05	0.21	0.99	0.87		1.15	1.07	
Uniform Delay, d1	59.5	47.8		54.0	42.2	27.9	51.9	49.7		63.8	63.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	159.5	83.5		102.6	37.8	0.2	45.3	10.4		127.5	79.2	
Delay (s)	219.0	131.2		156.6	80.1	28.1	97.2	60.1		191.3	143.0	
Level of Service	F	F		F	F	C	F	E		F	F	
Approach Delay (s)		146.8			90.4			71.7			159.2	
Approach LOS		F			F			E			F	

Intersection Summary			
HCM 2000 Control Delay	107.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	139.5	Sum of lost time (s)	16.5
Intersection Capacity Utilization	105.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1105	178	235	1427	0	0	0	0	654	618	480
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						5.0	
Lane Util. Factor		0.91		1.00	0.95						0.95	
Frpb, ped/bikes		1.00		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.98		1.00	1.00						0.96	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		4839		1767	3312						3268	
Flt Permitted		1.00		0.15	1.00						0.98	
Satd. Flow (perm)		4839		286	3312						3268	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1105	178	235	1427	0	0	0	0	654	618	480
RTOR Reduction (vph)	0	25	0	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	1258	0	235	1427	0	0	0	0	0	1739	0
Confl. Peds. (#/hr)			8	8						10		10
Heavy Vehicles (%)	16%	5%	2%	2%	9%	2%	1%	0%	0%	2%	2%	7%
Turn Type		NA		Perm	NA					Split	NA	
Protected Phases		4			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		43.0		43.0	43.0						34.0	
Effective Green, g (s)		43.0		43.0	43.0						34.0	
Actuated g/C Ratio		0.49		0.49	0.49						0.39	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		2391		141	1636						1277	
v/s Ratio Prot		0.26			0.43						c0.53	
v/s Ratio Perm				c0.82								
v/c Ratio		0.53		1.67	0.87						1.36	
Uniform Delay, d1		15.0		22.0	19.6						26.5	
Progression Factor		1.00		0.28	0.27						1.00	
Incremental Delay, d2		0.1		302.8	0.5						168.0	
Delay (s)		15.1		309.0	5.7						194.5	
Level of Service		B		F	A						F	
Approach Delay (s)		15.1			48.6			0.0			194.5	
Approach LOS		B			D			A			F	

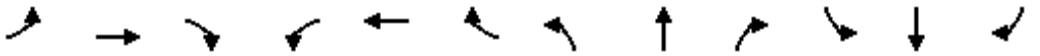
Intersection Summary			
HCM 2000 Control Delay	93.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.53		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	170.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	424	1335	0	0	1555	443	107	542	178	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0				
Lane Util. Factor	1.00	0.95			0.95			0.95				
Frpb, ped/bikes	1.00	1.00			0.99			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.97			0.97				
Flt Protected	0.95	1.00			1.00			0.99				
Satd. Flow (prot)	1770	3539			3399			3387				
Flt Permitted	0.09	1.00			1.00			0.99				
Satd. Flow (perm)	173	3539			3399			3387				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	424	1335	0	0	1555	443	107	542	178	0	0	0
RTOR Reduction (vph)	0	0	0	0	30	0	0	17	0	0	0	0
Lane Group Flow (vph)	424	1335	0	0	1968	0	0	810	0	0	0	0
Confl. Peds. (#/hr)	10					10			10			
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)	43.0	43.0			43.0			34.0				
Effective Green, g (s)	43.0	43.0			43.0			34.0				
Actuated g/C Ratio	0.49	0.49			0.49			0.39				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Vehicle Extension (s)	2.0	2.0			2.0			2.0				
Lane Grp Cap (vph)	85	1749			1679			1323				
v/s Ratio Prot		0.38			0.58			c0.24				
v/s Ratio Perm	c2.45											
v/c Ratio	4.99	0.76			1.17			0.61				
Uniform Delay, d1	22.0	17.9			22.0			21.2				
Progression Factor	0.90	0.85			1.00			1.00				
Incremental Delay, d2	1808.3	1.0			84.1			0.6				
Delay (s)	1828.0	16.1			106.1			21.8				
Level of Service	F	B			F			C				
Approach Delay (s)		452.8			106.1			21.8			0.0	
Approach LOS		F			F			C			A	

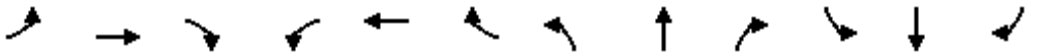
Intersection Summary			
HCM 2000 Control Delay	223.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	3.04		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	170.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	1107	369	103	1626	26	248	214	166	104	281	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	1.00		1.00	0.93		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	3331		1769	3367		1760	1721		1763	1781	
Flt Permitted	0.08	1.00		0.10	1.00		0.31	1.00		0.30	1.00	
Satd. Flow (perm)	154	3331		192	3367		572	1721		551	1781	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	60	1107	369	103	1626	26	248	214	166	104	281	91
RTOR Reduction (vph)	0	41	0	0	2	0	0	35	0	0	14	0
Lane Group Flow (vph)	60	1435	0	103	1650	0	248	345	0	104	358	0
Confl. Peds. (#/hr)	8		7	7		8	11		8	8		11
Confl. Bikes (#/hr)			9			11			8			10
Heavy Vehicles (%)	2%	4%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	48.5	48.5		48.5	48.5		23.0	23.0		23.0	23.0	
Effective Green, g (s)	48.5	48.5		48.5	48.5		23.0	23.0		23.0	23.0	
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.29	0.29		0.29	0.29	
Clearance Time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	93	2019		116	2041		164	494		158	512	
v/s Ratio Prot		0.43			0.49			0.20			0.20	
v/s Ratio Perm	0.39			c0.54			c0.43			0.19		
v/c Ratio	0.65	0.71		0.89	0.81		1.51	0.70		0.66	0.70	
Uniform Delay, d1	10.2	10.9		13.4	12.2		28.5	25.4		25.0	25.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	29.7	2.2		57.5	3.6		259.3	8.0		19.5	7.7	
Delay (s)	39.9	13.1		70.9	15.7		287.8	33.4		44.5	33.1	
Level of Service	D	B		E	B		F	C		D	C	
Approach Delay (s)		14.1			19.0			133.9			35.6	
Approach LOS		B			B			F			D	

Intersection Summary			
HCM 2000 Control Delay	35.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	131.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



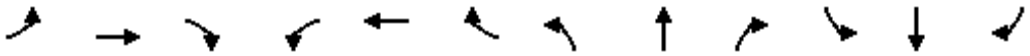
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	1328	80	55	1203	9	357	565	133	29	12	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Lane Util. Factor		0.95			0.95	1.00	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00			1.00	0.94	1.00	1.00	0.95		1.00	0.95
Flpb, ped/bikes		1.00			1.00	1.00	0.97	1.00	1.00		1.00	1.00
Frt		0.99			1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected		1.00			1.00	1.00	0.95	1.00	1.00		0.97	1.00
Satd. Flow (prot)		3429			3306	1490	1640	1827	1505		1799	1500
Flt Permitted		0.72			0.73	1.00	0.73	1.00	1.00		0.41	1.00
Satd. Flow (perm)		2464			2413	1490	1261	1827	1505		755	1500
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	79	1328	80	55	1203	9	357	565	133	29	12	44
RTOR Reduction (vph)	0	4	0	0	0	2	0	0	36	0	0	31
Lane Group Flow (vph)	0	1483	0	0	1258	7	357	565	97	0	41	13
Confl. Peds. (#/hr)	21		15	15		21	27		25	25		27
Confl. Bikes (#/hr)			18			17			16			17
Heavy Vehicles (%)	2%	4%	3%	30%	8%	2%	7%	4%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		4
Actuated Green, G (s)		53.7			53.7	53.7	27.3	27.3	27.3		27.3	27.3
Effective Green, g (s)		53.7			53.7	53.7	27.3	27.3	27.3		27.3	27.3
Actuated g/C Ratio		0.60			0.60	0.60	0.30	0.30	0.30		0.30	0.30
Clearance Time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Vehicle Extension (s)		2.0			2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1470			1439	889	382	554	456		229	455
v/s Ratio Prot								c0.31				
v/s Ratio Perm		c0.60			0.52	0.00	0.28		0.06		0.05	0.01
v/c Ratio		1.01			0.87	0.01	0.93	1.02	0.21		0.18	0.03
Uniform Delay, d1		18.1			15.3	7.4	30.5	31.4	23.4		23.1	22.0
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2		25.6			7.7	0.0	29.4	43.3	0.1		0.1	0.0
Delay (s)		43.7			23.0	7.4	59.9	74.7	23.4		23.2	22.0
Level of Service		D			C	A	E	E	C		C	C
Approach Delay (s)		43.7			22.8			63.2			22.6	
Approach LOS		D			C			E			C	

Intersection Summary			
HCM 2000 Control Delay	41.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	118.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	203	1101	338	96	839	39	545	686	157	176	890	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.97	
Flt Protected		0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3481	1482	1770	3195	1540	1732	3425		1764	3427	
Flt Permitted		0.57	1.00	0.12	1.00	1.00	0.18	1.00		0.27	1.00	
Satd. Flow (perm)		2001	1482	233	3195	1540	326	3425		506	3427	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	203	1101	338	96	839	39	545	686	157	176	890	199
RTOR Reduction (vph)	0	0	63	0	0	20	0	9	0	0	22	0
Lane Group Flow (vph)	0	1304	275	96	839	19	545	834	0	176	1067	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Heavy Vehicles (%)	2%	3%	6%	2%	13%	2%	4%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4		4	2			6		
Actuated Green, G (s)		32.0	32.0	32.0	32.0	32.0	43.5	43.5		43.5	43.5	
Effective Green, g (s)		32.0	32.0	32.0	32.0	32.0	43.5	43.5		43.5	43.5	
Actuated g/C Ratio		0.38	0.38	0.38	0.38	0.38	0.51	0.51		0.51	0.51	
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0		4.0	4.0	
Lane Grp Cap (vph)		753	557	87	1202	579	166	1752		258	1753	
v/s Ratio Prot					0.26			0.24			0.31	
v/s Ratio Perm		c0.65	0.19	0.41		0.01	c1.67			0.35		
v/c Ratio		1.73	0.49	1.10	0.70	0.03	3.28	0.48		0.68	0.61	
Uniform Delay, d1		26.5	20.3	26.5	22.4	16.7	20.8	13.4		15.6	14.7	
Progression Factor		1.00	1.00	0.57	0.61	0.12	1.00	1.00		1.00	1.00	
Incremental Delay, d2		334.8	3.1	120.5	2.9	0.1	1042.8	0.4		7.8	0.7	
Delay (s)		361.3	23.4	135.6	16.7	2.2	1063.5	13.8		23.4	15.4	
Level of Service		F	C	F	B	A	F	B		C	B	
Approach Delay (s)		291.8			27.8			426.0			16.5	
Approach LOS		F			C			F			B	

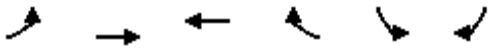
Intersection Summary			
HCM 2000 Control Delay	212.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.62		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	136.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	1124	25	63	1023	57	27	225	346	35	77	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.96		1.00	0.94		0.97	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1586	3154	1360	1585	3065	1375		3160	1171		2844	
Flt Permitted	0.23	1.00	1.00	0.20	1.00	1.00		0.91	1.00		0.88	
Satd. Flow (perm)	379	3154	1360	325	3065	1375		2890	1171		2511	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	119	1124	25	63	1023	57	27	225	346	35	77	98
RTOR Reduction (vph)	0	0	6	0	0	17	0	0	45	0	61	0
Lane Group Flow (vph)	119	1124	19	63	1023	40	0	252	301	0	149	0
Confl. Peds. (#/hr)	22		31	31		22	34		37	37		34
Confl. Bikes (#/hr)			7			3			12			19
Heavy Vehicles (%)	2%	3%	2%	2%	6%	2%	2%	2%	17%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4		4	2		2	2		
Actuated Green, G (s)	51.6	51.6	51.6	51.6	51.6	51.6		24.9	24.9		24.9	
Effective Green, g (s)	51.6	51.6	51.6	51.6	51.6	51.6		24.9	24.9		24.9	
Actuated g/C Ratio	0.61	0.61	0.61	0.61	0.61	0.61		0.29	0.29		0.29	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	230	1914	825	197	1860	834		846	343		735	
v/s Ratio Prot		c0.36			0.33							
v/s Ratio Perm	0.31		0.01	0.19		0.03		0.09	c0.26		0.06	
v/c Ratio	0.52	0.59	0.02	0.32	0.55	0.05		0.30	0.88		0.20	
Uniform Delay, d1	9.6	10.2	6.7	8.1	9.9	6.8		23.3	28.6		22.6	
Progression Factor	0.92	1.01	0.97	1.45	1.43	1.62		1.00	1.00		1.00	
Incremental Delay, d2	0.8	0.1	0.0	3.3	0.9	0.1		0.1	20.8		0.0	
Delay (s)	9.5	10.4	6.4	15.1	15.1	11.0		23.4	49.4		22.6	
Level of Service	A	B	A	B	B	B		C	D		C	
Approach Delay (s)		10.2			14.9			38.4			22.6	
Approach LOS		B			B			D			C	

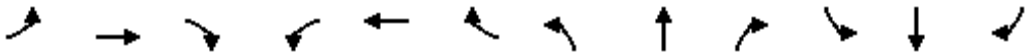
Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



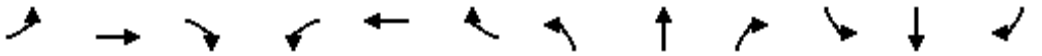
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	475	938	805	525	267	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	0.99	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.97	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.96	1.00
Satd. Flow (prot)	1577	3094	3065	1382	2977	1213
Flt Permitted	0.95	1.00	1.00	1.00	0.96	1.00
Satd. Flow (perm)	1577	3094	3065	1382	2977	1213
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	475	938	805	525	267	212
RTOR Reduction (vph)	0	0	0	240	27	126
Lane Group Flow (vph)	475	938	805	285	301	25
Confl. Peds. (#/hr)				15	15	15
Heavy Vehicles (%)	3%	5%	6%	2%	3%	6%
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	30.6	62.7	28.1	28.1	14.3	14.3
Effective Green, g (s)	30.6	62.7	28.1	28.1	14.3	14.3
Actuated g/C Ratio	0.36	0.74	0.33	0.33	0.17	0.17
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	567	2282	1013	456	500	204
v/s Ratio Prot	c0.30	0.30	c0.26		c0.10	
v/s Ratio Perm				0.21		0.02
v/c Ratio	0.84	0.41	0.79	0.62	0.60	0.12
Uniform Delay, d1	24.9	4.2	25.8	24.0	32.7	30.0
Progression Factor	0.92	0.95	1.12	1.36	1.00	1.00
Incremental Delay, d2	8.0	0.4	0.4	0.2	1.4	0.1
Delay (s)	31.0	4.4	29.4	32.9	34.1	30.1
Level of Service	C	A	C	C	C	C
Approach Delay (s)		13.3	30.8		32.9	
Approach LOS		B	C		C	

Intersection Summary			
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	148	906	33	125	797	92	402	1104	298	91	438	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00	0.92	1.00	0.98	
Flpb, ped/bikes	0.99	1.00			1.00		0.98	1.00	1.00	0.99	1.00	
Frt	1.00	0.99			0.99		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1580	3162			3101		1563	3185	1309	1578	2991	
Flt Permitted	0.17	1.00			0.62		0.35	1.00	1.00	0.13	1.00	
Satd. Flow (perm)	285	3162			1928		580	3185	1309	221	2991	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	148	906	33	125	797	92	402	1104	298	91	438	172
RTOR Reduction (vph)	0	3	0	0	9	0	0	0	33	0	46	0
Lane Group Flow (vph)	148	936	0	0	1005	0	402	1104	265	91	564	0
Confl. Peds. (#/hr)	46		47	47		46	57		65	65		57
Confl. Bikes (#/hr)			9			21			15			22
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	39.0	39.0			39.0		38.0	38.0	38.0	38.0	38.0	
Effective Green, g (s)	39.0	39.0			39.0		38.0	38.0	38.0	38.0	38.0	
Actuated g/C Ratio	0.46	0.46			0.46		0.45	0.45	0.45	0.45	0.45	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	130	1450			884		259	1423	585	98	1337	
v/s Ratio Prot		0.30						0.35			0.19	
v/s Ratio Perm	0.52				c0.52		c0.69		0.20	0.41		
v/c Ratio	1.14	0.65			1.14		1.55	0.78	0.45	0.93	0.42	
Uniform Delay, d1	23.0	17.7			23.0		23.5	19.9	16.3	22.2	16.0	
Progression Factor	0.83	0.86			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	118.2	2.1			75.6		266.7	2.5	0.2	66.6	0.1	
Delay (s)	137.2	17.2			98.6		290.2	22.4	16.5	88.8	16.1	
Level of Service	F	B			F		F	C	B	F	B	
Approach Delay (s)		33.6			98.6			81.1			25.5	
Approach LOS		C			F			F			C	

Intersection Summary			
HCM 2000 Control Delay	65.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	123.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	324	871	233	463	720	76	10	1944	730	3	1257	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	4.0		5.5	5.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.98		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)	3090	3154	1349	3090	3185	1349		4575	1391		4576	1349
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.93	1.00		0.93	1.00
Satd. Flow (perm)	3090	3154	1349	3090	3185	1349		4253	1391		4241	1349
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	324	871	233	463	720	76	10	1944	730	3	1257	211
RTOR Reduction (vph)	0	0	65	0	0	53	0	0	0	0	0	79
Lane Group Flow (vph)	324	871	168	463	720	24	0	1954	730	0	1260	132
Confl. Peds. (#/hr)			40			40	40		40	40		40
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Free	Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases			8			4	2		Free	6		6
Actuated Green, G (s)	11.0	27.5	27.5	12.0	28.5	28.5		40.5	95.0		40.5	40.5
Effective Green, g (s)	11.0	27.5	27.5	12.0	28.5	28.5		40.5	95.0		40.5	40.5
Actuated g/C Ratio	0.12	0.29	0.29	0.13	0.30	0.30		0.43	1.00		0.43	0.43
Clearance Time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	357	913	390	390	955	404		1813	1391		1808	575
v/s Ratio Prot	0.10	c0.28		c0.15	0.23							
v/s Ratio Perm			0.12			0.02		c0.46	0.52		0.30	0.10
v/c Ratio	0.91	0.95	0.43	1.19	0.75	0.06		1.08	0.52		0.70	0.23
Uniform Delay, d1	41.5	33.1	27.4	41.5	30.1	23.7		27.2	0.0		22.2	17.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	25.7	20.5	3.4	107.2	5.5	0.3		45.6	1.4		1.2	0.2
Delay (s)	67.2	53.7	30.8	148.7	35.6	24.0		72.8	1.4		23.4	17.5
Level of Service	E	D	C	F	D	C		E	A		C	B
Approach Delay (s)		53.0			76.5			53.4			22.6	
Approach LOS		D			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	50.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	103.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

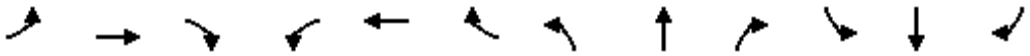
Site: 2035 + Proj Mid Alt PM

Adeline & 18th
2035 + Project Mid-Range Alternative PM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	21	2.0	0.930	43.2	LOS E	14.8	376.5	1.00	1.53	16.4
8	T	526	2.0	0.930	43.2	LOS E	14.8	376.5	1.00	1.53	16.6
18	R	101	2.0	0.930	43.2	LOS E	14.8	376.5	1.00	1.53	16.5
Approach		648	2.0	0.930	43.2	LOS E	14.8	376.5	1.00	1.53	16.5
East: 18th Street (WB)											
1	L	13	2.0	0.252	7.7	LOS A	1.1	28.0	0.63	0.98	26.6
6	T	122	2.0	0.252	7.7	LOS A	1.1	28.0	0.63	0.78	29.0
16	R	54	2.0	0.252	7.7	LOS A	1.1	28.0	0.63	0.82	28.7
Approach		189	2.0	0.252	7.7	LOS A	1.1	28.0	0.63	0.81	28.7
North: Adeline Street (SB)											
7	L	325	2.0	0.627	11.0	LOS B	5.4	136.8	0.59	0.74	24.9
4	T	364	2.0	0.627	11.0	LOS B	5.4	136.8	0.59	0.56	26.9
14	R	64	2.0	0.627	11.0	LOS B	5.4	136.8	0.59	0.60	26.6
Approach		753	2.0	0.627	11.0	LOS B	5.4	136.8	0.59	0.64	25.9
West: 18th Street (EB)											
5	L	72	2.0	0.601	15.8	LOS C	4.1	103.0	0.81	1.09	23.3
2	T	294	2.0	0.601	15.8	LOS C	4.1	103.0	0.81	0.99	24.7
12	R	48	2.0	0.601	15.8	LOS C	4.1	103.0	0.81	1.02	24.5
Approach		414	2.0	0.601	15.8	LOS C	4.1	103.0	0.81	1.01	24.4
All Vehicles		2004	2.0	0.930	22.1	LOS C	14.8	376.5	0.77	1.02	21.9

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	134	483	45	16	114	102	59	765	52	45	191	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99			0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.98	1.00			1.00	
Frt	1.00	0.99		1.00	0.93		1.00	0.99			0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1755	1831		1748	1711		1728	3486			3429	
Flt Permitted	0.56	1.00		0.18	1.00		0.59	1.00			0.79	
Satd. Flow (perm)	1043	1831		323	1711		1075	3486			2745	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	134	483	45	16	114	102	59	765	52	45	191	24
RTOR Reduction (vph)	0	5	0	0	48	0	0	7	0	0	10	0
Lane Group Flow (vph)	134	523	0	16	168	0	59	810	0	0	250	0
Confl. Peds. (#/hr)	14		44	44		14	37		71	71		37
Confl. Bikes (#/hr)			6			2			2			11
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	22.8	22.8		22.8	22.8		37.1	37.1			37.1	
Effective Green, g (s)	22.8	22.8		22.8	22.8		37.1	37.1			37.1	
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.55	0.55			0.55	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	350	614		108	574		587	1904			1499	
v/s Ratio Prot		c0.29			0.10			c0.23				
v/s Ratio Perm	0.13			0.05			0.05				0.09	
v/c Ratio	0.38	0.85		0.15	0.29		0.10	0.43			0.17	
Uniform Delay, d1	17.2	21.0		15.8	16.6		7.4	9.1			7.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.7	11.0		0.6	0.3		0.3	0.7			0.2	
Delay (s)	17.9	32.0		16.4	16.9		7.7	9.8			7.9	
Level of Service	B	C		B	B		A	A			A	
Approach Delay (s)		29.2			16.9			9.7			7.9	
Approach LOS		C			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	67.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	91.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

Adeline & 14th
2035 + Project Mid-Range Alternative PM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	18	2.0	0.623	12.6	LOS B	5.3	133.5	0.75	0.98	24.6
8	T	542	2.0	0.623	12.6	LOS B	5.3	133.5	0.75	0.84	26.3
18	R	53	2.0	0.623	12.6	LOS B	5.3	133.5	0.75	0.87	26.1
Approach		613	2.0	0.623	12.6	LOS B	5.3	133.5	0.75	0.84	26.2
East: 14th Street (WB)											
1	L	90	2.0	0.437	10.7	LOS B	2.4	60.3	0.71	1.01	25.2
6	T	203	2.0	0.437	10.7	LOS B	2.4	60.3	0.71	0.87	27.1
16	R	35	2.0	0.437	10.7	LOS B	2.4	60.3	0.71	0.90	26.9
Approach		328	2.0	0.437	10.7	LOS B	2.4	60.3	0.71	0.91	26.5
North: Adeline Street (SB)											
7	L	63	2.0	0.399	7.8	LOS A	2.2	56.7	0.57	0.87	26.4
4	T	313	2.0	0.399	7.8	LOS A	2.2	56.7	0.57	0.65	28.9
14	R	34	2.0	0.399	7.8	LOS A	2.2	56.7	0.57	0.69	28.6
Approach		410	2.0	0.399	7.8	LOS A	2.2	56.7	0.57	0.69	28.4
West: 14th Street (EB)											
5	L	58	2.0	0.368	8.3	LOS A	1.9	47.0	0.63	0.94	26.2
2	T	231	2.0	0.368	8.3	LOS A	1.9	47.0	0.63	0.75	28.5
12	R	34	2.0	0.368	8.3	LOS A	1.9	47.0	0.63	0.79	28.3
Approach		323	2.0	0.368	8.3	LOS A	1.9	47.0	0.63	0.78	28.0
All Vehicles		1674	2.0	0.623	10.2	LOS B	5.3	133.5	0.67	0.81	27.1

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.

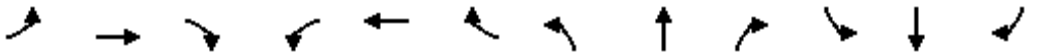
MOVEMENT SUMMARY

Adeline & 12th
2035 + Project Mid-Range Alternative PM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	1	2.0	0.363	6.1	LOS A	2.3	57.4	0.27	0.86	27.0
8	T	469	2.0	0.363	6.1	LOS A	2.3	57.4	0.27	0.44	30.1
18	R	7	2.0	0.363	6.1	LOS A	2.3	57.4	0.27	0.53	29.6
Approach		477	2.0	0.363	6.1	LOS A	2.3	57.4	0.27	0.44	30.1
East: 12th Street (WB)											
1	L	10	2.0	0.188	6.1	LOS A	0.8	21.0	0.56	0.88	27.1
6	T	21	2.0	0.188	6.1	LOS A	0.8	21.0	0.56	0.67	29.8
16	R	132	2.0	0.188	6.1	LOS A	0.8	21.0	0.56	0.72	29.5
Approach		163	2.0	0.188	6.1	LOS A	0.8	21.0	0.56	0.72	29.4
North: Adeline Street (SB)											
7	L	57	2.0	0.306	5.3	LOS A	1.8	45.9	0.16	0.86	27.3
4	T	353	2.0	0.306	5.3	LOS A	1.8	45.9	0.16	0.41	30.6
14	R	8	2.0	0.306	5.3	LOS A	1.8	45.9	0.16	0.50	30.0
Approach		418	2.0	0.306	5.3	LOS A	1.8	45.9	0.16	0.47	30.1
West: 12th Street (EB)											
5	L	8	2.0	0.017	4.0	LOS A	0.1	1.8	0.47	0.75	28.0
2	T	5	2.0	0.017	4.0	LOS A	0.1	1.8	0.47	0.52	31.1
12	R	3	2.0	0.017	4.0	LOS A	0.1	1.8	0.47	0.57	30.7
Approach		16	2.0	0.017	4.0	LOS A	0.1	1.8	0.47	0.65	29.4
All Vehicles		1074	2.0	0.363	5.8	LOS A	2.3	57.4	0.27	0.50	30.0

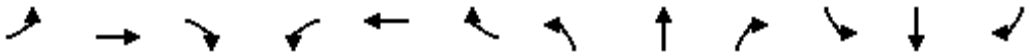
Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	253	185	0	0	173	232	156	505	219	239	0	507
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			0.98		1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frt	1.00	1.00			0.91		1.00	0.96		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1367	3312			2607		972	2915		1556		2472
Flt Permitted	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (perm)	1367	3312			2607		972	2915		1556		2472
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	253	185	0	0	173	232	156	505	219	239	0	507
RTOR Reduction (vph)	0	0	0	0	200	0	0	37	0	0	0	415
Lane Group Flow (vph)	253	185	0	0	205	0	140	703	0	239	0	92
Confl. Peds. (#/hr)						14						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	32%	9%	0%	0%	25%	24%	69%	12%	12%	16%	0%	15%
Turn Type	Prot	NA			NA		Split	NA		Prot		custom
Protected Phases	1	6			2		4	4		3		3
Permitted Phases												
Actuated Green, G (s)	20.9	37.5			13.1		26.5	26.5		17.1		17.1
Effective Green, g (s)	20.9	37.5			13.1		26.5	26.5		17.1		17.1
Actuated g/C Ratio	0.22	0.40			0.14		0.28	0.28		0.18		0.18
Clearance Time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	303	1319			362		273	820		282		449
v/s Ratio Prot	c0.19	0.06			c0.08		0.14	c0.24		c0.15		0.04
v/s Ratio Perm												
v/c Ratio	0.83	0.14			0.57		0.51	0.86		0.85		0.21
Uniform Delay, d1	35.0	18.0			37.9		28.4	32.0		37.2		32.7
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	17.0	0.0			1.7		1.2	8.7		20.1		0.2
Delay (s)	51.9	18.1			39.5		29.6	40.8		57.3		32.9
Level of Service	D	B			D		C	D		E		C
Approach Delay (s)		37.6			39.5			39.0			40.7	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	39.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	94.1	Sum of lost time (s)	16.5
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

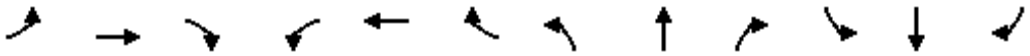
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	679	22	102	635	380	20	108	30	405	162	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.97			1.00		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		0.99	1.00	
Frt	1.00	1.00		1.00	0.94			0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1770	3378		1770	3173			1781		1756	1752	
Flt Permitted	0.95	1.00		0.95	1.00			0.96		0.63	1.00	
Satd. Flow (perm)	1770	3378		1770	3173			1711		1172	1752	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	85	679	22	102	635	380	20	108	30	405	162	46
RTOR Reduction (vph)	0	2	0	0	89	0	0	11	0	0	12	0
Lane Group Flow (vph)	85	699	0	102	926	0	0	147	0	405	196	0
Confl. Peds. (#/hr)			58			47	70		8	8		70
Confl. Bikes (#/hr)			15			6			9			38
Heavy Vehicles (%)	2%	6%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	6.2	37.0		7.9	38.7			34.1		34.1	34.1	
Effective Green, g (s)	6.2	37.0		7.9	38.7			34.1		34.1	34.1	
Actuated g/C Ratio	0.07	0.41		0.09	0.43			0.38		0.38	0.38	
Clearance Time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	121	1388		155	1364			648		444	663	
v/s Ratio Prot	c0.05	0.21		0.06	c0.29						0.11	
v/s Ratio Perm								0.09		c0.35		
v/c Ratio	0.70	0.50		0.66	0.68			0.23		0.91	0.29	
Uniform Delay, d1	41.0	19.7		39.7	20.6			19.0		26.5	19.5	
Progression Factor	0.95	0.92		0.98	0.67			1.00		1.00	1.00	
Incremental Delay, d2	14.0	0.1		7.4	2.7			0.1		22.5	0.1	
Delay (s)	52.8	18.1		46.3	16.6			19.1		49.0	19.6	
Level of Service	D	B		D	B			B		D	B	
Approach Delay (s)		21.9			19.3			19.1			39.0	
Approach LOS		C			B			B			D	

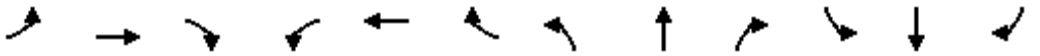
Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	1571	44	70	1335	254	42	116	122	92	116	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.99	1.00		0.99	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.92		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1765	3383		1054	3471	1460	1574	1062		1758	1574	
Flt Permitted	0.12	1.00		0.09	1.00	1.00	0.63	1.00		0.53	1.00	
Satd. Flow (perm)	216	3383		101	3471	1460	1042	1062		972	1574	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	62	1571	44	70	1335	254	42	116	122	92	116	45
RTOR Reduction (vph)	0	2	0	0	0	114	0	13	0	0	18	0
Lane Group Flow (vph)	62	1613	0	70	1335	140	42	225	0	92	143	0
Confl. Peds. (#/hr)	21		23	23		21	9		11	11		9
Confl. Bikes (#/hr)			4			5						1
Heavy Vehicles (%)	2%	6%	11%	71%	4%	6%	14%	50%	76%	2%	20%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	44.0	44.0		44.0	44.0	44.0	28.0	28.0		28.0	28.0	
Effective Green, g (s)	44.0	44.0		44.0	44.0	44.0	28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.55	0.55		0.55	0.55	0.55	0.35	0.35		0.35	0.35	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	118	1860		55	1909	803	364	371		340	550	
v/s Ratio Prot		0.48			0.38			c0.21			0.09	
v/s Ratio Perm	0.29			c0.69		0.10	0.04			0.09		
v/c Ratio	0.53	0.87		1.27	0.70	0.17	0.12	0.61		0.27	0.26	
Uniform Delay, d1	11.4	15.5		18.0	13.2	9.0	17.6	21.5		18.7	18.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	15.7	5.8		211.4	2.2	0.5	0.6	7.2		2.0	1.2	
Delay (s)	27.1	21.2		229.4	15.3	9.4	18.3	28.6		20.6	19.7	
Level of Service	C	C		F	B	A	B	C		C	B	
Approach Delay (s)		21.5			23.5			27.1			20.1	
Approach LOS		C			C			C			C	

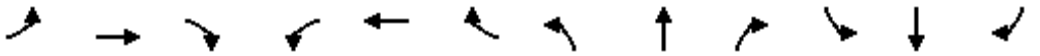
Intersection Summary			
HCM 2000 Control Delay	22.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	104	1366	74	25	998	68	513	385	35	78	57	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1668	4281		1767	4531		1742	1863	1538	1755	3539	1216
Flt Permitted	0.20	1.00		0.11	1.00		0.72	1.00	1.00	0.42	1.00	1.00
Satd. Flow (perm)	349	4281		201	4531		1316	1863	1538	777	3539	1216
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	104	1366	74	25	998	68	513	385	35	78	57	111
RTOR Reduction (vph)	0	7	0	0	9	0	0	0	14	0	0	26
Lane Group Flow (vph)	104	1433	0	25	1057	0	513	385	21	78	57	85
Confl. Peds. (#/hr)	10		20	20		10	8		20	20		8
Confl. Bikes (#/hr)			7			3						6
Heavy Vehicles (%)	8%	21%	2%	2%	14%	2%	3%	2%	2%	2%	2%	30%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	37.0	37.0		37.0	37.0		38.5	38.5	38.5	38.5	38.5	38.5
Effective Green, g (s)	37.0	37.0		37.0	37.0		38.5	38.5	38.5	38.5	38.5	38.5
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.45	0.45	0.45	0.45	0.45	0.45
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	151	1863		87	1972		596	843	696	351	1602	550
v/s Ratio Prot		c0.33			0.23			0.21			0.02	
v/s Ratio Perm	0.30			0.12			c0.39		0.01	0.10		0.07
v/c Ratio	0.69	0.77		0.29	0.54		0.86	0.46	0.03	0.22	0.04	0.16
Uniform Delay, d1	19.4	20.4		15.5	17.7		20.8	16.0	12.9	14.1	12.9	13.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	22.7	3.1		0.7	0.1		15.1	1.8	0.1	1.5	0.0	0.6
Delay (s)	42.1	23.5		16.2	17.8		35.9	17.8	13.0	15.6	13.0	14.3
Level of Service	D	C		B	B		D	B	B	B	B	B
Approach Delay (s)		24.8			17.8			27.6			14.4	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	102.0%	ICU Level of Service	G
Analysis Period (min)	15		

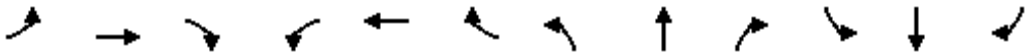
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	24	162	500	47	133	0	0	118	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	1.00			0.95	1.00
Frpb, ped/bikes					1.00	0.99	1.00	1.00			1.00	0.98
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3516	1561	1770	1111			2865	1558
Flt Permitted					0.99	1.00	0.68	1.00			1.00	1.00
Satd. Flow (perm)					3516	1561	1262	1111			2865	1558
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	24	162	500	47	133	0	0	118	24
RTOR Reduction (vph)	0	0	0	0	0	427	0	0	0	0	0	6
Lane Group Flow (vph)	0	0	0	0	186	73	47	133	0	0	118	18
Confl. Peds. (#/hr)				1		2			8	8		
Confl. Bikes (#/hr)												13
Heavy Vehicles (%)	0%	13%	100%	2%	2%	2%	2%	71%	83%	0%	26%	2%
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					4			6			2	
Permitted Phases				4		4	6					2
Actuated Green, G (s)					13.2	13.2	67.3	67.3			67.3	67.3
Effective Green, g (s)					13.2	13.2	67.3	67.3			67.3	67.3
Actuated g/C Ratio					0.15	0.15	0.75	0.75			0.75	0.75
Clearance Time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Vehicle Extension (s)					2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)					515	228	943	830			2142	1165
v/s Ratio Prot								c0.12			0.04	
v/s Ratio Perm					0.05	0.05	0.04					0.01
v/c Ratio					0.36	0.32	0.05	0.16			0.06	0.02
Uniform Delay, d1					34.6	34.4	3.0	3.3			3.0	2.9
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					0.2	0.3	0.0	0.0			0.0	0.0
Delay (s)					34.8	34.7	3.0	3.3			3.0	2.9
Level of Service					C	C	A	A			A	A
Approach Delay (s)		0.0			34.7			3.2			3.0	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

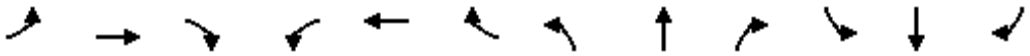


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	944	65	41	112	26	107	283	148	143	158	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.98		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.97		1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3367		1770	3368		1770	1069		1770	1091	
Flt Permitted	0.95	1.00		0.95	1.00		0.64	1.00		0.37	1.00	
Satd. Flow (perm)	1770	3367		1770	3368		1201	1069		687	1091	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	26	944	65	41	112	26	107	283	148	143	158	14
RTOR Reduction (vph)	0	6	0	0	16	0	0	24	0	0	4	0
Lane Group Flow (vph)	26	1003	0	41	122	0	107	407	0	143	168	0
Confl. Peds. (#/hr)						50			3			3
Confl. Bikes (#/hr)			4						1			
Heavy Vehicles (%)	2%	5%	21%	2%	2%	2%	2%	57%	88%	2%	78%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Actuated Green, G (s)	1.9	25.5		2.0	26.1		30.2	30.2		30.2	30.2	
Effective Green, g (s)	1.9	25.5		2.0	26.1		30.2	30.2		30.2	30.2	
Actuated g/C Ratio	0.03	0.37		0.03	0.37		0.43	0.43		0.43	0.43	
Clearance Time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.5	3.0		3.2	3.2		3.0	3.0	
Lane Grp Cap (vph)	48	1231		50	1261		520	463		297	472	
v/s Ratio Prot	0.01	c0.30		c0.02	0.04			c0.38			0.15	
v/s Ratio Perm							0.09			0.21		
v/c Ratio	0.54	0.81		0.82	0.10		0.21	0.88		0.48	0.36	
Uniform Delay, d1	33.5	20.0		33.7	14.1		12.3	18.1		14.1	13.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.5	4.3		62.7	0.0		0.2	17.1		1.2	0.5	
Delay (s)	40.0	24.2		96.4	14.2		12.5	35.2		15.4	13.7	
Level of Service	D	C		F	B		B	D		B	B	
Approach Delay (s)		24.6			33.0			30.7			14.5	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	69.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

2035 + Preferred Project AM

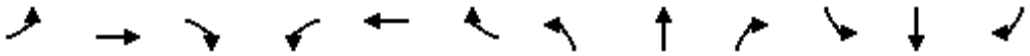


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	1260	85	330	1372	249	69	167	191	373	551	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3495		1770	3539	1517	1770	1863	1540	1770	1792	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3495		1770	3539	1517	1770	1863	1540	1770	1792	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	62	1370	92	359	1491	271	75	182	208	405	599	173
RTOR Reduction (vph)	0	8	0	0	0	101	0	0	131	0	18	0
Lane Group Flow (vph)	62	1454	0	359	1491	170	75	182	77	405	754	0
Confl. Peds. (#/hr)			32			7			5			6
Confl. Bikes (#/hr)			4			9			11			3
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			
Actuated Green, G (s)	2.3	18.7		7.0	23.4	23.4	3.1	15.2	15.2	4.0	16.1	
Effective Green, g (s)	2.3	18.7		7.0	23.4	23.4	3.1	15.2	15.2	4.0	16.1	
Actuated g/C Ratio	0.04	0.31		0.11	0.38	0.38	0.05	0.25	0.25	0.07	0.26	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	66	1073		203	1359	582	90	464	384	116	473	
v/s Ratio Prot	0.04	c0.42		c0.20	0.42		0.04	0.10		c0.23	c0.42	
v/s Ratio Perm						0.11			0.05			
v/c Ratio	0.94	1.36		1.77	1.10	0.29	0.83	0.39	0.20	3.49	1.59	
Uniform Delay, d1	29.2	21.1		26.9	18.8	13.0	28.6	19.0	18.0	28.4	22.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	88.5	166.1		365.1	55.5	0.3	45.4	0.5	0.3	1142.5	277.5	
Delay (s)	117.7	187.2		392.1	74.2	13.3	74.0	19.6	18.3	1170.9	299.9	
Level of Service	F	F		F	E	B	E	B	B	F	F	
Approach Delay (s)		184.4			120.3			27.8			599.6	
Approach LOS		F			F			C			F	

Intersection Summary			
HCM 2000 Control Delay	237.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.72		
Actuated Cycle Length (s)	60.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	112.0%	ICU Level of Service	H
Analysis Period (min)	15		

Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group

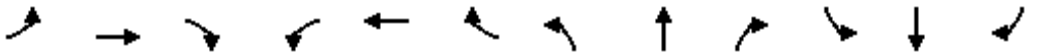


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	252	926	914	126	1195	190	853	795	45	165	1348	283
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.94		1.00	0.99		1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.98		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3080		1770	3428		3433	3497		1770	3394	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3080		1770	3428		3433	3497		1770	3394	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	274	1007	993	137	1299	207	927	864	49	179	1465	308
RTOR Reduction (vph)	0	162	0	0	12	0	0	4	0	0	16	0
Lane Group Flow (vph)	274	1838	0	137	1494	0	927	909	0	179	1757	0
Confl. Peds. (#/hr)			83			52			53			68
Confl. Bikes (#/hr)			15			8			15			12
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	17.0	35.0		11.0	29.0		15.0	37.1		13.9	35.0	
Effective Green, g (s)	17.0	35.0		11.0	29.0		15.0	37.1		13.9	35.0	
Actuated g/C Ratio	0.15	0.32		0.10	0.26		0.14	0.34		0.13	0.32	
Clearance Time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.0	2.0		2.0	4.0		2.5	4.0	
Lane Grp Cap (vph)	273	980		177	903		468	1179		223	1079	
v/s Ratio Prot	c0.15	c0.60		0.08	0.44		c0.27	0.26		0.10	c0.52	
v/s Ratio Perm												
v/c Ratio	1.00	1.88		0.77	1.65		1.98	0.77		0.80	1.63	
Uniform Delay, d1	46.5	37.5		48.3	40.5		47.5	32.6		46.7	37.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	55.4	398.1		17.3	299.6		449.0	4.9		18.0	286.9	
Delay (s)	101.9	435.6		65.6	340.1		496.5	37.6		64.7	324.4	
Level of Service	F	F		E	F		F	D		E	F	
Approach Delay (s)		395.4			317.2			268.8			300.6	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	324.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.69		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	151.6%	ICU Level of Service	H
Analysis Period (min)	15		

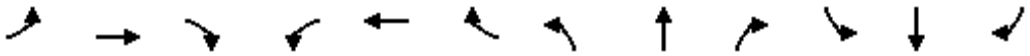
Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group



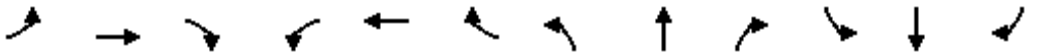
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	532	82	12	292	0	0	0	0	631	899	511
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5					6.5	6.5	6.5
Lane Util. Factor		0.95			0.91					0.91	0.91	1.00
Frpb, ped/bikes		0.99			1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Frt		0.98			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	0.99	1.00
Satd. Flow (prot)		3447			5073					1610	3368	1550
Flt Permitted		1.00			0.88					0.95	0.99	1.00
Satd. Flow (perm)		3447			4450					1610	3368	1550
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	532	82	12	292	0	0	0	0	631	899	511
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	0	0	0	65
Lane Group Flow (vph)	0	599	0	0	304	0	0	0	0	498	1032	446
Confl. Peds. (#/hr)	20		20	20								20
Turn Type		NA		Perm	NA					Perm	NA	Perm
Protected Phases		1			1						2	
Permitted Phases				1						2		2
Actuated Green, G (s)		17.0			17.0					51.0	51.0	51.0
Effective Green, g (s)		17.0			17.0					51.0	51.0	51.0
Actuated g/C Ratio		0.21			0.21					0.64	0.64	0.64
Clearance Time (s)		5.5			5.5					6.5	6.5	6.5
Lane Grp Cap (vph)		732			945					1026	2147	988
v/s Ratio Prot		c0.17										
v/s Ratio Perm					0.07					c0.31	0.31	0.29
v/c Ratio		0.82			0.32					0.49	0.48	0.45
Uniform Delay, d1		30.0			26.6					7.6	7.6	7.4
Progression Factor		1.00			1.12					1.00	1.00	1.00
Incremental Delay, d2		9.9			0.9					1.6	0.8	1.5
Delay (s)		39.9			30.6					9.3	8.4	8.9
Level of Service		D			C					A	A	A
Approach Delay (s)		39.9			30.6			0.0			8.7	
Approach LOS		D			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



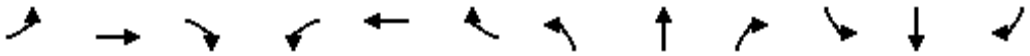
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	293	886	0	0	284	737	9	755	32	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1610	3385			3539	2704		5044				
Flt Permitted	0.95	0.95			1.00	1.00		1.00				
Satd. Flow (perm)	1610	3213			3539	2704		5044				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	293	886	0	0	284	737	9	755	32	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	183	0	5	0	0	0	0
Lane Group Flow (vph)	264	915	0	0	284	554	0	791	0	0	0	0
Confl. Peds. (#/hr)						20			20			
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	21.5	51.5			26.5	26.5		17.5				
Effective Green, g (s)	21.5	51.5			26.5	26.5		17.5				
Actuated g/C Ratio	0.27	0.64			0.33	0.33		0.22				
Clearance Time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Grp Cap (vph)	432	2114			1172	895		1103				
v/s Ratio Prot	c0.16	0.12			0.08							
v/s Ratio Perm		0.16				c0.20		0.16				
v/c Ratio	0.61	0.43			0.24	0.62		0.72				
Uniform Delay, d1	25.6	7.0			19.5	22.5		29.0				
Progression Factor	0.91	0.75			1.00	1.00		1.00				
Incremental Delay, d2	4.9	0.5			0.5	3.2		4.0				
Delay (s)	28.2	5.8			19.9	25.7		33.0				
Level of Service	C	A			B	C		C				
Approach Delay (s)		10.8			24.1			33.0			0.0	
Approach LOS		B			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	950	747	391	1662	70	212	45	335	31	21	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3312	1404	1543	3333		1243	1248	946	1203	1115	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3312	1404	1543	3333		1243	1248	946	1203	1115	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	61	950	747	391	1662	70	212	45	335	31	21	20
RTOR Reduction (vph)	0	0	337	0	2	0	0	0	285	0	19	0
Lane Group Flow (vph)	61	950	410	391	1730	0	127	130	50	31	22	0
Confl. Peds. (#/hr)						1			3			
Heavy Vehicles (%)	0%	9%	15%	17%	7%	21%	38%	44%	68%	50%	75%	40%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases			2						8			
Actuated Green, G (s)	5.5	46.4	46.4	34.0	74.9		17.9	17.9	17.9	4.5	4.5	
Effective Green, g (s)	5.5	46.4	46.4	34.0	74.9		17.9	17.9	17.9	4.5	4.5	
Actuated g/C Ratio	0.05	0.39	0.39	0.28	0.63		0.15	0.15	0.15	0.04	0.04	
Clearance Time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.5	3.5	3.5	2.0	3.5		3.0	3.0	3.0	2.0	2.0	
Lane Grp Cap (vph)	83	1288	546	439	2092		186	187	141	45	42	
v/s Ratio Prot	0.03	0.29		c0.25	c0.52		0.10	c0.10		c0.03	0.02	
v/s Ratio Perm			0.29						0.05			
v/c Ratio	0.73	0.74	0.75	0.89	0.83		0.68	0.70	0.36	0.69	0.52	
Uniform Delay, d1	56.2	31.2	31.5	40.9	17.2		48.0	48.1	45.5	56.7	56.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	26.9	2.3	6.0	19.3	2.9		9.9	10.7	1.5	29.5	4.4	
Delay (s)	83.1	33.6	37.4	60.1	20.1		57.9	58.8	47.1	86.3	60.8	
Level of Service	F	C	D	E	C		E	E	D	F	E	
Approach Delay (s)		36.9			27.5			52.0			71.7	
Approach LOS		D			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	35.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	119.3	Sum of lost time (s)	16.5
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

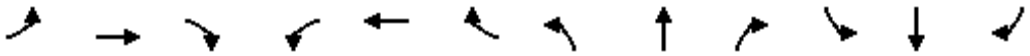


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	867	302	299	1396	360	564	270	512	332	253	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.90		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.99	
Satd. Flow (prot)	1014	2893		1299	3438	1369	1480	2543		1480	2320	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.99	
Satd. Flow (perm)	1014	2893		1299	3438	1369	1480	2543		1480	2320	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	155	867	302	299	1396	360	564	270	512	332	253	180
RTOR Reduction (vph)	0	25	0	0	0	175	0	199	0	0	47	0
Lane Group Flow (vph)	155	1144	0	299	1396	185	564	583	0	259	459	0
Confl. Peds. (#/hr)									1			
Heavy Vehicles (%)	78%	14%	37%	39%	5%	18%	22%	42%	19%	11%	45%	45%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	15.5	42.0		22.5	49.0	49.0	40.5	40.5		18.0	18.0	
Effective Green, g (s)	15.5	42.0		22.5	49.0	49.0	40.5	40.5		18.0	18.0	
Actuated g/C Ratio	0.11	0.30		0.16	0.35	0.35	0.29	0.29		0.13	0.13	
Clearance Time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	112	871		209	1207	480	429	738		190	299	
v/s Ratio Prot	0.15	c0.40		c0.23	0.41		c0.38	0.23		0.18	c0.20	
v/s Ratio Perm						0.14						
v/c Ratio	1.38	1.31		1.43	1.16	0.39	1.31	0.87dr		1.36	1.54	
Uniform Delay, d1	62.0	48.8		58.5	45.2	33.9	49.5	45.6		60.8	60.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	218.6	149.1		219.1	80.1	0.5	157.4	5.4		193.5	256.9	
Delay (s)	280.6	197.9		277.6	125.4	34.5	206.9	51.0		254.2	317.7	
Level of Service	F	F		F	F	C	F	D		F	F	
Approach Delay (s)		207.6			131.6			116.3			296.2	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	169.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.37		
Actuated Cycle Length (s)	139.5	Sum of lost time (s)	16.5
Intersection Capacity Utilization	110.5%	ICU Level of Service	H
Analysis Period (min)	15		

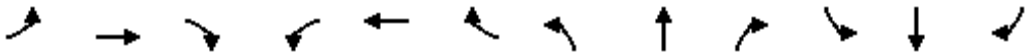
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1647	83	133	1272	0	0	0	0	507	363	532
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						5.0	
Lane Util. Factor		0.91		1.00	0.95						0.95	
Frpb, ped/bikes		1.00		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.99		1.00	1.00						0.94	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		4950		1770	3343						3147	
Flt Permitted		1.00		0.09	1.00						0.98	
Satd. Flow (perm)		4950		166	3343						3147	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1647	83	133	1272	0	0	0	0	507	363	532
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	25	0
Lane Group Flow (vph)	0	1724	0	133	1272	0	0	0	0	0	1377	0
Confl. Peds. (#/hr)			8	8						10		10
Heavy Vehicles (%)	6%	4%	2%	2%	8%	2%	0%	0%	0%	2%	2%	11%
Turn Type		NA		Perm	NA					Split	NA	
Protected Phases		4			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		45.0		45.0	45.0						32.0	
Effective Green, g (s)		45.0		45.0	45.0						32.0	
Actuated g/C Ratio		0.52		0.52	0.52						0.37	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		2560		85	1729						1157	
v/s Ratio Prot		0.35			0.38						c0.44	
v/s Ratio Perm				c0.80								
v/c Ratio		0.67		1.56	0.74						1.19	
Uniform Delay, d1		15.6		21.0	16.4						27.5	
Progression Factor		1.00		0.40	0.37						1.00	
Incremental Delay, d2		0.6		275.1	0.6						94.3	
Delay (s)		16.1		283.6	6.6						121.8	
Level of Service		B		F	A						F	
Approach Delay (s)		16.1			32.8			0.0			121.8	
Approach LOS		B			C			A			F	

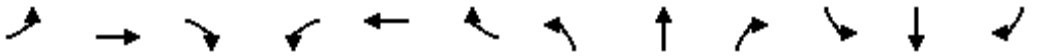
Intersection Summary			
HCM 2000 Control Delay	53.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.40		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	158.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	440	1714	0	0	1231	491	174	433	111	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0				
Lane Util. Factor	1.00	0.95			0.95			0.95				
Frpb, ped/bikes	1.00	1.00			0.99			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.96			0.98				
Flt Protected	0.95	1.00			1.00			0.99				
Satd. Flow (prot)	1770	3539			3360			3404				
Flt Permitted	0.09	1.00			1.00			0.99				
Satd. Flow (perm)	166	3539			3360			3404				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	440	1714	0	0	1231	491	174	433	111	0	0	0
RTOR Reduction (vph)	0	0	0	0	49	0	0	8	0	0	0	0
Lane Group Flow (vph)	440	1714	0	0	1673	0	0	710	0	0	0	0
Confl. Peds. (#/hr)	10					10			10			
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)	45.0	45.0			45.0			32.0				
Effective Green, g (s)	45.0	45.0			45.0			32.0				
Actuated g/C Ratio	0.52	0.52			0.52			0.37				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Vehicle Extension (s)	2.0	2.0			2.0			2.0				
Lane Grp Cap (vph)	85	1830			1737			1252				
v/s Ratio Prot		0.48			0.50			c0.21				
v/s Ratio Perm	c2.66											
v/c Ratio	5.18	0.94			0.96			0.57				
Uniform Delay, d1	21.0	19.7			20.2			22.0				
Progression Factor	0.65	0.61			1.00			1.00				
Incremental Delay, d2	1894.5	6.1			13.8			0.4				
Delay (s)	1908.1	18.1			34.0			22.3				
Level of Service	F	B			C			C				
Approach Delay (s)		404.2			34.0			22.3			0.0	
Approach LOS		F			C			C			A	

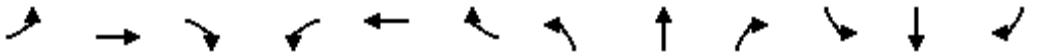
Intersection Summary			
HCM 2000 Control Delay	205.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	3.23		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	158.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	1297	122	112	1898	4	56	90	46	21	141	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.95		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3422		1768	3405		1755	1753		1758	1775	
Flt Permitted	0.08	1.00		0.11	1.00		0.59	1.00		0.67	1.00	
Satd. Flow (perm)	157	3422		206	3405		1097	1753		1240	1775	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	48	1297	122	112	1898	4	56	90	46	21	141	50
RTOR Reduction (vph)	0	9	0	0	0	0	0	23	0	0	9	0
Lane Group Flow (vph)	48	1410	0	112	1902	0	56	113	0	21	182	0
Confl. Peds. (#/hr)	8		7	7		8	11		8	8		11
Confl. Bikes (#/hr)			9			11			8			10
Heavy Vehicles (%)	2%	4%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	47.5	47.5		47.5	47.5		24.0	24.0		24.0	24.0	
Effective Green, g (s)	47.5	47.5		47.5	47.5		24.0	24.0		24.0	24.0	
Actuated g/C Ratio	0.59	0.59		0.59	0.59		0.30	0.30		0.30	0.30	
Clearance Time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	93	2031		122	2021		329	525		372	532	
v/s Ratio Prot		0.41			c0.56			0.06			c0.10	
v/s Ratio Perm	0.31			0.54			0.05			0.02		
v/c Ratio	0.52	0.69		0.92	0.94		0.17	0.22		0.06	0.34	
Uniform Delay, d1	9.5	11.2		14.5	15.0		20.7	21.0		19.9	21.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	19.0	2.0		61.8	10.3		1.1	0.9		0.3	1.7	
Delay (s)	28.5	13.2		76.3	25.2		21.8	21.9		20.2	23.6	
Level of Service	C	B		E	C		C	C		C	C	
Approach Delay (s)		13.7			28.1			21.9			23.3	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	144.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



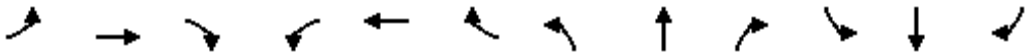
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	46	1052	240	56	1379	13	479	280	107	5	119	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Lane Util. Factor		0.95			0.95	1.00	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes		0.99			1.00	0.94	1.00	1.00	0.95		1.00	0.95
Flpb, ped/bikes		1.00			1.00	1.00	0.98	1.00	1.00		1.00	1.00
Frt		0.97			1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected		1.00			1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)		3323			3299	1488	1646	1845	1508		1858	1518
Flt Permitted		0.74			0.74	1.00	0.66	1.00	1.00		0.99	1.00
Satd. Flow (perm)		2476			2432	1488	1147	1845	1508		1842	1518
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	46	1052	240	56	1379	13	479	280	107	5	119	182
RTOR Reduction (vph)	0	21	0	0	0	3	0	0	48	0	0	20
Lane Group Flow (vph)	0	1317	0	0	1435	10	479	280	59	0	124	162
Confl. Peds. (#/hr)	21		15	15		21	27		25	25		27
Confl. Bikes (#/hr)			18			17			16			17
Heavy Vehicles (%)	2%	5%	3%	39%	8%	2%	7%	3%	2%	2%	2%	1%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		4
Actuated Green, G (s)		48.5			48.5	48.5	32.5	32.5	32.5		32.5	32.5
Effective Green, g (s)		48.5			48.5	48.5	32.5	32.5	32.5		32.5	32.5
Actuated g/C Ratio		0.54			0.54	0.54	0.36	0.36	0.36		0.36	0.36
Clearance Time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Vehicle Extension (s)		2.0			2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1334			1310	801	414	666	544		665	548
v/s Ratio Prot								0.15				
v/s Ratio Perm		0.53			c0.59	0.01	c0.42		0.04		0.07	0.11
v/c Ratio		0.99			1.10	0.01	1.16	0.42	0.11		0.19	0.30
Uniform Delay, d1		20.4			20.8	9.6	28.8	21.7	19.1		19.7	20.6
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2		21.8			55.2	0.0	94.6	0.2	0.0		0.0	0.1
Delay (s)		42.3			76.0	9.7	123.3	21.8	19.2		19.7	20.7
Level of Service		D			E	A	F	C	B		B	C
Approach Delay (s)		42.3			75.4			77.6			20.3	
Approach LOS		D			E			E			C	

Intersection Summary			
HCM 2000 Control Delay	60.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	120.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	74	880	245	69	1348	218	98	683	32	60	1215	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3432	1510	1764	3252	1540	1669	3512		1762	3538	
Flt Permitted		0.59	1.00	0.18	1.00	1.00	0.11	1.00		0.31	1.00	
Satd. Flow (perm)		2030	1510	338	3252	1540	192	3512		580	3538	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	74	880	245	69	1348	218	98	683	32	60	1215	3
RTOR Reduction (vph)	0	0	18	0	0	65	0	4	0	0	0	0
Lane Group Flow (vph)	0	954	227	69	1348	153	98	711	0	60	1218	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Heavy Vehicles (%)	2%	5%	4%	2%	11%	2%	8%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4		4	2			6		
Actuated Green, G (s)		37.0	37.0	37.0	37.0	37.0	38.5	38.5		38.5	38.5	
Effective Green, g (s)		37.0	37.0	37.0	37.0	37.0	38.5	38.5		38.5	38.5	
Actuated g/C Ratio		0.44	0.44	0.44	0.44	0.44	0.45	0.45		0.45	0.45	
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0		4.0	4.0	
Lane Grp Cap (vph)		883	657	147	1415	670	86	1590		262	1602	
v/s Ratio Prot					0.41			0.20			0.34	
v/s Ratio Perm		c0.47	0.15	0.20		0.10	c0.51			0.10		
v/c Ratio		1.08	0.35	0.47	0.95	0.23	1.14	0.45		0.23	0.76	
Uniform Delay, d1		24.0	16.0	17.0	23.2	15.0	23.2	16.0		14.2	19.4	
Progression Factor		1.00	1.00	1.42	1.01	1.88	1.00	1.00		1.00	1.00	
Incremental Delay, d2		54.4	1.4	8.5	13.0	0.6	139.6	0.4		0.6	2.3	
Delay (s)		78.4	17.4	32.7	36.3	28.9	162.9	16.4		14.8	21.7	
Level of Service		E	B	C	D	C	F	B		B	C	
Approach Delay (s)		65.9			35.1			34.0			21.4	
Approach LOS		E			D			C			C	

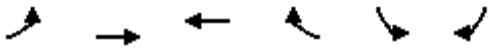
Intersection Summary			
HCM 2000 Control Delay	38.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	121.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	857	27	121	1455	32	18	109	266	37	99	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.97		1.00	0.94		0.97	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1589	3124	1361	1505	3185	1375		3152	1174		2853	
Flt Permitted	0.14	1.00	1.00	0.31	1.00	1.00		0.90	1.00		0.89	
Satd. Flow (perm)	239	3124	1361	494	3185	1375		2843	1174		2565	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	55	857	27	121	1455	32	18	109	266	37	99	105
RTOR Reduction (vph)	0	0	7	0	0	5	0	0	122	0	32	0
Lane Group Flow (vph)	55	857	20	121	1455	27	0	127	144	0	209	0
Confl. Peds. (#/hr)	22		31	31		22	34		37	37		34
Confl. Bikes (#/hr)			7			3			12			19
Heavy Vehicles (%)	2%	4%	2%	7%	2%	2%	2%	2%	16%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4		4	2		2	2		
Actuated Green, G (s)	61.3	61.3	61.3	61.3	61.3	61.3		15.2	15.2		15.2	
Effective Green, g (s)	61.3	61.3	61.3	61.3	61.3	61.3		15.2	15.2		15.2	
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72	0.72		0.18	0.18		0.18	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	172	2252	981	356	2296	991		508	209		458	
v/s Ratio Prot		0.27			c0.46							
v/s Ratio Perm	0.23		0.01	0.25		0.02		0.04	c0.12		0.08	
v/c Ratio	0.32	0.38	0.02	0.34	0.63	0.03		0.25	0.69		0.46	
Uniform Delay, d1	4.3	4.6	3.4	4.4	6.1	3.4		30.0	32.7		31.2	
Progression Factor	1.08	0.78	0.71	2.77	2.62	3.04		1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.0	0.0	0.2	0.1	0.0		0.1	7.7		0.3	
Delay (s)	5.1	3.6	2.4	12.4	16.1	10.2		30.1	40.4		31.5	
Level of Service	A	A	A	B	B	B		C	D		C	
Approach Delay (s)		3.7			15.7			37.1			31.5	
Approach LOS		A			B			D			C	

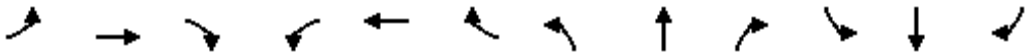
Intersection Summary			
HCM 2000 Control Delay	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



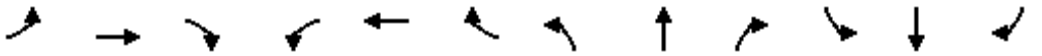
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	502	603	1434	123	664	246
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.99	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1593	3008	3036	1343	3048	1191
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1593	3008	3036	1343	3048	1191
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	502	603	1434	123	664	246
RTOR Reduction (vph)	0	0	0	34	3	164
Lane Group Flow (vph)	502	603	1434	89	686	57
Confl. Peds. (#/hr)				15	15	15
Heavy Vehicles (%)	2%	8%	7%	5%	3%	8%
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	18.9	54.9	32.0	32.0	22.1	22.1
Effective Green, g (s)	18.9	54.9	32.0	32.0	22.1	22.1
Actuated g/C Ratio	0.22	0.65	0.38	0.38	0.26	0.26
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	354	1942	1142	505	792	309
v/s Ratio Prot	c0.32	0.20	c0.47		c0.23	
v/s Ratio Perm				0.07		0.05
v/c Ratio	1.42	0.31	1.26	0.18	0.87	0.19
Uniform Delay, d1	33.0	6.7	26.5	17.7	30.0	24.5
Progression Factor	0.68	1.52	0.97	1.15	1.00	1.00
Incremental Delay, d2	202.9	0.4	117.4	0.0	9.5	0.1
Delay (s)	225.5	10.5	143.1	20.3	39.5	24.6
Level of Service	F	B	F	C	D	C
Approach Delay (s)		108.2	133.4		35.9	
Approach LOS		F	F		D	

Intersection Summary			
HCM 2000 Control Delay	100.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	109.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	72	866	53	136	1139	112	170	481	158	116	424	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00	0.92	1.00	0.98	
Flpb, ped/bikes	1.00	1.00			1.00		0.98	1.00	1.00	0.97	1.00	
Frt	1.00	0.99			0.99		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00			1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1586	3148			3112		1562	3185	1306	1546	3008	
Flt Permitted	0.11	1.00			0.69		0.32	1.00	1.00	0.39	1.00	
Satd. Flow (perm)	190	3148			2147		531	3185	1306	627	3008	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	72	866	53	136	1139	112	170	481	158	116	424	143
RTOR Reduction (vph)	0	5	0	0	7	0	0	0	73	0	37	0
Lane Group Flow (vph)	72	914	0	0	1380	0	170	481	85	116	530	0
Confl. Peds. (#/hr)	46		47	47		46	57		65	65		57
Confl. Bikes (#/hr)			9			21			15			22
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	49.2	49.2			49.2		27.8	27.8	27.8	27.8	27.8	
Effective Green, g (s)	49.2	49.2			49.2		27.8	27.8	27.8	27.8	27.8	
Actuated g/C Ratio	0.58	0.58			0.58		0.33	0.33	0.33	0.33	0.33	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	109	1822			1242		173	1041	427	205	983	
v/s Ratio Prot		0.29						0.15			0.18	
v/s Ratio Perm	0.38				c0.64		c0.32		0.06	0.18		
v/c Ratio	0.66	0.50			1.11		0.98	0.46	0.20	0.57	0.54	
Uniform Delay, d1	12.2	10.6			17.9		28.4	22.7	20.6	23.6	23.4	
Progression Factor	0.35	0.28			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	23.2	0.8			61.7		62.8	0.1	0.1	2.1	0.3	
Delay (s)	27.5	3.8			79.6		91.2	22.8	20.7	25.7	23.7	
Level of Service	C	A			E		F	C	C	C	C	
Approach Delay (s)		5.5			79.6			36.7			24.0	
Approach LOS		A			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	41.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	120.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	159	165	465	875	101	420	1249	423	28	1178	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	5.5		5.5	5.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		1.00	1.00
Satd. Flow (prot)	3090	3154	1352	3090	3185	1352		4513	1352		4571	1352
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.66	1.00		0.81	1.00
Satd. Flow (perm)	3090	3154	1352	3090	3185	1352		3031	1352		3714	1352
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	89	159	165	465	875	101	420	1249	423	28	1178	206
RTOR Reduction (vph)	0	0	81	0	0	50	0	0	242	0	0	83
Lane Group Flow (vph)	89	159	84	465	875	51	0	1669	181	0	1206	123
Confl. Peds. (#/hr)			40			40	40		40	40		40
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases			8			4	2		2	6		6
Actuated Green, G (s)	4.0	15.2	15.2	21.3	32.5	32.5		38.5	38.5		38.5	38.5
Effective Green, g (s)	4.0	15.2	15.2	21.3	32.5	32.5		38.5	38.5		38.5	38.5
Actuated g/C Ratio	0.04	0.17	0.17	0.24	0.36	0.36		0.43	0.43		0.43	0.43
Clearance Time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	5.5		5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	137	532	228	731	1150	488		1296	578		1588	578
v/s Ratio Prot	c0.03	0.05		0.15	c0.27							
v/s Ratio Perm			0.06			0.04		c0.55	0.13		0.32	0.09
v/c Ratio	0.65	0.30	0.37	0.64	0.76	0.10		3.75dl	0.31		0.76	0.21
Uniform Delay, d1	42.3	32.7	33.2	30.9	25.3	19.1		25.8	17.0		21.8	16.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	10.2	1.4	4.6	1.8	4.8	0.4		135.5	0.3		2.1	0.2
Delay (s)	52.5	34.2	37.7	32.7	30.1	19.5		161.2	17.3		24.0	16.4
Level of Service	D	C	D	C	C	B		F	B		C	B
Approach Delay (s)		39.5			30.2			132.1			22.9	
Approach LOS		D			C			F			C	

Intersection Summary			
HCM 2000 Control Delay	68.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	116.5%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

MOVEMENT SUMMARY

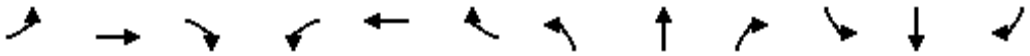
Site: 2035 + Proj Pref AM

Adeline & 18th
2035 + Preferred Project AM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	118	2.0	0.338	6.5	LOS A	1.9	47.3	0.46	0.80	26.9
8	T	199	2.0	0.338	6.5	LOS A	1.9	47.3	0.46	0.55	29.6
18	R	63	2.0	0.338	6.5	LOS A	1.9	47.3	0.46	0.60	29.2
Approach		380	2.0	0.338	6.5	LOS A	1.9	47.3	0.46	0.64	28.6
East: 18th Street (WB)											
1	L	30	2.0	0.352	7.3	LOS A	1.9	47.2	0.55	0.89	26.7
6	T	279	2.0	0.352	7.3	LOS A	1.9	47.2	0.55	0.65	29.3
16	R	45	2.0	0.352	7.3	LOS A	1.9	47.2	0.55	0.70	28.9
Approach		354	2.0	0.352	7.3	LOS A	1.9	47.2	0.55	0.67	29.0
North: Adeline Street (SB)											
7	L	81	2.0	0.453	9.4	LOS A	2.6	67.1	0.66	0.95	25.7
4	T	281	2.0	0.453	9.4	LOS A	2.6	67.1	0.66	0.77	27.9
14	R	51	2.0	0.453	9.4	LOS A	2.6	67.1	0.66	0.81	27.6
Approach		413	2.0	0.453	9.4	LOS A	2.6	67.1	0.66	0.81	27.3
West: 18th Street (EB)											
5	L	12	2.0	0.166	5.4	LOS A	0.7	18.7	0.51	0.89	27.6
2	T	129	2.0	0.166	5.4	LOS A	0.7	18.7	0.51	0.62	30.5
12	R	16	2.0	0.166	5.4	LOS A	0.7	18.7	0.51	0.68	30.1
Approach		157	2.0	0.166	5.4	LOS A	0.7	18.7	0.51	0.65	30.2
All Vehicles		1304	2.0	0.453	7.5	LOS A	2.6	67.1	0.55	0.70	28.5

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	222	6	27	225	263	49	619	88	241	203	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99			0.99	
Flpb, ped/bikes	1.00	1.00		0.98	1.00		0.98	1.00			0.99	
Frt	1.00	1.00		1.00	0.92		1.00	0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1762	1853		1728	1690		1740	3437			3354	
Flt Permitted	0.20	1.00		0.54	1.00		0.47	1.00			0.56	
Satd. Flow (perm)	373	1853		976	1690		856	3437			1938	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	222	6	27	225	263	49	619	88	241	203	42
RTOR Reduction (vph)	0	1	0	0	65	0	0	15	0	0	9	0
Lane Group Flow (vph)	50	227	0	27	423	0	49	692	0	0	477	0
Confl. Peds. (#/hr)	14		44	44		14	37		71	71		37
Confl. Bikes (#/hr)			6			2			2			11
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	19.9	19.9		19.9	19.9		37.3	37.3			37.3	
Effective Green, g (s)	19.9	19.9		19.9	19.9		37.3	37.3			37.3	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.57	0.57			0.57	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Lane Grp Cap (vph)	113	565		297	515		489	1966			1108	
v/s Ratio Prot		0.12			c0.25			0.20				
v/s Ratio Perm	0.13			0.03			0.06				c0.25	
v/c Ratio	0.44	0.40		0.09	0.82		0.10	0.35			0.43	
Uniform Delay, d1	18.2	17.9		16.2	21.0		6.3	7.5			7.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	1.0	0.2		0.0	9.7		0.4	0.5			1.2	
Delay (s)	19.2	18.1		16.2	30.7		6.7	8.0			9.1	
Level of Service	B	B		B	C		A	A			A	
Approach Delay (s)		18.3			29.9			7.9			9.1	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	65.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	107.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

Site: 2035 + Proj Pref AM

Adeline & 14th
2035 + Preferred Project AM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	27	2.0	0.326	6.3	LOS A	1.8	45.4	0.45	0.85	27.1
8	T	319	2.0	0.326	6.3	LOS A	1.8	45.4	0.45	0.55	29.9
18	R	25	2.0	0.326	6.3	LOS A	1.8	45.4	0.45	0.61	29.5
Approach		371	2.0	0.326	6.3	LOS A	1.8	45.4	0.45	0.57	29.7
East: 14th Street (WB)											
1	L	34	2.0	0.232	6.0	LOS A	1.1	27.6	0.52	0.88	27.2
6	T	148	2.0	0.232	6.0	LOS A	1.1	27.6	0.52	0.63	30.0
16	R	42	2.0	0.232	6.0	LOS A	1.1	27.6	0.52	0.68	29.6
Approach		224	2.0	0.232	6.0	LOS A	1.1	27.6	0.52	0.68	29.5
North: Adeline Street (SB)											
7	L	32	2.0	0.284	5.8	LOS A	1.5	37.9	0.43	0.84	27.3
4	T	266	2.0	0.284	5.8	LOS A	1.5	37.9	0.43	0.54	30.2
14	R	26	2.0	0.284	5.8	LOS A	1.5	37.9	0.43	0.60	29.8
Approach		324	2.0	0.284	5.8	LOS A	1.5	37.9	0.43	0.57	29.9
West: 14th Street (EB)											
5	L	24	2.0	0.194	5.4	LOS A	0.9	22.7	0.48	0.87	27.6
2	T	154	2.0	0.194	5.4	LOS A	0.9	22.7	0.48	0.60	30.5
12	R	17	2.0	0.194	5.4	LOS A	0.9	22.7	0.48	0.65	30.1
Approach		195	2.0	0.194	5.4	LOS A	0.9	22.7	0.48	0.63	30.0
All Vehicles		1114	2.0	0.326	6.0	LOS A	1.8	45.4	0.46	0.60	29.7

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.

MOVEMENT SUMMARY

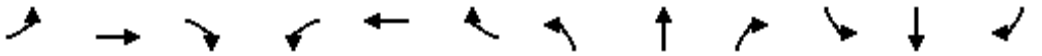
Site: 2035 + Proj AM

Adeline & 12th
2035 + Preferred Project AM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	1	2.0	0.218	4.5	LOS A	1.1	29.2	0.16	0.90	27.7
8	T	290	2.0	0.218	4.5	LOS A	1.1	29.2	0.16	0.42	31.3
18	R	5	2.0	0.218	4.5	LOS A	1.1	29.2	0.16	0.52	30.6
Approach		296	2.0	0.218	4.5	LOS A	1.1	29.2	0.16	0.42	31.2
East: 12th Street (WB)											
1	L	8	2.0	0.105	4.4	LOS A	0.5	11.6	0.43	0.81	27.9
6	T	29	2.0	0.105	4.4	LOS A	0.5	11.6	0.43	0.53	31.1
16	R	73	2.0	0.105	4.4	LOS A	0.5	11.6	0.43	0.59	30.6
Approach		110	2.0	0.105	4.4	LOS A	0.5	11.6	0.43	0.59	30.5
North: Adeline Street (SB)											
7	L	29	2.0	0.236	4.6	LOS A	1.3	32.3	0.16	0.87	27.6
4	T	287	2.0	0.236	4.6	LOS A	1.3	32.3	0.16	0.41	31.1
14	R	5	2.0	0.236	4.6	LOS A	1.3	32.3	0.16	0.51	30.5
Approach		321	2.0	0.236	4.6	LOS A	1.3	32.3	0.16	0.46	30.7
West: 12th Street (EB)											
5	L	2	2.0	0.010	3.6	LOS A	0.0	1.0	0.42	0.78	28.4
2	T	7	2.0	0.010	3.6	LOS A	0.0	1.0	0.42	0.48	31.7
12	R	1	2.0	0.010	3.6	LOS A	0.0	1.0	0.42	0.54	31.2
Approach		10	2.0	0.010	3.6	LOS A	0.0	1.0	0.42	0.55	30.9
All Vehicles		737	2.0	0.236	4.5	LOS A	1.3	32.3	0.20	0.46	30.9

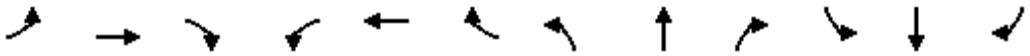
Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	142	47	0	0	356	429	443	462	100	130	0	561
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			0.98		1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frt	1.00	1.00			0.92		1.00	0.98		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	0.99		0.95		1.00
Satd. Flow (prot)	1020	3282			2887		1173	2818		1543		1960
Flt Permitted	0.95	1.00			1.00		0.95	0.99		0.95		1.00
Satd. Flow (perm)	1020	3282			2887		1173	2818		1543		1960
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	142	47	0	0	356	429	443	462	100	130	0	561
RTOR Reduction (vph)	0	0	0	0	208	0	0	12	0	0	0	500
Lane Group Flow (vph)	142	47	0	0	577	0	332	661	0	130	0	61
Confl. Peds. (#/hr)						14						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	77%	10%	0%	0%	8%	17%	40%	15%	14%	17%	0%	45%
Turn Type	Prot	NA			NA		Split	NA		Prot		custom
Protected Phases	1	6			2		4	4		3		3
Permitted Phases												
Actuated Green, G (s)	16.4	43.9			24.0		31.4	31.4		10.7		10.7
Effective Green, g (s)	16.4	43.9			24.0		31.4	31.4		10.7		10.7
Actuated g/C Ratio	0.17	0.44			0.24		0.32	0.32		0.11		0.11
Clearance Time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	168	1455			699		372	893		166		211
v/s Ratio Prot	c0.14	0.01			c0.20		c0.28	0.23		c0.08		0.03
v/s Ratio Perm												
v/c Ratio	0.85	0.03			0.83		0.89	0.74		0.78		0.29
Uniform Delay, d1	40.1	15.6			35.5		32.2	30.2		43.0		40.6
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	29.3	0.0			7.7		22.5	3.1		20.3		0.5
Delay (s)	69.4	15.6			43.3		54.7	33.2		63.4		41.2
Level of Service	E	B			D		D	C		E		D
Approach Delay (s)		56.0			43.3			40.3			45.4	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	43.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	99.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

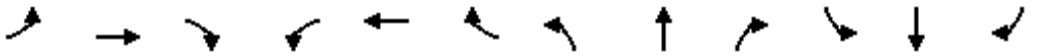
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	595	26	124	588	233	17	64	61	228	126	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.98			0.99		1.00	0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		0.99	1.00	
Frt	1.00	0.99		1.00	0.96			0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1770	3194		1770	3246			1706		1755	1728	
Flt Permitted	0.95	1.00		0.95	1.00			0.96		0.58	1.00	
Satd. Flow (perm)	1770	3194		1770	3246			1645		1075	1728	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	85	595	26	124	588	233	17	64	61	228	126	42
RTOR Reduction (vph)	0	2	0	0	31	0	0	32	0	0	14	0
Lane Group Flow (vph)	85	619	0	124	790	0	0	110	0	228	154	0
Confl. Peds. (#/hr)			58			47	70		8	8		70
Confl. Bikes (#/hr)			15			6			9			38
Heavy Vehicles (%)	2%	12%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	9.2	53.6		11.3	55.7			24.1		24.1	24.1	
Effective Green, g (s)	9.2	53.6		11.3	55.7			24.1		24.1	24.1	
Actuated g/C Ratio	0.09	0.54		0.11	0.56			0.24		0.24	0.24	
Clearance Time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	162	1711		200	1808			396		259	416	
v/s Ratio Prot	c0.05	0.19		c0.07	c0.24						0.09	
v/s Ratio Perm								0.07		c0.21		
v/c Ratio	0.52	0.36		0.62	0.44			0.28		0.88	0.37	
Uniform Delay, d1	43.3	13.4		42.3	13.0			30.9		36.6	31.6	
Progression Factor	1.08	1.17		0.95	0.81			1.00		1.00	1.00	
Incremental Delay, d2	1.4	0.0		3.9	0.8			0.1		26.8	0.2	
Delay (s)	48.3	15.6		44.1	11.2			31.0		63.3	31.8	
Level of Service	D	B		D	B			C		E	C	
Approach Delay (s)		19.5			15.5			31.0			50.0	
Approach LOS		B			B			C			D	

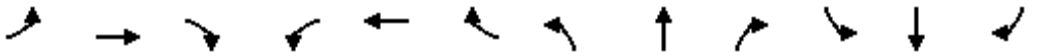
Intersection Summary			
HCM 2000 Control Delay	24.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	796	78	126	1361	217	32	66	66	90	83	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.99	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.93		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1766	3262		1026	3471	1492	1347	919		1753	1476	
Flt Permitted	0.14	1.00		0.28	1.00	1.00	0.59	1.00		0.63	1.00	
Satd. Flow (perm)	256	3262		305	3471	1492	836	919		1166	1476	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	29	796	78	126	1361	217	32	66	66	90	83	74
RTOR Reduction (vph)	0	7	0	0	0	78	0	36	0	0	32	0
Lane Group Flow (vph)	29	867	0	126	1361	139	32	96	0	90	125	0
Confl. Peds. (#/hr)	21		23	23		21	9		11	11		9
Confl. Bikes (#/hr)			4			5						1
Heavy Vehicles (%)	2%	8%	17%	75%	4%	4%	33%	100%	78%	2%	33%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	64.0	64.0		64.0	64.0	64.0	28.0	28.0		28.0	28.0	
Effective Green, g (s)	64.0	64.0		64.0	64.0	64.0	28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64	0.64	0.28	0.28		0.28	0.28	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	163	2087		195	2221	954	234	257		326	413	
v/s Ratio Prot		0.27			0.39			c0.10			0.08	
v/s Ratio Perm	0.11			c0.41		0.09	0.04			0.08		
v/c Ratio	0.18	0.42		0.65	0.61	0.15	0.14	0.37		0.28	0.30	
Uniform Delay, d1	7.3	8.8		11.0	10.7	7.1	27.0	28.9		28.1	28.3	
Progression Factor	0.49	0.46		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.4	0.6		15.4	1.3	0.3	1.2	4.1		2.1	1.9	
Delay (s)	5.9	4.6		26.4	11.9	7.5	28.2	33.1		30.2	30.2	
Level of Service	A	A		C	B	A	C	C		C	C	
Approach Delay (s)		4.7			12.4			32.1			30.2	
Approach LOS		A			B			C			C	

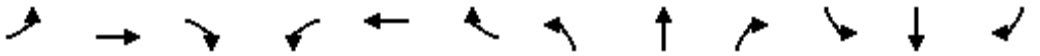
Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	102.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	718	82	51	1254	54	308	252	15	78	103	186
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1582	4092		1761	4576		1761	1810	1541	1752	3539	1245
Flt Permitted	0.14	1.00		0.31	1.00		0.69	1.00	1.00	0.55	1.00	1.00
Satd. Flow (perm)	241	4092		576	4576		1273	1810	1541	1012	3539	1245
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	133	718	82	51	1254	54	308	252	15	78	103	186
RTOR Reduction (vph)	0	19	0	0	6	0	0	0	9	0	0	17
Lane Group Flow (vph)	133	781	0	51	1302	0	308	252	6	78	103	169
Confl. Peds. (#/hr)	10		20	20		10	8		20	20		8
Confl. Bikes (#/hr)			7			3						6
Heavy Vehicles (%)	14%	27%	2%	2%	13%	2%	2%	5%	2%	2%	2%	27%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	35.0	35.0		35.0	35.0		30.5	30.5	30.5	30.5	30.5	30.5
Effective Green, g (s)	35.0	35.0		35.0	35.0		30.5	30.5	30.5	30.5	30.5	30.5
Actuated g/C Ratio	0.47	0.47		0.47	0.47		0.41	0.41	0.41	0.41	0.41	0.41
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	112	1909		268	2135		517	736	626	411	1439	506
v/s Ratio Prot		0.19			0.28			0.14			0.03	
v/s Ratio Perm	c0.55			0.09			c0.24		0.00	0.08		0.14
v/c Ratio	1.19	0.41		0.19	0.61		0.60	0.34	0.01	0.19	0.07	0.33
Uniform Delay, d1	20.0	13.2		11.7	14.9		17.4	15.3	13.3	14.3	13.6	15.3
Progression Factor	1.00	1.00		1.00	1.00		1.08	1.09	1.45	1.00	1.00	1.00
Incremental Delay, d2	144.0	0.1		0.1	0.3		5.0	1.3	0.0	1.0	0.1	1.8
Delay (s)	164.0	13.2		11.8	15.3		23.7	17.9	19.3	15.3	13.7	17.0
Level of Service	F	B		B	B		C	B	B	B	B	B
Approach Delay (s)		34.7			15.1			21.1			15.7	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		

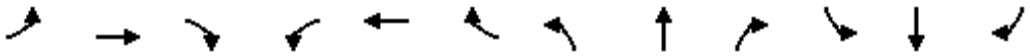
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	110	243	276	27	77	0	0	142	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	1.00			0.95	1.00
Frpb, ped/bikes					1.00	0.99	1.00	1.00			1.00	0.98
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3484	1562	1770	990			3167	1558
Flt Permitted					0.98	1.00	0.66	1.00			1.00	1.00
Satd. Flow (perm)					3484	1562	1233	990			3167	1558
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	110	243	276	27	77	0	0	142	67
RTOR Reduction (vph)	0	0	0	0	0	220	0	0	0	0	0	22
Lane Group Flow (vph)	0	0	0	0	353	56	27	77	0	0	142	45
Confl. Peds. (#/hr)				1		2			8	8		
Confl. Bikes (#/hr)												13
Heavy Vehicles (%)	2%	15%	88%	2%	2%	2%	2%	92%	0%	2%	14%	2%
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					4			6			2	
Permitted Phases				4		4	6					2
Actuated Green, G (s)					15.1	15.1	50.4	50.4			50.4	50.4
Effective Green, g (s)					15.1	15.1	50.4	50.4			50.4	50.4
Actuated g/C Ratio					0.20	0.20	0.67	0.67			0.67	0.67
Clearance Time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Vehicle Extension (s)					2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)					701	314	828	665			2128	1046
v/s Ratio Prot								c0.08			0.04	
v/s Ratio Perm					0.10	0.04	0.02					0.03
v/c Ratio					0.50	0.18	0.03	0.12			0.07	0.04
Uniform Delay, d1					26.6	24.8	4.1	4.4			4.2	4.2
Progression Factor					1.00	1.00	1.00	1.00			1.26	1.59
Incremental Delay, d2					0.2	0.1	0.0	0.0			0.1	0.1
Delay (s)					26.8	24.9	4.1	4.4			5.4	6.7
Level of Service					C	C	A	A			A	A
Approach Delay (s)		0.0			26.0			4.3			5.8	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	33.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

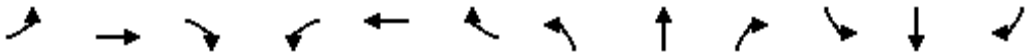


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	634	114	85	177	24	56	140	137	159	173	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.98		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.93		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3301		1770	3397		1770	943		1770	1126	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3301		1770	3397		1770	943		1770	1126	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	26	634	114	85	177	24	56	140	137	159	173	37
RTOR Reduction (vph)	0	9	0	0	7	0	0	24	0	0	5	0
Lane Group Flow (vph)	26	739	0	85	194	0	56	253	0	159	205	0
Confl. Peds. (#/hr)						50			3			3
Confl. Bikes (#/hr)			4						1			
Heavy Vehicles (%)	2%	6%	9%	2%	2%	2%	2%	74%	96%	2%	77%	2%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Actuated Green, G (s)	3.5	36.9		10.1	44.0		40.7	40.7		28.8	28.8	
Effective Green, g (s)	3.5	36.9		10.1	44.0		40.7	40.7		28.8	28.8	
Actuated g/C Ratio	0.03	0.28		0.08	0.33		0.31	0.31		0.22	0.22	
Clearance Time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.5	3.0		3.2	3.2		3.0	3.0	
Lane Grp Cap (vph)	46	919		134	1128		543	289		384	244	
v/s Ratio Prot	0.01	c0.22		c0.05	0.06		0.03	c0.27		0.09	c0.18	
v/s Ratio Perm												
v/c Ratio	0.57	0.80		0.63	0.17		0.10	0.88		0.41	0.84	
Uniform Delay, d1	63.7	44.4		59.4	31.3		32.8	43.5		44.6	49.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.1	5.2		8.3	0.1		0.1	24.6		0.7	22.2	
Delay (s)	72.9	49.6		67.7	31.4		32.9	68.1		45.3	71.9	
Level of Service	E	D		E	C		C	E		D	E	
Approach Delay (s)		50.4			42.2			62.2			60.4	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	53.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	132.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

2035 + Preferred Project PM

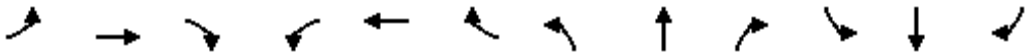


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	156	1064	214	394	1254	177	118	433	229	136	426	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.95	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3421		1770	3539	1511	1770	1863	1542	1770	1819	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3421		1770	3539	1511	1770	1863	1542	1770	1819	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	170	1157	233	428	1363	192	128	471	249	148	463	74
RTOR Reduction (vph)	0	28	0	0	0	121	0	0	180	0	9	0
Lane Group Flow (vph)	170	1362	0	428	1363	71	128	471	69	148	528	0
Confl. Peds. (#/hr)			32			7			5			6
Confl. Bikes (#/hr)			4			9			11			3
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			
Actuated Green, G (s)	5.0	16.0		5.0	16.0	16.0	4.8	16.8	16.8	7.0	19.0	
Effective Green, g (s)	5.0	16.0		5.0	16.0	16.0	4.8	16.8	16.8	7.0	19.0	
Actuated g/C Ratio	0.08	0.26		0.08	0.26	0.26	0.08	0.28	0.28	0.12	0.31	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	145	900		145	931	397	139	514	426	203	568	
v/s Ratio Prot	0.10	c0.40		c0.24	0.39		0.07	0.25		c0.08	c0.29	
v/s Ratio Perm						0.05			0.04			
v/c Ratio	1.17	1.51		2.95	1.46	0.18	0.92	0.92	0.16	0.73	0.93	
Uniform Delay, d1	27.9	22.4		27.9	22.4	17.3	27.8	21.3	16.7	26.0	20.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	128.5	236.8		896.7	214.7	0.2	52.9	21.1	0.2	12.3	21.7	
Delay (s)	156.4	259.2		924.6	237.1	17.5	80.7	42.4	16.8	38.3	41.9	
Level of Service	F	F		F	F	B	F	D	B	D	D	
Approach Delay (s)		248.0			364.2			40.7			41.1	
Approach LOS		F			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	230.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.36		
Actuated Cycle Length (s)	60.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	105.0%	ICU Level of Service	G
Analysis Period (min)	15		

Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group

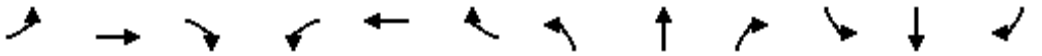


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	197	1078	469	57	889	142	915	1020	44	277	1185	186
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.96		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.98		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3255		1770	3428		3433	3506		1770	3426	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3255		1770	3428		3433	3506		1770	3426	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	214	1172	510	62	966	154	995	1109	48	301	1288	202
RTOR Reduction (vph)	0	43	0	0	12	0	0	3	0	0	11	0
Lane Group Flow (vph)	214	1639	0	62	1108	0	995	1154	0	301	1479	0
Confl. Peds. (#/hr)			83			52			53			68
Confl. Bikes (#/hr)			15			8			15			12
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	14.0	33.8		8.8	28.6		13.0	39.4		15.0	40.4	
Effective Green, g (s)	14.0	33.8		8.8	28.6		13.0	39.4		15.0	40.4	
Actuated g/C Ratio	0.13	0.31		0.08	0.26		0.12	0.36		0.14	0.37	
Clearance Time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.0	2.0		2.0	4.0		2.5	4.0	
Lane Grp Cap (vph)	225	1000		141	891		405	1255		241	1258	
v/s Ratio Prot	c0.12	c0.50		0.04	0.32		c0.29	0.33		0.17	c0.43	
v/s Ratio Perm												
v/c Ratio	0.95	1.64		0.44	1.24		2.46	0.92		1.25	1.18	
Uniform Delay, d1	47.7	38.1		48.2	40.7		48.5	33.8		47.5	34.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	45.9	292.1		0.8	119.2		663.0	12.3		141.7	87.6	
Delay (s)	93.6	330.2		49.0	159.9		711.5	46.1		189.2	122.4	
Level of Service	F	F		D	F		F	D		F	F	
Approach Delay (s)		303.5			154.1			353.7			133.6	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	250.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.50		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	134.4%	ICU Level of Service	H
Analysis Period (min)	15		

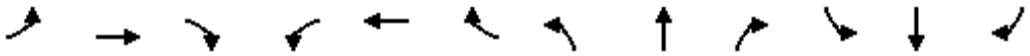
Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group



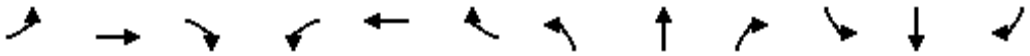
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	990	115	7	271	0	0	0	0	580	516	422
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5					6.5	6.5	6.5
Lane Util. Factor		0.95			0.91					0.91	0.91	1.00
Frpb, ped/bikes		1.00			1.00					1.00	1.00	0.97
Flpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Frt		0.98			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	0.99	1.00
Satd. Flow (prot)		3467			5079					1610	3340	1540
Flt Permitted		1.00			0.91					0.95	0.99	1.00
Satd. Flow (perm)		3467			4647					1610	3340	1540
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	990	115	7	271	0	0	0	0	580	516	422
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	0	0	261
Lane Group Flow (vph)	0	1094	0	0	278	0	0	0	0	360	736	161
Confl. Peds. (#/hr)	20		20	20								20
Turn Type		NA		Perm	NA					Perm	NA	Perm
Protected Phases		1			1						2	
Permitted Phases				1						2		2
Actuated Green, G (s)		37.5			37.5					30.5	30.5	30.5
Effective Green, g (s)		37.5			37.5					30.5	30.5	30.5
Actuated g/C Ratio		0.47			0.47					0.38	0.38	0.38
Clearance Time (s)		5.5			5.5					6.5	6.5	6.5
Lane Grp Cap (vph)		1625			2178					613	1273	587
v/s Ratio Prot		c0.32										
v/s Ratio Perm					0.06					c0.22	0.22	0.10
v/c Ratio		0.67			0.13					0.59	0.58	0.27
Uniform Delay, d1		16.5			12.0					19.7	19.6	17.1
Progression Factor		1.00			0.35					1.00	1.00	1.00
Incremental Delay, d2		2.2			0.1					4.1	1.9	1.2
Delay (s)		18.7			4.3					23.8	21.6	18.3
Level of Service		B			A					C	C	B
Approach Delay (s)		18.7			4.3			0.0			21.2	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



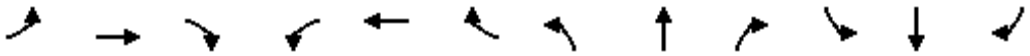
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	568	1008	0	0	262	935	35	1265	61	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1610	3381			3539	2700		5036				
Flt Permitted	0.95	0.93			1.00	1.00		1.00				
Satd. Flow (perm)	1610	3155			3539	2700		5036				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	568	1008	0	0	262	935	35	1265	61	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	57	0	6	0	0	0	0
Lane Group Flow (vph)	511	1065	0	0	262	878	0	1355	0	0	0	0
Confl. Peds. (#/hr)						20			20			
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	22.5	50.5			24.5	24.5		18.5				
Effective Green, g (s)	22.5	50.5			24.5	24.5		18.5				
Actuated g/C Ratio	0.28	0.63			0.31	0.31		0.23				
Clearance Time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Grp Cap (vph)	452	2055			1083	826		1164				
v/s Ratio Prot	c0.32	0.15			0.07							
v/s Ratio Perm		0.18				c0.33		0.27				
v/c Ratio	1.13	0.52			0.24	1.06		1.16				
Uniform Delay, d1	28.8	8.1			20.8	27.8		30.8				
Progression Factor	0.88	1.87			1.00	1.00		1.00				
Incremental Delay, d2	78.5	0.7			0.5	49.5		83.5				
Delay (s)	103.8	15.8			21.3	77.2		114.2				
Level of Service	F	B			C	E		F				
Approach Delay (s)		44.3			65.0			114.2			0.0	
Approach LOS		D			E			F			A	

Intersection Summary			
HCM 2000 Control Delay	73.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	104.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



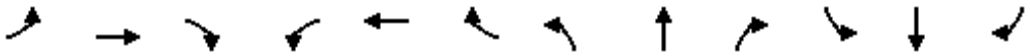
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	947	411	261	1662	37	755	32	484	78	35	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3312	1214	1289	3383		1649	1575	1240	1480	1389	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3312	1214	1289	3383		1649	1575	1240	1480	1389	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	947	411	261	1662	37	755	32	484	78	35	73
RTOR Reduction (vph)	0	0	239	0	1	0	0	0	280	0	55	0
Lane Group Flow (vph)	15	947	172	261	1698	0	393	394	204	78	53	0
Confl. Peds. (#/hr)						1			3			
Heavy Vehicles (%)	0%	9%	33%	40%	5%	65%	4%	73%	28%	22%	50%	10%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases			2						8			
Actuated Green, G (s)	2.4	47.6	47.6	28.5	73.7		35.0	35.0	35.0	8.3	8.3	
Effective Green, g (s)	2.4	47.6	47.6	28.5	73.7		35.0	35.0	35.0	8.3	8.3	
Actuated g/C Ratio	0.02	0.35	0.35	0.21	0.54		0.26	0.26	0.26	0.06	0.06	
Clearance Time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	3.0	4.5	4.5	3.0	4.5		4.0	4.0	4.0	3.0	3.0	
Lane Grp Cap (vph)	31	1160	425	270	1834		424	405	319	90	84	
v/s Ratio Prot	0.01	0.29		c0.20	c0.50		0.24	c0.25		c0.05	0.04	
v/s Ratio Perm			0.14						0.16			
v/c Ratio	0.48	0.82	0.40	0.97	0.93		0.93	0.97	0.64	0.87	0.63	
Uniform Delay, d1	66.1	40.2	33.4	53.2	28.6		49.2	50.0	44.8	63.3	62.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	11.4	5.0	1.1	45.1	8.8		26.5	37.5	4.7	53.4	13.7	
Delay (s)	77.6	45.2	34.5	98.4	37.4		75.7	87.5	49.5	116.6	76.0	
Level of Service	E	D	C	F	D		E	F	D	F	E	
Approach Delay (s)		42.3			45.5			69.4			93.0	
Approach LOS		D			D			E			F	

Intersection Summary			
HCM 2000 Control Delay	52.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	135.9	Sum of lost time (s)	16.5
Intersection Capacity Utilization	91.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



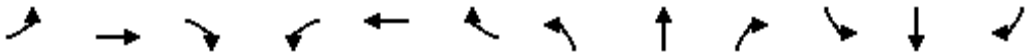
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	251	766	486	429	1486	307	409	397	499	207	179	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	0.92		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.99	
Satd. Flow (prot)	1337	2998		1687	3406	1509	1444	2895		1369	2604	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.99	
Satd. Flow (perm)	1337	2998		1687	3406	1509	1444	2895		1369	2604	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	251	766	486	429	1486	307	409	397	499	207	179	76
RTOR Reduction (vph)	0	73	0	0	0	141	0	163	0	0	21	0
Lane Group Flow (vph)	251	1179	0	429	1486	166	409	733	0	153	288	0
Confl. Peds. (#/hr)									1			
Heavy Vehicles (%)	35%	13%	14%	7%	6%	7%	25%	14%	13%	20%	16%	57%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	21.5	44.0		29.5	52.0	52.0	34.5	34.5		15.0	15.0	
Effective Green, g (s)	21.5	44.0		29.5	52.0	52.0	34.5	34.5		15.0	15.0	
Actuated g/C Ratio	0.15	0.32		0.21	0.37	0.37	0.25	0.25		0.11	0.11	
Clearance Time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	206	945		356	1269	562	357	715		147	280	
v/s Ratio Prot	0.19	c0.39		c0.25	0.44		c0.28	0.25		c0.11	0.11	
v/s Ratio Perm						0.11						
v/c Ratio	1.22	1.25		1.21	1.17	0.30	1.15	1.02		1.04	1.03	
Uniform Delay, d1	59.0	47.8		55.0	43.8	30.8	52.5	52.5		62.2	62.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	134.0	120.5		115.9	85.7	0.3	93.4	40.1		85.5	61.8	
Delay (s)	193.0	168.3		170.9	129.4	31.1	145.9	92.6		147.7	124.1	
Level of Service	F	F		F	F	C	F	F		F	F	
Approach Delay (s)		172.4			123.9			109.3			131.9	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	134.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	139.5	Sum of lost time (s)	16.5
Intersection Capacity Utilization	110.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1235	199	255	1534	0	0	0	0	785	726	505
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						5.0	
Lane Util. Factor		0.91		1.00	0.95						0.95	
Frpb, ped/bikes		1.00		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.98		1.00	1.00						0.96	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		4839		1768	3312						3283	
Flt Permitted		1.00		0.11	1.00						0.98	
Satd. Flow (perm)		4839		213	3312						3283	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1235	199	255	1534	0	0	0	0	785	726	505
RTOR Reduction (vph)	0	25	0	0	0	0	0	0	0	0	8	0
Lane Group Flow (vph)	0	1409	0	255	1534	0	0	0	0	0	2008	0
Confl. Peds. (#/hr)			8	8						10		10
Heavy Vehicles (%)	16%	5%	2%	2%	9%	2%	1%	0%	0%	2%	2%	7%
Turn Type		NA		Perm	NA					Split	NA	
Protected Phases		4			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		41.0		41.0	41.0						36.0	
Effective Green, g (s)		41.0		41.0	41.0						36.0	
Actuated g/C Ratio		0.47		0.47	0.47						0.41	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		2280		100	1560						1358	
v/s Ratio Prot		0.29			0.46						c0.61	
v/s Ratio Perm				c1.19								
v/c Ratio		0.62		2.55	0.98						1.48	
Uniform Delay, d1		17.2		23.0	22.7						25.5	
Progression Factor		1.00		0.29	0.29						1.00	
Incremental Delay, d2		0.4		700.2	3.9						219.5	
Delay (s)		17.5		706.9	10.4						245.0	
Level of Service		B		F	B						F	
Approach Delay (s)		17.5			109.7			0.0			245.0	
Approach LOS		B			F			A			F	

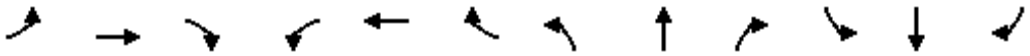
Intersection Summary			
HCM 2000 Control Delay	136.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.04		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	191.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	484	1536	0	0	1673	567	116	633	212	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0				
Lane Util. Factor	1.00	0.95			0.95			0.95				
Frpb, ped/bikes	1.00	1.00			0.99			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.96			0.97				
Flt Protected	0.95	1.00			1.00			0.99				
Satd. Flow (prot)	1770	3539			3380			3385				
Flt Permitted	0.10	1.00			1.00			0.99				
Satd. Flow (perm)	182	3539			3380			3385				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	484	1536	0	0	1673	567	116	633	212	0	0	0
RTOR Reduction (vph)	0	0	0	0	39	0	0	7	0	0	0	0
Lane Group Flow (vph)	484	1536	0	0	2201	0	0	954	0	0	0	0
Confl. Peds. (#/hr)	10					10			10			
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)	41.0	41.0			41.0			36.0				
Effective Green, g (s)	41.0	41.0			41.0			36.0				
Actuated g/C Ratio	0.47	0.47			0.47			0.41				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Vehicle Extension (s)	2.0	2.0			2.0			2.0				
Lane Grp Cap (vph)	85	1667			1592			1400				
v/s Ratio Prot		0.43			0.65			c0.28				
v/s Ratio Perm	c2.66											
v/c Ratio	5.69	0.92			1.38			0.68				
Uniform Delay, d1	23.0	21.5			23.0			20.8				
Progression Factor	0.85	0.83			1.00			1.00				
Incremental Delay, d2	2120.4	3.1			176.2			1.1				
Delay (s)	2140.1	21.0			199.2			21.9				
Level of Service	F	C			F			C				
Approach Delay (s)		528.8			199.2			21.9			0.0	
Approach LOS		F			F			C			A	

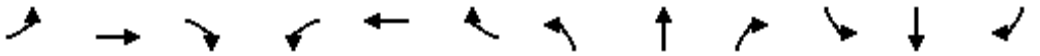
Intersection Summary			
HCM 2000 Control Delay	294.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	3.32		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	191.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	1361	377	117	1770	27	262	227	114	124	356	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00		1.00	0.95		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	3350		1769	3367		1762	1754		1762	1796	
Flt Permitted	0.08	1.00		0.08	1.00		0.20	1.00		0.35	1.00	
Satd. Flow (perm)	154	3350		154	3367		378	1754		658	1796	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	61	1361	377	117	1770	27	262	227	114	124	356	89
RTOR Reduction (vph)	0	32	0	0	1	0	0	23	0	0	11	0
Lane Group Flow (vph)	61	1707	0	117	1796	0	262	318	0	124	434	0
Confl. Peds. (#/hr)	8		7	7		8	11		8	8		11
Confl. Bikes (#/hr)			9			11			8			10
Heavy Vehicles (%)	2%	4%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	48.5	48.5		48.5	48.5		23.0	23.0		23.0	23.0	
Effective Green, g (s)	48.5	48.5		48.5	48.5		23.0	23.0		23.0	23.0	
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.29	0.29		0.29	0.29	
Clearance Time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	93	2030		93	2041		108	504		189	516	
v/s Ratio Prot		0.51			0.53			0.18			0.24	
v/s Ratio Perm	0.40			c0.76			c0.69			0.19		
v/c Ratio	0.66	0.84		1.26	0.88		2.43	0.63		0.66	0.84	
Uniform Delay, d1	10.3	12.6		15.8	13.3		28.5	24.8		25.0	26.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	30.8	4.4		177.8	5.8		668.9	5.9		16.4	15.2	
Delay (s)	41.1	17.1		193.5	19.1		697.4	30.7		41.5	41.9	
Level of Service	D	B		F	B		F	C		D	D	
Approach Delay (s)		17.9			29.8			320.4			41.8	
Approach LOS		B			C			F			D	

Intersection Summary			
HCM 2000 Control Delay	62.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.63		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	143.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



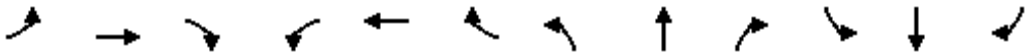
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	1537	108	57	1310	9	388	577	183	29	28	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Lane Util. Factor		0.95			0.95	1.00	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00			1.00	0.94	1.00	1.00	0.95		1.00	0.95
Flpb, ped/bikes		1.00			1.00	1.00	0.97	1.00	1.00		1.00	1.00
Frt		0.99			1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected		1.00			1.00	1.00	0.95	1.00	1.00		0.98	1.00
Satd. Flow (prot)		3425			3307	1490	1641	1827	1504		1817	1500
Flt Permitted		0.76			0.67	1.00	0.72	1.00	1.00		0.36	1.00
Satd. Flow (perm)		2617			2228	1490	1244	1827	1504		678	1500
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	62	1537	108	57	1310	9	388	577	183	29	28	69
RTOR Reduction (vph)	0	6	0	0	0	2	0	0	23	0	0	39
Lane Group Flow (vph)	0	1701	0	0	1367	7	388	577	160	0	57	30
Confl. Peds. (#/hr)	21		15	15		21	27		25	25		27
Confl. Bikes (#/hr)			18			17			16			17
Heavy Vehicles (%)	2%	4%	3%	30%	8%	2%	7%	4%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		4
Actuated Green, G (s)		54.5			54.5	54.5	26.5	26.5	26.5		26.5	26.5
Effective Green, g (s)		54.5			54.5	54.5	26.5	26.5	26.5		26.5	26.5
Actuated g/C Ratio		0.61			0.61	0.61	0.29	0.29	0.29		0.29	0.29
Clearance Time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Vehicle Extension (s)		2.0			2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1584			1349	902	366	537	442		199	441
v/s Ratio Prot								c0.32				
v/s Ratio Perm		c0.65			0.61	0.00	0.31		0.11		0.08	0.02
v/c Ratio		1.07			1.01	0.01	1.06	1.07	0.36		0.29	0.07
Uniform Delay, d1		17.8			17.8	7.0	31.8	31.8	25.1		24.5	22.9
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2		45.5			27.9	0.0	63.8	60.4	0.2		0.3	0.0
Delay (s)		63.2			45.6	7.0	95.6	92.1	25.3		24.8	22.9
Level of Service		E			D	A	F	F	C		C	C
Approach Delay (s)		63.2			45.3			82.6			23.7	
Approach LOS		E			D			F			C	

Intersection Summary			
HCM 2000 Control Delay	61.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	128.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	204	1333	368	96	918	42	570	692	157	193	898	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.97	
Flt Protected		0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3485	1482	1770	3195	1540	1732	3425		1764	3427	
Flt Permitted		0.57	1.00	0.12	1.00	1.00	0.16	1.00		0.26	1.00	
Satd. Flow (perm)		1982	1482	219	3195	1540	301	3425		486	3427	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	204	1333	368	96	918	42	570	692	157	193	898	202
RTOR Reduction (vph)	0	0	52	0	0	19	0	5	0	0	23	0
Lane Group Flow (vph)	0	1537	316	96	918	23	570	844	0	193	1077	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Heavy Vehicles (%)	2%	3%	6%	2%	13%	2%	4%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4		4	2			6		
Actuated Green, G (s)		34.0	34.0	34.0	34.0	34.0	41.5	41.5		41.5	41.5	
Effective Green, g (s)		34.0	34.0	34.0	34.0	34.0	41.5	41.5		41.5	41.5	
Actuated g/C Ratio		0.40	0.40	0.40	0.40	0.40	0.49	0.49		0.49	0.49	
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0		4.0	4.0	
Lane Grp Cap (vph)		792	592	87	1278	616	146	1672		237	1673	
v/s Ratio Prot					0.29			0.25			0.31	
v/s Ratio Perm		c0.78	0.21	0.44		0.01	c1.90			0.40		
v/c Ratio		1.94	0.53	1.10	0.72	0.04	3.90	0.50		0.81	0.64	
Uniform Delay, d1		25.5	19.5	25.5	21.5	15.5	21.8	14.8		18.5	16.2	
Progression Factor		1.00	1.00	0.39	0.39	0.05	1.00	1.00		1.00	1.00	
Incremental Delay, d2		427.9	3.4	118.5	2.9	0.1	1323.2	0.5		19.8	1.0	
Delay (s)		453.4	22.9	128.5	11.4	0.9	1345.0	15.3		38.3	17.2	
Level of Service		F	C	F	B	A	F	B		D	B	
Approach Delay (s)		370.3			21.6			549.4			20.3	
Approach LOS		F			C			F			C	

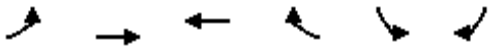
Intersection Summary			
HCM 2000 Control Delay	270.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	3.01		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	147.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	1373	25	60	1106	57	27	222	348	35	78	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.96		1.00	0.94		0.97	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1587	3154	1360	1588	3065	1375		3159	1171		2846	
Flt Permitted	0.20	1.00	1.00	0.13	1.00	1.00		0.91	1.00		0.88	
Satd. Flow (perm)	330	3154	1360	210	3065	1375		2889	1171		2516	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	119	1373	25	60	1106	57	27	222	348	35	78	98
RTOR Reduction (vph)	0	0	6	0	0	16	0	0	26	0	52	0
Lane Group Flow (vph)	119	1373	19	60	1106	41	0	249	322	0	159	0
Confl. Peds. (#/hr)	22		31	31		22	34		37	37		34
Confl. Bikes (#/hr)			7			3			12			19
Heavy Vehicles (%)	2%	3%	2%	2%	6%	2%	2%	2%	17%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4		4	2		2	2		
Actuated Green, G (s)	50.8	50.8	50.8	50.8	50.8	50.8		25.7	25.7		25.7	
Effective Green, g (s)	50.8	50.8	50.8	50.8	50.8	50.8		25.7	25.7		25.7	
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.60	0.60		0.30	0.30		0.30	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	197	1884	812	125	1831	821		873	354		760	
v/s Ratio Prot		c0.44			0.36							
v/s Ratio Perm	0.36		0.01	0.29		0.03		0.09	c0.28		0.06	
v/c Ratio	0.60	0.73	0.02	0.48	0.60	0.05		0.29	0.91		0.21	
Uniform Delay, d1	10.8	12.2	7.0	9.6	10.8	7.1		22.6	28.5		22.1	
Progression Factor	0.74	0.77	0.79	1.52	1.47	1.54		1.00	1.00		1.00	
Incremental Delay, d2	1.2	0.2	0.0	6.3	0.7	0.1		0.1	26.2		0.1	
Delay (s)	9.2	9.6	5.5	20.9	16.6	11.0		22.7	54.7		22.1	
Level of Service	A	A	A	C	B	B		C	D		C	
Approach Delay (s)		9.5			16.5			41.4			22.1	
Approach LOS		A			B			D			C	

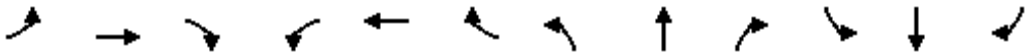
Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	96.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



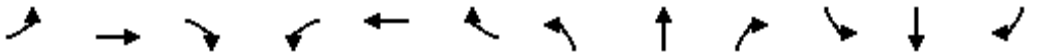
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	620	1044	878	525	265	216
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	0.99	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.97	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.96	1.00
Satd. Flow (prot)	1577	3094	3065	1382	2972	1213
Flt Permitted	0.95	1.00	1.00	1.00	0.96	1.00
Satd. Flow (perm)	1577	3094	3065	1382	2972	1213
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	620	1044	878	525	265	216
RTOR Reduction (vph)	0	0	0	241	31	126
Lane Group Flow (vph)	620	1044	878	284	299	25
Confl. Peds. (#/hr)				15	15	15
Heavy Vehicles (%)	3%	5%	6%	2%	3%	6%
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	36.8	62.8	22.0	22.0	14.2	14.2
Effective Green, g (s)	36.8	62.8	22.0	22.0	14.2	14.2
Actuated g/C Ratio	0.43	0.74	0.26	0.26	0.17	0.17
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	682	2285	793	357	496	202
v/s Ratio Prot	c0.39	0.34	c0.29		c0.10	
v/s Ratio Perm				0.21		0.02
v/c Ratio	0.91	0.46	1.11	0.80	0.60	0.12
Uniform Delay, d1	22.5	4.4	31.5	29.4	32.8	30.1
Progression Factor	0.77	0.83	1.10	1.31	1.00	1.00
Incremental Delay, d2	11.1	0.4	50.3	1.1	1.4	0.1
Delay (s)	28.4	4.0	85.0	39.7	34.2	30.2
Level of Service	C	A	F	D	C	C
Approach Delay (s)		13.1	68.0		33.0	
Approach LOS		B	E		C	

Intersection Summary			
HCM 2000 Control Delay	37.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	185	970	33	125	835	92	410	1106	307	91	438	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00	0.92	1.00	0.98	
Flpb, ped/bikes	0.99	1.00			1.00		0.98	1.00	1.00	0.99	1.00	
Frt	1.00	1.00			0.99		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1581	3164			3104		1564	3185	1309	1579	2981	
Flt Permitted	0.16	1.00			0.60		0.34	1.00	1.00	0.13	1.00	
Satd. Flow (perm)	262	3164			1877		568	3185	1309	220	2981	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	185	970	33	125	835	92	410	1106	307	91	438	185
RTOR Reduction (vph)	0	3	0	0	9	0	0	0	27	0	41	0
Lane Group Flow (vph)	185	1000	0	0	1043	0	410	1106	280	91	582	0
Confl. Peds. (#/hr)	46		47	47		46	57		65	65		57
Confl. Bikes (#/hr)			9			21			15			22
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	39.0	39.0			39.0		38.0	38.0	38.0	38.0	38.0	
Effective Green, g (s)	39.0	39.0			39.0		38.0	38.0	38.0	38.0	38.0	
Actuated g/C Ratio	0.46	0.46			0.46		0.45	0.45	0.45	0.45	0.45	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	120	1451			861		253	1423	585	98	1332	
v/s Ratio Prot		0.32						0.35			0.20	
v/s Ratio Perm	c0.71				0.56		c0.72		0.21	0.41		
v/c Ratio	1.54	0.69			1.21		1.62	0.78	0.48	0.93	0.44	
Uniform Delay, d1	23.0	18.2			23.0		23.5	19.9	16.5	22.2	16.1	
Progression Factor	0.88	0.88			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	277.9	2.5			106.0		296.7	2.5	0.2	66.6	0.1	
Delay (s)	298.1	18.4			129.0		320.2	22.4	16.8	88.8	16.2	
Level of Service	F	B			F		F	C	B	F	B	
Approach Delay (s)		62.0			129.0			88.4			25.5	
Approach LOS		E			F			F			C	

Intersection Summary			
HCM 2000 Control Delay	81.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.58		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	127.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	332	914	237	463	734	76	10	1950	731	3	1256	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	4.0		5.5	5.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.98		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)	3090	3154	1349	3090	3185	1349		4575	1391		4576	1349
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.93	1.00		0.93	1.00
Satd. Flow (perm)	3090	3154	1349	3090	3185	1349		4254	1391		4235	1349
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	332	914	237	463	734	76	10	1950	731	3	1256	211
RTOR Reduction (vph)	0	0	65	0	0	53	0	0	0	0	0	79
Lane Group Flow (vph)	332	914	172	463	734	24	0	1960	731	0	1259	132
Confl. Peds. (#/hr)			40			40	40		40	40		40
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Free	Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases			8			4	2		Free	6		6
Actuated Green, G (s)	11.0	27.5	27.5	12.0	28.5	28.5		40.5	95.0		40.5	40.5
Effective Green, g (s)	11.0	27.5	27.5	12.0	28.5	28.5		40.5	95.0		40.5	40.5
Actuated g/C Ratio	0.12	0.29	0.29	0.13	0.30	0.30		0.43	1.00		0.43	0.43
Clearance Time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	357	913	390	390	955	404		1813	1391		1805	575
v/s Ratio Prot	0.11	c0.29		c0.15	0.23							
v/s Ratio Perm			0.13			0.02		c0.46	0.53		0.30	0.10
v/c Ratio	0.93	1.00	0.44	1.19	0.77	0.06		1.08	0.53		0.70	0.23
Uniform Delay, d1	41.6	33.8	27.5	41.5	30.2	23.7		27.2	0.0		22.2	17.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	29.9	30.0	3.6	107.2	5.9	0.3		46.8	1.4		1.2	0.2
Delay (s)	71.6	63.8	31.1	148.7	36.2	24.0		74.1	1.4		23.4	17.5
Level of Service	E	E	C	F	D	C		E	A		C	B
Approach Delay (s)		60.3			76.4			54.3			22.6	
Approach LOS		E			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	52.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	104.7%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

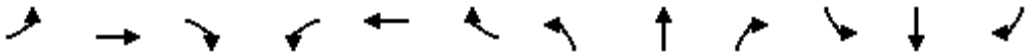
Site: 2035 + Proj Pref PM

Adeline & 18th
2035 + Preferred Project PM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	57	2.0	1.073	82.6	LOS F	30.2	767.5	1.00	2.30	11.4
8	T	508	2.0	1.073	82.6	LOS F	30.2	767.5	1.00	2.30	11.2
18	R	101	2.0	1.073	82.6	LOS F	30.2	767.5	1.00	2.30	11.2
Approach		666	2.0	1.073	82.6	LOS F	30.2	767.5	1.00	2.30	11.2
East: 18th Street (WB)											
1	L	13	2.0	0.319	8.4	LOS A	1.5	37.3	0.65	0.98	26.3
6	T	179	2.0	0.319	8.4	LOS A	1.5	37.3	0.65	0.80	28.6
16	R	55	2.0	0.319	8.4	LOS A	1.5	37.3	0.65	0.84	28.3
Approach		247	2.0	0.319	8.4	LOS A	1.5	37.3	0.65	0.82	28.4
North: Adeline Street (SB)											
7	L	358	2.0	0.777	17.5	LOS C	10.4	265.1	0.88	0.90	22.5
4	T	426	2.0	0.777	17.5	LOS C	10.4	265.1	0.88	0.85	23.7
14	R	68	2.0	0.777	17.5	LOS C	10.4	265.1	0.88	0.86	23.6
Approach		852	2.0	0.777	17.5	LOS C	10.4	265.1	0.88	0.87	23.2
West: 18th Street (EB)											
5	L	60	2.0	0.856	34.8	LOS D	9.4	238.4	0.96	1.35	18.0
2	T	386	2.0	0.856	34.8	LOS D	9.4	238.4	0.96	1.33	18.4
12	R	89	2.0	0.856	34.8	LOS D	9.4	238.4	0.96	1.33	18.3
Approach		535	2.0	0.856	34.8	LOS D	9.4	238.4	0.96	1.33	18.3
All Vehicles		2300	2.0	1.073	39.4	LOS E	30.2	767.5	0.91	1.38	17.2

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	167	570	45	17	163	112	64	818	61	31	202	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99			0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.98	1.00			1.00	
Frt	1.00	0.99		1.00	0.94		1.00	0.99			0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1757	1835		1753	1731		1726	3481			3441	
Flt Permitted	0.49	1.00		0.16	1.00		0.59	1.00			0.84	
Satd. Flow (perm)	910	1835		299	1731		1077	3481			2897	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	167	570	45	17	163	112	64	818	61	31	202	24
RTOR Reduction (vph)	0	4	0	0	36	0	0	8	0	0	11	0
Lane Group Flow (vph)	167	611	0	17	239	0	64	871	0	0	246	0
Confl. Peds. (#/hr)	14		44	44		14	37		71	71		37
Confl. Bikes (#/hr)			6			2			2			11
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	24.7	24.7		24.7	24.7		37.0	37.0			37.0	
Effective Green, g (s)	24.7	24.7		24.7	24.7		37.0	37.0			37.0	
Actuated g/C Ratio	0.35	0.35		0.35	0.35		0.53	0.53			0.53	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	322	650		105	613		571	1847			1537	
v/s Ratio Prot		c0.33			0.14			c0.25				
v/s Ratio Perm	0.18			0.06			0.06				0.08	
v/c Ratio	0.52	0.94		0.16	0.39		0.11	0.47			0.16	
Uniform Delay, d1	17.8	21.8		15.4	16.9		8.2	10.2			8.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	1.4	21.8		0.7	0.4		0.4	0.9			0.2	
Delay (s)	19.2	43.5		16.1	17.3		8.6	11.1			8.6	
Level of Service	B	D		B	B		A	B			A	
Approach Delay (s)		38.3			17.2			10.9			8.6	
Approach LOS		D			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	69.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	100.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

Site: 2035 + Proj Pref PM

Adeline & 14th
2035 + Preferred Project PM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	18	2.0	0.677	15.0	LOS C	6.3	159.6	0.82	1.06	23.7
8	T	557	2.0	0.677	15.0	LOS C	6.3	159.6	0.82	0.96	25.2
18	R	53	2.0	0.677	15.0	LOS C	6.3	159.6	0.82	0.98	25.0
Approach		628	2.0	0.677	15.0	LOS C	6.3	159.6	0.82	0.96	25.1
East: 14th Street (WB)											
1	L	90	2.0	0.470	11.4	LOS B	2.7	68.0	0.73	1.02	24.9
6	T	212	2.0	0.470	11.4	LOS B	2.7	68.0	0.73	0.89	26.7
16	R	47	2.0	0.470	11.4	LOS B	2.7	68.0	0.73	0.92	26.5
Approach		349	2.0	0.470	11.4	LOS B	2.7	68.0	0.73	0.93	26.1
North: Adeline Street (SB)											
7	L	85	2.0	0.505	9.6	LOS A	3.3	83.5	0.64	0.89	25.7
4	T	395	2.0	0.505	9.6	LOS A	3.3	83.5	0.64	0.71	27.8
14	R	34	2.0	0.505	9.6	LOS A	3.3	83.5	0.64	0.74	27.5
Approach		514	2.0	0.505	9.6	LOS A	3.3	83.5	0.64	0.74	27.4
West: 14th Street (EB)											
5	L	53	2.0	0.503	11.6	LOS B	3.1	78.5	0.73	1.04	24.9
2	T	273	2.0	0.503	11.6	LOS B	3.1	78.5	0.73	0.90	26.7
12	R	71	2.0	0.503	11.6	LOS B	3.1	78.5	0.73	0.93	26.5
Approach		397	2.0	0.503	11.6	LOS B	3.1	78.5	0.73	0.92	26.4
All Vehicles		1888	2.0	0.677	12.2	LOS B	6.3	159.6	0.74	0.89	26.2

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.

MOVEMENT SUMMARY

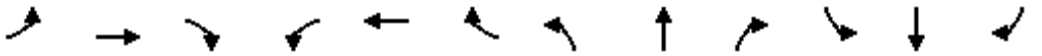
Site: 2035 + Proj PM

Adeline & 12th
2035 + Preferred Project PM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	1	2.0	0.392	6.7	LOS A	2.5	62.3	0.37	0.84	26.9
8	T	481	2.0	0.392	6.7	LOS A	2.5	62.3	0.37	0.49	29.7
18	R	7	2.0	0.392	6.7	LOS A	2.5	62.3	0.37	0.56	29.3
Approach		489	2.0	0.392	6.7	LOS A	2.5	62.3	0.37	0.49	29.7
East: 12th Street (WB)											
1	L	10	2.0	0.189	6.1	LOS A	0.8	21.1	0.56	0.89	27.1
6	T	21	2.0	0.189	6.1	LOS A	0.8	21.1	0.56	0.68	29.8
16	R	131	2.0	0.189	6.1	LOS A	0.8	21.1	0.56	0.73	29.4
Approach		162	2.0	0.189	6.1	LOS A	0.8	21.1	0.56	0.73	29.3
North: Adeline Street (SB)											
7	L	108	2.0	0.394	6.3	LOS A	2.6	67.1	0.18	0.83	26.8
4	T	423	2.0	0.394	6.3	LOS A	2.6	67.1	0.18	0.40	29.9
14	R	8	2.0	0.394	6.3	LOS A	2.6	67.1	0.18	0.49	29.4
Approach		539	2.0	0.394	6.3	LOS A	2.6	67.1	0.18	0.49	29.2
West: 12th Street (EB)											
5	L	8	2.0	0.019	4.6	LOS A	0.1	1.9	0.53	0.78	27.8
2	T	5	2.0	0.019	4.6	LOS A	0.1	1.9	0.53	0.57	30.7
12	R	3	2.0	0.019	4.6	LOS A	0.1	1.9	0.53	0.62	30.3
Approach		16	2.0	0.019	4.6	LOS A	0.1	1.9	0.53	0.68	29.0
All Vehicles		1206	2.0	0.394	6.4	LOS A	2.6	67.1	0.32	0.52	29.4

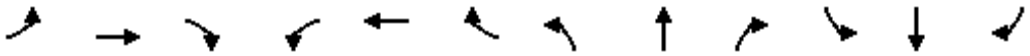
Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	259	184	0	0	190	288	157	515	225	288	0	531
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			0.98		1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frt	1.00	1.00			0.91		1.00	0.96		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1367	3312			2591		972	2915		1556		2472
Flt Permitted	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (perm)	1367	3312			2591		972	2915		1556		2472
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	259	184	0	0	190	288	157	515	225	288	0	531
RTOR Reduction (vph)	0	0	0	0	248	0	0	37	0	0	0	422
Lane Group Flow (vph)	259	184	0	0	230	0	141	719	0	288	0	109
Confl. Peds. (#/hr)						14						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	32%	9%	0%	0%	25%	24%	69%	12%	12%	16%	0%	15%
Turn Type	Prot	NA			NA		Split	NA		Prot		custom
Protected Phases	1	6			2		4	4		3		3
Permitted Phases												
Actuated Green, G (s)	21.2	38.5			13.8		26.6	26.6		20.1		20.1
Effective Green, g (s)	21.2	38.5			13.8		26.6	26.6		20.1		20.1
Actuated g/C Ratio	0.22	0.39			0.14		0.27	0.27		0.20		0.20
Clearance Time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	295	1298			364		263	789		318		505
v/s Ratio Prot	c0.19	0.06			c0.09		0.15	c0.25		c0.19		0.04
v/s Ratio Perm												
v/c Ratio	0.88	0.14			0.63		0.54	0.91		0.91		0.22
Uniform Delay, d1	37.2	19.2			39.8		30.5	34.7		38.1		32.5
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	23.5	0.0			3.1		1.6	14.6		27.6		0.2
Delay (s)	60.8	19.3			42.9		32.2	49.3		65.8		32.6
Level of Service	E	B			D		C	D		E		C
Approach Delay (s)		43.5			42.9			46.6			44.3	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	44.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	98.2	Sum of lost time (s)	16.5
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

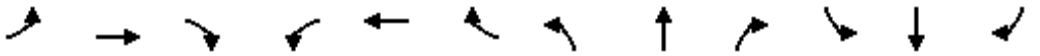
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	84	670	22	139	785	433	20	119	104	467	174	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.97			0.99		1.00	0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		0.99	1.00	
Frt	1.00	1.00		1.00	0.95			0.94		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1770	3377		1770	3184			1723		1758	1709	
Flt Permitted	0.95	1.00		0.95	1.00			0.97		0.57	1.00	
Satd. Flow (perm)	1770	3377		1770	3184			1675		1051	1709	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	84	670	22	139	785	433	20	119	104	467	174	79
RTOR Reduction (vph)	0	3	0	0	83	0	0	30	0	0	18	0
Lane Group Flow (vph)	84	689	0	139	1135	0	0	213	0	467	235	0
Confl. Peds. (#/hr)			58			47	70		8	8		70
Confl. Bikes (#/hr)			15			6			9			38
Heavy Vehicles (%)	2%	6%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	5.1	27.8		10.3	33.0			40.9		40.9	40.9	
Effective Green, g (s)	5.1	27.8		10.3	33.0			40.9		40.9	40.9	
Actuated g/C Ratio	0.06	0.31		0.11	0.37			0.45		0.45	0.45	
Clearance Time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	100	1043		202	1167			761		477	776	
v/s Ratio Prot	0.05	c0.20		0.08	c0.36						0.14	
v/s Ratio Perm								0.13		c0.44		
v/c Ratio	0.84	0.66		0.69	0.97			0.28		0.98	0.30	
Uniform Delay, d1	42.0	27.0		38.3	28.1			15.3		24.1	15.5	
Progression Factor	0.94	0.91		0.86	0.74			1.00		1.00	1.00	
Incremental Delay, d2	41.5	1.2		7.5	20.5			0.1		35.2	0.1	
Delay (s)	81.3	25.9		40.4	41.3			15.4		59.3	15.6	
Level of Service	F	C		D	D			B		E	B	
Approach Delay (s)		31.9			41.2			15.4			44.0	
Approach LOS		C			D			B			D	

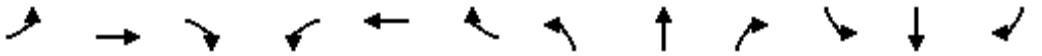
Intersection Summary			
HCM 2000 Control Delay	37.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	94.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	1697	48	70	1566	293	48	119	123	139	129	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.99	1.00		0.99	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.92		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1767	3383		1054	3471	1460	1574	1064		1759	1574	
Flt Permitted	0.09	1.00		0.09	1.00	1.00	0.59	1.00		0.52	1.00	
Satd. Flow (perm)	169	3383		101	3471	1460	986	1064		962	1574	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	52	1697	48	70	1566	293	48	119	123	139	129	57
RTOR Reduction (vph)	0	3	0	0	0	132	0	9	0	0	13	0
Lane Group Flow (vph)	52	1742	0	70	1566	161	48	233	0	139	173	0
Confl. Peds. (#/hr)	21		23	23		21	9		11	11		9
Confl. Bikes (#/hr)			4			5						1
Heavy Vehicles (%)	2%	6%	11%	71%	4%	6%	14%	50%	76%	2%	20%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	44.0	44.0		44.0	44.0	44.0	28.0	28.0		28.0	28.0	
Effective Green, g (s)	44.0	44.0		44.0	44.0	44.0	28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.55	0.55		0.55	0.55	0.55	0.35	0.35		0.35	0.35	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	92	1860		55	1909	803	345	372		336	550	
v/s Ratio Prot		0.51			0.45			c0.22			0.11	
v/s Ratio Perm	0.31			c0.69		0.11	0.05			0.14		
v/c Ratio	0.57	0.94		1.27	0.82	0.20	0.14	0.63		0.41	0.31	
Uniform Delay, d1	11.8	16.7		18.0	14.8	9.1	17.8	21.6		19.8	19.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	22.8	10.5		211.4	4.1	0.6	0.8	7.7		3.7	1.5	
Delay (s)	34.5	27.2		229.4	18.9	9.7	18.6	29.4		23.5	20.5	
Level of Service	C	C		F	B	A	B	C		C	C	
Approach Delay (s)		27.4			25.1			27.6			21.8	
Approach LOS		C			C			C			C	

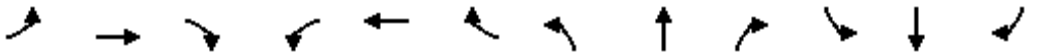
Intersection Summary			
HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	96.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	123	1506	87	25	1068	67	633	404	76	80	60	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1669	4281		1767	4532		1742	1863	1538	1755	3539	1216
Flt Permitted	0.17	1.00		0.11	1.00		0.72	1.00	1.00	0.41	1.00	1.00
Satd. Flow (perm)	306	4281		207	4532		1312	1863	1538	756	3539	1216
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	123	1506	87	25	1068	67	633	404	76	80	60	189
RTOR Reduction (vph)	0	7	0	0	8	0	0	0	14	0	0	18
Lane Group Flow (vph)	123	1586	0	25	1127	0	633	404	62	80	60	171
Confl. Peds. (#/hr)	10		20	20		10	8		20	20		8
Confl. Bikes (#/hr)			7			3						6
Heavy Vehicles (%)	8%	21%	2%	2%	14%	2%	3%	2%	2%	2%	2%	30%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	36.0	36.0		36.0	36.0		39.5	39.5	39.5	39.5	39.5	39.5
Effective Green, g (s)	36.0	36.0		36.0	36.0		39.5	39.5	39.5	39.5	39.5	39.5
Actuated g/C Ratio	0.42	0.42		0.42	0.42		0.46	0.46	0.46	0.46	0.46	0.46
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	129	1813		87	1919		609	865	714	351	1644	565
v/s Ratio Prot		0.37			0.25			0.22			0.02	
v/s Ratio Perm	c0.40			0.12			c0.48		0.04	0.11		0.14
v/c Ratio	0.95	0.87		0.29	0.59		1.04	0.47	0.09	0.23	0.04	0.30
Uniform Delay, d1	23.7	22.4		16.1	18.8		22.8	15.6	12.7	13.6	12.4	14.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	67.6	6.2		0.7	0.3		47.1	1.8	0.2	1.5	0.0	1.4
Delay (s)	91.3	28.7		16.7	19.1		69.8	17.4	12.9	15.1	12.4	15.5
Level of Service	F	C		B	B		E	B	B	B	B	B
Approach Delay (s)		33.2			19.0			46.9			14.9	
Approach LOS		C			B			D			B	

Intersection Summary			
HCM 2000 Control Delay	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	111.6%	ICU Level of Service	H
Analysis Period (min)	15		

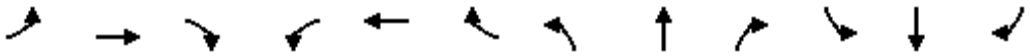
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	36	162	600	47	193	0	0	133	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	1.00			0.95	1.00
Frpb, ped/bikes					1.00	0.99	1.00	1.00			1.00	0.98
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3507	1561	1770	1111			2865	1558
Flt Permitted					0.99	1.00	0.67	1.00			1.00	1.00
Satd. Flow (perm)					3507	1561	1244	1111			2865	1558
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	36	162	600	47	193	0	0	133	24
RTOR Reduction (vph)	0	0	0	0	0	461	0	0	0	0	0	7
Lane Group Flow (vph)	0	0	0	0	198	139	47	193	0	0	133	17
Confl. Peds. (#/hr)				1		2			8	8		
Confl. Bikes (#/hr)												13
Heavy Vehicles (%)	0%	13%	100%	2%	2%	2%	2%	71%	83%	0%	26%	2%
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					4			6			2	
Permitted Phases				4		4	6					2
Actuated Green, G (s)					14.9	14.9	65.6	65.6			65.6	65.6
Effective Green, g (s)					14.9	14.9	65.6	65.6			65.6	65.6
Actuated g/C Ratio					0.17	0.17	0.73	0.73			0.73	0.73
Clearance Time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Vehicle Extension (s)					2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)					580	258	906	809			2088	1135
v/s Ratio Prot								c0.17			0.05	
v/s Ratio Perm					0.06	c0.09	0.04					0.01
v/c Ratio					0.34	0.54	0.05	0.24			0.06	0.02
Uniform Delay, d1					33.2	34.4	3.4	4.0			3.5	3.3
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					0.1	1.1	0.0	0.1			0.1	0.0
Delay (s)					33.3	35.5	3.4	4.1			3.5	3.4
Level of Service					C	D	A	A			A	A
Approach Delay (s)		0.0			34.9			3.9			3.5	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

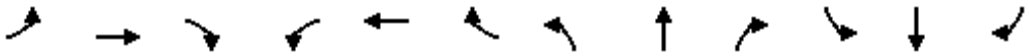


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	944	65	41	112	26	107	308	148	166	161	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.96		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.97		1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3366		1770	3295		1770	1075		1770	1090	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3366		1770	3295		1770	1075		1770	1090	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	26	944	65	41	112	26	107	308	148	166	161	14
RTOR Reduction (vph)	0	3	0	0	12	0	0	11	0	0	2	0
Lane Group Flow (vph)	26	1006	0	41	126	0	107	445	0	166	173	0
Confl. Peds. (#/hr)						50			3			3
Confl. Bikes (#/hr)			4						1			
Heavy Vehicles (%)	2%	5%	21%	2%	2%	2%	2%	57%	88%	2%	78%	2%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases												
Actuated Green, G (s)	4.0	48.4		4.0	48.9		64.0	64.0		25.0	25.0	
Effective Green, g (s)	4.0	48.4		4.0	48.9		64.0	64.0		25.0	25.0	
Actuated g/C Ratio	0.03	0.31		0.03	0.31		0.41	0.41		0.16	0.16	
Clearance Time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.5	3.0		3.2	3.2		3.0	3.0	
Lane Grp Cap (vph)	44	1035		44	1023		719	437		281	173	
v/s Ratio Prot	0.01	c0.30		c0.02	0.04		0.06	c0.41		0.09	c0.16	
v/s Ratio Perm												
v/c Ratio	0.59	0.97		0.93	0.12		0.15	1.02		0.59	1.00	
Uniform Delay, d1	75.9	53.8		76.6	38.9		29.5	46.7		61.5	66.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.3	21.3		109.0	0.1		0.1	47.6		3.3	68.9	
Delay (s)	89.2	75.1		185.6	38.9		29.6	94.3		64.8	135.1	
Level of Service	F	E		F	D		C	F		E	F	
Approach Delay (s)		75.4			72.5			82.0			100.9	
Approach LOS		E			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	81.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	157.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	78.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

2035 + Preferred Project AM Mitigated

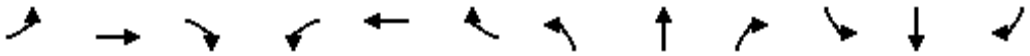


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	57	1260	85	330	1372	249	69	167	191	373	551	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3494		1770	3539	1517	1770	1863	1540	1770	1792	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3494		1770	3539	1517	1770	1863	1540	1770	1792	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	62	1370	92	359	1491	271	75	182	208	405	599	173
RTOR Reduction (vph)	0	8	0	0	0	104	0	0	156	0	17	0
Lane Group Flow (vph)	62	1454	0	359	1491	167	75	182	52	405	755	0
Confl. Peds. (#/hr)			32			7			5			6
Confl. Bikes (#/hr)			4			9			11			3
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			
Actuated Green, G (s)	2.3	14.7		10.0	22.4	22.4	3.1	15.2	15.2	5.0	17.1	
Effective Green, g (s)	2.3	14.7		10.0	22.4	22.4	3.1	15.2	15.2	5.0	17.1	
Actuated g/C Ratio	0.04	0.24		0.16	0.37	0.37	0.05	0.25	0.25	0.08	0.28	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	66	843		290	1301	557	90	464	384	145	503	
v/s Ratio Prot	0.04	c0.42		c0.20	0.42		0.04	0.10		c0.23	c0.42	
v/s Ratio Perm						0.11			0.03			
v/c Ratio	0.94	1.73		1.24	1.15	0.30	0.83	0.39	0.14	2.79	1.50	
Uniform Delay, d1	29.2	23.1		25.4	19.2	13.7	28.6	19.0	17.7	27.9	21.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	88.5	331.4		133.1	75.2	0.3	45.4	0.5	0.2	825.8	235.5	
Delay (s)	117.7	354.5		158.5	94.5	14.0	74.0	19.6	17.9	853.7	257.4	
Level of Service	F	F		F	F	B	E	B	B	F	F	
Approach Delay (s)		344.8			95.0			27.6			462.6	
Approach LOS		F			F			C			F	

Intersection Summary			
HCM 2000 Control Delay	242.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.70		
Actuated Cycle Length (s)	60.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	112.0%	ICU Level of Service	H
Analysis Period (min)	15		

Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group

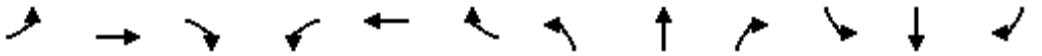


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	252	926	914	126	1195	190	853	795	45	165	1348	283
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.94		1.00	0.99		1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.98		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3081		1770	3428		3433	3497		1770	3394	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3081		1770	3428		3433	3497		1770	3394	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	274	1007	993	137	1299	207	927	864	49	179	1465	308
RTOR Reduction (vph)	0	161	0	0	11	0	0	3	0	0	16	0
Lane Group Flow (vph)	274	1839	0	137	1495	0	927	910	0	179	1757	0
Confl. Peds. (#/hr)			83			52			53			68
Confl. Bikes (#/hr)			15			8			15			12
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	19.0	36.0		11.0	28.0		15.0	36.1		13.9	34.0	
Effective Green, g (s)	19.0	36.0		11.0	28.0		15.0	36.1		13.9	34.0	
Actuated g/C Ratio	0.17	0.33		0.10	0.25		0.14	0.33		0.13	0.31	
Clearance Time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.0	2.0		2.0	4.0		2.5	4.0	
Lane Grp Cap (vph)	305	1008		177	872		468	1147		223	1049	
v/s Ratio Prot	c0.15	c0.60		0.08	0.44		c0.27	0.26		0.10	c0.52	
v/s Ratio Perm												
v/c Ratio	0.90	1.82		0.77	1.71		1.98	0.79		0.80	1.68	
Uniform Delay, d1	44.6	37.0		48.3	41.0		47.5	33.6		46.7	38.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	26.5	374.7		17.3	326.3		449.0	5.7		18.0	308.0	
Delay (s)	71.0	411.7		65.6	367.3		496.5	39.2		64.7	346.0	
Level of Service	E	F		E	F		F	D		E	F	
Approach Delay (s)		370.6			342.1			269.6			320.2	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	327.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.68		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	151.6%	ICU Level of Service	H
Analysis Period (min)	15		

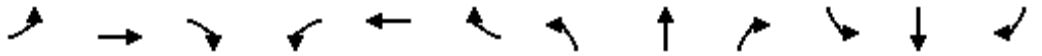
Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group



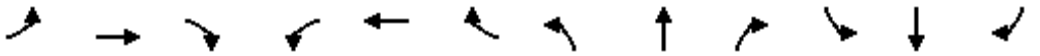
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	532	82	12	292	0	0	0	0	631	899	511
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5					6.5	6.5	6.5
Lane Util. Factor		0.95			0.91					0.91	0.91	1.00
Frpb, ped/bikes		0.99			1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Frt		0.98			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	0.99	1.00
Satd. Flow (prot)		3447			5073					1610	3368	1550
Flt Permitted		1.00			0.88					0.95	0.99	1.00
Satd. Flow (perm)		3447			4450					1610	3368	1550
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	532	82	12	292	0	0	0	0	631	899	511
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	0	0	0	65
Lane Group Flow (vph)	0	599	0	0	304	0	0	0	0	498	1032	446
Confl. Peds. (#/hr)	20		20	20								20
Turn Type		NA		Perm	NA					Perm	NA	Perm
Protected Phases		1			1						2	
Permitted Phases				1						2		2
Actuated Green, G (s)		17.0			17.0					51.0	51.0	51.0
Effective Green, g (s)		17.0			17.0					51.0	51.0	51.0
Actuated g/C Ratio		0.21			0.21					0.64	0.64	0.64
Clearance Time (s)		5.5			5.5					6.5	6.5	6.5
Lane Grp Cap (vph)		732			945					1026	2147	988
v/s Ratio Prot		c0.17										
v/s Ratio Perm					0.07					c0.31	0.31	0.29
v/c Ratio		0.82			0.32					0.49	0.48	0.45
Uniform Delay, d1		30.0			26.6					7.6	7.6	7.4
Progression Factor		1.00			1.12					1.00	1.00	1.00
Incremental Delay, d2		9.9			0.9					1.6	0.8	1.5
Delay (s)		39.9			30.6					9.3	8.4	8.9
Level of Service		D			C					A	A	A
Approach Delay (s)		39.9			30.6			0.0			8.7	
Approach LOS		D			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



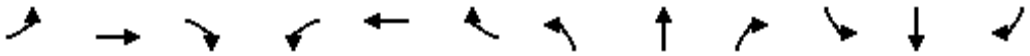
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	293	886	0	0	284	737	9	755	32	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1610	3385			3539	2704		5044				
Flt Permitted	0.95	0.95			1.00	1.00		1.00				
Satd. Flow (perm)	1610	3213			3539	2704		5044				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	293	886	0	0	284	737	9	755	32	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	183	0	5	0	0	0	0
Lane Group Flow (vph)	264	915	0	0	284	554	0	791	0	0	0	0
Confl. Peds. (#/hr)						20			20			
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	21.5	51.5			26.5	26.5		17.5				
Effective Green, g (s)	21.5	51.5			26.5	26.5		17.5				
Actuated g/C Ratio	0.27	0.64			0.33	0.33		0.22				
Clearance Time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Grp Cap (vph)	432	2114			1172	895		1103				
v/s Ratio Prot	c0.16	0.12			0.08							
v/s Ratio Perm		0.16				c0.20		0.16				
v/c Ratio	0.61	0.43			0.24	0.62		0.72				
Uniform Delay, d1	25.6	7.0			19.5	22.5		29.0				
Progression Factor	0.91	0.75			1.00	1.00		1.00				
Incremental Delay, d2	4.9	0.5			0.5	3.2		4.0				
Delay (s)	28.2	5.8			19.9	25.7		33.0				
Level of Service	C	A			B	C		C				
Approach Delay (s)		10.8			24.1			33.0			0.0	
Approach LOS		B			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	950	747	391	1662	70	212	45	335	31	21	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3312	1404	1543	3333		1243	1248	946	1203	1115	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3312	1404	1543	3333		1243	1248	946	1203	1115	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	61	950	747	391	1662	70	212	45	335	31	21	20
RTOR Reduction (vph)	0	0	337	0	2	0	0	0	285	0	19	0
Lane Group Flow (vph)	61	950	410	391	1730	0	127	130	50	31	22	0
Confl. Peds. (#/hr)						1			3			
Heavy Vehicles (%)	0%	9%	15%	17%	7%	21%	38%	44%	68%	50%	75%	40%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases			2						8			
Actuated Green, G (s)	5.5	46.4	46.4	34.0	74.9		17.9	17.9	17.9	4.5	4.5	
Effective Green, g (s)	5.5	46.4	46.4	34.0	74.9		17.9	17.9	17.9	4.5	4.5	
Actuated g/C Ratio	0.05	0.39	0.39	0.28	0.63		0.15	0.15	0.15	0.04	0.04	
Clearance Time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.5	3.5	3.5	2.0	3.5		3.0	3.0	3.0	2.0	2.0	
Lane Grp Cap (vph)	83	1288	546	439	2092		186	187	141	45	42	
v/s Ratio Prot	0.03	0.29		c0.25	c0.52		0.10	c0.10		c0.03	0.02	
v/s Ratio Perm			0.29						0.05			
v/c Ratio	0.73	0.74	0.75	0.89	0.83		0.68	0.70	0.36	0.69	0.52	
Uniform Delay, d1	56.2	31.2	31.5	40.9	17.2		48.0	48.1	45.5	56.7	56.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	26.9	2.3	6.0	19.3	2.9		9.9	10.7	1.5	29.5	4.4	
Delay (s)	83.1	33.6	37.4	60.1	20.1		57.9	58.8	47.1	86.3	60.8	
Level of Service	F	C	D	E	C		E	E	D	F	E	
Approach Delay (s)		36.9			27.5			52.0			71.7	
Approach LOS		D			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	35.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	119.3	Sum of lost time (s)	16.5
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

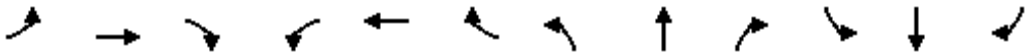


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	867	302	299	1396	360	564	270	512	332	253	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.90		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.99	
Satd. Flow (prot)	1014	2893		1299	3438	1369	1480	2543		1480	2320	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.99	
Satd. Flow (perm)	1014	2893		1299	3438	1369	1480	2543		1480	2320	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	155	867	302	299	1396	360	564	270	512	332	253	180
RTOR Reduction (vph)	0	25	0	0	0	175	0	199	0	0	47	0
Lane Group Flow (vph)	155	1144	0	299	1396	185	564	583	0	259	459	0
Confl. Peds. (#/hr)									1			
Heavy Vehicles (%)	78%	14%	37%	39%	5%	18%	22%	42%	19%	11%	45%	45%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	15.5	42.0		22.5	49.0	49.0	40.5	40.5		18.0	18.0	
Effective Green, g (s)	15.5	42.0		22.5	49.0	49.0	40.5	40.5		18.0	18.0	
Actuated g/C Ratio	0.11	0.30		0.16	0.35	0.35	0.29	0.29		0.13	0.13	
Clearance Time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	112	871		209	1207	480	429	738		190	299	
v/s Ratio Prot	0.15	c0.40		c0.23	0.41		c0.38	0.23		0.18	c0.20	
v/s Ratio Perm						0.14						
v/c Ratio	1.38	1.31		1.43	1.16	0.39	1.31	0.87dr		1.36	1.54	
Uniform Delay, d1	62.0	48.8		58.5	45.2	33.9	49.5	45.6		60.8	60.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	218.6	149.1		219.1	80.1	0.5	157.4	5.4		193.5	256.9	
Delay (s)	280.6	197.9		277.6	125.4	34.5	206.9	51.0		254.2	317.7	
Level of Service	F	F		F	F	C	F	D		F	F	
Approach Delay (s)		207.6			131.6			116.3			296.2	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	169.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.37		
Actuated Cycle Length (s)	139.5	Sum of lost time (s)	16.5
Intersection Capacity Utilization	110.5%	ICU Level of Service	H
Analysis Period (min)	15		

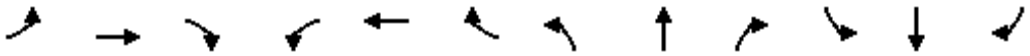
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1647	83	133	1272	0	0	0	0	507	363	532
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						5.0	
Lane Util. Factor		0.91		1.00	0.95						0.95	
Frpb, ped/bikes		1.00		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.99		1.00	1.00						0.94	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		4950		1770	3343						3147	
Flt Permitted		1.00		0.09	1.00						0.98	
Satd. Flow (perm)		4950		166	3343						3147	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1647	83	133	1272	0	0	0	0	507	363	532
RTOR Reduction (vph)	0	6	0	0	0	0	0	0	0	0	25	0
Lane Group Flow (vph)	0	1724	0	133	1272	0	0	0	0	0	1377	0
Confl. Peds. (#/hr)			8	8						10		10
Heavy Vehicles (%)	6%	4%	2%	2%	8%	2%	0%	0%	0%	2%	2%	11%
Turn Type		NA		Perm	NA					Split	NA	
Protected Phases		4			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		45.0		45.0	45.0						32.0	
Effective Green, g (s)		45.0		45.0	45.0						32.0	
Actuated g/C Ratio		0.52		0.52	0.52						0.37	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		2560		85	1729						1157	
v/s Ratio Prot		0.35			0.38						c0.44	
v/s Ratio Perm				c0.80								
v/c Ratio		0.67		1.56	0.74						1.19	
Uniform Delay, d1		15.6		21.0	16.4						27.5	
Progression Factor		1.00		0.40	0.37						1.00	
Incremental Delay, d2		0.6		275.1	0.6						94.3	
Delay (s)		16.1		283.6	6.6						121.8	
Level of Service		B		F	A						F	
Approach Delay (s)		16.1			32.8			0.0			121.8	
Approach LOS		B			C			A			F	

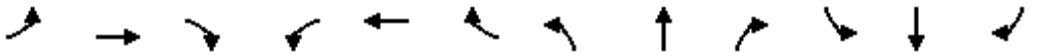
Intersection Summary			
HCM 2000 Control Delay	53.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.40		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	158.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	440	1714	0	0	1231	491	174	433	111	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0				
Lane Util. Factor	1.00	0.95			0.95			0.95				
Frpb, ped/bikes	1.00	1.00			0.99			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.96			0.98				
Flt Protected	0.95	1.00			1.00			0.99				
Satd. Flow (prot)	1770	3539			3360			3404				
Flt Permitted	0.09	1.00			1.00			0.99				
Satd. Flow (perm)	166	3539			3360			3404				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	440	1714	0	0	1231	491	174	433	111	0	0	0
RTOR Reduction (vph)	0	0	0	0	49	0	0	8	0	0	0	0
Lane Group Flow (vph)	440	1714	0	0	1673	0	0	710	0	0	0	0
Confl. Peds. (#/hr)	10					10			10			
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)	45.0	45.0			45.0			32.0				
Effective Green, g (s)	45.0	45.0			45.0			32.0				
Actuated g/C Ratio	0.52	0.52			0.52			0.37				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Vehicle Extension (s)	2.0	2.0			2.0			2.0				
Lane Grp Cap (vph)	85	1830			1737			1252				
v/s Ratio Prot		0.48			0.50			c0.21				
v/s Ratio Perm	c2.66											
v/c Ratio	5.18	0.94			0.96			0.57				
Uniform Delay, d1	21.0	19.7			20.2			22.0				
Progression Factor	0.65	0.61			1.00			1.00				
Incremental Delay, d2	1894.5	6.1			13.8			0.4				
Delay (s)	1908.1	18.1			34.0			22.3				
Level of Service	F	B			C			C				
Approach Delay (s)		404.2			34.0			22.3			0.0	
Approach LOS		F			C			C			A	

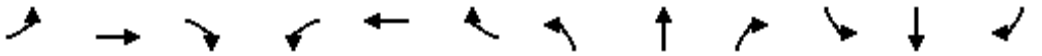
Intersection Summary			
HCM 2000 Control Delay	205.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	3.23		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	158.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	1297	122	112	1898	4	56	90	46	21	141	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	1.00		1.00	0.95		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3422		1768	3405		1755	1753		1758	1775	
Flt Permitted	0.08	1.00		0.11	1.00		0.59	1.00		0.67	1.00	
Satd. Flow (perm)	157	3422		206	3405		1097	1753		1240	1775	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	48	1297	122	112	1898	4	56	90	46	21	141	50
RTOR Reduction (vph)	0	9	0	0	0	0	0	23	0	0	9	0
Lane Group Flow (vph)	48	1410	0	112	1902	0	56	113	0	21	182	0
Confl. Peds. (#/hr)	8		7	7		8	11		8	8		11
Confl. Bikes (#/hr)			9			11			8			10
Heavy Vehicles (%)	2%	4%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	47.5	47.5		47.5	47.5		24.0	24.0		24.0	24.0	
Effective Green, g (s)	47.5	47.5		47.5	47.5		24.0	24.0		24.0	24.0	
Actuated g/C Ratio	0.59	0.59		0.59	0.59		0.30	0.30		0.30	0.30	
Clearance Time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	93	2031		122	2021		329	525		372	532	
v/s Ratio Prot		0.41			c0.56			0.06			c0.10	
v/s Ratio Perm	0.31			0.54			0.05			0.02		
v/c Ratio	0.52	0.69		0.92	0.94		0.17	0.22		0.06	0.34	
Uniform Delay, d1	9.5	11.2		14.5	15.0		20.7	21.0		19.9	21.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	19.0	2.0		61.8	10.3		1.1	0.9		0.3	1.7	
Delay (s)	28.5	13.2		76.3	25.2		21.8	21.9		20.2	23.6	
Level of Service	C	B		E	C		C	C		C	C	
Approach Delay (s)		13.7			28.1			21.9			23.3	
Approach LOS		B			C			C			C	

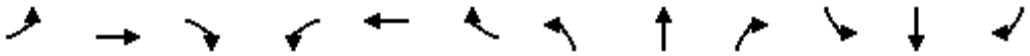
Intersection Summary			
HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	144.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	46	1052	240	56	1379	13	479	280	107	5	119	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Lane Util. Factor		0.95			0.95	1.00	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes		0.99			1.00	0.94	1.00	1.00	0.95		1.00	0.95
Flpb, ped/bikes		1.00			1.00	1.00	0.98	1.00	1.00		1.00	1.00
Frt		0.97			1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected		1.00			1.00	1.00	0.95	1.00	1.00		1.00	1.00
Satd. Flow (prot)		3323			3299	1488	1646	1845	1508		1858	1518
Flt Permitted		0.74			0.74	1.00	0.66	1.00	1.00		0.99	1.00
Satd. Flow (perm)		2476			2432	1488	1147	1845	1508		1842	1518
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	46	1052	240	56	1379	13	479	280	107	5	119	182
RTOR Reduction (vph)	0	21	0	0	0	3	0	0	48	0	0	20
Lane Group Flow (vph)	0	1317	0	0	1435	10	479	280	59	0	124	162
Confl. Peds. (#/hr)	21		15	15		21	27		25	25		27
Confl. Bikes (#/hr)			18			17			16			17
Heavy Vehicles (%)	2%	5%	3%	39%	8%	2%	7%	3%	2%	2%	2%	1%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		4
Actuated Green, G (s)		48.5			48.5	48.5	32.5	32.5	32.5		32.5	32.5
Effective Green, g (s)		48.5			48.5	48.5	32.5	32.5	32.5		32.5	32.5
Actuated g/C Ratio		0.54			0.54	0.54	0.36	0.36	0.36		0.36	0.36
Clearance Time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Vehicle Extension (s)		2.0			2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1334			1310	801	414	666	544		665	548
v/s Ratio Prot								0.15				
v/s Ratio Perm		0.53			c0.59	0.01	c0.42		0.04		0.07	0.11
v/c Ratio		0.99			1.10	0.01	1.16	0.42	0.11		0.19	0.30
Uniform Delay, d1		20.4			20.8	9.6	28.8	21.7	19.1		19.7	20.6
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2		21.8			55.2	0.0	94.6	0.2	0.0		0.0	0.1
Delay (s)		42.3			76.0	9.7	123.3	21.8	19.2		19.7	20.7
Level of Service		D			E	A	F	C	B		B	C
Approach Delay (s)		42.3			75.4			77.6			20.3	
Approach LOS		D			E			E			C	

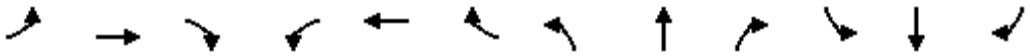
Intersection Summary			
HCM 2000 Control Delay	60.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	120.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	74	880	245	69	1348	218	98	683	32	60	1215	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3432	1510	1764	3252	1540	1669	3512		1762	3538	
Flt Permitted		0.59	1.00	0.18	1.00	1.00	0.11	1.00		0.31	1.00	
Satd. Flow (perm)		2030	1510	338	3252	1540	192	3512		580	3538	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	74	880	245	69	1348	218	98	683	32	60	1215	3
RTOR Reduction (vph)	0	0	18	0	0	65	0	4	0	0	0	0
Lane Group Flow (vph)	0	954	227	69	1348	153	98	711	0	60	1218	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Heavy Vehicles (%)	2%	5%	4%	2%	11%	2%	8%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4		4	2			6		
Actuated Green, G (s)		37.0	37.0	37.0	37.0	37.0	38.5	38.5		38.5	38.5	
Effective Green, g (s)		37.0	37.0	37.0	37.0	37.0	38.5	38.5		38.5	38.5	
Actuated g/C Ratio		0.44	0.44	0.44	0.44	0.44	0.45	0.45		0.45	0.45	
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0		4.0	4.0	
Lane Grp Cap (vph)		883	657	147	1415	670	86	1590		262	1602	
v/s Ratio Prot					0.41			0.20			0.34	
v/s Ratio Perm		c0.47	0.15	0.20		0.10	c0.51			0.10		
v/c Ratio		1.08	0.35	0.47	0.95	0.23	1.14	0.45		0.23	0.76	
Uniform Delay, d1		24.0	16.0	17.0	23.2	15.0	23.2	16.0		14.2	19.4	
Progression Factor		1.00	1.00	1.42	1.01	1.88	1.00	1.00		1.00	1.00	
Incremental Delay, d2		54.4	1.4	8.5	13.0	0.6	139.6	0.4		0.6	2.3	
Delay (s)		78.4	17.4	32.7	36.2	28.9	162.9	16.4		14.8	21.7	
Level of Service		E	B	C	D	C	F	B		B	C	
Approach Delay (s)		65.9			35.1			34.0			21.4	
Approach LOS		E			D			C			C	

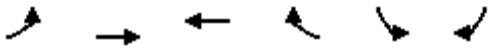
Intersection Summary			
HCM 2000 Control Delay	38.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	121.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	857	27	121	1455	32	18	109	266	37	99	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.97		1.00	0.94		0.97	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1589	3124	1361	1505	3185	1375		3152	1174		2853	
Flt Permitted	0.14	1.00	1.00	0.31	1.00	1.00		0.90	1.00		0.89	
Satd. Flow (perm)	239	3124	1361	494	3185	1375		2843	1174		2565	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	55	857	27	121	1455	32	18	109	266	37	99	105
RTOR Reduction (vph)	0	0	7	0	0	5	0	0	122	0	32	0
Lane Group Flow (vph)	55	857	20	121	1455	27	0	127	144	0	209	0
Confl. Peds. (#/hr)	22		31	31		22	34		37	37		34
Confl. Bikes (#/hr)			7			3			12			19
Heavy Vehicles (%)	2%	4%	2%	7%	2%	2%	2%	2%	16%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4		4	2		2	2		
Actuated Green, G (s)	61.3	61.3	61.3	61.3	61.3	61.3		15.2	15.2		15.2	
Effective Green, g (s)	61.3	61.3	61.3	61.3	61.3	61.3		15.2	15.2		15.2	
Actuated g/C Ratio	0.72	0.72	0.72	0.72	0.72	0.72		0.18	0.18		0.18	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	172	2252	981	356	2296	991		508	209		458	
v/s Ratio Prot		0.27			c0.46							
v/s Ratio Perm	0.23		0.01	0.25		0.02		0.04	c0.12		0.08	
v/c Ratio	0.32	0.38	0.02	0.34	0.63	0.03		0.25	0.69		0.46	
Uniform Delay, d1	4.3	4.6	3.4	4.4	6.1	3.4		30.0	32.7		31.2	
Progression Factor	1.08	0.78	0.71	2.77	2.63	3.05		1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.0	0.0	0.2	0.1	0.0		0.1	7.7		0.3	
Delay (s)	5.1	3.6	2.4	12.4	16.1	10.3		30.1	40.4		31.5	
Level of Service	A	A	A	B	B	B		C	D		C	
Approach Delay (s)		3.7			15.7			37.1			31.5	
Approach LOS		A			B			D			C	

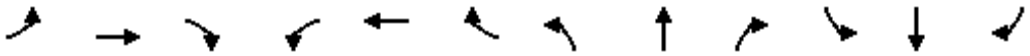
Intersection Summary			
HCM 2000 Control Delay	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



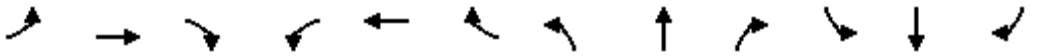
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	502	603	1434	123	664	246
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.99	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1593	3008	3036	1343	3048	1191
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1593	3008	3036	1343	3048	1191
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	502	603	1434	123	664	246
RTOR Reduction (vph)	0	0	0	34	3	164
Lane Group Flow (vph)	502	603	1434	89	686	57
Confl. Peds. (#/hr)				15	15	15
Heavy Vehicles (%)	2%	8%	7%	5%	3%	8%
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	18.9	54.9	32.0	32.0	22.1	22.1
Effective Green, g (s)	18.9	54.9	32.0	32.0	22.1	22.1
Actuated g/C Ratio	0.22	0.65	0.38	0.38	0.26	0.26
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	354	1942	1142	505	792	309
v/s Ratio Prot	c0.32	0.20	c0.47		c0.23	
v/s Ratio Perm				0.07		0.05
v/c Ratio	1.42	0.31	1.26	0.18	0.87	0.19
Uniform Delay, d1	33.0	6.7	26.5	17.7	30.0	24.5
Progression Factor	0.68	1.52	0.98	0.77	1.00	1.00
Incremental Delay, d2	202.9	0.4	116.8	0.0	9.5	0.1
Delay (s)	225.5	10.5	142.9	13.6	39.5	24.6
Level of Service	F	B	F	B	D	C
Approach Delay (s)		108.2	132.7		35.9	
Approach LOS		F	F		D	

Intersection Summary			
HCM 2000 Control Delay	100.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	109.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	72	866	53	136	1139	112	170	481	158	116	424	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00	0.91	1.00	0.98	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	1.00	0.99	1.00	
Frt	1.00	0.99			0.99		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00			1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1587	3148			3112		1585	3185	1301	1581	3005	
Flt Permitted	0.10	1.00			0.68		0.29	1.00	1.00	0.30	1.00	
Satd. Flow (perm)	173	3148			2116		484	3185	1301	499	3005	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	72	866	53	136	1139	112	170	481	158	116	424	143
RTOR Reduction (vph)	0	4	0	0	6	0	0	0	81	0	35	0
Lane Group Flow (vph)	72	915	0	0	1381	0	170	481	77	116	532	0
Confl. Peds. (#/hr)	46		47	47		46	57		65	65		57
Confl. Bikes (#/hr)			9			21			15			22
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	47.0	47.0			47.0		24.4	20.4	20.4	27.6	22.0	
Effective Green, g (s)	47.0	47.0			47.0		24.4	20.4	20.4	27.6	22.0	
Actuated g/C Ratio	0.55	0.55			0.55		0.29	0.24	0.24	0.32	0.26	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		3.0	2.0	2.0	3.0	2.0	
Lane Grp Cap (vph)	95	1740			1170		190	764	312	233	777	
v/s Ratio Prot		0.29					c0.04	0.15		c0.03	0.18	
v/s Ratio Perm	0.42				c0.65		c0.21		0.06	0.13		
v/c Ratio	0.76	0.53			1.18		0.89	0.63	0.25	0.50	0.68	
Uniform Delay, d1	14.6	12.0			19.0		28.3	28.9	26.1	21.4	28.4	
Progression Factor	1.79	1.97			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	36.8	0.9			90.1		37.2	1.2	0.2	1.7	2.0	
Delay (s)	63.0	24.5			109.1		65.4	30.1	26.2	23.0	30.4	
Level of Service	E	C			F		E	C	C	C	C	
Approach Delay (s)		27.3			109.1			36.8			29.1	
Approach LOS		C			F			D			C	

Intersection Summary			
HCM 2000 Control Delay	58.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	120.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

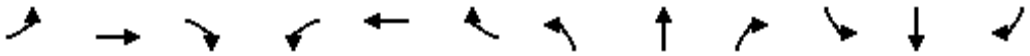


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	159	165	465	875	101	420	1249	423	28	1178	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	5.5		5.5	5.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		1.00	1.00
Satd. Flow (prot)	3090	3154	1352	3090	3185	1352		4513	1352		4571	1352
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.66	1.00		0.81	1.00
Satd. Flow (perm)	3090	3154	1352	3090	3185	1352		3031	1352		3714	1352
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	89	159	165	465	875	101	420	1249	423	28	1178	206
RTOR Reduction (vph)	0	0	81	0	0	50	0	0	242	0	0	83
Lane Group Flow (vph)	89	159	84	465	875	51	0	1669	181	0	1206	123
Confl. Peds. (#/hr)			40			40	40		40	40		40
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases			8			4	2		2	6		6
Actuated Green, G (s)	4.0	15.2	15.2	21.3	32.5	32.5		38.5	38.5		38.5	38.5
Effective Green, g (s)	4.0	15.2	15.2	21.3	32.5	32.5		38.5	38.5		38.5	38.5
Actuated g/C Ratio	0.04	0.17	0.17	0.24	0.36	0.36		0.43	0.43		0.43	0.43
Clearance Time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	5.5		5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	137	532	228	731	1150	488		1296	578		1588	578
v/s Ratio Prot	c0.03	0.05		0.15	c0.27							
v/s Ratio Perm			0.06			0.04		c0.55	0.13		0.32	0.09
v/c Ratio	0.65	0.30	0.37	0.64	0.76	0.10		3.75dl	0.31		0.76	0.21
Uniform Delay, d1	42.3	32.7	33.2	30.9	25.3	19.1		25.8	17.0		21.8	16.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	10.2	1.4	4.6	1.8	4.8	0.4		135.5	0.3		2.1	0.2
Delay (s)	52.5	34.2	37.7	32.7	30.1	19.5		161.2	17.3		24.0	16.4
Level of Service	D	C	D	C	C	B		F	B		C	B
Approach Delay (s)		39.5			30.2			132.1			22.9	
Approach LOS		D			C			F			C	

Intersection Summary			
HCM 2000 Control Delay	68.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	116.5%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

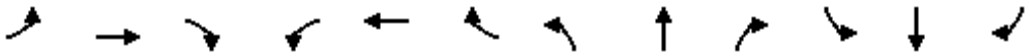
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	129	16	30	279	45	118	199	63	81	281	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			0.99			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.98			0.98			0.98	
Flt Protected		1.00			1.00			0.98			0.99	
Satd. Flow (prot)		1822			1813			1778			1801	
Flt Permitted		0.96			0.97			0.81			0.87	
Satd. Flow (perm)		1759			1759			1464			1588	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	12	129	16	30	279	45	118	199	63	81	281	51
RTOR Reduction (vph)	0	11	0	0	15	0	0	17	0	0	12	0
Lane Group Flow (vph)	0	146	0	0	339	0	0	363	0	0	401	0
Confl. Peds. (#/hr)	15		10	10		15	15		15	15		15
Confl. Bikes (#/hr)			5			4						9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)		11.3			11.3			14.2			14.2	
Effective Green, g (s)		11.3			11.3			14.2			14.2	
Actuated g/C Ratio		0.34			0.34			0.42			0.42	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		593			593			620			673	
v/s Ratio Prot												
v/s Ratio Perm		0.08			c0.19			0.25			c0.25	
v/c Ratio		0.25			0.57			0.59			0.60	
Uniform Delay, d1		8.0			9.1			7.4			7.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.2			1.3			1.4			1.4	
Delay (s)		8.2			10.5			8.8			8.9	
Level of Service		A			B			A			A	
Approach Delay (s)		8.2			10.5			8.8			8.9	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	33.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	222	6	27	225	263	49	619	88	241	203	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99			0.99	
Flpb, ped/bikes	1.00	1.00		0.98	1.00		0.98	1.00			0.99	
Frt	1.00	1.00		1.00	0.92		1.00	0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1762	1853		1728	1690		1740	3437			3354	
Flt Permitted	0.20	1.00		0.54	1.00		0.47	1.00			0.56	
Satd. Flow (perm)	373	1853		976	1690		856	3437			1938	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	222	6	27	225	263	49	619	88	241	203	42
RTOR Reduction (vph)	0	1	0	0	65	0	0	15	0	0	9	0
Lane Group Flow (vph)	50	227	0	27	423	0	49	692	0	0	477	0
Confl. Peds. (#/hr)	14		44	44		14	37		71	71		37
Confl. Bikes (#/hr)			6			2			2			11
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	19.9	19.9		19.9	19.9		37.3	37.3			37.3	
Effective Green, g (s)	19.9	19.9		19.9	19.9		37.3	37.3			37.3	
Actuated g/C Ratio	0.31	0.31		0.31	0.31		0.57	0.57			0.57	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0			2.0	
Lane Grp Cap (vph)	113	565		297	515		489	1966			1108	
v/s Ratio Prot		0.12			c0.25			0.20				
v/s Ratio Perm	0.13			0.03			0.06				c0.25	
v/c Ratio	0.44	0.40		0.09	0.82		0.10	0.35			0.43	
Uniform Delay, d1	18.2	17.9		16.2	21.0		6.3	7.5			7.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	1.0	0.2		0.0	9.7		0.4	0.5			1.2	
Delay (s)	19.2	18.1		16.2	30.7		6.7	8.0			9.1	
Level of Service	B	B		B	C		A	A			A	
Approach Delay (s)		18.3			29.9			7.9			9.1	
Approach LOS		B			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	65.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	107.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

Site: 2035 + Proj Pref AM

Adeline & 14th
2035 + Preferred Project AM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	27	2.0	0.326	6.3	LOS A	1.8	45.4	0.45	0.85	27.1
8	T	319	2.0	0.326	6.3	LOS A	1.8	45.4	0.45	0.55	29.9
18	R	25	2.0	0.326	6.3	LOS A	1.8	45.4	0.45	0.61	29.5
Approach		371	2.0	0.326	6.3	LOS A	1.8	45.4	0.45	0.57	29.7
East: 14th Street (WB)											
1	L	34	2.0	0.232	6.0	LOS A	1.1	27.6	0.52	0.88	27.2
6	T	148	2.0	0.232	6.0	LOS A	1.1	27.6	0.52	0.63	30.0
16	R	42	2.0	0.232	6.0	LOS A	1.1	27.6	0.52	0.68	29.6
Approach		224	2.0	0.232	6.0	LOS A	1.1	27.6	0.52	0.68	29.5
North: Adeline Street (SB)											
7	L	32	2.0	0.284	5.8	LOS A	1.5	37.9	0.43	0.84	27.3
4	T	266	2.0	0.284	5.8	LOS A	1.5	37.9	0.43	0.54	30.2
14	R	26	2.0	0.284	5.8	LOS A	1.5	37.9	0.43	0.60	29.8
Approach		324	2.0	0.284	5.8	LOS A	1.5	37.9	0.43	0.57	29.9
West: 14th Street (EB)											
5	L	24	2.0	0.194	5.4	LOS A	0.9	22.7	0.48	0.87	27.6
2	T	154	2.0	0.194	5.4	LOS A	0.9	22.7	0.48	0.60	30.5
12	R	17	2.0	0.194	5.4	LOS A	0.9	22.7	0.48	0.65	30.1
Approach		195	2.0	0.194	5.4	LOS A	0.9	22.7	0.48	0.63	30.0
All Vehicles		1114	2.0	0.326	6.0	LOS A	1.8	45.4	0.46	0.60	29.7

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.

MOVEMENT SUMMARY

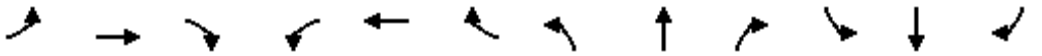
Site: 2035 + Proj AM

Adeline & 12th
2035 + Preferred Project AM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	1	2.0	0.218	4.5	LOS A	1.1	29.2	0.16	0.90	27.7
8	T	290	2.0	0.218	4.5	LOS A	1.1	29.2	0.16	0.42	31.3
18	R	5	2.0	0.218	4.5	LOS A	1.1	29.2	0.16	0.52	30.6
Approach		296	2.0	0.218	4.5	LOS A	1.1	29.2	0.16	0.42	31.2
East: 12th Street (WB)											
1	L	8	2.0	0.105	4.4	LOS A	0.5	11.6	0.43	0.81	27.9
6	T	29	2.0	0.105	4.4	LOS A	0.5	11.6	0.43	0.53	31.1
16	R	73	2.0	0.105	4.4	LOS A	0.5	11.6	0.43	0.59	30.6
Approach		110	2.0	0.105	4.4	LOS A	0.5	11.6	0.43	0.59	30.5
North: Adeline Street (SB)											
7	L	29	2.0	0.236	4.6	LOS A	1.3	32.3	0.16	0.87	27.6
4	T	287	2.0	0.236	4.6	LOS A	1.3	32.3	0.16	0.41	31.1
14	R	5	2.0	0.236	4.6	LOS A	1.3	32.3	0.16	0.51	30.5
Approach		321	2.0	0.236	4.6	LOS A	1.3	32.3	0.16	0.46	30.7
West: 12th Street (EB)											
5	L	2	2.0	0.010	3.6	LOS A	0.0	1.0	0.42	0.78	28.4
2	T	7	2.0	0.010	3.6	LOS A	0.0	1.0	0.42	0.48	31.7
12	R	1	2.0	0.010	3.6	LOS A	0.0	1.0	0.42	0.54	31.2
Approach		10	2.0	0.010	3.6	LOS A	0.0	1.0	0.42	0.55	30.9
All Vehicles		737	2.0	0.236	4.5	LOS A	1.3	32.3	0.20	0.46	30.9

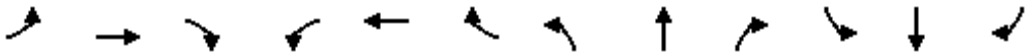
Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	142	47	0	0	356	429	443	462	100	130	0	561
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			0.98		1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frt	1.00	1.00			0.92		1.00	0.98		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	0.99		0.95		1.00
Satd. Flow (prot)	1020	3282			2887		1173	2818		1543		1960
Flt Permitted	0.95	1.00			1.00		0.95	0.99		0.95		1.00
Satd. Flow (perm)	1020	3282			2887		1173	2818		1543		1960
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	142	47	0	0	356	429	443	462	100	130	0	561
RTOR Reduction (vph)	0	0	0	0	208	0	0	12	0	0	0	500
Lane Group Flow (vph)	142	47	0	0	577	0	332	661	0	130	0	61
Confl. Peds. (#/hr)						14						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	77%	10%	0%	0%	8%	17%	40%	15%	14%	17%	0%	45%
Turn Type	Prot	NA			NA		Split	NA		Prot		custom
Protected Phases	1	6			2		4	4		3		3
Permitted Phases												
Actuated Green, G (s)	16.4	43.9			24.0		31.4	31.4		10.7		10.7
Effective Green, g (s)	16.4	43.9			24.0		31.4	31.4		10.7		10.7
Actuated g/C Ratio	0.17	0.44			0.24		0.32	0.32		0.11		0.11
Clearance Time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	168	1455			699		372	893		166		211
v/s Ratio Prot	c0.14	0.01			c0.20		c0.28	0.23		c0.08		0.03
v/s Ratio Perm												
v/c Ratio	0.85	0.03			0.83		0.89	0.74		0.78		0.29
Uniform Delay, d1	40.1	15.6			35.5		32.2	30.2		43.0		40.6
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	29.3	0.0			7.7		22.5	3.1		20.3		0.5
Delay (s)	69.4	15.6			43.3		54.7	33.2		63.4		41.2
Level of Service	E	B			D		D	C		E		D
Approach Delay (s)		56.0			43.3			40.3			45.4	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	43.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	99.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

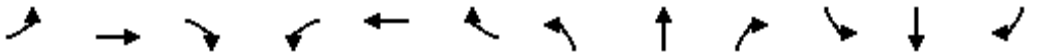
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	595	26	124	588	233	17	64	61	228	126	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.98			0.99		1.00	0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99		0.99	1.00	
Frt	1.00	0.99		1.00	0.96			0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	
Satd. Flow (prot)	1770	3194		1770	3246			1706		1755	1728	
Flt Permitted	0.95	1.00		0.95	1.00			0.96		0.58	1.00	
Satd. Flow (perm)	1770	3194		1770	3246			1645		1075	1728	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	85	595	26	124	588	233	17	64	61	228	126	42
RTOR Reduction (vph)	0	2	0	0	31	0	0	32	0	0	14	0
Lane Group Flow (vph)	85	619	0	124	790	0	0	110	0	228	154	0
Confl. Peds. (#/hr)			58			47	70		8	8		70
Confl. Bikes (#/hr)			15			6			9			38
Heavy Vehicles (%)	2%	12%	2%	2%	5%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	9.2	53.6		11.3	55.7			24.1		24.1	24.1	
Effective Green, g (s)	9.2	53.6		11.3	55.7			24.1		24.1	24.1	
Actuated g/C Ratio	0.09	0.54		0.11	0.56			0.24		0.24	0.24	
Clearance Time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	162	1711		200	1808			396		259	416	
v/s Ratio Prot	c0.05	0.19		c0.07	c0.24						0.09	
v/s Ratio Perm								0.07		c0.21		
v/c Ratio	0.52	0.36		0.62	0.44			0.28		0.88	0.37	
Uniform Delay, d1	43.3	13.4		42.3	13.0			30.9		36.6	31.6	
Progression Factor	1.08	1.17		0.95	0.81			1.00		1.00	1.00	
Incremental Delay, d2	1.4	0.0		3.9	0.8			0.1		26.8	0.2	
Delay (s)	48.3	15.6		44.1	11.2			31.0		63.3	31.8	
Level of Service	D	B		D	B			C		E	C	
Approach Delay (s)		19.5			15.5			31.0			50.0	
Approach LOS		B			B			C			D	

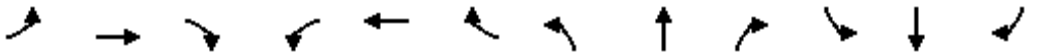
Intersection Summary			
HCM 2000 Control Delay	24.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	796	78	126	1361	217	32	66	66	90	83	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.99	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.93		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1766	3262		1026	3471	1492	1347	919		1753	1476	
Flt Permitted	0.14	1.00		0.28	1.00	1.00	0.59	1.00		0.63	1.00	
Satd. Flow (perm)	256	3262		305	3471	1492	836	919		1166	1476	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	29	796	78	126	1361	217	32	66	66	90	83	74
RTOR Reduction (vph)	0	7	0	0	0	78	0	36	0	0	32	0
Lane Group Flow (vph)	29	867	0	126	1361	139	32	96	0	90	125	0
Confl. Peds. (#/hr)	21		23	23		21	9		11	11		9
Confl. Bikes (#/hr)			4			5						1
Heavy Vehicles (%)	2%	8%	17%	75%	4%	4%	33%	100%	78%	2%	33%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	64.0	64.0		64.0	64.0	64.0	28.0	28.0		28.0	28.0	
Effective Green, g (s)	64.0	64.0		64.0	64.0	64.0	28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64	0.64	0.28	0.28		0.28	0.28	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	163	2087		195	2221	954	234	257		326	413	
v/s Ratio Prot		0.27			0.39			c0.10			0.08	
v/s Ratio Perm	0.11			c0.41		0.09	0.04			0.08		
v/c Ratio	0.18	0.42		0.65	0.61	0.15	0.14	0.37		0.28	0.30	
Uniform Delay, d1	7.3	8.8		11.0	10.7	7.1	27.0	28.9		28.1	28.3	
Progression Factor	0.49	0.46		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.4	0.6		15.4	1.3	0.3	1.2	4.1		2.1	1.9	
Delay (s)	5.9	4.6		26.4	11.9	7.5	28.2	33.1		30.2	30.2	
Level of Service	A	A		C	B	A	C	C		C	C	
Approach Delay (s)		4.7			12.4			32.1			30.2	
Approach LOS		A			B			C			C	

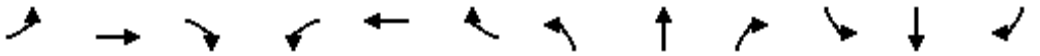
Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	102.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	718	82	51	1254	54	308	252	15	78	103	186
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1582	4092		1761	4576		1761	1810	1541	1752	3539	1245
Flt Permitted	0.14	1.00		0.31	1.00		0.69	1.00	1.00	0.55	1.00	1.00
Satd. Flow (perm)	241	4092		576	4576		1273	1810	1541	1012	3539	1245
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	133	718	82	51	1254	54	308	252	15	78	103	186
RTOR Reduction (vph)	0	19	0	0	6	0	0	0	9	0	0	17
Lane Group Flow (vph)	133	781	0	51	1302	0	308	252	6	78	103	169
Confl. Peds. (#/hr)	10		20	20		10	8		20	20		8
Confl. Bikes (#/hr)			7			3						6
Heavy Vehicles (%)	14%	27%	2%	2%	13%	2%	2%	5%	2%	2%	2%	27%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	35.0	35.0		35.0	35.0		30.5	30.5	30.5	30.5	30.5	30.5
Effective Green, g (s)	35.0	35.0		35.0	35.0		30.5	30.5	30.5	30.5	30.5	30.5
Actuated g/C Ratio	0.47	0.47		0.47	0.47		0.41	0.41	0.41	0.41	0.41	0.41
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	112	1909		268	2135		517	736	626	411	1439	506
v/s Ratio Prot		0.19			0.28			0.14			0.03	
v/s Ratio Perm	c0.55			0.09			c0.24		0.00	0.08		0.14
v/c Ratio	1.19	0.41		0.19	0.61		0.60	0.34	0.01	0.19	0.07	0.33
Uniform Delay, d1	20.0	13.2		11.7	14.9		17.4	15.3	13.3	14.3	13.6	15.3
Progression Factor	1.00	1.00		1.00	1.00		1.08	1.09	1.45	1.00	1.00	1.00
Incremental Delay, d2	144.0	0.1		0.1	0.3		5.0	1.3	0.0	1.0	0.1	1.8
Delay (s)	164.0	13.2		11.8	15.3		23.7	17.9	19.3	15.3	13.7	17.0
Level of Service	F	B		B	B		C	B	B	B	B	B
Approach Delay (s)		34.7			15.1			21.1			15.7	
Approach LOS		C			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		

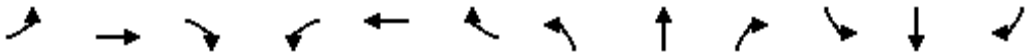
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	110	243	276	27	77	0	0	142	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	1.00			0.95	1.00
Frpb, ped/bikes					1.00	0.99	1.00	1.00			1.00	0.98
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.98	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3484	1562	1770	990			3167	1558
Flt Permitted					0.98	1.00	0.66	1.00			1.00	1.00
Satd. Flow (perm)					3484	1562	1233	990			3167	1558
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	110	243	276	27	77	0	0	142	67
RTOR Reduction (vph)	0	0	0	0	0	220	0	0	0	0	0	22
Lane Group Flow (vph)	0	0	0	0	353	56	27	77	0	0	142	45
Confl. Peds. (#/hr)				1		2			8	8		
Confl. Bikes (#/hr)												13
Heavy Vehicles (%)	2%	15%	88%	2%	2%	2%	2%	92%	0%	2%	14%	2%
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					4			6			2	
Permitted Phases				4		4	6					2
Actuated Green, G (s)					15.1	15.1	50.4	50.4			50.4	50.4
Effective Green, g (s)					15.1	15.1	50.4	50.4			50.4	50.4
Actuated g/C Ratio					0.20	0.20	0.67	0.67			0.67	0.67
Clearance Time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Vehicle Extension (s)					2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)					701	314	828	665			2128	1046
v/s Ratio Prot								c0.08			0.04	
v/s Ratio Perm					0.10	0.04	0.02					0.03
v/c Ratio					0.50	0.18	0.03	0.12			0.07	0.04
Uniform Delay, d1					26.6	24.8	4.1	4.4			4.2	4.2
Progression Factor					1.00	1.00	1.00	1.00			1.26	1.59
Incremental Delay, d2					0.2	0.1	0.0	0.0			0.1	0.1
Delay (s)					26.8	24.9	4.1	4.4			5.4	6.7
Level of Service					C	C	A	A			A	A
Approach Delay (s)		0.0			26.0			4.3			5.8	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	33.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

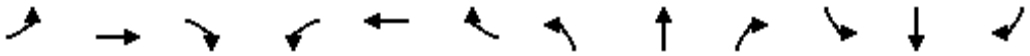


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	634	114	85	177	24	56	140	137	159	173	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.98		1.00	0.93		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3301		1770	3442		1770	945		1770	1127	
Flt Permitted	0.95	1.00		0.95	1.00		0.62	1.00		0.53	1.00	
Satd. Flow (perm)	1770	3301		1770	3442		1156	945		981	1127	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	26	634	114	85	177	24	56	140	137	159	173	37
RTOR Reduction (vph)	0	24	0	0	15	0	0	63	0	0	14	0
Lane Group Flow (vph)	26	724	0	85	186	0	56	214	0	159	196	0
Confl. Peds. (#/hr)						50			3			3
Confl. Bikes (#/hr)			4						1			
Heavy Vehicles (%)	2%	6%	9%	2%	2%	2%	2%	74%	96%	2%	77%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Actuated Green, G (s)	1.2	17.0		2.4	18.7		16.1	16.1		16.1	16.1	
Effective Green, g (s)	1.2	17.0		2.4	18.7		16.1	16.1		16.1	16.1	
Actuated g/C Ratio	0.03	0.36		0.05	0.39		0.34	0.34		0.34	0.34	
Clearance Time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.5	3.0		3.2	3.2		3.0	3.0	
Lane Grp Cap (vph)	44	1181		89	1355		391	320		332	381	
v/s Ratio Prot	0.01	c0.22		c0.05	0.05			c0.23			0.17	
v/s Ratio Perm							0.05			0.16		
v/c Ratio	0.59	0.61		0.96	0.14		0.14	0.67		0.48	0.51	
Uniform Delay, d1	22.9	12.5		22.5	9.2		10.9	13.4		12.4	12.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.3	1.0		79.9	0.0		0.2	5.3		1.1	1.2	
Delay (s)	36.2	13.5		102.4	9.3		11.1	18.7		13.5	13.7	
Level of Service	D	B		F	A		B	B		B	B	
Approach Delay (s)		14.3			36.9			17.5			13.6	
Approach LOS		B			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	47.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

2035 + Preferred Project PM
Mitigated

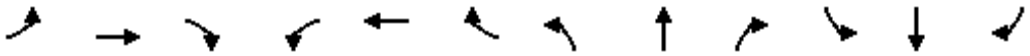


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	156	1064	214	394	1254	177	118	433	229	136	426	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.95	1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3421		1770	3539	1511	1770	1863	1541	1770	1819	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3421		1770	3539	1511	1770	1863	1541	1770	1819	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	170	1157	233	428	1363	192	128	471	249	148	463	74
RTOR Reduction (vph)	0	28	0	0	0	123	0	0	183	0	10	0
Lane Group Flow (vph)	170	1362	0	428	1363	69	128	471	66	148	527	0
Confl. Peds. (#/hr)			32			7			5			6
Confl. Bikes (#/hr)			4			9			11			3
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6			8			
Actuated Green, G (s)	7.9	17.0		6.0	15.1	15.1	5.0	16.0	16.0	5.0	16.0	
Effective Green, g (s)	7.9	17.0		6.0	15.1	15.1	5.0	16.0	16.0	5.0	16.0	
Actuated g/C Ratio	0.13	0.28		0.10	0.25	0.25	0.08	0.27	0.27	0.08	0.27	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	233	969		177	890	380	147	496	410	147	485	
v/s Ratio Prot	0.10	c0.40		c0.24	0.39		0.07	0.25		c0.08	c0.29	
v/s Ratio Perm						0.05			0.04			
v/c Ratio	0.73	1.41		2.42	1.53	0.18	0.87	0.95	0.16	1.01	1.09	
Uniform Delay, d1	25.0	21.5		27.0	22.4	17.6	27.2	21.6	16.9	27.5	22.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	10.9	188.8		655.0	244.8	0.2	39.1	27.8	0.2	76.0	66.7	
Delay (s)	35.9	210.3		682.0	267.3	17.8	66.3	49.4	17.0	103.5	88.7	
Level of Service	D	F		F	F	B	E	D	B	F	F	
Approach Delay (s)		191.3			332.7			42.4			91.9	
Approach LOS		F			F			D			F	

Intersection Summary			
HCM 2000 Control Delay	208.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.38		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	105.0%	ICU Level of Service	G
Analysis Period (min)	15		

Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group

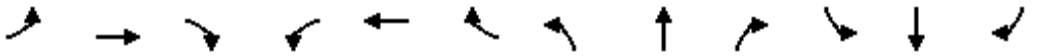


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	197	1078	469	57	889	142	915	1020	44	277	1185	186
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.96		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.95		1.00	0.98		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3255		1770	3428		3433	3506		1770	3426	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3255		1770	3428		3433	3506		1770	3426	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	214	1172	510	62	966	154	995	1109	48	301	1288	202
RTOR Reduction (vph)	0	42	0	0	11	0	0	3	0	0	12	0
Lane Group Flow (vph)	214	1640	0	62	1109	0	995	1154	0	301	1478	0
Confl. Peds. (#/hr)			83			52			53			68
Confl. Bikes (#/hr)			15			8			15			12
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	15.3	34.6		9.0	28.3		13.0	37.4		16.0	39.4	
Effective Green, g (s)	15.3	34.6		9.0	28.3		13.0	37.4		16.0	39.4	
Actuated g/C Ratio	0.14	0.31		0.08	0.26		0.12	0.34		0.15	0.36	
Clearance Time (s)	3.0	3.0		3.0	3.0		4.0	4.0		3.0	4.0	
Vehicle Extension (s)	2.0	2.5		2.0	2.0		2.0	4.0		2.5	4.0	
Lane Grp Cap (vph)	246	1023		144	881		405	1192		257	1227	
v/s Ratio Prot	c0.12	c0.50		0.04	0.32		c0.29	0.33		0.17	c0.43	
v/s Ratio Perm												
v/c Ratio	0.87	1.60		0.43	1.26		2.46	0.97		1.17	1.20	
Uniform Delay, d1	46.4	37.7		48.1	40.9		48.5	35.7		47.0	35.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	25.5	275.8		0.8	125.6		663.0	19.5		110.5	100.2	
Delay (s)	71.9	313.5		48.8	166.4		711.5	55.2		157.5	135.5	
Level of Service	E	F		D	F		F	E		F	F	
Approach Delay (s)		286.2			160.3			358.6			139.2	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	249.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.49		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	134.4%	ICU Level of Service	H
Analysis Period (min)	15		

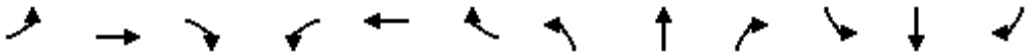
Description: Counts for this Intersection are for Saturday Counts per Emeryville Standards

c Critical Lane Group



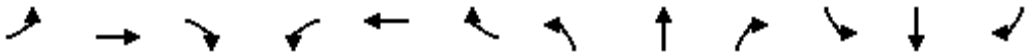
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	990	115	7	271	0	0	0	0	580	516	422
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5					6.5	6.5	6.5
Lane Util. Factor		0.95			0.91					0.91	0.91	1.00
Frpb, ped/bikes		1.00			1.00					1.00	1.00	0.97
Flpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Frt		0.98			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	0.99	1.00
Satd. Flow (prot)		3467			5079					1610	3340	1540
Flt Permitted		1.00			0.91					0.95	0.99	1.00
Satd. Flow (perm)		3467			4647					1610	3340	1540
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	990	115	7	271	0	0	0	0	580	516	422
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	0	0	261
Lane Group Flow (vph)	0	1094	0	0	278	0	0	0	0	360	736	161
Confl. Peds. (#/hr)	20		20	20								20
Turn Type		NA		Perm	NA					Perm	NA	Perm
Protected Phases		1			1						2	
Permitted Phases				1						2		2
Actuated Green, G (s)		37.5			37.5					30.5	30.5	30.5
Effective Green, g (s)		37.5			37.5					30.5	30.5	30.5
Actuated g/C Ratio		0.47			0.47					0.38	0.38	0.38
Clearance Time (s)		5.5			5.5					6.5	6.5	6.5
Lane Grp Cap (vph)		1625			2178					613	1273	587
v/s Ratio Prot		c0.32										
v/s Ratio Perm					0.06					c0.22	0.22	0.10
v/c Ratio		0.67			0.13					0.59	0.58	0.27
Uniform Delay, d1		16.5			12.0					19.7	19.6	17.1
Progression Factor		1.00			0.35					1.00	1.00	1.00
Incremental Delay, d2		2.2			0.1					4.1	1.9	1.2
Delay (s)		18.7			4.3					23.8	21.6	18.3
Level of Service		B			A					C	C	B
Approach Delay (s)		18.7			4.3			0.0			21.2	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



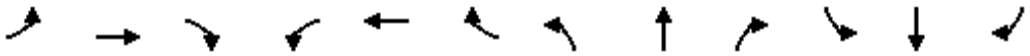
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	568	1008	0	0	262	935	35	1265	61	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1610	3381			3539	2700		5036				
Flt Permitted	0.95	0.93			1.00	1.00		1.00				
Satd. Flow (perm)	1610	3155			3539	2700		5036				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	568	1008	0	0	262	935	35	1265	61	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	57	0	6	0	0	0	0
Lane Group Flow (vph)	511	1065	0	0	262	878	0	1355	0	0	0	0
Confl. Peds. (#/hr)						20			20			
Turn Type	Prot	NA			NA	Perm	Perm	NA				
Protected Phases	5	2			6			8				
Permitted Phases						6	8					
Actuated Green, G (s)	22.5	50.5			24.5	24.5		18.5				
Effective Green, g (s)	22.5	50.5			24.5	24.5		18.5				
Actuated g/C Ratio	0.28	0.63			0.31	0.31		0.23				
Clearance Time (s)	3.5	5.5			5.5	5.5		5.5				
Lane Grp Cap (vph)	452	2055			1083	826		1164				
v/s Ratio Prot	c0.32	0.15			0.07							
v/s Ratio Perm		0.18				c0.33		0.27				
v/c Ratio	1.13	0.52			0.24	1.06		1.16				
Uniform Delay, d1	28.8	8.1			20.8	27.8		30.8				
Progression Factor	0.88	1.87			1.00	1.00		1.00				
Incremental Delay, d2	78.5	0.7			0.5	49.5		83.5				
Delay (s)	103.8	15.8			21.3	77.2		114.2				
Level of Service	F	B			C	E		F				
Approach Delay (s)		44.3			65.0			114.2			0.0	
Approach LOS		D			E			F			A	

Intersection Summary			
HCM 2000 Control Delay	73.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	104.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



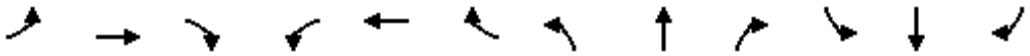
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	947	411	261	1662	37	755	32	484	78	35	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.95	0.95	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.98	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3312	1214	1289	3383		1649	1575	1240	1480	1389	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3312	1214	1289	3383		1649	1575	1240	1480	1389	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	947	411	261	1662	37	755	32	484	78	35	73
RTOR Reduction (vph)	0	0	239	0	1	0	0	0	280	0	55	0
Lane Group Flow (vph)	15	947	172	261	1698	0	393	394	204	78	53	0
Confl. Peds. (#/hr)						1			3			
Heavy Vehicles (%)	0%	9%	33%	40%	5%	65%	4%	73%	28%	22%	50%	10%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases			2						8			
Actuated Green, G (s)	2.4	47.6	47.6	28.5	73.7		35.0	35.0	35.0	8.3	8.3	
Effective Green, g (s)	2.4	47.6	47.6	28.5	73.7		35.0	35.0	35.0	8.3	8.3	
Actuated g/C Ratio	0.02	0.35	0.35	0.21	0.54		0.26	0.26	0.26	0.06	0.06	
Clearance Time (s)	3.5	5.5	5.5	3.5	5.5		4.0	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	3.0	4.5	4.5	3.0	4.5		4.0	4.0	4.0	3.0	3.0	
Lane Grp Cap (vph)	31	1160	425	270	1834		424	405	319	90	84	
v/s Ratio Prot	0.01	0.29		c0.20	c0.50		0.24	c0.25		c0.05	0.04	
v/s Ratio Perm			0.14						0.16			
v/c Ratio	0.48	0.82	0.40	0.97	0.93		0.93	0.97	0.64	0.87	0.63	
Uniform Delay, d1	66.1	40.2	33.4	53.2	28.6		49.2	50.0	44.8	63.3	62.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	11.4	5.0	1.1	45.1	8.8		26.5	37.5	4.7	53.4	13.7	
Delay (s)	77.6	45.2	34.5	98.4	37.4		75.7	87.5	49.5	116.6	76.0	
Level of Service	E	D	C	F	D		E	F	D	F	E	
Approach Delay (s)		42.3			45.5			69.4			93.0	
Approach LOS		D			D			E			F	

Intersection Summary			
HCM 2000 Control Delay	52.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	135.9	Sum of lost time (s)	16.5
Intersection Capacity Utilization	91.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



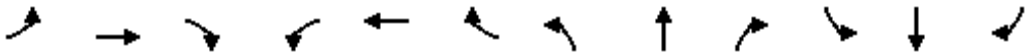
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	251	766	486	429	1486	307	409	397	499	207	179	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	0.92		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.99	
Satd. Flow (prot)	1337	2998		1687	3406	1509	1444	2895		1369	2604	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.99	
Satd. Flow (perm)	1337	2998		1687	3406	1509	1444	2895		1369	2604	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	251	766	486	429	1486	307	409	397	499	207	179	76
RTOR Reduction (vph)	0	73	0	0	0	141	0	163	0	0	21	0
Lane Group Flow (vph)	251	1179	0	429	1486	166	409	733	0	153	288	0
Confl. Peds. (#/hr)									1			
Heavy Vehicles (%)	35%	13%	14%	7%	6%	7%	25%	14%	13%	20%	16%	57%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA		Split	NA	
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases						8						
Actuated Green, G (s)	21.5	44.0		29.5	52.0	52.0	34.5	34.5		15.0	15.0	
Effective Green, g (s)	21.5	44.0		29.5	52.0	52.0	34.5	34.5		15.0	15.0	
Actuated g/C Ratio	0.15	0.32		0.21	0.37	0.37	0.25	0.25		0.11	0.11	
Clearance Time (s)	3.5	5.0		3.5	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	2.5	2.5		2.5	2.5	
Lane Grp Cap (vph)	206	945		356	1269	562	357	715		147	280	
v/s Ratio Prot	0.19	c0.39		c0.25	0.44		c0.28	0.25		c0.11	0.11	
v/s Ratio Perm						0.11						
v/c Ratio	1.22	1.25		1.21	1.17	0.30	1.15	1.02		1.04	1.03	
Uniform Delay, d1	59.0	47.8		55.0	43.8	30.8	52.5	52.5		62.2	62.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	134.0	120.5		115.9	85.7	0.3	93.4	40.1		85.5	61.8	
Delay (s)	193.0	168.3		170.9	129.4	31.1	145.9	92.6		147.7	124.1	
Level of Service	F	F		F	F	C	F	F		F	F	
Approach Delay (s)		172.4			123.9			109.3			131.9	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	134.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	139.5	Sum of lost time (s)	16.5
Intersection Capacity Utilization	110.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1235	199	255	1534	0	0	0	0	785	726	505
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						5.0	
Lane Util. Factor		0.91		1.00	0.95						0.95	
Frpb, ped/bikes		1.00		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.98		1.00	1.00						0.96	
Flt Protected		1.00		0.95	1.00						0.98	
Satd. Flow (prot)		4839		1768	3312						3283	
Flt Permitted		1.00		0.11	1.00						0.98	
Satd. Flow (perm)		4839		213	3312						3283	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1235	199	255	1534	0	0	0	0	785	726	505
RTOR Reduction (vph)	0	25	0	0	0	0	0	0	0	0	8	0
Lane Group Flow (vph)	0	1409	0	255	1534	0	0	0	0	0	2008	0
Confl. Peds. (#/hr)			8	8						10		10
Heavy Vehicles (%)	16%	5%	2%	2%	9%	2%	1%	0%	0%	2%	2%	7%
Turn Type		NA		Perm	NA					Split	NA	
Protected Phases		4			8					6	6	
Permitted Phases				8								
Actuated Green, G (s)		41.0		41.0	41.0						36.0	
Effective Green, g (s)		41.0		41.0	41.0						36.0	
Actuated g/C Ratio		0.47		0.47	0.47						0.41	
Clearance Time (s)		5.0		5.0	5.0						5.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		2280		100	1560						1358	
v/s Ratio Prot		0.29			0.46						c0.61	
v/s Ratio Perm				c1.19								
v/c Ratio		0.62		2.55	0.98						1.48	
Uniform Delay, d1		17.2		23.0	22.7						25.5	
Progression Factor		1.00		0.29	0.29						1.00	
Incremental Delay, d2		0.4		700.2	3.9						219.5	
Delay (s)		17.5		706.9	10.4						245.0	
Level of Service		B		F	B						F	
Approach Delay (s)		17.5			109.7			0.0			245.0	
Approach LOS		B			F			A			F	

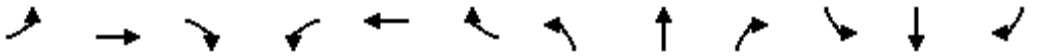
Intersection Summary			
HCM 2000 Control Delay	136.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.04		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	191.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	484	1536	0	0	1673	567	116	633	212	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			5.0				
Lane Util. Factor	1.00	0.95			0.95			0.95				
Frpb, ped/bikes	1.00	1.00			0.99			1.00				
Flpb, ped/bikes	1.00	1.00			1.00			1.00				
Frt	1.00	1.00			0.96			0.97				
Flt Protected	0.95	1.00			1.00			0.99				
Satd. Flow (prot)	1770	3539			3380			3385				
Flt Permitted	0.10	1.00			1.00			0.99				
Satd. Flow (perm)	182	3539			3380			3385				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	484	1536	0	0	1673	567	116	633	212	0	0	0
RTOR Reduction (vph)	0	0	0	0	39	0	0	7	0	0	0	0
Lane Group Flow (vph)	484	1536	0	0	2201	0	0	954	0	0	0	0
Confl. Peds. (#/hr)	10					10			10			
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases		4			8		2	2				
Permitted Phases	4											
Actuated Green, G (s)	41.0	41.0			41.0			36.0				
Effective Green, g (s)	41.0	41.0			41.0			36.0				
Actuated g/C Ratio	0.47	0.47			0.47			0.41				
Clearance Time (s)	5.0	5.0			5.0			5.0				
Vehicle Extension (s)	2.0	2.0			2.0			2.0				
Lane Grp Cap (vph)	85	1667			1592			1400				
v/s Ratio Prot		0.43			0.65			c0.28				
v/s Ratio Perm	c2.66											
v/c Ratio	5.69	0.92			1.38			0.68				
Uniform Delay, d1	23.0	21.5			23.0			20.8				
Progression Factor	0.85	0.83			1.00			1.00				
Incremental Delay, d2	2120.4	3.1			176.2			1.1				
Delay (s)	2140.1	21.0			199.2			21.9				
Level of Service	F	C			F			C				
Approach Delay (s)		528.8			199.2			21.9			0.0	
Approach LOS		F			F			C			A	

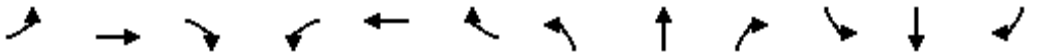
Intersection Summary			
HCM 2000 Control Delay	294.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	3.32		
Actuated Cycle Length (s)	87.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	191.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	1361	377	117	1770	27	262	227	114	124	356	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00		1.00	0.95		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	3350		1769	3367		1762	1754		1762	1796	
Flt Permitted	0.08	1.00		0.08	1.00		0.20	1.00		0.35	1.00	
Satd. Flow (perm)	154	3350		154	3367		378	1754		658	1796	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	61	1361	377	117	1770	27	262	227	114	124	356	89
RTOR Reduction (vph)	0	32	0	0	1	0	0	23	0	0	11	0
Lane Group Flow (vph)	61	1707	0	117	1796	0	262	318	0	124	434	0
Confl. Peds. (#/hr)	8		7	7		8	11		8	8		11
Confl. Bikes (#/hr)			9			11			8			10
Heavy Vehicles (%)	2%	4%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	48.5	48.5		48.5	48.5		23.0	23.0		23.0	23.0	
Effective Green, g (s)	48.5	48.5		48.5	48.5		23.0	23.0		23.0	23.0	
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.29	0.29		0.29	0.29	
Clearance Time (s)	3.5	3.5		3.5	3.5		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	93	2030		93	2041		108	504		189	516	
v/s Ratio Prot		0.51			0.53			0.18			0.24	
v/s Ratio Perm	0.40			c0.76			c0.69			0.19		
v/c Ratio	0.66	0.84		1.26	0.88		2.43	0.63		0.66	0.84	
Uniform Delay, d1	10.3	12.6		15.8	13.3		28.5	24.8		25.0	26.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	30.8	4.4		177.8	5.8		668.9	5.9		16.4	15.2	
Delay (s)	41.1	17.1		193.5	19.1		697.4	30.7		41.5	41.9	
Level of Service	D	B		F	B		F	C		D	D	
Approach Delay (s)		17.9			29.8			320.4			41.8	
Approach LOS		B			C			F			D	

Intersection Summary			
HCM 2000 Control Delay	62.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.63		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	143.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



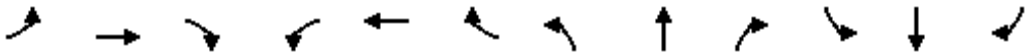
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	1537	108	57	1310	9	388	577	183	29	28	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Lane Util. Factor		0.95			0.95	1.00	1.00	1.00	1.00		1.00	1.00
Frpb, ped/bikes		1.00			1.00	0.94	1.00	1.00	0.95		1.00	0.95
Flpb, ped/bikes		1.00			1.00	1.00	0.97	1.00	1.00		1.00	1.00
Frt		0.99			1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected		1.00			1.00	1.00	0.95	1.00	1.00		0.98	1.00
Satd. Flow (prot)		3425			3307	1490	1641	1827	1504		1817	1500
Flt Permitted		0.76			0.67	1.00	0.72	1.00	1.00		0.36	1.00
Satd. Flow (perm)		2617			2228	1490	1244	1827	1504		678	1500
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	62	1537	108	57	1310	9	388	577	183	29	28	69
RTOR Reduction (vph)	0	6	0	0	0	2	0	0	23	0	0	39
Lane Group Flow (vph)	0	1701	0	0	1367	7	388	577	160	0	57	30
Confl. Peds. (#/hr)	21		15	15		21	27		25	25		27
Confl. Bikes (#/hr)			18			17			16			17
Heavy Vehicles (%)	2%	4%	3%	30%	8%	2%	7%	4%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8		8	4		4
Actuated Green, G (s)		54.5			54.5	54.5	26.5	26.5	26.5		26.5	26.5
Effective Green, g (s)		54.5			54.5	54.5	26.5	26.5	26.5		26.5	26.5
Actuated g/C Ratio		0.61			0.61	0.61	0.29	0.29	0.29		0.29	0.29
Clearance Time (s)		5.5			5.5	5.5	3.5	3.5	3.5		3.5	3.5
Vehicle Extension (s)		2.0			2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)		1584			1349	902	366	537	442		199	441
v/s Ratio Prot								c0.32				
v/s Ratio Perm		c0.65			0.61	0.00	0.31		0.11		0.08	0.02
v/c Ratio		1.07			1.01	0.01	1.06	1.07	0.36		0.29	0.07
Uniform Delay, d1		17.8			17.8	7.0	31.8	31.8	25.1		24.5	22.9
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2		45.5			27.9	0.0	63.8	60.4	0.2		0.3	0.0
Delay (s)		63.2			45.6	7.0	95.6	92.1	25.3		24.8	22.9
Level of Service		E			D	A	F	F	C		C	C
Approach Delay (s)		63.2			45.3			82.6			23.7	
Approach LOS		E			D			F			C	

Intersection Summary			
HCM 2000 Control Delay	61.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	128.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	204	1333	368	96	918	42	570	692	157	193	898	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Lane Util. Factor		0.95	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.97	
Flt Protected		0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3485	1482	1770	3195	1540	1732	3425		1764	3427	
Flt Permitted		0.57	1.00	0.12	1.00	1.00	0.16	1.00		0.26	1.00	
Satd. Flow (perm)		1982	1482	219	3195	1540	301	3425		486	3427	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	204	1333	368	96	918	42	570	692	157	193	898	202
RTOR Reduction (vph)	0	0	52	0	0	19	0	5	0	0	23	0
Lane Group Flow (vph)	0	1537	316	96	918	23	570	844	0	193	1077	0
Confl. Peds. (#/hr)	15		15	15		15	15		15	15		15
Heavy Vehicles (%)	2%	3%	6%	2%	13%	2%	4%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			4			2			6	
Permitted Phases	4		4	4		4	2			6		
Actuated Green, G (s)		34.0	34.0	34.0	34.0	34.0	41.5	41.5		41.5	41.5	
Effective Green, g (s)		34.0	34.0	34.0	34.0	34.0	41.5	41.5		41.5	41.5	
Actuated g/C Ratio		0.40	0.40	0.40	0.40	0.40	0.49	0.49		0.49	0.49	
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	5.5	5.5		5.5	5.5	
Vehicle Extension (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0		4.0	4.0	
Lane Grp Cap (vph)		792	592	87	1278	616	146	1672		237	1673	
v/s Ratio Prot					0.29			0.25			0.31	
v/s Ratio Perm		c0.78	0.21	0.44		0.01	c1.90			0.40		
v/c Ratio		1.94	0.53	1.10	0.72	0.04	3.90	0.50		0.81	0.64	
Uniform Delay, d1		25.5	19.5	25.5	21.5	15.5	21.8	14.8		18.5	16.2	
Progression Factor		1.00	1.00	0.39	0.40	0.05	1.00	1.00		1.00	1.00	
Incremental Delay, d2		427.9	3.4	118.5	2.9	0.1	1323.2	0.5		19.8	1.0	
Delay (s)		453.4	22.9	128.5	11.4	0.9	1345.0	15.3		38.3	17.2	
Level of Service		F	C	F	B	A	F	B		D	B	
Approach Delay (s)		370.3			21.6			549.4			20.3	
Approach LOS		F			C			F			C	

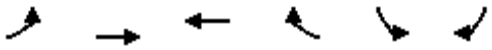
Intersection Summary			
HCM 2000 Control Delay	270.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	3.01		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	147.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	1373	25	60	1106	57	27	222	348	35	78	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.96		1.00	0.94		0.97	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		0.99	
Satd. Flow (prot)	1587	3154	1360	1588	3065	1375		3159	1171		2846	
Flt Permitted	0.20	1.00	1.00	0.13	1.00	1.00		0.91	1.00		0.88	
Satd. Flow (perm)	330	3154	1360	210	3065	1375		2889	1171		2516	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	119	1373	25	60	1106	57	27	222	348	35	78	98
RTOR Reduction (vph)	0	0	6	0	0	16	0	0	26	0	52	0
Lane Group Flow (vph)	119	1373	19	60	1106	41	0	249	322	0	159	0
Confl. Peds. (#/hr)	22		31	31		22	34		37	37		34
Confl. Bikes (#/hr)			7			3			12			19
Heavy Vehicles (%)	2%	3%	2%	2%	6%	2%	2%	2%	17%	2%	2%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4		4	4		4	2		2	2		
Actuated Green, G (s)	50.8	50.8	50.8	50.8	50.8	50.8		25.7	25.7		25.7	
Effective Green, g (s)	50.8	50.8	50.8	50.8	50.8	50.8		25.7	25.7		25.7	
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.60	0.60		0.30	0.30		0.30	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5		4.0	4.0		4.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	197	1884	812	125	1831	821		873	354		760	
v/s Ratio Prot		c0.44			0.36							
v/s Ratio Perm	0.36		0.01	0.29		0.03		0.09	c0.28		0.06	
v/c Ratio	0.60	0.73	0.02	0.48	0.60	0.05		0.29	0.91		0.21	
Uniform Delay, d1	10.8	12.2	7.0	9.6	10.8	7.1		22.6	28.5		22.1	
Progression Factor	0.74	0.77	0.79	1.51	1.47	1.54		1.00	1.00		1.00	
Incremental Delay, d2	1.2	0.2	0.0	6.3	0.7	0.1		0.1	26.2		0.1	
Delay (s)	9.2	9.6	5.5	20.9	16.6	11.0		22.7	54.7		22.1	
Level of Service	A	A	A	C	B	B		C	D		C	
Approach Delay (s)		9.5			16.5			41.4			22.1	
Approach LOS		A			B			D			C	

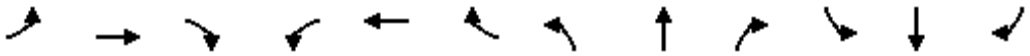
Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	96.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



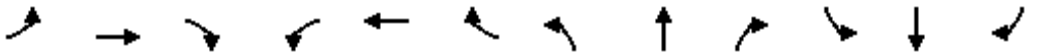
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	620	1044	878	525	265	216
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00	0.97	0.99	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	0.97	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.96	1.00
Satd. Flow (prot)	1577	3094	3065	1382	2972	1213
Flt Permitted	0.95	1.00	1.00	1.00	0.96	1.00
Satd. Flow (perm)	1577	3094	3065	1382	2972	1213
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	620	1044	878	525	265	216
RTOR Reduction (vph)	0	0	0	241	31	126
Lane Group Flow (vph)	620	1044	878	284	299	25
Confl. Peds. (#/hr)				15	15	15
Heavy Vehicles (%)	3%	5%	6%	2%	3%	6%
Turn Type	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	36.8	62.8	22.0	22.0	14.2	14.2
Effective Green, g (s)	36.8	62.8	22.0	22.0	14.2	14.2
Actuated g/C Ratio	0.43	0.74	0.26	0.26	0.17	0.17
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	682	2285	793	357	496	202
v/s Ratio Prot	c0.39	0.34	c0.29		c0.10	
v/s Ratio Perm				0.21		0.02
v/c Ratio	0.91	0.46	1.11	0.80	0.60	0.12
Uniform Delay, d1	22.5	4.4	31.5	29.4	32.8	30.1
Progression Factor	0.77	0.83	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.1	0.4	65.5	10.9	1.4	0.1
Delay (s)	28.4	4.0	97.0	40.3	34.2	30.2
Level of Service	C	A	F	D	C	C
Approach Delay (s)		13.1	75.8		33.0	
Approach LOS		B	E		C	

Intersection Summary			
HCM 2000 Control Delay	40.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



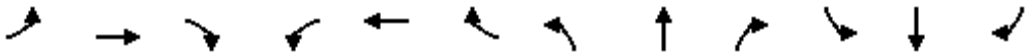
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	185	970	33	125	835	92	410	1106	307	91	438	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00	0.90	1.00	0.97	
Flpb, ped/bikes	0.99	1.00			1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00			0.99		1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1579	3162			3100		1588	3185	1281	1591	2963	
Flt Permitted	0.17	1.00			0.60		0.20	1.00	1.00	0.13	1.00	
Satd. Flow (perm)	291	3162			1863		331	3185	1281	223	2963	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	185	970	33	125	835	92	410	1106	307	91	438	185
RTOR Reduction (vph)	0	2	0	0	6	0	0	0	50	0	42	0
Lane Group Flow (vph)	185	1001	0	0	1046	0	410	1106	257	91	581	0
Confl. Peds. (#/hr)	46		47	47		46	57		65	65		57
Confl. Bikes (#/hr)			9			21			15			22
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	56.0	56.0			56.0		46.0	38.0	38.0	34.0	30.0	
Effective Green, g (s)	56.0	56.0			56.0		46.0	38.0	38.0	34.0	30.0	
Actuated g/C Ratio	0.51	0.51			0.51		0.42	0.35	0.35	0.31	0.27	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		3.0	2.0	2.0	3.0	2.0	
Lane Grp Cap (vph)	148	1609			948		275	1100	442	118	808	
v/s Ratio Prot		0.32					c0.16	0.35		0.03	0.20	
v/s Ratio Perm	c0.64				0.56		c0.46		0.20	0.21		
v/c Ratio	1.25	0.62			1.10		1.49	1.01	0.58	0.77	0.72	
Uniform Delay, d1	27.0	19.4			27.0		26.8	36.0	29.5	32.7	36.2	
Progression Factor	1.00	1.00			1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	156.3	1.8			61.6		239.3	28.5	1.3	26.2	2.6	
Delay (s)	183.3	21.2			88.6		266.1	64.5	30.7	58.9	38.8	
Level of Service	F	C			F		F	E	C	E	D	
Approach Delay (s)		46.5			88.6			104.1			41.3	
Approach LOS		D			F			F			D	

Intersection Summary			
HCM 2000 Control Delay	77.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.39		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	127.4%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



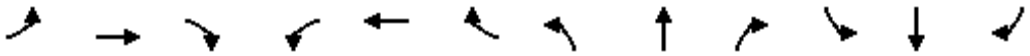
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	332	914	237	463	734	76	10	1950	731	3	1256	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5	4.0		5.5	5.5
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.95		1.00	0.98		1.00	0.95
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)	3090	3154	1349	3090	3185	1349		4575	1391		4576	1349
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.93	1.00		0.93	1.00
Satd. Flow (perm)	3090	3154	1349	3090	3185	1349		4254	1391		4235	1349
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	332	914	237	463	734	76	10	1950	731	3	1256	211
RTOR Reduction (vph)	0	0	65	0	0	53	0	0	0	0	0	79
Lane Group Flow (vph)	332	914	172	463	734	24	0	1960	731	0	1259	132
Confl. Peds. (#/hr)			40			40	40		40	40		40
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Free	Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases			8			4	2		Free	6		6
Actuated Green, G (s)	11.0	27.5	27.5	12.0	28.5	28.5		40.5	95.0		40.5	40.5
Effective Green, g (s)	11.0	27.5	27.5	12.0	28.5	28.5		40.5	95.0		40.5	40.5
Actuated g/C Ratio	0.12	0.29	0.29	0.13	0.30	0.30		0.43	1.00		0.43	0.43
Clearance Time (s)	4.0	5.5	5.5	4.0	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	357	913	390	390	955	404		1813	1391		1805	575
v/s Ratio Prot	0.11	c0.29		c0.15	0.23							
v/s Ratio Perm			0.13			0.02		c0.46	0.53		0.30	0.10
v/c Ratio	0.93	1.00	0.44	1.19	0.77	0.06		1.08	0.53		0.70	0.23
Uniform Delay, d1	41.6	33.8	27.5	41.5	30.2	23.7		27.2	0.0		22.2	17.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	29.9	30.0	3.6	107.2	5.9	0.3		46.8	1.4		1.2	0.2
Delay (s)	71.6	63.8	31.1	148.7	36.2	24.0		74.1	1.4		23.4	17.5
Level of Service	E	E	C	F	D	C		E	A		C	B
Approach Delay (s)		60.3			76.4			54.3			22.6	
Approach LOS		E			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	52.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	104.7%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	386	89	13	179	55	57	508	101	358	426	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	0.98	1.00		0.99	1.00		0.99	1.00		0.99	1.00	
Frt	1.00	0.97		1.00	0.96		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1737	1795		1759	1775		1749	1802		1754	1811	
Flt Permitted	0.52	1.00		0.25	1.00		0.41	1.00		0.33	1.00	
Satd. Flow (perm)	943	1795		463	1775		762	1802		616	1811	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	60	386	89	13	179	55	57	508	101	358	426	68
RTOR Reduction (vph)	0	14	0	0	18	0	0	12	0	0	10	0
Lane Group Flow (vph)	60	461	0	13	216	0	57	597	0	358	484	0
Confl. Peds. (#/hr)	15		10	10		15	15		15	15		15
Confl. Bikes (#/hr)			5			4						9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		8			4			2			6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	16.0	16.0		16.0	16.0		35.7	35.7		35.7	35.7	
Effective Green, g (s)	16.0	16.0		16.0	16.0		35.7	35.7		35.7	35.7	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.60	0.60		0.60	0.60	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	252	481		124	475		455	1077		368	1082	
v/s Ratio Prot		c0.26			0.12			0.33			0.27	
v/s Ratio Perm	0.06			0.03			0.07			c0.58		
v/c Ratio	0.24	0.96		0.10	0.45		0.13	0.55		0.97	0.45	
Uniform Delay, d1	17.1	21.5		16.5	18.2		5.2	7.2		11.5	6.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	30.3		0.4	0.7		0.1	0.6		39.4	0.3	
Delay (s)	17.6	51.9		16.8	18.9		5.3	7.8		51.0	6.9	
Level of Service	B	D		B	B		A	A		D	A	
Approach Delay (s)		48.0			18.8			7.6			25.4	
Approach LOS		D			B			A			C	

Intersection Summary			
HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	59.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	95.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	167	570	45	17	163	112	64	818	61	31	202	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.99			0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.98	1.00			1.00	
Frt	1.00	0.99		1.00	0.94		1.00	0.99			0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1757	1835		1753	1731		1726	3481			3441	
Flt Permitted	0.49	1.00		0.16	1.00		0.59	1.00			0.84	
Satd. Flow (perm)	910	1835		299	1731		1077	3481			2897	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	167	570	45	17	163	112	64	818	61	31	202	24
RTOR Reduction (vph)	0	4	0	0	36	0	0	8	0	0	11	0
Lane Group Flow (vph)	167	611	0	17	239	0	64	871	0	0	246	0
Confl. Peds. (#/hr)	14		44	44		14	37		71	71		37
Confl. Bikes (#/hr)			6			2			2			11
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)	24.7	24.7		24.7	24.7		37.0	37.0			37.0	
Effective Green, g (s)	24.7	24.7		24.7	24.7		37.0	37.0			37.0	
Actuated g/C Ratio	0.35	0.35		0.35	0.35		0.53	0.53			0.53	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	322	650		105	613		571	1847			1537	
v/s Ratio Prot		c0.33			0.14			c0.25				
v/s Ratio Perm	0.18			0.06			0.06				0.08	
v/c Ratio	0.52	0.94		0.16	0.39		0.11	0.47			0.16	
Uniform Delay, d1	17.8	21.8		15.4	16.9		8.2	10.2			8.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	1.4	21.8		0.7	0.4		0.4	0.9			0.2	
Delay (s)	19.2	43.5		16.1	17.3		8.6	11.1			8.6	
Level of Service	B	D		B	B		A	B			A	
Approach Delay (s)		38.3			17.2			10.9			8.6	
Approach LOS		D			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	69.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	100.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

MOVEMENT SUMMARY

Site: 2035 + Proj Pref PM

Adeline & 14th
2035 + Preferred Project PM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	18	2.0	0.677	15.0	LOS C	6.3	159.6	0.82	1.06	23.7
8	T	557	2.0	0.677	15.0	LOS C	6.3	159.6	0.82	0.96	25.2
18	R	53	2.0	0.677	15.0	LOS C	6.3	159.6	0.82	0.98	25.0
Approach		628	2.0	0.677	15.0	LOS C	6.3	159.6	0.82	0.96	25.1
East: 14th Street (WB)											
1	L	90	2.0	0.470	11.4	LOS B	2.7	68.0	0.73	1.02	24.9
6	T	212	2.0	0.470	11.4	LOS B	2.7	68.0	0.73	0.89	26.7
16	R	47	2.0	0.470	11.4	LOS B	2.7	68.0	0.73	0.92	26.5
Approach		349	2.0	0.470	11.4	LOS B	2.7	68.0	0.73	0.93	26.1
North: Adeline Street (SB)											
7	L	85	2.0	0.505	9.6	LOS A	3.3	83.5	0.64	0.89	25.7
4	T	395	2.0	0.505	9.6	LOS A	3.3	83.5	0.64	0.71	27.8
14	R	34	2.0	0.505	9.6	LOS A	3.3	83.5	0.64	0.74	27.5
Approach		514	2.0	0.505	9.6	LOS A	3.3	83.5	0.64	0.74	27.4
West: 14th Street (EB)											
5	L	53	2.0	0.503	11.6	LOS B	3.1	78.5	0.73	1.04	24.9
2	T	273	2.0	0.503	11.6	LOS B	3.1	78.5	0.73	0.90	26.7
12	R	71	2.0	0.503	11.6	LOS B	3.1	78.5	0.73	0.93	26.5
Approach		397	2.0	0.503	11.6	LOS B	3.1	78.5	0.73	0.92	26.4
All Vehicles		1888	2.0	0.677	12.2	LOS B	6.3	159.6	0.74	0.89	26.2

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.

MOVEMENT SUMMARY

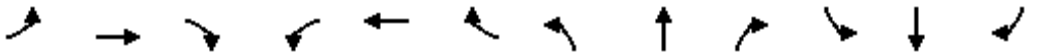
Site: 2035 + Proj PM

Adeline & 12th
2035 + Preferred Project PM
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Adeline Street (NB)											
3	L	1	2.0	0.392	6.7	LOS A	2.5	62.3	0.37	0.84	26.9
8	T	481	2.0	0.392	6.7	LOS A	2.5	62.3	0.37	0.49	29.7
18	R	7	2.0	0.392	6.7	LOS A	2.5	62.3	0.37	0.56	29.3
Approach		489	2.0	0.392	6.7	LOS A	2.5	62.3	0.37	0.49	29.7
East: 12th Street (WB)											
1	L	10	2.0	0.189	6.1	LOS A	0.8	21.1	0.56	0.89	27.1
6	T	21	2.0	0.189	6.1	LOS A	0.8	21.1	0.56	0.68	29.8
16	R	131	2.0	0.189	6.1	LOS A	0.8	21.1	0.56	0.73	29.4
Approach		162	2.0	0.189	6.1	LOS A	0.8	21.1	0.56	0.73	29.3
North: Adeline Street (SB)											
7	L	108	2.0	0.394	6.3	LOS A	2.6	67.1	0.18	0.83	26.8
4	T	423	2.0	0.394	6.3	LOS A	2.6	67.1	0.18	0.40	29.9
14	R	8	2.0	0.394	6.3	LOS A	2.6	67.1	0.18	0.49	29.4
Approach		539	2.0	0.394	6.3	LOS A	2.6	67.1	0.18	0.49	29.2
West: 12th Street (EB)											
5	L	8	2.0	0.019	4.6	LOS A	0.1	1.9	0.53	0.78	27.8
2	T	5	2.0	0.019	4.6	LOS A	0.1	1.9	0.53	0.57	30.7
12	R	3	2.0	0.019	4.6	LOS A	0.1	1.9	0.53	0.62	30.3
Approach		16	2.0	0.019	4.6	LOS A	0.1	1.9	0.53	0.68	29.0
All Vehicles		1206	2.0	0.394	6.4	LOS A	2.6	67.1	0.32	0.52	29.4

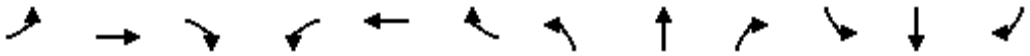
Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Model used. Geometric Delay not included.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	259	184	0	0	190	288	157	515	225	288	0	531
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Lane Util. Factor	1.00	0.95			0.95		0.91	0.91		1.00		0.88
Frpb, ped/bikes	1.00	1.00			0.98		1.00	1.00		1.00		1.00
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Frt	1.00	1.00			0.91		1.00	0.96		1.00		0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (prot)	1367	3312			2591		972	2915		1556		2472
Flt Permitted	0.95	1.00			1.00		0.95	1.00		0.95		1.00
Satd. Flow (perm)	1367	3312			2591		972	2915		1556		2472
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	259	184	0	0	190	288	157	515	225	288	0	531
RTOR Reduction (vph)	0	0	0	0	248	0	0	37	0	0	0	422
Lane Group Flow (vph)	259	184	0	0	230	0	141	719	0	288	0	109
Confl. Peds. (#/hr)						14						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	32%	9%	0%	0%	25%	24%	69%	12%	12%	16%	0%	15%
Turn Type	Prot	NA			NA		Split	NA		Prot		custom
Protected Phases	1	6			2		4	4		3		3
Permitted Phases												
Actuated Green, G (s)	21.2	38.5			13.8		26.6	26.6		20.1		20.1
Effective Green, g (s)	21.2	38.5			13.8		26.6	26.6		20.1		20.1
Actuated g/C Ratio	0.22	0.39			0.14		0.27	0.27		0.20		0.20
Clearance Time (s)	3.5	4.5			4.5		4.5	4.5		4.0		4.0
Vehicle Extension (s)	2.0	2.5			2.5		2.5	2.5		2.5		2.5
Lane Grp Cap (vph)	295	1298			364		263	789		318		505
v/s Ratio Prot	c0.19	0.06			c0.09		0.15	c0.25		c0.19		0.04
v/s Ratio Perm												
v/c Ratio	0.88	0.14			0.63		0.54	0.91		0.91		0.22
Uniform Delay, d1	37.2	19.2			39.8		30.5	34.7		38.1		32.5
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	23.5	0.0			3.1		1.6	14.6		27.6		0.2
Delay (s)	60.8	19.3			42.9		32.2	49.3		65.8		32.6
Level of Service	E	B			D		C	D		E		C
Approach Delay (s)		43.5			42.9			46.6			44.3	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	44.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	98.2	Sum of lost time (s)	16.5
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

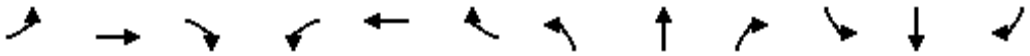
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	84	670	22	139	785	433	20	119	104	467	174	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.97			0.99		1.00	0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		0.99	1.00	
Frt	1.00	1.00		1.00	0.95			0.94		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1770	3377		1770	3184			1723		1758	1709	
Flt Permitted	0.95	1.00		0.95	1.00			0.97		0.57	1.00	
Satd. Flow (perm)	1770	3377		1770	3184			1675		1051	1709	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	84	670	22	139	785	433	20	119	104	467	174	79
RTOR Reduction (vph)	0	3	0	0	83	0	0	30	0	0	18	0
Lane Group Flow (vph)	84	689	0	139	1135	0	0	213	0	467	235	0
Confl. Peds. (#/hr)			58			47	70		8	8		70
Confl. Bikes (#/hr)			15			6			9			38
Heavy Vehicles (%)	2%	6%	2%	2%	6%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			8			4	
Permitted Phases							8			4		
Actuated Green, G (s)	5.1	27.8		10.3	33.0			40.9		40.9	40.9	
Effective Green, g (s)	5.1	27.8		10.3	33.0			40.9		40.9	40.9	
Actuated g/C Ratio	0.06	0.31		0.11	0.37			0.45		0.45	0.45	
Clearance Time (s)	3.0	4.0		3.0	4.0			4.0		4.0	4.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	100	1043		202	1167			761		477	776	
v/s Ratio Prot	0.05	c0.20		0.08	c0.36						0.14	
v/s Ratio Perm								0.13		c0.44		
v/c Ratio	0.84	0.66		0.69	0.97			0.28		0.98	0.30	
Uniform Delay, d1	42.0	27.0		38.3	28.1			15.3		24.1	15.5	
Progression Factor	0.94	0.91		0.86	0.74			1.00		1.00	1.00	
Incremental Delay, d2	41.5	1.2		7.5	20.5			0.1		35.2	0.1	
Delay (s)	81.3	25.9		40.4	41.3			15.4		59.3	15.6	
Level of Service	F	C		D	D			B		E	B	
Approach Delay (s)		31.9			41.2			15.4			44.0	
Approach LOS		C			D			B			D	

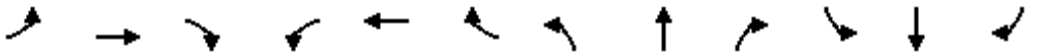
Intersection Summary			
HCM 2000 Control Delay	37.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	94.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	1697	48	70	1566	293	48	119	123	139	129	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.99	1.00		0.99	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.92		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1767	3383		1054	3471	1460	1574	1064		1759	1574	
Flt Permitted	0.09	1.00		0.09	1.00	1.00	0.59	1.00		0.52	1.00	
Satd. Flow (perm)	169	3383		101	3471	1460	986	1064		962	1574	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	52	1697	48	70	1566	293	48	119	123	139	129	57
RTOR Reduction (vph)	0	3	0	0	0	132	0	9	0	0	13	0
Lane Group Flow (vph)	52	1742	0	70	1566	161	48	233	0	139	173	0
Confl. Peds. (#/hr)	21		23	23		21	9		11	11		9
Confl. Bikes (#/hr)			4			5						1
Heavy Vehicles (%)	2%	6%	11%	71%	4%	6%	14%	50%	76%	2%	20%	2%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	44.0	44.0		44.0	44.0	44.0	28.0	28.0		28.0	28.0	
Effective Green, g (s)	44.0	44.0		44.0	44.0	44.0	28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.55	0.55		0.55	0.55	0.55	0.35	0.35		0.35	0.35	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	92	1860		55	1909	803	345	372		336	550	
v/s Ratio Prot		0.51			0.45			c0.22			0.11	
v/s Ratio Perm	0.31			c0.69		0.11	0.05			0.14		
v/c Ratio	0.57	0.94		1.27	0.82	0.20	0.14	0.63		0.41	0.31	
Uniform Delay, d1	11.8	16.7		18.0	14.8	9.1	17.8	21.6		19.8	19.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	22.8	10.5		211.4	4.1	0.6	0.8	7.7		3.7	1.5	
Delay (s)	34.5	27.2		229.4	18.9	9.7	18.6	29.4		23.5	20.5	
Level of Service	C	C		F	B	A	B	C		C	C	
Approach Delay (s)		27.4			25.1			27.6			21.8	
Approach LOS		C			C			C			C	

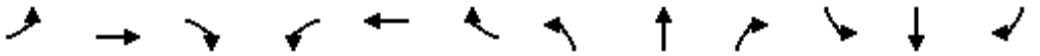
Intersection Summary			
HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	96.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	123	1506	87	25	1068	67	633	404	76	80	60	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	0.97	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00	1.00	0.99	1.00	1.00
Frt	1.00	0.99		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1669	4281		1767	4532		1742	1863	1538	1755	3539	1216
Flt Permitted	0.17	1.00		0.11	1.00		0.72	1.00	1.00	0.41	1.00	1.00
Satd. Flow (perm)	306	4281		207	4532		1312	1863	1538	756	3539	1216
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	123	1506	87	25	1068	67	633	404	76	80	60	189
RTOR Reduction (vph)	0	7	0	0	8	0	0	0	14	0	0	18
Lane Group Flow (vph)	123	1586	0	25	1127	0	633	404	62	80	60	171
Confl. Peds. (#/hr)	10		20	20		10	8		20	20		8
Confl. Bikes (#/hr)			7			3						6
Heavy Vehicles (%)	8%	21%	2%	2%	14%	2%	3%	2%	2%	2%	2%	30%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	36.0	36.0		36.0	36.0		39.5	39.5	39.5	39.5	39.5	39.5
Effective Green, g (s)	36.0	36.0		36.0	36.0		39.5	39.5	39.5	39.5	39.5	39.5
Actuated g/C Ratio	0.42	0.42		0.42	0.42		0.46	0.46	0.46	0.46	0.46	0.46
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	129	1813		87	1919		609	865	714	351	1644	565
v/s Ratio Prot		0.37			0.25			0.22			0.02	
v/s Ratio Perm	c0.40			0.12			c0.48		0.04	0.11		0.14
v/c Ratio	0.95	0.87		0.29	0.59		1.04	0.47	0.09	0.23	0.04	0.30
Uniform Delay, d1	23.7	22.4		16.1	18.8		22.8	15.6	12.7	13.6	12.4	14.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	67.6	6.2		0.7	0.3		47.1	1.8	0.2	1.5	0.0	1.4
Delay (s)	91.3	28.7		16.7	19.1		69.8	17.4	12.9	15.1	12.4	15.5
Level of Service	F	C		B	B		E	B	B	B	B	B
Approach Delay (s)		33.2			19.0			46.9			14.9	
Approach LOS		C			B			D			B	

Intersection Summary			
HCM 2000 Control Delay	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	111.6%	ICU Level of Service	H
Analysis Period (min)	15		

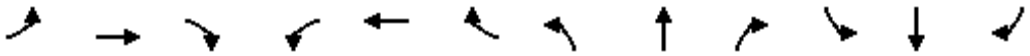
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	36	162	600	47	193	0	0	133	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	1.00			0.95	1.00
Frpb, ped/bikes					1.00	0.99	1.00	1.00			1.00	0.98
Flpb, ped/bikes					1.00	1.00	1.00	1.00			1.00	1.00
Frt					1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected					0.99	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)					3507	1561	1770	1111			2865	1558
Flt Permitted					0.99	1.00	0.67	1.00			1.00	1.00
Satd. Flow (perm)					3507	1561	1244	1111			2865	1558
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	36	162	600	47	193	0	0	133	24
RTOR Reduction (vph)	0	0	0	0	0	461	0	0	0	0	0	7
Lane Group Flow (vph)	0	0	0	0	198	139	47	193	0	0	133	17
Confl. Peds. (#/hr)				1		2			8	8		
Confl. Bikes (#/hr)												13
Heavy Vehicles (%)	0%	13%	100%	2%	2%	2%	2%	71%	83%	0%	26%	2%
Turn Type				Perm	NA	Perm	Perm	NA			NA	Perm
Protected Phases					4			6			2	
Permitted Phases				4		4	6					2
Actuated Green, G (s)					14.9	14.9	65.6	65.6			65.6	65.6
Effective Green, g (s)					14.9	14.9	65.6	65.6			65.6	65.6
Actuated g/C Ratio					0.17	0.17	0.73	0.73			0.73	0.73
Clearance Time (s)					5.0	5.0	4.5	4.5			4.5	4.5
Vehicle Extension (s)					2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)					580	258	906	809			2088	1135
v/s Ratio Prot								c0.17			0.05	
v/s Ratio Perm					0.06	c0.09	0.04					0.01
v/c Ratio					0.34	0.54	0.05	0.24			0.06	0.02
Uniform Delay, d1					33.2	34.4	3.4	4.0			3.5	3.3
Progression Factor					1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2					0.1	1.1	0.0	0.1			0.1	0.0
Delay (s)					33.3	35.5	3.4	4.1			3.5	3.4
Level of Service					C	D	A	A			A	A
Approach Delay (s)		0.0			34.9			3.9			3.5	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



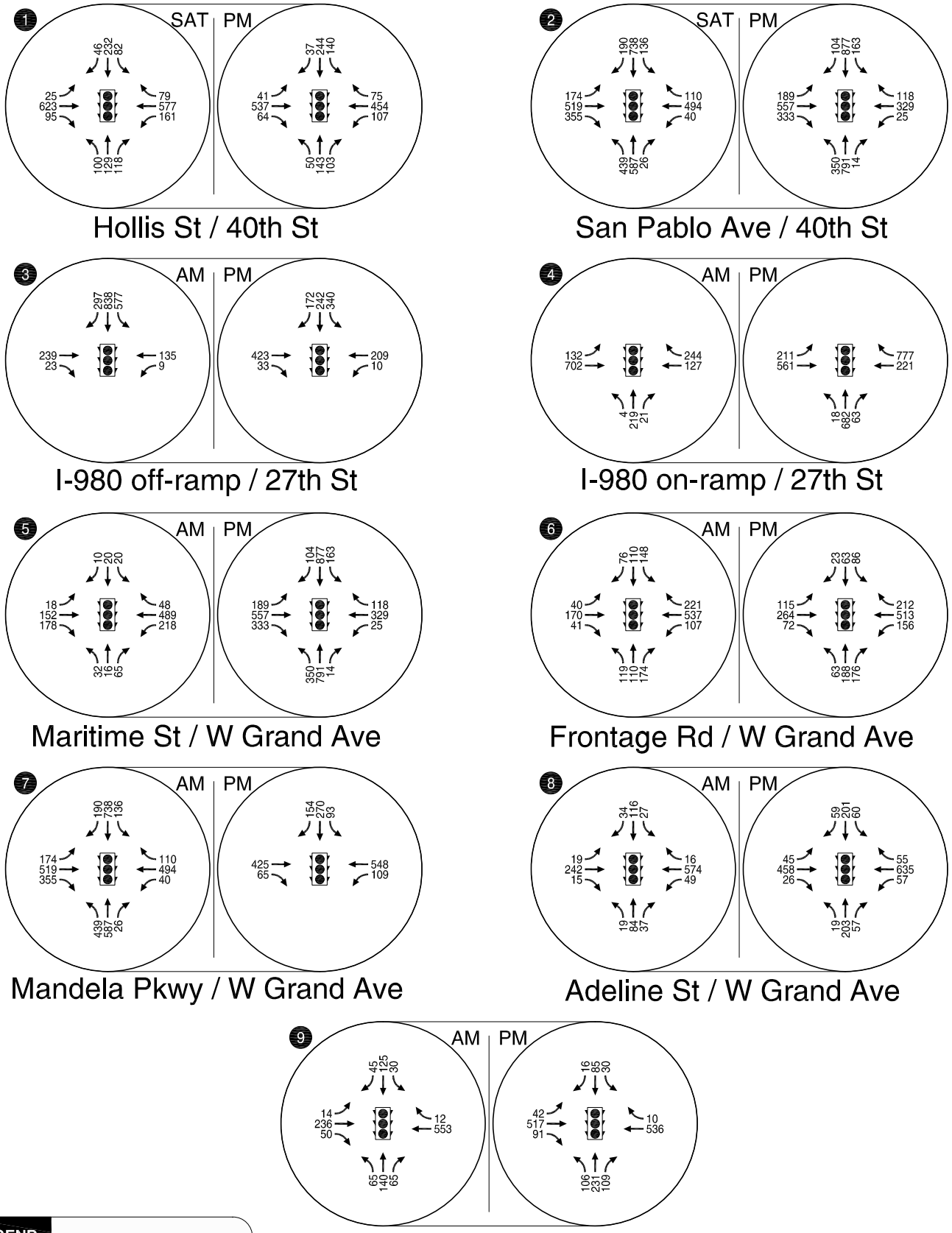
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	944	65	41	112	26	107	308	148	166	161	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	0.97		1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3367		1770	3367		1770	1077		1770	1091	
Flt Permitted	0.95	1.00		0.95	1.00		0.64	1.00		0.35	1.00	
Satd. Flow (perm)	1770	3367		1770	3367		1196	1077		659	1091	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	26	944	65	41	112	26	107	308	148	166	161	14
RTOR Reduction (vph)	0	6	0	0	17	0	0	22	0	0	4	0
Lane Group Flow (vph)	26	1003	0	41	121	0	107	434	0	166	171	0
Confl. Peds. (#/hr)						50			3			3
Confl. Bikes (#/hr)			4						1			
Heavy Vehicles (%)	2%	5%	21%	2%	2%	2%	2%	57%	88%	2%	78%	2%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		
Actuated Green, G (s)	1.9	25.2		2.1	25.9		31.9	31.9		31.9	31.9	
Effective Green, g (s)	1.9	25.2		2.1	25.9		31.9	31.9		31.9	31.9	
Actuated g/C Ratio	0.03	0.35		0.03	0.36		0.45	0.45		0.45	0.45	
Clearance Time (s)	3.5	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	3.0		2.5	3.0		3.2	3.2		3.0	3.0	
Lane Grp Cap (vph)	47	1191		52	1224		535	482		295	488	
v/s Ratio Prot	0.01	c0.30		c0.02	0.04			c0.40			0.16	
v/s Ratio Perm							0.09			0.25		
v/c Ratio	0.55	0.84		0.79	0.10		0.20	0.90		0.56	0.35	
Uniform Delay, d1	34.2	21.2		34.3	15.0		11.9	18.2		14.5	12.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.8	5.6		52.3	0.0		0.2	19.8		2.5	0.4	
Delay (s)	42.0	26.7		86.6	15.0		12.1	38.0		17.0	13.3	
Level of Service	D	C		F	B		B	D		B	B	
Approach Delay (s)		27.1			31.4			33.1			15.1	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	71.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

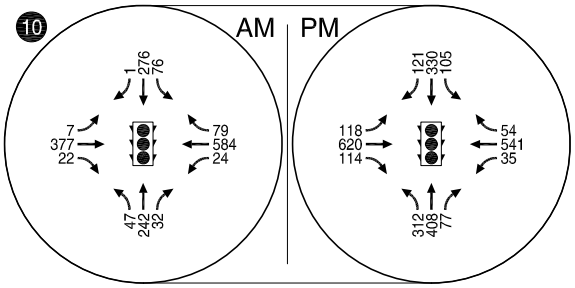
Appendix C: Intersection Turning Movement Volumes

Existing

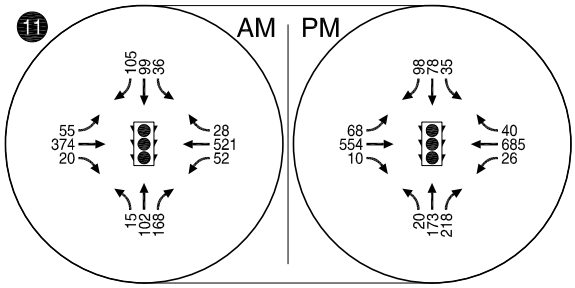


Existing Conditions Peak Hour Volumes (Page 1 of 3)

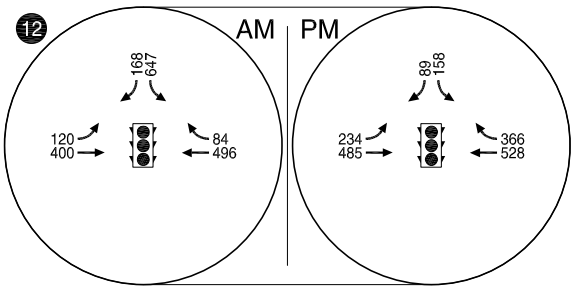
FIGURE XX



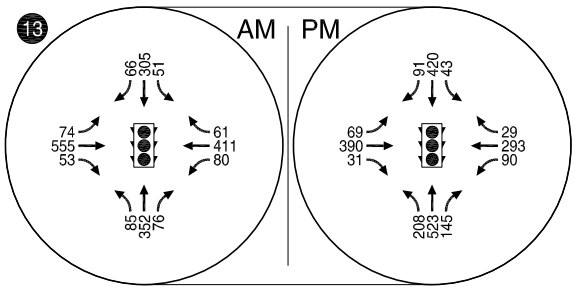
San Pablo Ave / W Grand Ave



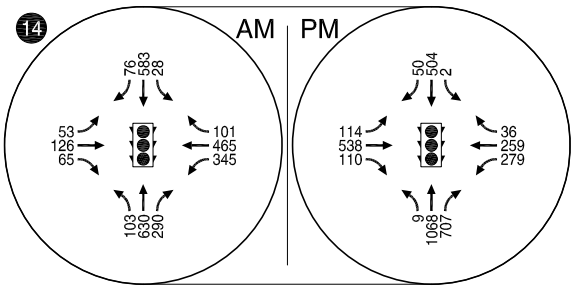
MLK Jr Wy / W Grand Ave



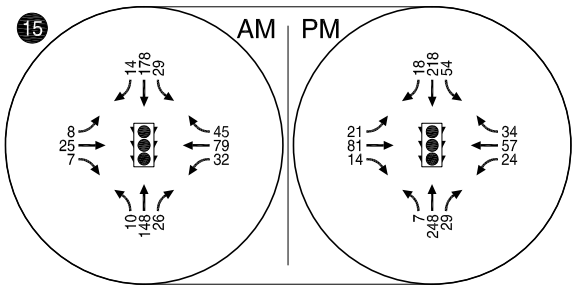
Northgate Ave / W Grand Ave



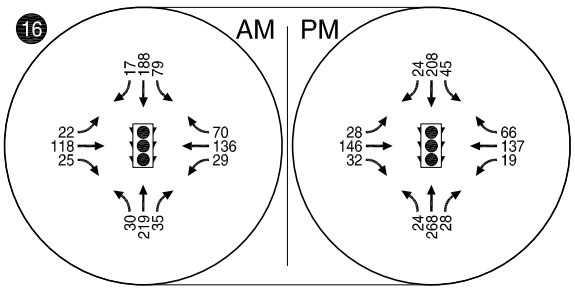
Broadway / W Grand Ave



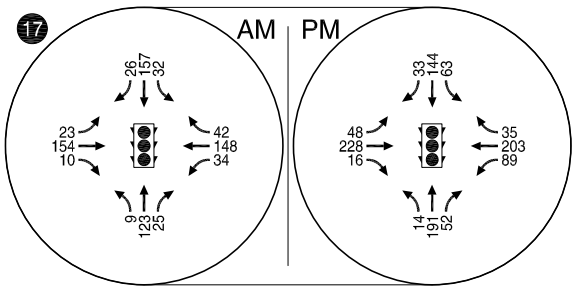
Harrison St / W Grand Ave



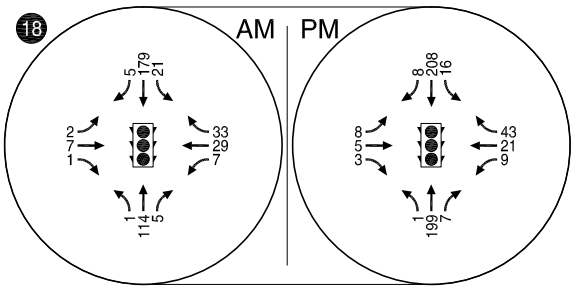
Adeline St / 18th St



Market St / 18th St



Adeline St / 14th St



Adeline St / 12th St

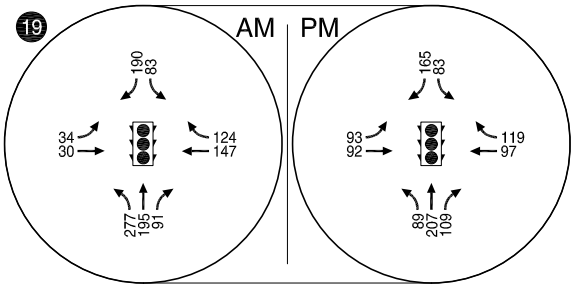
LEGEND

- ROUNDABOUT
- TRAFFIC SIGNAL

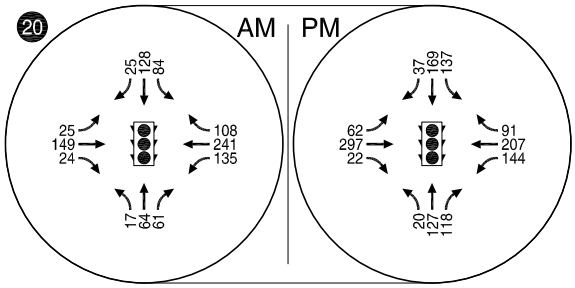
Existing Conditions Peak Hour Volumes (Page 2 of 3)

FIGURE XX

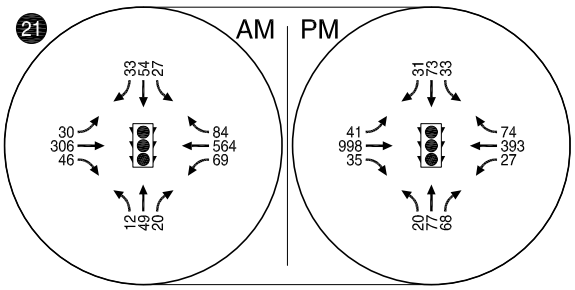
KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING



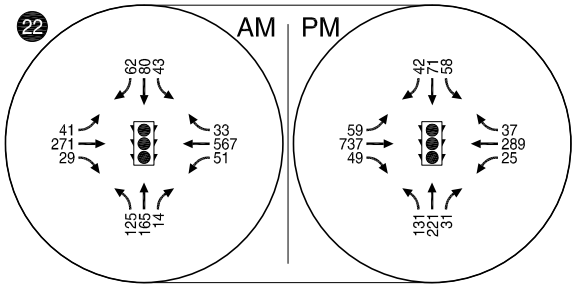
Frontage Rd / 7th St



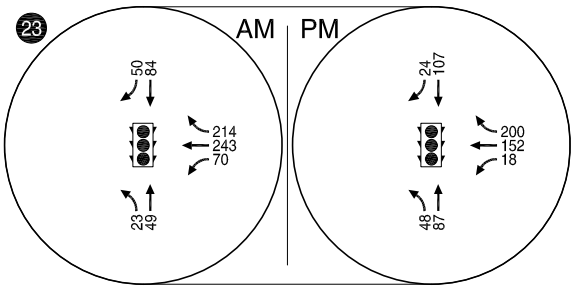
Mandela Pkwy / 7th St



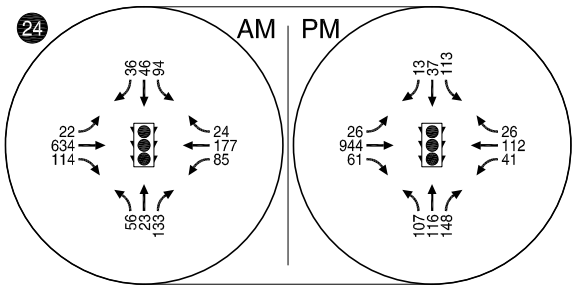
Adeline St / 7th St



Market St / 7th St



Market St / 5th St / I-880 off-ramp



Adeline St / 5th St

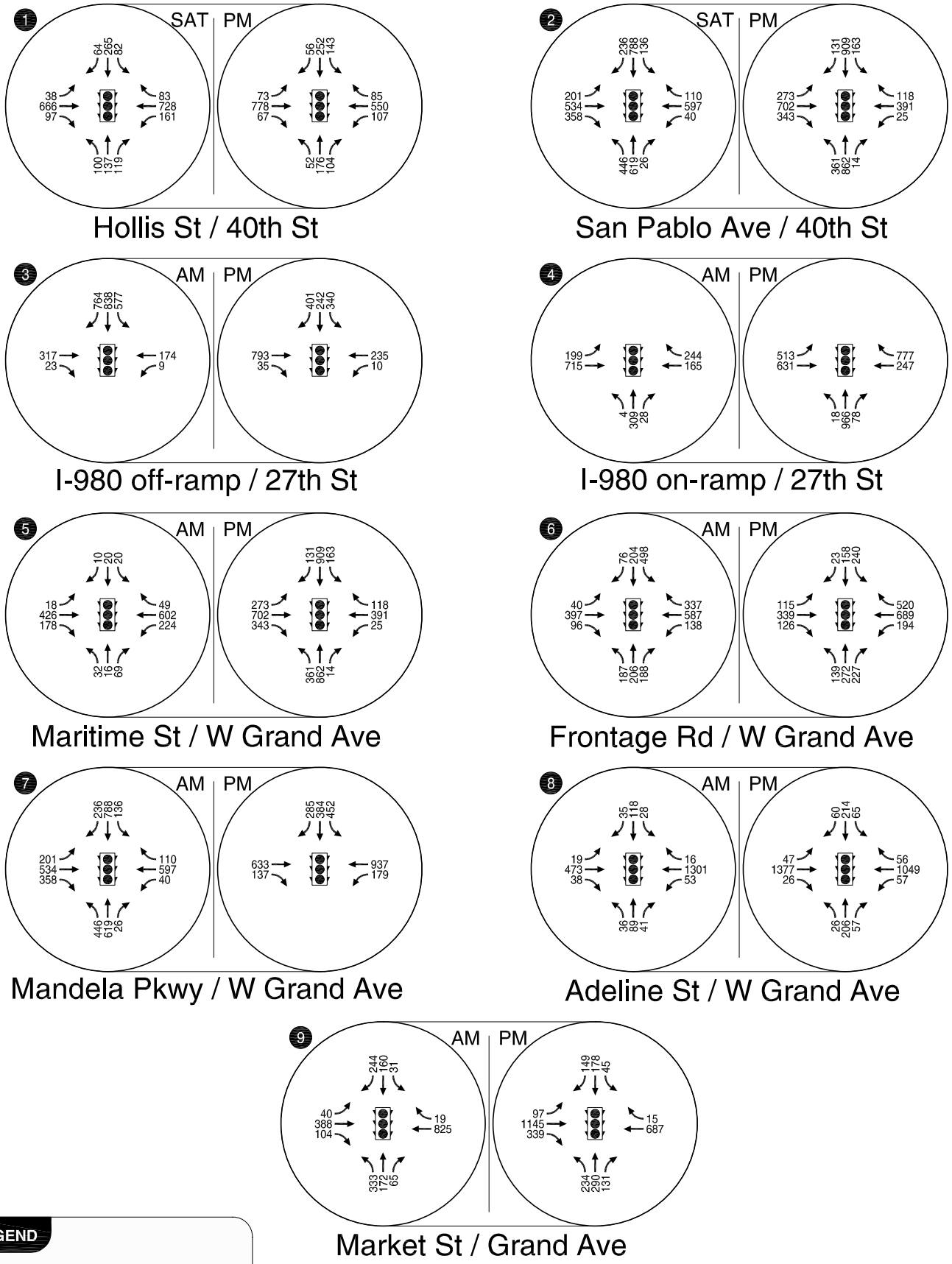
LEGEND

- ROUNDABOUT
- TRAFFIC SIGNAL

Existing Conditions Peak Hour Volumes (Page 3 of 3)

FIGURE XX

Existing + Preferred Project

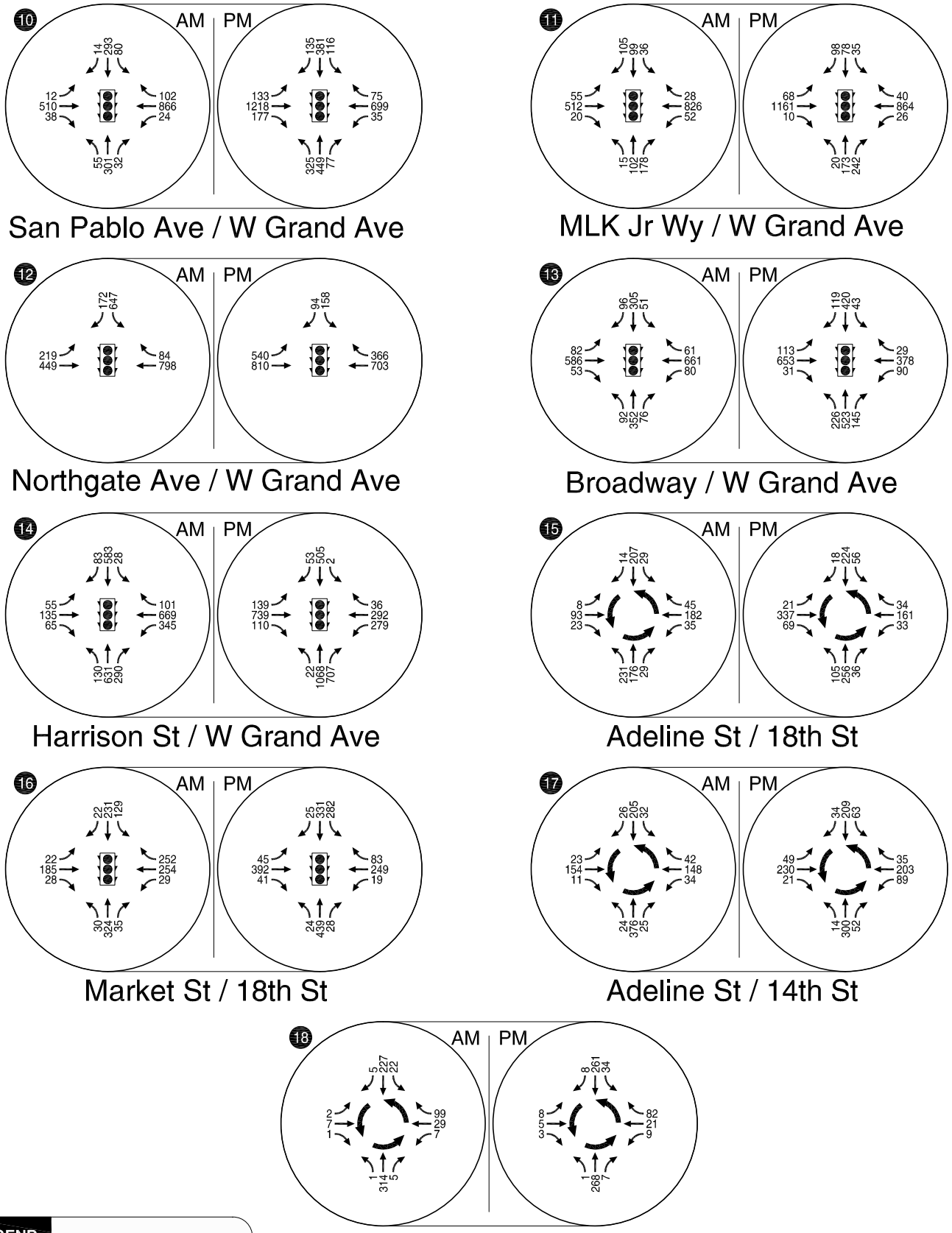


LEGEND

- ROUNDABOUT
- TRAFFIC SIGNAL

Existing plus Project Peak Hour Volumes (Page 1 of 3)

FIGURE XX

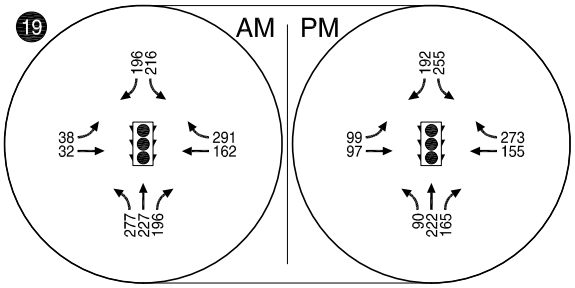


LEGEND

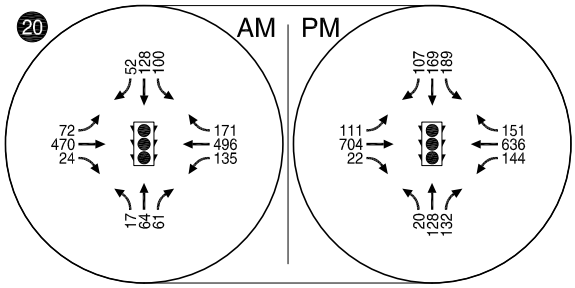
- ROUNDABOUT
- TRAFFIC SIGNAL

Existing plus Project Peak Hour Volumes (Page 2 of 3)

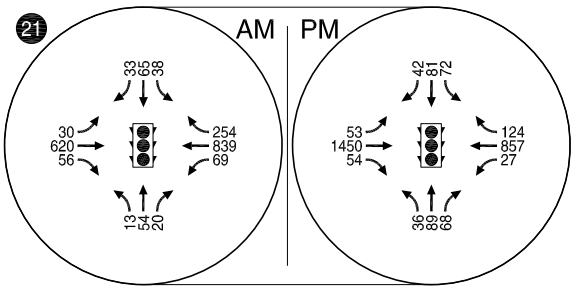
FIGURE XX



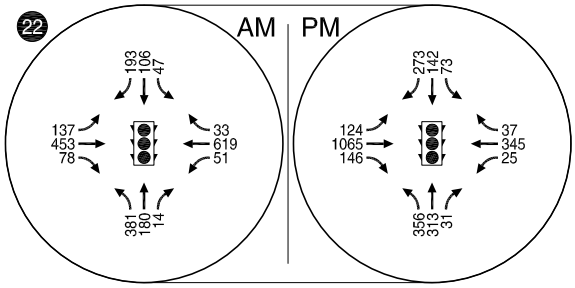
Frontage Rd / 7th St



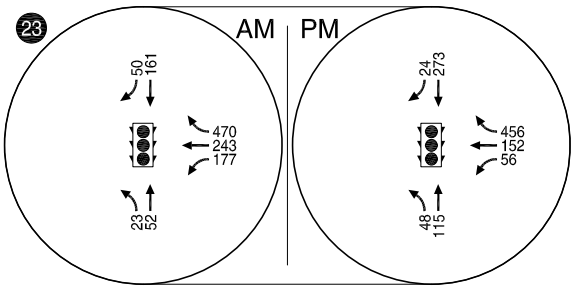
Mandela Pkwy / 7th St



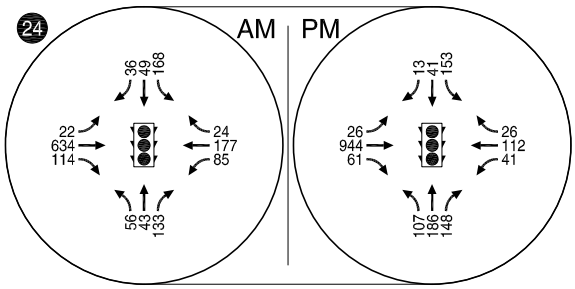
Adeline St / 7th St



Market St / 7th St



Market St / 5th St / I-880 off-ramp



Adeline St / 5th St

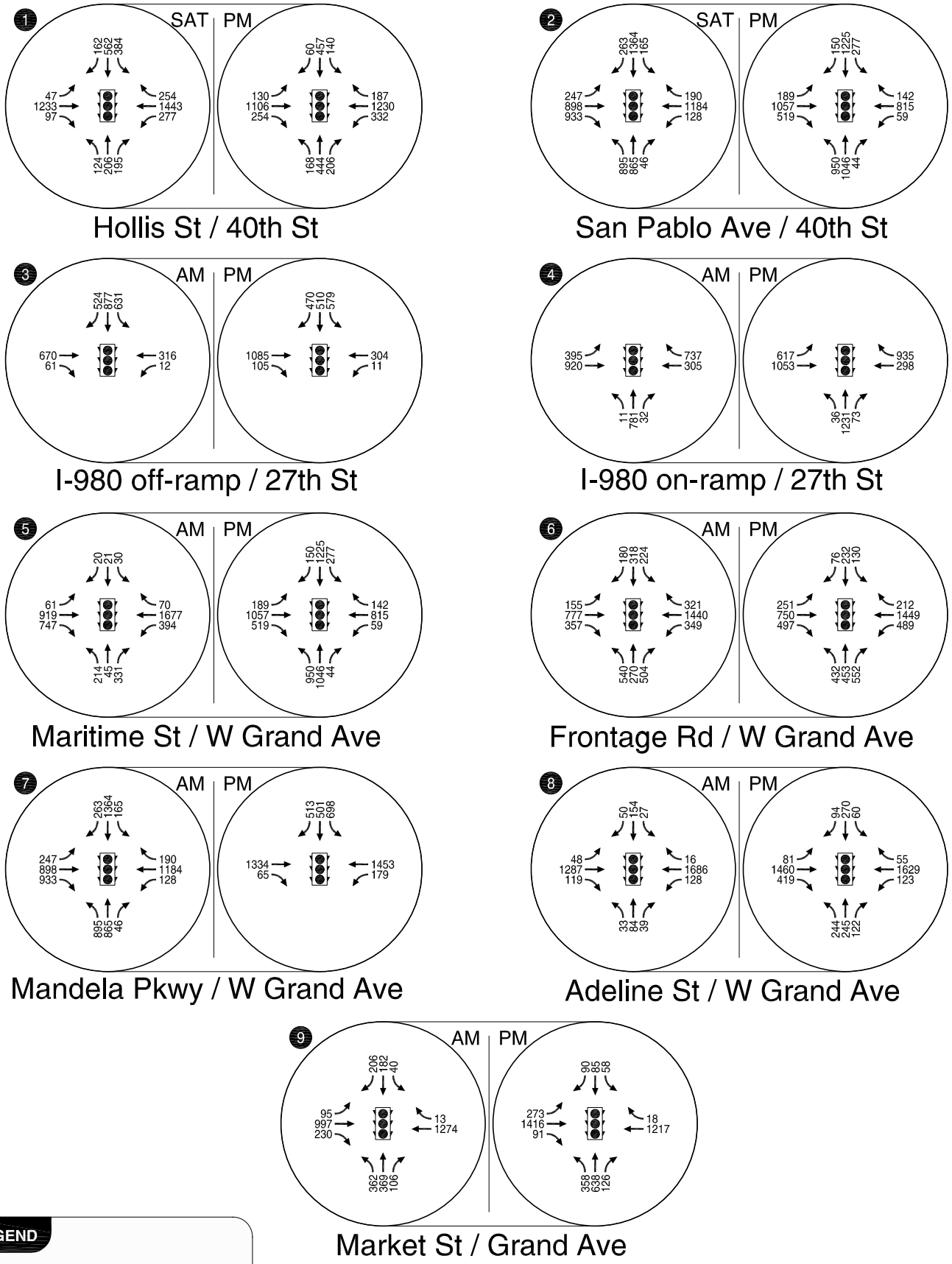
LEGEND

- ROUNDABOUT
- TRAFFIC SIGNAL

Existing plus Project Peak Hour Volumes (Page 3 of 3)

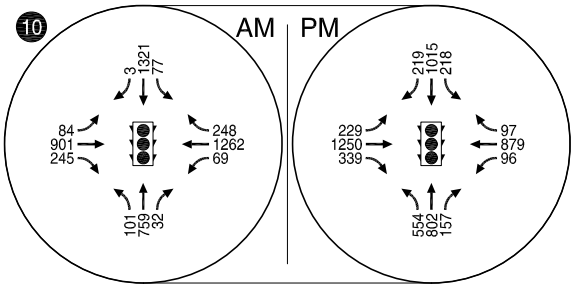
FIGURE XX

Year 2035 Cumulative No Project

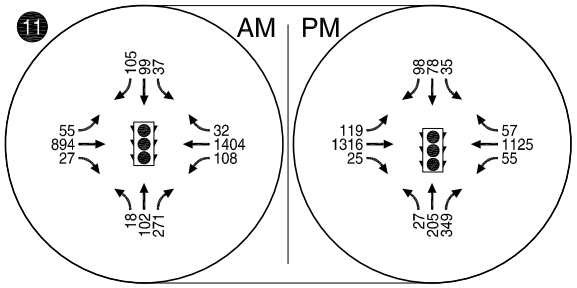


2035 No Project Peak Hour Volumes (Page 1 of 3)

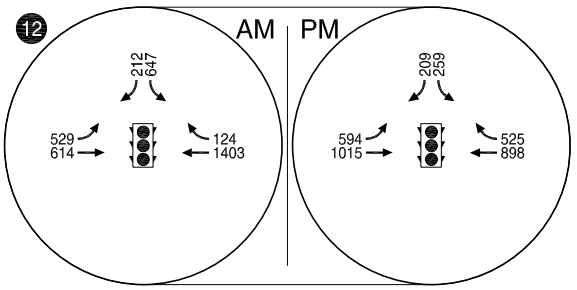
FIGURE XX



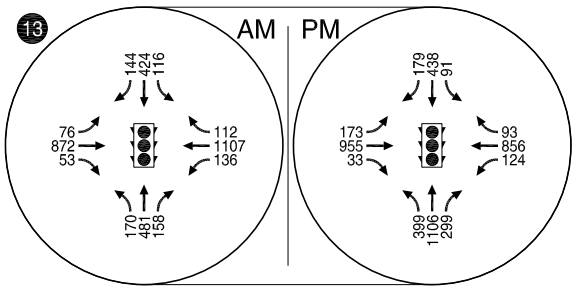
San Pablo Ave / W Grand Ave



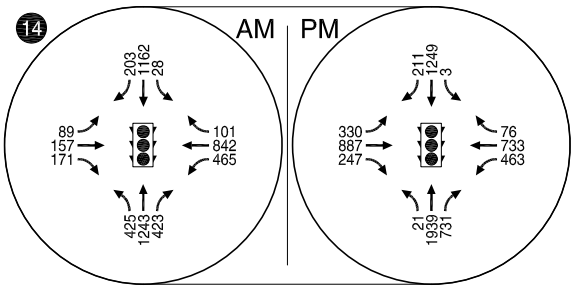
MLK Jr Wy / W Grand Ave



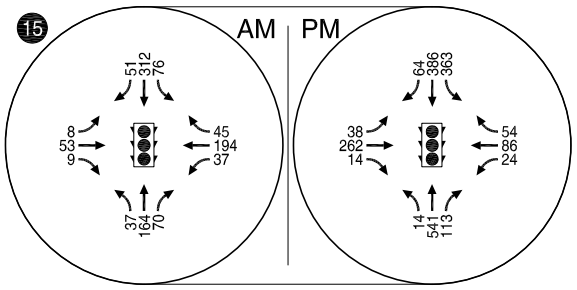
Northgate Ave / W Grand Ave



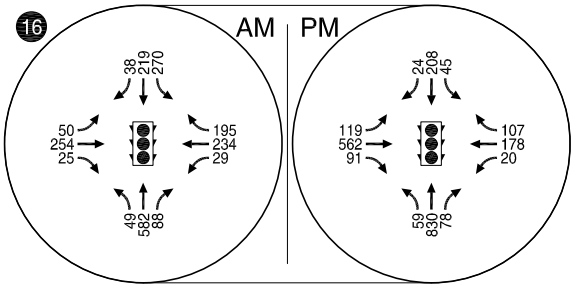
Broadway / W Grand Ave



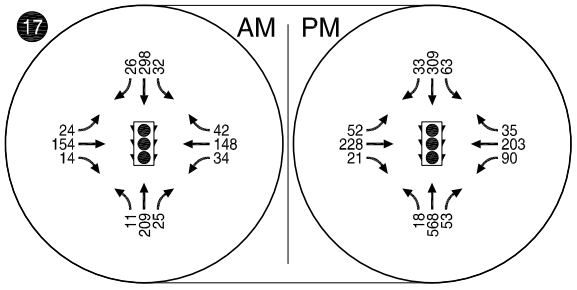
Harrison St / W Grand Ave



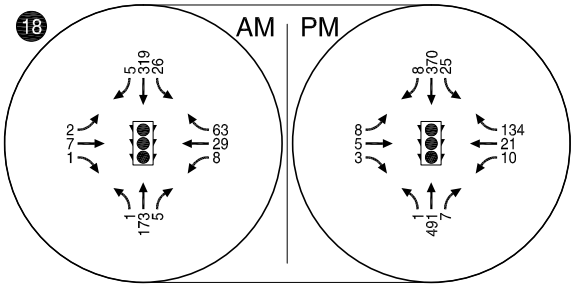
Adeline St / 18th St



Market St / 18th St



Adeline St / 12th St

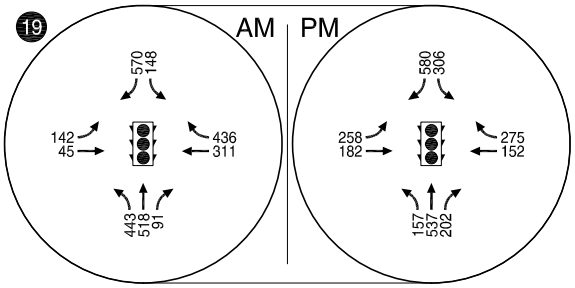


LEGEND

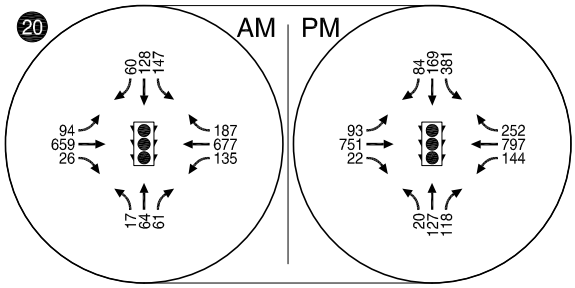
- ROUNDABOUT
- TRAFFIC SIGNAL

2035 No Project Peak Hour Volumes (Page 2 of 3)

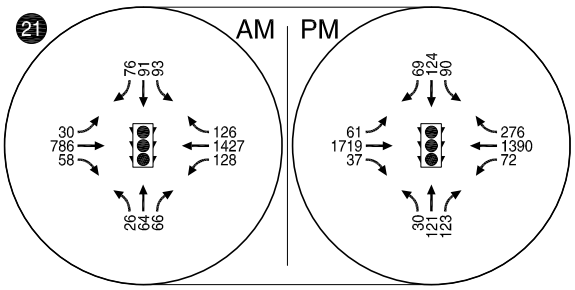
FIGURE XX



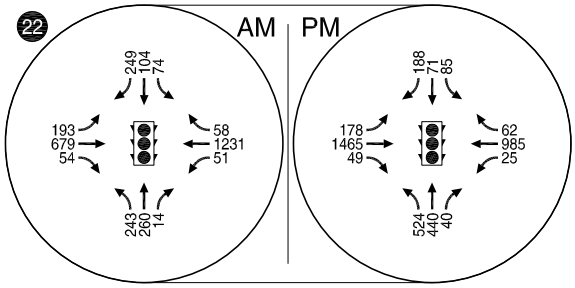
Frontage Rd / 7th St



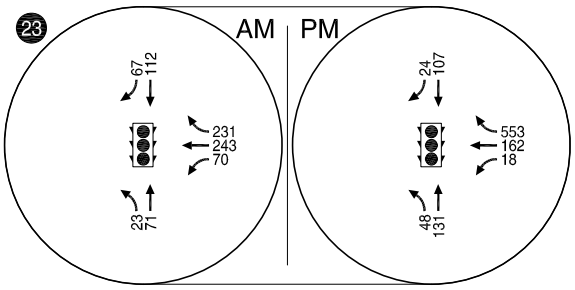
Mandela Pkwy / 7th St



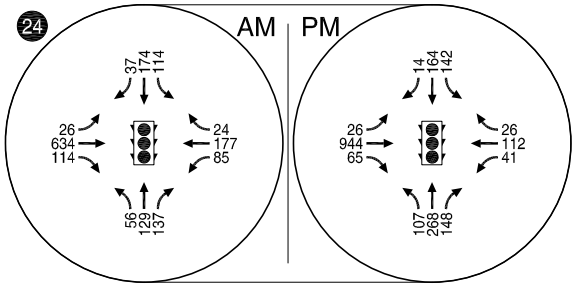
Adeline St / 7th St



Market St / 7th St



Market St / 5th St / I-880 off-ramp



Adeline St / 5th St

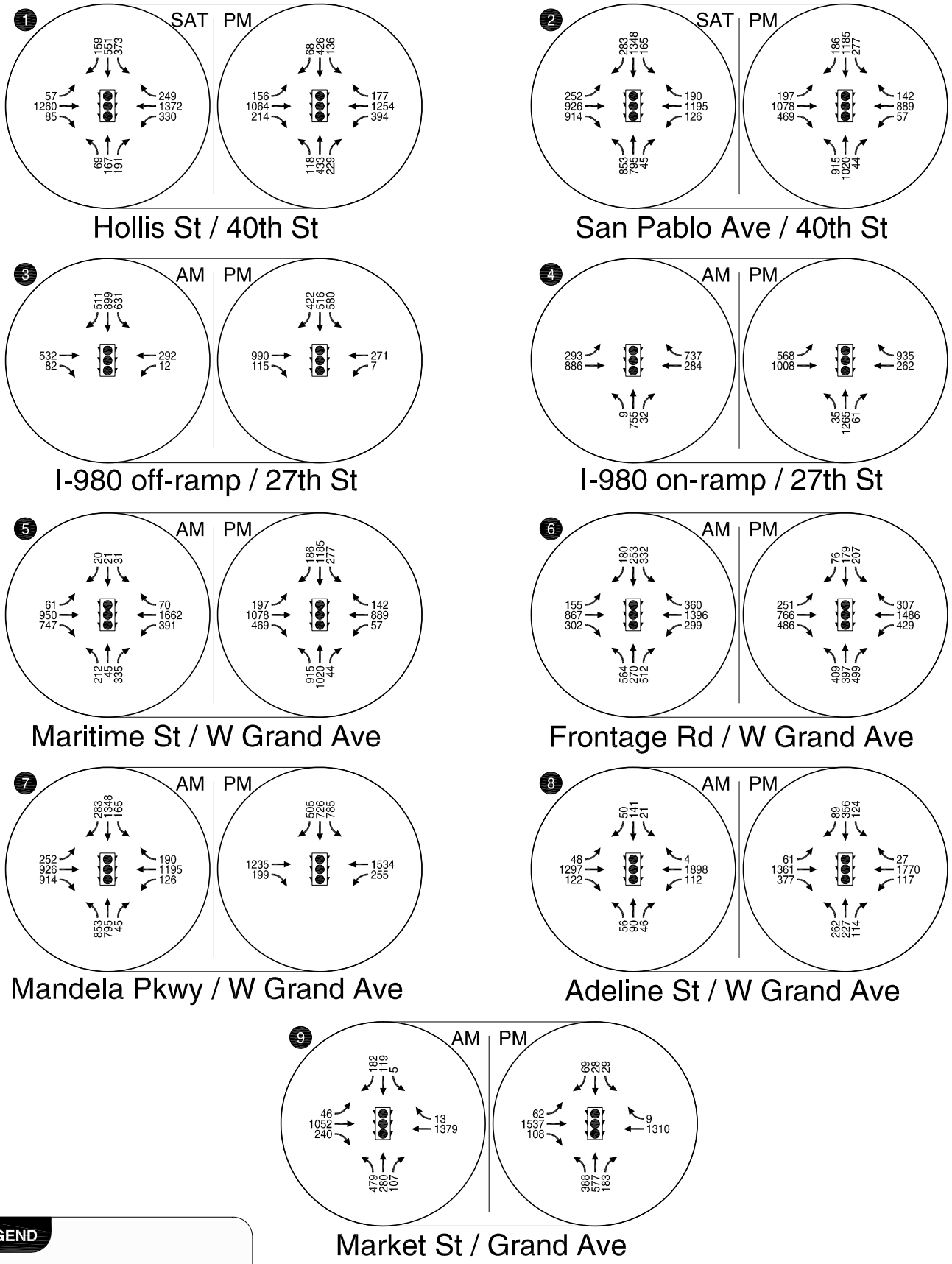
LEGEND

- ROUNDABOUT
- TRAFFIC SIGNAL

2035 No Project Peak Hour Volumes (Page 3 of 3)

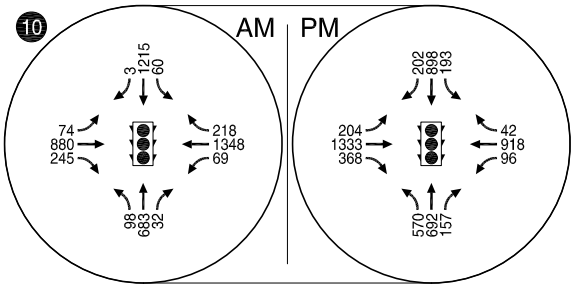
FIGURE XX

Year 2035 Cumulative +
Preferred Project

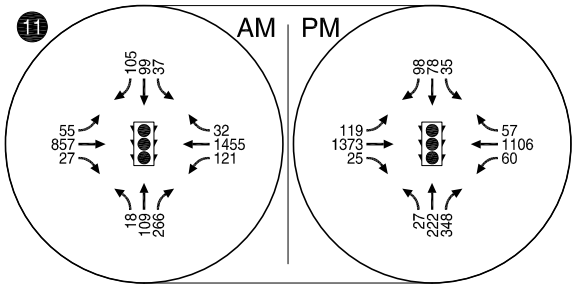


2035 plus Project Peak Hour Volumes (Page 1 of 3)

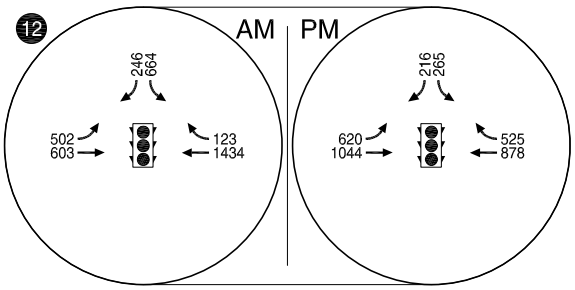
FIGURE XX



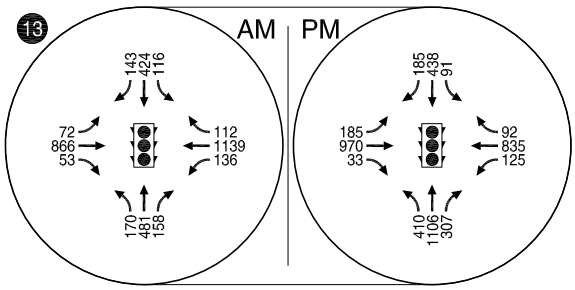
San Pablo Ave / W Grand Ave



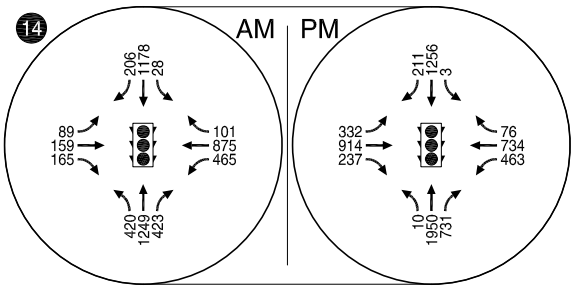
MLK Jr Wy / W Grand Ave



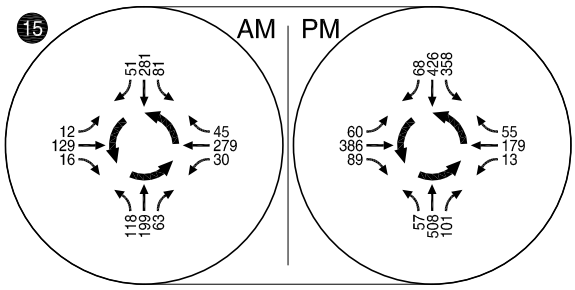
Northgate Ave / W Grand Ave



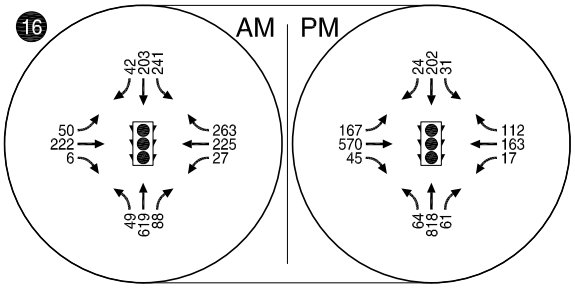
Broadway / W Grand Ave



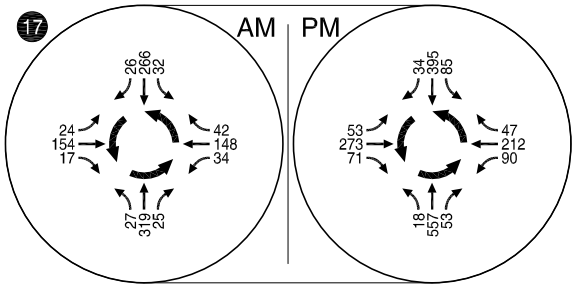
Harrison St / W Grand Ave



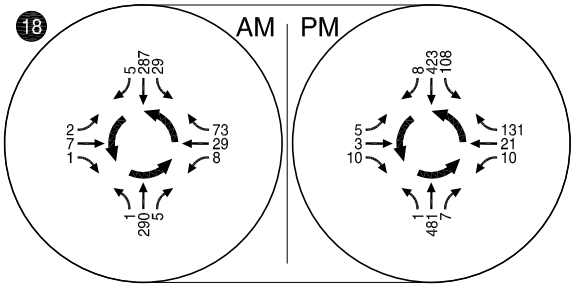
Adeline St / 18th St



Market St / 18th St



Adeline St / 14th St



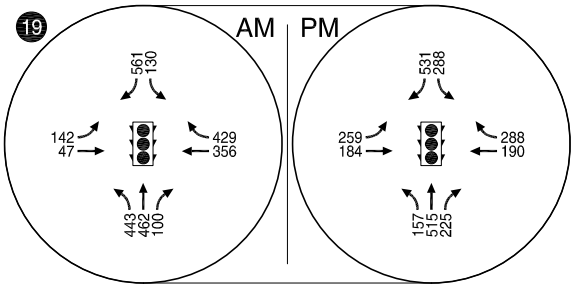
Adeline St / 12th St

LEGEND

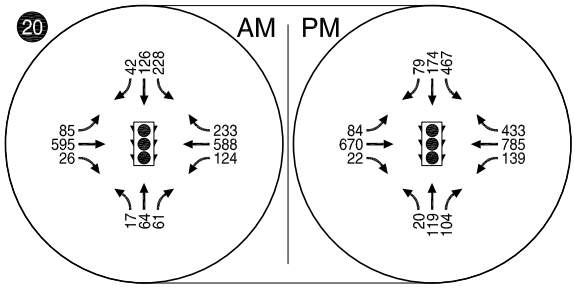
- ROUNDABOUT
- TRAFFIC SIGNAL

2035 plus Project Peak Hour Volumes (Page 2 of 3)

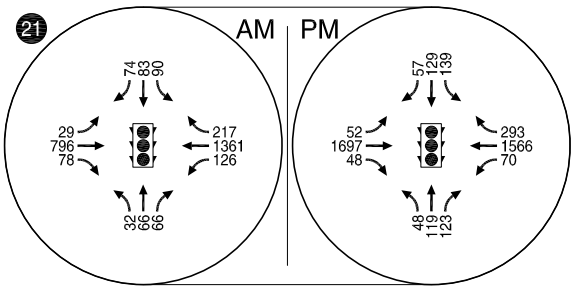
FIGURE XX



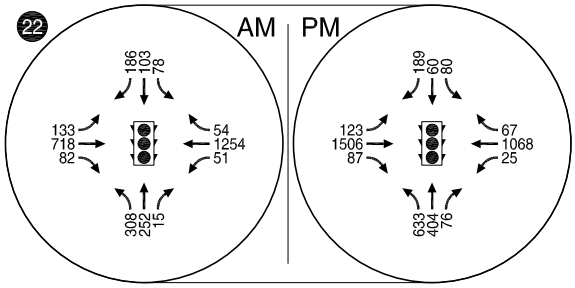
Frontage Rd / 7th St



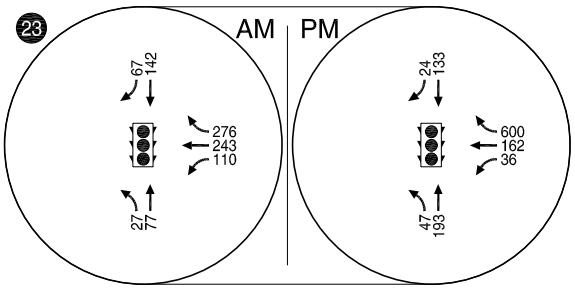
Mandela Pkwy / 7th St



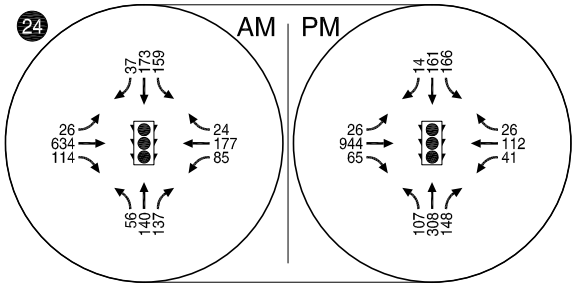
Adeline St / 7th St



Market St / 7th St



Market St / 5th St / I-880 off-ramp



Adeline St / 5th St

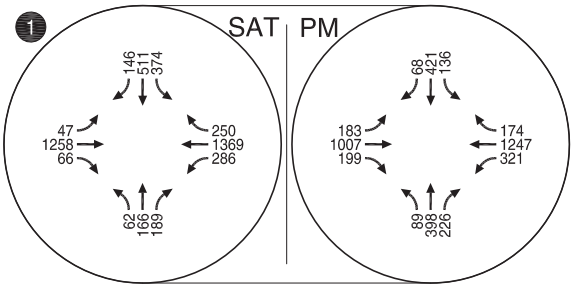
LEGEND

- ROUNDABOUT
- TRAFFIC SIGNAL

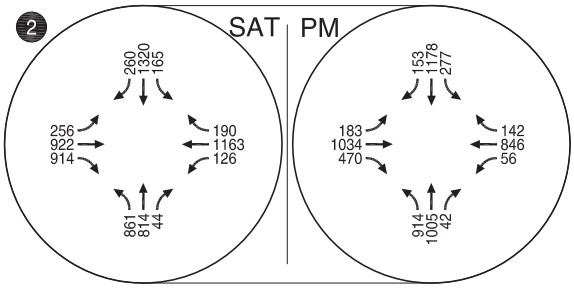
2035 plus Project Peak Hour Volumes (Page 3 of 3)

FIGURE XX

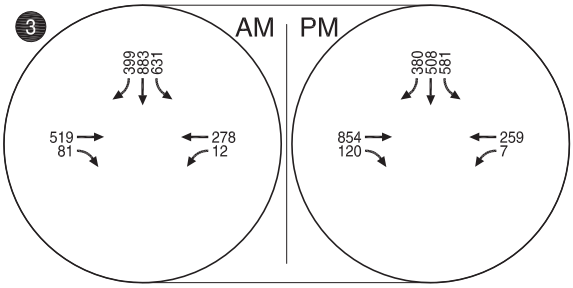
Year 2035 Cumulative +
Alternative 2 Reduced Project



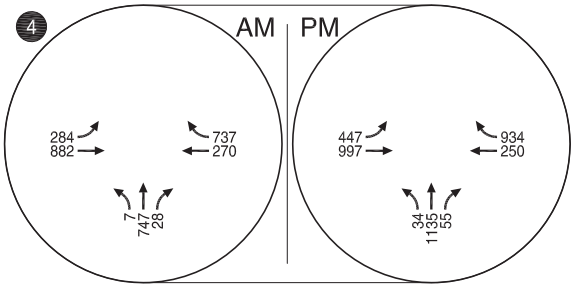
Hollis St / 40th St



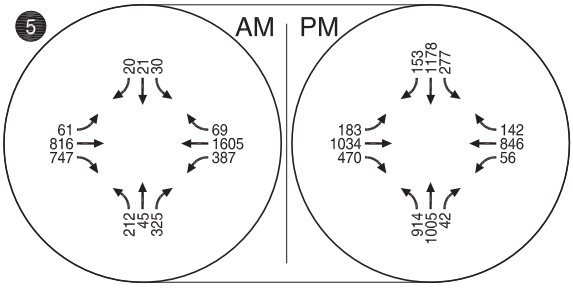
San Pablo Ave / 40th St



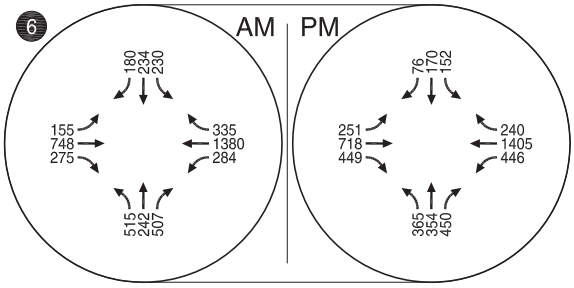
I-980 off-ramp / 27th St



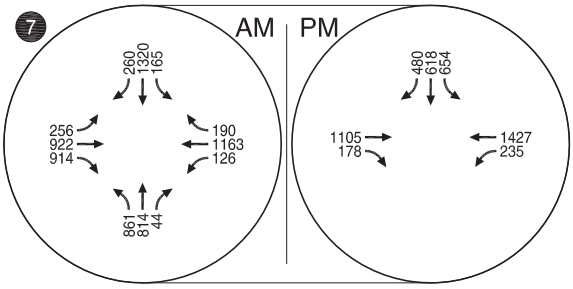
I-980 on-ramp / 27th St



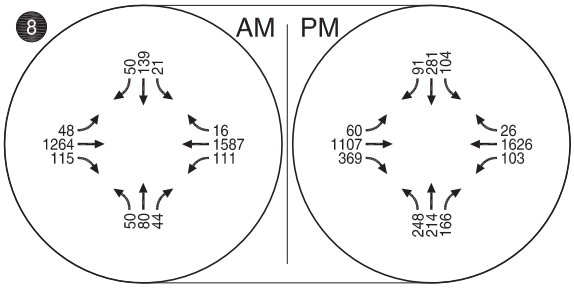
Maritime St / W Grand Ave



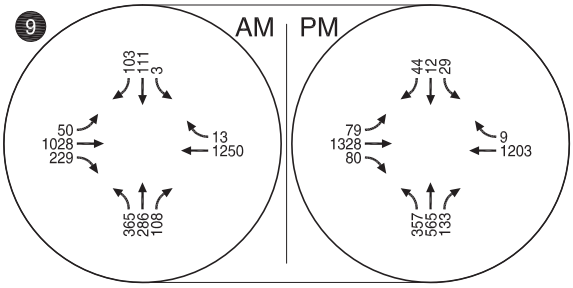
Frontage Rd / W Grand Ave



Mandela Pkwy / W Grand Ave



Adeline St / W Grand Ave

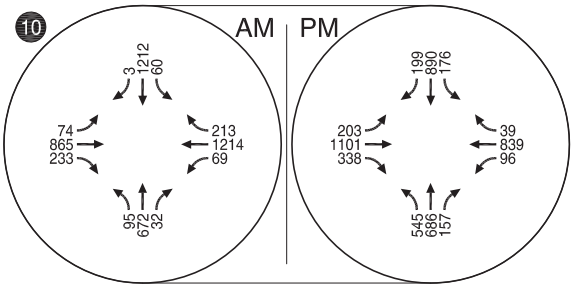


Market St / Grand Ave

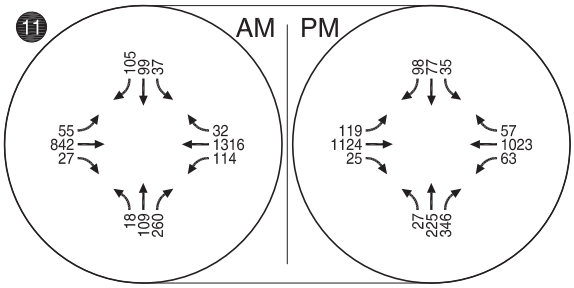
LEGEND

- ROUNDABOUT
- TRAFFIC SIGNAL

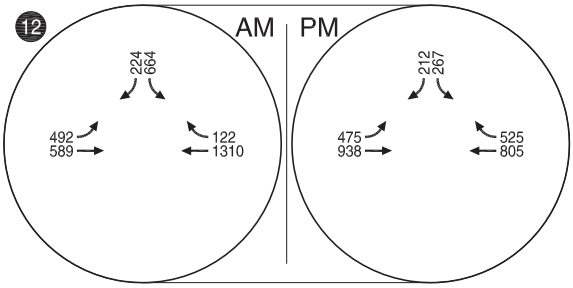
West Oakland Specific Plan
Reduced Project Alternative
(Page 1 of 3)



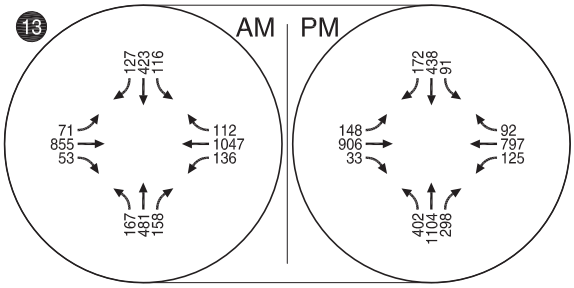
San Pablo Ave / W Grand Ave



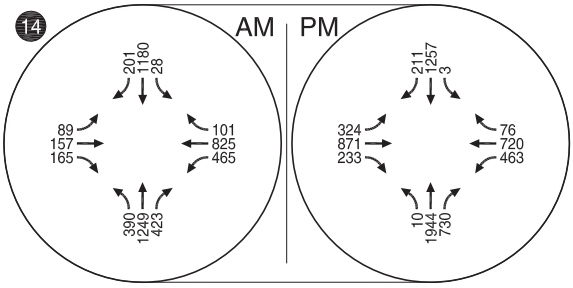
MLK Jr Wy / W Grand Ave



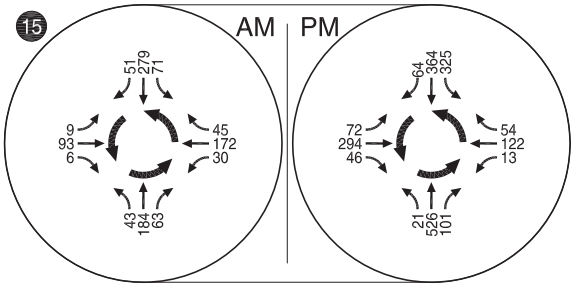
Northgate Ave / W Grand Ave



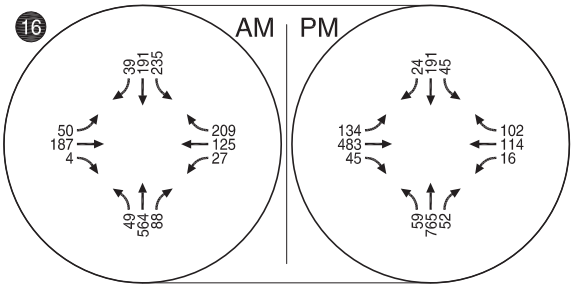
Broadway / W Grand Ave



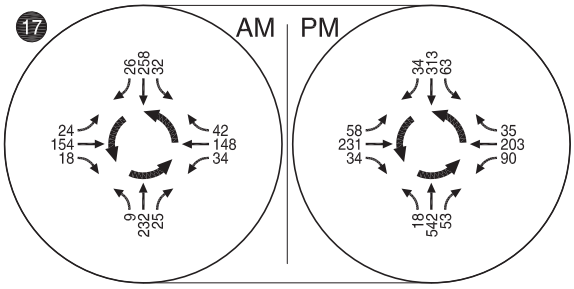
Harrison St / W Grand Ave



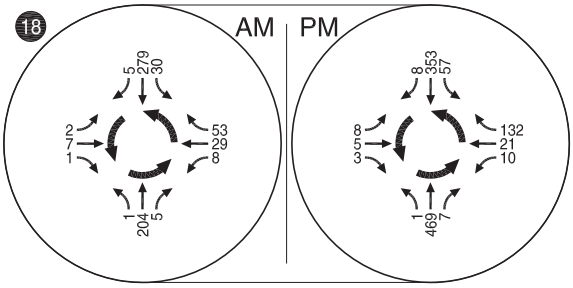
Adeline St / 18th St



Market St / 18th St



Adeline St / 14th St

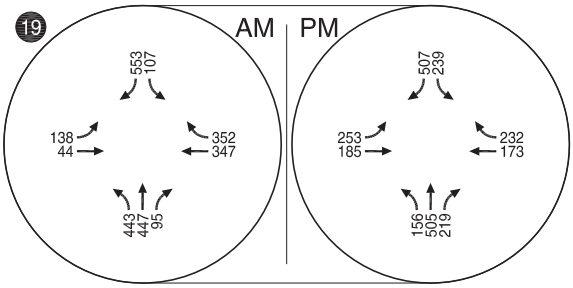


Adeline St / 12th St

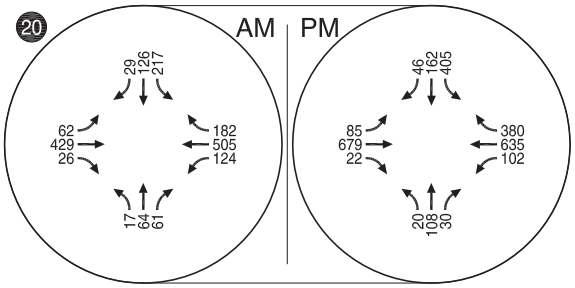
LEGEND

- ROUNDABOUT
- TRAFFIC SIGNAL

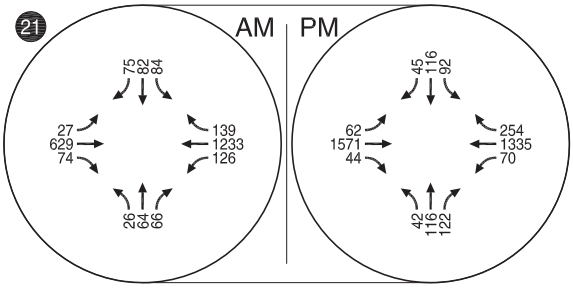
West Oakland Specific Plan
Reduced Project Alternative
(Page 2 of 3)



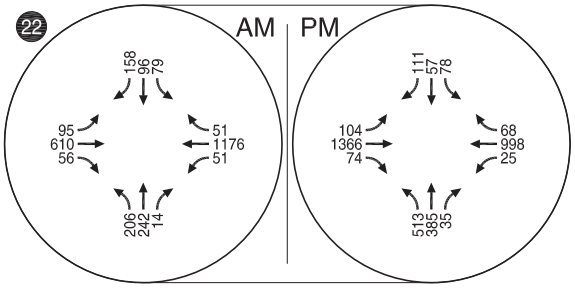
Frontage Rd / 7th St



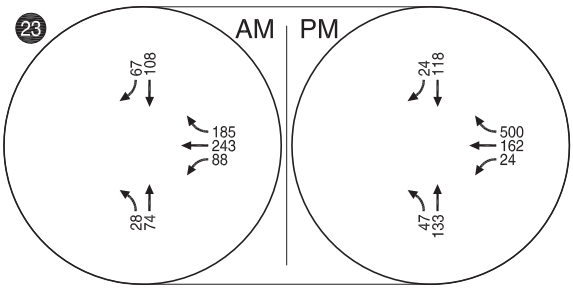
Mandela Pkwy / 7th St



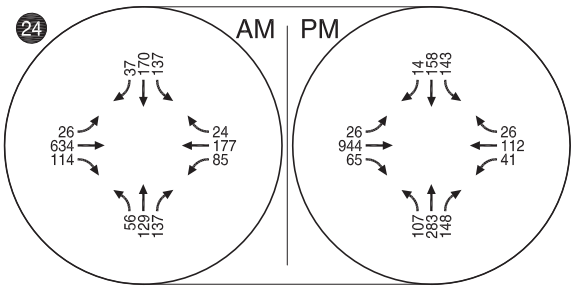
Adeline St / 7th St



Market St / 7th St



Market St / 5th St / I-880 off-ramp



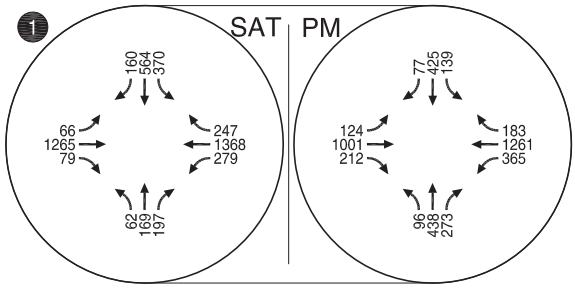
Adeline St / 5th St

LEGEND

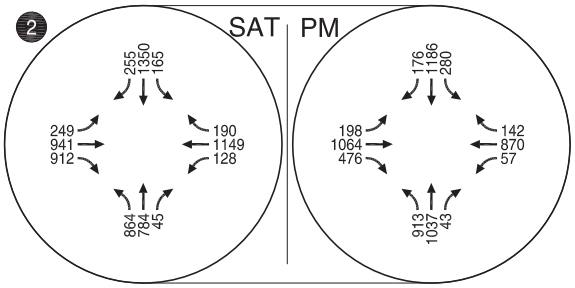
- ROUNDABOUT
- TRAFFIC SIGNAL

West Oakland Specific Plan
Reduced Project Alternative
(Page 3 of 3)

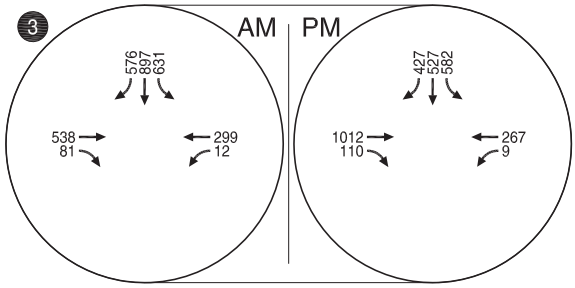
Year 2035 Cumulative +
Alternative 3 Commercial & Job
Emphasis Alternative



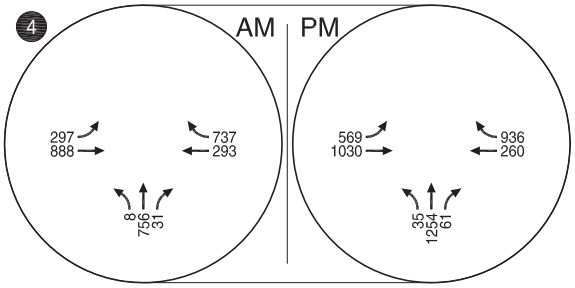
Hollis St / 40th St



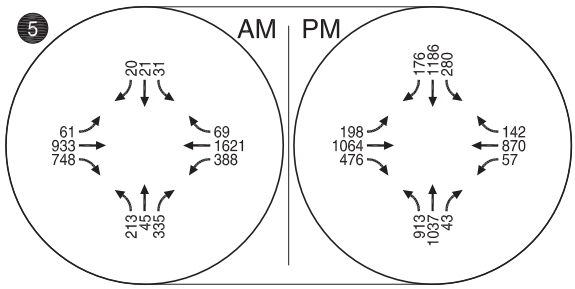
San Pablo Ave / 40th St



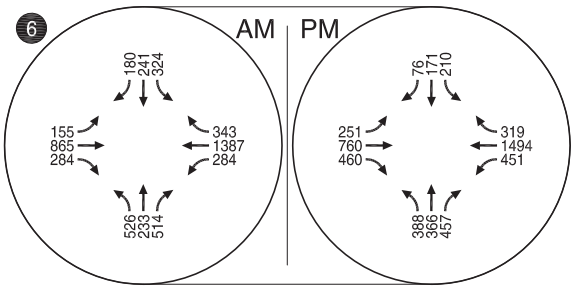
I-980 off-ramp / 27th St



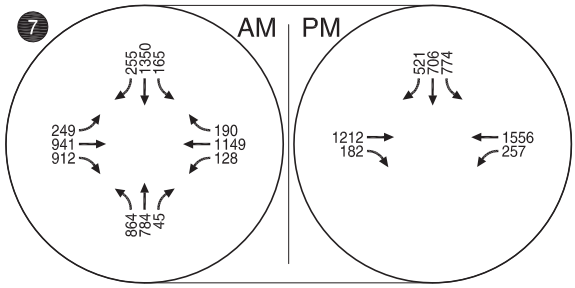
I-980 on-ramp / 27th St



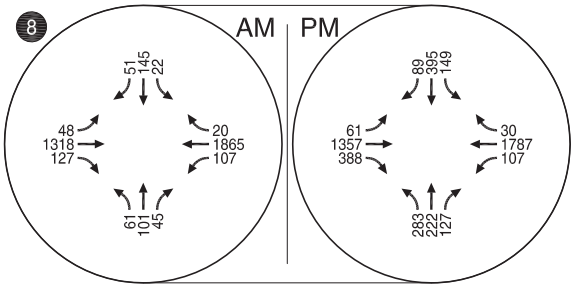
Maritime St / W Grand Ave



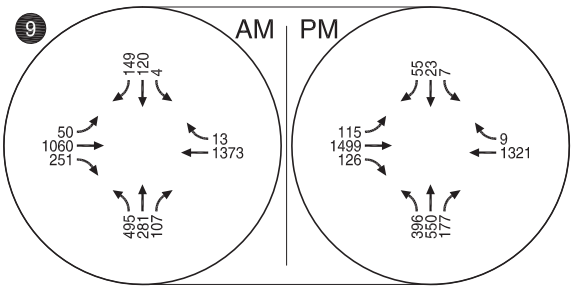
Frontage Rd / W Grand Ave



Mandela Pkwy / W Grand Ave



Adeline St / W Grand Ave

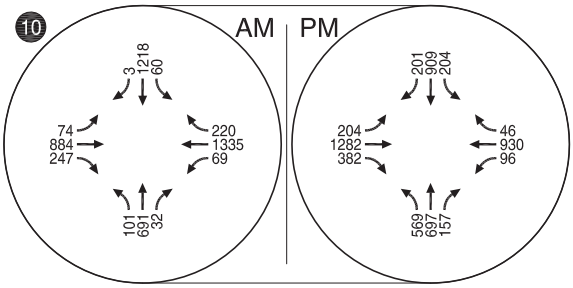


Market St / Grand Ave

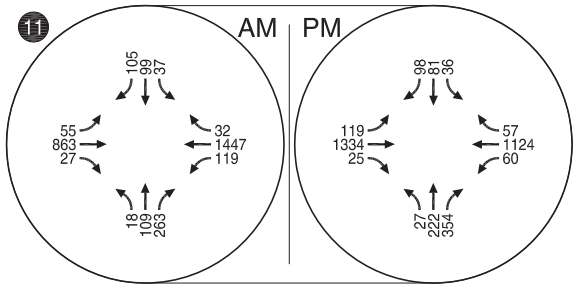
LEGEND

- ROUNDABOUT
- TRAFFIC SIGNAL

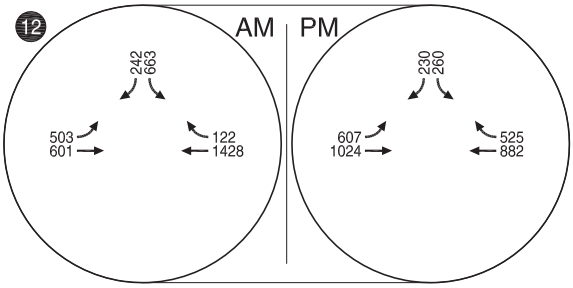
West Oakland Specific Plan
Employment/Commercial Focused Alternative
(Page 1 of 3)



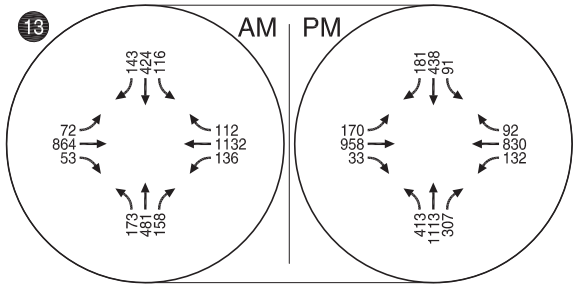
San Pablo Ave / W Grand Ave



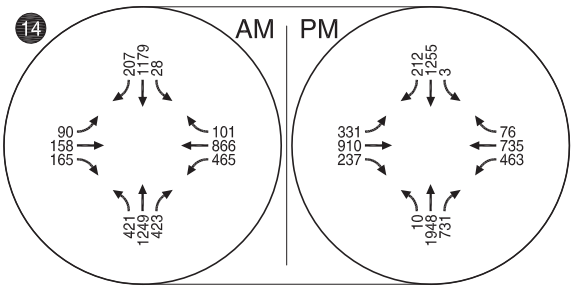
MLK Jr Wy / W Grand Ave



Northgate Ave / W Grand Ave



Broadway / W Grand Ave



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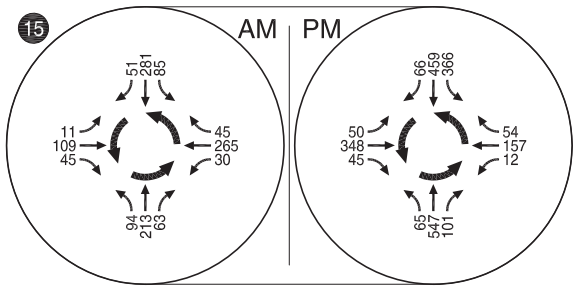
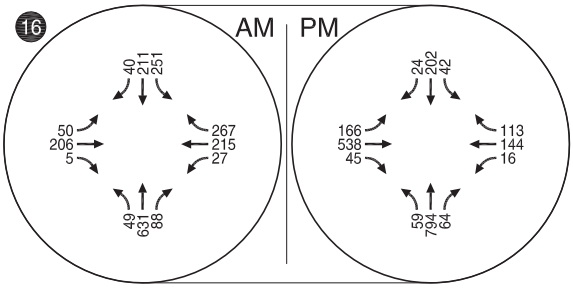
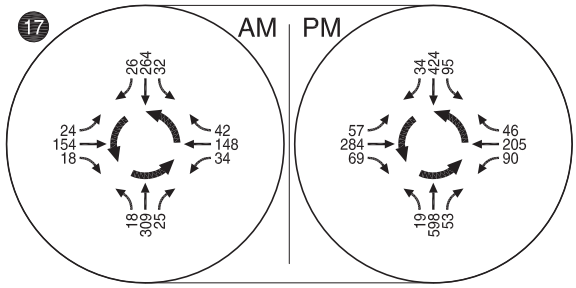


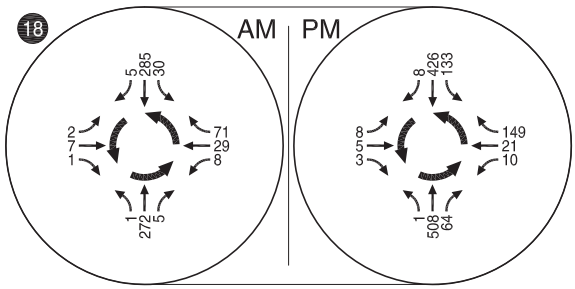
Adeline St / 18th St



Market St / 18th St



Adeline St / 14th St



Adeline St / 12th St

LEGEND

- ROUNDABOUT
- TRAFFIC SIGNAL

West Oakland Specific Plan
Employment/Commercial Focused Alternative
(Page 2 of 3)

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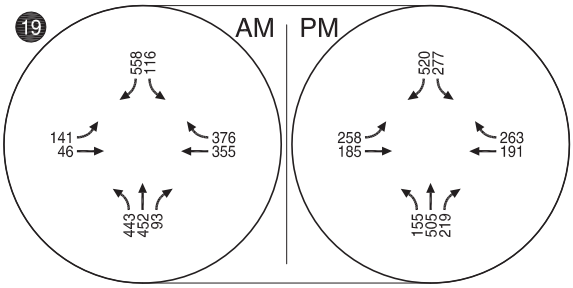
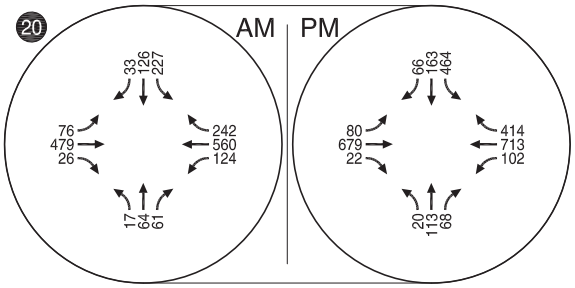
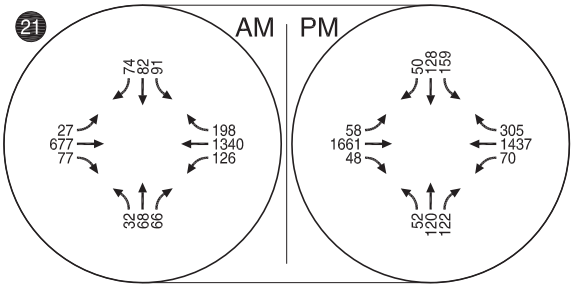


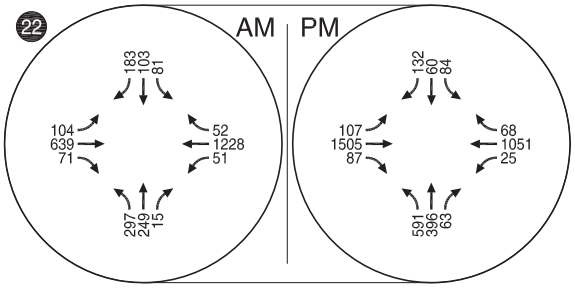
Frontage Rd / 7th St



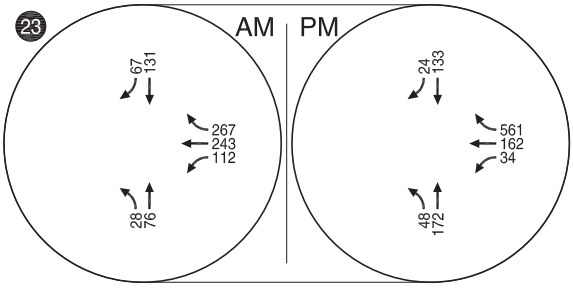
Mandela Pkwy / 7th St



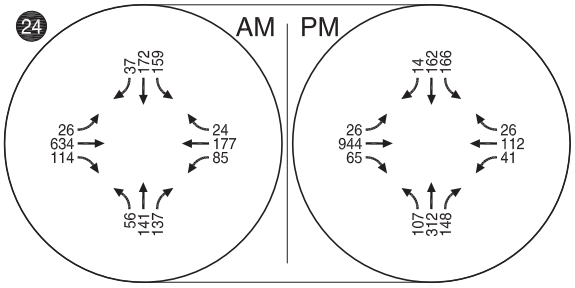
Adeline St / 7th St



Market St / 7th St



Market St / 5th St / I-880 off-ramp



Adeline St / 5th St

LEGEND

- ROUNDABOUT
- TRAFFIC SIGNAL

West Oakland Specific Plan
Employee/Commercial Focused Alternative
(Page 3 of 3)

Appendix D: Queuing Analysis Tables

Existing

INTERSECTION QUEUE LENGTH – EXISTING CONDITIONS

	Intersection	Length in feet	Existing Conditions											
			EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
1	Hollis Street & 40th Street	Storage	440			925			250					
		SAT Queue	30	66	55	170	164		29	29	13	31	36	
		PM Queue	15	81	20	62	170		125	129	48	42	33	
2	San Pablo Avenue & 40th Street	Storage	800			275		321	585			462		
		SAT Queue	55	78		110	189	51	120	69		126	90	
		PM Queue	111	115		139	184	51	69	104		74	55	
3	I-980 off-ramp & 27th Street	Storage												
		AM Queue		13		13	25			58			37	
		PM Queue		27		18	33			93			89	
4	I-980 on-ramp & 27th Street	Storage												
		AM Queue		29			67			40			51	
		PM Queue		53			76			80			95	
5	Maritime Street & West Grand Avenue	Storage						80	104		104			100
		AM Queue		43	13		107	6	65	111	30		124	25
		PM Queue		97	16		106	6	95	178	38		98	9
6	Frontage Road & West Grand Avenue	Storage			141	142		100	80			100		
		AM Queue		83	8	10	60	1	40	74		58	79	
		PM Queue		228	29	0	206	37	#284	106		69	89	
7	Mandela Parkway & West Grand Avenue	Storage	75		75			80			50			
		AM Queue	14	33	1	m4	11	m0		44	45		57	
		PM Queue	m38	127	m3	11	194	6		67	59		50	
8	Adeline Street & West Grand Avenue	Storage	205					100				375		
		AM Queue	116	87			171	11				206		42
		PM Queue	171	102			162	53				58		34
9	Market Street & West Grand Avenue	Storage	197						150		85	103		
		AM Queue	m23	69			115		76	105	27	47	102	
		PM Queue	36	75			123		160	110	27	29	101	
10	San Pablo Avenue & West Grand Avenue	Storage	440			925			250					
		AM Queue	30	66	55	170	164		29	29	13	31	36	
		PM Queue	15	81	20	62	170		125	129	48	42	33	
11	Martin Luther King Jr Way & West Grand Avenue	Storage	800			275		321	585			462		
		AM Queue	55	78		110	189	51	120	69		126	90	
		PM Queue	111	115		139	184	51	69	104		74	55	
12	Northgate Avenue & West Grand Avenue	Storage												
		AM Queue		13		13	25			58			37	
		PM Queue		27		18	33			93			89	
13	Broadway & West Grand Avenue	Storage												
		AM Queue		29			67			40			51	
		PM Queue		53			76			80			95	
14	Harrison Street & West Grand Avenue	Storage	275		85	225		100						75
		AM Queue	32	48	15	141	142	31		163	51		126	2
		PM Queue	59	193	42	122	87	5		248			107	
16	Market Street & 18th Street	Storage												
		AM Queue		11			27			19			35	
		PM Queue		25			23			33			50	
19	Frontage Road & 7th Street	Storage							120					
		AM Queue		40			48		18	40			48	
		PM Queue		48			46		15	47			46	
20	Mandela Parkway	Storage	125			128								

	Intersection	Length in feet	Existing Conditions										
			EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
	& 7th Street	AM Queue	15	30		20	30			31			56	
		PM Queue	27	44		44	41			53			69	
21	Adeline Street & 7th Street	Storage												
		AM Queue		5			15			16			49	
		PM Queue		7			16			27			48	
22	Market Street & 7th Street	Storage										175		
		AM Queue	48	13			66		180	134		88		32
		PM Queue	93	25			48		90	112		85		29
23	Market Street & 5th Street & I-880 off-ramp	Storage	130			175								
		AM Queue	46	64		114	74			118		100	142	
		PM Queue	70	66		117	22			168		128	139	
24	Adeline Street & 5th Street	Storage	142			143			75					
		AM Queue	4	8		37	99	16	20	30			42	
		PM Queue	24	215		24	71	17	21	33			37	

Note:
# denotes 95th percentile volume exceeds capacity, queue may be longer
m denotes volume for 95th percentile queue is metered by upstream signal
~ denotes volumes exceeds capacity, queue is theoretically infinite

Source: Kittelson & Associates, January 2014

Existing + Preferred Project

INTERSECTION QUEUE LENGTH – EXISTING PLUS PROJECT CONDITIONS

	Intersection	Length in feet	Existing plus Project Conditions											
			EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
1	Hollis Street & 40th Street	Storage	141			110		95	175			115		
		SAT Queue	41	#233		#161	182	6	#124	85	23	#100	#222	
		PM Queue	#77	#290		#120	147	8	50	106	16	#140	176	
2	San Pablo Avenue & 40th Street	Storage	255			98			270			142		
		SAT Queue	#271	#407		65	#348		#295	279		168	#566	
		PM Queue	#442	#622		46	231		#240	382		#223	#483	
3	I-980 off-ramp & 27th Street	Storage										150		
		AM Queue		118			60					171	151	208
		PM Queue		233			4					104	90	44
4	I-980 on-ramp & 27th Street	Storage	150					265						
		AM Queue	159	164			64	31		54				
		PM Queue	#487	#295			73	#284		202				
5	Maritime Street & West Grand Avenue	Storage	440			925			250					
		AM Queue	34	174	52	205	201		35	35	16	36	42	
		PM Queue	17	125	19	77	261		148	153	55	48	37	
6	Frontage Road & West Grand Avenue	Storage	800			275		321	585			462		
		AM Queue	64	223		167	254	72	208	145		#342	#309	
		PM Queue	147	193		#254	326	90	171	215		189	160	
7	Mandela Parkway & West Grand Avenue	Storage												
		AM Queue	#313	45		#143	57			151			112	
		PM Queue	m#340	267		m27	64			206			354	
8	Adeline Street & West Grand Avenue	Storage	200			200			150			150		
		AM Queue	15	80		26	274		35	79		29	97	
		PM Queue	28	288		52	202		29	173		59	180	
9	Market Street & West Grand Avenue	Storage						80	104		104			100
		AM Queue		120			249	12	#322	109	24		122	96
		PM Queue		#651			241	9	#239	195	67		156	38
10	San Pablo Avenue & West Grand Avenue	Storage			141	142		100	80			100		
		AM Queue		114	14	16	162	20	45	90		62	85	
		PM Queue		#624	57	m16	113	2	#319	120		77	105	
11	Martin Luther King Jr Way & West Grand Avenue	Storage	75		75			80			50			
		AM Queue	43	125	9	m22	289	m7		44	46		57	
		PM Queue	m18	m142	m1	m22	310	m21		58	157		46	
12	Northgate Avenue & West Grand Avenue	Storage	205					100				375		
		AM Queue	187	131			#326	16				206		42
		PM Queue	#597	173			220	m84				58		35
13	Broadway & West Grand Avenue	Storage	197						150		85	103		
		AM Queue	m33	93			186		85	105	27	47	106	
		PM Queue	66	146			157		#207	110	38	29	104	
14	Harrison Street & West Grand Avenue	Storage	275		85	225		100						75
		AM Queue	33	51	15	141	213	37		171	51		126	5
		PM Queue	69	262	43	#135	98	5		253			107	
16	Market Street & 18th Street	Storage												
		AM Queue		13			35			53			34	
		PM Queue		60			29			61			37	
19	Frontage Road & 7th Street	Storage	175			175			120					
		AM Queue	23	112		25	#311		18	57			67	
		PM Queue	36	244		20	173		16	76			132	

Intersection		Length in feet	Existing plus Project Conditions											
			EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
20	Mandela Parkway & 7th Street	Storage												
		AM Queue		21			29			55			29	
		PM Queue		39			44			50			38	
21	Adeline Street & 7th Street	Storage												
		AM Queue		1			15			32			24	
		PM Queue		2			12			27			30	
22	Market Street & 7th Street	Storage										175		
		AM Queue	53	14			86		#282	143		#233		31
		PM Queue	104	30			84		96	127		#287		31
23	Market Street & 5th Street & I-880 off-ramp	Storage	130			175								
		AM Queue	92	161		122	116			118		#123	158	
		PM Queue	110	218		84	170			181		168	185	
24	Adeline Street & 5th Street	Storage	142			143			75			100		
		AM Queue	7	38		43	157	26	21	66	0	44	78	
		PM Queue	33	391		#51	167	22	32	100	0	54	67	

Note:
# denotes 95th percentile volume exceeds capacity, queue may be longer
m denotes volume for 95th percentile queue is metered by upstream signal
~ denotes volumes exceeds capacity, queue is theoretically infinite

Source: Kittelson & Associates, January 2014

Existing + Preferred Project with Intersection Mitigation Measures

INTERSECTION QUEUE LENGTH – EXISTING PLUS PROJECT CONDITIONS – WITH INTERSECTION MITIGATION MEASURES

	Intersection	Length	Existing plus Project Conditions - Mitigated											
		in feet	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
1	Hollis Street & 40th Street	Storage	141			110		95	175			175		
		AM Queue	41	#233		#161	182	6	#124	85	23	#100	#222	
		PM Queue	#77	#290		#120	147	8	50	106	16	#140	176	
2	San Pablo Avenue & 40th Street	Storage	255			98			270			142		
		AM Queue	#125	#465		65	332		#283	267		165	#516	
		PM Queue	149	#563		46	218		#240	412		#223	#567	
3	I-980 off-ramp & 27th Street	Storage										150		
		AM Queue		118			60					171	151	208
		PM Queue		233			4					104	90	44
4	I-980 on-ramp & 27th Street	Storage	150					265						
		AM Queue	159	164			64	31		54				
		PM Queue	#487	#295			73	#284		202				
5	Maritime Street & West Grand Avenue	Storage	440			925			250					
		AM Queue	34	174	52	205	201		35	35	16	36	42	
		PM Queue	17	125	19	77	261		148	153	55	48	37	
6	Frontage Road & West Grand Avenue	Storage	800			275		321	585			462		
		AM Queue	64	223		167	254	72	208	145		#342	#309	
		PM Queue	147	193		#254	326	90	171	215		189	160	
7	Mandela Parkway & West Grand Avenue	Storage												
		AM Queue	#313	45		#143	57			151			112	
		PM Queue	m#340	267		m27	64			206			354	
8	Adeline Street & West Grand Avenue	Storage	200			200			150			150		
		AM Queue	15	80		26	274		35	79		29	97	
		PM Queue	28	288		52	202		29	173		59	180	
9	Market Street & West Grand Avenue	Storage						80	104		104			100
		AM Queue		120			249	12	#322	109	24		122	96
		PM Queue		#651			241	9	#239	195	67		156	38
10	San Pablo Avenue & West Grand Avenue	Storage			141	142		100	80			100		
		AM Queue		114	14	16	162	20	45	90		62	85	
		PM Queue		#624	57	m16	113	2	#319	120		77	105	
11	Martin Luther King Jr Way & West Grand Avenue	Storage	75		75			80			50			
		AM Queue	43	125	9	m22	289	m7		44	46		57	
		PM Queue	m18	m142	m1	m22	310	m21		58	157		46	
12	Northgate Avenue & West Grand Avenue	Storage	205					100				375		
		AM Queue	187	131			#326	16				206		42
		PM Queue	#597	173			220	m84				58		35
13	Broadway & West Grand Avenue	Storage	197						150		85	103		
		AM Queue	m33	93			186		85	105	27	47	106	
		PM Queue	66	146			157		#207	110	38	29	104	
14	Harrison Street & West Grand Avenue	Storage	275		85	225		100						75
		AM Queue	33	51	15	141	213	37		171	51		126	5
		PM Queue	69	262	43	#135	98	5		253			107	
16	Market Street & 18th Street	Storage												
		AM Queue		13			35			53			34	
		PM Queue		60			29			61			37	
19	Frontage Road & 7th Street	Storage	175			175			120					
		AM Queue	23	112		25	#311		18	57			67	
		PM Queue	36	244		20	173		16	76			132	

Intersection		Length in feet	Existing plus Project Conditions - Mitigated											
			EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
20	Mandela Parkway & 7th Street	Storage												
		AM Queue		21			29			55			29	
		PM Queue		39			44			50			38	
21	Adeline Street & 7th Street	Storage												
		AM Queue		1			15			32			24	
		PM Queue		2			12			27			30	
22	Market Street & 7th Street	Storage										175		
		AM Queue	53	14			86		#282	143		#233		31
		PM Queue	104	30			84		96	127		#287		31
23	Market Street & 5th Street & I-880 off-ramp	Storage	130			175								
		AM Queue	92	161		122	116			118		#123	158	
		PM Queue	110	218		84	170			181		168	185	
24	Adeline Street & 5th Street	Storage	142			143			75			100		
		AM Queue	7	38		43	157	26	21	66	0	44	78	
		PM Queue	33	391		#51	167	22	32	100	0	54	67	

Note:
# denotes 95th percentile volume exceeds capacity, queue may be longer
m denotes volume for 95th percentile queue is metered by upstream signal
~ denotes volumes exceeds capacity, queue is theoretically infinite

Source: Kittelson & Associates, January 2014