City of Huntington Beach

Circulation Element Update

Environmental Impact Report

Volume II

SCH 2009071117

EIR 2009-001

August 2012

Hogle-Ireland

Hogle-Ireland, Inc.
1500 Iowa Avenue, Suite 110
Riverside, CA 92507

Huntington Beach
Circulation Element Update
Environmental Impact Report
Volume II - Appendices

SCH 2009071117
August 2012

City of Huntington Beach

This document is designed for double-sided printing to conserve natural resources

Volume II - Appendix

Appendix A Notice of Preparation and Scoping Materials
Appendix B Proposed Circulation Element
Appendix C Air Quality Impact Analysis
Appendix D Noise Impact Analysis
Appendix E Climate Change Analysis
Appendix F Traffic Study

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Appendix A Notice of Preparation and Scoping Materials

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NOTICE OF PREPARATION

City of Huntington Beach
General Plan Circulation Element Update

To:

From: City of Huntington Beach
Planning Department
2000 Main Street, 3rd Floor
Huntington Beach, California 92648

Date: July 30, 2009

SUBJECT: Notice of Preparation of Draft Environmental Impact Report

The City of Huntington Beach is the Lead Agency and will prepare an Environmental Impact Report for the project named above. The City requests a written response explaining the scope and content of the environmental information that is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency may need to use the EIR prepared by the City when considering your permit or other approvals for the project. If you are not a public agency with any statutory responsibility concerning this project, please identify your environmental concerns and any suggested ways to avoid or reduce the impacts that pertain to this project.

The project description, location, and exhibits showing key aspects of the updated Circulation Element are provided in the attachments. A copy of the Initial Study is also attached. Based on the findings of the Initial Study, the City has identified the following topics for further analysis in an environmental impact report (EIR). Other impact issues were found to have no effects or would result in less than significant impacts.

Section	Topic	Question	Issues to be Addressed in EIR
I	Land Use and Planning	a	Consistency with the City's General Plan and Local Coastal Program
II	Population and Housing	b,c	Additional right-of-way impact on residential properties
V	Air Quality	a	Contribute to existing or potential violations of federal or state air quality standards
		b	Effects of vehicular emissions on sensitive receptors
		d	Consistency with the Transportation Control Measures in the Air Quality Management Plan
		e	Cumulative effects of emissions of criteria pollutants
VI	Transportation and Traffic	a	Potential traffic congestion impacts, consistency with Master Plan of Arterial Highways
		b	Effects on Congestion Management Plan facilities
		e	Potential emergency access impacts associated with deletion of roadways.
VII	Biological Resources	b,c	Potential adverse impacts to wetlands and riparian habitat due to roadway footprint expansion
X	Noise	a,c	Long range traffic volumes could generate roadway noise levels that exceed City's land use/noise compatibility standards
		b	Potential increase in groundborne vibrations due to truck traffic
XI.	Public Services	a	Potential response time impacts associated with deletion of planned roadways-need additional fire protection facilities?
XIV	Cultural Resources	b, c	Develop programmatic mitigation measure to ensure protection of important cultural and paleontological resources
XVII	Greenhouse Gases/Climate Change	b	Effects of proposed circulation system and traffic management plan on GHG emissions from transportation sources.

Notice of Public Scoping Meeting

In accordance with Section 15082(c)(1) of the State CEQA Guidelines, the City has scheduled a public scoping meeting to solicit comments on the scope and content of the Draft EIR. The meeting will take place on Thursday, August 20, 2009 (Session 1 from 4:00 to 5:00 p.m. and Session 2 from 6:00 to 7:00 p.m. for your convenience) at:

City Council Chambers
City Hall
City of Huntington Beach
2000 Main St.
Huntington Beach, CA 92648

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

Please send your response to **Ricky Ramos, Senior Planner** at the address shown above. Please provide your name or the name of a contact person in your agency. If you have questions, please contact Mr. Ramos at (714) 536-5624 or via email at rramos@surfcity-hb.org.

ATTACHMENTS:

Exhibit A: Project Description
Exhibit B: Regional Location Map
Exhibit C: Circulation Plan
Exhibit D: Proposed Changes to Circulation Element
Exhibit E: Proposed Changes to MPAH
Exhibit F: Circulation Plan Proposed Improvements
Exhibit G: Initial Study

Exhibit A
Project Description

The Project is the adoption and implementation of the City of Huntington Beach General Plan Circulation Element Update.

Purpose of the Circulation Element

The purpose of the Huntington Beach Circulation Element update is to evaluate the long-term transportation needs of the City and present a comprehensive plan to accommodate those needs. It is being designed to provide an efficient surface transportation system that will safely distribute the increased volumes of traffic forecast to occur over the next 20 to 25 years, and to achieve desired intersection levels of service that minimize congestion during peak travel periods. The Circulation Element is the foundation for the City's efforts to manage and minimize traffic congestion, manage safety on roadways, and provide travel alternatives to the automobile, as well as better access to regional travel routes. Accomplishing these objectives requires effective land use planning, roadway monitoring and improvement, transportation system and demand management, regional coordination, and commitment of resources.

Scope and Content of the Circulation Element

California Government Code Section 65302(b) requires a circulation element in all general plans, as follows:

> *A circulation element consisting of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the land use element of the plan.*

The proposed updated Circulation Element encompasses streets, highways, bicycle routes, equestrian facilities, paths, and sidewalks, as well as alternative modes of travel, including cars, buses, bicycles, and walking. Utilities systems are addressed within the Utilities Element of the General Plan. All other required circulation issues are addressed in this Element, organized into the following topics:

- Regional Mobility
- Roadway Circulation
- Neighborhood Traffic Management
- Public Transportation
- Transportation Demand Management and Air Quality
- Parking
- Pedestrian, Bicycle, Equestrian, and Waterway Facilities
- Scenic Corridors

Circulation Plan

The proposed Circulation Plan is attached as Exhibit C (Proposed Circulation Plan), and includes six roadway classifications, summarized in Table 1 (Roadway Characteristics). Some of the proposed classifications represent changes from the existing Circulation Element and the Orange County Master Plan of Arterial Highways (MPAH), as summarized in Table 2 (Roadway Classification Changes). Proposed changes to the City's existing Circulation Element and the MPAH are mapped on Exhibit D (Proposed Changes to Circulation Element) and Exhibit E (Proposed Changes to MPAH).

Table 1 Proposed Roadway Classifications

Roadway Type	Right-of-Way (ROW)		No. of Lanes	Maximum Volume
	Total	Pavement		
Smart Street Arterial	Varies (120'-144')		6-8, divided	79,000
Principal Arterial	120'	104'	8, divided	65,000
Major Arterial	120'	104'	6, divided	50,000
Primary Arterial	100'	84'	4, divided	35,000
Secondary Arterial	80'	64'	4, undivided	25,000
Collector Arterial	Varies		2, undivided	12,500

Table 2 Proposed Roadway Classification Changes

Roadway Segments			Classifications		MPAH Facility?
Roadway	From	To	Current	Proposed	
17th St	PCH	Main St	Primary Arterial	Aug.* Collector	Yes
Algonquin St	Heil Ave	Warner Ave	Secondary Arterial	Aug. Collector	No
Argosy Ave	Bolsa Chica Ave	Graham St	Primary Arterial	Collector	Yes
Bolsa Chica Ave	Warner Ave	South City Limits	Major Arterial	Aug. Collector	No
Coldwater	Yorktown	Adams	Local	Collector	No
Delaware St	Ellis Ave	Atlanta Ave	Secondary Arterial	Aug. Collector	Yes
Edinger Ave	City limits	Bolsa Chica Ave	Primary Arterial	Aug. Collector	Yes
Edinger Ave	Springdale St	Newland St	Major Arterial	Aug. Primary	No
Ellis Ave	Edwards St	Gothard St	Primary Arterial	Aug. Collector	Yes
Ellis Ave	Gothard St	Delaware	Primary Arterial	Aug. Collector	Yes
Garfield Ave	Edwards St	Goldenwest St	Major Arterial	Primary	Yes
Garfield Ave	Ward St	Santa Ana River	Primary Arterial	Reserved	No
Goldenwest St	Bolsa Ave	Garfield Ave	Major Arterial	Aug. Primary	No
Gothard St	Garfield Ave	Main St	Primary Arterial	Secondary	Yes
Graham St	Warner Ave	Slater Ave	Primary Arterial	Aug. Collector	No
Lake St	Yorktown Ave	Orange Ave	Primary Arterial	Aug. Collector	Yes
Orange Ave	6th St	1st St	Primary Arterial	Aug. Collector	Yes
Orange Ave	Goldenwest St	6th St	Collector-Secondary	Aug. Collector	Yes
Pacific View	1st St	Huntington St	Primary Arterial	Aug. Collector	Yes
Palm Ave	Goldenwest St	17th St	Secondary Arterial	Aug. Collector	Yes
Saybrook Ave	Edinger Ave	Heil Ave	Secondary Arterial	Collector	No
Springdale St	Warner Ave	Talbert Ave	Primary Arterial	Secondary	Yes
Summit	Seapoint	Goldenwest St	Local	Collector	No
Talbert Ave	Springdale St	Edwards St	Primary Arterial	Collector	Yes
Varsity	Talbert Ave	Edwards St	Local	Collector	No
Walnut Ave	6th St	1st St	Primary Arterial	Aug. Collector	Yes
Warner Ave	PCH	Algonquin St	Major Arterial	Primary	Yes

* Aug. is an abbreviation for 'Augmented', which signifies flexibility in roadway design to be "context sensitive," while retaining the basic qualities of the classification.

Changes in roadway classifications are proposed to correspond more effectively to traffic volumes forecast for the year 2030. In addition to the proposed roadway classification changes, future intersection capacity improvements will be needed at the following locations, to meet the City's level of service performance standards:

- Gloldenwest St. @ Bolsa Ave.
- Beach Blvd. @ Heil Ave.
- Newland St. @ Warner Ave.
- Beach Blvd. @ Talbert Ave.
- Brookhurst St. @ Adams Ave.
- Beach Blvd. @ Warner Ave.
- Beach Blvd. @ Yorktown Ave.
- Gothard St. @ Talbert Ave.
- Wart St. @ Garfield Av.
- Brookhurst Street @ SR-1
- Beach Blvd. @ Edinger Ave.
- SR-1 @ Warner Ave.
- Goldenwest St. @ Slater Ave.
- Beach Blvd. @ Garfield Ave.
- Goldenwest St. @ SR-1
- Beach Blvd. @ Slater Ave.
- Gothard St. @ Slater Ave.
- Newland St. @ Talbert Ave.
- Newland St. @ Yorktown Ave.

Alternative Travel Modes

Bus Transit: Public transportation in the City of Huntington Beach mainly consists of bus service operated by the Orange County Transportation Authority (OCTA). In 2006, OCTA operated 19 routes through the City. The number of lines and routes are adjusted as needed in response to ridership patterns. OCTA and the City both operate demand response services. OCTA operates the ACCESS program. The City, with the aid of OCTA, operates the Senior Services Mobility Program. Future development of all or portions of the Southern Pacific Railroad corridor, including the existing active rail section, for transportation purposes may be pursued by the City in the future. Potential uses include development of a bicycle or multi-purpose trail or to function as an exclusive transit corridor. These options may be limited in some areas where portions of the corridor are no longer available for public use.

Pedestrian: Areas eligible for pedestrian focused improvements will be designated as Pedestrian Enhancement Zones (PEZs). PEZ improvements may include widened sidewalks, crosswalks, trees, pedestrian-scale lighting, and traffic calming measures. The City will establish a designation process for PEZs, coordinating with County and regional transportation agencies to assess the need for improved facilities and balance the demand for pedestrian facilities with the need to maintain adequate vehicular traffic flows. An expanded focus on pedestrian mobility and the creation of PEZs are new components of the Circulation Element, when compared to the existing 1996 Infrastructure and Community Services Chapter of the General Plan.

Bicycle: The proposed Circulation Element identifies a planned system of bikeways to accommodate growing demand and provide another alternative to the car for local trips. The plan establishes three classes of bicycle routes: Class I Bike Paths for off-road routes located along designated multi-use trails or vacated rail lines separated from streets, Class II Bike Lanes for on-road routes delineated by painted stripes and other identifying features, and Class III Bike Routes for on-road routes sharing use with pedestrians or motor vehicle traffic that are signed but not striped. The proposed Circulation Element expands on the existing bikeway plan by identifying bikeways that have been constructed since the adoption of the 1996 General Plan and designates additional routes that were not previously identified in the 1996 Infrastructure and Community Services Chapter.

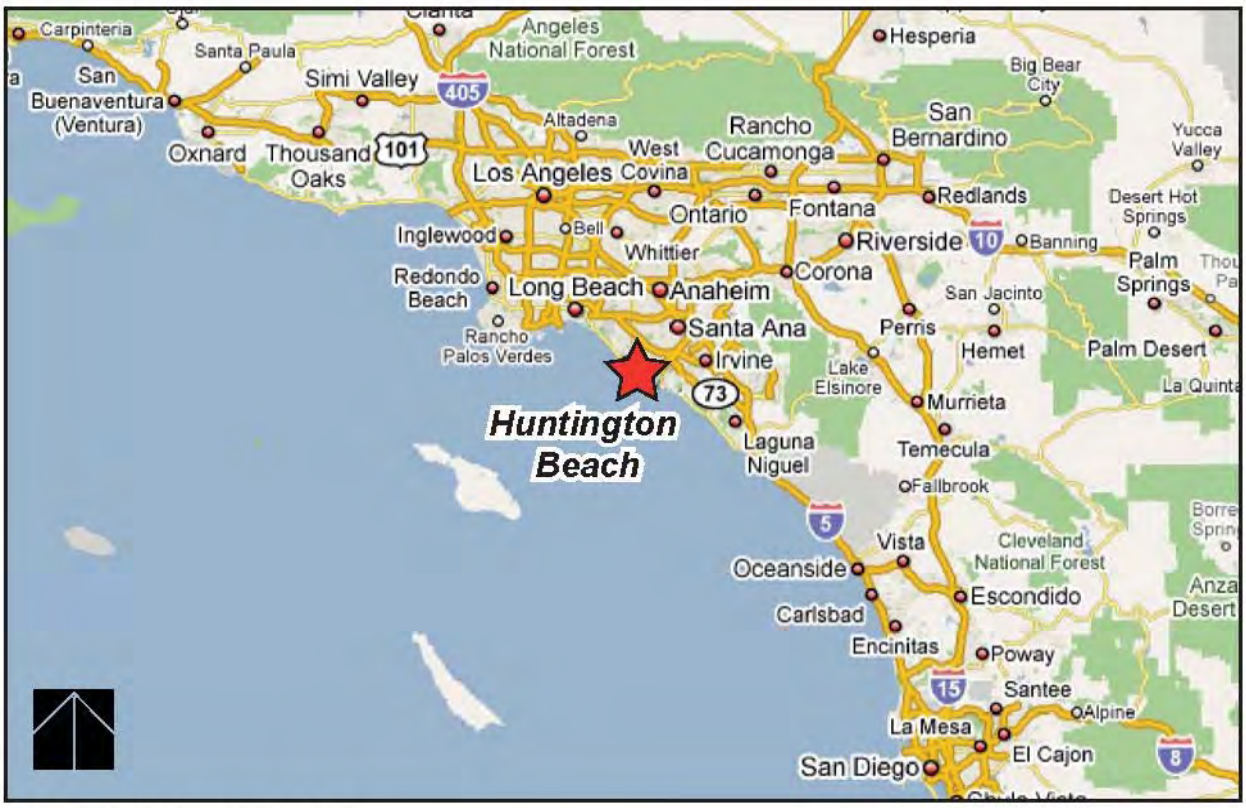
Equestrian: Huntington Beach, despite its generally suburban character, has managed to retain a few residential neighborhoods where keeping horses is permitted, in the central portion of the City near Central Park and the Bolsa Chica Wetlands. To support equestrian activities, the City has developed horse trails around and through those neighborhoods, with a planned route west to Pacific Coast Highway. Visitors can use the trails on rented horses available at the Huntington Central Park Equestrian Center. The Circulation Element update does not propose any changes to the existing or planned equestrian trail system when compared with the existing Infrastructure and Community Services Chapter of the General Plan.

Scenic Corridors

Scenic corridors in Huntington Beach consist of roads that offer motorists, cyclists, and pedestrians attractive vistas and pleasing street scenes. The City has established policies regarding treatment of scenic corridor right-of-ways, selection criteria for appropriate surrounding land uses, and rigorous development review procedures to protect the aesthetic appeal of these corridors. The City defines three types of scenic corridors: Major Urban Scenic Corridors that offer views of either natural or built environments, Minor Urban Scenic Corridors that carry less traffic than Major corridors, and Landscape Corridors that require specific treatment of signage, landscaping, or other details to reinforce the design continuity of the area. Scenic corridors are regulated by design standards contained in the existing Urban Design Element. The proposed Circulation Element includes reclassification of secondary entry nodes to primary entry nodes at the intersections of Magnolia Street at Garfield Avenue and Magnolia Street at Pacific Coast Highway and the designation of Garfield Avenue as a landscape corridor.

Implementation Programs

The primary implementing programs of the existing General Plan are proposed to remain in place in the Circulation Element update. These programs include monitoring of land use changes that affect the circulation system, the adequacy of emergency response, and intercity and regional bikeway connectivity. Programs related to development review and implementation of scenic highway planning, transportation demand management, parking, interagency cooperation, regional planning, and signage will also remain in place. Additional implementing programs, referred to as “Technical Administrative Reports,” or “TAR’s,” are now proposed to support the proposed PEZ policies, to solve neighborhood level traffic problems, enhance maintenance of scenic corridors, monitor traffic conditions and ensure timely intersection and roadway improvements.



Regional Context Map

Vicinity Map

Exhibit B: Regional Context & Vicinity Maps

Huntington Beach Circulation Element

Huntington Beach, CA

Exhibit C: Proposed Circulation Plan

Huntington Beach Circulation Element

Huntington Beach, CA

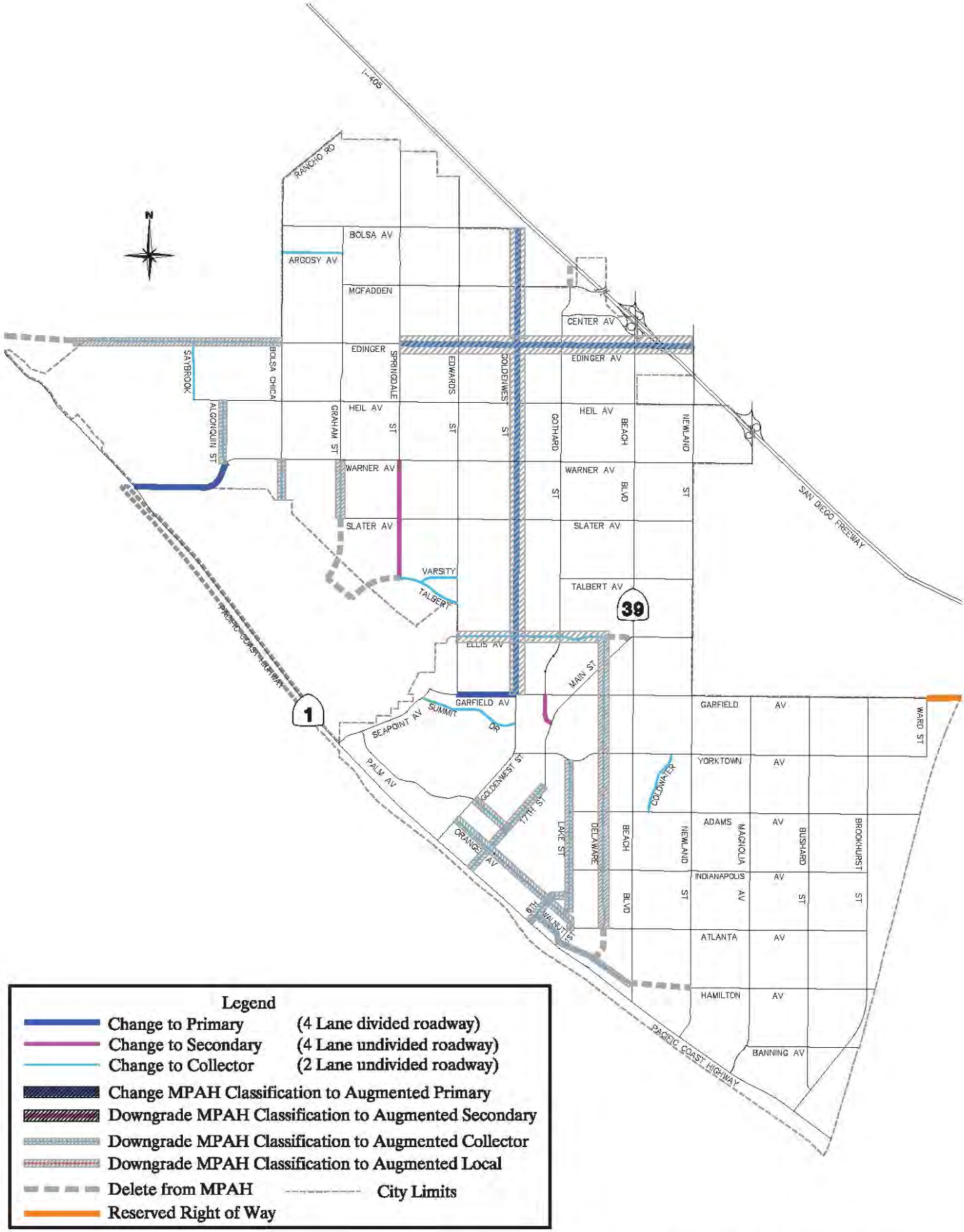


Exhibit D: Proposed Changes to Circulation Element

Source: Austin-Foust Associates, Inc. 2009

Huntington Beach Circulation Element

Huntington Beach, CA

Exhibit E: Proposed Changes to MPAH

Source: Austin-Foust Associates, Inc. 2009

Huntington Beach Circulation Element

Huntington Beach, CA

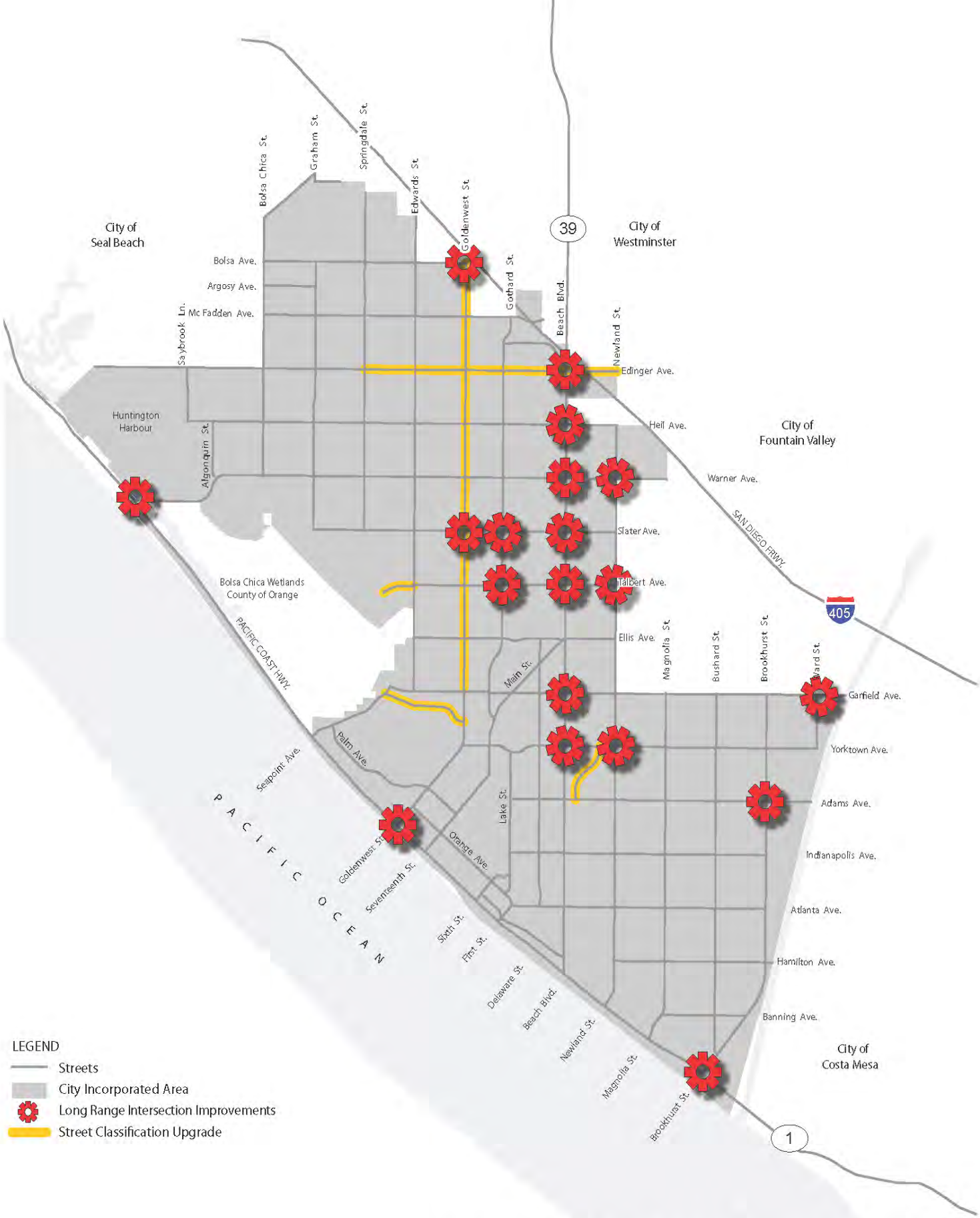


Exhibit F: Proposed Long Range Capacity Improvements

Huntington Beach Circulation Element

Huntington Beach, CA

July, 2009

ENVIRONMENTAL CHECKLIST FORM
CITY OF HUNTINGTON BEACH
PLANNING DEPARTMENT
ENVIRONMENTAL ASSESSMENT NO. 2009-004

PROJECT TITLE: **General Plan Circulation Element Update**

Concurrent Entitlements: General Plan Amendment No. 2006-001

2. LEAD AGENCY: City of Huntington Beach
2000 Main Street
Huntington Beach, CA 92648

Contact: Ricky Ramos, Senior Planner
Phone: (714) 536-5624

3. PROJECT LOCATION: The project encompasses the jurisdictional boundaries of the City of Huntington Beach.

4. PROJECT PROPONENT: The City of Huntington Beach, Department of Public Works

Contact Person: Bob Stachelski, Transportation Manager
Phone: (714) 536-5431

5. GENERAL PLAN DESIGNATION: Not applicable.

6. ZONING: Not applicable.

7. PROJECT DESCRIPTION

The Project is the adoption and implementation of the City of Huntington Beach General Plan Circulation Element Update.

Purpose of the Circulation Element Update

The purpose of the Huntington Beach Circulation Element update is to evaluate the long-term transportation needs of the City and present a comprehensive plan to accommodate those needs. It is being designed to provide an efficient surface transportation system that will accommodate the increased volumes of traffic forecast to occur over the next 20 to 25 years, and to achieve desired intersection levels of service that minimize congestion during peak travel periods. The Circulation Element is the foundation for the City's efforts to manage and minimize traffic congestion, manage safety on roadways, and provide travel alternatives to the automobile, as well as better access to regional travel routes. Accomplishing these objectives requires effective land use planning, roadway monitoring and improvement, transportation system and demand management, regional coordination, and commitment of resources.

Scope and Content of the Circulation Element

California Government Code Section 65302(b) requires a circulation element in all general plans, as follows:

> *A circulation element consisting of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the land use element of the plan.*

Please note that utilities are addressed within the Public Facilities and Public Services and the Utilities Elements. All other circulation issues are addressed in the Circulation Element, organized under the following topics.

- Regional Mobility
- Roadway Circulation
- Neighborhood Traffic Management
- Public Transportation
- Transportation Demand Management and Air Quality
- Parking
- Pedestrian, Bicycle, and Equestrian paths, and Waterway Facilities
- Scenic Corridors

The entire draft Circulation Element is hereby incorporated by reference and is provided as an attachment to this Initial Study.

Circulation Plan

The proposed Circulation Plan is attached as Exhibit B (Proposed Circulation Plan). The proposed Circulation Element includes six roadway classifications, summarized in Table 1 (Roadway Characteristics).

Table 1
Roadway Characteristics

Roadway Type	**Right-of-Way (ROW)**		**No. of Lanes**	**Maximum Volume**
	Total	**Pavement**		
Smart Street Arterial	Varies (120’-144’)		6-8, divided	79,000
Principal Arterial	120’	104’	8, divided	65,000
Major Arterial	120’	104’	6, divided	50,000
Primary Arterial	100’	84’	4, divided	35,000
Secondary Arterial	80’	64’	4, undivided	25,000
Collector Arterial	Varies		2, undivided	12,500

The proposed Circulation Element includes changes to roadway classification for specific streets from the existing Circulation Element and the Orange County Master Plan of Arterial Highways. These changes are summarized in Table 2 (Roadway Classification Changes). Proposed changes to the Circulation Element are mapped in Exhibit C and proposed changes to the MPAH are mapped in Exhibit D. Exhibit E shows only those proposed changes that could result in the potential future improvement of an intersection or roadway segment.

Table 2
Roadway Classification Changes

Roadway Segments			Classifications		MPAH Facility?
Roadway	**From**	**To**	**Current**	**Proposed**	
17th St	PCH	Main St	Primary Arterial	Aug. Collector	Yes
Algonquin St	Heil Ave	Warner Ave	Secondary Arterial	Aug. Collector	No
Argosy Ave	Bolsa Chica Ave	Graham St	Primary Arterial	Collector	Yes
Bolsa Chica Ave	Warner Ave	South City Limits	Major Arterial	Aug. Collector	No
Coldwater	Yorktown	Adams	Local	Collector	No
Delaware St	Ellis Ave	Atlanta Ave	Secondary Arterial	Aug. Collector	Yes
Edinger Ave	City limits	Bolsa Chica Ave	Primary Arterial	Aug. Collector	Yes
Edinger Ave	Springdale St	Newland St	Major Arterial	Aug. Primary	No
Ellis Ave	Edwards St	Gothard St	Primary Arterial	Aug. Collector	Yes
Ellis Ave	Gothard St	Delaware	Primary Arterial	Aug. Collector	Yes
Garfield Ave	Edwards St	Goldenwest St	Major Arterial	Primary	Yes
Garfield Ave	Ward St	Santa Ana River	Primary Arterial	Reserved	No
Goldenwest St	Bolsa Ave	Garfield Ave	Major Arterial	Aug. Primary	No
Gothard St	Garfield Ave	Main St	Primary Arterial	Secondary	Yes
Graham St	Warner Ave	Slater Ave	Primary Arterial	Aug. Collector	No
Lake St	Yorktown Ave	Orange Ave	Primary Arterial	Aug. Collector	Yes
Orange Ave	6th St	1st St	Primary Arterial	Aug. Collector	Yes
Orange Ave	Goldenwest St	6th St	Collector-Secondary	Aug. Collector	Yes
Pacific View	1st St	Huntington St	Primary Arterial	Aug. Collector	Yes
Palm Ave	Goldenwest St	17th St	Secondary Arterial	Aug. Collector	Yes
Saybrook Ave	Edinger Ave	Heil Ave	Secondary Arterial	Collector	No
Springdale St	Warner Ave	Talbert Ave	Primary Arterial	Secondary	Yes
Summit	Seapoint	Goldenwest St	Local	Collector	No
Talbert Ave	Springdale St	Edwards St	Primary Arterial	Collector	Yes
Varsity	Talbert Ave	Edwards St	Local	Collector	No
Walnut Ave	6th St	1st St	Primary Arterial	Aug. Collector	Yes
Warner Ave	PCH	Algonquin St	Major Arterial	Primary	Yes

The MPAH designates the arterial system in the Circulation Element of the Orange County General Plan. The MPAH identifies the intended future roadway system for the County. Huntington Beach's Circulation Element must be consistent with the MPAH in order to participate in County roadway funding programs, such as Measure M. In 1990, Orange County voters approved Measure M, authorizing a half-cent retail sales tax increase for a period of 20 years effective April 1, 1991. On November 7, 2006, voters approved an extension of this funding measure (referred to as "M2") until 2041. Revenue generated by Measure M2 is returned to local jurisdictions for use on local and regional transportation improvements and maintenance projects. To qualify for this, Huntington Beach must submit a statement of compliance with the growth management components of the program. Requirements include the adoption of a traffic circulation plan consistent with the County Master Plan of Arterial Highways (MPAH), adoption of a Growth Management Element within the General Plan, adoption and adequate funding of a local transportation fee program, and adoption of a seven-year capital improvement program that includes all transportation projects funded either partially or fully by Measure M funds.

In addition to the proposed roadway classification changes future intersection capacity improvements will be needed at the following locations, to meet the City's level of service performance standards:

- Goldenwest Street @ Bolsa Avenue
- Beach Boulevard @ Heil Avenue
- Newland Street @ Warner Avenue
- Beach Boulevard @ Talbert Avenue
- Brookhurst Street @ Adams Avenue
- Beach Boulevard @ Warner Avenue
- Beach Boulevard @ Yorktown Avenue
- Gothard Street @ Talbert Avenue
- Ward Street @ Garfield Avenue
- Brookhurst Street @ SR-1
- Beach Boulevard @ Edinger Avenue
- SR-1 @ Warner Avenue
- Goldenwest Street @ Slater Avenue
- Beach Boulevard @ Garfield Avenue
- Goldenwest Street @ SR-1
- Beach Boulevard @ Slater Avenue
- Gothard Street @ Slater Avenue
- Newland Street @ Talbert Avenue
- Newland Street @ Yorktown Avenue

For the most part, additional right-of-way will not be required to implement the planned roadway classifications. There are some street segments that are not currently built to the ultimate classification dimensions and may require dedication of additional right-of-way to complete. None of the recommended roadway re-classifications would require additional right-of-way; in fact, many would reduce the ultimate right-of-way requirements, compared to current classifications. Environmental impacts associated with the roadway footprints in these areas, therefore, would be less than with current classifications.

Alternative Transportation

Bus Transit: Public transportation in the City of Huntington Beach mainly consists of bus service operated by the Orange County Transportation Authority (OCTA). OCTA currently operates 17 routes through the City (OCTA, June 2009). The number of lines and routes are adjusted in response to ridership patterns. OCTA and the City both operate demand response services. OCTA operates the ACCESS program. The City, with the aid of OCTA, operates the Senior Services Mobility Program.

Potential Rail Corridor Travel Options. The Element identifies a policy that future development of all or portions of the Southern Pacific Railroad corridor for transportation purposes, including the existing active rail section, may be pursued by the City in the future. Options to be considered include development of a bicycle or multi-purpose trail or to function as an exclusive transit corridor. These options may be limited in some areas where portions of the corridor are no longer available for public use. Assessment of environmental consequences for any particular option would be examined at the time of an official proposal for some alternate use of the rail corridor.

Pedestrian: The Element includes a new concept, Pedestrian Enhancement Zones (PEZs). PEZ improvements can include sidewalks, crosswalks, trees, pedestrian-scale lighting, and traffic calming measures. The City will establish a PEZ designation process that will include coordinating with other transportation agencies to assess the need for improved facilities. An expanded focus on pedestrian mobility and the creation of PEZ are changes from the existing 1996 Circulation Element.

Bicycle: The proposed Circulation Element identifies a planned bikeway system to accommodate growing demand and provide another alternative to the car for local trips. The plan establishes three classes of bicycle routes: Class I Bike Paths for off-road routes located along designated multi-use trails or vacated rail lines separated from streets, Class II Bike Lanes for on-road routes delineated by painted stripes and other identifying features, and Class III Bike Routes for on-road routes sharing use with pedestrians or motor vehicle traffic that are signed but not striped. The proposed Circulation Element expands on the existing bikeway plan by identifying bikeways that have been constructed since the adoption of the 1996 General Plan and designates additional routes that were not previously identified in the 1996 Circulation Element.

Equestrian: Near Central Park and the Bolsa Chica Wetlands areas, Huntington Beach has a few neighborhoods that permit horse keeping. To support equestrian activities, the City has developed horse trails around and through those neighborhoods, with a planned route west to Pacific Coast Highway. Visitors can use the trails on rented horses available at the Huntington Central Park Equestrian Center. The Circulation Element update does not propose any changes to the existing or planned equestrian trail system.

Scenic Corridors

Huntington Beach's scenic corridors offer motorists, cyclists, and pedestrians, attractive vistas and pleasing street scenes. The City has established policies regarding treatment of scenic corridor right-of-ways, selection criteria for appropriate surrounding land uses, and rigorous development review procedures to protect the aesthetic appeal of these corridors. The City defines three types of scenic corridors: Major Urban Scenic Corridors that offer views of either natural or built environments, Minor Urban Scenic Corridors that carry less traffic than Major corridors, and Landscape Corridors that require specific treatment of signage, landscaping, or other details to reinforce the design continuity of the area. Scenic corridors are regulated by design standards contained in the existing Urban Design Element. The proposed Circulation Element includes several changes concerning scenic corridors:

- Reclassification of secondary entry nodes to primary entry nodes at the intersections of Magnolia Street at Garfield Avenue and Magnolia Street at Pacific Coast Highway
- Garfield Avenue to be designated as a Landscape Corridor.
- Bolsa Chica to be designated as a Minor Urban Scenic Corridor
- Change Edinger, west of Bolsa Chica, from Minor Urban Scenic Corridor to Landscape Corridor
- Gothard, between Edinger and McFadden, to be designated as a Landscape Corridor
- Bolsa Chica, south of Warner, to be designated as a Landscape Corridor
- Seapoint to be designated as a Landscape Corridor
- Magnolia to be designated as a Minor Urban Scenic Corridor

Implementation Programs

The primary implementing programs of the existing General Plan are proposed to remain in place in the Circulation Element update. These programs include monitoring of land use changes that affect the circulation system, the adequacy of emergency response, and intercity and regional bikeway connectivity. Programs related to development review and implementation of scenic highway planning, transportation demand management, parking, interagency cooperation, regional planning, and signage will also remain in place. Additional implementing programs, referred to as "Technical Administrative Reports," or "TARs," are now proposed to support the proposed PEZ policies, to solve neighborhood level traffic problems, enhance maintenance of scenic corridors, monitor traffic conditions and ensure timely intersection and roadway improvements.

8. **SURROUNDING LAND USES AND SETTING:** The City of Huntington Beach is generally surrounded by the City of Westminster to the northeast, the City of Fountain Valley to the east, the City of Costa Mesa to the southeast, the Pacific Ocean to the south, and the City of Seal Beach to the northwest. The City of Huntington Beach is an urbanized area as are the surrounding jurisdictions. The City has a well established roadway network that connects to surrounding jurisdictions through arterial and collector roadways. The City is connected to the regional roadway network primarily

through Interstate 405 and to a lesser degree State Route 1 (Pacific Coast Highway). The local and regional context of the City are mapped in Exhibit A.

9. **OTHER PREVIOUS RELATED ENVIRONMENTAL DOCUMENTATION:** Huntington Beach General Plan Update Environmental Impact Report (July 5, 1995)

10. **OTHER AGENCIES WHOSE APPROVAL IS REQUIRED (AND PERMITS NEEDED)** (i.e. permits, financing approval, or participating agreement):

    - Orange County Transportation Authority (Approval required for proposed changes to the Master Plan of Arterial Highways prior to actual adoption of classification change or deletion by the City)

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" or is "Potentially Significant Unless Mitigated," as indicated by the checklist on the following pages.

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

DETERMINATION

(To be completed by the Lead Agency)

On the basis of this initial evaluation:

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

I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. **A MITIGATED NEGATIVE DECLARATION** will be prepared. ☐

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

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

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

R Ramos	7.28.09
Signature	Date
Ricky Ramos	Senior Planner
Printed Name	Title

EVALUATION OF ENVIRONMENTAL IMPACTS:

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to the project. A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards.

2. All answers must take account of the whole action involved. Answers should address off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. "Potentially Significant Impact" is appropriate, if an effect is significant or potentially significant, or if the lead agency lacks information to make a finding of insignificance. If there are one or more "Potentially Significant Impact" entries when the determination is made, preparation of an Environmental Impact Report is warranted.

4. Potentially Significant Impact Unless Mitigated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVIII, "Earlier Analyses," may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c) (3) (D). Earlier analyses are discussed in Section XVIII at the end of the checklist.

6. References to information sources for potential impacts (e.g., general plans, zoning ordinances) have been incorporated into the checklist. A source list has been provided in Section XVIII. Other sources used or individuals contacted have been cited in the respective discussions.

7. The following checklist has been formatted after Appendix G of Chapter 3, Title 14, California Code of Regulations, but has been augmented to reflect the City of Huntington Beach's requirements.

SAMPLE QUESTION:

ISSUES (and Supporting Information Sources):	*Potentially Significant Impact*	*Potentially Significant Unless Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
Would the proposal result in or expose people to potential impacts involving:				
Landslides? (Sources: 1, 6)	☐	☐	☐	☒
Discussion: The attached source list explains that 1 is the Huntington Beach General Plan and 6 is a topographical map of the area which show that the area is located in a flat area. (Note: This response probably would not require further explanation).				

I. LAND USE AND PLANNING. Would the project:

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? (Sources: 19)	☒	☐	☐	☐
b) Conflict with any applicable habitat conservation plan or natural community conservation plan? (Sources: 15,16)	☐	☐	☐	☒
c) Physically divide an established community? (Sources: 23)	☐	☐	☐	☒

Discussion: There are no adopted natural community conservation plans (NCCP) or habitat conservation plans (HCP) within the City of Huntington Beach, therefore the Circulation Element update will not conflict with such plans. The Circulation Element update does not propose any new roadway segments or any other transportation system improvements that could divide any established community within the City. The Circulation Element must support the existing General Plan Land Use Plan. As such, it is intended to be consistent with the General Plan Land Use Element and the city's zoning map. In addition to the City's existing General Plan and Zoning Code, the California Coastal Act of 1976 is in effect over portions of the City near the Pacific Ocean (known as the Coastal Zone). The City has a Certified Local Coastal Program (LCP), allowing it to issue Coastal Development Permits on behalf of the California Coastal Commission. Coastal policies including supporting adequate parking and public access are components of the Circulation Element. The proposed Circulation Element will be analyzed in an Environmental Impact Report (EIR) to determine consistency with the City's General Plan and LCP.

II. POPULATION AND HOUSING. Would the project:

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extensions of roads or other infrastructure)? (Sources: 23)	☐	☐	☒	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? (Sources: 23)	☒	☐	☐	☐
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? (Sources: 23)	☒	☐	☐	☐

Discussion: The City of Huntington Beach is essentially built-out, as are the surrounding jurisdictions. The proposed Circulation Element does not include any land use policies that could authorize the future construction of residential, commercial, or industrial development that could directly result in population growth. In fact, the proposed Element is designed to meet the needs of a growing community, in accordance with the City's adopted land use policies as set forth in the Land Use Element of the General Plan. Furthermore, the Circulation Element update does not provide for the future extension of roadways or other circulation infrastructure to areas that are not currently served by an extensive circulation network. This project would not induce substantial population growth.

The proposed Circulation Element includes reclassification of some roadway segments to add lanes to handle future traffic projections. Additional right-of-way needs cannot be determined until the actual project design phase, when a variety of geometries can be examined for costs/benefits; therefore, the environmental effects that might be associated with potential future roadway widening will be determined through subsequent project-level assessments. Recommended improvements to one or more intersections might require acquisition of additional right-of-way, which could potentially affect one or more residentially developed properties that abut the needed right-of-way. Further analysis is required in an EIR to determine potential impact levels and to identify measures to avoid or offset potential impacts that could result in displacement of any housing units.

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III. GEOLOGY AND SOILS. Would the project:

	Potentially Significant Impact	*Potentially Significant Unless Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Sources: 1)	☐	☐	☒	☐
ii) Strong seismic ground shaking? (Sources: 14)	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction? (Sources: 13, 14)	☐	☐	☒	☐
iv) Landslides? (Sources: 13)	☐	☐	☒	☐
b) Result in substantial soil erosion, loss of topsoil, or changes in topography or unstable soil conditions from excavation, grading, or fill? (Sources: 14)	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? (Sources:13, 14)	☐	☐	☒	☐

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property? (Sources: 1, 14)	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of wastewater (Sources: N/A)	☐	☐	☐	☒

Discussion: The Circulation Element update does not have the potential to expose residential, commercial, or industrial development to geologic hazards because it does not include a land use component that could result in potential future development. Furthermore, the proposed Circulation Element will not have any geologic hazard or soils related effect on existing roadway or traffic control facility because it will not result directly in a physical change to the circulation system. It does include, however, the potential for future upgrades to roadways that could be damaged by geologic hazards. According to the City's General Plan and the latest State Seismic Hazard Zone Maps, portions of the City are subject to impacts related to fault rupture, liquefaction, subsidence, expansive soils, and strong ground shaking. Future potential improvements to Summit Drive would occur within the Newport-Inglewood (North Branch) Fault Alquist-Priolo Fault Rupture Zone. Future potential improvements to Goldenwest Street and Edinger Avenue could be subject to high-very high liquefaction potential and improvements to Varsity would be subject to very high liquefaction potential. These hazards have the potential to separate, collapse, buckle, and otherwise damage future roadway and intersection upgrades and associated infrastructure. According to the State Seismic Hazard Zone Maps, there is no place in Huntington Beach where a significant hazard for seismically induced landslides occurs. Although some future roadway and intersection improvements could be subject to geologic hazards, these facilities are not considered 'critical' or 'sensitive' in the way that housing, hospitals, fire departments, and other facilities are. Nonetheless, future roadway improvements will be designed and constructed to mitigate unstable ground conditions, in accordance with routine practices for street construction projects. Common methods for remediation of potential geologic hazards include over-excavation and recompaction of soils, reinforcement of foundational structures, and replacement of unstable soils with suitable fill material. Continuation of the standard street design and construction practices will minimize potential damage to street improvements associated with geologic hazards and soils constraints, and would reduce impacts to less than significant.

The Circulation Element update will not result in the potential expanded use of septic tanks because it does not include a land use component that could include a septic tank or leach fields for wastewater disposal. No soil-based wastewater disposal systems would be required to support any future circulation system improvements.

IV. HYDROLOGY AND WATER QUALITY.

Would the project:

	Potentially Significant Impact	*Potentially Significant Unless Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Violate any water quality standards or waste discharge requirements? (Sources: 14, 18)	☐	☐	☒	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted? (Sources:1)	☐	☐	☐	☒

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off-site? (Sources: 14)	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount or surface runoff in a manner which would result in flooding on or off-site? (Sources: 14)	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? (Sources: 14)	☐	☐	☒	☐
f) Otherwise substantially degrade water quality? (Sources:14, 18)	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? (Sources: 1)	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows? (Sources: 1)	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? (Sources: 1)	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow? (Sources: 1)	☐	☐	☐	☒
k) Potentially impact stormwater runoff from construction activities? (Sources: 14, 18)	☐	☐	☒	☐
l) Potentially impact stormwater runoff from post-construction activities? (Sources: 14, 18)	☐	☐	☒	☐
m) Result in a potential for discharge of stormwater pollutants from areas of material storage, vehicle or equipment fueling, vehicle or equipment maintenance (including washing), waste handling, hazardous materials handling or storage, delivery areas, loading docks or other outdoor work areas? (Sources: N/A)	☐	☐	☐	☒
n) Result in the potential for discharge of stormwater to affect the beneficial uses of the receiving waters? (Sources: 14, 18)	☐	☐	☒	☐

o) Create or contribute significant increases in the flow velocity or volume of stormwater runoff to cause environmental harm? (Sources: 14, 18)	☐	☐	☒	☐
p) Create or contribute significant increases in erosion of the project site or surrounding areas? (Sources: 14, 18)	☐	☐	☒	☐

Discussion:

Water Quality, Wastewater Discharge Requirements, and Erosion Control

The City's roadway network is well established and will not change or be expanded, in terms of new roads, new bridge structures, realignments, etc. by the updated Circulation Element. No new sources of urban runoff should occur as a result of the Circulation Element. Additional roadway surfaces would eventually be created as part of future segment widenings and future intersection improvements. These would occur adjacent to existing street surfaces and would add a minor amount of additional impervious surface that would have a less than significant impact involving increased street runoff. Some alterations to existing drainage facilities and/or installation of new drainage facilities may occur as part of future streets and intersection improvements; however, these would not involve any significant modifications to the City's drainage network.

The National Pollution Discharge Elimination System (NPDES) program prohibits the discharge of any pollutants into surface waters and requires any jurisdiction operating a storm drain system to protect surface waters through implementation of Best Management Practices (BMPs). BMPs range from educational programs to structural devices that are designed to prevent pollution from entering the storm drain system. The City implements the NPDES regulations through a Municipal Separate Storm Sewer System (MS4) permit, issued by the Santa Ana Regional Water Quality Control Board. Specifically, the City regulates discharges from existing and new and significant redevelopment through Chapter 14.25 (Storm Water and Urban Runoff Management) of the Municipal Code. Any expansion of future roadways or intersections will be required to implement water quality BMPs. Common construction BMPs include sandbagging and screening of catch basins to prevent discharges and installation of silt screening to prevent off-site flows of sediments. Common operational BMPs for roadways include installation of traps within catch basins to collect trash and other debris and street sweeping to remove sediment and other pollutants from the roadway surface. The proposed project would not change or conflict with the City's street sweeping, catch basin/inlet cleaning, and other street and storm drain maintenance programs. Increased runoff associated with future street improvements; therefore, would not result in significant pollutant discharges or violations of water quality standards. Impacts involving changes in hydrology and water quality would be less than significant.

The Orange County Sanitation District (OCSD) operates two wastewater treatment facilities, both that serve the City. Waste discharge requirements establish limitations of the pollutant loading of effluent discharges to ensure that the beneficial uses of receiving water bodies are not impacted. The Circulation Element update will not impact the ability for either wastewater treatment facility to comply with discharge requirements because potential future roadway and intersection expansion projects will not discharge into the sewer system nor does the proposed Circulation Element include a land use component that could result in future development.

Drainage

Improper control and conveyance of stormwater flows can result in localized or widespread flooding. Due to Huntington Beach's built-out nature, potential future roadway and intersection improvements will not result in substantial changes to existing drainage patterns. When a rain storm occurs, streets convey runoff to catch basins and culverts via curb and gutter, a process that will continue in the future. Future potential roadway widening or intersection improvements could require construction of new curb and gutter and installation of new catch basins and possibly other drainage facilities. Future drainage control devices will be subject to the construction standards of the Public Works Department, as adopted under Chapter 12.10

(Standard Specifications for Public Works Construction) of the Municipal Code. Standard plan series 300 specifically addresses the design and construction of storm drain structures, including those that are constructed within street improvements. Future construction of storm drain facilities will be funded through fees collected pursuant to Section 14.48.080 (Drainage Fees) of the Municipal Code. Impacts associated with the capacity, design, and construction of drainage devices will be less than significant.

Flooding and Inundation

The Circulation Element update does not include a land use component that could result in future development; therefore, no housing or other habitable structures will be placed within an area subject to flooding, seiche, mudflow, or tsunami as a result of the Circulation Element update. Potential future roadway improvements to Goldenwest Street, Edinger Avenue, and a number of intersections could be constructed within areas subject to 100-year flooding; however these facilities will be designed to convey floodwaters in order to protect structures from flooding. Future street and intersection improvements will be designed to comply with the storm drain design criteria specified in the City's Storm Drain Master Plan, and this will provide an adequate level of flooding protection. According to the 1995 General Plan EIR, the City is potentially subject to inundation should the Prado Dam fail (located near Corona, California). However, the General Plan EIR found impacts to be less than significant with mitigation incorporated, which involves coordination with the County of Orange and State Division of Safety and Dams for dam safety and risk assessment. The proposed Circulation Element will not interfere with City efforts to ensure safety from dam failure related inundation; therefore impacts will continue to be less than significant. The street system does serve as a primary emergency evacuation route in the event of an impending tsunami event.

Groundwater Resources

Streets and highways within the Circulation Element network do not require water supplies to function, except with respect to irrigation of median and parkway landscaping. The City presently irrigates landscaping within street rights of way with water supplied by the City's Water Division. The City currently does not utilize any reclaimed water and there are no plans for use of reclaimed water in the foreseeable future. Approximately 67 percent of the City's water supply is typically drawn from local groundwater sources though this figure can vary seasonally. Future streets and intersection improvements undertaken to implement the proposed Circulation Element Update could increase the amount of landscaping and associated irrigation requirements served from the City's water supplies. Any future landscaping projects would be subject Chapter 14.52 (Water Efficient Landscape Requirements) of the Municipal Code. These regulations require water efficient design of landscaping based on calculation of maximum applied water allowances and estimated water usage. Additional guidelines are provided for irrigation and plant palette design to maximize the climatic, geologic, and topographic features of a site, thereby increasing water efficiency. Adherence to the standards of the City's water efficient landscape requirements will minimize irrigation water needs for potential future median and parkway landscaping, thereby reducing impacts to groundwater to less than significant.

V. AIR QUALITY. The city has identified the significance criteria established by the applicable air quality management district as appropriate to make the following determinations. Would the project:	*Potentially Significant Impact*	*Potentially Significant Unless Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Violate any air quality standard or contribute substantially to an existing or projected air quality violation? (Sources: 8, 20)	☒	☐	☐	☐
b) Expose sensitive receptors to substantial pollutant concentrations? (Sources: 1,8)	☒	☐	☐	☐

c) Create objectionable odors affecting a substantial number of people? (Sources: N/A)	☐	☐	☒	☐
d) Conflict with or obstruct implementation of the applicable air quality plan? (Sources: 8)	☒	☐	☐	☐
e) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? (Sources: 8, 20)	☒	☐	☐	☐

Discussion:
Ambient air quality is affected by pollutants emitted from stationary and mobile sources. Stationary sources are often divided into point sources and area sources. Point sources consist of one or more emission sources at a facility with an identified location and are usually associated with manufacturing and industrial processing plants. Area sources are widely distributed and consist of many small emission sources. Mobile sources refer to emissions from motor vehicles, including tailpipe, evaporative, and fugitive emissions. Air pollutants emitted by stationary and mobile sources are regulated by federal and state law. These regulated pollutants are known as "criteria air pollutants," and are emitted as primary and secondary pollutants.

Huntington Beach is located in the South Coast Air Basin (SCAB) under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). SCAQMD prepares the regional Air Quality Management Plan (AQMP) in cooperation with the California Air Resources Board (CARB) and the Southern California Association of Governments. CARB is responsible for mobile source emissions throughout the State while Districts are responsible for addressing stationary emissions sources. Air quality standards are set by State and Federal clean air regulations. At the Federal level, the Clean Air Act (CAA) provides the Environmental Protection Agency (USEPA) with the authority to set National Ambient Air Quality Standards (NAAQS) for "criteria" pollutants. Criteria pollutants are those pollutants for which a regulatory standard has been established for maximum levels of emissions to protect human health and address other concerns. The California Clean Air Act (CCAA) of 1988 sets stricter standards on criteria pollutants and adds additional pollutants and standards. The SCAB is currently designated as nonattainment status for various criteria pollutants, as summarized in Table 3 (SCAB Attainment Designations).

Table 3
SCAB Attainment Designations

Criteria Pollutant	State Designation	Federal Designation
Ozone (1-hr)	Extreme Nonattainment	N/A
Ozone (8-hr)	Nonattainment	Nonattainment
PM10	Nonattainment	Nonattainment
PM2.5	Nonattainment	Nonattainment
Carbon Monoxide	Attainment	Attainment
Nitrogen Dioxide	Attainment	Attainment
Sulfates	Attainment	N/A
Sulfur Dioxide	Attainment	Attainment
Lead	Attainment	Attainment
Hydrogen Sulfide	Unclassified	N/A
Visibility Reducing Particles	Unclassified	N/A
Source: USEPA, CARB 2009		

On June 1, 2007, the SCAQMD's Board of Directors approved the 2007 Air Quality Management Plan. This plan focuses on bringing the SCAB into attainment with the ozone and PM2.5 standards. The objective is to attain the federal PM2.5 standards by 2014 and the ozone standards by 2023. The plan includes a wide range of proposed rules and regulations that need to be implemented to achieve the AQMP's objectives.

The 2007 AQMP adopts short-, mid-, and long-term control measures to reduce emissions of criteria pollutants from the major mobile and stationary sources. Control measures to reduce transportation-related emissions are primarily technology based, i.e. direct emissions controls, "clean" fuel mixture standards, and other specified performance standards. Additional controls measures from the South California Association of Government's Regional Transportation Plan have been integrated into the AQMP to address transportation and traffic related air quality impacts. Additional analysis in an EIR will be required to determine if the proposed Circulation Element is consistent with AQMP transportation control measures.

The proposed Circulation Element is designed to accommodate long range traffic volumes to minimize congestion problems, and would not, in and of itself, generate any stationary or mobile sources of air emissions. However, further analysis in an EIR is required to determine if potential future changes to the circulation system would affect long-term traffic volumes or distribution in such a way that achievement of target limits for criteria pollutants and air quality standards could be impeded.

Construction of roadway and intersection improvements may produce short-term odors, that some may find objectionable, e.g., the odor of tar in asphalt surface applications. These temporary impacts are common in any urban environment and considered to be less than significant effects. Long term operation of street improvements would not result in the production of objectionable odors.

VI. TRANSPORTATION/TRAFFIC. Would the project:	*Potentially Significant Impact*	*Potentially Significant Unless Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (e.g., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections? (Sources: 17)	☒	☐	☐	☐
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways? (Sources: 21)	☒	☐	☐	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? (Sources: 22, 23, 33)	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses? (Sources: 14)	☐	☐	☒	☐
e) Result in inadequate emergency access? (Sources: 14)	☒	☐	☐	☐

f) Result in inadequate parking capacity? (Sources: 2)	☐	☐	☐	☒
g) Conflict with adopted policies supporting alternative transportation (e.g., bus turnouts, bicycle racks)? (Sources: 1)	☐	☐	☒	☐

Discussion: The proposed Circulation Element is designed to accommodate projected increases in traffic levels over the long-term. Future traffic increases and the potential congestion impacts on the existing and planned streets and highway network will be analyzed in an EIR. The Orange County Master Plan of Arterial Highways (MPAH) is the county-wide plan guiding development of major arterial roadways and highways throughout the County. Several modifications to MPAH classifications are included in the proposed Circulation Element. These changes will be assessed to ensure that significant impacts along affected MPAH links do not occur. Components of the Orange County Congestion Management Plan roadway network occur within Huntington Beach and further analysis is required to assess whether the proposed Circulation Element could create conditions that would exceed CMP level of service standards.

There are currently eight heliports or helipads and no airports, public or private, located within the city. Two heliports are owned and operated by the City, the remaining are managed by private operators. Local heliports are used mainly for air ambulance, business, emergency and police purposes. The City regulates land use in the vicinity of heliports pursuant to the Orange County Airport Land Use Commission (ALUC) Airport Environs Land Use Plan for Heliports (AELUP). The AELUP sets land use and design criteria for areas surrounding the heliports to address noise and safety issues. The proposed Circulation Element does not include plans for additional heliports nor does it contain policies that would conflict with the implementation of the AELUP; therefore, no assessment of potential impacts involving changes in air traffic patterns is required. Future street improvements that implement the proposed Circulation Plan would be designed and built in accordance with the safety-based design criteria adopted by the Public Works Department, pursuant to Chapter 12.10 (Standard Specifications for Public Works Construction) of the Municipal Code. Furthermore, the Circulation Element update does not include a land use component and therefore will not result in the land use conflicts that could create unsafe roadway conditions. The Circulation Element update will result in less than significant impacts associated with potential safety risks due to roadway design or incompatible uses.

The proposed Circulation Element will not result in the need for expanded parking services because it does not include a land use component that would require the potential future provision of parking. The Circulation Element update contains Policies CE 6.1 through CE 6.4 supporting the provision of adequate parking, and alternative parking arrangements. The proposed Circulation Element will not result in adverse impacts associated with inadequate parking.

Future development will be subject to the provisions of Chapter 17.56 (Huntington Beach Fire Code) of the Municipal Code that requires sufficient access for operations of a fire suppression crew to any building from within 150 feet of a fire hydrant. Proposed changes to the MPAH include deleting the previously planned extension of Hamilton Avenue and the previously planned connection between Graham Street and Talbert Avenue. These will be analyzed to determine if emergency response times could be negatively affected as a result of roadways not being built.

The proposed Circulation Plan will not interfere with any City policies on the provision of alternative transportation. The existing General Plan Circulation Element sets goals and policies supporting pedestrian and bicycle facilities and bus travel as alternatives to driving. Specifically, Policies 6.1.1 through 6.1.6 support alternative transportation by providing for an integrated network of pedestrian and bicycle facilities linked to bus routes focusing on the safety and convenience of alternative transportation users. These policies have been carried over into the proposed Circulation Element as Policies CE 7.1 through CE 7.5. While no conflicts with alternative transportation plans and programs are anticipated, further discussion of the characteristics and benefits of the proposed Circulation Element policies will be provided in the EIR.

VII. BIOLOGICAL RESOURCES. Would the project:	*Potentially Significant Impact*	*Potentially Significant Unless Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S, Fish and Wildlife Service? (Sources: 25,26)	☐	☐	☒	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service? (Sources: 24)	☒	☐	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? (Sources: 24)	☒	☐	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites? (Sources: 23)	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? (Sources: 14)	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? (Sources: 15,16)	☐	☐	☐	☒

Discussion: Critical Habitat for the Federally Threatened Western Snowy Plover is located within the Bolsa Chica wetlands area in unincorporated Orange County and at the mouth of the Santa Ana River. The United States Fish and Wildlife Service (USFWS) administers a Recovery Plan for this species along the coast of California, including the Bolsa Chica area. The primary objective of the Recovery Plan is to remove the Western Snowy Plover from the threatened species list by increasing population numbers distributed across the range of the Pacific coast, conducting intensive ongoing management for the species and its habitat and developing mechanisms to ensure management in perpetuity, and monitoring populations and threats to determine success of recovery actions and the refinement of management actions. The Recovery Plan does not include any measures that would be affected by management or expansion of the City's street network. Impacts to the critical habitat of the Western Snowy Plover would, therefore, be less than significant.

A variety of wetlands and riparian habitat occurs in the City, primarily in the coastal zone. These water-based areas provide habitat for a variety of plants and wildlife species, some of which have special or recognized status pursuant to either Federal or State species protection acts, or both. Potential impacts could occur if future expansion of roadways were to reduce or damage viable wetlands or riparian habitat. Such potential impacts have been reduced somewhat through the proposed removal of planned extensions of Hamilton and Edinger Avenues that could have affected existing wetlands and/or riparian resources. Future intersection capacity improvements are recommended to address long range traffic increases at the intersections of Pacific Coast Highway and Goldenwest, Warner and Brookhurst. There are some water-based plant resources near each of these intersections. Specific intersection improvements haven't been designed and need not be designed for a number of years; therefore, the specific impact on such resources, if any, cannot be determined at this time. Nonetheless, the EIR will provide a preliminary assessment of impact potential and ways to avoid impacts to protected wetlands or riparian resources.

The existing roadway network does not affect any wildlife movement, migratory fish patterns, or wildlife nurseries. Furthermore, the proposed Circulation Element will not interfere with wildlife movement, migratory fish patterns, or wildlife nurseries because such areas do not occur in the vicinity of any future potential roadway or intersection improvement. Therefore, no potential impact due to future potential roadway or intersection improvement within any of these types of areas could occur.

The City has no local ordinance protecting biological resources and there are no HCPs, NCCPs, or other approved habitat conservation plans within the Huntington Beach planning area. Therefore, no conflict with any such plans will occur.

VIII. MINERAL RESOURCES. Would the project:	*Potentially Significant Impact*	*Potentially Significant Unless Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? (Sources: 1)	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan? (Sources: 1)	☐	☐	☐	☒

Discussion: There are no mineral resource recovery sites identified in the City's existing General Plan. Therefore, the proposed Circulation Element could not result in the loss of any known mineral resource. In addition, the Circulation Element update is not anticipated to affect access to oil reserves. No impact will occur.

IX. HAZARDS AND HAZARDOUS MATERIALS. Would the project:	*Potentially Significant Impact*	*Potentially Significant Unless Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? (Sources: 23)	☐	☐	☐	☒

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? (Sources: 23)	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous material, substances, or waste within one-quarter mile of an existing or proposed school? (Sources: 23)	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? (Sources: 23)	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or pubic use airport, would the project result in a safety hazard for people residing or working in the project area? (Sources: 22)	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? (Sources: 22)	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? (Sources: 23)	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? (Sources: 35)	☐	☐	☐	☒

Discussion: The use, transport, management, and disposal of hazardous materials and wastes are regulated by numerous Federal and State regulations, including the following:

- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): Federal law that ranks contaminated sites that pose a substantial environmental health risk and then provides funds for clean-up.
- Superfund Amendments and Reauthorization Act (SARA): Federal law that establishes joint Federal and State planning committees that collect material and waste handling data to plan response methods for accidental releases.
- Hazardous Materials Transportation Act: Federal law that sets extensive statutory regulations for the transportation of hazardous substances.
- Resource Conservation and Recovery Act (RCRA): Federal law that sets regulations for the handling, transport, and disposal of hazardous waste that includes extensive tracking requirements.
- Hazardous Waste Control Law (HWCL): State statute that sets regulations for the handling, transport, and disposal of hazardous waste. California law exceeds Federal RCRA regulations by requiring source reduction planning and includes more extensive coverage of activities and wastes.

- California Code of Regulations: Title 22 contains all applicable State and Federal laws governing hazardous wastes in the State. Title 22 is more stringent and broader in its coverage of wastes than Federal law.

Since it would not govern any land development or redevelopment activities, the Circulation Element update would not result in the siting of any buildings on a contaminated site. Project-level environmental site assessments would occur at the pre-design stage of future street or intersection improvement projects to confirm that there is no evidence of hazardous substance contamination within the proposed construction footprint, and to identify appropriate remedial measures, if needed, to remove such contamination in accordance with state and/or federal standards. No further assessment is required for the proposed circulation planning program. The existing Circulation Element identifies arterials designated for truck traffic including Goldenwest Street, Beach Boulevard, Edinger Avenue, and Warner Avenue, among others. These roadways are likely to carry the bulk of hazardous materials and wastes within the City. The proposed Circulation Element does not propose to modify any existing truck route and therefore no significant change in the transport pattern of hazardous materials and wastes within the City will occur as a result of the Circulation Element update. Potential future expansion of roadways and intersections could require some use of hazardous materials or the production of hazardous wastes during the construction process. Significant impacts are not anticipated; however, because standard public works construction practices include compliance with hazardous materials transport, storage and waste disposal regulations, as well as precautions to prevent and contain release of hazardous materials.

The proposed Circulation Element will govern the planning and implementation of the ground transportation system in Huntington Beach and would have no effect on any air traffic patterns. As such, this project would have no effect involving air traffic safety hazards.

The City has a comprehensive Emergency Management Program that includes all elements necessary to respond quickly and effectively to major emergencies. These elements include: an Emergency Management Plan, Emergency Operations Center, Emergency Management Team, Public Safety Officers, Employee Safety Officer Program, Public Education Program, and trained volunteers. The proposed Circulation Element will not interfere with the implementation of this program. Potential future roadway and intersection expansions are likely to improve emergency response or evacuation procedures by improving traffic flows and intersection maneuverability. However, there may be temporary lane closures during construction of street improvement projects. Therefore, no significant impact to the City's Emergency Management Program will occur.

There are currently no State-designated wildland fire hazard areas within Huntington Beach. The proposed Circulation Element update would have no impact involving wildland fire hazards.

X. NOISE. Would the project result in:	*Potentially Significant Impact*	*Potentially Significant Unless Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? (Sources: 14, 23)	☒	☐	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? (Sources: 14, 23)	☒	☐	☐	☐
c) A substantial permanent increase in ambient noise levels	☒	☐	☐	☐

in the project vicinity above levels existing without the project? (Sources: 14,23)				
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? (Sources: 14,23)	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? (Sources:11,22,23)	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? (Sources: 11,22,23)	☐	☐	☐	☒

Discussion: Vehicular traffic is the most pervasive noise source in the planning area and the highest ambient noise levels occur along the major streets, arterials, and highways. The City has established noise level policies in the Noise Element of the General Plan. Policy N 1.2.1 establishes a 60 dB(A) Ldn exterior noise limit and a 45 dB(A) Ldn interior noise limit for 'sensitive uses' that includes housing, health care facilities, schools, libraries, and religious facilities. Existing noise levels along portions of the City's circulation network exceed the 60 dB(A) Ldn policy for adjacent noise sensitive uses (General Plan Noise Element).

The proposed Circulation Plan is designed to accommodate increasing traffic volumes generated by population and economic growth, over the next 20 to 30 years. Increased traffic volumes and future street widening that provide additional traffic capacity could increase permanent noise levels along roadways. This could result in significant impacts along segments where noise levels currently exceed the City's land use/noise compatibility policy, and possibly other segments that are at or near the levels identified in Policy N 1.2.1. Increased truck traffic along designated truck routes would contribute to increased roadway noise levels and could also increase the level of ground vibration along those routes. Further analysis is required to estimate roadway noise levels and groundborne vibration based on long range traffic forecasts and the roadway classifications identified in the updated Circulation Element.

Periodic increases in local noise levels would occur during construction of future street improvements; however, this would occur during a normal construction work day and all activities would be subject to all routine construction control measures to minimize noise intrusion on nearby properties. No significant impacts are expected as a result of temporary or periodic increases in noise levels. The Circulation Element would not result in noise impacts associated with any heliport or airport because it governs ground-level transportation modes and would not result in additional persons residing or working within the planning area of any AELUP.

XI. PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	*Potentially Significant Impact*	*Potentially Significant Unless Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Fire protection? (Sources: 23)	☒	☐	☐	☐

b) Police Protection? (Sources: 23)	☐	☐	☐	☒
c) Schools? (Sources: 23)	☐	☐	☐	☒
d) Parks? (Sources: 23)	☐	☐	☐	☒
e) Other public facilities or governmental services? (Sources: 23)	☐	☐	☒	☐

Discussion: By providing a roadway network designed to handle projected increases in traffic volumes, the proposed Circulation Element would help minimize traffic congestion that could slow down response times by police and fire crews. The Circulation Element update is focused on building and maintaining an efficient, multi-modal transportation network that will accommodate growth. Existing police stations, fire stations, public schools, parks and other government facilities will not be affected by implementation of the proposed long range roadway network, or by the proposed measures to facilitate pedestrian, transit, and bicycle mobility. Proposed revisions to the MPAH include deletion of a previously planned extension of Hamilton Avenue and a previously planned connection between Graham Street and Talbert Avenue. These changes might negatively affect fire department response times that could potentially require construction of new facilities to maintain desired fire protection levels of service. This will be examined in the EIR. . Future roadway and intersection improvements would require regular maintenance services provided by the City's Public Works Maintenance Division. Since the future improvements would occur along existing streets and intersections, the amount of increased maintenance would be minor and would not require expansion of any municipal maintenance facilities. Therefore, impacts associated with the provision of street maintenance services will be less than significant.

XII. UTILITIES AND SERVICE SYSTEMS. Would the project:	*Potentially Significant Impact*	*Potentially Significant Unless Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? (Sources: 23)	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? (Sources: 23)	☐	☐	☒	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? (Sources: 23)	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? (Sources: 23)	☐	☐	☒	☐
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has	☐	☐	☐	☒

adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? (Sources: 23)				
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? (Sources: 23)	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste? (Sources: 23)	☐	☐	☒	☐
h) Include a new or retrofitted storm water treatment control Best Management Practice (BMP), (e.g. water quality treatment basin, constructed treatment wetlands?) (Sources: 23)	☐	☐	☐	☒

Discussion: The City's vehicular, bicycle, and pedestrian circulation networks do not generate wastewater and do not affect any wastewater treatment facilities; thus, the proposed project would have no effect on wastewater treatment requirements or wastewater collection or treatment facilities. The City presently irrigates landscaping within street rights of way with potable water supplied by the City's Water Division. Future street improvements undertaken to implement the proposed project would include additional landscaping and associated irrigation, particularly along elements of the scenic highway plan that are designed to beautify roadway segments through enhanced landscape treatments. Any future landscaping projects would be subject to Chapter 14.52 (Water Efficient Landscape Requirements) of the Municipal Code that is designed to minimize use of water resources related to irrigation. No additional water resources or entitlements would need to be acquired to serve any additional irrigation needs for future roadway landscaping. Impacts will be less than significant.

The proposed Circulation Element will not result in a permanent increase in waste streams that require processing at a landfill because it will not result in any population or employment increases. Potential future roadway and intersection improvements could result in new or expanded public landscaping that could increase waste streams due to the production of green waste. The City recycles all green wastes associated with public landscaping maintenance practices, and therefore any future green waste would be diverted from landfills. Future potential improvement of roadways and intersections could result in the production of solid waste and debris; however such materials would be required to be disposed of in accordance with the City's solid waste disposal regulations. Impacts to landfill capacity will be less than significant.

Future street improvements could require relocation and/or reconstruction of local storm drains, water and sewer lines and local 'dry' utilities facilities. Additionally, future improvements could require installation of stormwater treatment devices as required by the City's NPDES permit to implement BMPs. The proposed Circulation Element does not authorize any specific street improvement; therefore, the need for associated utilities improvement will be determined at the engineering design phase for each project. Alterations of local drainage and dry utilities facilities is a common aspect of street construction and typically do not result in any unique or more intensive construction impacts than other construction activities. Compliance with routine construction practices will sufficiently mitigate temporary impacts involving alterations to drainage structures and dry utilities. No further assessment is required for the proposed Circulation Element update.

XIII. AESTHETICS. Would the project:	*Potentially Significant Impact*	*Potentially Significant Unless Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Have a substantial adverse effect on a scenic vista? (Sources: 23)	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? (Sources: 23)	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings? (Sources: 23)	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? (Sources: 23)	☐	☐	☒	☐

Discussion: Pacific Coast Highway (PCH) is an eligible state scenic highway but has not been officially designated within the City of Huntington Beach. No alterations to this highway are proposed as part of the updated Circulation Element, except for potential intersection enhancements at the existing intersections with Warner Avenue, Goldenwest Street, and Brookhurst Street. None of the other state or federal highways in Huntington Beach are designated as scenic routes, and none of the City's arterial streets are designated as such. Typical roadway and intersection improvements would not substantially alter any scenic vista or visual resource, since they are constructed mainly at the ground level, along with some relatively thin vertical structures such as street lights, stop lights, and signage. Often, these vertical elements would replace or relocate existing elements of the same type The updated Circulated Element would not result in any significant impacts along a scenic highway or other scenic route.

Depending on right-of-way needs for future capacity-adding street improvements, some alteration to built or natural features could be required. Since no new roadway segments or intersections are proposed in areas where a roadway doesn't already exist, such improvements would have a less than significant effect on the visual character of the affected sites and surroundings

Future potential expansion of roadway segments and intersections could require installation of new or upgraded streetlights. Any new or modified streetlights will be subject to the Street Lighting Standards of the Public Works Department (Standard Plan 411), which require shielding and directing the illumination onto the roadway surface so as not to impact adjacent properties. Impacts associated with light and glare will be less than significant.

XIV. CULTURAL RESOURCES. Would the project:	*Potentially Significant Impact*	*Potentially Significant Unless Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Cause a substantial adverse change in the significance of a historical resource as defined in δ15064.5? (Sources: 1)	☐	☐	☐	☒

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to δ15064.5? (Sources: 1)	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site unique geologic feature? (Sources: 1)	☐	☒	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries? (Sources: 1, 28)	☐	☐	☒	☐

Discussion: Future street and intersection improvements included in the proposed Circulation Plan would not adversely affect any of the archaeological or historical resources identified in the City's General Plan, Historic and Cultural Resources Element. There is a limited possibility that construction of future street improvements could impact undiscovered subsurface cultural or paleontological resources within previously undisturbed soil materials. To ensure that potentially significant resources are not accidentally destroyed, the City will examine alternative pre-construction and construction control measures as part of the EIR, and identify one or more that are considered practical and cost effective. .

The potential exists that as yet undiscovered human remains could be encountered during future intersection and roadway improvements undertaken to implement the proposed Circulation Element. If suspected human remains are encountered, the contractor would be required to notify the County Coroner, in accordance with Section 7050.5 of the California Health and Safety Code, who must then determine whether the remains are of forensic interest. If the Coroner, with the aid of a supervising archaeologist, determines that the remains are or appear to be of a Native American, he/she would contact the Native American Heritage Commission for further investigations and proper recovery of such remains, if necessary. Less than significant impacts are anticipated in this regard.

XV. RECREATION. Would the project:	*Potentially Significant Impact*	*Potentially Significant Unless Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Would the project increase the use of existing neighborhood, community and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? (Sources: 23)	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? (Sources: 23)	☐	☐	☐	☒
c) Affect existing recreational opportunities? (Sources: 31)	☐	☐	☐	☒

Discussion: The proposed Circulation Element update will not result in the increased use or degradation of existing recreation facilities because the Circulation Element update does not include any land use component or land altering activity that would result in population growth. Furthermore, there are no proposed recreation facilities or expansion of existing recreation facilities associated with the Circulation Element update. Therefore, the proposed Circulation Element will not cause environmental impacts associated with

the use, construction, or expansion of recreational facilities.

Some future roadway improvements may involve work along the frontage of a public park; however, vehicular access to the park would be maintained at all times and the street improvements would not require closure or elimination of any existing recreation spaces.

XVI. AGRICULTURE RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:	*Potentially Significant Impact*	*Potentially Significant Unless Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? (Sources: 29)	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? (Sources: 30)	☐	☐	☐	☒
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use? (Sources: 1)	☐	☐	☐	☒

Discussion: There is no Prime Farmland or Farmland of Statewide Importance located within the City. Unique Farmland as defined by the Farmland Mapping and Monitoring Program (FMMP) is located within the northeastern and eastern portions of the City within the right-of-way of a Southern California Edison (SCE) easement. However, none of the future potential intersection or roadway improvements are located near these areas. Therefore, no impact to Unique Farmland will occur. There are no Williamson Contracts located within the City, therefore no impact could occur. The long range intersection and roadway improvements identified in the updated Circulation Element would not result in the conversion of agricultural uses to non-agricultural uses because said improvements do not occur in vicinity of any agricultural land uses.

XVII. MANDATORY FINDINGS OF SIGNIFICANCE.	*Potentially Significant Impact*	*Potentially Significant Unless Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? (Sources: 1, 15-16, 23-26)	☒	☐	☐	☐

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.) (Sources: 1, 8, 20)	☒	☐	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? (Sources: 1, 8, 14, 17, 20-21, 23, 31)	☒	☐	☐	☐

Discussion:

The proposed Circulation Element has some potential to degrade the quality of the environment due to potential impacts to wetlands and riparian habitat as discussed in Section VII (Biological Resources).

The proposed Circulation Element is intended to safely and efficiently manage long range increases in traffic volumes throughout the City's circulation network. Further analysis is required to determine whether such traffic volumes and patterns could result in cumulatively considerable air quality and traffic impacts. Projected vehicular emissions, proposed congestion management policies, and proposed alternative travel mode strategies are to be evaluated within the context of the Air Quality Management Plan for the South Coast Air Basin. Projected traffic volumes and levels of service are to be evaluated in the context of the Orange County Congestion Management Plan, and the Orange County Master Plan of Highways.

Many of the world's leading scientific experts agree that greenhouse gases (GHGs) generated by human activities affect climate by increasing the "greenhouse effect." The gases concentrate in the Earth's atmosphere and trap heat by blocking some of the long-wave energy the Earth normally radiates back to space. Human activities that produce GHGs are the burning of fossil fuels (coal, oil and natural gas for heating and electricity, gasoline and diesel for transportation); methane from landfill wastes and raising livestock, deforestation activities; and some agricultural practices. These activities are increasing the greenhouse gases in the Earth's atmosphere and could be accelerating global climate change. The primary source of GHG emissions related to the proposed Circulation Element update would come from motor vehicles traveling within the circulation system. Temporary GHG emissions would occur from intersection and roadway construction activities. Although no one project could be said to result in global climate change, incremental increases in GHG emissions over the long-term could constitute a cumulatively considerable impact. An analysis of potential impacts and mitigation measures involving greenhouse gas emissions is required to assess consequences resulting from forecasted long range traffic volumes and the distribution of such volumes in accordance with the proposed Circulation Element. Long term management of the City's vehicular circulation system and alternative travel programs would not interfere with any future federal, state, or local efforts to adapt to potentially harmful effects of climate change.

Further analysis of potential environmental consequences and development of measures to mitigate any significant effects that may be identified is required to address the issues identified above. An environmental impact report (EIR) will be prepared to document this additional analysis.

XVIII. EARLIER ANALYSIS.

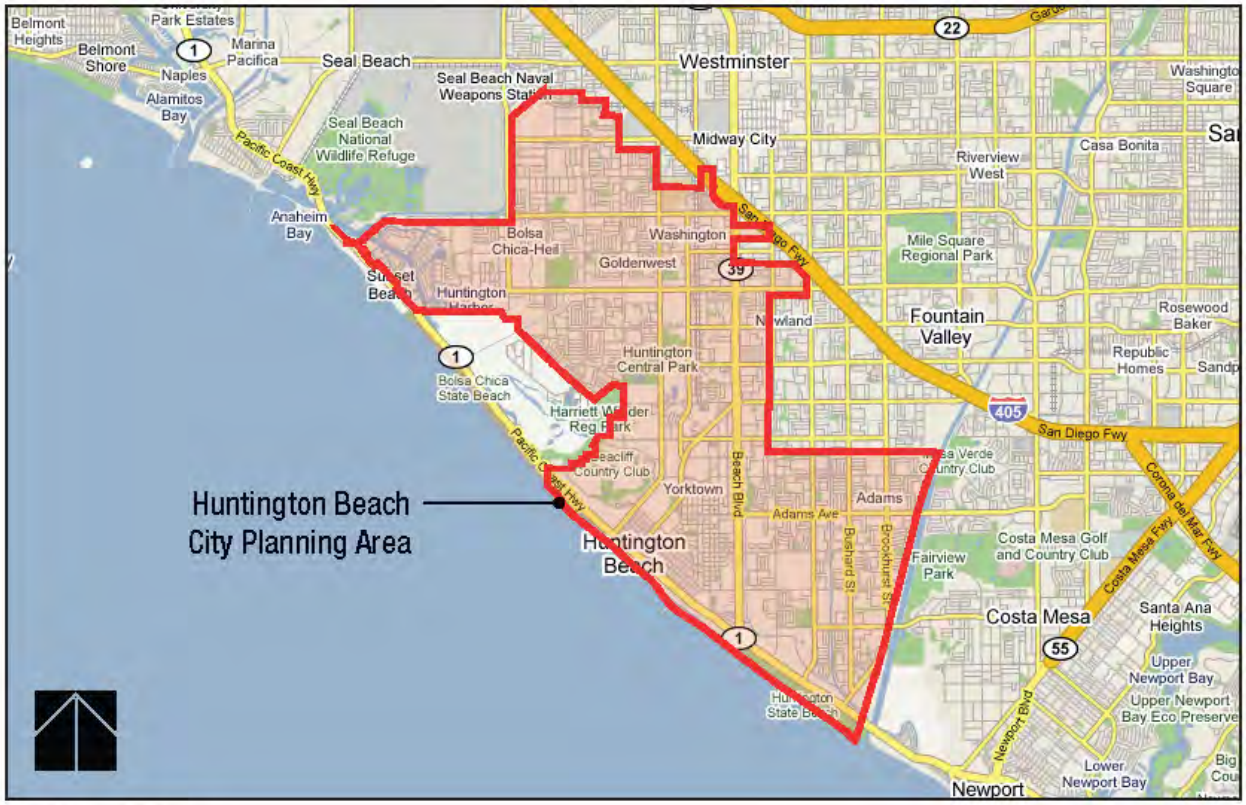
Earlier analyses may be used where, pursuant to tiering, program EIR, or other CEQA process, one or more effects have been adequately analyzed in an earlier EIR or negative declaration. Section 15063 (c)(3)(D).

Earlier documents prepared and utilized in this analysis:

Reference #	Document Title	Available for Review at:
1	City of Huntington Beach General Plan	City of Huntington Beach Planning Dept., Planning/Zoning Information Counter, 3rd Floor 2000 Main Street
2	City of Huntington Beach Zoning and Subdivision Ordinance	"
3	Planning Area	See Attachment B
4	Proposed Circulation plan	See Attachment A & C
5	Proposed Roadway and Intersection Upgrades	See Attachment D-F
6	City of Huntington Beach Geotechnical Inputs Report	City of Huntington Beach Planning Dept., Planning/Zoning Information Counter, 3rd Floor 2000 Main Street
7	FEMA Flood Insurance Rate Map (February 18, 2004)	"
8	CEQA Air Quality Handbook South Coast Air Quality Management District (1993)	"
9	City of Huntington Beach CEQA Procedure Handbook	"
10	Trip Generation Handbook, 6th Edition, Institute of Traffic Engineers	"
11	Airport Environs Land Use Plan for Joint Forces Training Base Los Alamitos (Oct. 17, 2002)	"
12	Hazardous Waste and Substances Sites List	"
13	State Seismic Hazard Zones Map	"
14	City of Huntington Beach Municipal Code	"
15	Status of NCCP Planning Efforts	http://www.dfg.ca.gov/habcon/nccp/status.html [April 6, 2009]
16	Habitat Conservation Plans as of April 6, 2009	http://ecos.fws.gov/conserv_plans/servlet/gov.doi.hcp.servlets.PlanReport [April 6, 2009]

Reference #	Document Title	Available for Review at:
17	Orange County Master Plan of Arterial Highways	http://www.octa.net/arterial_highways_overview.aspx [April 6, 2009]
18	Water Quality Control Plan	http://www.swrcb.ca.gov/santaana/water_issues/programs/basin_plan/index.shtml [April 6, 2009]
19	California Coastal Act	http://ceres.ca.gov/wetlands/permitting/cca.html [April 7, 2009]
20	State and National Attainment Status Maps	http://www.arb.ca.gov/desig/adm/adm.htm [April 7, 2009]
21	Orange County Congestion Management Plan	http://www.octa.net/ctfp/Final%20CMP%202003%20Document.pdf [April 7, 2009]
22	Orange County ALUC Airport Environs Land Use Plan for Heliports	http://www.ocair.com/aboutJWA/airport_land_use_commission.htm [April 7, 2009]
23	Proposed Circulation Element	City of Huntington Beach Planning Dept., Planning/Zoning Information Counter, 3rd Floor 2000 Main Street
24	USFWS Wetlands Mapper	http://www.fws.gov/wetlands/Data/Mapper.html [April 8, 2009]
25	Federal Register: Designation of Critical Habitat for the Pacific Coast Population of the Western Snowy Plover; Final Rule	http://www.fws.gov/arcata/es/birds/WSP/plover.html [April 8, 2009]
26	Recovery Plan for the Pacific Coast Population of the Western Snowy Plover	http://www.fws.gov/arcata/es/birds/WSP/plover.html [April 8, 2009]
27	California Natural Diversity Database	http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp [April 8, 2009]
29	California Farmland Mapping and Monitoring Program	http://www.conservation.ca.gov/dlrp/FMMP/Pages/Index.aspx [April 22, 2009]
30	Agricultural Preserves 2004, Williamson Act Parcels, Orange County, California	ftp://ftp.consrv.ca.gov/pub/dlrp/wa/Map%20and%20PDF/Orange/ [April 22, 2009]
31	Community Facilities Map	City of Huntington Beach Community Services Department
32	Officially Designated State Scenic Highways and Historic Parkways	http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm [April 8, 2009]
33	Airport 5010 and Contact Information	http://www.faa.gov/airports_airtraffic/airports/airport_safety/airportdata_5010/ [April 27, 2009]
34	1995 General Plan EIR	City of Huntington Beach Planning Department
35	California Fire Hazard Severity Zones Map	http://frap.cdf.ca.gov (November 2007)

Regional Context Map



Vicinity Map

Exhibit A: Regional Context and Planning Area

Huntington Beach Circulation Element

Huntington Beach, CA

July, 2009

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Exhibit B: Proposed Circulation Plan

Huntington Beach Circulation Element

Huntington Beach, CA

July, 2009

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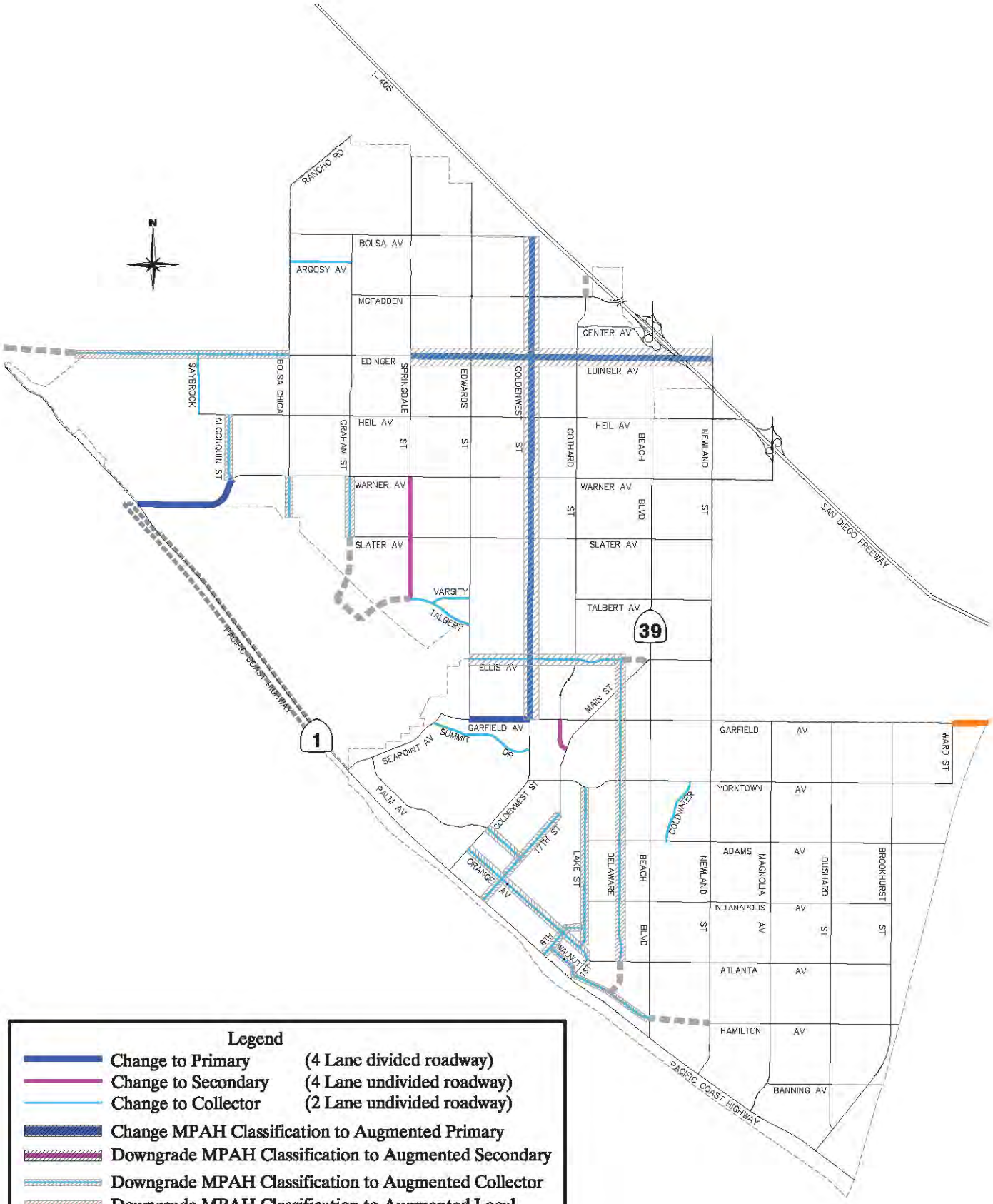

Exhibit C: Proposed Changes to Circulation Plan

Source: Austin-Foust Associates, Inc. 2009

Huntington Beach Circulation Element

Huntington Beach, CA

July, 2009

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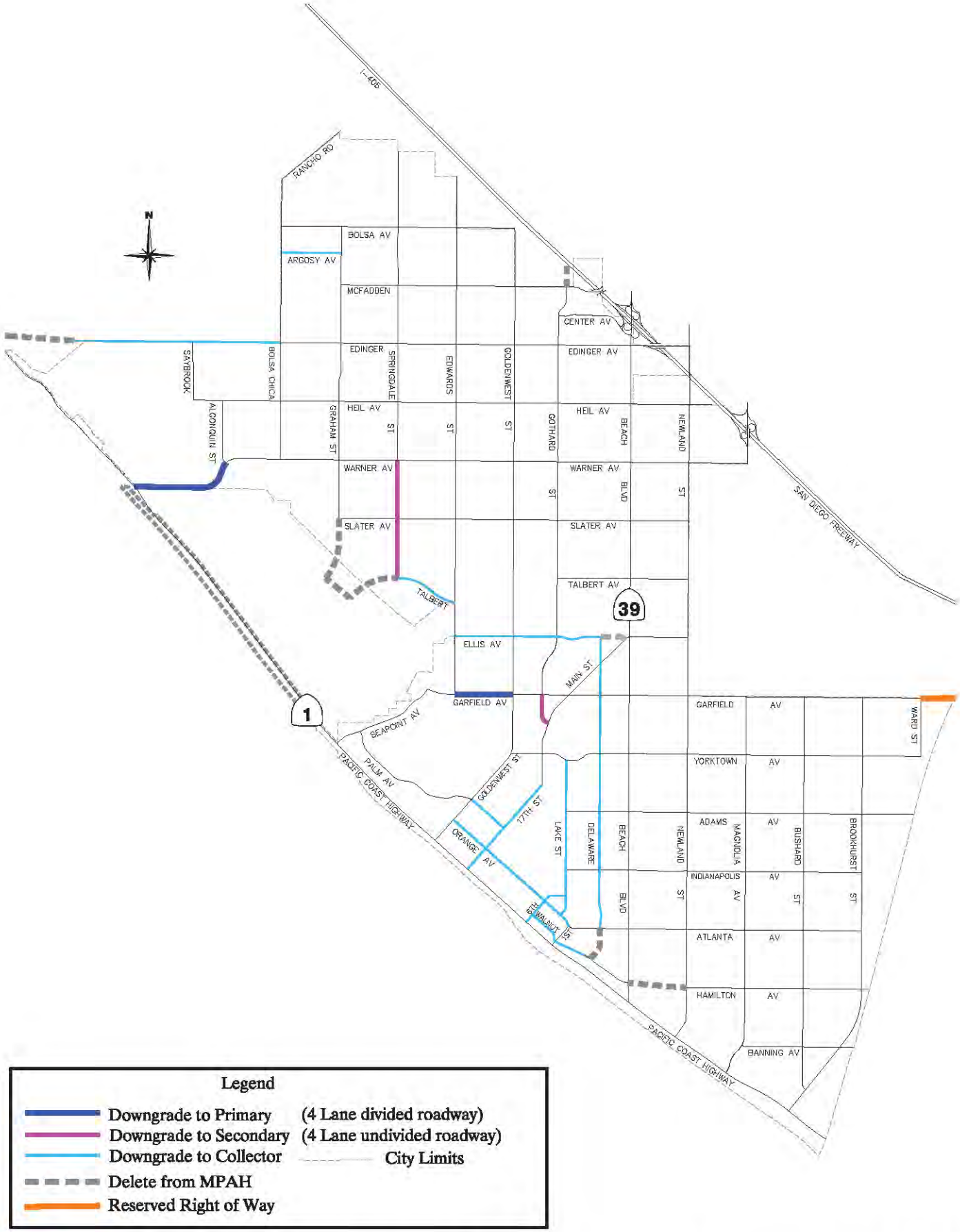

Legend

- Downgrade to Primary (4 Lane divided roadway)
- Downgrade to Secondary (4 Lane undivided roadway)
- Downgrade to Collector
- City Limits
- Delete from MPAH
- Reserved Right of Way

Exhibit D: Proposed Changes to MPAH

Source: Austin-Foust Associates, Inc. 2009

Huntington Beach Circulation Element

Huntington Beach, CA

July, 2009

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Exhibit E: Proposed Long Range Capacity Improvements

Huntington Beach Circulation Element

Huntington Beach, CA

July, 2009

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South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

July 31, 2009

RECEIVED
AUG - 6 2009
Huntington Beach
PLANNING DEPT.

Mr. Ricky Ramos, Senior Planner
City of Huntington Beach
Planning Department
2000 Main Street, 3rd Floor
Huntington Beach, CA 92648

Dear Mr. Ramos:

Notice of Preparation of a Draft Environmental Impact Report (Draft EIR) for the General Plan Circulation Element Update

The South Coast Air Quality Management District (SCAQMD) appreciates the opportunity to comment on the above-mentioned document. The SCAQMD's comments are recommendations regarding the analysis of potential air quality impacts from the proposed project that should be included in the draft environmental impact report (EIR). Please send the SCAQMD a copy of the Draft EIR upon its completion. **In addition, please send with the draft EIR all appendices or technical documents related to the air quality analysis and electronic versions of all air quality modeling and health risk assessment files. Electronic files include spreadsheets, database files, input files, output files, etc., and does not mean Adobe PDF files. Without all files and supporting air quality documentation, the SCAQMD will be unable to complete its review of the air quality analysis in a timely manner. Any delays in providing all supporting air quality documentation will require additional time for review beyond the end of the comment period.**

Air Quality Analysis

The SCAQMD adopted its California Environmental Quality Act (CEQA) Air Quality Handbook in 1993 to assist other public agencies with the preparation of air quality analyses. The SCAQMD recommends that the Lead Agency use this Handbook as guidance when preparing its air quality analysis. Copies of the Handbook are available from the SCAQMD's Subscription Services Department by calling (909) 396-3720. Alternatively, the lead agency may wish to consider using the California Air Resources Board (CARB) approved URBEMIS 2007 Model. This model is available on the SCAQMD Website at: www.urbemis.com.

The Lead Agency should identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project. Air quality impacts from both construction (including demolition, if any) and operations should be calculated. Construction-related air quality impacts typically include, but are not limited to, emissions from the use of heavy-duty equipment from grading, earth-loading/unloading, paving, architectural coatings, off-road mobile sources (e.g., heavy-duty construction equipment) and on-road mobile sources (e.g., construction worker vehicle trips, material transport trips). Operation-related air quality impacts may include, but are not limited to, emissions from stationary sources (e.g., boilers), area sources (e.g., solvents and coatings), and vehicular trips (e.g., on- and off-road tailpipe emissions and entrained dust). Air quality impacts from indirect sources, that is, sources that generate or attract vehicular trips should be included in the analysis.

The SCAQMD has developed a methodology for calculating PM2.5 emissions from construction and operational activities and processes. In connection with developing PM2.5 calculation methodologies, the SCAQMD has also developed both regional and localized significance thresholds. The SCAQMD requests that the lead agency quantify PM2.5 emissions and compare the results to the recommended PM2.5 significance thresholds. Guidance for calculating PM2.5 emissions and PM2.5 significance thresholds can be found at the following internet address: http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html.

In addition to analyzing regional air quality impacts the SCAQMD recommends calculating localized air quality impacts and comparing the results to localized significance thresholds (LSTs). LST's can be used in addition to the recommended regional significance thresholds as a second indication of air quality impacts when preparing a CEQA document. Therefore, when preparing the air quality analysis for the proposed project, it is recommended that the lead agency perform a localized significance analysis by either using the LSTs developed by the SCAQMD or performing dispersion modeling as necessary. Guidance for performing a localized air quality analysis can be found at http://www.aqmd.gov/ceqa/handbook/LST/LST.html.

It is recommended that lead agencies for projects generating or attracting vehicular trips, especially heavy-duty diesel-fueled vehicles, perform a mobile source health risk assessment. Guidance for performing a mobile source health risk assessment ("Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis") can be found on the SCAQMD's CEQA web pages at the following internet address: http://www.aqmd.gov/ceqa/handbook/mobile_toxic/mobile_toxic.html. An analysis of all toxic air contaminant impacts due to the decommissioning or use of equipment potentially generating such air pollutants should also be included.

Mitigation Measures

In the event that the project generates significant adverse air quality impacts, CEQA requires that all feasible mitigation measures that go beyond what is required by law be utilized during project construction and operation to minimize or eliminate significant adverse air quality impacts. To assist the Lead Agency with identifying possible mitigation measures for the project, please refer to Chapter 11 of the SCAQMD CEQA Air Quality Handbook for sample air quality mitigation measures. Additional mitigation measures can be found on the SCAQMD's CEQA web pages at the following internet address: www.aqmd.gov/ceqa/handbook/mitigation/MM_intro.html Additionally, SCAQMD's Rule 403 – Fugitive Dust, and the Implementation Handbook contain numerous measures for controlling construction-related emissions that should be considered for use as CEQA mitigation if not otherwise required. Other measures to reduce air quality impacts from land use projects can be found in the SCAQMD's Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. This document can be found at the following internet address: http://www.aqmd.gov/prdas/aqguide/aqguide.html. In addition, guidance on sitting incompatible land uses can be found in the California Air Resources Board's Air Quality and Land Use Handbook: A Community Perspective, which can be found at the following internet address: http://www.arb.ca.gov/ch/handbook.pdf. Pursuant to state CEQA Guidelines §15126.4 (a)(1)(D), any impacts resulting from mitigation measures must also be discussed.

Data Sources

SCAQMD rules and relevant air quality reports and data are available by calling the SCAQMD's Public Information Center at (909) 396-2039. Much of the information available through the Public Information Center is also available via the SCAQMD's World Wide Web Homepage (http://www.aqmd.gov).

The SCAQMD is willing to work with the Lead Agency to ensure that project-related emissions are accurately identified, categorized, and evaluated. Please call Daniel Garcia, Air Quality Specialist, CEQA Section, at (909) 396-3304 if you have any questions regarding this letter.

Sincerely,

Steve Smith

Steve Smith, Ph.D.
Program Supervisor, CEQA Section
Planning, Rule Development and Area Sources

SS:DG:AK
ORC090730-03AK
Control Number

SOUTHERN CALIFORNIA

ASSOCIATION of GOVERNMENTS

Main Office

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Policy Committee Chairs

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Energy & Environment
Keith Hanks, Azusa

Transportation
Mike Ten, South Pasadena

August 11, 2009

Mr. Ricky Ramos
Senior Planner
City of Huntington Beach
Planning Department
2000 Main Street, 3rd Floor
Huntington Beach, California 92648
rramos@surfcity-hb.org

RE: SCAG Comments on the Notice of Preparation of an Environmental Impact Report for the City of Huntington Beach General Plan Circulation Element Update [I20090494]

Dear Mr. Ramos,

Thank you for submitting the **Notice of Preparation of an Environmental Impact Report for the City of Huntington Beach General Plan Circulation Element Update [I20090494]** to the Southern California Association of Governments (SCAG) for review and comment. SCAG is the authorized regional agency for Inter-Governmental Review of Programs proposed for federal financial assistance and direct development activities, pursuant to Presidential Executive Order 12372 (replacing A-95 Review). Additionally, pursuant to Public Resources Code Section 21083(d) SCAG reviews Environmental Impact Reports of projects of regional significance for consistency with regional plans per the California Environmental Quality Act Guidelines, Sections 15125(d) and 15206(a)(1). SCAG is also the designated Regional Transportation Planning Agency and as such is responsible for both preparation of the Regional Transportation Plan (RTP) and Regional Transportation Improvement Program (RTIP) under California Government Code Section 65080 and 65082.

SCAG staff has reviewed this project and determined that the proposed project is regionally significant per California Environmental Quality Act (CEQA) Guidelines, Sections 15125 and/or 15206. The proposed Project is the adoption and implementation of the City of Huntington Beach General Plan Circulation Element Update.

Policies of SCAG's Regional Transportation Plan (RTP) and Compass Growth Visioning (CGV) that may be applicable to your project are outlined in the attachment. The RTP, CGV, and table of policies can be found on the SCAG web site at: http://scag.ca.gov/igr. For ease of review, we would encourage you to use a side-by-side comparison of all SCAG policies with a discussion of the consistency, non-consistency or non-applicability of the policy and supportive analysis in a table format (example attached).

The attached policies are meant to provide guidance for considering the proposed project within the context of our regional goals and policies. We also encourage the use of the SCAG List of Mitigation Measures extracted from the RTP to aid with demonstrating consistency with regional plans and policies. **Please provide a minimum of 45 days for SCAG to review the Draft EIR and associated plans when these documents are available.** If you have any questions regarding the attached comments, please contact Bernard Lee at (213) 236-1800 or leeb@scag.ca.gov. Thank you.

Sincerely,

Jacob Lieb, Manager
Assessment, Housing & EIR

DOCS# 153201

COMMENTS ON THE NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT FOR THE CITY OF HUNTINGTON BEACH GENERAL PLAN CIRCULATION ELEMENT UPDATE – SCAG NO. I20090494

PROJECT LOCATION

The Project is citywide in the City of Huntington Beach in Orange County, California.

PROJECT DESCRIPTION

The purpose of the Huntington Beach Circulation Element update is to evaluate the long-term transportation needs of the City and present a comprehensive plan to accommodate those needs. It is being designed to provide an efficient surface transportation system that will safely distribute the increased volumes of traffic forecast to occur over the next 20 to 25 years, and to achieve the desired intersection levels of service that minimize congestion during peak travel periods. The Circulation element is the foundation for the City's efforts to manage and minimize traffic congestion, manage safety on roadways, and provide travel alternatives to the automobile, as well as better access to regional travel routes. Accomplishing these objectives requires effective land use planning, roadway monitoring and improvement, transportation system and demand management, regional coordination, and commitment of resources.

CONSISTENCY WITH REGIONAL TRANSPORTATION PLAN

Regional Growth Forecasts

The DEIR should reflect the most current SCAG forecasts, which are the 2008 RTP (May 2008) Population, Household and Employment forecasts. The forecasts for your region, subregion, and city are as follows:

Adopted SCAG Regionwide Forecasts[1]

	2010	2015	2020	2025	2030	2035
Population	19,418,344	20,465,830	21,468,948	22,395,121	23,255,377	24,057,286
Households	6,086,986	6,474,074	6,840,328	7,156,645	7,449,484	7,710,722
Employment	8,349,453	8,811,406	9,183,029	9,546,773	9,913,376	10,287,125

Adopted OCCOG Subregion Forecasts[1]

	2010	2015	2020	2025	2030	2035
Population	3,314,948	3,451,757	3,533,935	3,586,285	3,629,540	3,653,988
Households	1,039,201	1,071,810	1,088,375	1,102,370	1,110,659	1,118,490
Employment	1,755,167	1,837,771	1,897,352	1,933,058	1,960,633	1,981,901

Adopted City of Huntington Beach Forecasts[1]

	2010	2015	2020	2025	2030	2035
Population	212,957	217,822	220,892	222,570	224,788	225,815
Households	77,237	77,720	77,968	78,315	78,839	79,241
Employment	92,028	96,842	98,226	98,752	99,830	100,085

1. The 2008 RTP growth forecast at the regional, subregional, and city level was adopted by the Regional Council in May 2008. City totals are the sum of small area data and should be used for advisory purposes only.

The **2008 Regional Transportation Plan (RTP)** also has goals and policies that are pertinent to this proposed project. This RTP links the goal of sustaining mobility with the goals of fostering economic development, enhancing the environment, reducing energy consumption, promoting transportation-friendly development patterns, and encouraging fair and equitable access to residents affected by socio-economic, geographic and commercial limitations. The RTP continues to support all applicable federal and state laws in implementing the proposed project. Among the relevant goals and policies of the RTP are the following:

Regional Transportation Plan Goals:

RTP G1 *Maximize mobility and accessibility for all people and goods in the region.*
RTP G2 *Ensure travel safety and reliability for all people and goods in the region.*
RTP G3 *Preserve and ensure a sustainable regional transportation system.*
RTP G4 *Maximize the productivity of our transportation system.*
RTP G5 *Protect the environment, improve air quality and promote energy efficiency.*
RTP G6 *Encourage land use and growth patterns that complement our transportation investments.*
RTP G7 *Maximize the security of our transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.*

GROWTH VISIONING

The fundamental goal of the **Compass Growth Visioning** effort is to make the SCAG region a better place to live, work and play for all residents regardless of race, ethnicity or income class. Thus, decisions regarding growth, transportation, land use, and economic development should be made to promote and sustain for future generations the region's mobility, livability and prosperity. The following "Regional Growth Principles" are proposed to provide a framework for local and regional decision making that improves the quality of life for all SCAG residents. Each principle is followed by a specific set of strategies intended to achieve this goal.

Principle 1: Improve mobility for all residents.

GV P1.1 *Encourage transportation investments and land use decisions that are mutually supportive.*
GV P1.2 *Locate new housing near existing jobs and new jobs near existing housing.*
GV P1.3 *Encourage transit-oriented development.*
GV P1.4 *Promote a variety of travel choices*

Principle 2: Foster livability in all communities.

GV P2.1 *Promote infill development and redevelopment to revitalize existing communities.*
GV P2.2 *Promote developments, which provide a mix of uses.*
GV P2.3 *Promote "people scaled," walkable communities.*
GV P2.4 *Support the preservation of stable, single-family neighborhoods.*

Principle 3: Enable prosperity for all people.

GV P3.1 *Provide, in each community, a variety of housing types to meet the housing needs of all income levels.*
GV P3.2 *Support educational opportunities that promote balanced growth.*
GV P3.3 *Ensure environmental justice regardless of race, ethnicity or income class.*
GV P3.4 *Support local and state fiscal policies that encourage balanced growth*
GV P3.5 *Encourage civic engagement.*

Principle 4: Promote sustainability for future generations.

GV P4.1 *Preserve rural, agricultural, recreational, and environmentally sensitive areas*

GV P4.2 *Focus development in urban centers and existing cities.*

GV P4.3 *Develop strategies to accommodate growth that uses resources efficiently, eliminate pollution and significantly reduce waste.*

GV P4.4 *Utilize "green" development techniques*

CONCLUSION

As the clearinghouse for regionally significant projects per Executive Order 12372, SCAG reviews the consistency of local plans, projects, and programs with regional plans. This activity is based on SCAG's responsibilities as a regional planning organization pursuant to state and federal laws and regulations. Guidance provided by these reviews is intended to assist local agencies and project sponsors to take actions that contribute to the attainment of regional goals and policies.

All feasible measures needed to mitigate any potentially negative regional impacts associated with the proposed project should be implemented and monitored, as required by CEQA. We recommend that you review the SCAG List of Mitigation Measures for additional guidance, and encourage you to follow them, where applicable to your project. The SCAG List of Mitigation Measures may be found here: http://www.scag.ca.gov/igr/documents/SCAG_IGRMMRP_2008.pdf

SUGGESTED SIDE BY SIDE FORMAT - COMPARISON TABLE OF SCAG POLICIES

For ease of review, we would encourage the use of a side-by-side comparison of all SCAG policies with a discussion of the consistency, non-consistency or not applicable of the policy and supportive analysis in a table format. All policies and goals must be evaluated as to impacts. Suggested format is as follows:

The complete table can be found at: http://www.scag.ca.gov/igr/

- Click on ***"Demonstrating Your Project's Consistency With SCAG Policies"***
- Scroll down to ***"Table of SCAG Policies for IGR"***

SCAG Regional Transportation Plan Goals and Compass Growth Visioning Principles		
Regional Transportation Plan Goals		
Goal/ Principle Number	**Policy Text**	**Statement of Consistency, Non-Consistency, or Not Applicable**
RTP G1	Maximize mobility and accessibility for all people and goods in the region.	***Consistent:*** *Statement as to why* ***Not-Consistent:*** *Statement as to why* *or* ***Not Applicable:*** *Statement as to why*
RTP G2	Ensure travel safety and reliability for all people and goods in the region.	***Consistent:*** *Statement as to why* ***Not-Consistent:*** *Statement as to why* *or* ***Not Applicable:*** *Statement as to why*
RTP G3	Preserve and ensure a sustainable regional transportation system.	***Consistent:*** *Statement as to why* ***Not-Consistent:*** *Statement as to why* *or* ***Not Applicable:*** *Statement as to why*
Etc.	Etc.	Etc.

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF TRANSPORTATION
District 12
3337 Michelson Drive, Suite 380
Irvine, CA 92612-8894
Tel: (949) 724-2267
Fax: (949) 724-2592

Post-it® Fax Note 7671	Date 8/20/09	# of pages ▶ 3
To Ricky Ramos	From John Xu	
Co./Dept. City of H.B.	Co. Caltrans	
Phone #	Phone # 949-724-2338	
Fax # 714-374-1540	Fax #	

Flex your power! energy efficient!

August 20, 2009

Mr. Ricky Ramos
City of Huntington Beach
2000 Main Street
Huntington Beach, California 92648

File: IGR/CEQA
SCH #: 2009071117
Log #: 2327
I-405, SR-1, 39

Subject: General Plan Circulation Element Update

Dear Mr. Ramos:

Thank you for the opportunity to review and comment on the **Notice of Preparation (NOP) for the General Plan Circulation Element Update.** The City of Huntington is proposing to update the entire Circulation Element, which covers various circulation issues such as regional mobility, roadway circulation, neighborhood traffic management, public transportation, transportation demand management, parking, pedestrian, bicycle and equestrian paths, waterway facilities, and scenic corridors.

The California Department of Transportation (Department), District 12 is a commenting agency on this project, and has the following comments:

1. The General Plan should include language requiring the City to develop policies stressing coordination between the City and the Department early in the land use and transportation planning process.

2. The Department supports General Plans that foster efficient land-use pattern that (a) support improved mobility and reduced dependency on single-occupant vehicle trips, (b) accommodates an adequate supply of housing for all incomes, (c) reduce impacts on valuable habitat, productive farmland, and air quality, (d) increase resource use efficiency, and (e) result in safe and vibrant neighborhoods. The Department recognizes that non-motorized travel is a vital element of the transportation system and therefore, encourages communities to make pedestrian and bicycle activity possible, thus expanding transportation options, and creating a streetscape that better serves a range of users: pedestrians, bicyclists, transit riders, and automobiles.

3. The General Plan should acknowledge the Departments' standard of maintaining a target Level of Service (LOS) at the transition between LOS D and LOS E on State highway facilities. Any degradation of the LOS past this threshold should be mitigated to bring the facility back to the baseline/existing condition. For future projects that may impact State facilities, we recommend that early coordination be done between the Department and the

City to fully address level of significance thresholds (transition between LOS D and E) and appropriate methods for analyzing impacts (LOS vs. Hours of Delay).

4. This project has the potential to significantly impact the I-405, SR-1 and SR-39 freeways mainline and interchanges, ramps and intersections. Impacts of development causing operating conditions to deteriorate to deficient levels of service, or impacts adding to an existing deficient level of service condition require mitigation.

5. The Department has interest in working cooperatively to establish a Traffic Impact Fee (TIF) program to mitigate such impacts on a "fair share" basis. Local development project applicants would pay their "fair share" to an established fund for future transportation improvements on the state highway system. If there is an existing TIF program, it can be amended to include mitigation for the state highway system or a new TIF program may be considered. The Department requests the opportunity to participate in the TIF for state highway improvements development process.

6. The traffic impact on the state transportation system should be evaluated based on the Department's Guide for the Preparation of Traffic Impact Studies. The Department has also an established methodology standard used to properly calculate equitable project share contribution. This can be found in Appendix B of the Guide. The Department's Guide for the Preparation of Traffic Impact Studies which is available at: http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/reports/tisguide.pdf.

7. For CEQA purposes, the Department does not consider the Congestion Management Plan (CMP) significance threshold of an increase in v/c more than 1% for ramps or 3% for mainline appropriate. For analysis of intersections connecting to State facilities, ramps and freeway mainline, we recommend early coordination occur to discuss level of significance thresholds related to traffic and circulation.

8. The Department, in accordance with Section 130 of the California Streets and Highways Code, may enter into a contract with the lead agency to provide the mitigation measures listed in the EIR. This may include construction of the mitigation measures, the advancement of funds (proportional to the fair-share cost) to pay for mitigation measures, or the acquisition of rights-of-way needed for future improvements to the state highway system.

9. The Department's Traffic Operations Branch requests all applicants to use the method outlined in the latest version of the Highway Capacity Manual (HCM) when analyzing traffic impacts on I-405, SR-1 and SR-39. The use of HCM is preferred by the Department because it is an operational analysis as opposed to the Intersection Capacity Utilization (ICU) method, which is a planning analysis. In the case of projects that have direct impacts on State Facilities, the Department recommends that the traffic impact analysis be based on HCM method. Should the project require an encroachment permit, Traffic Operations may find the Traffic Impact Study based on ICU methodology inadequate resulting in possible delay or denial of a permit by the Department. All input sheets, assumptions and volumes on State Facilities including ramps and intersection analysis should be submitted to the Department for review and approval. The EIR should include appropriate mitigation measures to offset any potential impacts.

10. Please consider a capacity improvement project at SR-1 at Main Street.

Please continue to keep us informed of this project and any future developments, which could potentially impact the State Transportation Facilities. If you have any questions or need to contact us, please do not hesitate to call Zhongping (John) Xu at (949) 724-2338.

Sincerely,

CHRISTOPHER HERRE
Branch Chief, Local Development/Intergovernmental Review

c: Terry Roberts, Office of Planning and Research

CITY OF FOUNTAIN VALLEY www.fountainvalley.org

10200 SLATER AVENUE • FOUNTAIN VALLEY, CA 92708-4736 • (714) 593-4400, FAX: (714) 593-4498

RECEIVED
AUG 25 2009
Huntington Beach
PLANNING DEPT.

August 20, 2009

Mr. Ricky Ramos
City of Huntington Beach
Planning Department
2000 Main Street, 3rd Floor
Huntington Beach, CA 92648

RE: Notice of Preparation of Draft Environmental Impact Report

Dear Mr. Ramos:

Thank you for the opportunity to review the Notice of Preparation of the Draft Environmental Impact Report for the City of Huntington Beach General Plan Circulation Element.

The City of Fountain Valley Traffic Division is requesting that the Draft Environmental Impact Report under preparation for the City of Huntington Beach address the following potential changes to the Circulation Element:

1. Any proposed reductions, reclassifications, or other amendments to MPAH roadway segments that may potentially affect/impact the City of Fountain Valley.

2. Proposed capacity improvements or other changes to intersections, in particular those that have shared jurisdictional boundaries with Huntington Beach and Fountain Valley.

3. Proposed modification to designation/classification of bicycle routes that provide or have direct connectivity to Fountain Valley.

Once again, thank you for allowing the City of Fountain Valley to review the Notice of Preparation. We look forward to reviewing the Draft Environmental Impact Report upon its completion. Please give me a call at (714) 593-4425 if you have any questions.

Sincerely,

Andrew Perea
Planning Director

c: Mark Lewis, Fountain Valley Public Works Director

City of Seal Beach

CITY HALL 211 EIGHTH STREET
SEAL BEACH, CALIFORNIA 90740
(562) 431-2527 • www.ci.seal-beach.ca.us

RECEIVED
AUG 28 2009
Huntington Beach
PLANNING DEPT.

August 26, 2009

City of Huntington Beach
Attn: Ricky Ramos, Senior Planner
2000 Main Street, 3rd Floor
Huntington Beach, CA 92648

SUBJECT: **CITY OF SEAL BEACH COMMENTS RE: "*NOTICE OF PREPARATION - DRAFT ENVIRONMENTAL IMPACT REPORT – GENERAL PLAN CIRCULATION ELEMENT UPDATE*"**

Dear Mr. Ramos:

The Environmental Quality Control Board of the City of Seal Beach has reviewed the above referenced Notice of Preparation (NOP). The NOP indicates that the DEIR will evaluate the potential environmental impacts of a proposed update to the Circulation Element of the Huntington Beach General Plan. The purpose of the Circulation Element update is to evaluate the long-term transportation needs of the City and present a comprehensive plan to accommodate those needs, including increased traffic volumes forecast to occur over the next 20 to 25 years, and to achieve desired intersection levels of service that minimize congestion during peak travel periods.

The proposed Circulation Element includes changes to roadway classifications for specific streets from the existing Circulation Element and the Orange County Master Plan of Arterial Highways (MPAH). The Circulation Element Update also indicates those proposed changes that could result in the potential future improvement of an intersection or roadway segment. It should be noted that the closest intersection proposed for long range capacity improvements to Seal Beach is the intersection of Pacific Coast Highway and Warner Avenue.

Due to the location of the proposed project in relation to the City of Seal Beach, the proposed project would not appear to generate any major areas of environmental concern to the City of Seal Beach. The City has no additional comments on the Notice of Preparation, but looks forward to reviewing the Draft

Environmental Impact Report on this project and may determine to provide additional comments during the public review period on that document.

The Environmental Quality Control Board considered and discussed the NOP document on August 26, 2009, and authorized the Chairman to sign this letter, representing the official comments of the City of Seal Beach.

Thank you for your consideration of the comments of the City of Seal Beach. Please do not hesitate to contact Mr. Jerry Olivera, Senior Planner, City Hall, 211 Eighth Street, Seal Beach, 90740, telephone (562) 431-2527, extension 1316, if you have any questions regarding this matter. In addition, please provide four (4) copies of the Draft EIR on this project to Mr. Olivera, so the City can have a copy available for public review during the public comment period at City Hall and at each library within the City.

Sincerely,

Mario Voce

Mario Voce
Chairman, Environmental Quality Control Board
City of Seal Beach

Distribution:

Seal Beach City Council
Seal Beach Planning Commission
Seal Beach Environmental Quality Control Board

City Manager Senior Planner

CITY OF COSTA MESA

P.O. BOX 1200 • 77 FAIR DRIVE • CALIFORNIA 92626-1200

DEVELOPMENT SERVICES DEPARTMENT

August 27, 2009

City of Huntington Beach
Planning Division, 3rd Floor
Attn: Ricky Ramos
2000 Main Street
Huntington Beach, CA 92648

Subject: **NOTICE OF PREPARATION FOR DRAFT EIR – GENERAL PLAN CIRCULATION ELEMENT**

Dear Mr. Ramos,

Thank you for the opportunity to provide comments on the Notice of Preparation of the Draft Environmental Impact Report for the General Plan Circulation Element. In response to the available Initial Study, we have the following comment:

Traffic Impacts:

- Include traffic analysis related to all intersections within the City of Costa Mesa where the proposed changes to Circulation System would result in minimum of 50 trips added to Costa Mesa intersections during any peak hour.

Please submit a copy of the Draft EIR for review. We look forward to participating in any additional reviews before completion of the final draft EIR and thank you for considering the City's comments.

Sincerely,

MINOO ASHABI, AIA
Senior Planner

cc: Raja Sethuraman, Transportation Svs. Mgr.

ORANGE COUNTY
OC Public Works
Our Community. Our Commitment.

Jess A. Carbajal, Interim Director
300 N. Flower Street
Santa Ana, CA

P.O. Box 4048
Santa Ana, CA 92702-4048

Telephone: (714) 834-2300
Fax: (714) 834-5188

NCL 09-029

August 27, 2009

Mr. Ricky Ramos, Senior Planner
City of Huntington Beach
Planning Department
2000 Main Street
Huntington Beach, CA 92648

SUBJECT: General Plan Circulation Element Update

Dear Mr. Ramos:

The County of Orange has reviewed the Notice of Preparation/Initial Study for the General Plan Circulation Element Update and offers the following comments regarding flood control/hydrology concerns:

1. The General Plan Circulation Element Update may require street widening, additional parking areas, etc. to accommodate the increase volumes of traffic in the future. These improvements may increase the overall impervious area and impact local as well as regional drainage infrastructure. Therefore, hydrologic and hydraulic analyses may need to be performed to evaluate and compare quantitatively the runoff volumes, peak flow rate increases, adequacy of existing storm drains and off-site channels that will ultimately carry these discharges. The analyses are needed to ensure that post-project conditions along Orange County Flood Control District (OCFCD) drainage facilities are not worsened as a result of the project.

2. Should the hydrologic and hydraulic analyses indicate that conditions are worsened, appropriate mitigation measures should be proposed in consultation with OCFCD.

3. All hydrologic and hydraulic studies must conform to the current guidelines and criteria as specified in the Orange County Hydrology Manual (OCHM), Addendum No. 1 to the OCHM and the Orange County Flood Control Design Manual.

4. All work (if any) within OCFCD right-of-way will require encroachment permits from OCPW/Property Permits Section. For information regarding permit application, please call (714) 834-2300.

If you have any questions, please contact Chris Uzo Diribe at (714) 834-2542.

Sincerely,

Laree Brommer, Manager
Land Use Planning

OCTA

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Chief Executive Officer

August 27, 2009

Mr. Ricky Ramos, Senior Planner
City of Huntington Beach
2000 Main Street
Huntington Beach, CA 92648

Subject: Notice of Preparation of City of Huntington Beach General Plan Circulation Element Update

Dear Mr. Ramos:

The Orange County Transportation Authority (OCTA) has reviewed the above referenced document. The following comments are provided for your consideration:

- On page III-CE-20 *Class I Bike Paths*, please note the last sentence should be corrected to state "...the City will work to meet appropriate traffic safety standards."

Master Plan of Arterial Highways

- Please note that as matter of procedure, amendments to the Orange County Master Plan of Arterial Highways (MPAH), including proposed downgrades and deletions, must go through the MPAH amendment process and be approved by the OCTA Board of Directors, prior to amendment and/or approval of the City General Plan—in order for the City to maintain eligibility for Measure M funding.

- In Table 2 *Roadway Classification Changes* of the Environmental Checklist and Exhibit A, please note the following:
    - Algonquin Street, from Heil Avenue to Warner Avenue, is an MPAH facility
    - Argosy Avenue, from Bolsa Chica Avenue to Graham Street, is currently designated on the MPAH as a Secondary arterial.
    - Edinger Avenue, from Springdale Street to Newland Street, is currently designated on the MPAH as a Primary arterial.
    - Ellis Avenue, from Gothard Street to Delaware, is currently designated on the MPAH as a Secondary arterial.
    - Garfield Avenue, from Ward Street to the Santa Ana River, is currently designated on the MPAH as a Primary arterial.
    - Goldenwest, from Bolsa Avenue to Garfield Avenue, is currently designated on the MPAH as a Primary arterial.
    - Graham Street, from Warner to Slater, is currently designated on the MPAH as a Secondary arterial.
    - Orange Avenue, from Goldenwest to 6th Street, is currently designated on the MPAH as a Secondary arterial.
    - Pacific View from 1st Street to Huntington Street. Note that Huntington Street is not currently designated on the MPAH. Further note that MPAH amendments need to be from MPAH facility to MPAH facility.
    - Saybrook Avenue, from Edinger Avenue to Heil Avenue, is currently designated on the MPAH as a Secondary arterial.
    - Walnut Avenue, from 6th to 1st Street, is currently designated on the MPAH as a Secondary arterial.

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- On Page 3 of the Environmental Checklist and page III-CE-5 *Orange County Master Plan of Arterial Highways*, it states "The MPAH designates the arterial system in the Circulation Element of the Orange County General Plan." Please revise this language to reflect that the MPAH has ceased being part of the County of Orange's General Plan document since the OCTA began administrating the MPAH in the 1990s.
- On page NOP-6, Page 5 of the Environmental Checklist, and page III-CE-24-25, please be advised that if designation of a Scenic Corridor results in the downgrading or removal of MPAH facilities, these actions must be reviewed and approved by the OCTA Board, prior to the occurrence of such an action, in order to maintain eligibility for Measure M funding.
- Page III-CE-11 *Major Arterials* states: "Major arterials can be designated as Smart Streets with the appropriate capacity enhancements. Hence, these two classifications are not mutually exclusive." Please note that the same statement is true with respect to Principal arterials as well (i.e. Beach Boulevard currently has a Principal Smart Street Designation on the MPAH).
- Page III-CE-16 *Relationship to County Master Plan of Arterial Highways* states: "Over time, streets not currently built to MPAH standards will be either improved accordingly or appropriate MPAH amendments will be processed with OCTA." Please specify that appropriate MPAH amendments will be sought through the Cooperative MPAH Amendment process with OCTA.

Measure M

- Page 3 of the Environmental Checklist and page III-CE-5 *Measure M* state: "Revenue generated by Measure M2 is returned to local jurisdictions for use on local and regional transportation improvements and maintenance projects." Please insert the following language: "A portion of" in front of "Revenue generated. . . "
- Page 3 of the Environmental Checklist and page III-CE-5 *Measure M*, where it states, "To qualify for this, Huntington Beach must submit a statement of compliance with the growth management components of the program." Furthermore, it states that requirements include "adoption of a Growth Management Element." Please note that these are requirements of Measure M, which will sunset in April 2011. The Renewed Measure M does not specify compliance with or adoption of a Growth Management Plan.
- On page III-CE-5 *Measure M* please note that M2 (i.e. Renewed Measure M) was extended through 2041 and not 2031.

If you have any questions or comments, please contact Joseph Alcock by phone at (714) 560-5372 or by email at jalcock@octa.net.

Sincerely,

Charles Larwood
Manager, Transportation Planning

c: Joseph Alcock, OCTA
Wendy Garcia, OCTA

Orange County Transportation Authority
550 South Main Street / P.O. Box 14184 / Orange / California 92863-1584 / (714) 560-OCTA (6282)

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Legislative Draft

Huntington Beach Circulation Element

Legislative Draft

Huntington Beach Circulation Element

Prepared for:

City of Huntington Beach
2000 Main Street
Huntington Beach, CA 92648

June 6, 2012

P 06261816.05

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ACRONYMS AND ABBREVIATIONS

ADA	Americans with Disabilities Act
ALUC	Airport Land Use Commission
AQMP	Air Quality Management Plan
BRT	Bus Rapid Transit
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CIP	Capital Improvement Program
CMP	Congestion Management Program
FAA	Federal Aviation Administration
I-405	Interstate 405 (San Diego Freeway)
ICU	Intersection Capacity Utilization
ITS	Intelligent Transportation System
LOS	Level of Service
LRTP	Long Range Transportation Plan
M2	Renewed Measure M
MPAH	Master Plan of Arterial Highways
NEVs	Neighborhood Electric Vehicles
NPDES	National Pollutant Discharge Elimination System
OCTA	Orange County Transportation Authority
PEZs	Pedestrian Enhancement Zones
RCP	Regional Comprehensive Plan
RTP	Regional Transportation Plan
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SR-1	State Route 1 (Pacific Coast Highway)
SR-39	State Route 39 (Beach Boulevard)
TARs	Technical Administrative Reports
TCR	Transportation Concept Report
TDM	Transportation Demand Management
V/C	Volume-to-Capacity Ratio

INTRODUCTION

Huntington Beach is an active, lively community that recognizes its circulation system is something more than just roads and the cars that drive on them. Huntington Beach's multi-modal circulation system includes bikeways, equestrian trails, sidewalks and jogging paths, and waterways, as well as the public transit services that transport people within the City and to more distant destinations. The City is connected to the region by Interstate 405, running southeast to northwest along the City's northern boundary, and by transit services provided by the Orange County Transportation Authority (OCTA).

The Circulation Element is the portion of the General Plan that describes and directs how people, goods, and services move within and through Huntington Beach. The Element describes various modes of transportation and the facilities they use. Through goals, policies, and implementation programs contained in this element, the City directs how the circulation system will be shaped to respond to the needs and desires of the community. These needs and desires include reducing and preventing traffic congestion, providing for pedestrian circulation, and planning for new transit opportunities. Huntington Beach is a dynamic city, and the Circulation Element provides the means for the circulation system to adapt to dynamic conditions.

This element is structured so that the general population may comprehend the context and principles for the circulation plan. The element begins this discussion with a broad description of the legal requirements for a circulation element, which include the purpose and scope. Along with the legal basis, technical aspects are important. Following the section on the purpose and scope of the circulation element, the element describes the tools used to measure traffic flow. This information is meant to aid the reader to understand references to these technical terms found throughout the text. The legal and technical information is followed by paragraphs describing related plans and programs. Descriptions are included because these plans and programs both affect and are affected by Huntington Beach's circulation choices. Finally, the discussion proceeds to the heart of the element's purpose: the circulation plan. The goals, policies, and implementation programs contained in the circulation plan are the tools that the City will use to maintain its dynamic circulation system.

PURPOSE OF THE CIRCULATION ELEMENT

California Government Code Section 65302(b) requires a circulation element in all general plans, as follows:

> *A circulation element consisting of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the land use element of the plan.*

The purpose of the Huntington Beach Circulation Element is to evaluate the long-term transportation needs of the City and present a comprehensive plan to accommodate those needs. The Circulation Element is the foundation for the City's efforts to manage and minimize traffic congestion, manage safety on roadways, and provide travel alternatives to the automobile, as well as better access to regional travel routes. Accomplishing these objectives requires effective land use planning, roadway monitoring and improvement, transportation system and demand management, regional coordination, and commitment of significant personnel resources. The policies and programs in this Element emphasize a balanced, multi-modal transportation system that responds to the demands of current and planned land uses, as set forth in the Land Use Element.

SCOPE AND CONTENT OF THE CIRCULATION ELEMENT

The Circulation Element is a mandatory component of the General Plan. The City must address major thoroughfares, transportation routes and various means of travel, terminals, and other local public utilities and facilities. Huntington Beach has chosen to address utilities within the Public Facilities and Public Services and the Utilities Elements. All other circulation issues are addressed in this Element, including:

- Regional Mobility
- Roadway Circulation
- Neighborhood Traffic Management
- Public Transportation
- Transportation Demand Management and Air Quality
- Parking
- Pedestrian, Bicycle, Equestrian, and Waterway Facilities
- Scenic Corridors

The Element addresses the physical circulation system consisting of streets, highways, bicycle routes, equestrian facilities, paths, and sidewalks, as well as available modes of transportation, including cars, buses, bicycles, and walking. How effectively goods and people move about in a community is one of the most pervasive issues a locality must address, as it affects land use, economic vitality, urban design, energy consumption, air quality, and ultimately, the City's infrastructure. Circulation decisions cannot be addressed solely at the local level, however; they must be coordinated with regional, State, and federal agencies, as well as with neighboring communities.

State planning law requires that the Circulation Element be consistent with other General Plan elements. As circulation affects such a wide range of issues, consistency with other elements is especially important. The elements most closely linked with the Circulation Element are Land Use and Noise. The development potential of vacant or underutilized properties throughout the City identified in the Land Use Element is the major factor in developing the future traffic volumes used to evaluate roadway adequacy in the Circulation Element. The transportation policies found in the Circulation Element are also directly linked to the programs and policies developed in the Noise Element. Transportation facilities are largely responsible for excessive noise levels in certain locations in the community. Projected noise distributions, depicted as noise contours in the Noise Element, are corollary to the Circulation Plan. Policies and plans contained in the Noise Element are largely based on the Circulation Element and are aimed at minimizing the effects of transportation noise on current and planned land uses.

Other elements, such as the Growth Management, Urban Design, and Air Quality Elements, are also related. The Growth Management Element takes into account the growth-inducing effects of roadway improvements, while the Urban Design Element works in tandem with the Circulation Element to shape how properties are developed within and near scenic corridors. The Air Quality Element presents policies and programs to reduce air pollution associated with vehicle trips.

MEASURING TRAFFIC FLOW

Roadway networks must be regularly evaluated to ensure they are moving vehicles efficiently and maintaining adequate capacity to support future growth. This element uses specific approaches to measure and describe traffic flow and roadway capacity. They involve a policy component with respect to desirable level of service (LOS) and a technical component that outlines the criteria involved.

VOLUME-TO-CAPACITY RATIO

The volume-to-capacity (V/C) measure consists of a ratio between how many vehicles travel on a roadway (volume) and the number of vehicles the roadway can carry (capacity). V/C ratios are calculated based on current or future traffic volumes and capacity values for various types of roadway facilities. Volume is established either by a traffic count (in the case of current volumes) or by a forecast for a future condition. Capacity refers to the vehicle-carrying ability of a roadway and is a critical component of roadway design. The higher the V/C ratio (approaching or above 1.00), the more congested the roadway becomes. For example, a roadway that carries 1,000 vehicles per hour but has the capacity to accommodate 2,000 vehicles per hour at free flow speed has a V/C of 0.50, which drivers would experience as "free-flowing", with only minor delays.

The V/C measure used for traffic performance is intersection capacity utilization (ICU). This measure is applied using peak-hour volumes and the geometric configuration of traffic signal controlled intersections. The ICU sums the V/C ratios for the critical movements of an intersection, and thus accounts for the overall performance of intersections, which are typically the most critical limitations – or the control valves – within a roadway system.

LEVEL OF SERVICE

Level of service (LOS) is a tool used to describe the operating characteristics of the street system in terms of the level of congestion or delay experienced by vehicles. Service levels range from A through F, with each level defined by a range of V/C ratios, as shown in Table CE-1. Levels of service A, B, and C are considered good operating conditions, with only minor delays being experienced by motorists. Level of service D represents operating conditions where drivers occasionally have to wait through more than one signal cycle to proceed through the intersection. Level of service E is considered a near-capacity condition, and level of service F represents an oversaturated condition with long delays. The LOS designations are based upon ICU values calculated for intersections.

TABLE CE-1

Peak Hour Level of Service Descriptions for Intersections

LOS	Description	V/C or ICU
A	Low volumes; high speeds, speed not restricted by other vehicles; all signal cycles clear with no vehicles waiting through more than one signal cycle.	0.00 – 0.60
B	Operating speeds beginning to be affected by other traffic; between one and 10 percent of the signal cycles have one or more vehicles which wait through more than one signal cycle during peak traffic periods.	0.61 – 0.70
C	Operating speeds and maneuverability closely controlled by other traffic; between 11 and 30 percent of the signal cycles have one or more vehicles which wait through more than one signal cycle during peak traffic periods; recommended ideal design standards.	0.71 – 0.80
D	Tolerable operating speeds; 31 to 70 percent of the signal cycle have one or more vehicles which wait through more than one signal cycle during peak traffic periods; often used as design standard in urban areas.	0.81 – 0.90
E	Capacity; the maximum traffic volume an intersection can accommodate; restricted speeds; 71 to 100 percent of the signal cycles have one or more vehicles which wait through more than one signal cycle during peak traffic periods.	0.91 – 1.00
F	Long queues of traffic; unstable flow; stoppages of long duration; traffic volume and traffic	Above 1.00

TABLE CE-1

Peak Hour Level of Service Descriptions for Intersections

LOS	Description	V/C or ICU
	speed can drop to zero; traffic volume will be less than the volume which occurs at level of service "E."	
Source: Highway Capacity Manual 2000, Transportation Research Board, National Research Council		

RELATED PROGRAMS AND GOVERNMENTAL ENTITIES

Local circulation issues must be coordinated with regional, State, and federal agencies, as well as with neighboring communities. The City has identified the following agencies as important partners. Many of these agencies' plans and programs have similar goals or address the same facilities as this circulation element.

STATE

California Department of Transportation

The California Department of Transportation (Caltrans) is responsible for design standards and all operations on State highways traversing Huntington Beach, including I-405, Beach Boulevard (SR-39), and Pacific Coast Highway (SR-1). For each of these highways, Caltrans prepares a *Transportation Concept Report* (TCR) that identifies current and projected operating conditions on the facility, establishes a 20-year planning concept, identifies facility deficiencies in relation to the concept, and identifies broad and flexible options to achieve the 20-year concept. As part of the Scenic Corridor Plan, the City must coordinate with Caltrans for landscaping and maintenance of these roadways.

Multimodal Transportation System Policy

In past few years, legislation has been introduced regarding Complete Streets. This requires local jurisdictions to plan for multimodal strategies in their circulation elements. The multimodal network must identify how all roadway users (motorists, pedestrians, bicyclists, and transit riders, of all ages and abilities) will be accommodated.

The City has made multimodal transportation a priority in this Circulation Element, and addresses the needs of all users in the Circulation Plan. It has identified requirements for trip reductions, transit enhancements, pedestrian, bicycle and equestrian improvements, and impact and development fees. Implemented together, these will result in streets that serve all roadway users, and will thereby satisfy the legislative requirements regarding Complete Streets.

REGIONAL

Southern California Association of Governments *Regional Comprehensive Plan* and *Regional Transportation Plan*

In 1995, the Southern California Association of Governments (SCAG) prepared a *Regional Comprehensive Plan* (RCP) to address regional issues, goals, objectives, and policies for the Southern California region into the early part of the 21st century. The RCP was updated in 2008 based upon the SCAG's 2000 *Compass Blueprint Growth Vision*, which calls for calls for modest changes to current land use and transportation trends

on only two percent of the land area of the region. A key component of the RCP is the *Regional Transportation Plan* (RTP). The RTP sets broad goals for the region and provides strategies to reduce problems associated with congestion and mobility. In recognition of the close relationship between traffic and air quality issues, the assumptions, goals, and programs contained in the RTP parallel those used to prepare the Air Quality Management Plan. The RTP was updated in 2012 to implement transportation provisions of the RCP with a strong commitment to reduce emissions to comply with SB 375.

South Coast Air Quality Management District *Air Quality Management Plan*

Huntington Beach is located in the South Coast Air Basin, which is a non-attainment area with regard to air quality (a geographic area that does not meet State or federal standards for a given air pollutant). The federal Clean Air Act requires the preparation of plans to improve air quality in non-attainment areas. Implementing the Clean Air Act, the South Coast Air Quality Management District (SCAQMD) has developed an *Air Quality Management Plan* (AQMP), which mandates a variety of measures to reduce traffic congestion and improve air quality. SCAQMD is also working with local jurisdictions to develop measures to reduce greenhouse gas emissions associated with climate change.

COUNTY

Orange County Transportation Authority *Long Range Transportation Plan*

The *Long Range Transportation Plan* (LRTP) was adopted in 2010 as a blueprint for Orange County's transportation future through 2035 for all transportation modes, including freeways, roadways, buses, and rail transit. The LRTP is the vehicle by which the OCTA plans for the County's transportation, in response to changing trends in population and workforce, where residents live, how they commute, the dollars available to carry out transportation solutions, environmental priorities, and the policies and programs that foster mobility. The LRTP incorporates Measure M, the Orange County Master Plan of Arterial Highways (MPAH), Orange County Congestion Management Program (CMP), and the Orange County Commuter Bikeways Strategic Plan.

Measure M

In 1990, Orange County voters approved Measure M, authorizing a half-cent retail sales tax increase for a period of 20 years effective April 1, 1991. A portion of revenue generated by Measure M is returned to local jurisdictions for use on local and regional transportation improvements and maintenance projects. To qualify for this revenue, each jurisdiction must comply with the Countywide Traffic Improvement and Growth Management Program. Specifically, to receive an allocation of Measure M funds, Huntington Beach must submit a statement of compliance with the growth management components of the program. Requirements include the adoption of a traffic circulation plan consistent with the County Master Plan of Arterial Highways (MPAH), adoption of a Growth Management Element within the General Plan, adoption and adequate funding of a local transportation fee program, and adoption of a seven-year capital improvement program that includes all transportation projects funded either partially or fully by Measure M funds.

The current Measure M expired in 2011, and a November 2006 ballot measure renewed the program (now known as M2) through 2041. M2 extends the requirements of Measure M, without increasing sales taxes, to fund freeway, street, transit, and environmental projects identified in a Transportation Investment Plan considered by voters in tandem with the renewal measure. The M2 renewal does not specify compliance with or adoption of a Growth Management Plan. Key M2 projects benefiting Huntington Beach include widening of freeway lanes and improvements to interchanges and overcrossings of I-405, transit extensions to Metrolink, and numerous roadway and intersection improvements.

Orange County Master Plan of Arterial Highways

The MPAH identifies the intended future roadway system for the County and is administered by the OCTA. Huntington Beach's Circulation Element must be consistent with the MPAH in order to participate in any County roadway funding programs, such as Measure M.

Orange County Congestion Management Program

In June 1990, passage of the Proposition 111 gas tax increase required urbanized areas such as Orange County to adopt a Congestion Management Program (CMP), with the goal of reducing traffic congestion and facilitating coordination of local land use planning and regional transportation improvement decisions. The Orange County CMP is a composite of data collected by local jurisdictions according to guidelines established by OCTA. The data are compiled by OCTA and submitted to SCAG to determine regional consistency. Through the CMP, eligible transportation projects may be proposed to compete for State gas tax funds.

Orange County Commuter Bikeways Strategic Plan

The Commuter Bikeways Strategic Plan, administered by OCTA, is a regional planning document that identifies existing and proposed bikeways in Orange County. This comprehensive inventory of County bikeways was achieved through the cooperation of cities and the County to identify priority corridors for new bikeways. OCTA's bikeway classification system is employed by Huntington Beach. The City's bikeway plan is linked to regional County bikeways.

CITY OF HUNTINGTON BEACH

Five-Year Capital Improvement Program

The City's Capital Improvement Program (CIP) is the main planning tool used by the City to coordinate financing and scheduling for major projects, including transportation improvements, to be undertaken by the City. Not all projects included in the 5-year CIP have budget approval. However, the City has an annual CIP that is funded. The CIP is developed to address elements contained in the City's General Plan, as well as City Council adopted planning documents and master plans. Projects within the CIP correspond to the goals of the City's Strategic Plan in the areas of Public Safety, Infrastructure and Transportation, Community Livability, and Environment and Natural Resources. The CIP is prepared in conjunction with the budget process and is revised annually to meet changing needs, priorities, and financial conditions.

Transportation Demand Management Ordinance

The City's Transportation Demand Management (TDM) Ordinance was established to help mitigate potential impacts of development projects on mobility, congestion, and air quality, as well as to promote TDM strategies. The City uses the TDM ordinance to encourage changes in individual travel behavior. Certain TDM activities are made mandatory by the ordinance. In particular, employers with 100 or more employees are required to support alternative forms of transportation by providing appropriate facilities, including showers and lockers, parking for vanpools, bicycle parking, and passenger loading areas.

Arterial Street Landscape Development and Maintenance Status Report (1989)

This report is the guiding document for medians and street landscaping in Huntington Beach. It contains plans for median and roadside landscape development, maintenance, and cost reports. The plan contains maps of landscaped arterials and irrigation status. The City uses policy in the Circulation Element to reinforce the importance of landscaping and maintenance along scenic and landscape corridors.

Circulation Element Technical Administrative Reports

The Circulation Element Technical Administrative Reports (TARs) address a variety of circulation- and traffic-related topics, providing information such as traffic counts and forecasts for roadway links and intersections. Information included in the TARs will change as part of regular updates so that various standards – including emergency response times or LOS for intersections – remain in compliance with this Element.

The Arterial Street Landscape Development and Maintenance Status Report contains maps showing where new median landscaping will be placed.

CIRCULATION PLAN

Huntington Beach's circulation network consists of roadways, transit services, multi-use trails, waterways, bikeways, and air traffic from the various heliports in the City. Other facilities such as park-and-ride lots, transit shelters, bicycle racks and lockers, and public and private parking facilities support these methods of travel. Similarly, the overall circulation system supports the movement of goods and services via the various components of that system.

REGIONAL MOBILITY

Orange County has seen rapid growth since the 1990s, and is projected to have continued growth well into the second decade of this century. Countywide demographic projections point toward a 24 percent growth in population between 2005 and 2030 and a 35 percent increase in employment. Regional transportation strategies are needed to successfully implement City and County plans accommodating future growth. These strategies must link Huntington Beach to other regional employment and commercial centers, as well as airports and transportation hubs, and should prominently feature alternative modes of travel to the automobile.

Currently, regional and inter-regional roadway access is provided by a system of freeways and arterials. The San Diego Freeway (I-405) is the major north-south freeway, traversing the northeastern portion of the City. Pacific Coast Highway (SR-1) extends parallel to the coast on the western portion of the City. Pacific Coast

Highway provides regional access to the City of Newport Beach to the south and the City of Seal Beach to the north and beyond.

The Orange County Transportation Authority (OCTA) provides local transit service and regional transit connections between the City and other areas of the County and region. OCTA provides a variety of transit services including bus service, passenger service, passenger rail and mobility services for those with special needs. OCTA continues to develop new transit alternatives to improve regional mobility.

Regional transportation plans and programs being reviewed include regional and local transit, bicycle routes, and improved accessibility for Huntington Beach to and from points east of the Santa Ana River. Resolving these regional issues will require coordination between Huntington Beach, the County, and neighboring jurisdictions.

THE LOCAL ROAD SYSTEM

Roadways in Huntington Beach are generally laid out on a north-south trending grid system. The grid system becomes slightly modified in the downtown area, where roadways trend northeast-southwest, and in the Huntington Harbour and Sunset Beach areas. As shown later in the Arterial Highway Plan, the local roadway system is organized in a hierarchical fashion, based on the grid system. However, due to natural barriers such as the Bolsa Chica wetlands, the Santa Ana River, the Pacific Ocean, and the Seal Beach Naval Weapons Station, the grid system becomes discontinuous. This results in circuitous and somewhat limited access to certain locations, such as access to Pacific Coast Highway from the north central portion of the City, or access across the Santa Ana River from the southeastern portion of the City.

Roadway Types

The local street system is comprised of various-sized roadways that allow for mobility from point-to-point and access to properties. Roads generally emphasize either mobility or access. In Huntington Beach, roadways are classified as follows:

- Freeway
- Smart Street Arterial
- Principal Arterial
- Major Arterial
- Primary Arterial
- Secondary Arterial
- Collector Arterial
- Local Street
- Private Street
- Alley

Any street or alley not classified as a collector, secondary, primary, major, principal, smart street, or

freeway is classified as a local street. Some roadway types have a standard cross-section for use in selected areas. The standard roadway classifications and key mobility and access characteristics of each are described in the following paragraphs. Typical non-intersection cross-sections are illustrated in Figure CE-1. Additional rights-of-way (beyond the standard width) may be required at higher volume intersections and to provide for safe turning movements.

Freeways

Freeways are limited access, high-speed, divided travel ways of six lanes or more. Access is provided at strategically spaced, grade-separated on- and off-ramps. Interstate 405 provides regional freeway access at a number of interchanges in or adjacent to the City. Freeway design standards are dictated by Caltrans, District 12. Any interchange improvements must be coordinated with and approved by Caltrans.

The only freeway within the City of Huntington Beach is Interstate 405.

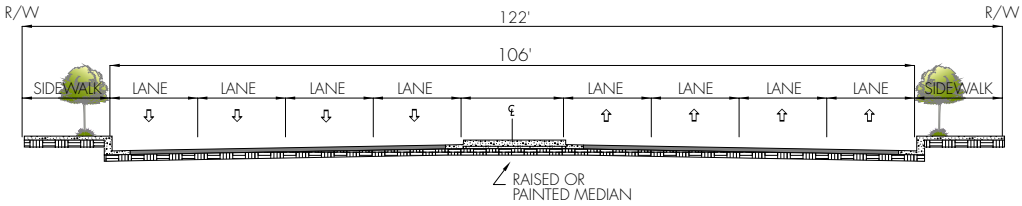
Smart Street Arterials

Smart Street Arterials are six- to eight-lane roadways with enhanced capacity compared to a standard arterial street. Smart Streets are designated by OCTA as important regional routes and improved with Measure M funds to increase traffic capacity and flow through such techniques as signal synchronization, bus turnouts, intersection improvements, driveway consolidation, and prohibition of on-street parking.

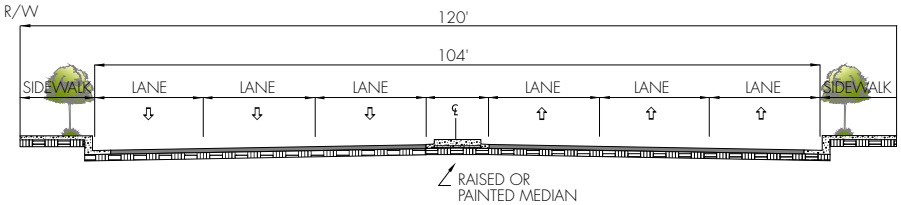
Beach Boulevard was the first project in the Smart Street program to be implemented.

Traffic-carrying capacities of Smart Streets can range from 60,000 to 79,000 vehicles per day, depending on the number of lanes, degree of access control, peak-period loading, and configurations of major intersections.

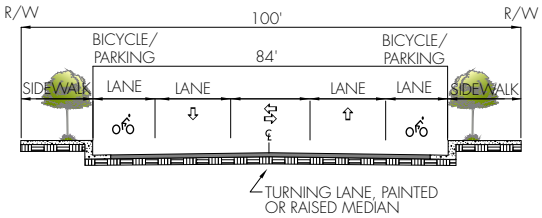
Beach Boulevard is designated as a Smart Street Arterial within the City. Beach Boulevard (SR-39), along with Pacific Coast Highway (SR-1) are under Caltrans' jurisdiction.



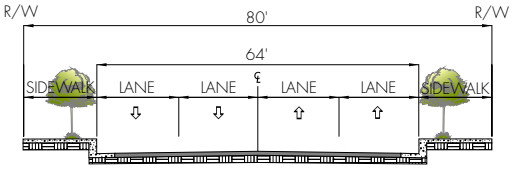
SMART STREET ARTERIAL



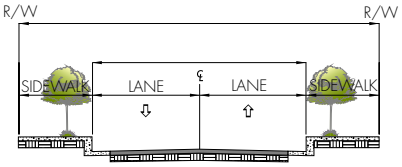
MAJOR ARTERIAL



PRIMARY ARTERIAL (DIVIDED)



SECONDARY ARTERIAL (UNDIVIDED)



COLLECTOR STREET (UNDIVIDED)

This figure identifies pavement and right-of-way width, presence or absence of median, and number of travel lanes for each roadway type. Additional detail regarding roadway dimensions may be found in the Technical Administrative Report and the City's Standard Plans and Specifications.

TYPICAL ROADWAY CROSS-SECTIONS

FIGURE CE- 1

Principal Arterials

Principal Arterials act as main thoroughfares and provide access to major activity centers and the regional freeway system. Principal Arterials are typically eight-lane roadways featuring raised or striped medians. Desirable minimum spacing for street intersections along a Principal Arterial is approximately one-quarter mile. Unsignalized minor street and driveway access may be allowed, but signalized access is preferred and left-turn restrictions are typically planned at unsignalized access locations.

Curbside parking is prohibited. Traffic carrying capacities of 65,000± vehicles per day can be achieved depending on the degree of access control, peak-period loadings, and lane configurations at major intersections.

While the City does not currently have any Principal Arterials, this classification is part of the County Master Plan of Arterial Highways (see discussion on page III-CE-16), and could be used for later reclassifications if appropriate. Principal arterials can be designated as Smart Streets with the appropriate capacity enhancements, as the two classifications are not mutually exclusive.

Major Arterials

Major Arterials provide high-capacity roadways. Major Arterials are six-lane roadways with painted or raised landscaped medians. Left-turn restrictions at minor unsignalized driveways enhance vehicle flow.

Curbside parking is usually not appropriate along some of the more heavily traveled Major Arterial street segments within the City. Maximum service volumes of 50,000± vehicles per day can be achieved, depending on the degree of access control, intersection operations, and peak-period loadings.

Major arterials can be designated as Smart Streets with the appropriate capacity enhancements. Hence, these two classifications are not mutually exclusive.

Primary Arterials

Primary Arterials are four-lane divided roadways carrying local and regional commute traffic. Unsignalized minor street and driveway access may be allowed, but signalized access is preferred and left-turn restrictions are typically planned at unsignalized access locations.

Curbside parking is prohibited. Maximum service volumes of 35,000± vehicles per day can be achieved depending on the degree of access control, peak-period loadings, and lane configurations at the major intersections.

Secondary Arterials

Secondary Arterials are four-lane roadways without medians. Direct access from private residential properties to Secondary Arterials should be avoided where possible unless medians can be provided at such access points.

While Secondary Arterials have curbside parking, localized circumstances could warrant parking restrictions, such as prohibiting parking near intersections where left-turn lane striping is provided. In some locations, Secondary Arterials may include a limited median or be re-striped to provide a left-turn pocket. Maximum service volumes of 25,000± vehicles per day can be achieved depending on the degree of access allowed, intersection operations, and peak-period traffic loadings.

Collector Arterials

Collector Arterials provide access to local streets from the arterial roadway network. Collectors are typically two-lane roadways that sometimes feature painted medians for left-turn movements.

Collectors allow curbside parking. Parking should be restricted near intersection approaches where a separate right-turn lane is provided. Maximum service volumes of 12,500± vehicles per day can be achieved depending on the degree of access control and peak-period traffic loadings.

Local Streets

Local streets are two-lane roadways without medians. Centerline striping is typically not provided, and curbside parking is allowed. Traffic carrying capacity is physically similar to a Collector; however, the qualitative limit of acceptable traffic volumes in a residential environment is lower (less than 5,000 vehicles per day). Local streets are not shown on the Arterial Highway Plan.

Table CE-2 summarizes the function, typical width, access constraints, and maximum volumes for each roadway type.

TABLE CE-2

Roadway Characteristics by Type

Standard Roadway Class	Mobility and Access Characteristics	Minimum width (ROW/ Pavement)	Typical Number of Lanes	Maximum Two-Way Daily Traffic Volume (at LOS E)
Smart Street Arterial	High-capacity arterial roadways featuring enhanced traffic signal synchronization, bus bays, intersection improvements, and additional travel lanes. Direct access to adjacent properties is discouraged, except at signalized intersections.	Variable ROW (120'–144')	6 to 8 lanes with raised or painted median and additional turn lanes at intersections	79,000
Principal Arterial	Main thoroughfares providing access to major activity centers and the regional freeway system. Direct access to adjacent properties is discouraged, except at signalized intersections.	120'/104'	8 lanes with raised or painted median and additional turn lanes at intersections	65,000
Major Arterial	Major Arterials complement the principal system by providing a medium-capacity backbone system. Only limited access is provided, typically to commercial properties and not to residential properties.	120'/104'	6 lanes with raised or painted median and additional turn lanes at intersections	50,000
Primary Arterial	Roadways intended to carry traffic between local streets and Principal or Major Arterials. They are similar to Major Arterials, with only limited access to adjacent properties.	100'/84'	4 lanes divided, with turn lanes as needed	35,000
Secondary Arterial	Roadways intended to carry traffic between Local streets and Principal or Major Arterials. They are similar to Major Arterials, with only limited	80'/64'	4 lanes undivided, with turn lanes as needed	25,000

TABLE CE-2

Roadway Characteristics by Type

Standard Roadway Class	Mobility and Access Characteristics	Minimum width (ROW/ Pavement)	Typical Number of Lanes	Maximum Two-Way Daily Traffic Volume (at LOS E)
	access to adjacent properties.			
Collector Arterial	Roadways providing property access and linking properties to Secondary, Major, and Principal Arterials.	Varies	2 lanes undivided	12,500

Beach and Edinger Corridors Specific Plan (BECSP)

The sections of Beach Boulevard and Edinger Avenue that fall within the BECSP area have cross-sections that are unique to the Specific Plan and which allow for deviation from the standard cross-sections described above.

Arterial Highway Plan

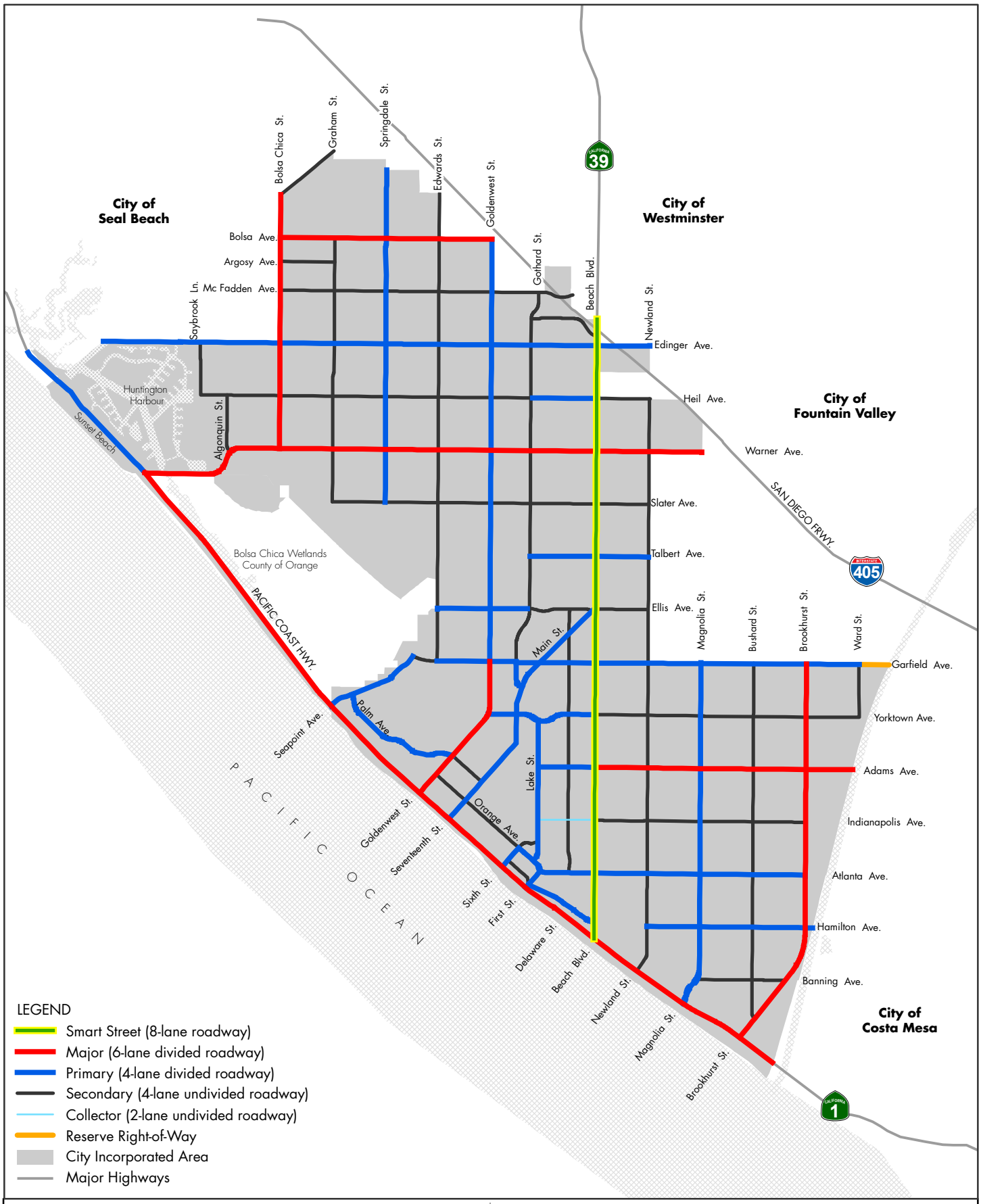
Circulation Element goals, policies, and objectives emphasize the need to provide a circulation system capable of serving current and future local and regional traffic. The planning horizon for the roadway system is 2030. The City's Arterial Highway Plan is illustrated in Figure CE-2, and has been developed to accommodate anticipated volumes in 2030.

Principal and Secondary Intersections

As a result of the way Huntington Beach's road network has been developed, many trips funnel through a few key intersections. If these intersections fail to operate at adopted performance standards, this failure seriously impacts the overall effectiveness of the entire roadway system. Such locations are defined as "Principal Intersections." Also defined here are "Secondary Intersections," which have a similar but lesser role in achieving overall system performance. These intersections are critical to the function of the entire network, and are regularly monitored and given priority for roadway improvements.

Principal and Secondary intersections are identified in the Technical Administrative Report and are amended based on annual review and reporting of conditions. Action involved in changing intersection designations (Principal to Secondary or Secondary to Principal) involves administrative review and approval by the Planning Commission. A General Plan Amendment is not required for such changes.

The standard right-of-way and roadway widths specified in Table CE-2 will vary on approaches to intersections to accommodate needed intersection improvements, such as auxiliary turn lanes and/or dual-left turn lanes. Parking will typically be restricted on approaches to Principal and Secondary intersections to ensure adequate space to develop such improvements.



ARTERIAL HIGHWAY PLAN

FIGURE CE-2

Source: Austin-Foust Associates, 2008

City of Huntington Beach General Plan

Critical Intersections

One further intersection definition is "Critical Intersection," which is recommended for isolated cases where the long-range LOS is projected to be worse than the desired threshold and no feasible improvements are identified (see discussion on LOS below). The intent is that such locations be monitored over time.

Performance Criteria

Performance standards for intersections involve a policy component, the desired LOS, and a technical component that involves the assumptions and procedures used to determine the LOS. The LOS standards are set by the City of Huntington Beach (Policy 2.1, Objective 2.1), except in the case of Orange County CMP intersections. The lowest acceptable performance standard for CMP intersections is LOS E. Seven CMP intersections are located in Huntington Beach:

- Beach Boulevard at Adams Avenue
- Beach Boulevard at Edinger Avenue
- Beach Boulevard at Pacific Coast Highway
- Beach Boulevard at Warner Avenue
- Bolsa Chica Street at Bolsa Avenue
- Bolsa Chica Street at Warner Avenue
- Pacific Coast Highway at Warner Avenue

Evaluation of volumes, capacities, and levels of service on the City street system are based on peak-hour intersection data since intersections are the primary limiting factor affecting traffic flow on City streets. The LOS standards as established by Objective 2.1 in the Goals, Policies and Objectives are as follows:

Critical Intersections	LOS "E"
Principal Intersections	LOS "D"
Secondary Intersections	LOS "C"

Included in the Principal Intersections are the CMP intersections listed above, and hence City policy is to achieve LOS "D" for these CMP intersections, a higher standard than the CMP LOS "E" requirement.

The technical procedures used to determine LOS are based on the ICU methodology described earlier. Parameters and criteria used in such calculations can be found in the Principal and Secondary Intersections TAR.

Future Roadway Improvements

Future roadway improvements needed to fully implement the Arterial Highway Plan have been determined through use of a Citywide traffic forecasting model maintained by the City. The TAR, prepared in tandem with this Circulation Element, lists the intersection and roadway improvements required to transition to full implementation of the Arterial Highway Plan. The City will continue to use the five-year Capital Improvement Program (CIP) process to prioritize, fund, and build these improvements, updating both the CIP and Technical Administrative Report on an annual basis to reflect current needs, priorities, and financial conditions. New development project mitigation will also be used to address necessary improvements.

Relationship to Land Use

Planned land uses within Huntington Beach through the year 2030 influence future traffic volumes and highway capacity needs. Baseline (year 2005) daily trip generation within the City was around 1,444,000 trips per day, and 297,000 additional trips (an increase of about 20 percent) are anticipated by 2030. The Arterial Highway Plan is designed to accommodate this increase, but will require major improvements ranging from new roadway construction, improved transit service, and enforcement of the transportation demand management program.

Relationship to County Master Plan of Arterial Highways

The City's Arterial Highway Plan (Figure CE-2) is consistent with the minimum roadway requirements set forth in the County Master Plan of Arterial Highways (MPAH). Over time, streets not currently built to MPAH standards will either be improved accordingly or appropriate MPAH Amendments will be processed as part of the cooperative MPAH amendment process with OCTA.

NEIGHBORHOOD TRAFFIC MANAGEMENT

As vehicle traffic in the City and region increases, commuters and locals may look for less-crowded streets for quicker drive times. Drivers may choose to leave congested arterials in favor of local streets, impacting generally quiet residential streets. In busy commercial areas, employees and visitors may find it easier or less expensive to park in an adjoining neighborhood. Resulting increases in traffic, speeding on local streets, and inadequate parking can disrupt residential neighborhood activities.

Preserving the character and safety of neighborhoods is important to the City. Policies aimed at protecting neighborhoods from the negative effects of cut-through traffic and inappropriate parking include residential parking permits, site planning, and traffic-calming measures. Traffic-calming techniques are used to direct traffic elsewhere and slow traffic within neighborhoods. Specific traffic-calming measures are identified in a TAR prepared in tandem with this Circulation Element, and will be updated on an ongoing basis.

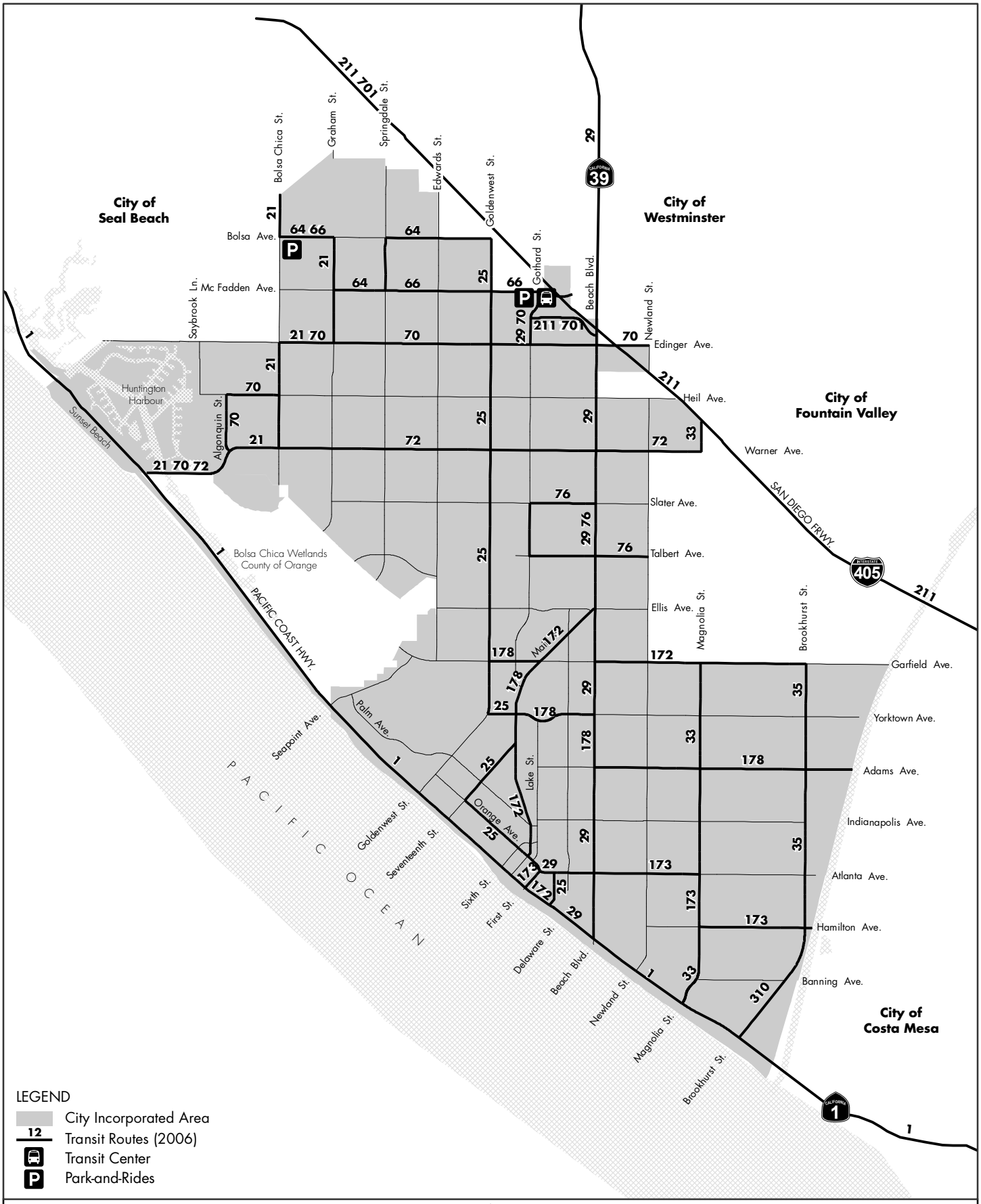
PUBLIC TRANSPORTATION

Most of the regional connections from Huntington Beach to locations outside the City are made by personal automobiles. However, many riders use the public transportation system.

Fixed-route and demand-responsive services meet these needs. Fixed-route services are transit lines that operate on regular schedules along a set route. Demand responsive services have defined service areas but do not operate on fixed routes or schedules.

Public transportation in Huntington Beach mainly consists of bus service operated by the Orange County Transportation Authority.

In 2012, OCTA operated 17 routes through the City (see Figure CE-3). The number of lines and routes are adjusted as needed in response to ridership patterns. OCTA and the City both operate demand response services. OCTA operates the ACCESS program. The City, with the aid of OCTA, operates the Senior Services Mobility Program.



TRANSIT ROUTES (2012)

FIGURE CE-3

Source: Orange County Transportation Authority (OCTA), 2012

City of Huntington Beach General Plan

Two park-and-ride facilities allow commuters to park their personal vehicles at one location and utilize carpools, vanpools, or commuter bus service. Park-and-ride facilities include the Goldenwest Transportation Center at Gothard Street and Center Avenue and a large lot at the Boeing Corporation campus at Bolsa Avenue and Bolsa Chica Street.

The Golden West Transportation Center is one of two park-and-ride facilities located in Huntington Beach.

Future Plans

The Union Pacific Railroad right-of-way runs east of Gothard Street and extends from the northern City limits to its endpoint just north of Garfield Avenue. Approximately three trains per week use the active portion of the rail line north of Ellis Avenue. The City has designated the abandoned portion of the rail corridor south of Ellis Avenue for a future transportation corridor use. Future development of all or portions of the corridor, including the existing active rail section, for transportation purposes may be pursued by the City in the future. Potential uses include development of a bicycle or multi-purpose trail or to function as an exclusive transit corridor. These options may be limited in some areas where portions of the corridor are no longer available for public use.

Helistops and Heliports

Local heliports are used primarily for air ambulance, business, emergency, and police uses. Heliports are located at the Boeing Corporation (Bolsa Chica Street at Bolsa Avenue), Guardian Center (Beach Boulevard at Warner Avenue), Huntington Beach Police Station at Gothard Street and Talbert Avenue, Cal Resources at Pacific Coast Highway (between Seapoint Street and Warner Avenue), and the Huntington Beach Civic Center (Main Street at Yorktown Avenue). City policy regarding heliports is to ensure that their development and operation are coordinated with the Airport Land Use Commission (ALUC) and to comply with conditions mandated by the Federal Aviation Administration, ALUC, and Caltrans.

TRANSPORTATION DEMAND MANAGEMENT AND AIR QUALITY

Huntington Beach is located within the South Coast Air Basin, which is a non-attainment area with regard to meeting state and federal air quality standards. The City has established a Transportation Demand Management (TDM) ordinance to mitigate potential impacts of development projects on mobility, congestion, and air quality. The City uses ordinance requirements and policies in this Element to encourage individuals and employers to change their travel behavior. Fewer vehicle trips and miles translate to reduced pollutant emissions. Policies and implementation measures include requiring employers and new developments to provide appropriate transit and pedestrian facilities, encouraging current businesses and new development projects to submit TDM plans, and encouraging the creation of Guaranteed Ride Home and carpool programs.

The City also encourages the use of low- or no emission vehicles; including hybrids, electric vehicles, or other emerging technologies. One example is low-speed, zero emission neighborhood electric vehicles (NEVs). These vehicles are usually restricted to roads with speeds of 35 mph or less and must be charged approximately every 30 miles. For these reasons, the City encourages businesses to provide charging stations and is investigating alternative roadway systems for NEVs.

NEVs can be used as legal on-street vehicles in Huntington Beach.

PARKING

Huntington Beach is a popular destination for beachgoers and shoppers. Great demand for limited parking in Downtown, at the beach, and at parks, sports fields, high schools, churches, and industrial uses throughout the City has been a continuing issue for many years. Excessive numbers of vehicles parked on City streets can potentially impede vehicle circulation, reducing the effective capacity of roadways and causing traffic congestion. Residential neighborhoods also experience heavy parking demand when large numbers of visitors use on-street parking, especially during special events. Pursuant to Coastal Act requirements, parking must be maintained within the coastal zone that allows visitors to access the beach.

The City operates parking lots and garages Downtown and near the beach. To reduce associated impacts on adjacent residential neighborhoods, the City is committed to developing new parking facilities and continuing to regulate neighborhood parking through residential permit programs. At the same time, the City will explore ways to reduce overall parking requirements in order to minimize the amount of land used for parking and encourage alternative forms of transportation.

PEDESTRIAN, BICYCLE, AND EQUESTRIAN PATHS AND WATERWAYS

Accomodating Pedestrians

Sidewalks and walking paths allow people to walk easily around most parts of the City. These areas include Downtown, adjacent to the beach, and along portions of Beach Boulevard. Within master-planned neighborhoods, pedestrian paths link homes to recreation facilities. In many other neighborhoods, sidewalks allow children to walk to schools and parks and surrounding uses.

Some areas in Huntington Beach, like the crossing of Main Street and Pacific Coast Highway, are actively used by pedestrians.

The City seeks to improve the pedestrian experience and enhance pedestrian safety. Areas eligible for improvements will be designated as Pedestrian Enhancement Zones (PEZs). PEZ improvements may include widened sidewalks, crosswalks, trees, pedestrian-scale lighting, and traffic calming measures. The City will establish a designation process for PEZs, coordinating with County and regional transportation agencies to assess the need for improved facilities and balance the demand for improved pedestrian facilities with the need to maintain adequate vehicular traffic flows.

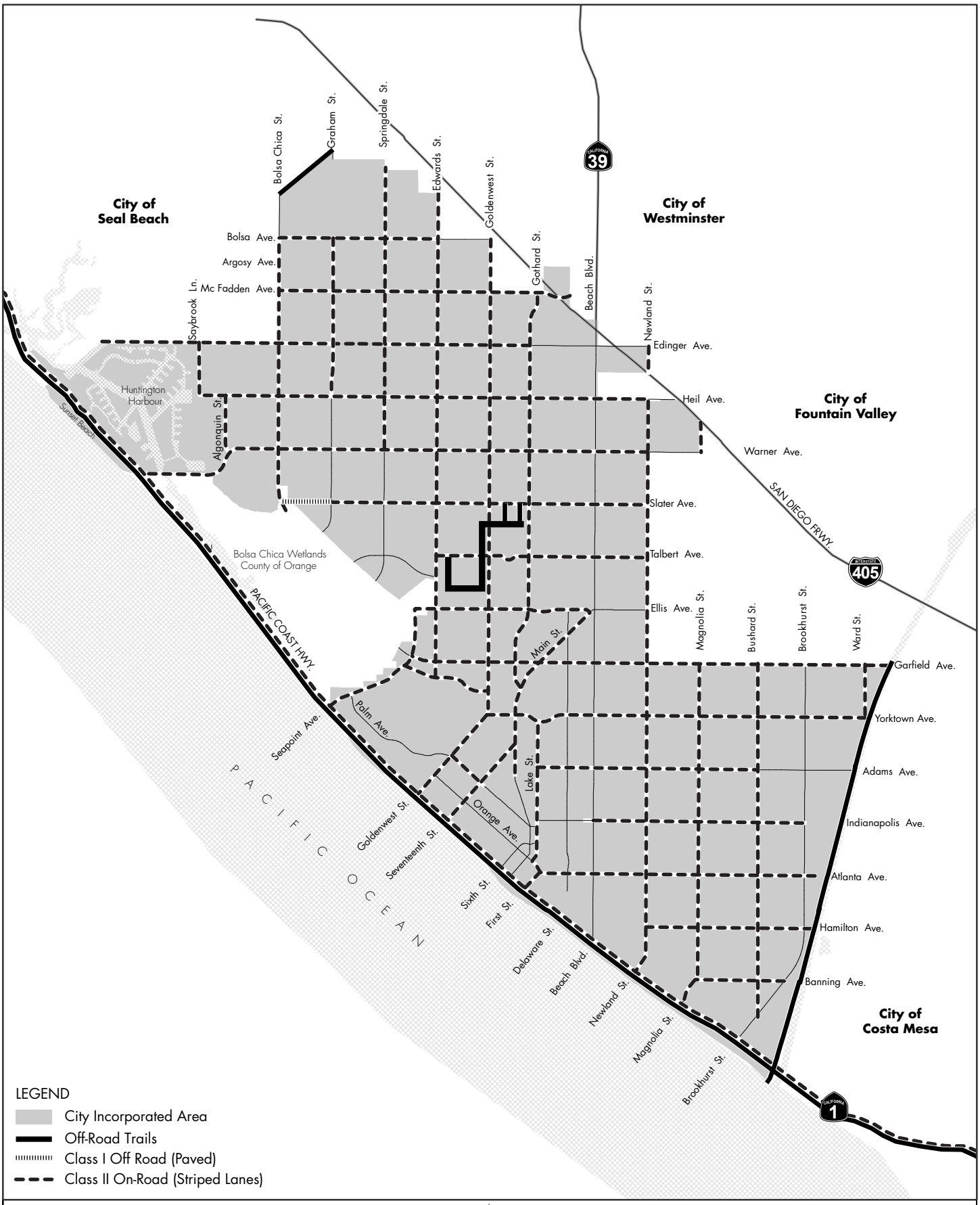
Routes for Bicyclists

Huntington Beach's mild climate permits bicycle riding year-round, and the growing popularity of bicycling has drawn enthusiasts onto the streets and bike trails near the beach and throughout the City. The bikeway plan shown in Figure CE-4 identifies the planned system of bikeways to accommodate growing demand and provide a real alternative to the car for local trips. The plan establishes three classes of bicycle routes:

A Class I Bike Path runs adjacent to the Santa Ana River.

- **Class I Bike Paths** – Off-road routes located along designated multi-use trails or vacated rail lines separated from streets.
- **Class II Bike Lanes** – On-road routes delineated by painted stripes and other identifying features.
- **Class III Bike Routes** – On-road routes sharing use with pedestrians or motor vehicle traffic that are signed but not striped.

Cross-sections for each type of route are shown on Figure CE-5. Class II and III routes along the north-south and east-west arterials connect to pedestrian trails and Class I routes. Given the built-out nature of the City, creating new Class I routes are difficult. Thus, where bicyclists and pedestrians share the road with automobiles, the City will work to meet appropriate traffic safety standards.



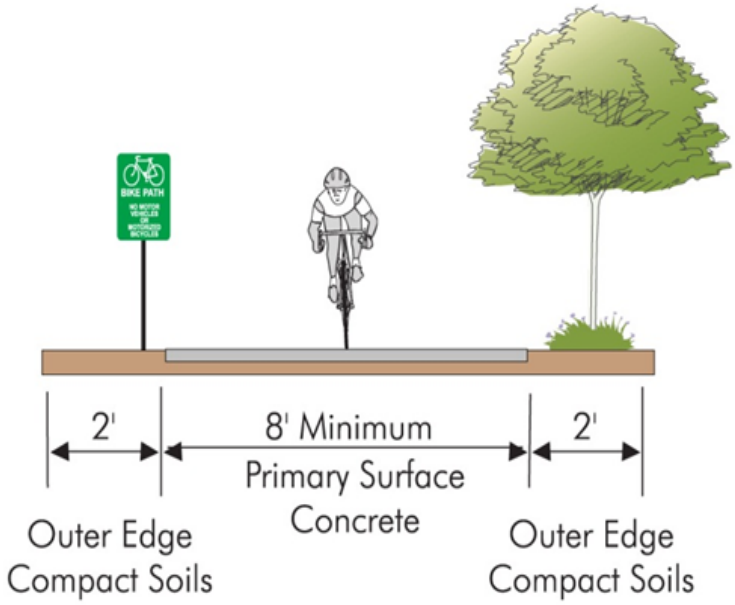
BIKEWAY PLAN

FIGURE CE-4

City of Huntington Beach General Plan

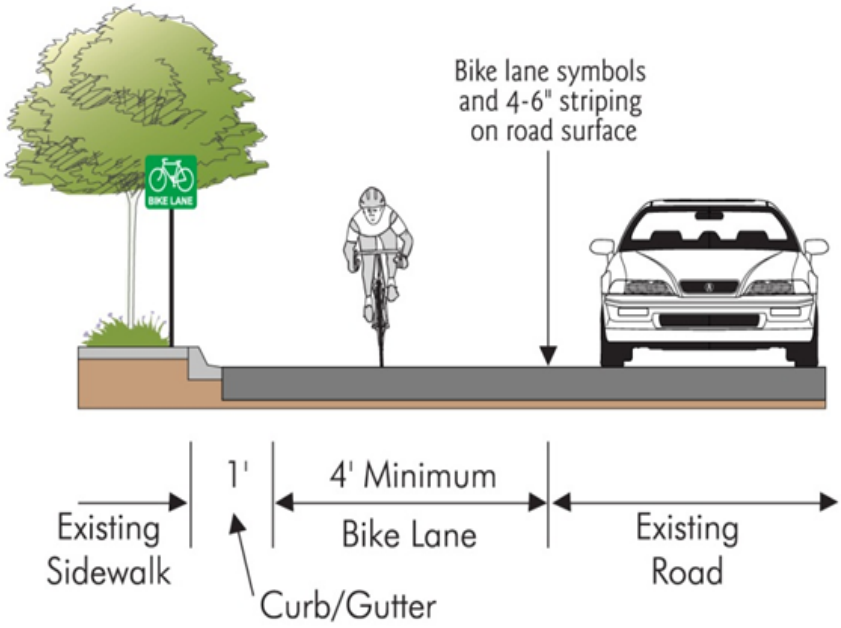
Class I (Bike Path)

Wider lanes recommended for high bike volumes or high levels of mixed use.



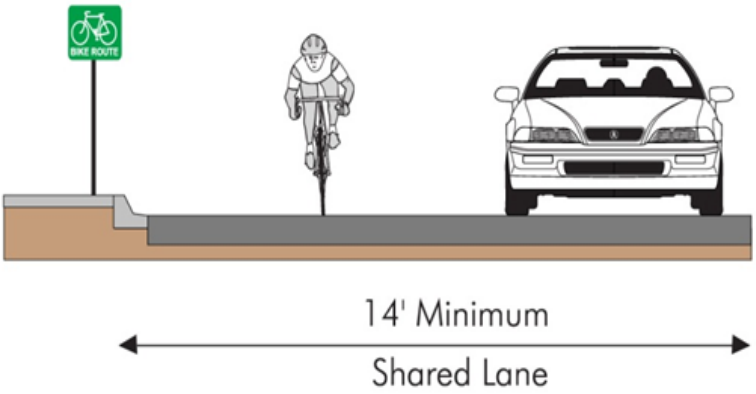
Class II (Bike Lane)

4' total width where curb occurs. Wider bike lane recommended for high bike volumes or if adjacent to on-street parking.



Class III (Bike Route)

On Street Signed Bicycle Lane



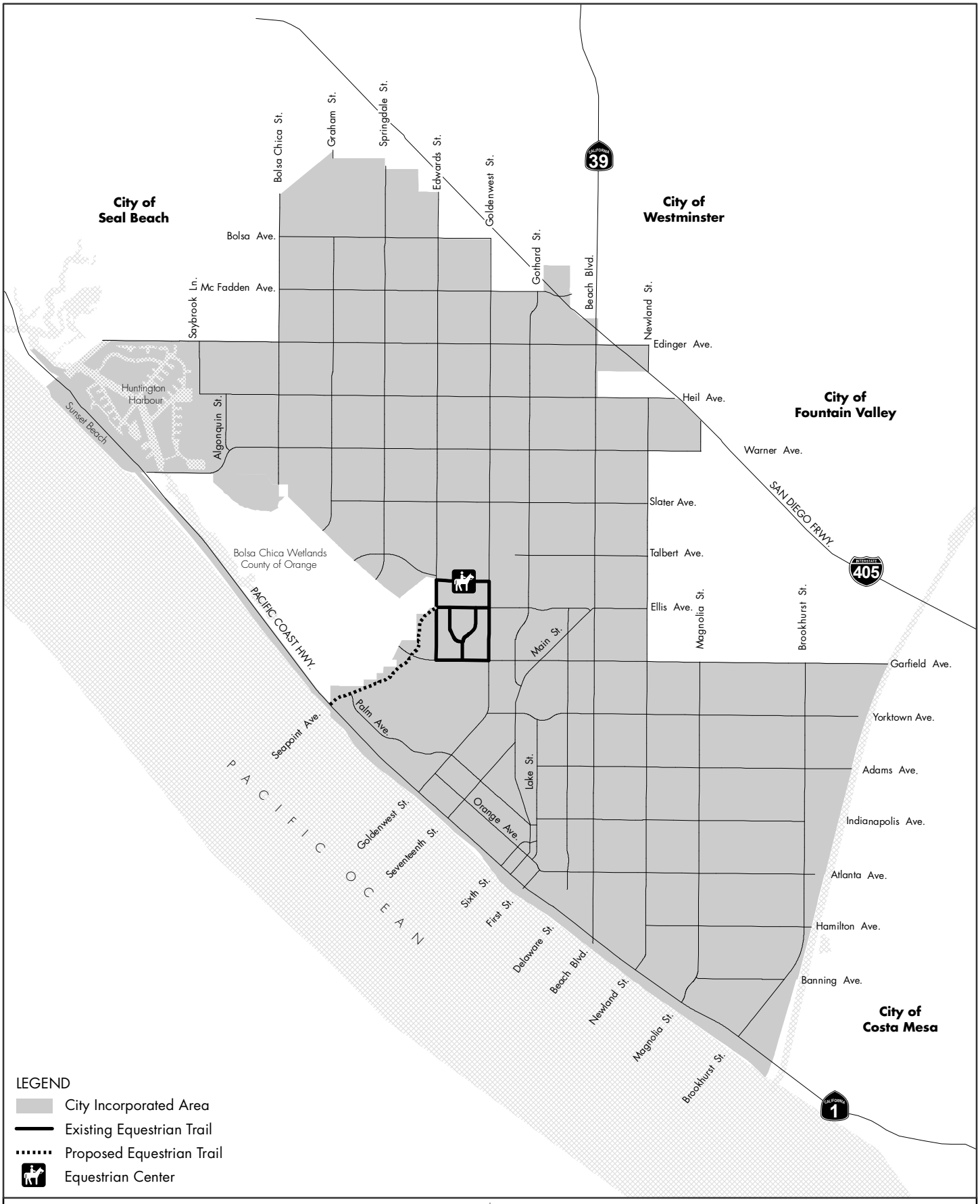
BICYCLE ROUTES

FIGURE CE- 5

Equestrian Facilities

Huntington Beach, despite its generally suburban character, has managed to retain a few residential neighborhoods, near Central Park, where the keeping of horses is permitted. To support equestrian activities, the City has developed horse trails around and through these neighborhoods (see Figure CE-6) with a planned route west to Pacific Coast Highway. Visitors and others also use the trails on rented horses available at the Huntington Central Park Equestrian Center. The center and equestrian trails provide unique and welcome recreation options for residents and others, and the City will retain these facilities as community resources.

The Huntington Central Park Equestrian Center provides equestrian access to Central Park, as well as planned trails connecting to Harriett M. Weider Regional Park.



EQUESTRIAN FACILITIES

FIGURE CE-6

City of Huntington Beach General Plan

Boating

Given the City's coastal location, Huntington Beach residents take advantage of its local waterways largely for recreation from Huntington Harbour, Sunset Channel and the Orange County Sunset Aquatic Marina. Additional future uses could include ferries to employment centers or water taxis. The City supports and encourages private development of such water-borne transportation options.

SCENIC CORRIDORS

The practice of identifying scenic corridors and routes was introduced by the State of California in the 1960s as a way to protect the aesthetic value of lands adjacent to highways. In Huntington Beach, this practice has been extended to cover corridors that the City has determined to have notable aesthetic appeal for the community.

Caltrans defines scenic corridors as lands generally adjacent to and visible from the highway, using a motorist's line of vision. Scenic corridors in Huntington Beach consist of roads that offer motorists, cyclists, and pedestrians attractive vistas and pleasing street scenes. Though not officially designated by the state,

Main Street is one of the City's key landscape corridors.

Pacific Coast Highway in Sunset Beach is an informal "Scenic Highway," which is effectively the equivalent of a major urban scenic corridor. The City has established policies regarding treatment of scenic corridor right-of-ways, selection criteria for appropriate surrounding land uses, and rigorous development review procedures to protect the aesthetic appeal of these corridors.

The City defines three types of scenic corridors, identified in Figure CE-7:

- **Major Urban Scenic Corridors** – Major corridors offering views of either natural or built environments. Development may be regulated to preserve views within the coastal zone, and landscaping and detailing are required to reinforce the aesthetic beauty of the surrounding area. Major urban scenic corridors are prominent, signature boulevards conveying arrival and identity, and in many cases will connect with adjacent Cities.

- **Minor Urban Scenic Corridors** – Minor corridors terminate within the City boundaries and typically carry less traffic than major corridors. Development may be regulated to preserve views within the coastal zone, and landscaping and detailing are required to reinforce the aesthetic beauty of the surrounding area.

- **Landscape Corridors** – Corridors requiring specific treatment of signage, landscaping, or other details to reinforce the design continuity of the area.

Scenic corridors are regulated by design standards contained in the Urban Design Element. Table CE-3 summarizes some of the development requirements associated with scenic corridors. Table UD-2 in the Urban Design Element provides additional information on specific treatments for each corridor.

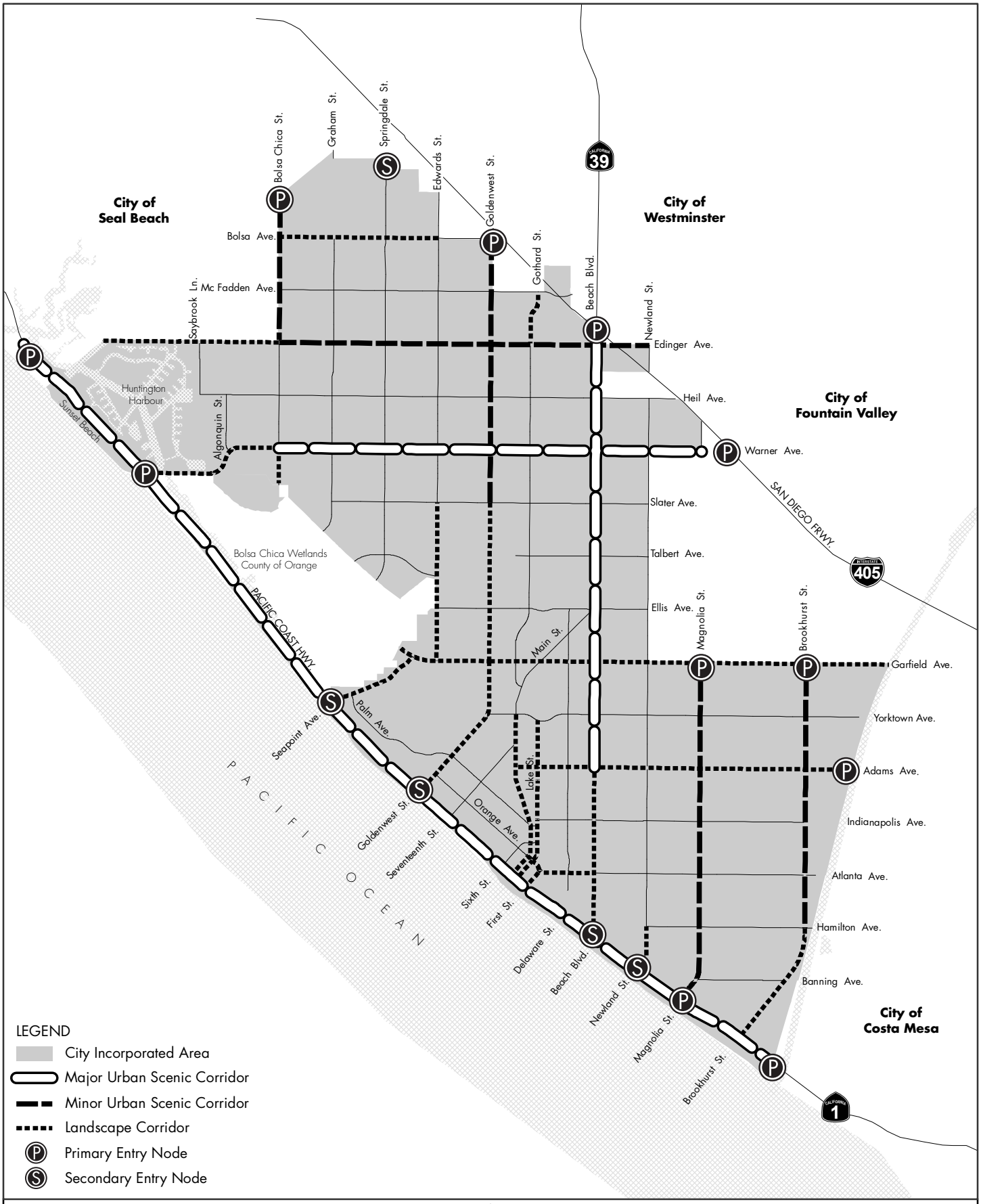
TABLE CE-3

Summary of Scenic Corridor Development Requirements

Scenic Corridor Type	Development Requirements
Urban Scenic Corridors (Major and Minor)	▪ Utilities to consist of underground facilities ▪ Prohibit off-site signs and billboards ▪ Require open space easements for "natural" areas adjacent to corridor ▪ Require adjacent developments to incorporate compatible landscaping ▪ Other design requirements as specified in the Urban Design Element ▪ Utilize the City's Design Review Board to evaluate developments within designated scenic corridors
Landscape Corridors	▪ Prohibit off-site signs and billboards ▪ Require adjacent developments to incorporate compatible/increased landscaping ▪ Other design requirements as specified in the Urban Design Element

Transportation and Urban Runoff

The quality and quantity of storm water runoff flowing into the Santa Ana River and Pacific Ocean are regulated by the State of California. Urban places such as Huntington Beach contain expanses of impervious surfaces that prevent storm water from percolating into the ground; instead, runoff drains lead directly to the river or ocean. The circulation system—comprising sidewalks, roads, and parking lots—makes up a large proportion of the impervious surface acreage in the City and resulting pollution. Many of the pollutants entering the storm water system are byproducts of motor vehicles, including gas and oil.



SCENIC HIGHWAY PLAN

FIGURE CE-7

To responsibly address the water quality impacts of urban runoff, and to meet Santa Ana Regional Water Quality Control Board National Pollutant Discharge Elimination System (NPDES) permit requirements, the City will continue to require mitigation of potential impacts of transportation-related sources of water pollution, particularly in urban runoff.

KEY ISSUES

1. While the City has generally maintained adequate LOS over time, traffic congestion is approaching unacceptable levels at some key intersections. For example, portions of Beach Boulevard experience congestion at critical locations, and portions of Pacific Coast Highway can experience congestion during weekday peak hours and on weekends. The City does not control operations on these roadways, as they are under Caltrans jurisdiction.

2. Maintaining adequate level of service is important for traffic safety and the ability of the City emergency service providers to respond to emergency situations.

3. Without future improvements, traffic generated by new development may negatively impact circulation flows in Huntington Beach and surrounding cities.

4. Alternative modes of transportation could provide additional links to central Orange County and beyond.

5. Undesired bypass and cut-through traffic impact some residential areas.

6. The circulation system contributes to urban runoff affecting the Santa Ana River, wetlands and the Pacific Ocean.

7. Increasing volumes of vehicle trips contribute to current levels of air pollutants, which may affect both public health and global climate change.

8. Scenic corridors throughout the City that provide visual access to the beach, the ocean, and attractive features within the built environment should be protected from encroachment.

GOALS, POLICIES, AND OBJECTIVES

These goals and policies establish the framework City staff and decision makers will use to enhance and improve all modes of circulation in Huntington Beach. Where possible, quantified objectives are also stated. References to applicable implementation programs are provided following the policy statement.

Regional Mobility

Goal
CE 1
Provide a balanced transportation system that moves people and goods throughout the City efficiently, promotes economic development, preserves residential neighborhoods, meets safety standards, and minimizes environmental impacts.

Policies
CE 1.1
Pursue completion of missing roadway links and other related facilities shown on the Arterial Highway Plan.

Related Implementation: CE-11, 12

CE 1.2
Monitor and participate in applicable County, regional, State, and federal transportation plans and proposals.

Related Implementation: CE-25, 26, 27, 28, 31, 32, 33

CE 1.3
Maintain compliance with the OCTA Congestion Management Program or any subsequent replacement program.

Related Implementation: CE-13, 27, 28

CE 1.4
Coordinate planning, construction, and maintenance of circulation improvements with adjacent jurisdictions and transportation agencies to ensure consistency within the circulation system.

Related Implementation: CE-6, 25, 26, 28, 29, 31

CE 1.5
Provide adequate capacity for circulation needs while minimizing significant negative environmental impacts.

Related Implementation: CE-1, 11, 12, 13, 17, 21, 25, 28

CE 1.6
Develop and maintain the City street network consistent with the Arterial Highway Plan (Figure CE-2) and standard roadway cross-sections (Figure CE-1), including appropriate roadway widths, medians, and bicycle lanes.

Related Implementation: CE-1, 6, 11, 12

CE 1.7
Use Intelligent Transportation System (ITS) measures to reduce congestion at intersections, as applicable.

Related Implementation: CE-13

CE 1.8
Maintain truck routes (Figure CE-8) that move goods efficiently throughout the City and mitigate traffic and noise impacts of truck traffic on noise sensitive land uses.

Related Implementation: CE-9

CE 1.9
Provide a circulation system that helps to meet emergency response time goals stated in the Public Facilities and Services Element and Growth Management Element.

Related Implementation: CE-3, 4, 13, 20

CE 1.10
Complete transportation improvements that assist in meeting the response goals for emergency services.

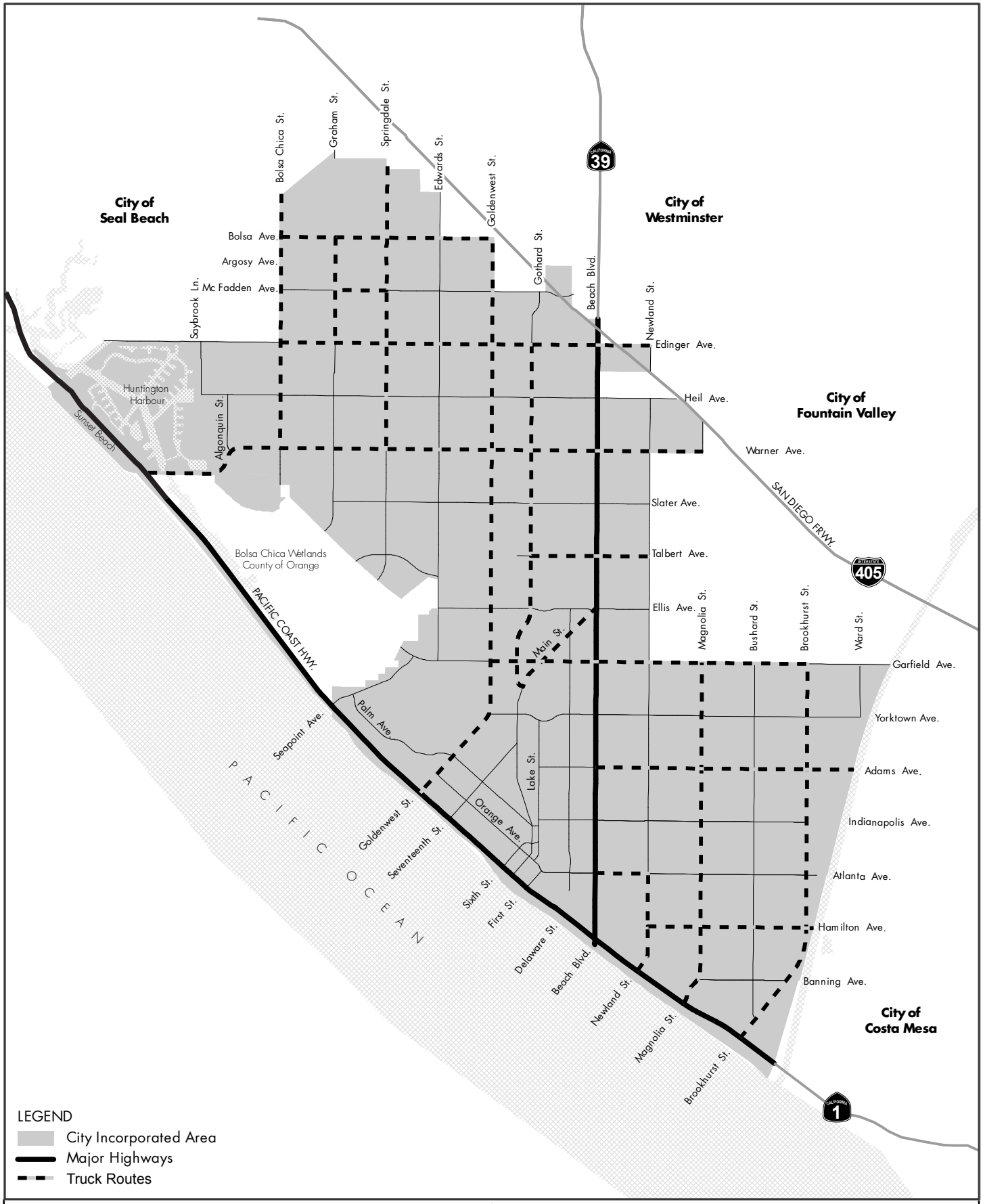
Related Implementation: CE-4, 13

CE 1.11
Provide a system of primary, major, and secondary arterials that can be used for evacuating persons during emergencies or for ingress when emergency response units are needed.

Related Implementation: CE-4, 13

Roadway Circulation

Goal
CE 2
Provide a circulation system that supports existing, approved, and planned land uses throughout the City while maintaining a desired level of service and capacity on all streets and at all intersections.



TRUCK ROUTES

FIGURE CE- 8

Source: Austin-Foust Associates, 2009

City of Huntington Beach General Plan

Policies

CE 2.1
Comply with adopted performance standards for acceptable levels of service.

Objective 2.1: Maintain the following citywide level of service (LOS) standards for traffic-signal controlled intersections during peak hours:

- Locations with specific characteristics identified as critical intersections: LOS E (ICU to not exceed 1.00)
- Principal Intersections: LOS D (0.81-0.90 ICU)
- Secondary intersections: LOS C (0.71-0.80 ICU)

LOS is to be determined during weekday morning and evening peak hours. Expanded timeframes may be applied to individual uses that generate high volumes of traffic during off-peak hours or weekends.

Related Implementation: CE-11, 12

CE 2.2
Monitor the capacity of principal intersections throughout the City. When principal intersections approach or have reached unacceptable levels of service, consider elevating the priority of Capital Improvement Program (CIP) projects that reduce traffic congestion at these intersections.

Related Implementation: CE-11, 12

CE 2.3
Require additional right-of-way and restrict parking on segments adjacent to principal intersections to allow for future intersection improvements and turning movements as needed to satisfy performance standards.

Related Implementation: CE-11, 12

CE 2.4
Require that new development provide circulation improvements to achieve stated City goals.

Related Implementation: CE-1, 17

CE 2.5
Require development projects to mitigate to the maximum extent feasible traffic impacts to adjacent land uses and neighborhoods as well as vehicular conflicts related to the project.

Related Implementation: CE-1, 17

CE 2.6
Limit driveway access points, require driveways to be wide enough to accommodate traffic flow from and to arterial roadways, and establish mechanisms to consolidate driveways where feasible and necessary to improve traffic flow.

Related Implementation: CE-18

CE 2.7
Require that driveways be located to minimize impacts to the smooth, efficient and controlled flow of vehicles, bicycles and pedestrians.

Related Implementation: CE-17, 18

CE 2.8
Study implications of the City assuming jurisdiction of Beach Boulevard to further operational improvements.

Related Implementation: CE-25

Neighborhood Traffic Management

Goal

CE 3
Protect residential neighborhoods from adverse conditions associated with cut-through and non-residential traffic.

Policies

CE 3.1
Enforce policies and established procedures for traffic calming.

Related Implementation: CE-5, 18

CE 3.2
Encourage the design and construction of new major roadways in a manner that minimizes impacts to existing residential neighborhoods.

Related Implementation: CE-5

Public Transportation

Goal

CE 4
Create a balanced and integrated multi-modal transportation system that increases mass-transit opportunities for Huntington Beach residents.

Policies

CE 4.1
Encourage and support the various public transit agencies and companies, ride-sharing programs, and other incentive programs that provide forms of transportation other than the private automobile.

Related Implementation: CE-7, 14, 35

CE 4.2
Continue to reserve abandoned rail rights-of-way for future transportation uses such as transit and bicycle facilities.

Related Implementation: CE-33

CE 4.3
Explore the possibility of locating a transportation center in or near Downtown.

Related Implementation: CE-14

CE 4.4
Pursue an urban transit system that serves Huntington Beach.

Related Implementation: CE-14, 28

CE 4.5
Maintain a system of transit and para-transit services that assist seniors and persons with disabilities.

Related Implementation: CE-14, 32

CE 4.6
Ensure that construction and operation of heliports and helistops complies fully with permit procedures under State law, including referral to the Airport Land Use Commission (ALUC), and with all conditions of approval imposed or recommended by the Federal Aviation Administration,, ALUC, and Caltrans. This requirement shall be in addition to compliance with the City noise ordinance.

Related Implementation: CE-24

CE 4.7
Ensure that development proposals, including the construction or alteration of a structure more than 200 feet above ground level, fully comply with procedures provided by Federal and State law, with the referral requirements of the ALUC, and with all conditions of approval imposed or recommended by the Federal Aviation Administration, ALUC, and Caltrans, including filing a Notice of Landing Area Proposal. This requirement shall be in addition to compliance with all other City development requirements.

Related Implementation: CE-24

Transportation Demand Management (TDM) and Air Quality

Goal

CE 5
Maximize use of transportation demand management strategies to reduce total vehicle miles traveled and improve regional air quality.

Policies

CE 5.1
Require developers to incorporate design features that reduce air pollution from motor vehicles, such as transit facilities and park-and-ride sites; bus benches, shelters, pads, or turnouts; bicycle racks and lockers; and preferred parking for ride sharers.

Related Implementation: CE-19, 21

CE 5.2
Encourage and support the use of low emission and alternative fuel vehicles within the City.

Related Implementation: CE-35

CE 5.3
Require businesses to provide employee incentives for using alternatives to the conventional automobile, including carpools, vanpools, buses, bicycles, walking,, and telecommuting.

Related Implementation: CE-7, 21, 35

CE 5.4
Support the efforts of businesses to use transportation management techniques such as flex-time, staggered working hours and other means to lessen commuter traffic during peak hours.

Related Implementation: CE-7, 35

CE 5.5
Support the promotion of ride sharing through publicity and public education.

Related Implementation: CE-35

CE 5.6
Continue to enforce the City's TDM ordinance and amend the ordinance as needed to reflect changes in technology and work habits.

Related Implementation: CE-30, 35

Parking

Goal
CE 6
Ensure that the parking demands of non-residential uses do not adversely impact the City's residential neighborhoods, that the City's parking policies support reduced reliance on personal auto use and that parking supply is adequate to meet City economic development objectives.

Policies
CE 6.1
Require that development projects supply parking that supports anticipated demands.

Related Implementation: CE-5, 21

CE 6.2
Support and collaborate with property owners to manage the supply of parking.

Related Implementation: CE-11

CE 6.3
Allow for shared parking and other creative parking arrangements that optimize available parking areas.

Related Implementation: CE-5

CE 6.4
Explore the possibility of increasing bicycle parking in or near downtown.

Related Implementation: CE-6

Pedestrian, Bicycle, and Equestrian Paths and Waterways

Goal
CE 7
Provide a system of bicycle, pedestrian, and equestrian paths, and waterways for commuter, school and recreational use.

Policies
CE 7.1
Coordinate the planning of equestrian, bicycle, bus and pedestrian routes and facilities to promote an interconnected system.

Related Implementation: CE-6, 19, 32

CE 7.2
Coordinate with neighboring jurisdictions to ensure that bicycle routes within the City connect to and are consistent with routes in adjacent jurisdictions

Related Implementation: CE-6, 28

CE 7.3
Coordinate with the County to ensure that new routes identified in the City's Bike Route Plan are incorporated within the County's Master Plan of Bikeways.

Related Implementation: CE-28

CE 7.4
Encourage the use of easements and/or rights-of-way along flood control channels, public utilities, railroads, and streets, for use by bicyclists and/or pedestrians, where safe and appropriate.

Related Implementation: CE-19

CE 7.5
Maintain existing pedestrian and bicycle facilities, and require developers to provide pedestrian walkways and/or bicycle pathways between new residences and schools, parks, and public facilities.

Related Implementation: CE-15, 17, 19

CE 7.6
Maintain an equestrian trail network that supports horse properties and local stables, and look to link to regional facilities that can be combined with hiking trails.

Related Implementation: CE-16, 19

CE 7.7
Designate and improve Pedestrian Enhancement Zones (PEZs) at appropriate locations.

Related Implementation: CE-15

CE 7.8
Implement and operate appropriate traffic control devices throughout the community to reduce conflicts between pedestrians, bicycles, and motor vehicles.

Related Implementation: CE-2, 15

CE 7.9
Maintain navigable waterways in Huntington Harbour and Sunset Channel for both recreational and commuter use.

Related Implementation: CE-10

CE 7.10
Ensure that bicycle and pedestrian facilities within the City comply with accessibility provisions of the Americans with Disabilities Act (ADA).

Related Implementation: CE-6, 15

Scenic Corridors

Goal
CE 8
Maintain and enhance visual quality and scenic views along designated scenic corridors.

Policies
CE 8.1
Protect and enhance viewsheds along designated scenic corridors.

Related Implementation: CE-8, 22, 23

CE 8.2
Establish landscape and urban streetscape design themes for landscape corridors, minor urban scenic corridors, and major urban scenic corridors that create a distinct character for each, enhancing each corridor's surrounding land uses. For example,design-themes for corridors adjacent to residential neighborhoods should be different than the design themes for industrial or commercial uses.

Related Implementation: CE-8, 22

CE 8.3
Require that any bridges, culverts, drainage ditches, retaining walls, and other ancillary scenic and landscape corridor elements be compatible and architecturally consistent with surrounding development and established design guidelines.

Related Implementation: CE-22

CE 8.4
Require that slopes and earthen berms along scenic corridors be landscaped consistent with design objectives and standards.

Related Implementation: CE-22

CE 8.5
Provide landscaped medians and sidewalk treatments in accordance with City standards within major and primary arterial streets designated as landscape corridors, and continue to require the construction of landscaped medians and sidewalk treatments in new developments.

Related Implementation: CE-22

CE 8.6
Integrate scenic corridors with open spaces and recreational uses, enhancing public spaces and transitions between differing uses.

Related Implementation: CE-22

CE 8.7
Require that development projects adjacent to a designated scenic corridor include open spaces, plazas, gardens, and/or landscaping that enhance the corridor and create a buffer between the building site and the roadway.

Related Implementation: CE-22

CE 8.8
Protect scenic corridors and open space/landscape areas by blending features within both the natural and built environments.

Related Implementation: CE-22

CE 8.9
Continue to require review of the size, height, numbers, and types of on-premise signs within scenic corridors.

Related Implementation: CE-22, 23

CE 8.10
Continue to prohibit construction of off-site signs and billboards within designated scenic corridors.

Related Implementation: CE-22, 23

CE 8.11
Continue to locate new and relocated utilities underground within scenic corridors to the greatest extent possible. All other utility features shall be placed and screened to minimize visibility.

Related Implementation: CE-22, 34

CE 8.12
Support enhanced maintenance standards and levels on scenic corridors.

Related Implementation: CE-22

IMPLEMENTATION PROGRAMS

City Plans, Ordinances and Programs

CE-1: Development Monitoring
Review an annual summary of recent years' development to determine immediate and cumulative impacts of proposed developments on the City's transportation system.

Department: Planning, Public Works, City Council
Related Policies: CE 1.5, 1.6, 2.4, 2.5

CE-2: Accident Monitoring
Monitor recurring accident locations (including vehicle versus vehicle, bicycle and/or pedestrian accidents), and determine necessary recommendations and modifications to the appropriate facilities. This may include the use of advance technologies where appropriate.

Departments: Public Works, Police, City Council
Related Policy: CE 7.8

CE-3: Emergency Response Times
Monitor and analyze emergency response time information to determine locations where response times are deficient, and evaluate and implement system improvements needed to improve response when possible.

Departments: Public Works, Fire, Police, City Council
Related Policy: CE 1.9

CE-4: Emergency Management Program
Implement the City's Emergency Management Program according to requirements and provisions of the State Emergency Management System (SEMS). Ensure that the program establishes community evacuation routes and emergency shelter facilities, and is easily available to the public.

Departments: Fire, Police, City Council
Related Policies: CE 1.9, 1.10, 1.11

CE-5: Neighborhood Circulation Improvements
Prepare and maintain a Neighborhood Traffic Management Technical Administrative Report that identifies needed methods to address cut-through traffic volumes, high speeds, truck traffic intrusions, demonstrated accident history, parking shortages, or school-related traffic congestion in City neighborhoods such as:

- Discouraging creation of new major roadway connections that would adversely impact the character of existing residential neighborhoods.
- Continuing to develop and implement parking and traffic control plans for neighborhoods that are adversely impacted by spill-over parking and traffic, as feasible.
- Implementing the Residential Parking Permit Program (Municipal Code Chapter 10.42) in residential areas as prescribed in the Municipal Code.
- Considering appropriate traffic-calming measures such as raised medians and provision of bike or transit lanes to mitigate problems posed by schools and other land uses that generate high traffic volumes at specific times. Provide solutions to mitigate these problems as warranted by local studies.

Department: Public Works, City Council
Working With: School Districts
Related policies: 3.1, 3.2, 6.1, 6.3

CE-6: Bikeway Plan
Implement and update Huntington Beach's Bikeway Plan to plan and prioritize facilities for both recreational cyclists and commuters, including:

- Reviewing neighboring jurisdictions' bikeway plans every five years to ensure consistency
- Linking bicycle routes with bus routes to promote an interconnected system.
- Evaluating potential for a future bicycle parking structure in or near downtown.
- Ensuring compliance with ADA accessibility standards.

Department: Public Works, Planning Commission, City Council
Working with: OCTA, Caltrans
Related Policies: CE 1.4, 1.6, 6.4, 7.1, 7.2, 7.10

CE-7: Transportation Demand Management Ordinance
Create and implement programs that will aid in improving air quality by reducing motor vehicle trips, such as those programs recommended by the SCAQMD, required by the Transportation Demand Ordinance (Zoning Code Title 23, Chapter 230, Section 230.36), or funded by the Mobile Source Air Pollution Reduction Ordinance vehicle fee allocation. The TDM ordinance requires employers of 100 or more persons to support alternative forms of transportation by providing appropriate facilities, including: showers and lockers, parking for vanpools, bicycle parking and passenger loading areas.

Department: Planning, Public Works, Planning Commission, City Council
Related Policies: CE 4.1, 5.3, 5.4

CE-8: Scenic Corridors
Continue to maintain scenic corridors and seek grant funding to support their maintenance. Prepare and maintain a Scenic Corridors Technical Administrative Report describing the proposed improvements such as landscaped medians and enhanced landscaping, among others.

Departments: Public Works, Planning, Community Services, Planning Commission, City Council
Related Policies: CE 8.1, 8.2

CE-9: Trucking Industry
Continue to enforce City truck routes, and work with trucking industry representatives to orient trucks to truck routes to avoid traffic and noise impacts on local roadways, and to divert commercial truck traffic to off-peak-periods to reduce congestion and diesel emission. Designate new local truck routes when necessary. Require adequate truck access, parking, and loading within new commercial and industrial projects, consistent with requirements of the Zoning Ordinance.

Departments: Planning, Public Works, Planning Commission, City Council
Working with: Caltrans
Related Policy: CE 1.8

CE-10: Water-Borne Transportation
Continue to support the maintenance of existing waterways. Encourage private development of water-borne transportation for recreation or commuting.

Departments: Planning, Community Services, Public Works, City Council
Related Policy: CE 7.9

Capital Improvements

CE-11: Capital Improvement Program
Use the City's 5-year Capital Improvement Program (CIP) process to prioritize, fund, and build required roadway and bikeway improvements, and to address phasing and construction of traffic infrastructure throughout the City.

To prioritize these improvements, the City's Technical Administrative Reports (TARs) will be reviewed and updated regularly with current citywide traffic counts for roadway links and intersections. Roadways and intersections that are approaching the LOS standards stated in Objective 2.1 should be prioritized appropriately for improvements including road widening, paving, parking restrictions, or intersection improvements.

Department: Public Works, City Council
Related Policies: CE 1.1, 1.5, 1.6, 2.1, 2.2, 2.3, 6.2

CE-12: Principal and Secondary Intersection Improvements
Prepare and maintain a Principal and Secondary Intersections Technical Administrative Report(TAR) that will include information such as roadway dimensions, a listing of intersections and roadway improvements required to transition from the current system of roadways to full implementation of the Arterial Highway Plan, current citywide traffic counts for roadway links and intersections and other useful traffic-related information. Content included will be based on need, as determined by the Director of Public Works. Updates to the TAR will be coordinated annually in tandem with the Capital Improvement Program. The TAR will be available for use by City staff and decision makers, and should be available for review by the public. Include TAR information in the City's GIS system as appropriate and feasible.

Department: Public Works, City Council
Related Policies: CE 1.1, 1.5, 1.6, 2.1, 2.2, 2.3

CE-13: Traffic Technology
Use appropriate technologies to improve traffic flow and reduce and manage congestion, such as:

- Installing and maintaining preemptive emergency signaling devices for each direction at appropriate traffic signal-controlled intersections within the City.
- Continuing to implement a traffic signal coordination program to improve traffic flow.

- Developing a citywide traffic management center.

Department: Public Works
Related Policies: CE 1.3, 1.5, 1.7, 1.9, 1.10, 1.11

CE-14: Transit
Encourage and support development of convenient and attractive transit facilities in addition to the Goldenwest Transportation Center. Support efforts to make both new and existing facilities available and accessible to the disabled and seniors.

Departments: Planning, Public Works, Planning Commission, City Council
Working with: OCTA
Related Policies: CE 4.1, 4.3, 4.4, 4.5

CE-15: Pedestrian Facilities and Enhancement Zones
Maintain existing pedestrian facilities and require new development to provide accessible pedestrian walkways between developments, schools, and public facilities. Review potential areas in or near Downtown, adjacent to the beach, and along portions of Beach Boulevard for designation as pedestrian enhancement zones. Prepare and maintain a Pedestrian Facilities Technical Administrative Report describing the location and proposed improvements in enhancement zones and other pedestrian facility related analyses. Such improvements may include wider sidewalks, enhanced or new crosswalks, trees, pedestrian-scale lighting, or traffic-calming measures. All improvements shall comply with ADA accessibility standards. Exact improvements will vary depending on location.

Departments: Planning, Public Works, Planning Commission, City Council
Working With: School Districts
Related Policies: CE 7.5, 7.7, 7.8, 7.10

CE-16: Equestrian Facilities
Continue to maintain trails and other equestrian facilities.

Department: Community Services, Public Works, City Council
Related Policy: CE 7.6

Development Review Requirements

CE-17: Site Development Permit Process and CEQA
Utilize the site development permit process and the California Environmental Quality Act (CEQA) to:

- Review potential impacts of proposed projects to the Circulation System and require appropriate mitigation measures as required by CEQA.
- Require preparation of traffic impact studies as described within the City's traffic study guidelines, to analyze and evaluate the potential impacts of traffic generated by new development and the effects on adjacent land uses and surrounding neighborhoods. This information shall be used to determine appropriate mitigation measures for the proposed project and will be added to the citywide traffic database and Technical Administrative Report.
- Review new development proposals for mitigation of the impacts of traffic generation, including pedestrian, bicycle, and vehicular conflicts, in order to ensure that the City's circulation system meets appropriate safety standards.
- Review driveways in proposed developments to ensure they are located in such a way as to facilitate smooth, efficient and controlled traffic flow.
- Review new development and redevelopment proposals for mitigation of potential impacts of transportation-related sources of water pollution, particularly in urban runoff.

Departments: Planning, Public Works, Planning Commission, City Council
Related Policies: CE 1.5, 2.4, 2.5, 2.7, 7.5

CE-18: Access Control
Locate new developments and their access points in such a way that vehicular traffic is not encouraged to use local residential streets. Require, where appropriate, an irrevocable offer of mutual access across adjacent non-residential properties fronting arterial roadways and require use of shared driveway access. Minimize driveway access points, require driveways to be wide enough to accommodate traffic from and to arterial roadways, and establish mechanisms to consolidate driveways where appropriate.

Departments: Planning, Public Works, Planning Commission, City Council
Related Policies: CE 2.6, 2.7, 3.1

CE-19: Alternative Transportation Mode Design Features
Require new development to incorporate transit-oriented design features and attractive, accessible, and appropriate transit, bicycle, equestrian, and pedestrian

amenities to promote and support public transit and alternate modes of transportation, including but not limited to:

- Requiring bus turn-outs and shaded bus stops where appropriate.
- Requiring new development to provide convenient and well-lit pedestrian facilities consistent with applicable standards.
- Requiring that all new bicycle trip destinations, including schools, shopping areas, and transit stops be equipped with bicycle racks and/or bicycle lockers.
- Continue to allow equestrian access to the beach.
- Encouraging developments to incorporate easements and/or rights of way along flood control channels, public utilities, railroads and streets for the use of bicyclists and/or pedestrians.

Departments: Planning, Public Works, Planning Commission, City Council
Working with: OCTA
Related Policies: CE 5.1, 7.1, 7.4, 7.5, 7.6

CE-20: Emergency Access
Provide approved means for emergency vehicles to access and turn around on residential streets.

Departments: Public Works, Planning, Fire, Police, Planning Commission, City Council
Related Policy: CE 1.9

CE-21: Transportation Demand Management and Air Quality
Require new employers to comply with the City's Transportation Demand Management (TDM) Ordinance and the Air Quality Element of the General Plan.

Departments: Planning, Planning Commission, City Council
Related Policies: CE 1.5, 5.1, 5.3 6.1

CE-22: Scenic Corridors
Through the development review process for proposed development along scenic corridors:

- Require analysis evaluating the impacts on public views to the ocean.
- Require developments adjacent to designated scenic and landscape corridors to incorporate and maintain landscaping that is compatible with the visual character of the corridor and supporting scenic features.
- Utilize the City's Design Review Board to evaluate developments within designated scenic corridors.
- Require that open space easements be dedicated to the City, master homeowners association, or other responsible party as a condition of the approval for all new projects proposed in "natural" open space areas along scenic corridors.

Department: Planning, Planning Commission, City Council

Related Policies: CE 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7, 8.8, 8.9, 8.10, 8.11, 8.12

CE-23: Pacific Coast Highway Billboards
Continue to pursue the removal of and prohibit new billboards along Pacific Coast Highway. Continue to remedy problems or hindrances which prohibit Pacific Coast Highway from qualifying as a State Scenic Highway.

Department: Planning, City Council
Working with: Caltrans
Related Policies: CE 8.1, 8.9, 8.10

CE-24: Helistops/Heliports and Building Height Restrictions
Ensure that each applicant seeking approval for the construction of a) a heliport or helistop, or b) a structure more than 200 feet above ground level complies fully with federal and State permit procedures provided for by law, with referral requirements of the Orange County Airport Land Use Commission (ALUC), and with all conditions of approval imposed or recommended by the Federal Aviation Administration (FAA), by the ALUC, and by Caltrans Division of Aeronautics, including the filing of a Form 7480-1 (Notice of Landing Area Proposal) with the FAA. This requirement shall be in addition to all other requirements of the City.

Department: Planning, Public Works, Planning Commission, City Council
Working with: Orange County Airport Land Use Commission, Caltrans
Related Policy: CE 4.6, 4.7

Interjurisdictional Coordination

CE-25: Caltrans
Coordinate with Caltrans regarding the following actions:

- Administration of State highways within the City.
- Approval of heliports and helistops.
- Achievement of State Scenic Highway status for Pacific Coast Highway.
- Mutual establishment of clear policies and objectives for meeting regional and local transportation needs.
- Development of a plan to eliminate dry weather urban runoff and pollutants from storm flow highway and street runoff.
- Coordination on all plans, activities, and projects which may affect State roadway facilities.
- Investigate the potential to declassify Beach Boulevard as a State highway and transfer the responsibility for this road from Caltrans to the City in coordination with the Beach Boulevard Specific plan.

Departments: Public Works, Planning, City Council
Working with: Caltrans
Related Policies: CE 1.2, 1.4, 1.5, 2.8

CE-26: Southern California Association of Governments
Participate with the Southern California Association of Governments (SCAG) and represent the City's interests in development of regional transportation initiatives such as the *Regional Transportation Plan*.

Departments: Public Works, Planning
Working with: SCAG
Related Policies: CE 1.2, 1.4

CE-27: South Coast Air Quality Management District
Work closely with the South Coast Air Quality Management District (SCAQMD) to improve air quality and incorporate the Air Quality Management Plan into the City's practices and programs.

Department: Public Works, Planning, Planning Commission
Working with: SCAQMD
Related Policies: CE 1.2, 1.3

CE-28: Orange County Transportation Authority
Work with the Orange County Transportation Authority (OCTA) to achieve the following:

- Maintain consistency with the County Master Plan of Arterial Highways (MPAH) within the City.
- Implement the Congestion Management Program (CMP) within the City.
- Expand and improve bus service within the City.
- Encourage provision of attractive and appropriate transit amenities, including shaded bus stops.
- Provide special transit services (such as direct shuttle or dial-a-ride services).
- Support and implement the OCTA Commuter Bikeways Strategic Plan and participate in future updates and revisions to the Plan.
- Plan and implement an urban rail system that links the City to central Orange County and Los Angeles County.
- Invest in and pursue the development of a transportation center in the coastal area.
- Plan and implement Measure M and M2 projects.
- Maintain consistency with OCTA's Long Range Transportation Plan.
- Review, every five years, the Orange County Master Plan of Bikeways to assure consistency. Update Huntington Beach's Bike Plan, as appropriate.

Departments: Public Works, Planning, City Council
Working with: OCTA
Related Policies: CE 1.2, 1.3, 1.4, 1.5, 4.4, 7.2, 7.3

CE-29: Future Santa Ana Bridge Crossings
Participate in ongoing regional planning efforts regarding the future Santa Ana River bridge crossings.

Departments: Public Works, Planning, City Council
Working with: OCTA, Caltrans, Adjacent jurisdictions
Related Policy: CE 1.4

CE-30: Single-Occupancy Vehicle Legislation
Remain aware of national, State, and regional legislation directed at reducing use of single-occupancy vehicles, and do what is feasible to support it.

Departments: Public Works, Planning, City Council
Related Policy: CE 5.6

CE-31: Adjacent Jurisdictions and Transportation Agencies
Work with adjacent jurisdictions, including the cities of Costa Mesa, Fountain Valley, Newport Beach, Seal Beach, Westminster and Orange County, to ensure that traffic impacts do not adversely impact Huntington Beach. Continue to work with other public agencies to ensure that the City's circulation and transportation system is efficient and meets applicable safety standards.

Departments: Public Works, Planning, City Council
Working with: Adjacent jurisdictions, OCTA, SCAG, Caltrans
Related Policy: CE 1.2, 1.4

CE-32: Transit System Coordination
Encourage the inclusion of facilities that transport bicycles on public transit vehicles (both fixed route and paratransit) wherever possible. Work to make routes and vehicles available and accessible to the disabled and seniors.

Department: Public Works, City Council
Working with: OCTA
Related Policies: CE 1.2, 4.5, 7.1

CE-33: Preserve Abandoned Right-of-Ways
Continue to work with rail agencies to reserve existing and abandoned right-of-ways for future transportation uses, such as transit or bicycle facilities.

Department: Public Works
Working with: SCRRA, OCTA
Related Policies: CE 1.2, 4.2

CE-34: Undergrounding Utilities
Continue to work with utility service providers to underground wires and transmission lines, especially within scenic corridors.

Department: Public Works
Working with: Public utility companies
Related Policy: CE 8.11

Ongoing Education and Outreach

CE-35: Transportation Management Outreach
Promote, publicize, and encourage the use of transportation management strategies that will aid in meeting SCAQMD mandates and guidelines, including:

- Use of low emission and alternative fuel vehicles within the City, including neighborhood electric vehicles (NEVs).
- Use of carpools, vanpools, walking, and multi-occupancy programs for midday uses.
- Employers creating Commuter Rideshare Matching Services or databases containing employees' zip codes and commuting preferences to be provided to interested participants.
- Employers participating in Guaranteed Ride Home programs that provide a rides home to employees.
- Employers using flex time, staggered working hours, and other means to reduce commuter traffic during peak hours.
- Creating NEV roadway systems and encouraging electrical vehicle charging stations.
- Participate with SCAG in the creation of a Sustainable Communities Strategy per SB 375 (Steinberg 2008).

Department: Planning, Public Works, City Council
Working with: OCTA, SCAQMD, SCAG
Related Policies: CE 4.1, 5.2, 5.3, 5.4, 5.5, 5.6

CIRCULATION IMPLEMENTATION PROGRAM MATRIX

No.	NAME	Administration																					Schedule
		Administrative Services	Community Services Department	Economic Development Department	Fire Department	Library Services Department	Police Department	Public Works	Planning	Planning Commission	City Council	School Districts	Orange County Transportation Authority	Other	General Funds	Assessment Districts	Development Fees	Redevelopment Tax Increment Revenue	Grants	Other Approved Fees	State Funds	Federal Funds	
		City of Huntington Beach													City of Huntington Beach								
Program		Responsible Agency													Funding Source								
CE-1	Development Monitoring							•	•		•				•		•		•		•	•	Ongoing*
CE-2	Accident Monitoring						•	•			•				•		•		•		•	•	Ongoing*
CE-3	Emergency Response Times				•		•	•			•				•		•		•		•	•	Ongoing*
CE-4	Emergency Management Program				•		•				•				•		•		•		•	•	Ongoing*
CE-5	Neighborhood Circulation Improvements							•			•	•			•	•	•		•		•	•	Ongoing*
CE-6	Bikeway Plan							•		•	•		•	•	•	•	•		•		•	•	Ongoing*
CE-7	Transportation Demand Management Ordinance							•	•	•	•				•	•	•		•		•	•	Ongoing*
CE-8	Scenic Corridors		•					•	•	•	•				•		•				•	•	Ongoing*
CE-9	Trucking Industry							•	•	•	•			•	•		•				•	•	Ongoing*
CE-10	Water-Borne Transportation		•					•	•		•				•		•				•	•	Ongoing*
CE-11	Capital Improvement Program							•			•				•		•	•	•		•	•	Ongoing*

* As funding permits

CIRCULATION IMPLEMENTATION PROGRAM MATRIX (cont.)

No.	NAME	Administration: Administrative Services	Community Services Department	Economic Development Department	Fire Department	Library Services Department	Police Department	Public Works	Planning	Planning Commission	City Council	School Districts	Orange County Transportation Authority	Other	General Funds	Assessment Districts	Development Fees	Redevelopment Tax Increment Revenue	Grants	Other Approved Fees	State Funds	Federal Funds	Schedule
		City of Huntington Beach													City of Huntington Beach								
Program		**Responsible Agency**													**Funding Source**								**Schedule**
CE-12	Principal and Secondary Intersection Improvements							•			•				•		•	•					Ongoing*
CE-13	Traffic Technology							•							•		•	•			•	•	Ongoing*
CE-14	Transit							•	•	•	•		•		•		•				•	•	Ongoing*
CE-15	Pedestrian Facilities and Enhancement Zones							•	•	•	•	•			•		•	•					Ongoing*
CE-16	Equestrian Facilities		•					•			•				•		•	•		•	•	•	Ongoing*
CE-17	Site Development Permit Process and CEQA							•	•	•	•				•		•				•	•	Ongoing*
CE-18	Access Control							•	•	•	•				•		•				•	•	Ongoing*
CE-19	Alternative Transportation Mode Design Features							•	•	•	•		•		•		•				•	•	Ongoing*
CE-20	Emergency Access				•		•	•	•	•	•				•		•				•	•	Ongoing*
CE-21	Transportation Demand Management and Air Quality								•	•	•				•		•				•	•	Ongoing*
CE-22	Scenic Corridors								•	•	•				•		•				•	•	Ongoing*

* As funding permits

CIRCULATION IMPLEMENTATION PROGRAM MATRIX (cont.)

No.	NAME	Administration: Administrative Services	Community Services Department	Economic Development Department	Fire Department	Library Services Department	Police Department	Public Works	Planning	Planning Commission	City Council	School Districts	Orange County Transportation Authority	Other	General Funds	Assessment Districts	Development Fees	Redevelopment Tax Increment Revenue	Grants	Other Approved Fees	State Funds	Federal Funds	Schedule
		City of Huntington Beach													City of Huntington Beach								
Program		Responsible Agency													Funding Source								
CE-23	Pacific Coast Highway Billboards								●		●			●	●		●						Ongoing*
CE-24	Helistops/ Heliports and Building Height Restrictions							●	●	●	●			●	●		●				●	●	Ongoing*
CE-25	Caltrans							●	●		●			●	●		●				●	●	Ongoing*
CE-26	Southern California Association of Governments							●	●					●	●		●				●	●	Ongoing*
CE-27	South Coast Air Quality Management District							●	●	●				●	●		●				●	●	Ongoing*
CE-28	Orange County Transportation Authority							●	●		●		●		●		●				●	●	Ongoing*
CE-29	Future Santa Ana Bridge Crossings							●	●		●		●	●	●		●				●	●	Ongoing*
CE-30	Single-Occupancy Vehicle Legislation							●	●		●				●		●				●	●	Ongoing*
CE-31	Adjacent Jurisdictions and Transportation Agencies							●	●		●		●	●	●		●				●	●	Ongoing*
CE-32	Transit System Coordination							●			●		●		●		●				●	●	Ongoing*

* As funding permits

CIRCULATION IMPLEMENTATION PROGRAM MATRIX (cont.)

No.	NAME	Administration: Administrative Services	Community Services Department	Economic Development Department	Fire Department	Library Services Department	Police Department	Public Works	Planning	Planning Commission	City Council	School Districts	Orange County Transportation Authority	Other	General Funds	Assessment Districts	Development Fees	Redevelopment Tax Increment Revenue	Grants	Other Approved Fees	State Funds	Federal Funds	Schedule
		City of Huntington Beach													City of Huntington Beach								
Program		**Responsible Agency**													**Funding Source**								**Schedule**
CE-33	Preserve Abandoned Right-of-Ways							•					•	•	•		•						Ongoing *
CE-34	Undergrounding Utilities							•						•	•		•						Ongoing *
CE-35	Transportation Management Outreach							•	•		•		•	•	•		•						Ongoing *

* As funding permits

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Circulation Element Update

Tracked Changes To Goals, Policies, Objectives, and Implementation Programs

July 2012

GOALS, POLICIES, AND OBJECTIVES

~~The following section presents the goals, objectives, policies, and programs for Circulation in the City of Huntington Beach. At the end of each policy is a reference to the appropriate implementation program. Each implementation program's~~ These goals and policies establish the framework City staff and decision makers will use to enhance and improve all modes of circulation in Huntington Beach. Where possible, quantified objectives are also stated. References to applicable implementation programs are provided following the policy statement.

Regional Mobility

Goal
CE 1
Provide a balanced transportation system that ~~supports the policies of the General Plan and facilitates the safe and efficient movement of~~moves people and goods throughout the City ~~while providing a balance between~~efficiently, promotes economic development ~~and the preservation of~~, preserves residential neighborhoods, ~~and minimizing~~meets safety standards, and minimizes environmental impacts.

~~*Objective*~~
~~CE 1.1~~
~~Balance the circulation system with the circulation demands generated by the implementation of the City's Land Use Element.~~

Policies
CE 1.1.~~1~~
~~Encourage the~~ Pursue completion of missing roadway links and other related facilities ~~by adopting~~shown on the ~~Circulation Plan of~~ Arterial ~~Highways and critical intersection improvements as shown in Figures CE-3, CE-4, CE-5 and as described in Tables CE-1, CE-2, and CE-3 of this Element. (*I-CE-1 and I-CE-4*)~~Highway Plan.

Related Implementation: CE-11, 12

~~CE 1.1.2~~
~~Monitor and participate in applicable County, Regional, State, and Federal transportation plans and proposals. (*I-CE-2 and I-CE-3*)~~

CE 1.2
Monitor and participate in applicable County, regional, State, and federal transportation plans and proposals.

Related Implementation: CE-25, 26, 27, 28, 31, 32, 33

~~CE 1.1.3~~**CE 1.3**
Maintain compliance with the ~~County's Congestion Management Plan (CMP) as shown on Figure CE-3. (I-CE-2 and I-CE-4)~~ OCTA Congestion Management Program or any subsequent replacement program.

Related Implementation: CE-13, 27, 28

CE 1.4
Coordinate planning, construction, and maintenance of circulation improvements with adjacent jurisdictions and transportation agencies to ensure consistency within the circulation system.

Related Implementation: CE-6, 25, 26, 28, 29, 31

~~CE 1.2~~**CE 1.5**
Provide~~Ensure~~ adequate capacity for ~~the City's~~ circulation needs while minimizing significant negative environmental impacts.

Related Implementation: CE-1, 11, 12, 13, 17, 21, 25, 28

CE 1.6
Develop and maintain the City street network consistent with the Arterial Highway Plan (Figure CE-2) and standard roadway cross-sections (Figure CE-1), including appropriate roadway widths, medians, and bicycle lanes.

Related Implementation: CE-1, 6, 11, 12

CE 1.7
Use Intelligent Transportation System (ITS) measures to reduce congestion at intersections, as applicable.

Related Implementation: CE-13

~~CE 1.2.3~~**CE 1.8**
Maintain ~~primary~~ truck routes (Figure CE-8) that move goods efficiently throughout the City ~~sustain an effective transport of commodities while mitigating the~~ and mitigate traffic and noise impacts of truck traffic~~negative impacts on local circulation and~~ on noise sensitive land uses. ~~as shown in Figure CE-7 and Figure N-1 of the Noise Element. (*I-CE-1*)~~

Related Implementation: CE-9

CE 1.9
Provide a circulation system that helps to meet emergency response time goals stated in the Public

Facilities and Services Element and Growth Management Element.

Related Implementation: CE-3, 4, 13, 20

~~Objective~~CE 1.910:

Complete transportation improvements that assist in meeting the response goals for emergency services.

Related Implementation: CE-~~3,~~ 4, 13~~, 20~~

~~CE 1.3.1~~**CE 1.101**

~~Ensure that~~ Provide a system of primary, major, and secondary ~~roadways are able to~~ arterials that can be used for evacuating persons ~~from their homes~~ during ~~emergency conditions~~emergencies or for ingress when emergency response units are needed. ~~*(I-CE-6, I-CE-8, and I-CE-9)*~~

Related Implementation: CE-4, 13~~CE 1.1.4~~

~~Review implementation programs that coordinate the transportation needs and requirements of the City with those of other public agencies in order to ensure that the overall circulation plan of the City is effective, efficient, and safe. (I-CE-3 and I-CE-4)~~

~~CE 1.2.1~~

~~Enhance circulation system standards for roadway and intersection classifications, right-of-way width, pavement width, design speed, capacity and associated features such as medians and bicycle lanes as specified in Figure CE-6, A and B. (I-CE-1)~~

~~CE 1.2.2~~

~~Develop a circulation system that capitalizes on significant environmental features of the City as identified in the Urban Design and Environmental Resources and Conservation Elements. (I-CE-5 and I-CE-12)~~

~~CE 1.2.4~~

~~Utilize Caltrans and City design criteria for any future truck routes within the City. (I-CE-1 and I-CE-3)~~

~~CE 1.3~~

~~Provide a circulation/transportation system which enhances and minimizes response time needed for emergency vehicles.~~

Roadway Circulation

Goal

CE 2

Provide a circulation system ~~which~~that supports existing, approved, and planned land uses throughout the City while maintaining a desired level of service and capacity on all streets and at all intersections.

Policies

CE 2.1

Comply with ~~City's~~adopted performance standards for acceptable levels of service.

~~CE 2.1.1~~

Objective 2.1: Maintain ~~a~~the following citywide~~city-wide~~ level of service (LOS) ~~not to exceed LOS "D"~~standards for traffic-signal controlled intersections during ~~the~~ peak hours. ~~(I-CE-1;~~

~~Congestion Management Program (CMP) Intersections and *I-CE-4)*~~

~~CE 2.1.2~~

~~Maintain a city wide level of service (LOS) for links not to exceed LOS "C" for daily traffic~~Locations with ~~the exception of Pacific Coast Highway south of Brookhurst Street. (*I-CE-1 and I-CE-4)*~~

~~CE 2.1.3~~

- ~~Identify and improve roadways and~~specific characteristics identified as critical intersections ~~that are approaching, or have reached, unacceptable levels of service. (*I-CE-1*:~~ LOS E (~~> 0.90~~ ICU to not exceed 1.00)
- ~~Non-CMP~~ Principal Intersections: LOS D (0.81-0.90 ICU)
- Secondary~~All other~~ intersections: LOS C (0.71-0.80 ICU)

~~Intersections functioning below these standards should provide capacity at the year 2006 LOS.~~ LOS is to be determined during weekday morning and evening peak hours. Expanded timeframes may be applied to individual uses that generate high volumes of traffic during off-peak hours or weekends.

Related Implementation: CE-11, 12

CE 2.2

~~Decrease non-residential traffic on local residential-serving streets.~~

~~CE 2.2.1~~
~~Minimize, to the greatest extent feasible, "by-pass" or "through" traffic that intrudes into residential neighborhoods. (*I-CE 4 and I-CE 6*)~~

~~CE 2.2.2~~
~~Discourage the creation of new major roadway connections which would adversely impact the residential character of existing residential neighborhoods. (*I-CE 4 and I-CE 6*)~~

Monitor the capacity of principal intersections throughout the City. When principal intersections approach or have reached unacceptable levels of service, consider elevating the priority of Capital Improvement Program (CIP) projects that reduce traffic congestion at these intersections.

Related Implementation: CE-11, 12

CE 2.3
~~Ensure that the location, intensity and timing of new development is consistent with the provision of adequate transportation infrastructure and standards as defined in the Land Use Element.~~

~~CE 2.3.1~~
~~Require development projects to mitigate off-site traffic impacts and pedestrian, bicycle, and vehicular conflicts to the maximum extent feasible. (*I-CE-4, I-LU-3, and I-LU-4*)~~

~~CE 2.3.3~~
~~Require, where appropriate, an irrevocable offer of mutual access across adjacent non-residential properties fronting arterial roadways and require use of shared driveway access. (*I-CE 4*)~~

~~CE 2.3.4~~
~~Require that new development mitigate its impact on City streets, including but not limited to, pedestrian, bicycle, and vehicular conflicts, to maintain adequate levels of service. (*I-CE 4*)~~

Require additional right-of-way and restrict parking on segments adjacent to principal intersections to allow for future intersection improvements and turning movements as needed to satisfy performance standards.

Related Implementation: CE-11, 12

CE 2.4
~~Ensure compliance with the City's Growth Management Plan.~~

Require that new development provide circulation improvements to achieve stated City goals.

Related Implementation: CE-1, 17

CE 2.4~~.1~~5
~~Install preemptive emergency signaling devices for each direction at all traffic signal controlled intersections within the City. Existing unacceptable level of service (LOS) intersections shall be a high priority when retro-fitting traffic signals for emergency preemption. (*I-CE 8*)~~

Require development projects to mitigate to the maximum extent feasible traffic impacts to adjacent land uses and neighborhoods as well as vehicular conflicts related to the project ~~to the maximum extent feasible~~.

Related Implementation: CE-1, 17

~~CE 2.3.2~~**CE 2.6**
Limit driveway access points, ~~and require adequate~~ driveways ~~widths~~ to be wide enough to accommodate traffic flow from and to ~~onto~~ arterial roadways, and establish mechanisms to consolidate driveways where feasible and necessary to improve traffic flow. ~~and require driveways be located to ensure the smooth and efficient flow of vehicles, bicycles and pedestrians. (*I-CE 4*)~~

~~Limit driveway access points and require driveway widths onto arterial roadways and require driveways be located to ensure the smooth and efficient flow of vehicles, bicycles and pedestrians. (*I-CE 4*)~~

Related Implementation: CE-18

CE 2.7
Require that driveways be located to minimize impacts to the smooth, efficient and controlled flow of vehicles, bicycles and pedestrians.

Related Implementation: CE-17, 18

CE 2.8
Study implications of the City assuming jurisdiction of Beach Boulevard to further operational improvements.

Related Implementation: CE-25

Neighborhood Traffic Management

Goal
CE 3
Protect residential neighborhoods from adverse conditions associated with cut-through and non-residential traffic.

Policies
CE 3.1
Enforce policies and established procedures for traffic calming.

Related Implementation: CE-5, 18

CE 3.2
Encourage the design and construction of new major roadways in a manner that minimizes impacts to existing residential neighborhoods.

Related Implementation: CE-5

Public Transportation ~~Demand Management /Transportation Systems Management~~

Goal
CE ~~CE 3CE~~ 4
~~Objective~~
~~Develop~~ Create a balanced and integrated multi-modal transportation system that increases mass-transit opportunities for Huntington Beach residents.

Policies
~~CE 3.1.1~~CE 4.1
Encourage and support the various public transit agencies and companies, ride-sharing programs, and other incentive programs that ~~allow residents to utilize~~ provide forms of transportation other than the private automobile. ~~*(I-CE 7 and I-CE 8)*~~

Related Implementation: CE-7, 14, ~~15,~~ 35

~~CE 3.1.3~~CE 4.2
Continue to reserve ~~the~~ abandoned rail rights-of-way for future transportation uses such as transit and ~~or~~ bicycle facilities.~~facilityies.~~~~*(I-CE 3 and I-CE 4)*~~

Related Implementation: CE-33

~~CE 3.1.4~~CE 4.3
Explore the possibility of locating a transportation center ~~located in the vicinity of the~~ in or near Downtown~~Ddowntown commercial area.~~.

~~*(I-CE 3)*~~

Related Implementation: CE-14

~~CE 3.1.5~~CE 4.4
Pursue~~Work with OCTA in Ppursueing a future~~ an urban ~~rail~~ transit system that serves~~services the City of~~ Huntington Beach.~~*(I-CE 3)*~~

Related Implementation: CE-14, 28

CE 4.5
Maintain a system of transit and para-transit services that assist seniors and persons with disabilities.

Related Implementation: CE-14, 32

CE 4.6
~~CE 3.1.6~~
~~Require proposed~~ Ensure that construction and operation of heliports~~/~~ and helistops ~~to comply with all~~ complies fully with permit procedures under State law, including referral to the Airport Land Use Commission (ALUC), and with all conditions of approval imposed or recommended by the Federal Aviation Administration, ~~(FAA)~~, ALUC, and Caltrans. This requirement shall be in addition to compliance with the ~~and~~ City noise ordinance. ~~ordinances.~~ ~~*(I-CE 1)*~~.

Related Implementation: CE-24

CE 4.7
Ensure that development proposals, including the construction or alteration of a structure more than 200 feet above ground level, ~~must~~ fully comply with procedures provided by Federal and State law, with the referral requirements of the ALUC, and with all conditions of approval imposed or recommended by the Federal Aviation Administration, ALUC, and Caltrans, including filing a Notice of Landing Area Proposal. This requirement shall be in addition to compliance with all other City development requirements.

Related Implementation: CE-24

~~CE 3.1~~

~~Increase the mass transit opportunities available to Huntington Beach residents in order to reduce traffic impacts on streets and highways and improve air quality.~~

~~CE 3.1.2~~

~~Augment the existing bus routes with any new bus routes designated in the Orange County Transportation Authority (OCTA) Future Transit Needs Study as shown in Figure CE 8. (I CE 3)~~

~~CE 3.1.7~~

~~Provide for future use of water borne passenger services along ocean frontages and harbor waterways. (I CE 1 and I CE 4)~~

~~CE 3.2~~

~~Encourage new development that promotes and expands the use of transit services.~~

~~CE 3.2.1~~

~~Require developers to include transit facilities, such as park and ride sites, bus benches, shelters, pads or turn-outs in their development plans, where feasible as specified in the City's TDM Ordinance. (I CE 3, I CE 4, I CE 7, I AQ 1, and I AQ 4)~~

Transportation Demand Management (TDM) and Air Quality

Goal

CE ~~CE 4CE~~ 5

~~Encourage and develop a~~Maximize use of transportation demand management ~~(TDM) system~~ strategies to reduce total vehicle miles traveled and improve regional air quality.~~to assist in mitigating traffic impacts and in maintaining a desired level of service on the circulation system.~~

Policies

~~CE 4.1~~

~~Pursue transportation management strategies that can maximize vehicle occupancy, minimize average trip length, and reduce the number of vehicle trips.~~

CE 5.1

Require developers to incorporate design features that reduce air pollution from motor vehicles, such as transit facilities and park-and-ride sites; bus benches, shelters, pads, or turnouts; bicycle racks and lockers; and preferred parking for ride sharers.

Related Implementation: CE-19, 21

CE 5.2

Encourage and support the use of low emission and alternative fuel vehicles within the City.

Related Implementation: CE-35

~~CE 4.1.1~~CE 5.3

~~Encourage non-residential development~~Require businesses to provide employee incentives for ~~utilizing~~ using alternatives to the conventional automobile, including ~~(i.e.,~~ carpools, vanpools, buses, bicycles, ~~and~~ walking,~~)~~, and telecommuting.

~~*(I CE 8 and I AQ 1)*~~

Related Implementation: CE-7, 21, 35

~~CE 4.1.2~~CE 5.4

~~Encourage employers to use~~ Support the efforts of businesses to use transportation management techniques such as flex-time, staggered working hours and other means ~~such as but not limited to the following,~~ to lessen commuter traffic during peak hours.~~:~~

~~a. Bus passes that can be purchased on a monthly basis and sold to employees at a reduced rate with proof that they consistently used the transit system to commute.~~

~~b. Single Occupancy Vehicle (SOV) Parking Fees or a monthly parking fee for SOV's using parking facilities.~~

~~c. Commuter Rideshare Matching Service or a database containing employees zip codes and commuting preferences to be provided to interested participants.~~

~~d. Guaranteed ride home (GRH) program that provides a ride home to employees. (I-CE 8 and I-AQ 2)~~

Related Implementation: CE-7, 35

~~CE 4.1.5~~CE 5.5
~~Promote~~ Support the promotion of ride sharing through publicity and public education.~~information to the public. (I-CE 8 and I-AQ 4)~~

Related Implementation: CE-35

CE 5.6
Continue to enforce the City's TDM ordinance and amend the ordinance as needed to reflect changes in technology and work habits.

Related Implementation: CE-30, 35

~~CE 4.1.3~~
~~Encourage the use of multiple occupancy vehicle programs for shopping and other uses to reduce midday traffic. (I-CE 8 and I-AQ 4)~~

~~CE 4.1.4~~
~~Support national, state, and regional legislation directed at encouraging the use of carpools and vanpools. (I-CE 8 and I-AQ 4)~~

~~CE 4.1.6~~
~~Encourage that proposals for major new non-residential developments include submission of a TDM plan to the City. (I-CE 8 and I-AQ 4)~~

~~CE 4.1.7~~
~~Encourage the development, implementation, and use of new advance technologies to optimize safe traffic flow and manage traffic congestion. (I-CE 4, I-CE 8 and I-AQ 5)~~

~~CE 4.1.8~~
~~Continue to impose the restriction or elimination of on-street parking to improve traffice flow along congested arterials. (I-CE 4)~~[1]

Parking

Goal
CE 6
Ensure that the parking demands of non-residential uses do not adversely impact the City's residential neighborhoods, that the City's parking policies support reduced reliance on personal auto use and that parking supply is adequate to meet City economic development objectives.

~~CE 5~~
~~Provide sufficient, well designed and convenient on and off street parking facilities throughout the City.~~

Policies
CE 6.1
Require that development projects supply parking that supports anticipated demands.

Related Implementation: CE-5, 21

~~CE 5.1~~
~~Balance the supply of parking with the demand for parking.~~

~~CE 5.1.1~~
~~Maintain an adequate supply of parking that supports the present level of demand and allow for the expected increase in private transportation use. (I-CE 9)~~

CE 6.2
Support and collaborate with property owners to manage the supply of parking.

Related Implementation: CE-11

~~CE 5.1.2~~
~~Provide safe and convenient parking that has minimal impacts on the natural environment, the community image, or quality of life. (I-CE 9)~~

CE 6.3
Allow for shared parking and other creative parking arrangements that optimize available parking areas.

Related Implementation: CE-5

[1] ~~Mitigation Measure T-2 as specified in EIR No. 94-1, Table EX-1~~

CE 6.4
Explore the possibility of increasing bicycle parking in or near downtown.

Related Implementation: CE-6

Pedestrian, Bicycle, and Equestrian Paths and Waterways

Goal
CE ~~CE 6CE~~ 7
Provide a ~~city-wide~~ system of ~~efficient and attractive~~ bicycle, pedestrian, and equestrian paths, and waterways ~~facilities~~ for commuter, school and recreational use.

Policies
CE ~~CE~~ 7.1~~6.1.2CE 7.1~~
~~Link~~ Coordinate the planning of equestrian, bicycle, bus and pedestrian routes and facilities ~~bus routesfacilities~~ to promote an interconnected system.

~~(I-CE-1, I-CE-3, I-AQ, I-RCS-1, I-RCS-4, and I-RCS-7)~~

Related Implementation: CE-6, 19, 32

~~CE 6.1.1~~CE 7.2
Coordinate with neighboring jurisdictions to ~~Assure~~ ensure that ~~local~~ bicycle routes within the City connect~~will be~~ connected to and are consistent with routes in adjacent jurisdictions~~jurisdictionsof neighboring cities. (I-CE-1)~~

Related Implementation: CE-6, 28

~~CE 6.1.4~~CE 7.3
Coordinate with the County to ensure that new routes identified in the City's Bike Route Plan are incorporated within the County's Master Plan of Bikeways.~~Continue to update the City's Bike Route Plan to include new routes identified in the County's Master Plan of Bikeways. (I-CE-1)~~

Related Implementation: CE-28

~~CE 6.1.5~~CE 7.4
Encourage the use ~~utilization~~ of easements and/or rights-of-way along flood control channels, public utilities, railroads, and streets, ~~wherever possible,~~ for use by bicyclists and/or pedestrians, where safe and appropriate. ~~(I-CE-3)~~

Related Implementation: CE-19

~~CE 6.1.6~~CE 7.5
Maintain existing pedestrian and bicycle facilities, and require developers~~developmenters~~ to provide pedestrian walkways and/or bicycle ~~routes~~ pathways between~~betweendevelopments,~~ new residences and schools, parks, and public facilities.~~(I-CE-3, I-CE-4, and I-LU-10)~~

Related Implementation: CE-15, 17, 19

~~CE 6.1.9~~CE 7.6
~~Develop~~ Maintain an equestrian trail network ~~and support facilities that provide a linkage~~ that supports horse properties and local stables, and look to link to ~~with~~ regional facilities ~~and~~ that can be combined with hiking trails.~~, as shown in Figure CE-11. (I-CE-1).~~

Related Implementation: CE-16, 19

CE 7.7
Designate and improve Pedestrian Enhancement Zones (PEZs) at appropriate locations.

Related Implementation: CE-15

~~CE 6.1.10~~CE 7.8
Implement and operate appropriate traffic control devices ~~and operational programs~~ throughout the community to reduce~~ensurethat~~ conflicts between pedestrians, bicycles, and motor vehicles. ~~are minimized and safety enhanced. (I-CE-1).~~

Related Implementation: CE-2, 15

CE 7.9
Maintain navigable waterways in Huntington Harbour and Sunset Channel for both recreational and commuter use.

Related Implementation: CE-10

CE 7.10
Ensure that bicycle and pedestrian facilities within the City comply with accessibility provisions of the Americans with Disabilities Act (ADA).

Related Implementation: CE-6, 15

~~CE 6.1~~

~~Promote the safety of bicyclists and pedestrians by adhering to Caltrans and City-wide standards.~~

~~CE 6.1.3~~

~~Encourage the inclusion of facilities to that transport bicycles on public transit vehicles (both fixed route and para-transit) wherever possible. (I-CE-3 and I-AQ-1)~~

~~CE 6.1.7~~

~~Require new development to provide accessible facilities for the elderly and disabled. (*I CE*CE 6.1.8~~

~~Adopt candidate locations for water-oriented transportation facilities, located in commercial areas in the Huntington Harbour (Figure CE-10). (*I-CE-1*)~~

Scenic Corridors

Goal

~~CE-7~~CE 8

Maintain and enhance visual quality and scenic views along designated scenic corridors.

Policies

~~CE-7.1~~CE 8.1

~~E~~Protect and enhance viewsheds ~~corridors~~ along designated scenic corridors. ~~and identify opportunities for the designation of new view corridors.~~

Related Implementation: CE-8, 22, 23

~~CE 7.1.4~~CE 8.2

Establish landscape and urban streetscape design themes for landscape corridors, minor ~~scenic~~ urban scenic corridors, and major urban scenic corridors ~~which~~ that create a ~~different~~ distinct character for each, enhancing each ~~the~~ corridor's surrounding land uses. For example, ~~the~~ design-themes for corridors adjacent to residential neighborhoods should be different than the design themes for industrial or commercial uses. ~~(*I-CE-5, I-CE-11, and I-CE-12*)~~

Related Implementation: CE-8, 22

~~CE 7.1.5~~CE 8.3

Require that any bridges, culverts, drainage ditches, retaining walls, and other ancillary scenic and landscape corridor ~~roadway~~ elements ~~to~~ be compatible and architecturally consistent with surrounding development and ~~any other~~ established design guidelines. ~~(I-CE-5)~~

Related Implementation: CE-22

~~CE 7.1.6~~CE 8.4

Require that ~~any~~ slopes and earthen berms along scenic corridors~~djacent to roadways~~ be landscaped ~~appropriately to minimize~~ consistent with design objectives and standards. ~~standards visual impacts along scenic highways. (I-CE-5).~~

Related Implementation: CE-22

~~CE 7.1.7~~CE 8.5

~~Continue to construct~~ Provide landscaped medians ~~in~~ and sidewalk treatments in accordance with City standards within ~~existing~~ major and primary arterial streets designated as landscape corridors, and continue to require the construction of landscaped medians and sidewalk treatments in new developments. ~~(*I-CE-11*)~~

Related Implementation: CE-22

~~CE 7.2~~CE 8.6

Integrate scenic ~~highway systems~~ corridors with open spaces and recreational ~~corridors~~uses, enhancing public spaces and ~~providing appropriate~~ transitions between differing uses.

Related Implementation: CE-22

~~CE 7.2.3~~CE 8.7

~~Encourage that all proposed building sites~~ Require that development projects adjacent to a designated scenic ~~highway~~ corridor include open spaces, plazas, gardens, and/or landscaping ~~landscapeing areas which~~ that enhance the ~~scenic highway~~corridor and create a buffer between the building site and the roadway.~~roadwayscenic highway. (*I-CE-4*).~~

Related Implementation: CE-22

~~CE 7.3~~CE 8.8

Protect scenic corridors and open space/landscape areas by blending ~~man-made~~ features within both the natural and built environments.

Related Implementation: CE-22

CE 8.9

Continue to require review of the size, height, numbers, and types of on-premise signs within scenic corridors.

Related Implementation: CE-22, 23

~~CE 7.3.3~~CE 8.10

Continue to prohibit construction of off-site signs and billboards within designated scenic corridors. ~~(*I-CE-10*)~~

Related Implementation: CE-22, 23

CE 8.11

Continue to locate new and relocated utilities underground within scenic corridors to the greatest extent possible. All other utility features shall be placed and screened to minimize visibility.

Related Implementation: CE-22, 34

CE 8.12
Support enhanced maintenance standards and levels on scenic corridors.

Related Implementation: CE-22

~~CE 7.1.1~~

~~Require the roadways, as shown in **Figure CE-12**, to be improved and maintained as local scenic highways, major urban scenic highways, minor urban scenic highways, and landscape corridors with key entry points. *(I-CE-5 and I-CE-11)*~~

~~**CE 7.1.2**~~
~~Revise the Scenic Highway Plan as streets become candidates for landscape corridors, urban scenic corridors, local scenic highways, and state scenic highways designation as shown in **Table CE-4**. *(I-CE-5)*~~

~~**CE 7.1.3**~~
~~Work with Caltrans to pursue the classification of Pacific Coast Highway as a major urban scenic corridor. *(I-CE-3, I-CE-5, and I-CE-11)*~~

~~**CE 7.2.1**~~
~~Require scenic highway systems to be designed to provide adequate sight distance in accordance with Caltrans standards through the proper choice of plant materials and placement. *(I-CE-5 and I-CE-11)*~~

~~**CE 7.2.2**~~
~~Require that all landscaping located within designated scenic highways, major urban scenic corridors, minor urban scenic corridors, and landscape corridors be designed in accordance with standards in the Scenic Highway Plan. *(I-CE-5 and I-CE-11)*~~

~~**CE 7.3.1**~~
~~Require that new development include landscaping that is compatible with the visual character of the designated scenic highways and corridors. *(I-CE-4)*~~

~~**CE 7.3.2**~~
~~Continue to require the review of the size, height, numbers, and type of on-premise signs to minimize their impact to scenic corridors. *(I-CE-10)*~~

~~**CE 7.3.4**~~
~~Continue to locate new and relocated utilities underground when possible. All others shall be placed and screened to minimize public viewing. *(I-CE-3)*~~

IMPLEMENTATION PROGRAMS

~~**I-CE-1**~~
~~**Monitoring**~~

~~Continue to implement, review, monitor and update, as necessary, the following:~~

~~a. existing and proposed roadway systems on an annual basis. Use the information to identify and prioritize capital improvements including road widening, paving and intersection improvements;~~

~~b. the City's Circulation Plan and actively participate in the cooperative study regarding the Santa Ana Bridge Crossings, and make recommendations for needed revisions to the County of Orange, Master Plan of Arterial Highways (MPAH) as it relates to the needs of the City;~~

~~c. City-wide traffic model on an annual basis~~ City Plans, Ordinances and Programs

CE-1: Development Monitoring
Review an annual summary of recent years' development to determine immediate and cumulative impacts of proposed developments on the City's transportation system.~~;~~

~~d. Division 15 of the California Vehicle Code to ensure that future truck routes are designed and constructed to appropriate standards;~~
~~e. City-wide traffic count monitoring program of roadway links and intersections;~~
~~f. the City's Bike Master Plan to ensure the needs of both the local and commuter cyclist.~~ Department: Planning, Public Works, City Council
Related Policies: CE 1.5, 1.6, 2.4, 2.5

CE-2: Accident Monitoring
Monitor recurring ~~vehicle versus bicycle~~ accident locations (including vehicle versus vehicle, bicycle and ~~make~~/or pedestrian accidents), and determine necessary recommendations and modifications to ~~bicycle~~ the appropriate facilities.~~;~~ This may include the use of advance technologies where appropriate.

~~g. review, every five years, neighboring jurisdictions bikeway plans and the Orange County Master Plan of Bikeways to assure consistency. Update the Huntington Beach Bikeway Plan, as appropriate;~~

h. continue to enforce existing City truck routes and study new truck routes that can safely accommodate trucks while minimizing impacts on local traffic and residential neighborhoods;

i. adopt specific heliport/helistop design guidelines prepared by the FAA for the design and construction of future heliports within the City;

j. explore the use of water taxis in Huntington Harbour and ocean frontages;

k. emergency response time information will be analyzed to determine immediate deficiencies for locations where equipment is needed for improving response; and

l. locate equestrian and bike/hike trails in appropriate areas identified as permanent open space, such as the planned Bolsa Chica Regional Trail System.

m. explore the establishment of water-born passenger services where appropriate (Such as Peter's Landing)

I CE 2

Compliance with Regional Plans, Policies, and Programs

Continue to participate in the County, regional, and State transportation planning efforts such as:

a. the County's CongestionDepartments: Public Works, Police, City Council

Related Policy: CE 7.8

CE-3: Emergency Response Times

Monitor and analyze emergency response time information to determine locations where response times are deficient, and evaluate and implement system improvements needed to improve response when possible.

Departments: Public Works, Fire, Police, City Council
Related Policy: CE 1.9

CE-4: Emergency Management Program;

b. the County's GrowthImplement the City's Emergency Management Area No. 6 Traffic Signal Interjurisdictional Coordination Program;

c. Regional Mobility Plan;

d. the Orange County Master Plan of Arterial Highways (OCMPAH); and

e. Air Quality Management Plan.

I CE 3

Interagency Cooperation

a. Continue to work with adjacent cities of Costa Mesa, Fountain Valley, Newport Beach, Seal Beach, and Westminster to ensure that their traffic impacts do not adversely impact Huntington Beach.

b. Continue to work with and support Orange County Transportation Authority (OCTA) to:

- Plan and implement an urban rail system that links the City to central Orange County and Los Angeles County;
- Enhance and expand existing fixed bus routes and demand responsive transit services; and
- Plan and implement a transportation center in the downtown area.

c. Continue to work with rail agencies to reserve the existing right-of-way for a future transportation use, such as a transit facility.

d. Continue to work with the public utilities to underground all telephone, electrical, cable, and other utility wires and transmission lines.

e. Developers should incorporate mass transit amenities, such as but not limited to transit facilities, park and ride sites, etc.

f. Continue to work with other public agencies to ensure that the City's circulation and transportation system is safe and efficient.

I CE 4

Development Review

Through development review:

a. Review potential impacts of proposed projects to the Circulation System and require appropriate mitigation measures;

b. Require the preparation of traffic impact studies, as determined by City staff, to ensure that new development meets all applicable according to requirements and provisions of the Orange County Congestion Management Program and the Growth Management Plan. These traffic impact studies shall provide detailed mitigation measures as outlined in the CMP;State Emergency Management System (SEMS). Ensure that the program establishes community evacuation routes and emergency shelter facilities, and is easily available to the public.

c. Analyze and evaluate the potential impacts of traffic generated by new development and the

~~effects on adjacent land uses and surrounding neighborhoods. This information shall be used to determine appropriate mitigation measures for the proposed project and will be added to the city-wide traffic data base;~~

~~Review new development proposals for mitigation of the impacts of traffic generation, including pedestrian, bicycle, and vehicular conflicts, in order to ensure that the City's circulation system is safe and efficient;~~

~~e. Require that all new bicycle trip destinations, including schools, shopping areas, and transit stops be equipped with bicycle racks;~~

~~f. Require new developments to provide convenient and well lit pedestrian facilities for elderly, able, and disabled persons to discourage the use of the automobile; and,~~

~~g. Require developments to incorporate landscaping that is compatible with the visual character of the urban corridor, paths, nodes, etc.~~

~~h. Review new development and redevelopment proposals for mitigation of potential impacts of transportation related sources of water pollution, particularly in urban runoff.~~

~~i. Coordinate with Caltrans and the County of Orange to develop a plan to eliminate dry weather urban runoff and pollutants from storm flows from highways and street runoff.~~

~~I-CE 5~~
~~Scenic Highways~~

~~Create a Scenic Highway Plan that includes:~~

~~a. newly designed highways and corridors;~~

~~b. design standards and concepts for each of the scenic highway designations; and~~

~~c. retro-fitting major and primary arterials with landscape medians.~~

~~Periodically review and revise the Plan as new designation opportunities arise. Candidacy for designation includes streets proposed by new development, change in access to major destinations, etc.~~

~~I-CE 6~~
~~Neighborhood Parking and Traffic Control Plans~~
~~Create the following, as feasible:~~

~~a. Develop~~ Departments: Fire, Police, City Council
Related Policies: CE 1.9, 1.10, 1.11

CE-5: Neighborhood Circulation Improvements
~~Review and implement as needed~~Prepare and maintain a Neighborhood Traffic Management Technical Administrative Report that identifies needed methods to address cut-through traffic volumes, high speeds, truck traffic intrusions, demonstrated accident history, parking shortages, or school-related traffic congestion in City neighborhoods such as:

- Discouraging creation of new major roadway connections that would adversely impact the character of existing residential neighborhoods.
- Continuing to develop and implement parking and traffic control plans for ~~these~~ neighborhoods ~~which~~ that are adversely impacted by spill-over parking and traffic, as feasible.

~~b. Locate new developments and their access points in such a way that through vehicular traffic is not encouraged to use local residential streets.~~

~~c. Provide approved means for emergency vehicles to access and turn around on residential streets.~~

~~I-CE 7~~
~~Transportation Centers~~

~~Develop convenient and attractive transit facilities in addition to the Goldenwest Transportation Center.~~

~~I-CE 8~~
~~Transportation Demand Management/ Transportation Systems Management~~

~~a. Require new and existing employers to comply with the City's Transportation Demand Management Ordinance and the Air Quality Element of the City's General Plan.~~

~~b. Continue to implement an aggressive traffic signal coordination program to improve traffic flow.~~

~~c. Implement an adaptive traffic signal control system to respond to variations in daily traffic flow.~~

~~d. Introduce advance technologies, where appropriate, into the traffic control system to reduce and manage traffic congestion.~~

~~e. Implement emergency vehicle preemptive signaling devices on emergency response vehicles and at all traffic signals.~~

~~I-CE 9~~
~~Parking Management~~

- ~~a. Implement the~~ Implementing the Residential Parking Permit Program (Municipal Code Chapter 10.42) in residential areas as~~where parking shortages occur~~as prescribed in the Municipal Code.

~~b. Explore areas where park and ride facilities can be implemented at existing shopping center parking lots where the available parking is under utilized.~~

~~I-CE-10~~

~~Signage~~

~~a. Continue to pursue the removal of billboards on Pacific Coast Highway and will continue to remedy problems or hindrances which prohibit the Pacific Coast Highway from qualifying as a State Scenic Highway; and~~

~~b. Continue to implement the City's sign ordinance.~~

~~I-CE-11~~

~~Scenic Highway Landscape Installation~~

~~Landscape installation responsibilities should be coordinated among the City, Caltrans and other affected property owners for parkways, medians, and entry landscaping. These responsibilities as well as long-term maintenance shall be assigned within the Scenic Highway Plan.~~

~~I-CE-12~~

~~Design Review/Permitting Process/ Environmental Review~~

- Considering appropriate traffic-calming measures such as raised medians and provision of bike or transit lanes to mitigate problems posed by schools and other land uses that generate high traffic volumes at specific times. Provide solutions to mitigate these problems as warranted by local studies.

Department: Public Works, City Council
Working With: School Districts
Related policies: 3.1, 3.2, 6.1, 6.3

CE-6: Bikeway Plan

Implement and update Huntington Beach's Bikeway Plan to plan and prioritize facilities for both recreational cyclists and commuters, including:

- Reviewing neighboring jurisdictions' bikeway plans every five years to ensure consistency
- Linking bicycle routes with bus routes to promote an interconnected system.
- Evaluating potential for a future bicycle parking structure in or near downtown.
- Ensuring compliance with ADA accessibility standards.

Department: Public Works, Planning Commission, City Council
Working with: OCTA, Caltrans
Related Policies: CE 1.4, 1.6, 6.4, 7.1, 7.2, 7.10

CE-7: Transportation Demand Management Ordinance

Create and implement programs that will aid in improving air quality by reducing motor vehicle trips, such as those programs recommended by the SCAQMD, required by the Transportation Demand Ordinance (Zoning Code Title 23, Chapter 230, Section 230.36), or funded by the Mobile Source Air Pollution Reduction Ordinance vehicle fee allocation. The TDM ordinance requires employers of 100 or more persons to support alternative forms of transportation by providing appropriate facilities, including: showers and lockers, parking for vanpools, bicycle parking and passenger loading areas.

Department: Planning, Public Works, Planning Commission, City Council
Related Policies: CE 4.1, 5.3, 5.4

CE-8: Scenic Corridors~~Highway Plan~~

Continue to maintain scenic ~~highways~~corridors~~highways~~ and seek grant funding to support their maintenance. Prepare and maintain a Scenic Corridors Technical Administrative Report describing the proposed improvements such as landscaped medians and enhanced landscaping, among others.

Departments: Public Works, Planning, Community Services, Planning Commission, City Council
Related Policyies: CE 8.1, 8.2

CE-9: Trucking Industry

Continue to enforce City truck routes, and work with trucking industry representatives to orient trucks to truck routes to avoid traffic and noise impacts on local roadways, and to divert commercial truck traffic to off-peak-periods to reduce congestion and diesel emission. Designate new local truck routes when necessary. Require adequate truck access, parking, and loading within new commercial and industrial projects, consistent with requirements of the Zoning Ordinance.

Departments: Planning, Public Works, Planning Commission, City Council

Working with: Caltrans
Related Policy: CE 1.8

CE-10: Water-Borne Transportation
Continue to support the maintenance of existing waterways. Encourage private development of water-borne transportation for recreation or commuting.

Departments: Planning, Community Services, Public Works, City Council
Related Policy: CE 7.9

Capital Improvements

CE-11: Capital Improvement Program
Use the City's 5-year Capital Improvement Program (CIP) process to prioritize, fund, and build required roadway and bikeway improvements, and to address phasing and construction of traffic infrastructure throughout the City.

To prioritize these improvements, the City's Technical Administrative Reports (TARs) will be reviewed and updated regularly with current citywide traffic counts for roadway links and intersections. Roadways and intersections that are approaching the LOS standards stated in Objective 2.1 should be prioritized appropriately for improvements including road widening, paving, parking restrictions, or intersection improvements.

Department: Public Works, City Council
Related Policies: CE 1.1, 1.5, 1.6, 2.1, 2.2, 2.3, 6.2

CE-12: ~~Technical Administrative Reports~~Principal and Secondary Intersection Improvements~~Reports~~
~~Update the~~Prepare and maintain a Principal and Secondary Intersections~~the~~ Technical Administrative Reports ~~(~~TARs) ~~regularly. The~~ TARs that will include information such as roadway dimensions, a listing of intersections and roadway improvements required to transition from the current system of roadways to full implementation of the Arterial Highway Plan, current citywide traffic counts for roadway links and intersections and other useful traffic-related information. Content included will be based on need, as determined by the Director of Public Works. Updates to the TARs will be coordinated annually in tandem with the Capital Improvement Program. The TARs will be available for use by City staff and decision makers, and should be available for review by the public. Include TAR information in the City's GIS system as appropriate and feasible.

Department: Public Works, City Council
Related Policies: CE 1.1, 1.5, 1.6, 2.1, 2.2, 2.3

CE-13: Traffic Technology
Use appropriate technologies to improve traffic flow and reduce and manage congestion, such as:

- Installing and maintaining preemptive emergency signaling devices for each direction at appropriate traffic signal-controlled intersections within the City.
- Continuing to implement a traffic signal coordination program to improve traffic flow.
- Developing a citywide traffic management center.

Department: Public Works
Related Policies: CE 1.3, 1.5, 1.7, 1.9, 1.10, 1.11

CE-14: Transit
Encourage and support development of convenient and attractive transit facilities in addition to the Goldenwest Transportation Center. Support efforts to make both new and existing facilities available and accessible to the disabled and seniors.

Departments: Planning, Public Works, Planning Commission, City Council
Working with: OCTA
Related Policies: CE 4.1, 4.3, 4.4, 4.5

CE-15: Pedestrian Facilities and Enhancement Zones
Maintain existing pedestrian facilities and require new development to provide accessible pedestrian walkways between developments, schools, and public facilities. Review potential areas in or near Downtown, adjacent to the beach, and along portions of Beach Boulevard for designation as pedestrian enhancement zones. Prepare and maintain a ~~master plan~~Pedestrian Facilities Technical Administrative Report~~plan~~ describing the location and proposed improvements in ~~Pedestrian E~~enhancement ~~Z~~zones and other pedestrian facility related analyses. ~~Enhancement Zones.~~ Such improvements may include wider sidewalks, enhanced or new crosswalks, trees, pedestrian-scale lighting, or traffic-calming measures. All improvements shall comply with ADA accessibility standards. Exact improvements will vary depending on location.

Departments: Planning, Public Works, Planning Commission, City Council
Working With: School Districts
Related Policies: CE 7.5, 7.7, 7.8, 7.10

CE-16: Equestrian Facilities
Continue to maintain trails and other equestrian facilities.

Department: Community Services, Public Works, City Council
Related Policy: CE 7.6

Development Review Requirements

CE-17: Site Development Permit Process and CEQA
Utilize the site development permit process and the California Environmental Quality Act (CEQA) to:

- Review potential impacts of proposed projects to the Circulation System and require appropriate mitigation measures as required by CEQA.
- Require preparation of traffic impact studies as described within the City's traffic study guidelines, to analyze and evaluate the potential impacts of traffic generated by new development and the effects on adjacent land uses and surrounding neighborhoods. This information shall be used to determine appropriate mitigation measures for the proposed project and will be added to the citywide traffic database and Technical Administrative Report.
- Review new development proposals for mitigation of the impacts of traffic generation, including pedestrian, bicycle, and vehicular conflicts, in order to ensure that the City's circulation system meets appropriate safety standards.
- Review driveways in proposed developments to ensure they are located in such a way as to facilitate smooth, efficient and controlled traffic flow.
- Review new development and redevelopment proposals for mitigation of potential impacts of transportation-related sources of water pollution, particularly in urban runoff.

Departments: Planning, Public Works, Planning Commission, City Council
Related Policies: CE 1.5, 2.4, 2.5, 2.7, 7.5

CE-18: Access Control
Locate new developments and their access points in such a way that vehicular traffic is not encouraged to use local residential streets. Require, where appropriate, an irrevocable offer of mutual access across adjacent non-residential properties fronting arterial roadways and require use of shared driveway access. Minimize driveway access points, require driveways to be wide enough to accommodate traffic from and to arterial roadways, and establish mechanisms to consolidate driveways where appropriate.

Departments: Planning, Public Works, Planning Commission, City Council
Related Policies: CE 2.6, 2.7, 3.1

CE-19: Alternative Transportation Mode Design Features
Require new development to incorporate transit-oriented design features and attractive, accessible, and appropriate transit, bicycle, equestrian, and pedestrian amenities to promote and support public transit and alternate modes of transportation, including but not limited to:

- Requiring bus turn-outs and shaded bus stops where appropriate.
- Requiring new development to provide convenient and well-lit pedestrian facilities consistent with applicable standards.
- Requiring that all new bicycle trip destinations, including schools, shopping areas, and transit stops be equipped with bicycle racks and/or bicycle lockers.
- Continue to allow equestrian access to the beach.
- Encouraging developments to incorporate easements and/or rights of way along flood control channels, public utilities, railroads and streets for the use of bicyclists and/or pedestrians.

Departments: Planning, Public Works, Planning Commission, City Council
Working with: OCTA
Related Policies: CE 5.1, 7.1, 7.4, 7.5, 7.6

CE-20: Emergency Access
Provide approved means for emergency vehicles to access and turn around on residential streets.

Departments: Public Works, Planning, Fire, Police, Planning Commission, City Council
Related Policy: CE 1.9

CE-21: Transportation Demand Management and Air Quality
Require new employers to comply with the City's Transportation Demand Management (TDM) Ordinance and the Air Quality Element of the General Plan.

Departments: Planning, Planning Commission, City Council
Related Policies: CE 1.5, 5.1, 5.3~~, 5.9~~, 6.1

CE-22: Scenic Corridors
Through the development review process~~,~~ for proposed development along scenic ~~highways:~~corridors:

- ~~a. require~~Require ~~view-shed~~ analysis evaluating the impacts on public views to the ocean.~~;~~
- ~~b. require~~ Require developments adjacent to designated scenic and landscape corridors to incorporate and maintain landscaping that is compatible with the visual character of the corridor and supporting scenic features.
- Utilize the City's Design Review Board to evaluate developments within designated scenic corridors.
- Require that open space easements be dedicated to the City, master homeowners association, or other responsible party as a condition of the approval for all new projects proposed in "natural" open space areas~~; and~~ along scenic corridors.

~~c. utilize the City's Design Review Board to evaluate developments within scenic and landscape corridors. Proposed developments shall be analyzed by criteria established in the Scenic Highway Plan as well as other relevant City standards and guidelines.~~

Department: Planning, Planning Commission, City Council

Related Policies: CE 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7, 8.8, 8.9, 8.10, 8.11, 8.12

CE-23: Pacific Coast Highway Billboards
Continue to pursue the removal of and prohibit new billboards along Pacific Coast Highway. Continue to remedy problems or hindrances which prohibit Pacific Coast Highway from qualifying as a State Scenic Highway.

Department: Planning, City Council
Working with: Caltrans
Related Policies: CE 8.1, 8.9, 8.10

CE-24: Helistops/Heliports and Building Height Restrictions
Ensure that each applicant seeking approval for the construction of a) a heliport or helistop, or b) a structure more than 200 feet above ground level complies fully with federal and State permit procedures provided for by law, with referral requirements of the Orange County Airport Land Use Commission (ALUC), and with all conditions of approval imposed or recommended by the Federal Aviation Administration (FAA), by the ALUC, and by Caltrans Division of Aeronautics, including the filing of a Form 7480-1 (Notice of Landing Area Proposal) with the FAA. This requirement shall be in addition to all other requirements of the City.

Department: Planning, Public Works, Planning Commission, City Council
Working with: Orange County Airport Land Use Commission, Caltrans
Related Policy: CE 4.6, 4.7

Interjurisdictional Coordination

CE-25: Caltrans
Coordinate with Caltrans regarding the following actions:

- Administration of State highways within the City.
- Approval of heliports and helistops.
- Achievement of State Scenic Highway status for Pacific Coast Highway.
- Mutual establishment of clear policies and objectives for meeting regional and local transportation needs.
- Development of a plan to eliminate dry weather urban runoff and pollutants from storm flow highway and street runoff.
- Coordination on all plans, activities, and projects which may affect State roadway facilities.
- Investigate the potential to declassify Beach Boulevard as a State highway and transfer the responsibility for this road from Caltrans to the City in coordination with the Beach Boulevard Specific plan.

Departments: Public Works, Planning, City Council
Working with: Caltrans
Related Policies: CE 1.2, 1.4, 1.5, 2.8

CE-26: Southern California Association of Governments
Participate with the Southern California Association of Governments (SCAG) and represent the City's interests in development of regional transportation initiatives such as the *Regional Transportation Plan*.

Departments: Public Works, Planning

Working with: SCAG
Related Policies: CE 1.2, 1.4

CE-27: South Coast Air Quality Management District
Work closely with the South Coast Air Quality Management District (SCAQMD) to improve air quality and incorporate the Air Quality Management Plan into the City's practices and programs.

Department: Public Works, Planning, Planning Commission
Working with: SCAQMD
Related Policies: CE 1.2, 1.3

CE-28: Orange County Transportation Authority
Work with the Orange County Transportation Authority (OCTA) to achieve the following:

- Maintain consistency with the County Master Plan of Arterial Highways (MPAH) within the City.
- Implement the Congestion Management Program (CMP) within the City.
- Expand and improve bus service within the City.
- Encourage provision of attractive and appropriate transit amenities, including shaded bus stops.
- Provide special transit services (such as direct shuttle or dial-a-ride services).
- Support and implement the OCTA Commuter Bikeways Strategic Plan and participate in future updates and revisions to the Plan.
- Plan and implement an urban rail system that links the City to central Orange County and Los Angeles County.
- Invest in and pursue the development of a transportation center in the coastal area.
- Plan and implement Measure M and M2 projects.
- Maintain consistency with OCTA's Long Range Transportation Plan.
- Review, every five years, the Orange County Master Plan of Bikeways to assure consistency. Update Huntington Beach's Bike Plan, as appropriate.

Departments: Public Works, Planning, City Council
Working with: OCTA
Related Policies: CE 1.2, 1.3, 1.4, 1.5, 4.4, 7.2, 7.3

CE-29: Future Santa Ana Bridge Crossings
Participate in ongoing regional planning efforts regarding the future Santa Ana River bridge crossings.

Departments: Public Works, Planning, City Council
Working with: OCTA, Caltrans, Adjacent jurisdictions
Related Policy: CE 1.4

CE-30: Single-Occupancy Vehicle Legislation
Remain aware of national, State, and regional legislation directed at reducing use of single-occupancy vehicles, and do what is feasible to support it.

Departments: Public Works, Planning, City Council
Related Policy: CE 5.6

CE-31: Adjacent Jurisdictions and Transportation Agencies
Work with adjacent jurisdictions, including the cities of Costa Mesa, Fountain Valley, Newport Beach, Seal Beach, Westminster and Orange County, to ensure that traffic impacts do not adversely impact Huntington Beach. Continue to work with other public agencies to ensure that the City's circulation and transportation system is efficient and meets applicable safety standards.

Departments: Public Works, Planning, City Council
Working with: Adjacent jurisdictions, OCTA, SCAG, Caltrans
Related Policy: CE 1.2, 1.4

CE-32: Transit System Coordination
Encourage the inclusion of facilities that transport bicycles on public transit vehicles (both fixed route and paratransit) wherever possible. Work to make routes and vehicles available and accessible to the disabled and seniors.

Department: Public Works, City Council
Working with: OCTA
Related Policies: CE 1.2, 4.5, 7.1

CE-33: Preserve Abandoned Right-of-Ways
Continue to work with rail agencies to reserve existing and abandoned right-of-ways for future transportation uses, such as transit or bicycle facilities.

Department: Public Works
Working with: SCRRA, OCTA
Related Policyies: CE 1.2, 4.2

CE-34: Undergrounding Utilities
Continue to work with utility service providers to underground wires and transmission lines, especially within scenic corridors.

Department: Public Works
Working with: Public utility companies
Related Policy: CE 8.11

Ongoing Education and Outreach

CE-35: Transportation Management Outreach
Promote, publicize, and encourage the use of transportation management strategies that will aid in meeting SCAQMD mandates and guidelines, including:

- Use of low emission and alternative fuel vehicles within the City, including neighborhood electric vehicles (NEVs).
- Use of carpools, vanpools, walking, and multi-occupancy programs for midday uses.
- Employers creating Commuter Rideshare Matching Services or databases containing employees' zip codes and commuting preferences to be provided to interested participants.
- Employers participating in Guaranteed Ride Home programs that provide a rides home to employees.
- Employers using flex time, staggered working hours, and other means to reduce commuter traffic during peak hours.
- Creating NEV roadway systems and encouraging electrical vehicle charging stations.
- Participate with SCAG in the creation of a Sustainable Communities Strategy per SB 375 (Steinberg 2008).

Department: Planning, Public Works, City Council
Working with: OCTA, SCAQMD, SCAG
Related Policies: CE 4.1, 5.2, 5.3, 5.4, 5.5, 5.6

Appendix C Air Quality Impact Analysis

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AIR QUALITY IMPACT ANALYSIS

GENERAL PLAN
CIRCULATION ELEMENT UPDATE
HUNTINGTON BEACH, CALIFORNIA

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1.0 INTRODUCTION

1.1 INTRODUCTION

This Air Quality Impact Analysis has been prepared to analyze the regional and localized air quality impacts that would occur from the proposed update of the *City of Huntington Beach General Plan's* Circulation Element, hereafter referred to as "the Project" in accordance with the requirements of the California Environmental Quality Act (CEQA). This analysis has been prepared in accordance with accepted technical standards consistent with the requirements of the South Coast Air Quality Management District (SCAQMD).

The purpose of the Huntington Beach Circulation Element update is to evaluate the long-term transportation needs of the City and to present a comprehensive plan to accommodate those needs. The Circulation Element is being designed to provide an efficient surface transportation system to accommodate the increased traffic volumes that are forecasted to occur over the next 20 to 25 years and to achieve desired intersection levels of service that minimize congestion during peak travel periods. The Circulation Element is the foundation for the City's efforts to manage and minimize traffic congestion, to manage safety on roadways, to provide alternatives to the automobile, and to include better access to regional travel routes (Huntington Beach 2009a).

2.0 PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The City of Huntington Beach (City) is located in Orange County, California, approximately 40 miles southwest of the City of Los Angeles. The City is bound by the Pacific Ocean to the west, the City of Seal Beach to the north, the Cities of Westminster and Fountain Valley to the east, and the City of Costa Mesa to the south. The regional location and vicinity are shown in Exhibit 1.

2.2 PROPOSED PROJECT

The City proposes to adopt an updated General Plan Circulation Element; the existing Circulation Element was adopted in 1996 (Huntington Beach 1996a). The Circulation Element of the *City of Huntington Beach General Plan* describes and directs, through goals, policies, and implementation programs, how people, goods, and services move within and through Huntington Beach. The proposed update to the Circulation Element includes (1) modifications to roadway classifications; (2) planned long-range capacity improvements; and (3) modifications of the procedures under which the performance of the roadway system is evaluated (Huntington Beach 2009b). These proposed changes to the Circulation Plan are shown in Exhibit 2 and the proposed long-range capacity improvements are shown in Exhibit 3.

The proposed Circulation Element also addresses alternative modes of transportation, including bus transit, bicycle routes, and the enhancement of pedestrian circulation.

Regional Location/Local Vicinity

Exhibit 1

Huntington Beach Circulation Element Update Air Quality Analysis

N W E S

2 1 0 2 Miles

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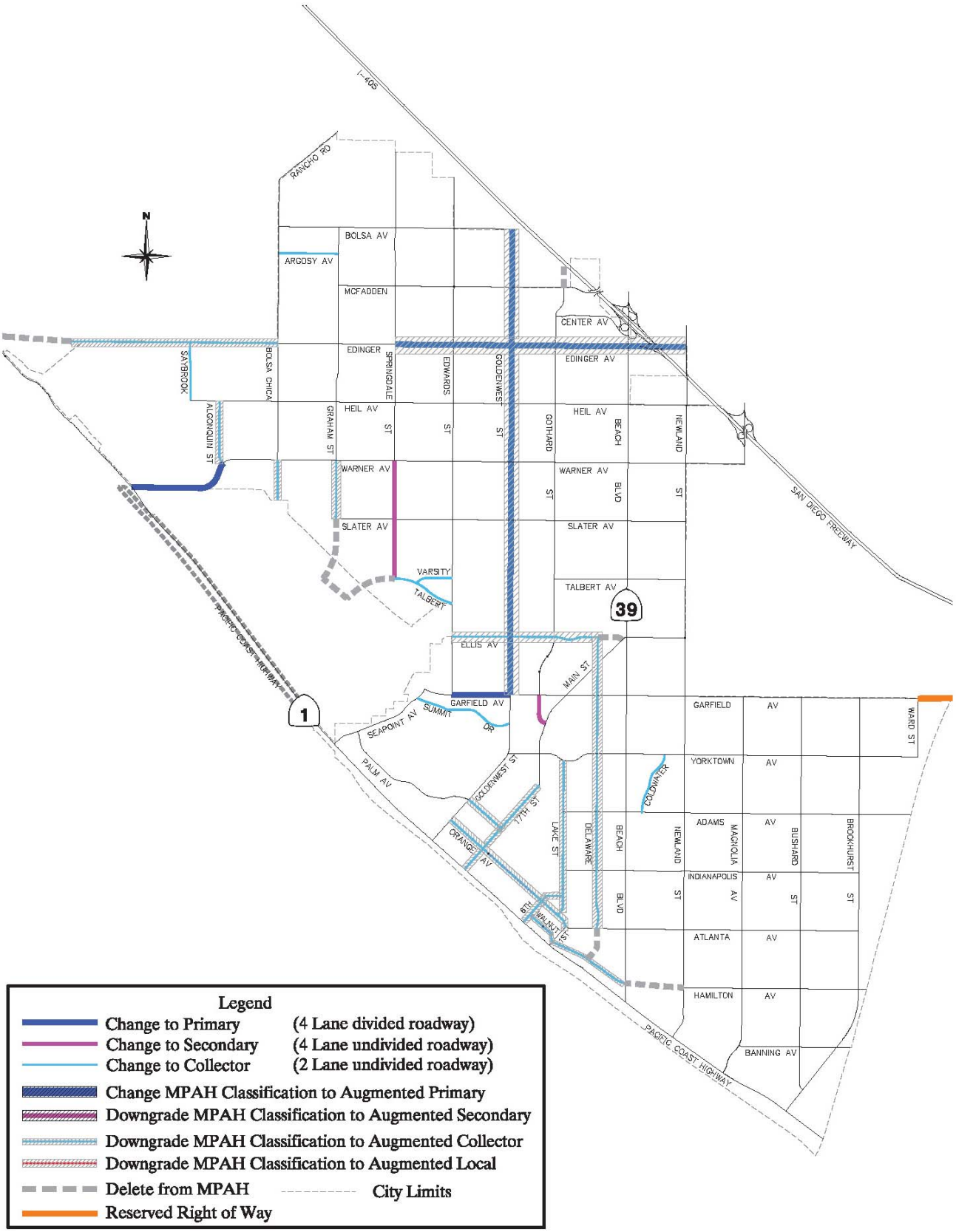

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Proposed Changes in the Circulation Plan

Exhibit 2

Huntington Beach Circulation Element Update Air Quality Analysis

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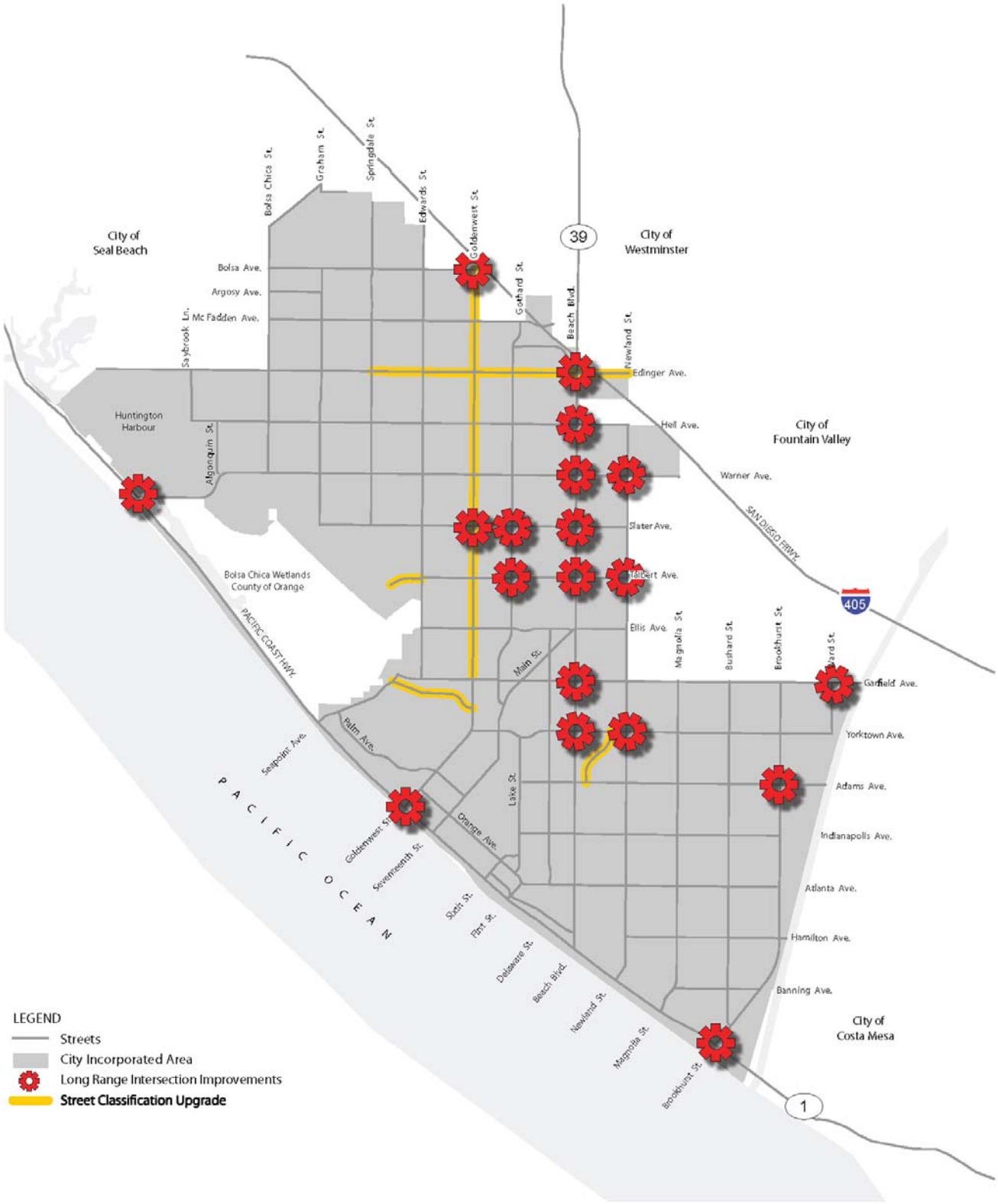

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Proposed Long Range Capacity Improvements

Exhibit 3

Huntington Beach Circulation Element Update Air Quality Analysis

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3.0 AIR POLLUTANTS

3.1 CRITERIA POLLUTANTS

Criteria Pollutants

Air quality regulations were first promulgated with the Federal Clean Air Act (FCAA) of 1970. Air quality is defined by ambient air concentrations of seven "criteria air pollutants", which are a group of common air pollutants identified by the U.S. Environmental Protection Agency (USEPA) to be of concern with respect to the health and welfare of the general public. Federal and State governments regulate criteria air pollutants by using ambient standards based on criteria regarding the health and/or environmental effects of each pollutant. These pollutants include nitrogen dioxide (NO_2); ozone (O_3); particulate matter, including both particulate matter equal to or less than 10 microns in diameter (PM10) and particulate matter equal to or less than 2.5 microns in diameter (PM2.5); carbon monoxide (CO); sulfur dioxide (SO_2); and lead.

Nitrogen Dioxide

Nitrogen gas is normally relatively inert (nonreactive) and comprises about 80 percent of the air. At high temperatures (e.g., in a combustion process) and under certain other conditions, nitrogen can combine with oxygen to form several different gaseous compounds collectively called oxides of nitrogen or nitrogen oxides (NOx). Nitric oxide (NO), NO_2, and nitrous oxide (N_2O) are important constituents of NOx. NO is converted to NO_2 in the atmosphere. While the National Ambient Air Quality Standards (NAAQS), discussed in Section 4.1 below, only address NO_2, NO and NO_2 are both precursors in the formation of O_3 and PM2.5, as discussed below. Because of this and the fact that NO emissions largely convert to NO_2, NOx emissions are typically examined when assessing potential air quality impacts. Motor vehicle emissions are the main source of NOx in urban areas. Other important sources of NOx are boilers, diesel engines in construction equipment, gas turbines, and stationary reciprocating internal combustion engines.

NO_2 is a brownish, highly reactive gas and is toxic to various animals and to humans because of its ability combine with water in the eyes, lungs, mucus membranes, and skin to form nitric acid. Laboratory studies show that susceptible humans, such as asthmatics, who are exposed to high concentrations of NO_2 can suffer lung irritation and, potentially, lung damage. Epidemiological studies have also shown associations among NO_2 concentrations and (1) daily mortality from respiratory and cardiovascular causes and (2) hospital admissions for respiratory conditions.

Ozone

Ozone (O_3) is a secondary pollutant so it is not directly emitted. It is a gas that is formed when volatile organic compounds (VOCs) (also referred to as reactive organic gases) and NOx undergo photochemical reactions that occur in the presence of sunlight. Thus, VOC and NOx are the O_3 precursors. The primary source of VOC emissions is unburned hydrocarbons in motor vehicles and exhaust from other internal combustion engines. NOx forms as a result of the combustion process, most notably due to the operation of motor vehicles. Sunlight and hot weather cause ground-level O_3 to form; as a result, O_3 is known as a summertime air pollutant.[1] Ground-level O_3 is the primary constituent of smog. Because O_3 formation occurs over extended periods of time, both O_3 and its precursors are transported by wind, and high O_3 concentrations can occur in areas well away from sources of its constituent pollutants.

[1] Ground-level O_3 is not to be confused with atmospheric O_3 or the "ozone layer", which occurs very high in the atmosphere and shields the planet from some ultraviolet rays.

People with lung disease, children, older adults, and people who are active can be affected when O_3 levels exceed ambient air quality standards. Numerous scientific studies have linked ground-level O_3 exposure to a variety of problems, including:

- Lung irritation that can cause inflammation much like a sunburn;
- Wheezing, coughing, pain when taking a deep breath, and breathing difficulties during exercise or outdoor activities;
- Permanent lung damage to those with repeated exposure to O_3pollution; and
- Aggravated asthma, reduced lung capacity, and increased susceptibility to respiratory illnesses like pneumonia and bronchitis.

Particulate Matter

Particulate matter includes both aerosols and solid particles of a wide range of size and composition. Of particular concern are PM10 and PM2.5; particulate matter size refers to the aerodynamic diameter of the particle. Smaller particles are of greater concern because they can penetrate deeper into the lungs than larger particles.

PM10 is generally emitted directly as a result of mechanical processes that crush or grind larger particles or from the re-suspension of dusts, most typically through construction activities and vehicular travel; the emissions are described as fugitive[2] dust. Fugitive dust is also generated during moderate to high wind episodes. The principal sources of dust in urban areas are grading, construction, disturbed areas of soil, and dust entrained by vehicles on roadways. PM10 generally settles out of the atmosphere rapidly and is not readily transported over large distances.

PM2.5, is directly emitted in combustion exhaust and formed in atmospheric reactions between various gaseous pollutants including NOx, sulfur oxides (SOx), and VOCs. PM2.5 can remain suspended in the atmosphere for days and/or weeks and can be transported long distances.

The principal health effect of airborne particulate matter is on the respiratory system. According to the USEPA, some people are much more sensitive than others to breathing fine particles (i.e., PM10 and PM2.5). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worse illnesses and premature death, and people with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM10 and PM2.5. Other groups considered sensitive include smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive because many breathe through their mouths.

Short-term exposures to high PM2.5 levels are associated with premature mortality and increased hospital admissions and emergency room visits. Long-term exposures to high PM2.5 levels are associated with premature mortality and development of chronic respiratory disease. Short-term exposures to high PM10 levels are associated with hospital admissions for cardiopulmonary diseases, increased respiratory symptoms, and possible premature mortality. The USEPA has concluded that available evidence does not suggest an association between long-term exposure to PM10 at current ambient levels and health effects (USEPA and FHWA 2006).

Particulate matter tends to occur primarily in the form of fugitive dust. This dust appears to be generated by both local sources and by region-wide dust during moderate to high wind

[2] In air pollution discussion, “fugitive” describes sources that are not confined to specific emission points such as power plant stacks or vehicle exhaust pipes.

episodes. These regional episodes tend to be multi-district and sometimes interstate in scope. The principal sources of dust in the urban areas are grading, construction, disturbed areas of soil, and dust entrained by vehicles on roadways.

Carbon Monoxide

Carbon monoxide (CO) is a colorless and odorless gas which, in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. CO combines with hemoglobin in the bloodstream and reduces the amount of oxygen that can be circulated through the body. High CO concentrations can cause headaches, aggravate cardiovascular disease, and impair central nervous system functions. CO concentrations can vary greatly over comparatively short distances. Relatively high concentrations are typically found near crowded intersections, along heavily used roadways carrying slow-moving traffic, and at or near ground level. Even under the most severe meteorological and traffic conditions, high concentrations of CO are limited to locations within approximately 600 feet of heavily traveled roadways. Overall CO emissions are decreasing as a result of the Federal Motor Vehicle Control Program, which has mandated increasingly lower emission levels for vehicles manufactured since 1973.

Sulfur Dioxide

Sulfur oxides (SOx) constitute a class of compounds of which sulfur dioxide (SO_2) and sulfur trioxide (SO_3) are of greatest importance. Ninety-five percent of pollution-related SOx emissions are in the form of SO_2. SOx emissions are typically examined when assessing potential air quality impacts of SO_2. The primary contributor of SOx emissions is fossil fuel combustion for generating electric power. Industrial processes, such as nonferrous metal smelting, also contribute to SOx emissions. SOx is also formed during combustion of motor fuels. However, most of the sulfur has been removed from fuels, greatly reducing SOx emissions from vehicles.

SO_2 combines easily with water vapor to form aerosols of sulfurous acid, a colorless, mildly corrosive liquid. This liquid may then combine with oxygen in the air to form the even more irritating and corrosive sulfuric acid. Peak levels of SO_2 in the air can cause temporary breathing difficulty for people with asthma who are active outdoors. Longer-term exposures to high levels of SO_2 gas and particles cause respiratory illness and aggravate existing heart disease. SO_2 reacts with other chemicals in the air to form tiny sulfate particles which are measured as PM2.5.

Lead

Lead is a stable compound that persists and accumulates both in the environment and in animals. In humans, it affects the body's blood-forming, nervous, and renal systems. In addition, lead has been shown to affect the normal functions of the reproductive, endocrine, hepatic, cardiovascular, immunological and gastrointestinal systems, although there is significant individual variability in response to lead exposure. When the USEPA adopted the lead standard in 1978, it was estimated that over 90 percent of ambient lead concentrations were attributable to the use of lead in gasoline. The phase-out of lead in gasoline began during the 1970s, and subsequent regulations virtually eliminated lead from the gasoline sold in California. Although lead from gasoline no longer poses an air quality problem, lead emissions from remaining industrial sources such as battery recycling, lead smelters, cement and glass manufacturing, metal mining, and the use of non-leaded fuel in certain general aviation applications (but not in commercial passenger aircraft) can still pose "hot spot" problems in a few locations. On October 15, 2008, the USEPA revised the federal ambient air quality standard for lead, lowering

it from 1.5 micrograms per cubic meter (μg/m^3) to 0.15 μg/m^3. The USEPA states numerous health studies are now available that demonstrate health effects at much lower levels of lead than previously thought (CARB 2009a).

3.2 TOXIC AIR CONTAMINANTS

Toxic air contaminants (TACs) are a diverse group of air pollutants that may cause or contribute to an increase in deaths or in serious illness, or that may pose a present or potential hazard to human health. TACs include both organic and inorganic chemical substances that may be emitted from a variety of common sources, including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. TACs are different than the "criteria" pollutants previously discussed in that ambient air quality standards have not been established for them. TACs that occur at extremely low levels may still cause health effects, and it is typically difficult to identify exposure levels that do not produce adverse health effects. TAC impacts are described by carcinogenic risk, and chronic (i.e., of long duration) and acute (i.e., severe but of short duration) adverse effects on human health.

Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as diesel particulate matter (diesel PM). In 1998, California identified diesel PM as a TAC based on its potential to cause cancer, premature death, and other health problems. Diesel engines also contribute to California's air quality problems associated with fine particulate matter (i.e., PM2.5). Those most vulnerable are children whose lungs are still developing and the elderly who may have other serious health problems. Based on year 2005 emissions in California, diesel PM contributes each year to approximately 3,500 premature deaths and thousands of hospital admissions; asthma attacks and other respiratory symptoms; and lost workdays. Overall, diesel engine emissions are responsible for the majority of California's known cancer risk from outdoor air pollutants. In addition, diesel soot causes visibility reduction and contributes to global warming (CARB 2009b.).

4.0 REGULATORY SETTING AND AIR QUALITY STANDARDS

4.1 FEDERAL

The USEPA is responsible for setting and enforcing the NAAQS for criteria pollutants. The standards are shown in Table 1. The USEPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. The USEPA's air quality mandates are drawn primarily from the FCAA, which was enacted in 1970, and most recently amended by Congress in 1990. As part of its enforcement responsibilities, the USEPA requires each State with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain and maintain the federal standards. The SIP must integrate federal, State, and local plan components and regulations to identify specific measures to reduce pollution by using a combination of performance standards and market-based programs within the SIP-identified timeframe.

TABLE 1
CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	State Standards[a,b]	Federal Standards[c]	
			Primary[c,d]	Secondary[c,e]
O_3	1 Hour	0.09 ppm (180 µg/m^3)	–	–
	8 Hour	0.070 ppm (137 µg/m^3)	0.075 ppm (147 µg/m^3)	Same as Primary
PM10	24 Hour	50 µg/m^3	150 µg/m^3	Same as Primary
	AAM	20 µg/m^3	–	Same as Primary
PM2.5	24 Hour	–	35 µg/m^3	Same as Primary
	AAM	12 µg/m^3	15.0 µg/m^3	Same as Primary
CO	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	–
	8 Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	–
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)	–	–
NO_2	AAM	0.030 ppm (56 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as Primary
	1 Hour	0.18 ppm (338 µg/m^3)	–	–
SO_2	AAM	–	0.030 ppm (80 µg/m^3)	–
	24 Hour	0.04 ppm (105 µg/m^3)	0.14 ppm (365 µg/m^3)	–
	3 Hour	–	–	0.5 ppm (1,300 µg/m^3)
	1 Hour	0.25 ppm (655 µg/m^3)	–	–
Lead[f]	30 day Avg.	1.5 µg/m^3	–	–
	Calendar Quarter	–	1.5 µg/m^3	Same as Primary
	Rolling 3-month avg.	–	0.15 µg/m^3	
Visibility Reducing Particles	8 hour	Extinction coefficient of 0.23 per km – visibility ≥ 10 miles (0.07 per km – ≥30 miles for Lake Tahoe)	No Federal Standards	
Sulfates	24 Hour	25 µg/m^3		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)		
Vinyl Chloride[f]	24 Hour	0.01 ppm (26 µg/m^3)		

–: No Standard; ppm: parts per million; µg/m^3: micrograms per cubic meter; mg/m^3: milligrams per cubic meter; AAM: annual arithmetic mean; km: kilometer.

[a] California standards for O_3, CO (except Lake Tahoe), SO_2 (1 and 24 hour), NO_2, PM10, PM2.5, and visibility reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded.

[b] Concentration is expressed first in the units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25 degrees Celsius (°C, 77 degrees Fahrenheit [°F]) and a reference pressure of 760 torr (unit of measure for the pressure exerted by 1 mm of mercury, equal to $^1/_{760}$ of standard atmospheric pressure). Most measurements of air quality are to be corrected to a reference temperature of 25°C (77°F) and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[c] National standards (other than O_3, PM10, PM2.5, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth-highest, 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM10, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than 1. For PM2.5, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years are equal to or less than the standard. Contact the USEPA for further clarification and current federal policies.

[d] National Primary Standards: The levels of air quality necessary with an adequate margin of safety to protect public health.

[e] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[f] CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Source: CARB 2008a.

4.2 STATE OF CALIFORNIA

CARB, a part of the California Environmental Protection Agency, is responsible for coordinating and administering both federal and State air pollution control programs in California. In this capacity, CARB conducts research, sets the California Ambient Air Quality Standards (CAAQS) shown in Table 1, compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. For regions that do not attain the CAAQS, CARB requires the air districts to prepare plans for attaining the standards. These plans are then integrated into the State SIP. CARB establishes emissions standards for motor vehicles sold in California, consumer products (e.g., hair spray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB is preparing to enact new regulations limiting the emissions of greenhouse gases (GHGs) from new vehicles in California[3]. The effect of these regulations will be to increase the fuel efficiency of vehicles (i.e. more miles per gallon) and to reduce the emissions of the criteria pollutants as well as GHGs.

4.3 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Air quality in Orange County is regulated by the SCAQMD, which is the agency principally responsible for comprehensive air pollution control in the South Coast Air Basin (SoCAB). To that end, the SCAQMD, a regional agency, works directly with the Southern California Association of Governments (SCAG), County transportation commissions and local governments to cooperate actively with all federal and State government agencies. The SCAQMD develops rules and regulations; establishes permitting requirements for stationary sources; inspects emissions sources; and enforces such measures through educational programs or fines, when necessary.

The SCAQMD is directly responsible for reducing emissions from stationary (area and point), mobile, and indirect sources. It has responded to this requirement by preparing a sequence of Air Quality Management Plans (AQMPs). Two versions (2003 and 2007) of the AQMP are in different stages of approval. The 2003 AQMP is an update to the 1997 AQMP. The 2003 AQMP employs up-to-date science and analytical tools and incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources, and area sources. The 2003 AQMP proposes policies and measures to achieve federal and State standards for healthy air quality in the SoCAB. The 2003 AQMP updates the attainment demonstration with the federal standards for O_3 and PM10; replaces the 1997 attainment demonstration for the federal CO standard and provides a basis for a future CO maintenance plan; and updates the maintenance plan for the federal NO_2 standard, which the SoCAB has met since 1992. The 2003 AQMP was adopted by the SCAQMD in August 2003 and approved, with modifications, by CARB in October 2003. CARB then submitted the 2003 State and Federal Strategy of the California SIP (which incorporates the 2003 AQMP) to the USEPA on January 9, 2004. However, this SIP has not been approved, and the 1997 AQMP with 1999 amendments remains the federally approved AQMP.

The SCAQMD Governing Board adopted the 2007 AQMP on June 1, 2007. The purpose of the SoCAB's 2007 AQMP is to set forth a comprehensive program that will lead the region into compliance with federal 8-hour O_3 and PM2.5 air quality standards. Federal and State 8-hour O_3 and PM2.5 standards were implemented subsequent to 2003. CARB adopted the State Strategy for the 2007 SIP, including the 2007 AQMP as part of the 2007 SIP, on September 27, 2007. On

[3] The regulations, now in the review and approval process, are updates of regulations approved in 2005, often referred to as AB 1493 or "Pavley." Implementation of the 2005 regulations was prevented first by litigation and then by the USEPA denial of a required waiver request. On June 30, 2009 the USEPA granted the waiver request.

November 28, 2007, CARB submitted a SIP revision to the USEPA for O_3, PM2.5, CO, and NO_2 in the SoCAB; this revision is identified as the "2007 South Coast SIP". The 2007 AQMP/2007 South Coast SIP demonstrates attainment of the federal PM2.5 standard in the SoCAB by 2014 and attainment of the federal 8-hour O_3 standard by 2023. The SIP also includes a request to reclassify the O_3 attainment designation from "severe" to "extreme" (CARB 2007a). On February 1, 2008, CARB submitted additional technical information relative to the 2007 South Coast SIP to the USEPA (CARB 2008b).

In March 2009, CARB reported the following status (CARB 2009c):

With its actions since adopting the State Strategy in September 2007, California now has in place programs and regulations that will achieve 87 percent of the reductions needed for PM2.5 attainment in the South Coast. California has also achieved 90 percent of the reductions needed from near-term measures for ozone attainment in the South Coast. Additional reductions are still needed from long term measures.

4.4 CITY OF HUNTINGTON BEACH

The Huntington Beach General Plan's Air Quality Element was adopted in 1996. The following policies are relevant to the Circulation Element (Huntington Beach 1996a):

AQ 1.2.1 – Work with OCTD [Orange County Transit District[4]] to expand the local transit service area and provide more frequent service to the City of Huntington Beach, particularly express services to Long Beach, downtown Los Angeles, Irvine Business Center (IBC), and Irvine Spectrum areas.

AQ 1.4.1 – Determine the feasibility of adopting an ordinance that limits truck traffic during peak travel hours.

AQ 1.6.1 – Investigate the feasibility of providing new Class II bike lanes to encourage commuter bicycle trips.

AQ 1.7.1 – Continue to implement the Growth Manangemen Area No. 6 Traffic Signal Management Program and Fuel Efficient Traffic Signal Management Program to synchronize Edinger Avenue, Warner Avenue, Adams Avenue, Bolsa Avenue, Golden West Street, Bolsa Chica Street, Brookhurst Street and Magnolia Street.

AQ 1.7.2 – Synchronize all other traffic signals, when such technology becomes economically feasible.

5.0 EXISTING CONDITIONS

5.1 CLIMATE AND METEOROLOGY

The City of Huntington Beach is located in the SoCAB, which consists of all or part of four counties: San Bernardino, Riverside, Los Angeles, and Orange. The distinctive climate of the SoCAB is determined by its terrain and geographic location. The SoCAB is a coastal plain with connecting broad valleys and low hills; it is bound by the Pacific Ocean to the southwest and has high mountains around the rest of its perimeter. The general region lies in the semi-permanent high-pressure zone of the Pacific, resulting in a mild climate that is tempered by cool sea breezes with light average wind speeds. The usually mild climatological pattern is interrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds. Winds in the Project area are usually driven by the dominant land/sea breeze circulation system. Regional wind patterns are dominated by the daytime onshore sea breezes. At night,

[4] OCTD IS now the Orange County Transportation Authority (OCTA).

the wind generally slows and reverses direction traveling toward the sea. Local canyons can also alter wind direction, with wind tending to flow parallel to the canyons. The vertical dispersion of air pollutants in the SoCAB is hampered by the presence of persistent temperature inversions. High-pressure systems, such as the semi-permanent high-pressure zone in which the SoCAB is located, are characterized by an upper layer of dry air that warms as it descends, restricting the mobility of cooler marine-influenced air near the ground surface, which is called a subsidence inversion. Such inversions restrict the vertical dispersion of air pollutants released into the marine layer and, together with strong sunlight, can produce worst-case conditions for the formation of photochemical smog. The basinwide occurrence of inversions between 0 and 3,500 feet above sea level occurs an average of 191 days per year (SCAQMD 1993).

The closest climate data station is at Newport Beach Harbor, southeast of Huntington Beach. The annual average maximum temperature measured at the Newport Beach Harbor climatic station from 1921 through 2008 was 67.8 degrees Fahrenheit (°F). The highest monthly average maximum temperature of 73.5°F occurs in August and the lowest monthly average minimum temperature of 46.8°F occurs in January. The average annual precipitation during the same period was 11.08 inches (WRCC 2009).

5.2 EXISTING AIR QUALITY

Monitored Criteria Pollutants

Criteria air pollutant concentrations are measured at several monitoring stations in Orange County. The closest station to the City of Huntington Beach is the Costa Mesa Monitoring Station, located at 2850 Mesa Verde Drive East in Costa Mesa. The Costa Mesa site is also identified as Source Receptor Area (SRA) 18, North Orange County Coastal. Equipment at the station measures O_3, CO, NO_2, and SO_2 levels. Because this monitoring station does not monitor PM10 and PM2.5, data was supplemented from the Mission Viejo Station 19 (Saddleback Valley) for these criteria pollutants. Data from 2006 to 2008 from these stations are summarized in Table 2. The data show violations of the federal and State 8-hour O_3 standard in 2008 and the State O_3 standard in 2007 at the Costa Mesa Monitoring Station. At the Mission Viejo Monitoring Station, the State PM10 and the federal PM2.5 standards were exceeded in 2006 and 2007.

TABLE 2
AMBIENT AIR QUALITY AT COSTA MESA AND MISSION VIEJO MONITORING STATIONS

Pollutant	Averaging Time	Federal Primary Standards	California Standards	Maximum Concentrations[a]			Number of Days Exceeding Federal Standard[b]			Number of Days Exceeding State Standard[b]		
				2006	2007	2008	2006	2007	2008	2006	2007	2008
O_3 (Costa Mesa)	1 hour	none	0.09 ppm	0.074	0.082	0.094	---	---	---	0	0	0
	8 hour	0.08 ppm	0.07 ppm	0.062	0.072	0.079	0	0	3	0	2	5
CO (Costa Mesa)	1 hour	35 ppm	20 ppm	4	5	---	0	0	---	0	0	---
	8 hour	9 ppm	9.0 ppm	3.01	3.13	1.97	0	0	0	0	0	0
SO_2 (Costa Mesa)	24 hours	0.14 ppm	0.04 ppm	0.005	0.004	0.003	0	0	0	0	0	0
	Annual	0.03 ppm	none	0.001	0.001	0.001	0	0	0	---	---	---
NO_2 (Costa Mesa)	1 hour	none	0.18 ppm	0.101	0.074	0.081	---	---	---	0	0	0
	Annual	0.053 ppm	0.030 ppm	0.015	0.013	0.013	0	0	0	0	0	0
PM10[c] (Mission Viejo)	24 hours	150 µg/m^3	50 µg/m^3	57.0	74.0	42.0	0	0	0	1	3	0
	Annual	Revoked	20 µg/m^3	21.1	23	21.2	---	---	---	1	1	0

TABLE 2 (Continued)
AMBIENT AIR QUALITY AT COSTA MESA AND MISSION VIEJO MONITORING STATIONS

Pollutant	Averaging Time	Federal Primary Standards	California Standards	Maximum Concentrations[a]			Number of Days Exceeding Federal Standard[b]			Number of Days Exceeding State Standard[b]		
				2006	2007	2008	2006	2007	2008	2006	2007	2008
PM2.5 (Mission Viejo)	24 hours	35 µg/m^3	none	46.9	46.8	31.9	1	2	0	-–	-–	-–
	Annual	15 µg/m^3	12 µg/m^3	11.0	11.3	*	*	*	*	*	*	*

ppm : parts per million; —: data not available or applicable; µg/m^3: micrograms per cubic meter; ***:** there was insufficient data to determine the value.

[a] Concentration units for O_3, CO, and NO_2 are in ppm. Concentration units for PM10 and PM2.5 are in µg/m^3.

[b] For annual standards, a value of 1 indicates that the standard has been exceeded.

[c] PM10 data are recorded separately for federal and State purposes because the USEPA and California methods are slightly different. Federal values are shown. PM10 is measured every 6 days; the number of days exceeding standards is projected to a 365-day base from the measurements.

Source: CARB 2009d; SCAQMD 2009a.

Attainment Designations

Based on monitored air pollutant concentrations, the USEPA and the CARB designate an area's status in attaining the NAAQS and CAAQS, respectively, for the criteria pollutants. As previously addressed in Sections 4.1 and.4.2, when a region is designated as a nonattainment area, the State is required to prepare a SIP and the air district is required to prepare a regional attainment plan. When an area has been reclassified from a nonattainment to an attainment area for a federal standard, the status is identified as "maintenance", and there must be a plan and measures that will keep the region in attainment for the following ten years. Table 3 summarizes the attainment status in the SoCAB for the criteria pollutants.

TABLE 3
ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN THE SOUTH COAST AIR BASIN

Pollutant	State	Federal
O_3 (1 hour)	Nonattainment	No standard
O_3 (8 hour)		Severe 17 Nonattainment[a]
PM10	Nonattainment	Serious Nonattainment
PM2.5	Nonattainment	Nonattainment
CO	Attainment	Attainment/Maintenance
NO_2	Attainment	Attainment/Maintenance
SO_2	Attainment	Attainment
Lead	Attainment	Attainment
All others	Attainment/Unclassified	No standards

[a] In the 2007 AQMP, the SCAQMD requested reclassification to Extreme Nonattainment; as of September 2009, the USEPA has not responded to the request.

Source: CARB 2009e; SCAQMD 2007.

Toxic Air Contaminants

Carcinogenic risks (i.e., cancer risks) are estimated as the incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to potential carcinogens. The estimated risk is expressed as a probability (e.g., 10 in 1 million). A risk level of 1 in a million implies a likelihood that up to 1 person, out of 1 million equally exposed people

would contract cancer if exposed continuously (24 hours per day) to the specific concentration over 70 years (an assumed lifetime). This would be in addition to those cancer cases that would normally occur in an unexposed population of one million people (USEPA 2009). The Hazard Index (HI) expresses the potential for chemicals to result in non-cancer-related health impacts. HIs are expressed using decimal notation (e.g., 0.001). A calculated HI exposure that is less than 1.0 will likely not result in adverse non-cancer-related health effects over a lifetime of exposure. However, an HI greater than 1.0 does not necessarily mean that adverse effects will occur (USEPA 2009). Pursuant to SCAQMD Rule 1401(d)(1), the risks associated with potential exposure to emissions from a source equipped with the best available control technology for toxics (T-BACT) and from all emissions sources included within a "project" are acceptable if the incremental cancer risk (a) is less than 10 in 1 million and (b) is less than 1 in 1 million for sources not equipped with T-BACT.

The Multiple Air Toxics Exposure Study III (MATES III) is a monitoring and evaluation study conducted in the SoCAB. The study is a follow up to previous air toxics studies in the SoCAB and is part of the SCAQMD Governing Board's 2003–2004 Environmental Justice Workplan.

The MATES III Study consists of several elements, including a monitoring program, an updated emissions inventory of toxic air contaminants, and a modeling effort to characterize risk across the SoCAB. The study focuses on the carcinogenic risk from exposure to air toxics. It does not estimate mortality or other health effects from particulate exposures.

Based on the average concentrations at the fixed monitoring sites during 2004, 2005, and 2006, the MATES III study estimates that the carcinogenic risk from air toxics in the SoCAB is about 1,200 per 1 million. This risk refers to the expected number of additional cancers in a population of 1 million individuals that are exposed over a 70-year lifetime. Using the MATES III methodology, about 94 percent of the risk is attributed to emissions associated with mobile sources, and about 6 percent of the risk is attributed to toxics emitted from stationary sources, which include industries and businesses such as dry cleaners and chrome plating operations. The results indicate that diesel exhaust is the major contributor to air toxics risk, accounting, on average, for about 84 percent of the total (SCAQMD 2008a).

The MATES III study used monitored data to model risk throughout the SoCAB. The modeled carcinogenic risks for the City of Huntington Beach range from 500 to 1,200 in 1 million, which ranges from below and approaching the SoCAB average (SCAQMD 2008b). The higher values are in the northwestern part of the City.

6.0 AIR QUALITY IMPACTS

6.1 THRESHOLDS OF SIGNIFICANCE

Air Quality

The following threshold criteria are from Section V of the Environmental Assessment prepared for the proposed Project (Huntington Beach 2009a). The Project would result in a significant impact related to air quality if it would:

- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Expose sensitive receptors to substantial pollutant concentrations;
- Conflict with or obstruct implementation of the applicable air quality plan;

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

The Environmental Assessment prepared for the updated Circulation Element EIR determined that impacts due to objectionable odors would be less than significant.

Appendix G of the State CEQA Guidelines states that the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. The SCAQMD has established significance thresholds to assess the regional and localized impacts of project-related air pollutant emissions. The significance thresholds are updated as needed to appropriately represent the most current technical information and attainment status in the SoCAB. Table 4 presents the most current significance thresholds, including regional daily thresholds for short-term construction and long-term operational emissions; maximum incremental cancer risk and hazard indices for TACs; and maximum ambient concentrations for exposure of sensitive receptors to localized pollutants. A project with daily emission rates, risk values, or concentrations below these thresholds is generally considered to have a less than significant effect on air quality.

TABLE 4
SCAQMD AIR QUALITY SIGNIFICANCE THRESHOLDS

Mass Daily Thresholds[a]		
Pollutant	**Construction**	**Operation**
NOx	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM10	150 lbs/day	150 lbs/day
PM2.5	55 lbs/day	55 lbs/day
SOx	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Toxic Air Contaminants		
TACs[b]	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to Rule 402[c]	
Ambient Air Quality For Criteria Pollutants[d]		
NO_2	1-hour average ≥ 0.18 ppm Annual average ≥ 0.03 ppm	
PM10	24-hour average ≥ 10.4 μg/m^3 (construction) 24-hour average ≥ 2.5 μg/m^3 (operation) Annual average ≥ 1.0 μg/m^3	
PM2.5	24-hour average ≥ 10.4 μg/m^3 (construction) 24-hour average ≥ 2.5 μg/m^3 (operation)	
Sulfate	24-hour average ≥ 1.0 μg/m^3	
CO	1-hour average ≥ 20.0 ppm (State) 8-hour average ≥ 9.0 ppm (State/federal)	

lbs/day – pounds per day; ppm – parts per million; μg/m^3 – micrograms per cubic meter
[a] Source: SCAQMD 2009c.
[b] Toxic air contaminants (carcinogenic and non-carcinogenic).
[c] Rule 402 states that a project shall not "discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals."
[d] Ambient air quality threshold based on SCAQMD Rule 403.

6.2 METHODOLOGY

Scenarios

The air quality analysis for the proposed Project considers three scenarios analyzed in the *General Plan Circulation Element Update Traffic Study* (Austin-Foust 2009a). The existing, or baseline, scenario is based on traffic data from 2005 and 2006. This data was analyzed by Austin-Foust and determined to be representative of 2008/2009 traffic conditions. Future traffic conditions were projected for the year 2030 for the current Circulation Element and the proposed Circulation Element Update.

Mass Daily Emissions

Pollutant emissions from vehicle travel in the city were calculated by using the CARB EMission FACtor model (EMFAC 2007) and vehicle miles traveled data provided by the project traffic consultant (Austin-Foust 2009b). The EMFAC model is used to calculate emission rates from all motor vehicles, such as passenger cars to heavy-duty trucks, that are operating on highways, freeways and local roads in California. EMFAC2007 is the most recent version of this model. The model reflects the CARB's current understanding of how vehicles travel and how much they pollute. EMFAC calculates the emission rates of 1965 and newer vehicles powered by gasoline, diesel, or electricity. Emission factors are calculated for VOC, CO, NOx, PM, SO_2 and CO_2 for each vehicle class within each calendar year, for 24 1-hour periods, for each month of the year, for each district, basin, and county in California. EMFAC can report the gram per mile emission rates of a single technology group or the ton per day inventory for the entire 28,000,000 vehicle California fleet. Output data can be obtained as a function of ambient temperature, relative humidity, and speed. Vehicle testing provides basic emission data. Fleet composition is based on vehicle registration data. Vehicle miles traveled (VMT) data used to calculate regional emissions is estimated from odometer readings reported in smog testing. Major updates of EMFAC have occurred at three to five year intervals (CARB 2009f).

CO Hotspots

A CO hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. An initial screening procedure is provided in the procedures and guidelines contained in the Transportation Project-Level Carbon Monoxide Protocol (the CO Protocol) to determine whether a project poses the potential for a CO hotspot (UCD ITS 1997). According to the CO Protocol, projects may make air quality worse if they (1) increase the percentage of vehicles in cold start modes by two percent or more; (2) increase traffic volumes by five percent or more over existing volumes; or (3) make traffic flow worse, which is defined for signalized intersections as increasing average delay at intersections operating at Level of Service (LOS) E or F, or causing an intersection that would operate at LOS D or better without a project to operate at LOS E or F with a project.

If, according to the CO Protocol, a project poses a potential for a CO hotspot, a quantitative screening is required. Various air quality agencies in California, but not the SCAQMD, have developed conservative screening methods. Therefore, the screening methods of the Sacramento Metropolitan Air Quality Management District (SMAQMD) are used (SMAQMD 2009).

6.3 CONFORMANCE TO FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS

The proposed Circulation Element is designed to accommodate long range traffic volumes to minimize congestion problems, and would not generate any stationary or mobile sources of air pollutant emissions. Therefore, the analysis to determine if proposed future changes to the

circulation system would exceed SCAQMD CEQA significance thresholds and related ambient air quality standards is based upon the forecast of total daily VMT in a prescribed region. Mobile source emissions were calculated for the existing conditions, the current Circulation Element, and the proposed Project. For purposes of calculation, it was assumed that the average traffic speed for all vehicles in 2009 and in 2030 is 35 miles per hour. Although traffic volumes will increase and a system to manage traffic more efficiently will be implemented, the speeds on most roadways are, and will continue to be governed by posted speed limits. The VMT data and the estimated emissions are shown in Table 5.

As shown in Table 5, the daily VMT in the City of Huntington Beach is forecast to increase by more than 20 percent between 2009 and 2030. In that same period, VOC and NOx emissions, which are both precursors of O_3 and smog, would be reduced by almost 70 percent due to the continuing improvement in vehicle emissions technology, increased fuel efficiency, and the continuing retirement of older vehicles and their replacement with newer, cleaner vehicles which generate substantially lower levels of emissions. For the same reasons, emissions of CO would be reduced by more than 60 percent and PM10 emissions would be slightly reduced. PM2.5 emissions would increase slightly. The substantial reductions in gaseous pollutants would not occur with PM10 and PM2.5 because the emission reduction technologies are not as effective for particulates, and because PM10 andPM2.5 are generated from brake and tire wear in addition to engine exhaust. The reductions shown in Table 5 and described above are included in the EMFAC 2007 emission factors that are part of the URBEMIS model. With the implementation of newer regulations to improve vehicle efficiency, as discussed in Section 4.2 above, emissions in 2030 may be less than predicted by current models.

For informational purposes, the data of Table 5 also show that the forecasted VMT in the City would be approximately two percent less than with the existing Circulation Element, and pollutant emissions would be less by the same percentage.

TABLE 5
ESTIMATED DAILY EMISSIONS

Scenario	VMT in Huntington Beach	Pollutant Emissions –lbs/day				
		VOCs	NOx	CO	PM10	PM2.5
Existing Conditions – 2009	2,735,124	621	4,127	17,098	127	114
Proposed Circulation Element – 2030	3,302,762	196	1,244	6,358	124	116
Increase: Proposed Circulation Element less Existing	567,638	-424	-2,883	-10,739	-3	2
SCAQMD Thresholds		***55***	***55***	***550***	***150***	***55***
Exceeds SCAQMD Thresholds?		**No**	**No**	**No**	**No**	**No**
Current General Plan – 2030	3,353,350	199	1,263	6,456	126	118
Increase: Proposed Circulation Element less Current Circulation Element	-50,588	-3	-19	-97	-2	-2
SCAQMD Thresholds		***55***	***55***	***550***	***150***	***55***
Exceeds SCAQMD Thresholds?		**No**	**No**	**No**	**No**	**No**

VMT: vehicle miles traveled; lbs/day: pounds per day; VOC: volatile organic compounds; NOx: oxides of nitrogen; CO: carbon monoxide; PM10: respirable particulate matter; PM2.5: fine particulate matter.

Source: Austin-Foust 2009b (VMT data).

The proposed Circulation Element Update would eliminate some roadway segments that are currently planned, but not built. The elimination of these segments from the traffic model results in a forecasted increase in VMT outside the City of Huntington Beach. Although data quantifying the increase in VMT outside the City is not available, it is concluded, based on the substantial reduction in vehicle emissions that will occur between 2009 and 2030, as shown in Table 5, that the change in regional emissions would be less than the SCAQMD thresholds.

Conclusion

The proposed Circulation Element Update would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. The impact would be less than significant; no mitigation would be required.

6.4 EXPOSURE OF SENSITIVE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS

Carbon Monoxide Hotspots

An initial screening for the project's potential to create a CO hotspot was conducted to determine the most severely congested major intersections, since this is where conditions could most likely result in substantial pollutant concentrations that could adversely affect nearby sensitive receptors. The traffic impact analysis designates each intersection as Principal or Secondary; Principal intersections serve major thoroughfares, often with substantial through traffic components. The Secondary intersections are more typically associated with roadways serving residential areas (Austin-Foust 2009a). The CO hotspot screening focuses on the 72 Principal intersections. The existing conditions intersection analysis shows that four Principal intersections would operate at LOS E in either the AM or PM peak hour; no intersections would operate at LOS F. For the proposed Circulation Element Update and 2030 traffic conditions and the current Circulation Element, six Principal intersections would operate at LOS F, with the most severe being the intersection of Goldenwest Street and Pacific Coast Highway, with a forecasted intersection capacity utilization (ICU) factor of 1.14,[5] while the LOS F intersection with the largest traffic volumes would be Beach Boulevard at Edinger Avenue (Austin-Foust 2009a).

The above findings indicate that a quantitative screening is required. The SMAQMD has developed simple conservative screening criteria for local CO impacts. The SMAQMD states that if all the following criteria are met, a project would result in a less than significant impact to air quality for local CO:

- The project would not result in an affected intersection experiencing more than 31,600 vehicles per hour;
- The project would not contribute traffic to a tunnel, parking garage, bridge underpass, urban street canyon, or below-grade roadway, or other locations where horizontal or vertical mixing of air would be substantially limited; and
- The mix of vehicle types at the intersection is not anticipated to be substantially different from the County average (SMAQMD 2009).

The proposed Project traffic study shows that traffic volumes at the Goldenwest/Pacific Coast Highway intersection with LOS F conditions would be 5,810 vehicles per hour with the proposed Circulation Element roadway conditions. At the Beach/Edinger intersection with proposed Circulation Element conditions and LOS F operations, the traffic volume would be 10,680

[5] If ICU is greater than 1.0, the LOS is F.

vehicles per hour (Austin-Foust 2009a).. These volumes are less than the screening criterion of 31,600 vehicles per hour. These intersections are not located in areas where mixing of air would be limited, nor is the vehicle mix anticipated to be substantially different than the County average. Therefore, there would be no potential for a CO hotspot or exposure of persons to CO in excess of SCAQMD criteria for ambient air quality for CO. The impact would be less than significant and no mitigation is required.

Conclusion

The proposed Circulation Element Update would not cause traffic congestion that would create CO hotspots. Persons would not be exposed to substantial concentrations of CO. The impact would be less than significant; no mitigation would be required.

Toxic Air Contaminants

Construction activities for future roadway widening and intersection improvements under the proposed Circulation Element could result in short-term, project-generated emissions of diesel PM from the exhaust of off-road, heavy-duty diesel equipment used for site preparation (e.g., demolition, excavation, and grading); paving; building construction; and other miscellaneous activities. CARB identified diesel PM as a TAC in 1998. The dose to which receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Thus, the risks estimated for a maximally exposed individual (MEI) are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment, health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period (OEHHA 2003); however, such assessments should be limited to the period/duration of activities associated with a proposed project. Project-generated or construction-related emissions of TACs would not expose sensitive receptors to substantial emissions of TACs because (1) the use of off-road, heavy-duty diesel equipment would be temporary (short in duration when compared to 70 years); diesel PM has highly dispersive properties; and (3) further reductions in exhaust emissions from improved equipment would occur.

CARB published the *Air Quality and Land Use Handbook: A Community Health Perspective*, which provides guidance concerning land use compatibility with TAC sources (CARB 2005). While not a law or adopted policy, the handbook offers advisory recommendations for siting sensitive receptors near uses associated with TACs (such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries, dry cleaners, gasoline stations, and industrial facilities) to help keep children and other sensitive populations out of harm's way. The handbook includes the recommendation to avoid the siting of new sensitive land uses (e.g., residences, schools) within 500 feet of freeways or urban roads with traffic volumes of 100,000 vehicles/day (ADT). The highest traffic volumes in the City occur on Beach Boulevard north of Edinger Avenue, where existing volumes are 74,000 to 79,000 ADT; 2030 volumes are forecasted to be 83,000 to 86,000 ADT with the current Circulation Element roadway configuration and 88,000 to 96,000 ADT with the proposed Circulation Element roadways (Austin-Foust 2009c). Therefore, the forecast volumes would be less than the conservative threshold recommended in the handbook. There are no sensitive receptors adjacent to Beach Boulevard at this location. Therefore, there would be no potential to expose sensitive receptors to TACs from roadway vehicle emissions. It is further noted that the City General Plan Land Use map designates the properties adjacent to Beach Boulevard north of Edinger Avenue for commercial use; thus future use of the land by sensitive receptors is unlikely.

The impact would be less than significant and no mitigation is required.

6.5 CONFORMANCE TO THE APPLICABLE AIR QUALITY PLAN

SCAQMD AQMP

The two principal criteria for conformance to an AQMP are (1) whether the project would result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of air quality standards and (2) whether the project would exceed the assumptions in the AQMP (SCAQMD 1993).

With respect to the first criterion, the analysis in Section 6.3 above demonstrates that the Project would not result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of air quality standards.

With respect to the second criterion, AQMP assumptions for mobile source emissions are based on socioeconomic data and transportation models provided by SCAG. The SCAG models use land use designations, population, employment, and households data among other inputs. The 2007 AQMP is based upon data available at the time of preparation. The proposed Circulation Element Update would not change any General Plan land uses. Although the roadway network proposed by the Circulation Element Update eliminates a few future segments shown on the County Master Plan of Arterial Highways that were modeled for the 2007 AQMP, the changes in the proposed element, principally for the improved management of traffic and the setting of higher performance standards, would not result in increased emissions and would be consistent with the goals of the AQMP.
The Final 2007 SCAQMD AQMP includes seven mobile source control measures proposed for SCAQMD implementation (SCAQMD 2007). None of the seven mobile source measures are appropriate for implementation at the local level.

The AQMP also incorporates transportation strategies and control measures from the SCAG Regional Transportation Plan (RTP) and Regional Transportation Improvement Program (RTIP). These measures are grouped into three general categories: High occupancy vehicle; transit and systems management; and information-based transportation strategies. The strategies and control measures were defined as a single Transportation Control Measure (TCM) from which TCM projects were developed for implementation by various lead agencies including the California Department of Transportation (Caltrans), the Orange County Transportation Authority (OCTA), and individual cities. There are no Huntington Beach TCM projects.

<u>Huntington Beach Air Quality Element</u>

Section 4.5 describes policies in the Huntington Beach General Plan Air Quality element that are related to the Circulation Element and mobile sources. Table 6 compares the relevant policies and implementation programs of the proposed Circulation Element with the Air Quality Element policies. Table 6 shows that the proposed Circulation Element Update is consistent with the Air Quality Element. Therefore, the proposed project is consistent with both the SCAQMD 2007 AQMP and the Huntington Beach Air Quality Element. The impact would be less than significant. No mitigation measures are required.

TABLE 6
COMPARISON OF AIR QUALITY ELEMENT AND CIRCULATION ELEMENT UPDATE POLICIES

Air Quality Element	Proposed Circulation Element Update	
Policy	**Policy**	**Implementation Program[a]**
AQ 1.2.1 – Work with OCTD (Orange County Transit District; now the Orange County Transportation Authority [OCTA]) to expand the local transit service area and provide more frequent service to the City of Huntington Beach, particularly express services to Long Beach, downtown Los Angeles, Irvine Business Center (IBC), and Irvine Spectrum areas.	CE 4.1 Encourage and support the various public transit agencies and companies, ride-sharing programs, and other incentive programs that provide forms of transportation other than the private automobile. CE 4.4 pursue an urban transit system that serves Huntington Beach.	CE-28: Orange County Transportation Authority Work with the Orange County Transportation Authority (OCTA) to achieve the following: • Expand and improve bus service within the City. • Provide special transit services (such as direct shuttle or dial-a-ride services). • Plan and implement an urban rail system that links the City to central Orange County and Los Angeles County.
AQ 1.4.1 – Determine the feasibility of adopting an ordinance that limits truck traffic during peak travel hours.	CE 1.8 Maintain truck routes that move goods efficiently throughout the City and mitigate traffic and noise impacts of truck traffic on noise sensitive land uses.	CE-9: Trucking Industry Continue to enforce City truck routes, and work with trucking industry representatives to orient trucks to truck routes to avoid traffic and noise impacts on local roadways, and to divert commercial truck traffic to offpeak- periods to reduce congestion and diesel emission.
AQ 1.6.1 – Investigate the feasibility of providing new Class II bike lanes to encourage commuter bicycle trips.	CE 7.1 Coordinate the planning of equestrian, bicycle, bus and pedestrian routes and facilities to promote an interconnected system.	CE-6: Bikeway Plan Implement and update Huntington Beach's Bikeway Plan[2] to plan and prioritize facilities for both recreational cyclists and commuters.
AQ 1.7.1 – Continue to implement the Growth Manangement Area No. 6 Traffic Signal Management Program and Fuel Efficient Traffic Signal Management Program to synchronize Edinger Avenue, Warner Avenue, Adams Avenue, Bolsa Avenue, Golden West Street, Bolsa Chica Street, Brookhurst Street and Magnolia Street.	CE 1.7 Use Intelligent Transportation System (ITS) measures to reduce congestion at intersections, as applicable.	CE-13: Traffic Technology Use appropriate technologies to improve traffic flow and reduce and manage congestion, such as: • Installing and maintaining preemptive emergency signaling devices for each direction at appropriate traffic signal-controlled intersections within the City. • Continuing to implement a traffic signal coordination program to improve traffic flow. • Developing a citywide traffic management center
AQ 1.7.2 – Synchronize all other traffic signals, when such technology becomes economically feasible.		

[a] Limited to the parts of the implementation program that relate to the corresponding policy.

[b] The Proposed Circulation Element Update includes a City Bikeway Plan with an interconnected network of Class I, II, and III bike lanes.

Source: Huntington Beach 1996a, 1996b, 2009b.

6.6 CUMULATIVELY CONSIDERABLE NET INCREASE OF NONATTAINMENT CRITERIA POLLUTANTS

The region is a nonattainment area for PM10, PM2.5, and the O_3 precursors VOC and NOx. Implementation of the updated Circulation Element would contribute each of these non-attainment criteria pollutants to the area during short-term project construction (of future roadway projects) and long-term circulation network operations. As described in Section 6.3 above, projected (2030) VOC, NOx, and PM10 emissions in the City of Huntington Beach with either the current Circulation Element or the proposed Circulation Element Update would be less than the existing emissions due to continuing improvement in vehicle emissions technology, increased fuel efficiency, and the continuing retirement of older vehicles and their replacement with newer, cleaner vehicles which generate substantially lower levels of emissions. PM2.5 emissions would increase slightly because the improvements in reduction efficiency of this pollutant would not completely offset the increase in VMT of more than 20 percent. However, the increase in PM2.5 emissions would be less than five percent of the SCAQMD CEQA threshold and would not be cumulatively considerable. Implementation of the proposed Circulation Element Update would result in fewer pollutant emissions in the City of Huntington Beach than with the current Circulation Element because the proposed Circulation Element would result is less VMT. Thus, there would be no cumulatively considerable net increase of the nonattainment criteria pollutants. No mitigation measures are required.

7.0 MITIGATION MEASURES

No mitigation measures are required.

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Title : Orange County 2009 and 2030
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2009/10/2012 21:58:09
Scen Year: 2009 -- All model years in the range 1965 to 2009 selected
Season : Annual
Area : Orange
********** ********* ******** ********* ******** ******** ******** *********
Year: 2009 -- Model Years 1965 to 2009 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average Orange County Average

Table 1: Running Exhaust Emission Pollutant Name: Reactive Org Gases Temperature: 50F Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	2009 09-ROG ALL
25	0.093	0.103	0.165	0.793	1.115	2.83	0.144
35	0.065	0.072	0.111	0.525	0.744	2.626	0.103
45	0.056	0.061	0.091	0.412	0.581	2.951	0.091

Pollutant Name: Carbon Monoxide Temperature : 50F Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	09-CO ALL
25	2.747	3.349	3.778	7.018	9.425	26.143	3.356
35	2.326	2.831	3.129	5.068	6.748	27.671	2.838
45	2.076	2.513	2.817	4.334	6.049	35.838	2.594

Pollutant Name: Oxides of Nitrogen Temperature : 50F Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	09-Nox ALL
25	0.283	0.47	0.855	10.361	15.037	1.374	0.736
35	0.256	0.422	0.8	9.874	14.067	1.463	0.685
45	0.249	0.409	0.814	10.12	15.69	1.566	0.689

Pollutant Name: Carbon Dioxide Temperature : 50F Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	09-CO2 ALL
25	388.591	483.145	657.975	1514.381	2225.734	138.837	489.368
35	310.266	386.083	523.492	1404.008	2191.42	120.188	396.752
45	287.397	357.742	485.238	1351.994	2182.761	113.786	369.287

Pollutant Name: PM10 Temperature : 50F Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	09-PM10 ALL
25	0.012	0.024	0.026	0.378	0.249	0.029	0.029
35	0.008	0.017	0.018	0.286	0.179	0.027	0.021
45	0.007	0.014	0.015	0.256	0.148	0.03	0.018

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: PM2.5 Temperature : 50F Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	09-PM2.5 ALL
25	0.011	0.023	0.024	0.348	0.229	0.022	0.027
35	0.008	0.015	0.016	0.263	0.165	0.02	0.019
45	0.006	0.013	0.014	0.235	0.136	0.023	0.016

Pollutant Name: Methane Temperature : 50F Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	09- CH4 ALL
25	0.029	0.033	0.041	0.048	0.061	0.218	0.034
35	0.022	0.025	0.033	0.035	0.045	0.21	0.026
45	0.019	0.022	0.029	0.029	0.038	0.223	0.023

Title : Or ange Coun ty 2009 and 2030
Version : Em fac2007 V 2.3 Nov 1 2006
Run Date : 20 9/10/2012 21:58:09
Scen Year: 20 30 -- All model y ears in the range 1 986 to 2 030 sele cted
Season : An nual
Area : Or ange
********** ********* ******** ********* ******** ******** ******** *********
Year: 20 30 -- Mod el Years 1986 to 20 30 Inclu sive -- Annual
Emfac200 7 Emissio n Factor s: V2.3 Nov 1 2006

County A verage Orange Co

T able 1: Running Exhaust Emission s (grams/ mile)

Pollutan t Name: R eactive O rg Gases Te mperature : 50F Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	30-ROG ALL
25	0.01	0.019	0.031	0.21	0.587	2.18	0.035
35	0.007	0.013	0.021	0.157	0.396	1.963	0.027
45	0.006	0.011	0.017	0.124	0.313	2.17	0.025

Pollutan t Name: C arbon Mon oxide Te mperature : 50F Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	30-CO ALL
25	0.633	1.125	1.383	1.356	4.882	16.739	1.018
35	0.539	0.957	1.165	1.081	3.488	16.846	0.874
45	0.464	0.825	1.006	1.009	3.122	20.193	0.786

Pollutan t Name: O xides of Nitrogen Te mperature : 50F Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	30-Nox ALL
25	0.054	0.111	0.205	2.126	9.069	1.254	0.19
35	0.048	0.099	0.19	1.872	8.55	1.271	0.171
45	0.046	0.094	0.191	1.813	9.519	1.331	0.168

Pollutant Name: Carbon Dioxide Temperature : 50F Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	30-CO2 ALL
25	376.559	482.911	657.164	1587.306	1867.583	153.723	496.612
35	300.528	385.443	522.152	1462.009	1807.874	139.859	403.589
45	278.329	356.985	483.826	1399.444	1792.807	144.497	375.71

Pollutant Name: PM10 Temperature : 50F Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	30-PM10 ALL
25	0.013	0.03	0.033	0.099	0.158	0.015	0.025
35	0.009	0.021	0.022	0.083	0.113	0.014	0.017
45	0.007	0.017	0.019	0.08	0.093	0.016	0.015

Pollutant Name: PM2.5 Temperature : 50F Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	30-PM2.5 ALL
25	0.012	0.028	0.031	0.091	0.145	0.012	0.023
35	0.008	0.019	0.021	0.076	0.104	0.011	0.016
45	0.007	0.016	0.017	0.074	0.086	0.012	0.014

Pollutant Name: Methane Temperature : 50F Relative Humidity: 50%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	30-CH4 ALL
25	0.007	0.014	0.017	0.012	0.033	0.192	0.012
35	0.005	0.009	0.012	0.009	0.024	0.184	0.009
45	0.004	0.008	0.01	0.007	0.02	0.192	0.007

Scenario	Daily VMT	ROG	Nox	CO	PM10	PM2.5	CO2	CH4		VMT	ROG	Nox	CO	PM10	PM2.5	CO2	CH4
35 mph	2009 emfac	0.103	0.685	2.838	0.021	0.019	396.752	0.026 gram/mile									
	2030 emfac	0.027	0.171	0.874	0.017	0.016	403.589	0.009									
2009	2,735,124	621	4,127	17,098	127	114	2390233	157									
Current CE	3,353,350	199	1,263	6,456	126	118	2981003	66	curr/2009	1.23	0.32	0.31	0.38	0.99	1.03	1.25	0.42
Proposed CE	3,302,762	196	1,244	6,358	124	116	2936032	65	prop/curr	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Proj less Exist	567,638	-424	-2,883	-10,739	-3	2											
update less curr	-50,588	-3	-19	-97	-2	-2											

Appendix D Noise Impact Analysis

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NOISE IMPACT ANALYSIS

FOR THE CITY OF HUNTINGTON BEACH GENERAL PLAN CIRCULATION ELEMENT UPDATE

Prepared for

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October 2009

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APPENDIX

A Noise Monitoring Data

SECTION 1.0 INTRODUCTION

This Noise Impact Analysis has been prepared to analyze the noise and vibration impacts that would occur from the proposed update of the *City of Huntington Beach General Plan's* Circulation Element, hereafter referred to as "the Project", in accordance with the requirements of the California Environmental Quality Act (CEQA).

The purpose of the Huntington Beach Circulation Element update is to evaluate the City's long-term transportation needs and to present a comprehensive plan to accommodate those needs. The Circulation Element is being designed to provide an efficient surface transportation system to (1) accommodate the increased volumes of traffic forecasted to occur over the next 20 to 25 years and (2) achieve desired intersection levels of service that minimize congestion during peak travel periods. The Circulation Element is the foundation for the City's efforts to manage and minimize traffic congestion, to manage safety on roadways, to provide alternatives to the automobile, and to include better access to regional travel routes (Huntington Beach 2009a).

1.1 PROJECT LOCATION

The City of Huntington Beach (City) is located in Orange County, California, approximately 40 miles southwest of Los Angeles. The City is bound by the Pacific Ocean to the west, the City of Seal Beach to the north, the Cities of Westminster and Fountain Valley to the east, and the City of Costa Mesa to the south. The regional location and vicinity are shown in Exhibit 1.

1.2 PROPOSED PROJECT

The City proposes to adopt an updated General Plan Circulation Element; the existing Circulation Element was adopted in 1996 (Huntington Beach 1996a). The Circulation Element of the *City of Huntington Beach General Plan* describes and directs, through goals, policies, and implementation programs, how people, goods, and services move within and through Huntington Beach. The proposed update to the Circulation Element includes (1) modifications to roadway classifications; (2) planned long-range capacity improvements; and (3) modifications to the procedures under which the performance of the roadway system is evaluated (Huntington Beach 2009b). These proposed changes to the Circulation Plan are shown in Exhibit 2 and the proposed long-range capacity improvements are shown in Exhibit 3.

The proposed Circulation Element also addresses alternative modes of transportation, including bus transit, bicycle routes, and the enhancement of pedestrian circulation.

SECTION 2.0 NOISE BASICS AND TERMINOLOGY

"Sound" is a vibratory disturbance created by a moving or vibrating source and is capable of being detected. "Noise" is defined as sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance and, in the extreme, hearing impairment (Caltrans 1998).

2.1 DECIBELS AND FREQUENCY

In its most basic form, a continuous sound can be described by its frequency or wavelength (pitch) and its amplitude (loudness). Frequency is expressed in cycles per second, or hertz. Frequencies are heard as the pitch or tone of sound. High-pitched sounds produce high

Regional Location/Local Vicinity

Exhibit 1

Huntington Beach Circulation Element Update Noise Analysis

N W E S

2 1 0 2 Miles

BonTerra CONSULTING

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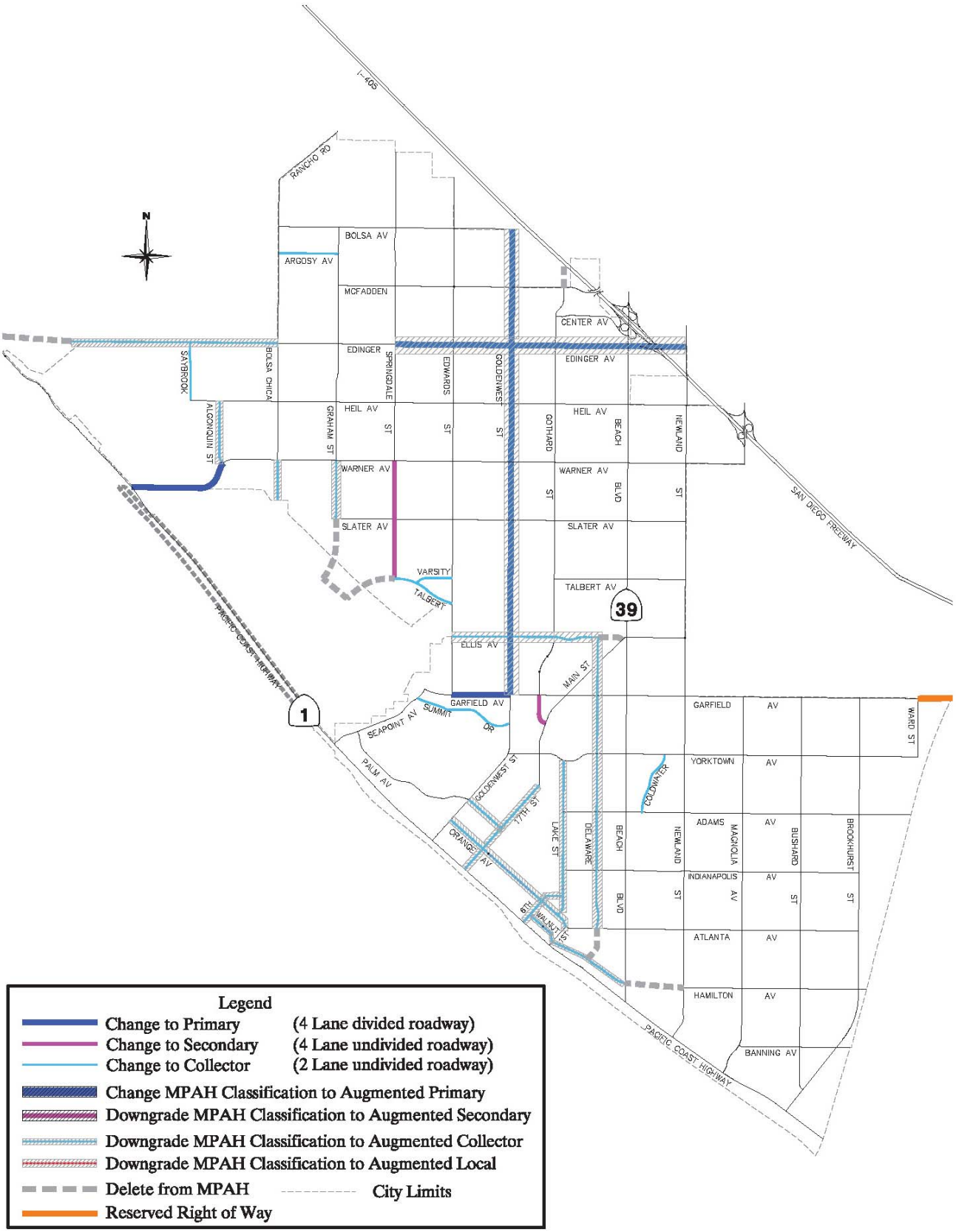

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Proposed Changes in the Circulation Plan

Exhibit 2

Huntington Beach Circulation Element Update Noise Analysis

BonTerra CONSULTING

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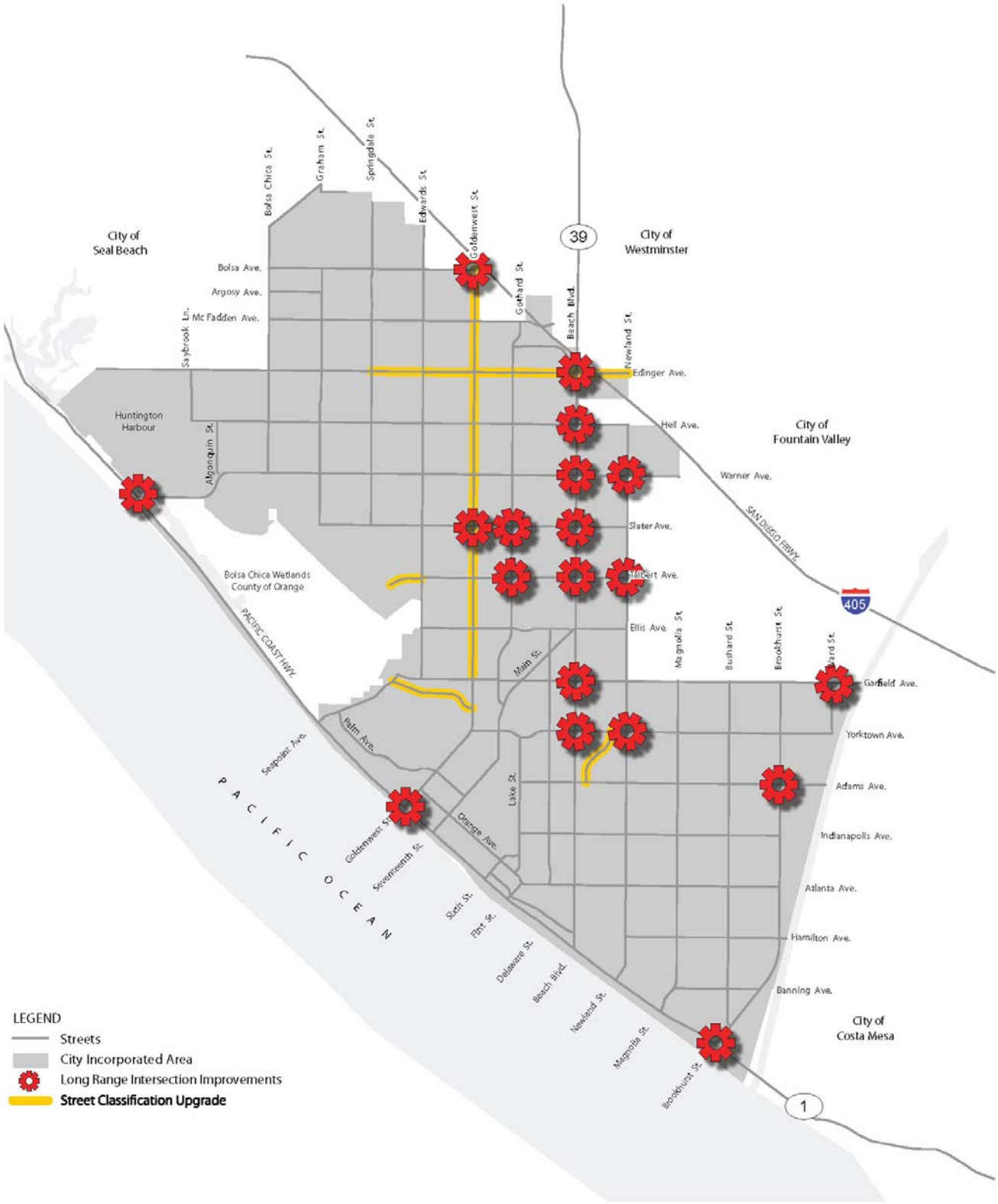

Proposed Long Range Capacity Improvements

Exhibit 3

Huntington Beach Circulation Element Update Noise Analysis

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frequencies; low-pitched sounds produce low frequencies. Sound pressure levels are described in units called the decibel (dB).

Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Thus, a doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB.

2.2 PERCEPTION OF NOISE AND A-WEIGHTING

A typical noise environment consists of a base of steady “background” noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this background noise is the sound from individual local sources. The local sources can vary from an occasional aircraft or train passing by, to intermittent periods of sound (such as amplified music), to virtually continuous noise from, for example, traffic on a major highway.

The human ear is not equally sensitive to all frequencies within the sound spectrum. To accommodate this phenomenon, the A-scale, which approximates the frequency response of the average healthy ear when listening to most ordinary everyday sounds, was devised. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Therefore, the “A-weighted” noise scale is used for measurements and standards involving the human perception of noise. Noise levels using A-weighted measurements are abbreviated dB(A) or dBA.

Human perception of noise has no simple correlation with acoustical energy. Due to subjective thresholds of tolerance, the annoyance of a given noise source is perceived very differently from person to person. The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at 3 feet is approximately 60 dBA, while loud jet engine noises equate to 110 dBA, which can cause serious discomfort.

Two noise sources do not “sound twice as loud” as one source. As stated above, a doubling of noise sources results in a noise level increase of 3 dBA. It is widely accepted that (1) the average healthy ear can barely perceive changes of a 3 dBA increase or decrease; (2) a change of 5 dBA is readily perceptible; and (3) an increase (decrease) of 10 dBA sounds twice (half) as loud (Caltrans 1998). In community situations, noise exposure and changes in noise levels occur over a number of years, unlike the immediate comparison made in a field study situation. The generally accepted level at which changes in community noise levels become “barely perceptible” typically occurs at values of greater than 3 dBA. Exhibit 4, Typical Noise Levels and their Subjective Loudness and Effects, shows the relationship of various noise levels to commonly experienced noise events.

2.3 NOISE PROPAGATION

From the source to the receiver, noise changes both in level and frequency. The most obvious change is the decrease in noise level as the distance from the source increases. The manner in which noise decreases with distance depends on many factors.

Geometric spreading from point and line sources: Sound from a small localized source (approximating a “point” source) radiates uniformly outward as it travels away from the source in a spherical pattern. For point sources, the sound level attenuates (or drops off) at a rate of 6 dBA for each doubling of the distance (i.e., if the noise level is 70 dBA at 25 feet, it is 64 dBA at 50 feet). The movement of vehicles on a road makes the source of the sound appear to emanate from a line (line source) rather than a point when viewed over some time interval. The sound level attenuates or drops off at a rate of 3 dBA per doubling of distance for line sources.

Common Outdoor Activities	Common Indoor Activities	A - Weighted Sound Level dBA	Subjective Loudness	Effects of Noise
Threshold of Pain		140	Intolerable or Deafening	Hearing Loss
Near Jet Engine		130		
		120		
Jet Fly-Over at 1000 ft	Rock Band	110		
Loud Auto Horn		100	Very Noisy	
Gas Lawn Mower at 3 ft		90		
Diesel Truck at 50 ft, at 50 mph	Food Blender at 3 ft	80		Speech Interference
Noisy Urban Area, Daytime	Vacuum Cleaner at 10 ft	70	Loud	
Heavy Traffic at 300 ft	Normal Speech at 3 ft	60		
Quiet Urban Daytime	Large Business Office	50	Moderate	
Quiet Urban Nighttime	Theater, Large Conference Room (Background)	40		Sleep Disturbance
Quiet Suburban Nighttime	Library	30	Faint	No Effect
Quiet Rural Nighttime	Bedroom at Night, Concert Hall (Background)	20		
	Broadcast/Recording Studio	10	Very Faint	
Lowest Threshold of Human Hearing	Lowest Threshold of Human Hearing	0		

Source: Noise Technical Supplement by Caltrans

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Typical Noise Levels and Their Subjective Loudness and Effects

Exhibit 4

Huntington Beach Circulation Element Update Noise Analysis

BonTerra CONSULTING

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Ground absorption: To account for ground-effect attenuation (absorption), two types of site conditions are commonly used in noise prediction: soft site and hard site conditions. Hard sites (i.e., sites with a reflective surface between the source and the receiver, such as parking lots or smooth bodies of water) receive no excess ground attenuation, and the changes in noise levels with distance (drop-off rate) are simply the geometric spreading of the source. Soft sites are sites that have an absorptive ground surface (e.g., soft dirt, grass, or scattered bushes and trees) and receive an excess ground attenuation value of 1.5 dBA per doubling of distance.

Atmospheric effects: Wind speed will bend the path of sound to "focus" it on the downwind side and make a "shadow" on the upwind side of the source. At short distances, the wind has minor influence on the measured sound level. For longer distances, the wind effect becomes appreciably greater. Temperature gradients create effects similar to those of wind gradients, except that they are uniform in all directions from the source. On a sunny day with no wind, temperature decreases with altitude, giving a shadow effect for sound. On a clear night, temperature may increase with altitude, focusing sound on the ground surface.

Shielding by natural and man-made features, noise barriers, diffraction, and reflection: A large object in the path between a noise source and a receiver can significantly attenuate noise levels at that receiver location. The amount of attenuation provided by this "shielding" depends on the size of the object and the frequencies of the noise levels. Natural terrain features (e.g., hills and dense woods) and man-made features (e.g., buildings and walls) can significantly alter noise levels. For a noise barrier to work, it must be high enough and long enough to block the view from the receiver to a road or to the noise source. Effective noise barriers can reduce noise levels at the receptor by up to 15 dB.

2.4 NOISE DESCRIPTORS

Several rating scales (or noise "metrics") exist to analyze effects of noise on a community. These scales include the equivalent noise level (L_{eq}), the community noise equivalent level (CNEL), and the day-night average sound level (DNL or L_{dn}). Average noise levels over a period of minutes or hours are usually expressed as dBA L_{eq}, which is the equivalent noise level for that period of time. The period of time averaging may be specified; $L_{eq(3)}$ would be a 3-hour average. When no period is specified, a 1-hour average is assumed. Noise of short duration (i.e., substantially less than the averaging period) is averaged into ambient noise during the period of interest. Thus, a loud noise lasting many seconds or a few minutes may have minimal effect on the measured sound level averaged over a 1-hour period.

To evaluate community noise impacts, L_{dn} was developed to account for human sensitivity to nighttime noise. L_{dn} represents the 24-hour average sound level with a penalty for noise occurring at night. The L_{dn} computation divides the 24-hour day into two periods: daytime (7:00 AM to 10:00 PM) and nighttime (10:00 PM to 7:00 AM). The nighttime sound levels are assigned a 10 dBA penalty prior to averaging with daytime hourly sound levels. CNEL is similar to L_{dn} except that it separates a 24-hour day into three periods: daytime (7:00 AM to 7:00 PM), evening (7:00 PM to 10:00 PM), and nighttime (10:00 PM to 7:00 AM). The evening sound levels are assigned a 5 dBA penalty, and the nighttime sound levels are assigned a 10 dBA penalty prior to averaging with daytime hourly sound levels.

Several other statistical descriptors are often used to describe noise, including L_{max}, L_{min}, and L_x. L_{max} and L_{min} are, respectively, the highest and lowest A-weighted sound levels that occur during a noise event. The L_x signifies the noise level that is exceeded x percent of the time; for example, L10 denotes the level that was exceeded 10 percent of the time.

2.5 NOISE-SENSITIVE RECEPTORS

Noise-sensitive receptors are generally considered to be humans who are engaged in activities or who are utilizing land uses that may be subject to the stress of significant interference from noise. Activities usually associated with sensitive receptors include, but are not limited to, talking, reading, and sleeping. Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of the intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure to excessive, disturbing, or offensive interior or exterior noise levels. Additional land uses such as parks, historic sites, cemeteries, and recreation areas may also considered sensitive to increases in exterior noise levels. Schools, places of worship, hotels, libraries, some offices, and other places where low interior noise levels are essential are also considered noise-sensitive land uses. Commercial and industrial land uses are usually not considered noise-sensitive receptors.

Land uses along City roads include several noise-sensitive uses described above. Noise impacts to residential receptors along selected roadways are discussed in Section 6.2 below.

SECTION 3.0 VIBRATION

Vibration is the periodic movement of mass over time. It is described in terms of frequency and amplitude. Unlike sound, there is no standard way of measuring and reporting amplitude. Vibration is described in units of velocity (inches per second [in/sec]), and is discussed in dB units in order to compress the range of numbers required to describe vibration.

The frequency of a vibrating object describes how rapidly it is oscillating. The number of oscillation cycles per second is the vibration frequency, which is described in terms of hertz (Hz). The normal frequency range of most groundborne vibration that can be felt generally starts from a low frequency of less than 1 Hz to a high of about 200 Hz.

3.1 VIBRATION PROPAGATION

Vibration energy spreads out as it travels through the ground, causing the vibration level to diminish with distance away from the source. High frequency vibrations reduce much more rapidly than low frequencies so that low frequencies tend to dominate the spectrum at large distances from the source. Discontinuities in the soil strata can also cause diffractions or channeling effects that affect the propagation of vibration over long distances. When vibration encounters a building, a ground-to-foundation coupling loss will usually reduce the overall vibration level. However, under certain circumstances, the ground-to-foundation coupling may also amplify the vibration level due to structural resonances of the floors and walls.

3.2 VIBRATION DESCRIPTORS

Vibration levels are usually expressed as a single-number measure of vibration magnitude in terms of velocity or acceleration and describes the severity of the vibration without the frequency variable. The peak particle velocity (ppv) is defined as the maximum instantaneous positive or negative peak of the vibration signal, usually measured in in/sec. Since it is related to the stresses that are experienced by buildings, ppv is often used in monitoring blasting vibration and the vibration of heavy construction equipment. Vibration is also described in decibel units, written as VdB, to distinguish from noise level decibels.

3.3 PERCEPTION OF VIBRATION

The primary concern from vibration is its ability to intrude and annoy local residents and other vibration-sensitive land uses. While people have varying sensitivities to vibrations at different frequencies, in general they are most sensitive to low-frequency vibration. Vibration in buildings caused by construction activities may be perceived as motion of building surfaces (e.g., window rattling, items on shelves shaking, and pictures hanging on walls moving). Vibration of building components can also take the form of an audible low-frequency rumbling noise, which is referred to as groundborne noise.

The source of groundborne noise is typically from trains and similar transit vehicles and not from construction activities. Groundborne noise is usually only a problem when the originating vibration spectrum is dominated by frequencies in the upper end of the range (60 to 200 Hz) or when the structure and the construction activity are connected by foundations or utilities, such as sewer and water pipes. Groundborne vibration is almost never annoying to people who are outdoors (USDOT FTA 2006).

Numerous studies have been conducted to characterize the human response to vibration, and numerous vibration criteria and standards have been suggested by researchers, organizations, and governmental agencies. These studies suggest that the thresholds for perception and annoyance vary according to duration, frequency, and vibration amplitude. Exhibit 5, Common Vibration Sources and Typical Human and Structural Responses, illustrates common vibration sources and typical human and structural responses.

3.4 VIBRATION-SENSITIVE RECEPTORS

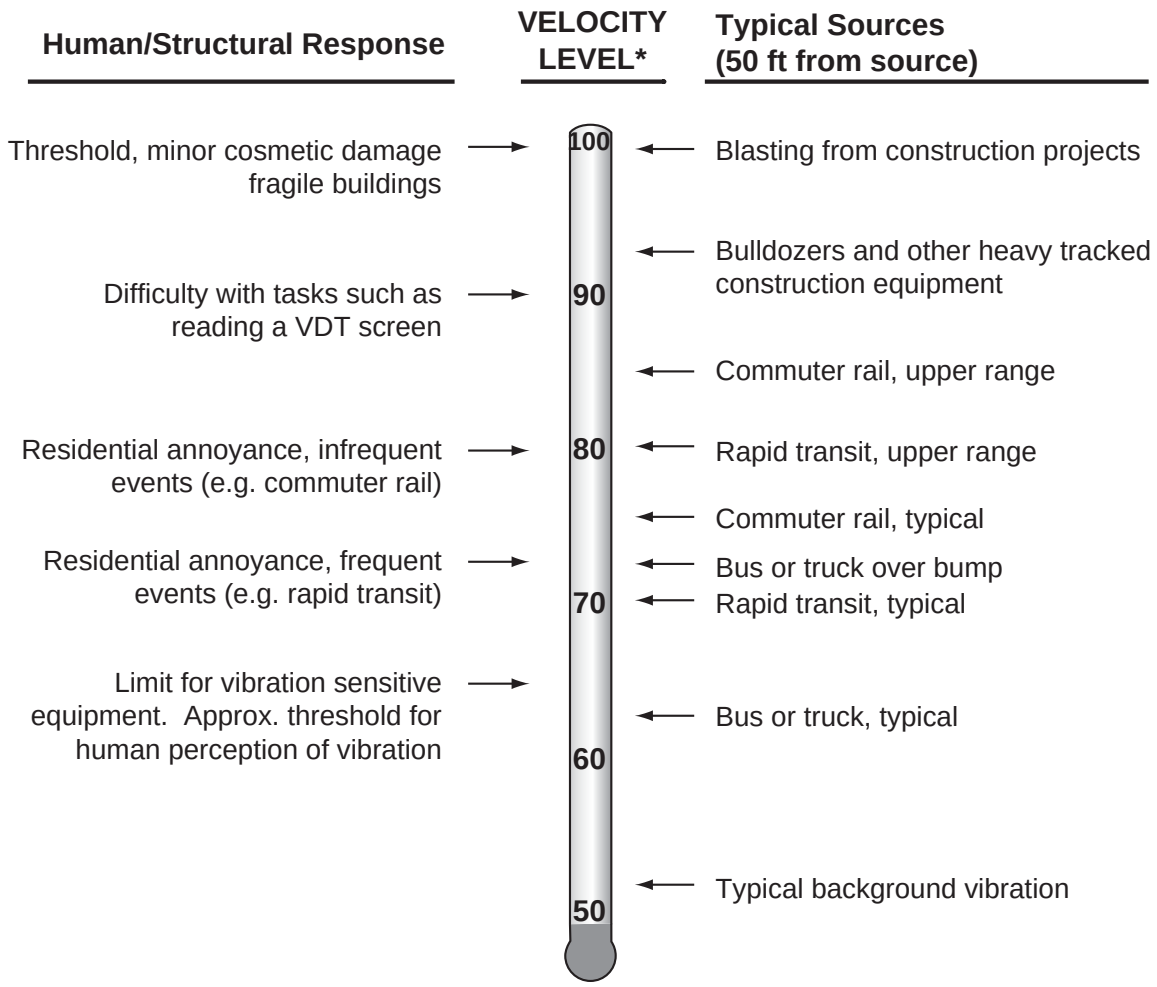
Vibration-sensitive receptors generally are considered to be humans who are engaged in activities or who are utilizing land uses that may be subject to significant interference from vibration. Activities and land uses often associated with vibration-sensitive receptors are similar to those associated with noise-sensitive receptors. Construction vibration is generally associated with pile driving and rock blasting. Occasionally, large bulldozers and loaded trucks can cause perceptible vibration levels at close proximity. Vibration generated by construction activity has the potential to damage structures. This damage could be structural damage (i.e., cracking of floor slabs, foundations, columns, beams, or wells) or cosmetic architectural damage (i.e., cracked plaster, stucco, or tile). Although it is possible for vibrations from construction projects to cause building damage, the vibrations from construction activities are almost never of sufficient amplitude to cause more than minor cosmetic damage to buildings (USDOT FTA 2006). The analysis in this report focuses on potential vibration impacts to sensitive uses located along major City roads that may be impacted by roadway construction.

SECTION 4.0 REGULATORY SETTING

The State of California and the City of Huntington Beach have established several policies and guidelines to protect citizens from potential hearing damage and various other adverse physiological and social effects associated with noise that are either directly applicable to this project or used in establishing thresholds of significance.

4.1 STATE GUIDELINES

Title 24 of the *California Code of Regulations* (California Building Standards Code) requires that new residential structures, other than detached single-family dwellings, be designed to prevent the intrusion of exterior noise attributable to exterior sources; it requires that the interior L_{dn} with windows closed shall not exceed 45 dBA in any habitable room.



** RMS Vibration Velocity Level in VdB relative to 10^{-6} inches/second*

Source: FTA 2006

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Common Vibration Sources and Typical Human and Structural Responses

Exhibit 5

Huntington Beach Circulation Element Update Noise Analysis

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Noise compatibility guidelines from the State General Plan Guidelines are shown in Exhibit 6. These guidelines are used to evaluate the compatibility of exterior noise levels with new land use developments.

4.2 CITY OF HUNTINGTON BEACH

The City of Huntington Beach includes noise standards and policies in the General Plan Noise Element, and in the Municipal Code.

4.2.1 City of Huntington Beach Municipal Code

Noise Ordinances are designed to control unnecessary, excessive, and annoying sounds from one property to another; this is achieved by setting limits that cannot be exceeded at adjacent properties. The Noise Ordinance requirements are not applicable to mobile noise sources (e.g., heavy trucks traveling on public roadways). Control of mobile noise sources on public roads is preempted by federal and State laws.

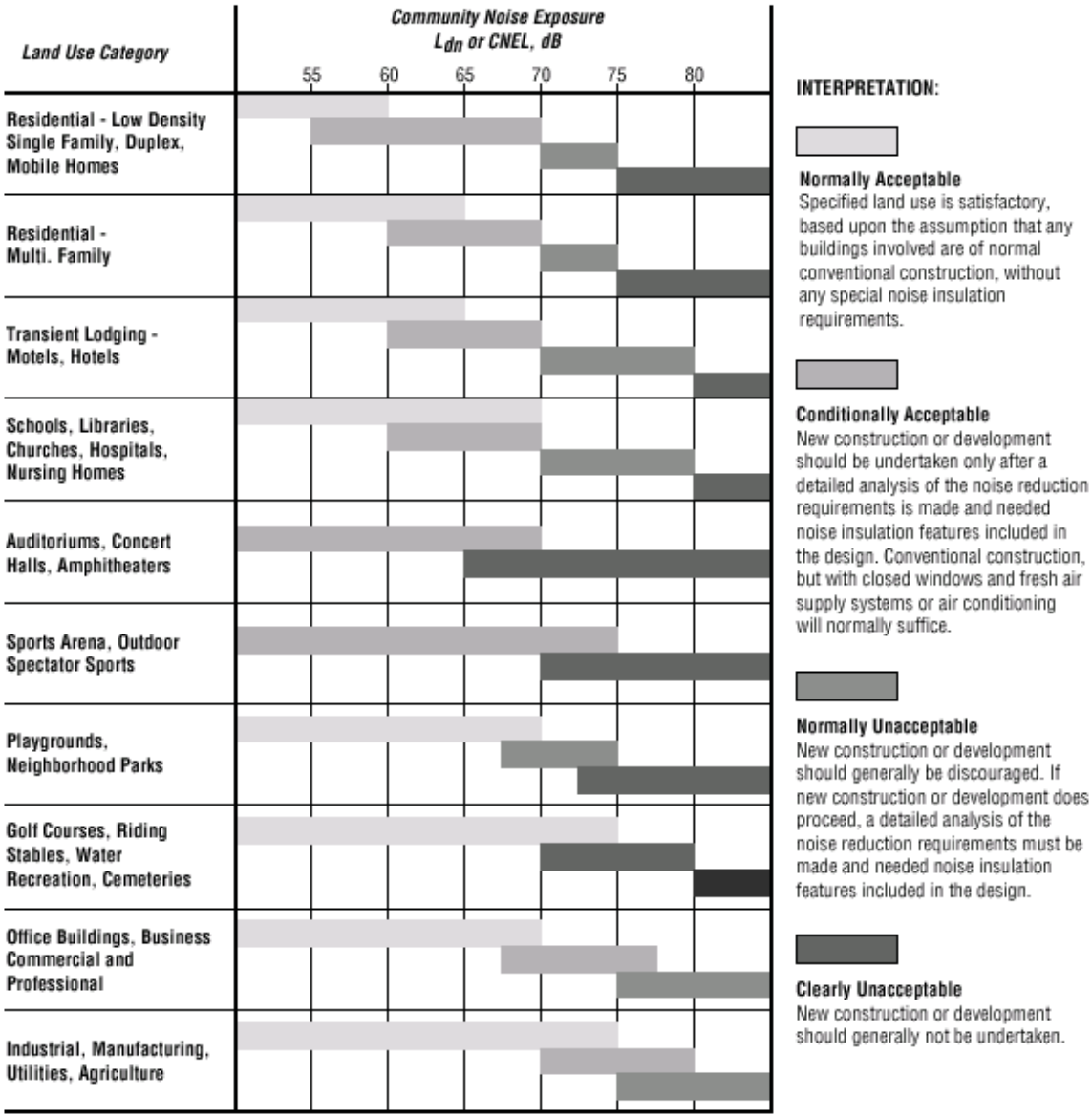
Section 4.80.050 of the *City of Huntington Beach Municipal Code* contains the City's Noise Ordinance (Huntington Beach 2001). The Noise Ordinance specifies noise levels that cannot be exceeded at residential, office, institutional, commercial, and industrial properties for a specified period of time. For residential properties, the City's noise ordinance establishes a 55 dBA exterior noise level limit during the daytime hours (i.e., 7:00 AM to 10:00 PM). During the noise-sensitive nighttime hours (i.e., 10:00 PM to 7:00 AM), the exterior noise level limit is lowered by 5 dBA to 50 dBA. The City's exterior noise ordinance criteria, which applies anytime, is 55 dBA for office and institutional properties; 60 dBA for commercial properties; and 70 dBA for industrial properties.

According to Section 8.40.090(d) of the City of Huntington Beach Noise Ordinance, noise sources associated with construction, repair, remodeling, or grading of any real property are exempt from the City Noise Ordinance, provided said activities do not take place between the hours of 8:00 PM and 7:00 AM on weekdays or Saturdays, or at any time on Sunday or a federal holiday. Therefore, temporary noise impacts during roadway construction that occur in the hours allowed by the City are exempt from the City of Huntington Beach noise standards included in the Municipal Code.

4.2.2 City of Huntington Beach General Plan Noise Element

The Noise Element of the City's General Plan is the guiding document for the City's noise policy and contains policies designed to protect residents and businesses from excessive and persistent noise intrusions. Objectives and Policies established in the Noise Element of the General Plan that are applicable to the proposed project include:

- Objective N 1.2 includes policies to prevent and mitigate the adverse impacts of excessive noise exposure.
    - Policy N1.2.1 requires that all new noise sensitive developments where noise levels exceed 60 dBA Ldn to be designed with appropriate buffering and/or construction mitigation measures that would reduce noise levels within acceptable limits.
    - Policy N1.2.3 requires developments in all areas where the ambient noise levels exceeds 60 dBA Ldn to conduct an acoustical analysis to incorporate special



Source: State of California General Plan Guidelines 2003

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California Land Use Compatibility Guidelines — Exhibit 6

Huntington Beach Circulation Element Update Noise Analysis

BonTerra CONSULTING

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measures in their construction, thereby, reducing interior noise levels to the 45 dBA Ldn level.

- o Policy N1.2.5 requires new development that generates increased traffic and subsequent increases in the ambient noise levels adjacent to noise sensitive land uses to provide for appropriate mitigation measures in accordance with the acceptable limits of the City noise ordinance.

- Objective N 1.3 minimizes the adverse impacts of traffic-generated noise on residential and other noise-sensitive uses.
  - o Policy N1.3.2 provides for the development of alternative transportation modes such as bicycle paths and pedestrian walkways to minimize the number of noise generating automobile trips.
  - o Policy N 1.3.9 alters surface traffic flow through various methods to maximize steady flow conditions.
- Objective N 1.6 minimizes the impacts of construction noise on adjacent uses.
  - o Policy N1.6.1 ensures that construction activities be regulated to establish hours of operation, to prevent and/or mitigate the generation of excessive or adverse noise impacts through the implementation of the existing noise ordinance and/or future revisions to the Noise Ordinance.

4.3 VIBRATION REGULATORY SETTING

There are no Federal Highway Administration (FHWA), Federal Transit Administration (FTA), State, or local standards for construction-related vibration impacts. According to the California Department of Transportation (Caltrans), highway traffic and construction vibrations pose no threat to buildings and structures (Caltrans 2004). For this analysis, potential structural damage and human annoyance associated with vibration from road construction activities is based on Caltrans vibration limits identified in Tables 1 and 2, respectively.

TABLE 1
STRUCTURAL VIBRATION DAMAGE THRESHOLDS

Structure and Condition	Maximum ppv (in/sec)	
	Transient Sources*	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.20	0.10
Historic and some old buildings	0.50	0.25
Older residential structures	0.50	0.30
New residential structures	1.00	0.50
Modern industrial/commercial buildings	2.00	0.50

ppv: peak particle velocity; in/sec: inches per second.

* Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Source: Caltrans 2004.

TABLE 2
HUMAN RESPONSE TO TRANSIENT VIBRATION

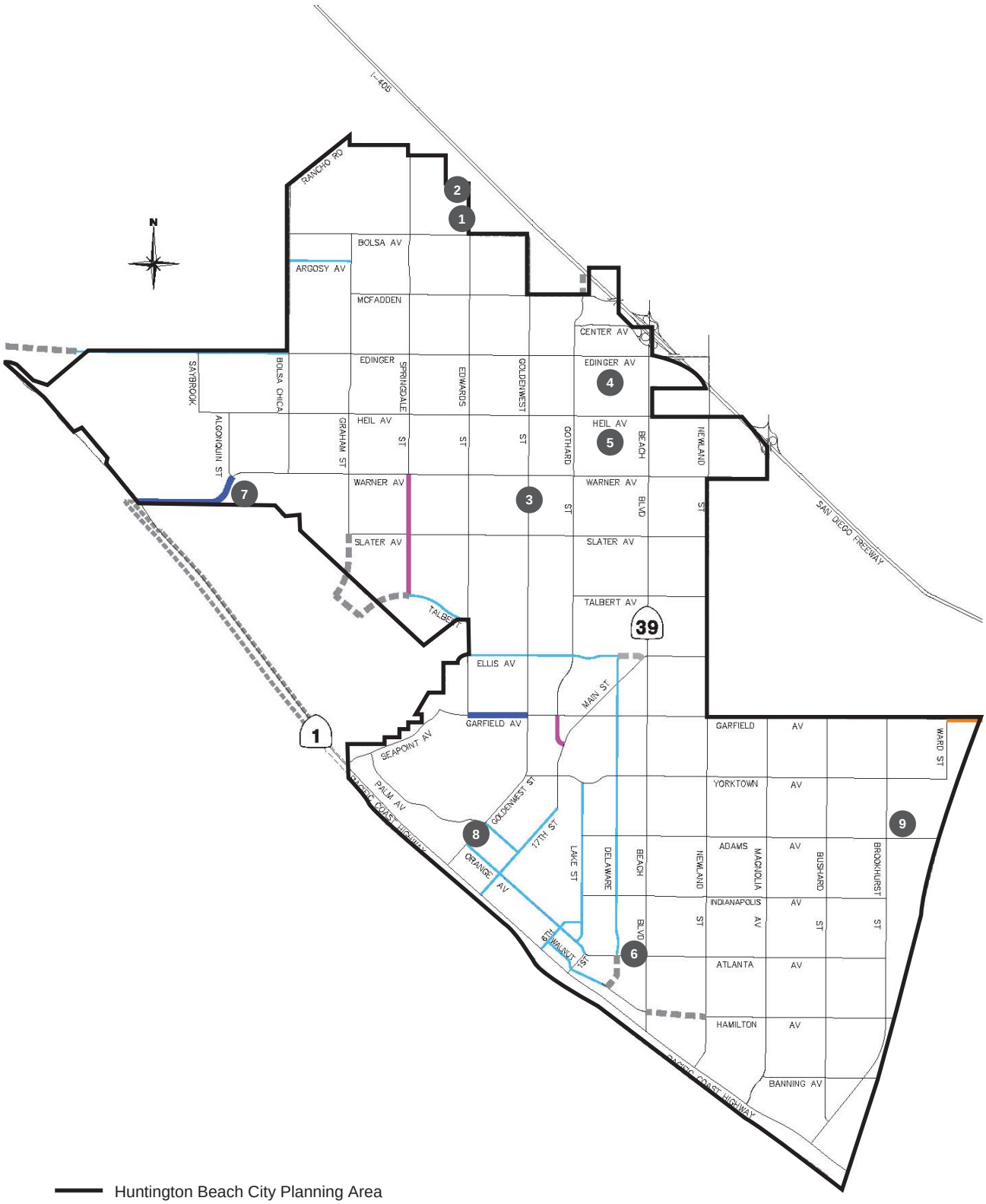
Average Human Response	ppv (in/sec)
Severe	2.000
Strongly perceptible	0.900
Distinctly perceptible	0.240
Barely perceptible	0.035
ppv: peak particle velocity; in/sec: inches per second Source: Caltrans 2004.	

SECTION 5.0 EXISTING NOISE ENVIRONMENT

5.1 AMBIENT NOISE SURVEY

BonTerra Consulting conducted ambient noise surveys on October 12 and 13, 2009, to document the existing noise environment at various locations in the study area. Noise level measurements were taken using a Larson Davis Laboratories Model 831 integrating sound level meter (LD 831). The sound level meter and microphone were mounted on a tripod, four feet above the ground and equipped with a windscreen during all measurements. The LD 831 was calibrated before and after use with a Larson Davis Model CAL200 acoustical calibrator to ensure that the measurements would be accurate. The sound level meter was programmed in “slow” mode to record noise levels in “A” weighted form (i.e., dBA). Meteorological conditions during the measurement periods were cloudy skies, daytime temperatures approximately 65 degrees Fahrenheit (°F), nighttime temperatures approximately 55°F, and winds that were calm to 15 miles per hour.

A total of nine short-term noise level measurements were collected. Ambient noise survey locations are shown in Exhibit 7, Noise Monitoring Locations. The L_{eq}, L_{max}, and L_{min} values taken at each ambient noise measurement location are presented in Table 3.



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Noise Monitoring Locations

Exhibit 7

Huntington Beach Circulation Element Update Noise Analysis

BonTerra CONSULTING

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TABLE 3
SUMMARY OF MEASURED AMBIENT NOISE LEVELS

Measurement Location*	Location Description (Measurement Date and Start Time)	Duration	Primary Noise Source	Noise Levels (dBA)			
				L_{eq}	L_{max}	L_{min}	L_{dn}[a]
1	Edge of the road's right-of-way; 10 feet from the Goldenwest St curb adjacent to the backyard wall of a single-family home. (October 12, 2009; 1:20 PM)	15 min	Traffic on Goldenwest St	74.0	86.3	53.9	76.0
2	Edge of the road right-of-way; 10 feet from the curb Bolsa Ave curb, adjacent to the backyard wall of a single-family home. (October 12, 2009; 1:50 PM)	15 min	Traffic on Bolsa Ave	71.2	84.6	52.9	73.2
3	Measured at the front yard of single-family homes facing Goldenwest St; 20 feet from the curb. (October 12, 2009; 2:15 PM)	15 min	Traffic on Goldenwest St	72.6	84.4	59.0	73.8
4	Front yard of condominiums facing Aldrich Ave; approximately 500 feet from Edinger Ave. (October 12, 2009; 3:00 PM)	15 min	Traffic on Edinger Ave and Aldrich Ave	56.2	73.1	48.1	57.7
5	Front yard of single-family homes facing Heil Ave at approximately 100 feet from the road curb. (October 12, 2009; 3:35 PM)	15 min	Traffic on Heil Ave	62.3	70.6	46.6	63.8
6	Edge of the road right-of-way; 10 feet from the road curb adjacent to an apartment building. (October 12, 2009; 4:00 PM)	15 min	Traffic on Atlanta Ave	68.8	81.0	45.8	69.5
7	Edge of the road right-of-way; 20 feet from the Warner Ave curb, adjacent to the backyard wall of a single-family home. (October 12, 2009; 4:40 PM)	15 min	Traffic on Warner Ave	71.3	82.3	47.0	72.0
8	Approximately 100 feet from the centerline of Goldenwest St, adjacent to the backyards of single-family homes. (October 12, 2009; 5:20 PM)	24 hrs	Traffic on Goldenwest St	–	–	–	65.7
9	Front yard of condominiums; approximately 100 feet from centerline of Adams Ave. (October 13, 2009; 5:45 PM)	15 min	Traffic on Adams Ave	67.2	81.4	56.4	68.6

[a] L_{dn} was measured at location 8; the L_{dn} for all other locations are estimated, based on short-term noise levels and data from location 8.

The existing noise environment along City roads is influenced by traffic noise. During the survey, periodic aircraft overflights could be heard but traffic noise generally overshadowed aircraft noise. During the survey, average daytime noise levels in the project area ranged from 56.2 to 74.0 dBA L_{eq}. The highest noise levels (86.2 dBA) were recorded during motorcycle, truck, and bus passbys. These levels were recorded mostly along the road right-of-way edges close to travel lanes.

To determine the typical daily noise pattern along a City road, noise measurements were taken from one location for 24 hours (Location 8). This measurement resulted in 65.7 dBA L_{dn}, with hourly noise levels ranging from 50.6 dBA L_{eq} to 65.5 dBA L_{eq}. An analysis of the data suggests that the highest levels resulted from traffic during the morning peak hour. The short-term noise level measurements were converted to the 24-hour L_{dn} according to the daily noise level pattern observed at Location 8. The L_{dn} noise levels at Locations 1 through 9 ranged from 57.7 to 76.0 dBA L_{dn}. Locations 1, 2, 6, 7, and 8 were measured at the edge of the residence property line on the road side adjacent to the backyard wall. These are representative of the unmitigated noise levels at the residential property lines. With the existing 6-foot-high to 8-foot-high solid masonry walls at these locations, the noise levels at the backyards are estimated to be 6 to 10 dBA lower. Locations 3, 4, 5, and 9 were measured at the front yards of residential properties, at the edge of the road right-of-way. At these locations, the backyards are located behind the home structure and have at a greater distance to the road; therefore the noise levels at the exterior living areas (i.e., backyards) are expected to be much less than the levels presented. Existing unmitigated noise levels at all measurement locations except Location 4 exceed the 60 dBA L_{dn} noise-land use compatibility goal indicated in the City Noise Element (i.e., policy 1.2.1).

The noise monitoring data are included in Appendix A.

SECTION 6.0 NOISE IMPACT ANALYSIS

This section evaluates potential temporary noise impacts due to intersection improvements and roadway construction (short term), as well as the operational impacts as a result of the proposed changes to the circulation system (long term).

6.1 THRESHOLDS OF SIGNIFICANCE

The following threshold criteria are from Section V of the Initial Study prepared for the proposed Project (Huntington Beach 2009a). The project would result in a significant impact related to noise if it would:

A) Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

B) Expose persons to or generate excessive groundborne vibration or groundborne noise levels.

C) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

D) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

The Initial Study determined that the Circulation Element would not result in noise impacts associated with any heliport or airport because it governs ground-level transportation modes and would not result in additional persons residing or working within the planning area of any

Airport Environs Land Use Plan (AELUP); therefore, the following thresholds are not addressed further in this noise analysis.

E) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the Project area to excessive noise levels

F) For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels

Neither the California Environmental Quality Act (CEQA) nor the City defines the magnitude of a significant noise increase. As previously discussed, a noise level increase of 3 dBA, while doubling the noise level, is considered barely perceptible, while an increase of 5 dBA is considered clearly noticeable. For the purpose of evaluating the permanent noise level impacts over a long period of time, a significant traffic noise impact would occur if:

(1) the future noise level at a sensitive receptor does not exceed 60 dBA Ldn and the proposed project would increase the noise level by more than 5 dBA or;

(2) the future noise level at a sensitive receptor exceeds 60 dBA Ldn and the proposed project would increase the noise level by more than 3 dBA;

To evaluate the noise impacts associated with the changes to the proposed circulation element's roadway classifications, a significant impact would occur if the project would result in a "barely perceptible" noise increase of 3 dBA resulting in a noise level greater than 60 dBA L_{dn}. The value of 60 dBA L_{dn} for these significance thresholds is based on Noise Element policies 1.2.1 and 1.2.3, described above.

6.2 PERMANENT INCREASE IN AMBIENT NOISE LEVELS

A) Would the project expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

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

The General Plan Noise Element standards are applicable to new development. The Noise Ordinance standards are applicable to noise generated from one property to another and to general nuisance noise. The proposed Circulation Element update does not include applicable standards for roadway development, modification projects, or other actions. However, the 60 dBA L_{dn} standard from Noise Element Policy 1.2.1 is used as guidance for development of the significance criteria for noise level increases, as described above. Under CEQA, consideration must be given to the magnitude of the increase and the existence of noise-sensitive receptors in order to determine if the noise increase is a significant adverse environmental effect. This section evaluates the noise level increases over existing conditions, and also addresses noise level increases as a result of the proposed changes in the circulation element.

6.2.1 Methods and Procedures

The average daily traffic (ADT) link volumes provided by the *City of Huntington Beach General Plan Circulation Element Update Traffic Study* (Austin-Foust 2009) were used to identify roadway segments where future traffic noise levels would or may be substantially increased

over existing conditions. The segments selected for impact analysis include (1) those where existing traffic volumes would increase by 100 percent or more; (2) all segments where noise level measurements were collected; and (3) all segments with committed roadway improvements.

Traffic noise contour boundaries are often utilized by local land planning and zoning authorities to evaluate sound level exposures on land that is being considered for development and is adjacent to highways. The noise contours do not take into account the effect of any existing noise barriers that may affect ambient noise levels, and do not take into account the noise contribution from traffic on other roadways, aircraft noise, or noise associated with transit facilities. Noise contour boundaries are utilized in this analysis to assess the traffic noise level impacts associated with modifications to planned future roadway improvements within the City.

The traffic noise contour boundaries for existing and long range conditions were estimated using the FHWA Highway Traffic Noise Prediction Model (RD-77-108). The FHWA model determines a predicted noise level through a series of adjustments to a reference sound level. These adjustments account for traffic flows, speed, truck mix, varying distances from the roadway, length of exposed roadway, and noise shielding. Vehicle speeds on each roadway were obtained from Section 10.12.080 of the City's Municipal Code, which includes the speed limits for Huntington Beach streets. No reduction in speed was assigned due to congested traffic flows. Current roadway characteristics, such as the number of lanes and widths, were determined according to the roadway classification. Hard site conditions are used to account for the sound propagation loss over hard surfaces (e.g., concrete sidewalks and pavement). Based on field observations and a comparison of the results of the existing noise level measurements with the calculated noise contours for existing conditions, hard site conditions are appropriate to develop noise level contours in the study area. Tables 4, 5, and 6 present the anticipated 60, 65, and 70 dBA L_{dn} contours represented as a distance from the centerline of each roadway segment for Existing, Currently Adopted Circulation Element, and the Proposed Circulation Element Update scenarios, respectively.

TABLE 4
TRAFFIC NOISE LEVEL CONTOUR DISTANCES
FOR EXISTING CONDITIONS

Roadway	Daily Traffic Volumes	Noise level at 50 feet (dBA L_{dn})	Distance to noise contour (feet)		
			70 dBA L_{dn}	65 dBA L_{dn}	60 dBA L_{dn}
1st St south of Orange Ave	4,000	61.9	8	24	77
6th St south of Olive Ave	2,000	55.1	2	5	16
6th St south of Walnut Ave	3,000	56.8	2	8	24
Adams Ave, east of Brookhurst St	38,000	75.2	165	522	1,650
Atlanta Ave east of 1st St	9,000	63.4	11	35	110
Atlanta Ave east of Delaware St	7,000	64.3	13	42	134
Atlanta Ave east of Huntington St	10,000	63.9	12	38	122
Banning Ave east of Bushard St	3,000	60.3	5	17	54
Bolsa Ave between Edwards [St and Goldenwest St	27,000	71.5	71	226	713
Brookhurst St south of Banning Ave	12,000	70.2	52	165	521
Edinger Ave west of Beach Blvd	30,000	72.0	79	251	792
Garfield Ave from Delaware St to Florida St	12,000	66.2	21	66	208
Goldenwest St from Bolsa Ave to McFadden Ave	39,000	75.3	169	536	1,693

TABLE 4 (Continued)
TRAFFIC NOISE LEVEL CONTOUR DISTANCES FOR EXISTING CONDITIONS

Roadway	Daily Traffic Volumes	Noise level at 50 feet (dBA L_{dn})	Distance to noise contour (feet)		
			70 dBA L_{dn}	65 dBA L_{dn}	60 dBA L_{dn}
Goldenwest St north of Slater Ave	26,000	72.6	92	291	919
Goldenwest St south of Orange Ave	11,000	71.0	62	197	624
Heil from Beach Blvd to Gothard St	7,000	65.1	16	52	163
Newland [St from PCH to Hamilton Av	8,000	64.3	14	43	136
Pacific View Ave east of 1st St	—[a]	—	—	—	—
Seapoint [Ave south of Palm Ave	6,000	65.0	16	50	158
Warner Ave east of PCH	24,000	73.5	111	350	1,108

[a] Pacific View east of 1st is a future roadway segment.

TABLE 5
TRAFFIC NOISE LEVEL CONTOUR DISTANCES FOR PROPOSED CIRCULATION ELEMENT CONDITIONS

Roadway	Daily Traffic Volumes	Noise level at 50 feet (dBA L_{dn})	Distance to noise contour (feet)		
			70 dBA L_{dn}	65 dBA L_{dn}	60 dBA L_{dn}
1st St south of Orange Ave	10,000	65.8	19	61	192
6th St south of Olive Ave	6,000	59.8	5	15	48
6th St south of Walnut Ave	6,000	59.8	5	15	48
Adams east of Brookhurst St	40,000	75.4	174	549	1,737
Atlanta east of 1st St	19,000	66.8	24	76	241
Atlanta east of Delaware	15,000	67.6	29	91	288
Atlanta east of Huntington	21,000	67.3	27	84	266
Banning east of Bushard	7,000	64.0	13	40	126
Bolsa between Edwards and Goldenwest St	29,000	71.9	77	242	766
Brookhurst St south of Banning	21,000	72.6	91	288	912
Edinger west of Beach Blvd	38,000	73.0	100	317	1,004
Garfield from Delaware to Florida	18,000	68.1	32	103	325
Goldenwest from Bolsa to McFadden	46,000	76.0	200	632	1,997
Goldenwest St north of Slater	32,000	73.3	106	336	1,064
Goldenwest St south of Orange	20,000	73.6	113	359	1,134
Heil from Beach Blvd to Gothard	9,000	66.2	21	66	210
Newland from PCH to Hamilton	8,000	64.6	14	46	144
Pacific View east of 1st St	6,000	59.8	5	15	48
Seapoint south of Palm Ave	16,000	69.3	42	134	423
Warner east of PCH	19,000	72.4	88	277	877

TABLE 6
TRAFFIC NOISE LEVEL CONTOUR DISTANCES FOR CURRENTLY ADOPTED CIRCULATION ELEMENT CONDITIONS

Roadway	Daily Traffic Volumes	Noise level at 50 feet (dBA L_{dn})	Distance to noise contour (feet)		
			70 dBA L_{dn}	65 dBA L_{dn}	60 dBA L_{dn}
1st St south of Orange Ave	10,000	65.8	19	61	192
6th St south of Olive Ave	6,000	59.8	5	15	48
6th St south of Walnut Ave	6,000	59.8	5	15	48
Adams east of Brookhurst	46,000	76.0	200	632	1,997
Atlanta east of 1st St	20,000	67.0	25	80	253
Atlanta east of Delaware	16,000	67.9	31	97	307
Atlanta east of Huntington	22,000	67.5	28	88	279
Banning east of Bushard	7,000	64.0	13	40	126
Bolsa between Edwards and Goldenwest St	32,000	72.3	85	267	845
Brookhurst St south of Banning	24,000	73.2	104	330	1,042
Edinger west of Beach Blvd	49,000	74.1	129	409	1,294
Garfield from Delaware to Florida	16,000	67.6	29	91	289
Goldenwest St from Bolsa to McFadden	47,000	76.1	204	645	2,041
Goldenwest St north of Slater	32,000	73.5	113	358	1,131
Goldenwest St south of Orange	22,000	74.0	125	395	1,248
Heil from Beach to Gothard	9,000	66.2	21	66	210
Newland from PCH to Hamilton	12,000	66.4	22	68	216
Pacific View east of 1st St	6,000	59.8	5	15	48
Seapoint south of Palm Ave	13,000	68.4	34	109	343
Warner east of PCH	30,000	74.4	138	438	1,385

6.2.2 Noise Level Increases Over Existing Conditions

Table 7 compares the calculated future (2030) noise levels for the proposed Circulation Element Update to the existing noise levels. Table 7 shows increases in noise levels adjacent to the study area roadway segments ranging from 0.8 to 4.7 dBA. According to the criteria described in Section 6.1, these noise increases could create significant noise impacts to noise-sensitive uses adjacent to 6 of the 20 segments identified in Table 7. These noise increases would result from a combination of the anticipated increase in traffic, the committed roadway improvements at five roadway segments (see Section 6.3), and the configuration of the roadway network identified in the proposed Circulation Element.

TABLE 7
FUTURE TRAFFIC NOISE LEVEL INCREASES

Roadway	L_{dn} at 50 feet (dBA)			
	Existing (from Table 4)	Proposed Circulation Element (from Table 5)	Cumulative Increase	Significant Impact?
1st St south of Orange Ave	61.9	65.8	3.9	Yes
6th St south of Olive Ave	55.1	59.8	4.7	No
6th St south of Walnut Ave	56.8	59.8	3.0	No
Adams east of Brookhurst St	75.2	76.0	0.8	No
Atlanta east of 1st St	63.4	67.0	3.6	Yes
Atlanta east of Delaware	64.3	67.9	3.6	Yes
Atlanta east of Huntington	63.9	67.5	3.6	Yes
Banning east of Bushard	60.3	64.0	3.7	Yes
Bolsa between Edwards and Goldenwest St	71.5	72.3	0.8	No
Brookhurst St south of Banning	70.2	73.2	3.0	No
Edinger west of Beach Blvd	72.0	74.1	2.1	No
Garfield from Delaware to Florida	66.2	67.6	1.4	No
Goldenwest St from Bolsa to McFadden	75.3	76.1	0.8	No
Goldenwest St north of Slater	72.6	73.5	0.9	No
Goldenwest St south of Orange	71.0	74.0	3.0	No
Heil from Beach Blvd to Gothard	65.1	66.2	1.1	No
Newland from PCH to Hamilton	64.3	66.4	2.1	No
Pacific View east of 1st St	—[a]	59.8	—	No
Seapoint south of Palm Ave	65.0	68.4	3.4	Yes
Warner east of PCH	73.5	74.4	0.9	No

[a] Pacific View east of 1st is a future roadway segment.

The roadway segments where significant noise impacts are identified in Table 7 include several single-family homes and two-story multi-family residential buildings. Increased vehicular traffic would result in a substantial noise increase at front yards, back yards, and at the first and second floor faces of several existing residential receivers along the following roadway segments:

- 1st Street between Orange Avenue and Pacific Coast Highway.
- Atlanta Avenue between 1st Street and Beach Boulevard.[1]
- Banning Avenue east of Bushard Street.
- Seapoint Avenue south of Palm Avenue.

Mitigation measures for the anticipated noise impacts are described in Section 7.0 below.

6.2.3 Noise Impacts Attributed to the Change in the Circulation System

This section presents a comparison of the noise levels that result from the long range traffic forecasts on the adopted circulation network plan compared to the proposed circulation network plan included in the Circulation Element Update. The traffic study indicates that, in most City

[1] Combines the segments of Atlanta Avenue east of 1st, Atlanta Avenue east of Delaware, and Atlanta Avenue east of Huntington.

roadways, the proposed width and traffic volumes will be less or equal to the currently adopted plan.

Table 8 shows that the changes to the circulation system would change the noise levels from -0.9 to 2.0 dBA in areas adjacent to the selected roadway segments. A noise increase of less than 3 dBA is considered less than significant; therefore, the traffic noise level increases solely as a result of the changes in the circulation element in the study area would represent a less than significant impacts.

TABLE 8
PROPOSED CIRCULATION ELEMENT TRAFFIC NOISE LEVEL INCREASES

Roadway	L_{dn} at 50 feet (dBA)			
	Currently Adopted Circulation Element (from Table 6)	Proposed Circulation Element (from Table 5)	Increase	Significant Impact?
1st St south of Orange Ave	65.8	65.8	0.0	No
6th St south of Olive Ave	59.8	59.8	0.0	No
6th St south of Walnut Ave	59.8	59.8	0.0	No
Adams east of Brookhurst	75.4	76.0	0.6	No
Atlanta east of 1st	66.8	67.0	0.2	No
Atlanta east of Delaware	67.6	67.9	0.3	No
Atlanta east of Huntington	67.3	67.5	0.2	No
Banning east of Bushard	64.0	64.0	0.0	No
Bolsa between Edwards and Goldenwest St	71.9	72.3	0.4	No
Brookhurst St south of Banning	72.6	73.2	0.6	No
Edinger west of Beach Blvd	73.0	74.1	1.1	No
Garfield from Delaware to Florida	68.1	67.6	-0.5	No
Goldenwest St from Bolsa to McFadden	76.0	76.1	0.1	No
Goldenwest St north of Slater	73.3	73.5	0.2	No
Goldenwest St south of Orange	73.6	74.0	0.4	No
Heil from Beach Blvd to Gothard	66.2	66.2	0.0	No
Newland from PCH to Hamilton	64.6	66.4	1.8	No
Pacific View east of 1st St	59.8	59.8	0.0	No
Seapoint south of Palm Ave	69.3	68.4	-0.9	No
Warner east of PCH	72.4	74.4	2.0	No

6.3 CONSTRUCTION NOISE AND VIBRATION IMPACTS – TEMPORARY INCREASE IN AMBIENT NOISE LEVELS

B) Would the project expose persons to or generate excessive groundborne vibration or groundborne noise levels?

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

The City of Huntington Beach General Plan Circulation Element Update Traffic Study (Austin-Foust 2009) recommends improvements at 19 intersections:

- Goldenwest Street at Bolsa Avenue
- Beach Boulevard at Heil Avenue
- Newland Street at Warner Avenue
- Beach Boulevard at Talbert Avenue
- Brookhurst Street at Adams Avenue
- Beach Boulevard at Warner Avenue
- Beach Boulevard at Yorktown Avenue
- Gothard Street at Talbert Avenue
- Ward Street at Garfield Avenue
- Brookhurst Street at Pacific Coast Highway
- Beach Boulevard at Edinger Avenue
- SR-1 at Warner Avenue
- Goldenwest Street at Slater Avenue
- Beach Boulevard at Garfield Avenue
- Goldenwest Street at Pacific Coast Highway
- Beach Boulevard at Slater Avenue
- Gothard Street at Slater Avenue
- Newland Street at Talbert Avenue
- Newland Street at Yorktown Avenue

In addition, committed[2] roadway improvements are listed at five roadway segments:

- Atlanta Avenue from Huntington Street to First Street
- Garfield Avenue from Delaware Street to Florida Street
- Heil Avenue from Beach Boulevard to Gothard Street
- Newland Street from Pacific Coast Highway to Hamilton Avenue
- Pacific View Avenue from Huntington Street to 1st Street

Typical roadway and intersection improvement projects involve removal of the existing pavement/surface, curb and sidewalk removal, site preparation, paving, drainage facilities relocations, and underground and overhead utility relocations. Noise impacts resulting from construction activities depend on the construction equipment noise relative to ambient noise conditions; distance and shielding to noise sensitive receptors; and the time of the day when construction takes place. Construction noise is related primarily to the use of heavy equipment. Each roadway or intersection improvement project would have a different equipment mix, depending on the work to be accomplished and its own noise characteristics. Typical heavy construction equipment would likely include air compressors, jackhammers, forklifts, dump trucks, bulldozers, excavators, pavers, and compactors. Construction equipment can be considered to operate in two modes: stationary and mobile. Stationary equipment operates in one location for one or more days at a time, with either a fixed-power operation (such as compressors) or a variable noise operation (such as dump trucks, excavators and pavers). Mobile equipment moves around a construction site with power applied in cyclic fashion (such as bulldozers and excavators).

6.3.1 Construction Noise Impacts

Noise impacts from stationary equipment are assessed from the center of the equipment, while noise impacts for mobile construction equipment are assessed as emanating from the center of the equipment activity or construction site. An additional complexity in characterizing the noise source level from construction equipment is the variation in power requirements. To determine the L_{eq} of the equipment's operation, the power variation is accounted for by describing the noise at a reference distance from the equipment operating at full power and adjusting it based on the duty cycle of the activity. Typical duty cycles (the percentage of time during which equipment is operated) and noise levels generated by representative pieces of construction equipment are listed in Table 9.

[2] Committed improvements are those projects that are fully funded and thereby have reasonable assurance of being completed by the year 2030 (Austin-Foust 2009).

TABLE 9
TYPICAL MAXIMUM CONSTRUCTION NOISE LEVELS

Equipment	Noise Level (dBA) at 50 ft	Typical Duty Cycle
Auger Drill Rig	85	20%
Backhoe	80	40%
Blasting	94	1%
Chain Saw	85	20%
Clam Shovel	93	20%
Compactor (ground)	80	20%
Compressor (air)	80	40%
Concrete Mixer Truck	85	40%
Concrete Pump	82	20%
Concrete Saw	90	20%
Crane (mobile or stationary)	85	20%
Dozer	85	40%
Dump Truck	84	40%
Excavator	85	40%
Front End Loader	80	40%
Generator (25 KVA or less)	70	50%
Generator (more than 25 KVA)	82	50%
Grader	85	40%
Hydra Break Ram	90	10%
In situ Soil Sampling Rig	84	20%
Jackhammer	85	20%
Mounted Impact Hammer (hoe ram)	90	20%
Paver	85	50%
Pile Driver, Impact (diesel or pneumatic)	95	20%
Pile Driver, Vibratory	95	20%
Pneumatic Tools	85	50%
Pumps	77	50%
Rock Drill	85	20%
Scraper	85	40%
Tractor	84	40%
Vacuum Excavator (vac-truck)	85	40%
Vibratory Concrete Mixer	80	20%

KVA = kilovolt amps

Source: Thalheimer 2000.

Short-term maximum noise levels generated by heavy construction equipment can range from approximately 68 dBA to noise levels in excess of 100 dBA when measured at 50 feet. According to Section 8.40.090(d) of the City of Huntington Beach Noise Ordinance, noise sources associated with construction, repair, remodeling, or grading of any real property are exempt from the City Noise Ordinance, provided said activities do not take place between the hours of 8:00 PM and 7:00 AM on weekdays or Saturdays, or at any time on Sunday or a federal holiday. Even though construction noise is exempt when it occurs during the daytime hours, it would have the potential to create a substantial temporary increase in ambient noise levels. For the purposes of this analysis, considering an excavator, a backhoe, and a dump truck operating simultaneously at the center of the construction site, an overall noise level of

86.2 dBA L_{eq} at 50 feet will be used as the worst-case maximum exterior noise level. For linear construction, such as a roadway, construction noise is assessed from the centerline of the alignment. These noise levels would diminish with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. A noise level of 86.2 dBA measured at 50 feet from the noise source to the receptor would be reduced to 80.2 dBA at 100 feet from the source to the receptor, and would be further reduced to 74.2 dBA at 200 feet from the source to the receptor.

The ambient noise level measurements taken at various locations in the City at the edge of the road right-of-way generally range from 69 to 74 dBA L_{eq}. Noise from construction of roadway and intersection improvement projects would be expected to generate readily perceptible noise level increases more than 5 dBA over ambient noise levels when construction is occurring within 200 feet from a noise-sensitive receptor. Construction would not be adjacent to any single residence for several consecutive days, since the center of construction activity would proceed down the road. As the center of construction activity moves, the impacts of construction noise at a single residence would diminish with distance. Construction activities would create temporary annoyance; however, maximum noise level events would typically last a few minutes and occur intermittently.

In summary, construction activities would have the potential to be heard in the vicinity of the construction sites above the ambient noise levels. Noise increases would vary depending construction equipment noise relative to (1) ambient noise conditions, distance, and shielding to noise-sensitive receptors and (2) the time of the day when construction takes place. The improvement projects included in the City's General Plan Circulation Element are expected to create temporary and intermittent short-term annoyance for the receptors in the vicinity of each intersection or roadway improvement site, which would cease after the construction of each project. Construction would "occur during a normal construction work day and all activities would be subject to all routine construction control measures to minimize noise intrusion on nearby properties", consistent with Section 8.40.090(d) of the City Noise Ordinance (Huntington Beach 2001). Because of the high ambient noise levels near the roadways and intersections and the relatively short duration of noise at any individual sensitive receptor, the temporary increase in ambient noise levels would not be substantial and the impact would be less than significant. No mitigation is required.

6.3.2 Construction Vibration Impacts

This analysis evaluates potential vibration impacts during roadway construction projects that may occur with implementation of the updated Circulation Element. Groundborne vibration generated by roadway construction projects is usually highest from soil compaction and jackhammers. It is anticipated that jackhammers would be needed during removal of the concrete sidewalk and pavement.

The vibration impacts would depend on the equipment mix, precise alignments, and distances to the nearest sensitive receptors. Table 10 presents vibration levels at distances of 20 and 50 feet from typical equipment used during roadway construction projects. The operation of jackhammers and heavy equipment has the potential to generate barely to distinctly perceptible vibration levels at receivers within 20 feet, and barely perceptible vibration levels at receivers within 50 feet. The threshold for structural vibration damage for older residential structures is 0.3 in/sec for intermittent sources, which include typical construction equipment (Table 1). Below this level, there is virtually no risk of building damage. Table 10 shows that the predicted vibration levels generated by construction equipment would be less than 0.124 in/sec, which is below the 0.3 in/sec level that could create structural damage.

TABLE 10
ESTIMATED VIBRATION LEVELS DURING TYPICAL ROADWAY CONSTRUCTION PROJECTS

Equipment	PPV at 20 ft (in/sec)	PPV at 50 ft (in/sec)
Heavy equipment (excavator/backhoe)	0.124	0.031
Loaded trucks	0.106	0.027
Jackhammer	0.049	0.012
Small bulldozer	0.004	0.001
ppv: peak particle velocity; in/sec: inches per second		

In summary, roadway construction has the potential to generate perceptible vibration levels to sensitive receptors within 20 feet from the operation of heavy equipment. Given that vibration levels dissipate rapidly with distance, and that homes along streets and intersections are typically more than 20 feet away from the street edge, residential land uses adjoining roadway and intersection improvement projects would not likely be subject to distinctly perceptible vibration levels over extended periods of time.

Because of the relatively short duration of potentially perceptible vibration levels at any individual sensitive receptor and because vibration levels would be below the threshold for structural damage, vibration would not be substantial and the impact would be less than significant. No mitigation is required.

SECTION 7.0 MITIGATION MEASURES

The analysis in Section 6.2 identifies significant noise impacts at the following roadway segments:

- 1st Street between Orange Avenue and Pacific Coast Highway
- Atlanta Avenue between 1st Street and Beach Boulevard
- Banning Avenue east of Bushard Street
- Seapoint Avenue south of Palm Avenue

Implementation of Noise Element Policies 1.2.1 and 1.2.3, which address new development of noise-sensitive receptors, would require acoustical analysis and the inclusion of noise-reduction measures for each project. With these policies, the impact to new developments adjacent to the above-listed roadways would be less than significant.

Mitigation of anticipated noise level increases to the existing residential receivers along the four segments above would require a lot-by-lot review of potential exterior use areas and an evaluation of the acoustical performance of each building exposed to the increase. Analysis would require site and grading data, building construction plans, and specific road alignments. Mitigation measures could include increasing the height or existing sound walls; constructing new sound walls; or retrofitting windows, walls, and doors to provide additional noise interior reduction. This level of analysis is infeasible at the General Plan Circulation Element Update stage, and the projected noise impacts to the existing receivers along the four segments would be significant and not mitigated.

SECTION 8.0 REFERENCES

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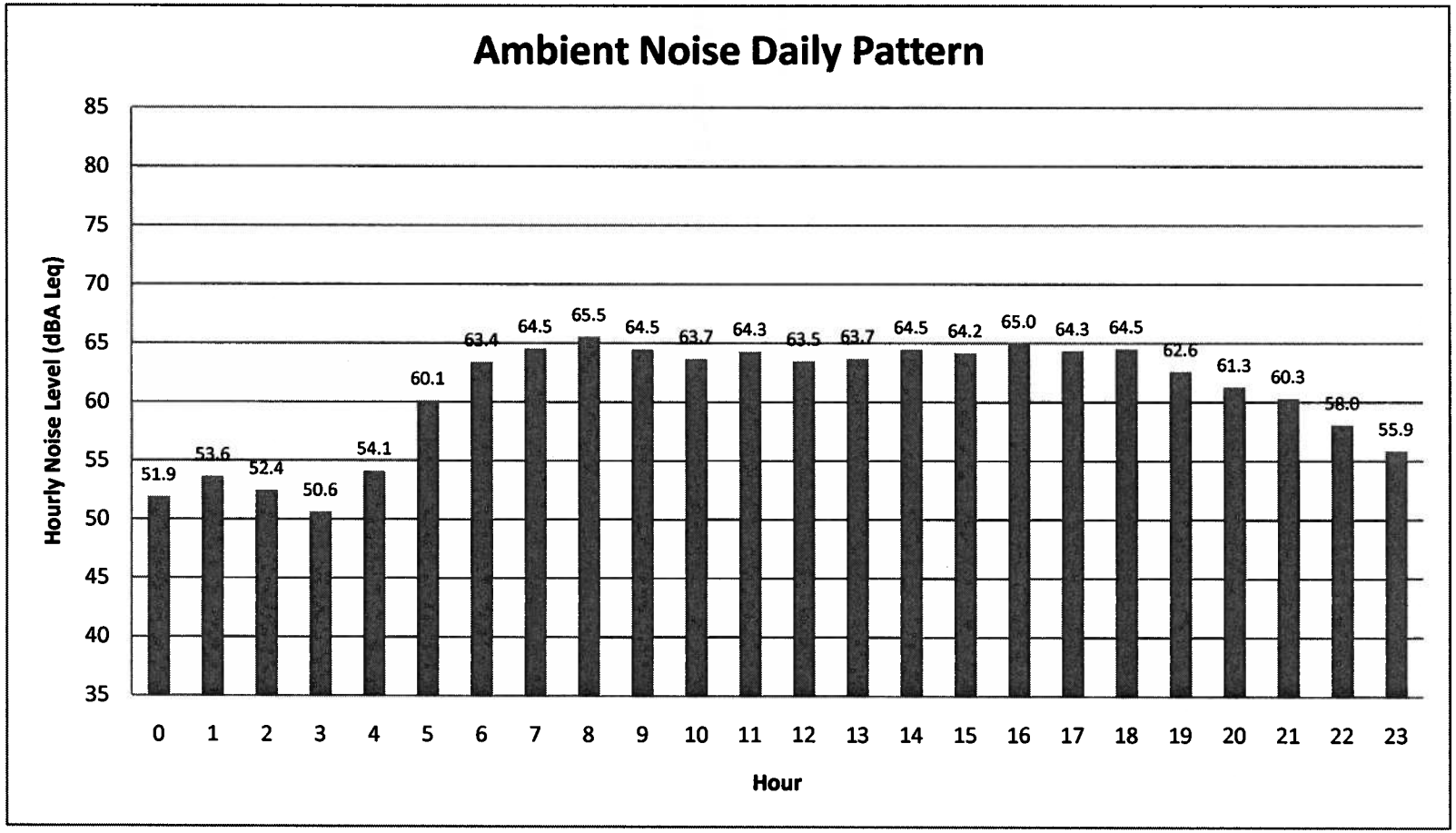
APPENDIX A

NOISE MONITORING DATA

LONG TERM NOISE MEASUREMENT RESULTS

MEASUREMENT LOCATION 8



Noise Peak Hour = 8AM
Peak Hour Noise (dBA Leq)= 65.5
Ldn = 65.7

General Information

Serial Number	01742
Model	831
Firmware Version	1.505
Filename	831_Data.001
User	
Job Description	
Location	
Measurement Description	PA 33
Start Time	Monday, 2009 October 12 13:23:56
Stop Time	Monday, 2009 October 12 13:41:15
Duration	00:17:18.6
Run Time	00:17:18.6
Pause	00:00:00.0
Pre Calibration	Monday, 2009 October 12 13:23:37
Post Calibration	None
Calibration Deviation	---

Note

Overall Data

LAeq		74.0	dB
LASmax	(2009 Oct 12 13:37:59)	86.3	dB
LZpeak (max)	(2009 Oct 12 13:33:46)	106.8	dB
LASmin	(2009 Oct 12 13:34:17)	53.9	dB
LCeq		81.6	dB
LAeq		74.0	dB
LCeq - LAeq		7.6	dB
LAIeq		75.6	dB
LAeq		74.0	dB
LAIeq - LAeq		1.6	dB
Ldn		74.0	dB
LDay 07:00-22:00		74.0	dB
LNight 22:00-07:00		---	dB
Lden		74.0	dB
LDay 07:00-19:00		74.0	dB
LEvening 19:00-22:00		---	dB
LNight 22:00-07:00		---	dB
LAE		104.2	dB
# Overloads		0	
Overload Duration		0.0	s

Statistics

LAS2.00	81.2	dBA
LAS8.00	78.7	dBA
LAS25.00	75.4	dBA
LAS50.00	70.5	dBA
LAS66.60	66.8	dBA
LAS90.00	60.6	dBA

SPL 1 65.0 dB (Event Counts / Duration)	24 / 825.8 s
SPL 2 85.0 dB (Event Counts / Duration)	1 / 2.2 s
Peak 1 135.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 2 137.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 3 140.0 dB (Event Counts / Duration)	0 / 0.0 s

Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRM831
Integration Method	Linear

Calibration History

Preamp	Date	dB re. 1V/Pa
PRM831	12 Oct 2009 13:23:34	-26.7
PRM831	22 Sep 2009 13:18:49	-26.7
PRM831	16 Sep 2009 08:55:07	-26.8
PRM831	31 Aug 2009 15:04:52	-26.6
PRM831	29 Aug 2009 21:43:35	-26.7
PRM831	25 Aug 2009 07:56:05	-26.7
PRM831	11 Jul 2009 08:05:41	-26.7
PRM831	07 Jul 2009 13:54:39	-26.6
PRM831	01 Jul 2009 14:32:39	-26.6
PRM831	16 Jun 2009 10:22:57	-26.6
PRM831	10 Jun 2009 12:34:42	-26.6

General Information

Serial Number	01742
Model	831
Firmware Version	1.505
Filename	831_Data.001
Measurement Records:	19

NOTE: Only five metrics can be displayed on screen.
To view spectra and other metrics use the export feature.

Record #	Date	Time	Duration	LAeq	LAE	LASmax	LASmin	LZpeak (max)
1	09/10/12	13:23:56	00:00:03.2	70.0	75.0	70.2	66.9	97.4
2	09/10/12	13:24:00	00:01:00.0	73.4	91.2	82.9	58.8	105.5
3	09/10/12	13:25:00	00:01:00.0	72.2	90.0	80.0	57.9	97.7
4	09/10/12	13:26:00	00:01:00.0	74.3	92.1	82.0	57.1	101.0
5	09/10/12	13:27:00	00:01:00.0	73.4	91.2	77.5	62.3	99.9
6	09/10/12	13:28:00	00:01:00.0	73.5	91.3	80.5	59.5	102.4
7	09/10/12	13:29:00	00:01:00.0	74.5	92.3	82.0	61.9	106.1
8	09/10/12	13:30:00	00:01:00.0	73.1	90.9	80.7	58.6	102.2
9	09/10/12	13:31:00	00:01:00.0	73.3	91.0	79.6	65.6	100.6
10	09/10/12	13:32:00	00:01:00.0	67.6	85.3	75.7	58.0	98.3
11	09/10/12	13:33:00	00:01:00.0	76.5	94.3	84.0	61.4	106.8
12	09/10/12	13:34:00	00:01:00.0	70.8	88.6	79.1	53.9	99.3
13	09/10/12	13:35:00	00:01:00.0	75.1	92.9	82.6	59.9	104.8
14	09/10/12	13:36:00	00:01:00.0	73.7	91.4	81.9	60.5	101.9
15	09/10/12	13:37:00	00:01:00.0	77.0	94.8	86.3	61.3	106.0
16	09/10/12	13:38:00	00:01:00.0	75.2	93.0	85.2	59.2	103.2
17	09/10/12	13:39:00	00:01:00.0	75.1	92.8	81.4	58.7	103.0
18	09/10/12	13:40:00	00:01:00.0	73.0	90.8	80.0	59.5	103.6
19	09/10/12	13:41:00	00:00:15.4	69.1	81.0	72.3	62.0	92.9

General Information

Serial Number	01742
Model	831
Firmware Version	1.505
Filename	831_Data.002
User	
Job Description	
Location	
Measurement Description	PA 33
Start Time	Monday, 2009 October 12 13:48:58
Stop Time	Monday, 2009 October 12 14:03:59
Duration	00:15:00.8
Run Time	00:15:00.8
Pause	00:00:00.0
Pre Calibration	Monday, 2009 October 12 13:23:34
Post Calibration	None
Calibration Deviation	---

Note

Overall Data

LAeq		71.2	dB
LASmax	(2009 Oct 12 13:56:56)	84.6	dB
LZpeak (max)	(2009 Oct 12 14:00:10)	111.9	dB
LASmin	(2009 Oct 12 14:03:22)	52.9	dB
LCeq		82.0	dB
LAeq		71.2	dB
LCeq - LAeq		10.8	dB
LAIeq		72.6	dB
LAeq		71.2	dB
LAIeq - LAeq		1.3	dB
Ldn		71.2	dB
LDay 07:00-22:00		71.2	dB
LNight 22:00-07:00		---	dB
Lden		71.2	dB
LDay 07:00-19:00		71.2	dB
LEvening 19:00-22:00		---	dB
LNight 22:00-07:00		---	dB
LAE		100.8	dB
# Overloads		0	
Overload Duration		0.0	s

Statistics

LAS2.00	79.4	dBA
LAS8.00	75.2	dBA
LAS25.00	71.6	dBA
LAS50.00	67.4	dBA
LAS66.60	63.6	dBA
LAS90.00	59.8	dBA

SPL 1 65.0 dB (Event Counts / Duration)	26 / 595.6 s
SPL 2 85.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 1 135.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 2 137.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 3 140.0 dB (Event Counts / Duration)	0 / 0.0 s

Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRM831
Integration Method	Linear

Calibration History

Preamp	Date	dB re. 1V/Pa
PRM831	12 Oct 2009 13:23:34	-26.7
PRM831	22 Sep 2009 13:18:49	-26.7
PRM831	16 Sep 2009 08:55:07	-26.8
PRM831	31 Aug 2009 15:04:52	-26.6
PRM831	29 Aug 2009 21:43:35	-26.7
PRM831	25 Aug 2009 07:56:05	-26.7
PRM831	11 Jul 2009 08:05:41	-26.7
PRM831	07 Jul 2009 13:54:39	-26.6
PRM831	01 Jul 2009 14:32:39	-26.6
PRM831	16 Jun 2009 10:22:57	-26.6
PRM831	10 Jun 2009 12:34:42	-26.6

General Information

Serial Number	01742
Model	831
Firmware Version	1.505
Filename	831_Data.002
Measurement Records:	16

NOTE: Only five metrics can be displayed on screen.
To view spectra and other metrics use the export feature.

Record #	Date	Time	Duration	LAeq	LAE	LASmax	LASmin	LZpeak (max)
1	09/10/12	13:48:58	00:00:01.2	57.8	58.6	57.8	56.5	85.4
2	09/10/12	13:49:00	00:01:00.0	68.1	85.9	74.9	56.7	95.8
3	09/10/12	13:50:00	00:01:00.0	71.5	89.2	79.5	63.0	101.6
4	09/10/12	13:51:00	00:01:00.0	68.5	86.3	74.7	58.3	98.1
5	09/10/12	13:52:00	00:01:00.0	73.7	91.5	83.0	59.1	105.6
6	09/10/12	13:53:00	00:01:00.0	71.0	88.8	80.0	58.9	100.7
7	09/10/12	13:54:00	00:01:00.0	69.8	87.6	79.4	60.4	100.7
8	09/10/12	13:55:00	00:01:00.0	67.9	85.7	77.4	53.0	99.9
9	09/10/12	13:56:00	00:01:00.0	73.7	91.4	84.6	59.7	102.2
10	09/10/12	13:57:00	00:01:00.0	68.0	85.8	77.0	56.7	97.8
11	09/10/12	13:58:00	00:01:00.0	71.8	89.5	76.9	61.1	97.9
12	09/10/12	13:59:00	00:01:00.0	66.0	83.8	73.5	58.9	94.2
13	09/10/12	14:00:00	00:01:00.0	75.6	93.4	84.6	60.3	111.9
14	09/10/12	14:01:00	00:01:00.0	70.5	88.3	76.2	59.0	100.4
15	09/10/12	14:02:00	00:01:00.0	72.5	90.3	77.5	60.5	99.9
16	09/10/12	14:03:00	00:00:59.6	66.6	84.4	74.4	52.9	94.7

General Information

Serial Number	01742
Model	831
Firmware Version	1.505
Filename	831_Data.003
User	
Job Description	
Location	
Measurement Description	PA 33
Start Time	Monday, 2009 October 12 14:17:00
Stop Time	Monday, 2009 October 12 14:30:25
Duration	00:13:24.7
Run Time	00:13:24.7
Pause	00:00:00.0
Pre Calibration	Monday, 2009 October 12 13:23:34
Post Calibration	None
Calibration Deviation	---

Note

Overall Data

LAeq		72.6	dB
LASmax	(2009 Oct 12 14:28:08)	84.4	dB
LZpeak (max)	(2009 Oct 12 14:28:26)	107.9	dB
LASmin	(2009 Oct 12 14:26:01)	59.0	dB
LCeq		81.0	dB
LAeq		72.6	dB
LCeq - LAeq		8.4	dB
LAIeq		73.6	dB
LAeq		72.6	dB
LAIeq - LAeq		1.0	dB
Ldn		72.6	dB
LDay 07:00-22:00		72.6	dB
LNight 22:00-07:00		---	dB
Lden		72.6	dB
LDay 07:00-19:00		72.6	dB
LEvening 19:00-22:00		---	dB
LNight 22:00-07:00		---	dB
LAE		101.7	dB
# Overloads		0	
Overload Duration		0.0	s

Statistics

LAS2.00	78.7	dBA
LAS8.00	76.4	dBA
LAS25.00	74.2	dBA
LAS50.00	71.0	dBA
LAS66.60	68.3	dBA
LAS90.00	64.1	dBA

SPL 1 65.0 dB (Event Counts / Duration)	11 / 751.2 s
SPL 2 85.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 1 135.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 2 137.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 3 140.0 dB (Event Counts / Duration)	0 / 0.0 s

Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRM831
Integration Method	Linear

Calibration History

Preamp	Date	dB re. 1V/Pa
PRM831	12 Oct 2009 13:23:34	-26.7
PRM831	22 Sep 2009 13:18:49	-26.7
PRM831	16 Sep 2009 08:55:07	-26.8
PRM831	31 Aug 2009 15:04:52	-26.6
PRM831	29 Aug 2009 21:43:35	-26.7
PRM831	25 Aug 2009 07:56:05	-26.7
PRM831	11 Jul 2009 08:05:41	-26.7
PRM831	07 Jul 2009 13:54:39	-26.6
PRM831	01 Jul 2009 14:32:39	-26.6
PRM831	16 Jun 2009 10:22:57	-26.6
PRM831	10 Jun 2009 12:34:42	-26.6

General Information

Serial Number	01742
Model	831
Firmware Version	1.505
Filename	831_Data.003
Measurement Records:	14

NOTE: Only five metrics can be displayed on screen.
To view spectra and other metrics use the export feature.

Record #	Date	Time	Duration	LAeq	LAE	LASmax	LASmin	LZpeak (max)
1	09/10/12	14:17:00	00:01:00.0	72.5	90.3	79.9	63.4	100.2
2	09/10/12	14:18:00	00:01:00.0	72.2	90.0	78.7	63.1	101.4
3	09/10/12	14:19:00	00:01:00.0	72.0	89.8	78.1	64.1	97.3
4	09/10/12	14:20:00	00:01:00.0	70.1	87.9	75.8	61.3	98.0
5	09/10/12	14:21:00	00:01:00.0	74.2	92.0	80.3	62.5	100.1
6	09/10/12	14:22:00	00:01:00.0	68.0	85.8	72.6	60.0	96.6
7	09/10/12	14:23:00	00:01:00.0	74.4	92.2	79.4	64.0	99.8
8	09/10/12	14:24:00	00:01:00.0	73.9	91.6	81.1	62.8	102.1
9	09/10/12	14:25:00	00:01:00.0	72.7	90.5	75.7	59.6	98.4
10	09/10/12	14:26:00	00:01:00.0	70.0	87.8	76.1	59.0	99.4
11	09/10/12	14:27:00	00:01:00.0	72.8	90.6	77.1	60.3	97.6
12	09/10/12	14:28:00	00:01:00.0	73.8	91.5	84.4	63.5	107.9
13	09/10/12	14:29:00	00:01:00.0	73.8	91.6	78.9	63.7	101.8
14	09/10/12	14:30:00	00:00:24.7	71.2	85.1	75.4	65.2	99.3

General Information

Serial Number	01742
Model	831
Firmware Version	1.505
Filename	831_Data.004
User	
Job Description	
Location	
Measurement Description	PA 33
Start Time	Monday, 2009 October 12 15:03:53
Stop Time	Monday, 2009 October 12 15:20:21
Duration	00:16:28.3
Run Time	00:16:28.3
Pause	00:00:00.0
Pre Calibration	Monday, 2009 October 12 13:23:34
Post Calibration	None
Calibration Deviation	---

Note

Overall Data

LAeq		56.2	dB
LASmax	(2009 Oct 12 15:15:40)	73.1	dB
LZpeak (max)	(2009 Oct 12 15:11:01)	101.4	dB
LASmin	(2009 Oct 12 15:17:21)	48.1	dB
LCeq		70.4	dB
LAeq		56.2	dB
LCeq - LAeq		14.2	dB
LAIeq		58.6	dB
LAeq		56.2	dB
LAIeq - LAeq		2.4	dB
Ldn		56.2	dB
LDay 07:00-22:00		56.2	dB
LNight 22:00-07:00		---	dB
Lden		56.2	dB
LDay 07:00-19:00		56.2	dB
LEvening 19:00-22:00		---	dB
LNight 22:00-07:00		---	dB
LAE		86.1	dB
# Overloads		0	
Overload Duration		0.0	s

Statistics

LAS2.00	63.3	dBA
LAS8.00	59.4	dBA
LAS25.00	56.0	dBA
LAS50.00	52.9	dBA
LAS66.60	51.4	dBA
LAS90.00	49.9	dBA

SPL 1 65.0 dB (Event Counts / Duration)	3 / 14.7 s
SPL 2 85.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 1 135.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 2 137.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 3 140.0 dB (Event Counts / Duration)	0 / 0.0 s

Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRM831
Integration Method	Linear

Calibration History

Preamp	Date	dB re. 1V/Pa
PRM831	12 Oct 2009 13:23:34	-26.7
PRM831	22 Sep 2009 13:18:49	-26.7
PRM831	16 Sep 2009 08:55:07	-26.8
PRM831	31 Aug 2009 15:04:52	-26.6
PRM831	29 Aug 2009 21:43:35	-26.7
PRM831	25 Aug 2009 07:56:05	-26.7
PRM831	11 Jul 2009 08:05:41	-26.7
PRM831	07 Jul 2009 13:54:39	-26.6
PRM831	01 Jul 2009 14:32:39	-26.6
PRM831	16 Jun 2009 10:22:57	-26.6
PRM831	10 Jun 2009 12:34:42	-26.6

General Information

Serial Number	01742
Model	831
Firmware Version	1.505
Filename	831_Data.004
Measurement Records:	18

NOTE: Only five metrics can be displayed on screen.
To view spectra and other metrics use the export feature.

Record #	Date	Time	Duration	LAeq	LAE	LASmax	LASmin	LZpeak (max)
1	09/10/12	15:03:53	00:00:06.6	56.6	64.8	60.0	54.5	90.9
2	09/10/12	15:04:00	00:01:00.0	54.3	72.0	63.6	49.2	100.1
3	09/10/12	15:05:00	00:01:00.0	53.6	71.4	57.4	49.2	87.9
4	09/10/12	15:06:00	00:01:00.0	57.8	75.6	64.0	53.5	95.0
5	09/10/12	15:07:00	00:01:00.0	55.8	73.6	63.2	50.6	86.8
6	09/10/12	15:08:00	00:01:00.0	57.4	75.2	63.7	52.4	92.2
7	09/10/12	15:09:00	00:01:00.0	53.4	71.2	63.9	49.1	95.2
8	09/10/12	15:10:00	00:01:00.0	55.3	73.1	60.5	49.9	90.9
9	09/10/12	15:11:00	00:01:00.0	50.1	67.9	52.1	48.4	101.4
10	09/10/12	15:12:00	00:01:00.0	54.3	72.1	64.7	49.6	86.7
11	09/10/12	15:13:00	00:01:00.0	52.5	70.3	58.9	49.0	90.7
12	09/10/12	15:14:00	00:01:00.0	54.3	72.1	63.7	49.2	92.3
13	09/10/12	15:15:00	00:01:00.0	63.1	80.8	73.1	50.7	92.6
14	09/10/12	15:16:00	00:01:00.0	53.6	71.4	60.5	48.9	92.5
15	09/10/12	15:17:00	00:01:00.0	55.2	73.0	64.1	48.1	92.8
16	09/10/12	15:18:00	00:01:00.0	55.9	73.6	65.6	50.1	90.3
17	09/10/12	15:19:00	00:01:00.0	53.6	71.4	57.0	50.7	89.9
18	09/10/12	15:20:00	00:00:21.7	57.5	70.9	59.8	54.0	86.4

General Information

Serial Number	01742
Model	831
Firmware Version	1.505
Filename	831_Data.005
User	
Job Description	
Location	
Measurement Description	PA 33
Start Time	Monday, 2009 October 12 15:34:26
Stop Time	Monday, 2009 October 12 15:49:28
Duration	00:15:02.2
Run Time	00:15:02.2
Pause	00:00:00.0
Pre Calibration	Monday, 2009 October 12 13:23:34
Post Calibration	None
Calibration Deviation	---

Note

Overall Data

LAeq		62.3	dB
LASmax	(2009 Oct 12 15:44:26)	70.6	dB
LZpeak (max)	(2009 Oct 12 15:34:26)	98.3	dB
LASmin	(2009 Oct 12 15:46:07)	46.6	dB
LCeq		70.2	dB
LAeq		62.3	dB
LCeq - LAeq		7.9	dB
LAIeq		63.4	dB
LAeq		62.3	dB
LAIeq - LAeq		1.2	dB
Ldn		62.3	dB
LDay 07:00-22:00		62.3	dB
LNight 22:00-07:00		---	dB
Lden		62.3	dB
LDay 07:00-19:00		62.3	dB
LEvening 19:00-22:00		---	dB
LNight 22:00-07:00		---	dB
LAE		91.8	dB
# Overloads		0	
Overload Duration		0.0	s

Statistics

LAS2.00	68.5	dBA
LAS8.00	66.3	dBA
LAS25.00	64.0	dBA
LAS50.00	60.4	dBA
LAS66.60	57.7	dBA
LAS90.00	52.3	dBA

SPL 1 65.0 dB (Event Counts / Duration)	35 / 217.1 s
SPL 2 85.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 1 135.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 2 137.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 3 140.0 dB (Event Counts / Duration)	0 / 0.0 s

Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRM831
Integration Method	Linear

Calibration History

Preamp	Date	dB re. 1V/Pa
PRM831	12 Oct 2009 13:23:34	-26.7
PRM831	22 Sep 2009 13:18:49	-26.7
PRM831	16 Sep 2009 08:55:07	-26.8
PRM831	31 Aug 2009 15:04:52	-26.6
PRM831	29 Aug 2009 21:43:35	-26.7
PRM831	25 Aug 2009 07:56:05	-26.7
PRM831	11 Jul 2009 08:05:41	-26.7
PRM831	07 Jul 2009 13:54:39	-26.6
PRM831	01 Jul 2009 14:32:39	-26.6
PRM831	16 Jun 2009 10:22:57	-26.6
PRM831	10 Jun 2009 12:34:42	-26.6

General Information

Serial Number	01742
Model	831
Firmware Version	1.505
Filename	831_Data.005
Measurement Records:	16

NOTE: Only five metrics can be displayed on screen.
To view spectra and other metrics use the export feature.

Record #	Date	Time	Duration	LAeq	LAE	LASmax	LASmin	LZpeak (max)
1	09/10/12	15:34:26	00:00:33.5	59.5	74.8	66.2	52.3	98.3
2	09/10/12	15:35:00	00:01:00.0	61.8	79.6	65.6	52.9	94.5
3	09/10/12	15:36:00	00:01:00.0	62.6	80.4	68.2	52.7	94.5
4	09/10/12	15:37:00	00:01:00.0	60.6	78.4	66.2	50.7	95.8
5	09/10/12	15:38:00	00:01:00.0	63.0	80.8	68.2	52.7	92.7
6	09/10/12	15:39:00	00:01:00.0	59.5	77.3	65.5	48.3	90.7
7	09/10/12	15:40:00	00:01:00.0	61.9	79.7	68.6	49.1	87.8
8	09/10/12	15:41:00	00:01:00.0	61.5	79.3	68.6	48.6	91.7
9	09/10/12	15:42:00	00:01:00.0	63.2	80.9	69.7	48.4	90.6
10	09/10/12	15:43:00	00:01:00.0	64.2	82.0	69.5	54.3	95.2
11	09/10/12	15:44:00	00:01:00.0	63.7	81.5	70.6	50.7	98.3
12	09/10/12	15:45:00	00:01:00.0	61.9	79.7	67.7	50.2	92.3
13	09/10/12	15:46:00	00:01:00.0	61.1	78.9	69.5	46.6	88.3
14	09/10/12	15:47:00	00:01:00.0	62.2	80.0	68.1	54.5	97.5
15	09/10/12	15:48:00	00:01:00.0	63.4	81.1	69.5	54.8	95.5
16	09/10/12	15:49:00	00:00:28.7	62.2	76.8	66.7	52.6	93.5

General Information

Serial Number	01742
Model	831
Firmware Version	1.505
Filename	831_Data.006
User	
Job Description	
Location	
Measurement Description	PA 33
Start Time	Monday, 2009 October 12 16:02:20
Stop Time	Monday, 2009 October 12 16:17:28
Duration	00:15:07.6
Run Time	00:15:07.6
Pause	00:00:00.0
Pre Calibration	Monday, 2009 October 12 13:23:34
Post Calibration	None
Calibration Deviation	---

Note

Overall Data

LAeq		68.8	dB
LASmax	(2009 Oct 12 16:13:01)	81.0	dB
LZpeak (max)	(2009 Oct 12 16:05:01)	104.6	dB
LASmin	(2009 Oct 12 16:06:15)	45.8	dB
LCeq		73.8	dB
LAeq		68.8	dB
LCeq - LAeq		5.1	dB
LAIeq		70.5	dB
LAeq		68.8	dB
LAIeq - LAeq		1.8	dB
Ldn		68.8	dB
LDay 07:00-22:00		68.8	dB
LNight 22:00-07:00		---	dB
Lden		68.8	dB
LDay 07:00-19:00		68.8	dB
LEvening 19:00-22:00		---	dB
LNight 22:00-07:00		---	dB
LAE		98.3	dB
# Overloads		0	
Overload Duration		0.0	s

Statistics

LAS2.00	75.7	dBA
LAS8.00	73.2	dBA
LAS25.00	70.1	dBA
LAS50.00	66.0	dBA
LAS66.60	62.2	dBA
LAS90.00	55.0	dBA

SPL 1 65.0 dB (Event Counts / Duration)	43 / 555.6 s
SPL 2 85.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 1 135.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 2 137.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 3 140.0 dB (Event Counts / Duration)	0 / 0.0 s

Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRM831
Integration Method	Linear

Calibration History

Preamp	Date	dB re. 1V/Pa
PRM831	12 Oct 2009 13:23:34	-26.7
PRM831	22 Sep 2009 13:18:49	-26.7
PRM831	16 Sep 2009 08:55:07	-26.8
PRM831	31 Aug 2009 15:04:52	-26.6
PRM831	29 Aug 2009 21:43:35	-26.7
PRM831	25 Aug 2009 07:56:05	-26.7
PRM831	11 Jul 2009 08:05:41	-26.7
PRM831	07 Jul 2009 13:54:39	-26.6
PRM831	01 Jul 2009 14:32:39	-26.6
PRM831	16 Jun 2009 10:22:57	-26.6
PRM831	10 Jun 2009 12:34:42	-26.6

General Information

Serial Number	01742
Model	831
Firmware Version	1.505
Filename	831_Data.006
Measurement Records:	16

NOTE: Only five metrics can be displayed on screen.
To view spectra and other metrics use the export feature.

Record #	Date	Time	Duration	LAeq	LAE	LASmax	LASmin	LZpeak (max)
1	09/10/12	16:02:20	00:00:39.2	62.1	78.0	71.6	49.6	99.2
2	09/10/12	16:03:00	00:01:00.0	70.0	87.8	77.1	56.8	97.4
3	09/10/12	16:04:00	00:01:00.0	69.5	87.3	77.1	53.4	95.2
4	09/10/12	16:05:00	00:01:00.0	70.1	87.9	79.3	50.1	104.6
5	09/10/12	16:06:00	00:01:00.0	67.3	85.1	76.2	45.8	94.9
6	09/10/12	16:07:00	00:01:00.0	69.1	86.9	75.3	57.2	93.1
7	09/10/12	16:08:00	00:01:00.0	65.9	83.7	72.7	55.4	89.0
8	09/10/12	16:09:00	00:01:00.0	69.7	87.5	76.3	52.4	93.1
9	09/10/12	16:10:00	00:01:00.0	69.6	87.4	75.2	56.0	92.7
10	09/10/12	16:11:00	00:01:00.0	68.5	86.3	76.5	53.0	92.8
11	09/10/12	16:12:00	00:01:00.0	67.4	85.2	75.0	54.8	96.3
12	09/10/12	16:13:00	00:01:00.0	70.7	88.5	81.0	55.6	97.2
13	09/10/12	16:14:00	00:01:00.0	66.3	84.1	75.8	52.6	98.7
14	09/10/12	16:15:00	00:01:00.0	68.0	85.8	77.6	55.3	93.0
15	09/10/12	16:16:00	00:01:00.0	69.7	87.5	78.1	56.9	96.7
16	09/10/12	16:17:00	00:00:28.4	67.2	81.8	72.9	53.5	93.8

General Information

Serial Number	01742
Model	831
Firmware Version	1.505
Filename	831_Data.007
User	
Job Description	
Location	
Measurement Description	PA 33
Start Time	Monday, 2009 October 12 16:41:39
Stop Time	Monday, 2009 October 12 16:56:44
Duration	00:15:04.9
Run Time	00:15:04.9
Pause	00:00:00.0
Pre Calibration	Monday, 2009 October 12 13:23:34
Post Calibration	None
Calibration Deviation	---

Note

Overall Data

LAeq		71.3	dB
LASmax	(2009 Oct 12 16:45:38)	82.3	dB
LZpeak (max)	(2009 Oct 12 16:53:36)	104.2	dB
LASmin	(2009 Oct 12 16:50:14)	47.0	dB
LCeq		77.3	dB
LAeq		71.3	dB
LCeq - LAeq		6.1	dB
LAIeq		72.9	dB
LAeq		71.3	dB
LAIeq - LAeq		1.6	dB
Ldn		71.3	dB
LDay 07:00-22:00		71.3	dB
LNight 22:00-07:00		---	dB
Lden		71.3	dB
LDay 07:00-19:00		71.3	dB
LEvening 19:00-22:00		---	dB
LNight 22:00-07:00		---	dB
LAE		100.8	dB
# Overloads		0	
Overload Duration		0.0	s

Statistics

LAS2.00	78.2	dBA
LAS8.00	75.9	dBA
LAS25.00	72.7	dBA
LAS50.00	68.1	dBA
LAS66.60	65.0	dBA
LAS90.00	58.5	dBA

SPL 1 65.0 dB (Event Counts / Duration)	23 / 653.4 s
SPL 2 85.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 1 135.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 2 137.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 3 140.0 dB (Event Counts / Duration)	0 / 0.0 s

Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRM831
Integration Method	Linear

Calibration History

Preamp	Date	dB re. 1V/Pa
PRM831	12 Oct 2009 13:23:34	-26.7
PRM831	22 Sep 2009 13:18:49	-26.7
PRM831	16 Sep 2009 08:55:07	-26.8
PRM831	31 Aug 2009 15:04:52	-26.6
PRM831	29 Aug 2009 21:43:35	-26.7
PRM831	25 Aug 2009 07:56:05	-26.7
PRM831	11 Jul 2009 08:05:41	-26.7
PRM831	07 Jul 2009 13:54:39	-26.6
PRM831	01 Jul 2009 14:32:39	-26.6
PRM831	16 Jun 2009 10:22:57	-26.6
PRM831	10 Jun 2009 12:34:42	-26.6

General Information

Serial Number	01742
Model	831
Firmware Version	1.505
Filename	831_Data.007
Measurement Records:	16

NOTE: Only five metrics can be displayed on screen.
To view spectra and other metrics use the export feature.

Record #	Date	Time	Duration	LAeq	LAE	LASmax	LASmin	LZpeak (max)
1	09/10/12	16:41:39	00:00:20.4	65.0	78.1	71.3	56.0	90.3
2	09/10/12	16:42:00	00:01:00.0	73.4	91.2	78.9	60.3	100.0
3	09/10/12	16:43:00	00:01:00.0	71.3	89.1	76.7	60.2	99.9
4	09/10/12	16:44:00	00:01:00.0	68.5	86.3	77.9	55.0	97.6
5	09/10/12	16:45:00	00:01:00.0	74.8	92.6	82.3	66.3	100.6
6	09/10/12	16:46:00	00:01:00.0	69.6	87.4	76.4	56.8	96.1
7	09/10/12	16:47:00	00:01:00.0	72.8	90.6	79.1	62.7	96.8
8	09/10/12	16:48:00	00:01:00.0	68.3	86.1	76.6	47.5	96.9
9	09/10/12	16:49:00	00:01:00.0	71.2	89.0	76.1	61.9	96.8
10	09/10/12	16:50:00	00:01:00.0	67.1	84.9	79.3	47.0	103.9
11	09/10/12	16:51:00	00:01:00.0	71.8	89.6	78.2	57.8	94.4
12	09/10/12	16:52:00	00:01:00.0	70.5	88.3	78.0	54.0	98.5
13	09/10/12	16:53:00	00:01:00.0	72.3	90.1	80.2	60.3	104.2
14	09/10/12	16:54:00	00:01:00.0	74.0	91.8	82.1	59.5	102.8
15	09/10/12	16:55:00	00:01:00.0	66.1	83.9	72.9	51.2	91.0
16	09/10/12	16:56:00	00:00:44.5	63.9	80.4	68.6	59.4	91.1

General Information

Serial Number	01742
Model	831
Firmware Version	1.505
Filename	831_Data.009
User	
Job Description	
Location	
Measurement Description	PA 33
Start Time	Monday, 2009 October 12 17:13:32
Stop Time	Tuesday, 2009 October 13 17:26:04
Duration	1 Day 00:12:32.1
Run Time	1 Day 00:12:32.1
Pause	00:00:00.0
Pre Calibration	Monday, 2009 October 12 13:23:34
Post Calibration	None
Calibration Deviation	---

Note

Overall Data

LAeq		62.6	dB
LASmax	(2009 Oct 12 18:49:38)	87.4	dB
LZpeak (max)	(2009 Oct 13 17:25:57)	120.6	dB
LASmin	(2009 Oct 12 23:02:35)	36.4	dB
LCeq		73.4	dB
LAeq		62.6	dB
LCeq - LAeq		10.9	dB
LAIeq		64.7	dB
LAeq		62.6	dB
LAIeq - LAeq		2.2	dB
Ldn		65.7	dB
LDay 07:00-22:00		64.0	dB
LNight 22:00-07:00		57.6	dB
Lden		66.2	dB
LDay 07:00-19:00		64.5	dB
LEvening 19:00-22:00		61.5	dB
LNight 22:00-07:00		57.6	dB
LAE		112.0	dB
SEA		120.6	dBZ
# Overloads		0	
Overload Duration		0.0	s

Statistics

LAS2.00	69.9	dBA
LAS8.00	67.0	dBA
LAS25.00	63.0	dBA
LAS50.00	58.8	dBA
LAS66.60	55.3	dBA
LAS90.00	41.2	dBA

SPL 1 65.0 dB (Event Counts / Duration)	1835 / 18116.7 s
SPL 2 85.0 dB (Event Counts / Duration)	2 / 4.8 s
Peak 1 135.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 2 137.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 3 140.0 dB (Event Counts / Duration)	0 / 0.0 s

Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRM831
Integration Method	Linear

Calibration History

Preamp	Date	dB re. 1V/Pa
PRM831	12 Oct 2009 13:23:34	-26.7
PRM831	22 Sep 2009 13:18:49	-26.7
PRM831	16 Sep 2009 08:55:07	-26.8
PRM831	31 Aug 2009 15:04:52	-26.6
PRM831	29 Aug 2009 21:43:35	-26.7
PRM831	25 Aug 2009 07:56:05	-26.7
PRM831	11 Jul 2009 08:05:41	-26.7
PRM831	07 Jul 2009 13:54:39	-26.6
PRM831	01 Jul 2009 14:32:39	-26.6
PRM831	16 Jun 2009 10:22:57	-26.6
PRM831	10 Jun 2009 12:34:42	-26.6

General Information

Serial Number	01742
Model	831
Firmware Version	1.505
Filename	831_Data.010
User	
Job Description	
Location	
Measurement Description	PA 33
Start Time	Tuesday, 2009 October 13 17:49:03
Stop Time	Tuesday, 2009 October 13 18:04:30
Duration	00:15:26.8
Run Time	00:15:04.9
Pause	00:00:21.9
Pre Calibration	Monday, 2009 October 12 13:23:34
Post Calibration	None
Calibration Deviation	---

Note

Overall Data

LAeq		67.2	dB
LASmax	(2009 Oct 13 17:49:32)	81.4	dB
LZpeak (max)	(2009 Oct 13 17:49:32)	100.8	dB
LASmin	(2009 Oct 13 17:52:24)	56.4	dB
LCeq		76.0	dB
LAeq		67.2	dB
LCeq - LAeq		8.9	dB
LAIeq		68.6	dB
LAeq		67.2	dB
LAIeq - LAeq		1.4	dB
Ldn		67.2	dB
LDay 07:00-22:00		67.2	dB
LNight 22:00-07:00		---	dB
Lden		67.2	dB
LDay 07:00-19:00		67.2	dB
LEvening 19:00-22:00		---	dB
LNight 22:00-07:00		---	dB
LAE		96.7	dB
# Overloads		0	
Overload Duration		0.0	s

Statistics

LAS2.00	72.4	dBA
LAS8.00	69.5	dBA
LAS25.00	67.5	dBA
LAS50.00	66.0	dBA
LAS66.60	64.2	dBA
LAS90.00	61.4	dBA

SPL 1 65.0 dB (Event Counts / Duration)	19 / 630.4 s
SPL 2 85.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 1 135.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 2 137.0 dB (Event Counts / Duration)	0 / 0.0 s
Peak 3 140.0 dB (Event Counts / Duration)	0 / 0.0 s

Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRM831
Integration Method	Linear

Calibration History

Preamp	Date	dB re. 1V/Pa
PRM831	12 Oct 2009 13:23:34	-26.7
PRM831	22 Sep 2009 13:18:49	-26.7
PRM831	16 Sep 2009 08:55:07	-26.8
PRM831	31 Aug 2009 15:04:52	-26.6
PRM831	29 Aug 2009 21:43:35	-26.7
PRM831	25 Aug 2009 07:56:05	-26.7
PRM831	11 Jul 2009 08:05:41	-26.7
PRM831	07 Jul 2009 13:54:39	-26.6
PRM831	01 Jul 2009 14:32:39	-26.6
PRM831	16 Jun 2009 10:22:57	-26.6
PRM831	10 Jun 2009 12:34:42	-26.6

General Information

Serial Number	01742
Model	831
Firmware Version	1.505
Filename	831_Data.010
Measurement Records:	16

NOTE: Only five metrics can be displayed on screen.
To view spectra and other metrics use the export feature.

Record #	Date	Time	Duration	LAeq	LAE	LASmax	LASmin	LZpeak (max)
1	09/10/13	17:49:03	00:00:56.4	70.1	87.6	81.4	58.9	100.8
2	09/10/13	17:50:00	00:01:00.0	67.1	84.8	68.5	64.3	99.3
3	09/10/13	17:51:00	00:01:00.0	66.0	83.8	71.5	61.5	98.5
4	09/10/13	17:52:00	00:01:00.0	65.7	83.5	68.9	56.4	93.7
5	09/10/13	17:53:00	00:01:00.0	64.7	82.5	71.2	57.9	94.9
6	09/10/13	17:54:00	00:01:00.0	66.9	84.7	70.5	58.6	97.7
7	09/10/13	17:55:00	00:01:00.0	69.0	86.8	78.8	60.2	95.5
8	09/10/13	17:56:00	00:00:59.8	68.9	84.7	75.5	64.7	93.1
9	09/10/13	17:57:00	00:01:00.0	66.7	84.5	71.4	57.2	93.9
10	09/10/13	17:58:00	00:01:00.0	65.9	83.7	68.4	61.5	92.6
11	09/10/13	17:59:00	00:01:00.0	70.3	88.1	81.4	60.0	100.4
12	09/10/13	18:00:00	00:01:00.0	63.4	81.2	66.7	58.6	94.8
13	09/10/13	18:01:00	00:01:00.0	64.5	82.2	67.2	59.9	92.1
14	09/10/13	18:02:00	00:01:00.0	66.9	84.7	70.9	61.7	94.7
15	09/10/13	18:03:00	00:01:00.0	66.7	84.4	71.2	58.8	97.9
16	09/10/13	18:04:00	00:00:30.6	65.3	80.1	69.2	61.6	93.9

Appendix E Climate Change Analysis

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CLIMATE CHANGE IMPACT ANALYSIS

GENERAL PLAN
CIRCULATION ELEMENT UPDATE
HUNTINGTON BEACH, CALIFORNIA

Prepared for

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October 30, 2009

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SECTION 1.0 INTRODUCTION

1.1 INTRODUCTION

This Climate Change Impact Analysis has been prepared to analyze the impacts to global climate change that would occur from the proposed update of the *City of Huntington Beach General Plan's* Circulation Element, hereafter referred to as "the Project". A climate change analysis is not explicitly required by current CEQA Statutes and Guidelines; however, since there are known serious consequences associated with climate change, and it is also known that climate change is influenced by a variety of human activities stemming in part from land use and transportation patterns and related energy technologies, this is considered to be an environmental effect within the scope of CEQA. Addressing climate change and greenhouse gas (GHG) emissions in CEQA documents has been strongly encouraged by State and regional agencies since 2008, and proposed revisions to CEQA, currently undergoing public review, would require this analysis.

The purpose of the Huntington Beach Circulation Element Update is to evaluate the long-term transportation needs of the City and to present a comprehensive plan to accommodate those needs. The Circulation Element is being designed to provide an efficient surface transportation system to accommodate the increased traffic volumes that are forecasted to occur over the next 20 to 25 years and to achieve desired intersection levels of service that minimize congestion during peak travel periods. The Circulation Element is the foundation for the City's efforts to manage and minimize traffic congestion, to manage safety on roadways, to provide alternatives to the automobile, and to include better access to regional travel routes (Huntington Beach 2009a).

SECTION 2.0 PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The City of Huntington Beach (City) is located in Orange County, California, approximately 40 miles southwest of the City of Los Angeles. The City is bound by the Pacific Ocean to the west, the City of Seal Beach to the north, the Cities of Westminster and Fountain Valley to the east, and the City of Costa Mesa to the south. The regional location and vicinity are shown in Exhibit 1.

2.2 PROPOSED PROJECT

The City proposes to adopt an updated General Plan Circulation Element; the existing Circulation Element was adopted in 1996 (Huntington Beach 1996). The *City of Huntington Beach General Plan's* Circulation Element describes and directs, through goals, policies, and implementation programs, how people, goods, and services move within and through Huntington Beach. The proposed update to the Circulation Element includes (1) modifications to roadway classifications; (2) planned long-range capacity improvements; and (3) modifications of the procedures under which the performance of the roadway system is evaluated (Huntington Beach 2009b). These proposed changes to the Circulation Plan are shown in Exhibit 2 and the proposed long-range capacity improvements are shown in Exhibit 3.

The proposed Circulation Element also addresses alternative modes of transportation, including bus transit, bicycle routes, and the enhancement of pedestrian circulation.

Regional Location/Local Vicinity

Exhibit 1

Huntington Beach Circulation Element Update Climate Change Analysis

N W E S

2 1 0 2 Miles

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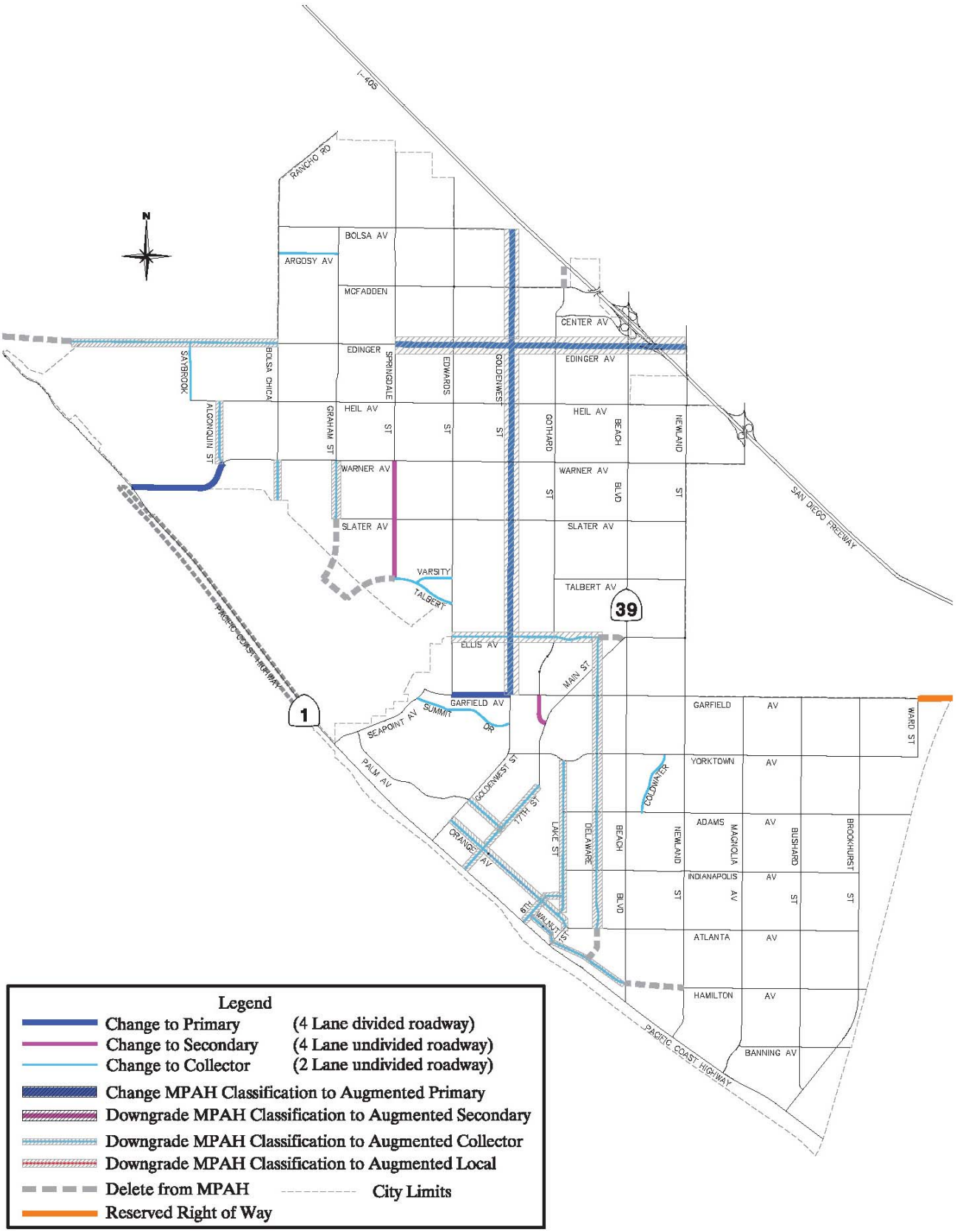
D:\Projects\Hogle\J013\MXD\Ex_RL.mxd



D:\Projects/Hogle/J013/Graphics/Ex_PropCCP.ai

Proposed Changes in the Circulation Plan

Exhibit 2

Huntington Beach Circulation Element Update Climate Change Analysis

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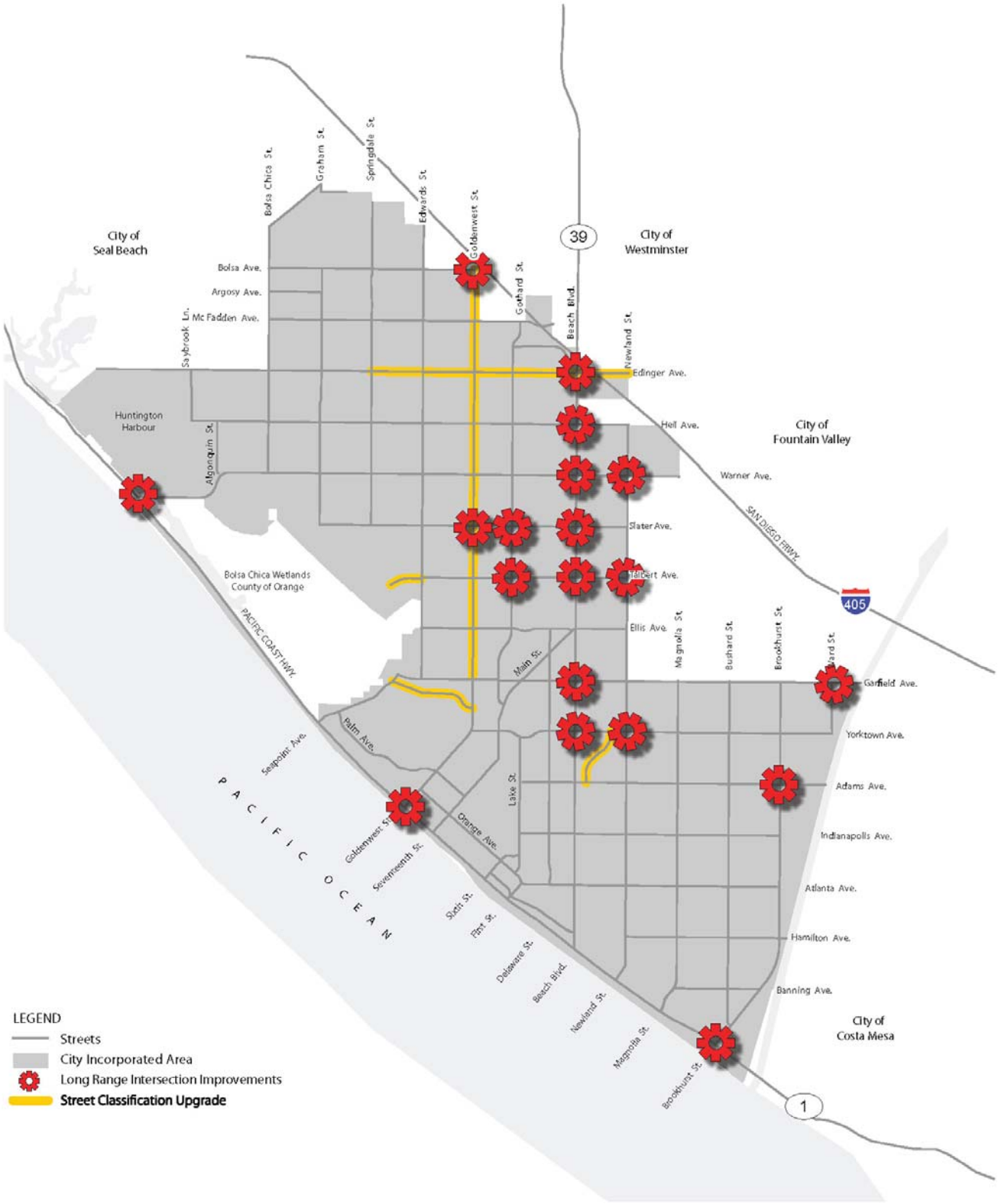

Proposed Long Range Capacity Improvements

Exhibit 3

Huntington Beach Circulation Element Update Climate Change Analysis

BonTerra CONSULTING

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SECTION 3.0 GLOBAL CLIMATE CHANGE AND GREENHOUSE GASES

3.1 GENERAL DESCRIPTION OF GLOBAL CLIMATE CHANGE

Global climate change is currently an important and highly debated environmental, economic, and political issue. Increased GHG emissions have led to an anthropogenic (caused or produced by humans) warming trend of the earth's average temperature, which is causing changes in the earth's climate; GHG emissions are primarily associated with (1) the burning of fossil fuels during motorized transport, electricity generation, consumption of natural gas, industrial activity, manufacturing, and other activities; (2) deforestation; (3) agricultural activity; and (4) solid waste decomposition. This increasing temperature phenomenon is known as "global warming", and the climatic effect is known as "climate change" or "global climate change".

Climate change is a recorded change in the average weather of the earth measured by variables such as wind patterns, storms, precipitation, and temperature. Historical records show that global temperature changes have occurred naturally in the past, such as during previous ice ages. Eleven of the 12 years from 1995 to 2006 rank among the warmest years in the instrumental record of global surface temperature (since 1850). An increase in global surface temperature of 0.74 degrees Celsius ([°C] 1.33 degrees Fahrenheit [°F]) occurred during the 100-year period from 1906 to 2005.

Recent scientific research indicates very high confidence (i.e., at least 90 percent) that the rate and magnitude of current global temperature changes are anthropogenic and that global warming will lead to adverse climate change effects around the globe (IPCC 2007). Anthropogenic effects, processes, objects, or materials are those that are derived from human activities, as opposed to those occurring in natural environments without human influence.

3.2 GREENHOUSE GASES

GHGs are atmospheric gases and clouds within the atmosphere that influence the earth's temperature by absorbing most of the infrared radiation that rises from the sun-warmed surface and that would otherwise escape into space. This process is commonly known as the "Greenhouse Effect". GHGs are emitted by natural processes and human activities. The earth's surface temperature averages about 58°F because of the Greenhouse Effect. Without it, the earth's average surface temperature would be somewhere around an uninhabitable 0°F (Henson 2006). The resulting balance between incoming solar radiation and outgoing radiation from both the earth's surface and atmosphere maintains the planet's habitability.

GHGs, as defined under California's Assembly Bill (AB) 32, include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and Nitrogen Trifluoride (NF_3). General discussions on climate change often include water vapor, ozone, and aerosols in the GHG category. Water vapor and atmospheric ozone are not gases that are formed directly in the construction or operation of development projects, nor can they be controlled in these projects. Aerosols are not gases. While these elements have a role in climate change, they are not considered by either regulatory bodies (such as the California Air Resources Board [CARB]) or climate change groups (such as the California Climate Action Registry [CCAR]) as gases to be reported or analyzed for control. Therefore, no further discussion of water vapor, ozone, or aerosols is provided.

Anthropogenic emissions of GHGs into the atmosphere enhance the Greenhouse Effect by absorbing radiation from other atmospheric GHGs that would otherwise escape into space,

thereby trapping more radiation in the atmosphere and causing temperatures to increase. CO_2 is the most important anthropogenic GHG. The global atmospheric concentration of CO_2 has increased from a pre-industrial (roughly 1750) value of about 280 parts per million (ppm) to 379 ppm in 2005, primarily due to fossil fuel use, with land use change providing a significant but smaller contribution. The annual growth rate in CO_2 concentrations continues to increase, with a larger annual CO_2 concentration growth rate during the ten-year period between 1995 and 2005 than since the beginning of continuous direct measurements in 1960.

The most common GHG is CO_2, which constitutes approximately 84 percent of all GHG emissions in California (CEC 2006). Worldwide, the State of California ranks as about the 12th largest emitter of CO_2 and is responsible for approximately 2 percent of the world's CO_2 emissions (CEC 2007, 2006). However, throughout the U.S., California is the fourth lowest in CO_2 emissions per capita (CEC 2006).

GHGs are global pollutants unlike air pollutants such as ozone, particulate matter and TACs, which are pollutants of regional and local concern. While pollutants with localized air quality effects have relatively short atmospheric lifetimes (generally on the order of a few days), GHGs have relatively long atmospheric lifetimes, ranging from one year to several thousand years. Long atmospheric lifetimes allow for GHGs to disperse around the globe. In addition, the GHG impacts are global, as opposed to the localized air quality effects of criteria air pollutants and TACs.

GHGs vary widely in the power of their climatic effects; therefore, climate scientists have established a unit called global warming potential (GWP). The GWP of a gas is a measure of both potency and lifespan in the atmosphere as compared to CO_2. For example, since CH_4 and N_2O are approximately 21 and 310 times, respectively, more powerful than CO_2 in their ability to trap heat in the atmosphere, they have GWPs of 21 and 310, respectively (CO_2 has a GWP of 1). Carbon dioxide equivalent (CO_2e) is a quantity that enables all GHG emissions to be considered as a group despite their varying GWP. The GWP of each GHG is multiplied by the prevalence of that gas to produce CO_2e. The atmospheric lifetime and GWP of selected GHGs are summarized in Table 1.

TABLE 1
GLOBAL WARMING POTENTIALS AND ATMOSPHERIC LIFETIMES

Greenhouse Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)
Carbon Dioxide (CO_2)	50–200	1
Methane (CH_4)	12	21
Nitrous Oxide (N_2O)	114	310
HFC-134a	48.3	1,300
PFC: Tetrafluoromethane (CF_4)	50,000	6,500
PFC: Hexafluoroethane (C_2F_6)	10,000	9,200
Sulfur Hexafluoride (SF_6)	3,200	23,900
HFC: hydrofluorocarbon; PFC: perfluorocarbon. Source: CCAR 2009.		

3.3 GENERAL ENVIRONMENTAL EFFECTS OF GLOBAL CLIMATE CHANGE

Executive Order S-3-05 resulted in a report on the impacts of climate change on California, including impacts to water supply, public health, agriculture, the coastline, and forestry. This

report, *Scenarios of Climate Change in California: An Overview* (Climate Scenarios Report), was published in February 2006 (CCCC 2006b).

The Climate Scenarios Report uses a range of emissions scenarios developed by the Intergovernmental Panel on Climate Change (IPCC) to project 3 potential warming ranges (i.e., temperature increases) that may occur in California during the 21st Century: the lower warming range (3.0°F–5.5°F); the medium warming range (5.5°F–8.0°F); and the higher warming range (8.0°F–10.5°F). The Climate Scenarios Report then presents analysis of future climate in California under each warming range.

Each emissions scenario would result in substantial temperature increases for California. According to the report, substantial temperature increases would result in a variety of impacts to California's people, economy, and environment that are associated with a projected increase in extreme conditions, with the severity of the impacts depending upon actual future emissions of GHGs and associated warming. Under the emissions scenarios of the Climate Scenarios Report (CCCC 2006b), the impacts of global warming in California are anticipated to include, but are not limited to, those listed below.

- ***Public Health.*** Higher temperatures are expected to increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, in high ozone (O_3) areas such as the South Coast Air Basin (SoCAB) and the San Joaquin Valley, the number of days with weather conditions conducive to O_3 formation is projected to increase from 25 to 35 percent under the lower warming range or from 75 to 85 percent under the medium warming range. In addition, if global background O_3 levels increase as predicted, under some scenarios, it may become impossible to meet local air quality standards. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances depending on wind conditions. The Climate Scenarios Report indicates that large wildfires could become up to 55 percent more frequent if GHG emissions are not significantly reduced.

  In addition, under the higher warming scenario, there could be up to 100 more days per year with temperatures above 90°F in Los Angeles and 95°F in Sacramento by 2100. This is a large increase over historical patterns and approximately twice the increase projected if temperatures remain within or below the lower warming range. Rising temperatures will increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat.

- ***Water Resources.*** A vast network of man-made reservoirs and aqueducts captures and transports water throughout the state from Northern California rivers and the Colorado River. The current distribution system relies on snowpack from the Sierra Nevadas to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages.

  If GHG emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevadas' spring snowpack by as much as 70–90 percent. Under the lower warming scenario, snowpack losses are expected to be only half as large as those expected if temperatures rise to the higher warming range. How much snowpack will be lost depends in part on future precipitation patterns, the projections for which remain uncertain. However, even under the wetter climate projections, the loss of snowpack would pose challenges to those managing water distribution, would hamper hydropower generation, and would nearly eliminate all skiing and other snow-related recreational activities.

The State's water supplies are also at risk from rising sea levels. An influx of saltwater would degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion caused by rising sea levels is a major threat to the quality and reliability of water within the southern edge of the Sacramento/San Joaquin River Delta—a major California fresh water supply.

Global warming is also projected to decrease the potential for hydropower production within the state (although the effects on hydropower are uncertain) and seriously harm winter tourism. Under the lower warming range, the ski season at lower elevations could be reduced by as much as a month. If temperatures reach the higher warming range and precipitation declines, there might be many years with insufficient snow for skiing and snowboarding.

- ***Agriculture.*** Increased GHG emissions are expected to cause widespread changes to the agricultural industry, reducing the quantity and quality of agricultural products statewide. California farmers are projected to lose as much as 25 percent of the water supply they need. Although higher CO_2 levels can stimulate plant production and increase plant water-use efficiency, California's farmers will face greater water demand for crops and a less reliable water supply as temperatures rise. Crop growth and development will change, as will the intensity and frequency of pest and disease outbreaks. Rising temperatures will likely aggravate O_3 pollution, which makes plants more susceptible to disease and pests, and which interferes with plant growth.

  Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than-optimal development for many crops, so rising temperatures are likely to worsen the quantity and quality of yield for a number of California's agricultural products. Products likely to be most affected include wine grapes, fruits and nuts, and milk.

  In addition, continued global warming will likely shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion is expected in many species while range contractions are less likely in rapidly evolving species with significant populations already established. Should range contractions occur, it is likely that new or different weed species will fill the emerging gaps. Continued global warming is also likely to alter the abundance and types of many pests, lengthen pests' breeding seasons, and increase pathogen growth rates.

- ***Forests and Landscapes.*** Global warming is expected to intensify the risk of wildfire and the resultant altering of the distribution and character of natural vegetation. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55 percent, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors—including precipitation, winds, temperature and landscape, and vegetation conditions—future risks will not be uniform throughout the state. For example, if precipitation decreases as temperatures rise, wildfires in Southern California are expected to increase by approximately 30 percent toward the end of the 21st Century. In contrast, precipitation decreases could increase wildfires in Northern California by up to 90 percent.

  Moreover, continued global warming will alter natural ecosystems and biological diversity within the state. For example, alpine and subalpine ecosystems are expected to decline by as much as 60–80 percent by the end of the 21st Century as a result of increasing

temperatures. The productivity of the state's forests is also expected to decrease as a result of global warming.

3.4 GLOBAL, NATIONAL, AND STATE CONTRIBUTIONS TO GREENHOUSE GAS EMISSIONS

3.4.1 Global

Worldwide anthropogenic GHG emissions as of 2006 totaled approximately 29,700 million metric tons of carbon dioxide equivalent ($MMTCO_2e$)[1]. Six countries[2] and the European Community accounted for approximately 70 percent of the total global emissions.

3.4.2 United States

The U.S. was the top producer of GHG emissions as of 2005. Based on GHG emissions in 2005, 6 states—Texas, California, Ohio, Pennsylvania, Florida, and Illinois (in ranked order)—each ranked among the top 25 GHG emitters internationally (WRI 2008). The primary greenhouse gas emitted by human activities in the U.S. was CO_2, representing approximately 85 percent of the total GHG emissions (USEPA 2008). CO_2 from fossil fuel combustion, the largest U.S. GHG emissions source, accounted for approximately 80 percent of U.S.'s GHG emissions (USEPA 2008).

3.4.3 State of California

Based on the 2004 GHG inventory data (the latest year available) compiled by CARB for the California 1990 greenhouse gas emissions inventory, California emitted 484 $MMTCO_2e$, including emissions resulting from out-of-state generation of electricity supplied to California users (CARB 2007).

The primary contributors to California's GHG emissions are transportation; electric power production from both in-state and out-of-state sources; industry; agriculture and forestry; and other sources, which include commercial and residential activities. These primary contributors to California's GHG emissions and their relative contributions are presented in Table 2, GHG Sources in California – 2004 Inventory.

[1] CO_2e emissions are commonly expressed as "metric tons of carbon dioxide equivalent ($MTCO_2e$)". Larger quantities of emissions, such as on the State or world scale, are expressed in million metric tons of carbon dioxide equivalent ($MMTCO_2e$). Metric tons may also be stated as "tonnes". The CO_2e for a gas is derived by multiplying the tons of the gas by the associated global warming potential (GWP), such that $MMTCO_2e$ = (million metric tons of a GHG) x (GWP of the GHG). For example, the GWP for CH_4 is 21. This means that emissions of 1 million metric ton of CH_4 are equivalent to the emissions of 21 million metric tons of CO_2.

[2] The United States, China, Russian Federation, India, Japan, and Germany.

TABLE 2
GHG SOURCES IN CALIFORNIA – 2004 INVENTORY

Source Category	Annual GHG Emissions ($MMTCO_2e$)	Percent of Total	Annual GHG Emissions ($MMTCO_2e$)	Percent of Total
	Includes Imported Electricity		Excludes Imported Electricity	
Agriculture	27.9	5.8	27.9	6.6
Commercial Uses	12.8	2.6	12.8	3.0
Electricity Generation[a]	119.8	24.7	58.5	13.8
Forestry (excluding sinks)	0.2	0.0	0.2	0.0
Industrial Uses	96.2	19.9	96.2	22.7
Residential Uses	29.1	6.0	29.1	6.9
Transportation	182.4	37.7	182.4	43.1
Other[b]	16.0	3.3	16.0	3.8
Totals	**484.4**	**100.0%**	**423.1**	**100.0%**

$MMTCO_2e$: million metric tons of carbon dioxide equivalent

Note: Totals may not add due to rounding

[a] Imported electricity accounts for 61.3 $MMTCO_2e$.
[b] Unspecified combustion and use of ozone-depleting substances.

Source: CARB 2007.

3.4.4 Orange County

Existing GHG emissions for Orange County were calculated for construction sources, mobile sources, natural gas consumption, and electricity generation by the Southern California Association of Governments (SCAG). As shown in Table 3, existing County emissions are estimated to be approximately 30 $MMTCO_2e$/year. It is important to note a few limitations before comparing SCAG regional GHG emissions to the State emissions inventory prepared by CARB. First, 2004 is the latest year for which CARB has estimated State emissions, and SCAG emissions are presented through 2008. However, the comparison provides a reasonable percentage estimate of State emissions that are generated in the SCAG region. Second, the CARB emissions inventory includes emissions estimates from various sources that were not included in the SCAG analysis because every emissions source (e.g., mineral industry, livestock, manure management) that CARB analyzed could not be analyzed for the SCAG region due to methodological and data limitations. As a result, SCAG emissions are an underestimation when compared to the total State emissions.

TABLE 3
GHG SOURCES IN ORANGE COUNTY – 2008

Source Category	Annual GHG Emissions ($MMTCO_2e$)
Construction	0.10
Mobile	13.20
Electricity	7.72
Natural Gas	8.65
Total	**29.67**

$MMTCO_2e$: million metric tons of carbon dioxide equivalent

Source: SCAG 2008.

SECTION 4.0 REGULATORY SETTING AND AIR QUALITY STANDARDS

4.1 FEDERAL

There are no federal laws or regulations governing the emission of greenhouse gases (GHGs). However, the following paragraphs describe current federal activities and related legislation.

On April 17, 2009, the Administrator of the USEPA signed a proposal with two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act (FCAA, USEPA 2009a):

- The Administrator is proposing to find that the current and projected concentrations of the mix of six key greenhouse gases—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the "endangerment finding".

- The Administrator is further proposing to find that the combined emissions of CO_2, CH_4, N_2O, and HFCs from new motor vehicles and motor vehicle engines contribute to the atmospheric concentrations of these key GHGs and hence to the threat of climate change. This is referred to as the cause or contribute finding.

The proposed findings were published in the *Federal Register* for the public comment period, which ended on June 23, 2009. Two public hearings were held in May 2009. The USEPA will consider all comments before issuing final findings. The findings do not include any proposed regulations. Before taking any steps to reduce GHGs under the CAA, the USEPA would conduct an appropriate process and consider stakeholder input.

With respect to legislation, the American Clean Energy and Security Act of 2009 (HR 2454) was passed by the House of Representatives (HR) on June 26, 2009. This proposed law includes but is not limited to a cap-and-trade global warming reduction plan designed to reduce economy-wide greenhouse gas emissions by 17 percent by 2020 and by 83 percent by 2050. Other provisions would (1) require utilities to produce 12 percent of their electricity from renewable resources by 2012; (2) require new buildings to be 30 percent more efficient by 2012; and (3) would provide incentives regarding new carbon capture and sequestration technologies (OpenCongress 2009; Howrey 2009). In September 2009, the Senate began drafting of a similar bill, currently identified as "Kerry-Boxer".

The 2007 Energy Independence and Security Act (HR 6) mandates improved national standards for vehicle fuel economy. These standards, known as Corporate Average Fuel Economy (CAFE) standards, require a fleetwide average of 35 miles per gallon (mpg) to be achieved by 2020. The National Highway Traffic Safety Administration is directed to phase-in requirements to achieve this goal. A CARB analysis suggests that achieving this goal will require an annual improvement in fleetwide average fuel economy of approximately 3.4 percent between 2011 and 2020 (CARB 2008a). Although the explicit purpose of requiring improved national standards for fuel economy was not to address climate change, these requirements would improve the fuel economy of the nation's vehicle fleet and therefore, incrementally lower the amount of fuel use and GHG emissions associated with vehicle trips generated by a proposed Project.

On May 19, 2009, the Obama Administration announced more aggressive CAFE standards applicable to all new cars and trucks sold in the United States. The new standards, covering model years 2012–2016, and ultimately requiring an average fuel economy standard of 35.5 mpg in 2016, are projected to save 1.8 billion barrels of oil over the life of the program with a fuel economy gain averaging more than 5 percent per year and a reduction of approximately

900 million metric tons in GHG emissions (White House 2009). These standards will be implemented through a joint regulation issued by the USEPA and the Department of Transportation's (USDOT's) National Highway Traffic Safety Administration (NHTSA) (USEPA 2009b). An important aspect of the new standards is the agreement among the USEPA, USDOT, and the State of California for a single national CAFE standard.

4.2 STATE OF CALIFORNIA

CARB, a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and State air pollution control programs in California. In this capacity, CARB conducts research, sets the California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, and oversees local programs.

There are numerous State plans, policies, regulations, and laws related to GHGs and global climate change. Following is a brief discussion of some of these plans, policies, and regulations.

4.2.1 Assembly Bill 1493

In 2002, Assembly Bill (AB) 1493 (Pavley) required CARB to develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty truck and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the state". To meet the requirements of AB 1493, CARB approved amendments to the *California Code of Regulations*. Amendments included (1) the addition of GHG emission standards to California's existing motor vehicle emission standards and (2) the requirement that automobile manufacturers meet fleet average GHG emission limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes beginning with the 2009 model year. Emission limits are further reduced each model year through 2016. In order to enact State standards for vehicle emissions, a USEPA waiver was required.

Subsequent to prolonged litigation, the USEPA denied California's waiver request. California filed a petition with the Ninth Circuit Court of Appeals challenging the USEPA's denial on January 2, 2008. The Obama administration subsequently directed the USEPA to re-examine their decision. On May 19, 2009, challenging parties, automakers, the State of California, and the federal government reached an agreement on a series of actions that would resolve these current and potential future disputes over the standards through model year 2016. In summary, the USEPA and the USDOT agreed to adopt a federal program to reduce GHGs and improve fuel economy, respectively, from passenger vehicles in order to achieve equivalent or greater GHG benefits as the AB 1493 regulations for the 2012–2016 model years. Manufacturers agreed to ultimately drop current and forego similar future legal challenges, including challenging a waiver grant, which occurred on June 30, 2009. The State of California committed (1) to revise its standards to allow manufacturers to demonstrate compliance with the fleet-average GHG emission standard by "pooling" California and specified State vehicle sales; (2) to revise its standards for 2012–2016 model year vehicles so that compliance with USEPA-adopted GHG standards would also comply with California's standards; and (3) to revise its standards, as necessary, to allow manufacturers to use emissions data from the federal CAFE program to demonstrate compliance with the AB 1493 regulations (CARB 2009a).

4.2.2 Executive Order S-3-05

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05, which proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce snowpack in the Sierra Nevadas, further exacerbate

California's air quality problems, and potentially cause a rise in sea levels. In an effort to avoid or reduce the impacts of climate change, Executive Order S-3-05 calls for a reduction in GHG emissions to the year 2000 level by 2010, to year 1990 levels by 2020, and to 80 percent below 1990 levels by 2050.

4.2.3 Assembly Bill 32, the California Global Warming Solutions Act of 2006

The California Legislature adopted the public policy position that global warming is "a serious threat to the economic well-being, public health, natural resources, and the environment of California" (*California Health and Safety Code,* Section 38501). Further, the State Legislature has determined that "the potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra Nevada snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious disease, asthma, and other human health-related problems", and that "Global warming will have detrimental effects on some of California's largest industries, including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry. It will also increase the strain on electricity supplies necessary to meet the demand for summer air-conditioning in the hottest parts of the State" (*California Health and Safety Code,* Section 38501). These public policy statements became law with the enactment of AB 32, the California Global Warming Solutions Act of 2006, signed by Governor Arnold Schwarzenegger in September 2006. AB 32 is now codified as *California Health and Safety Code* Sections 38500–38599.

AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction is to be accomplished through an enforceable statewide cap on GHG emissions to be phased in starting in 2012. AB 32 directs CARB to establish this statewide cap based on 1990 GHG emissions levels; to disclose how it arrived at the cap; to institute a schedule to meet the emissions cap; and to develop tracking, reporting, and enforcement mechanisms. Emissions reductions under AB 32 are to include carbon sequestration projects and best management practices that are technologically feasible and cost-effective.

In November 2007, CARB published California's GHG inventory, which compiled statewide anthropogenic GHG emissions and sinks for the years 1990 through 2004. Based on this work, ARB staff recommended an amount of 427 $MMTCO_2e$ as the total statewide greenhouse gas 1990 emissions level and 2020 emissions limit. The Board approved the 2020 limit on December 6, 2007. The 2020 target of 427 $MMTCO_2e$ requires the reduction of 169 $MMTCO_2e$, or approximately 30 percent, from the state's projected 2020 emissions of 596 $MMTCO_2e$ (business-as-usual) and the reduction of 42 $MMTCO_2e$, or almost 10 percent, from 2002-2004 average emissions.

As of October 2009 when this climate change analysis was prepared, CARB had not yet promulgated GHG reporting standards that are directly applicable to any local General Plan program.

4.2.4 Senate Bill 97

Signed August 2007, Senate Bill (SB) 97 directs the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions for evaluation under CEQA by July 1, 2009. The Resources Agency is required to certify or adopt those guidelines by January 1, 2010.

4.2.5 Governor's Office of Planning and Research Technical Advisory

On June 19, 2008, the OPR issued a Technical Advisory on addressing climate change impacts of a proposed project under CEQA (OPR Climate Change Advisory) (OPR 2008). The OPR Climate Change Advisory recommends that lead agencies quantify, determine the significance of, and (as needed) mitigate the cumulative climate change impacts of a proposed project. The OPR Climate Change Advisory identifies that each lead agency is required, under CEQA, to exercise its own discretion in choosing how to determine significance in the absence of adopted thresholds or significance guidelines from the State, CARB, or the applicable local air district.

In April 2009, the OPR transmitted Proposed SB 97 CEQA Guideline Amendments to the California Secretary of Natural Resources (OPR 2009). On July 3, 2009, the Natural Resources Agency (CNRA) commenced the Administrative Procedure Act (APA) rulemaking process for certifying and adopting these amendments. The procedures included two public hearings held in August 2009 and the receiving of public comment through August 27, 2009. Approximately 80 comments were received and reviewed. Resources made changes to the originally proposed amendments and published the revisions for a public review period from October 23, 2009 through November 10, 2009 (CNRA 2009).

The proposed CEQA Guideline Amendments include:

(a) The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

(1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model or methodology it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or

(2) Rely on a qualitative analysis or performance based standards.

(b) A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:

(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

(2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;

(3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable

notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

The amendments would add the following section to the CEQA Initial Study Checklist:

GREENHOUSE GAS EMISSIONS – Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

b) Conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Prior to adoption of the final text, a Final Statement of Reasons will be prepared, and will contain responses to comments made during both of the public comment periods.

4.2.6 CARB Scoping Plan

As discussed previously, AB 32 requires CARB to develop a Scoping Plan to lower the State's GHG emissions to meet the 2020 limit (*California Health and Safety Code,* Sections 38500 et seq.). The Scoping Plan was approved at the December 2008 board meeting. The measures in the CARB-adopted Scoping Plan will be developed and in place by 2012. Key elements of the Scoping Plan include (1) expanding and strengthening existing energy efficiency programs and building and appliance standards; (2) achieving a statewide renewable energy mix of 33 percent; (3) developing a California cap-and-trade program linked with other similar programs; (4) establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets; (5) implementing existing laws and standards such as California's clean car standards (AB 1493), goods movement measures, and the Low Carbon Fuel Standard (LCFS); and (6) issuing targeted fees to fund the State's long-term commitment to AB 32 administration (CARB 2008b).

The Scoping Plan measures are grouped into ten sectors. The Transportation Sector includes, but is not limited to, vehicle emissions standards, the LCFS, tire inflation measures, truck idling standards, and other actions to reduce emissions related to goods movement.

The vehicle emissions standards are identified in the Scoping Plan as Pavley I and Pavley II – Light Duty Vehicle GHG Standards. These are the standards described above under the AB 1493 heading.

On April 23, 2009, CARB approved the LCFS, which has a goal to reduce GHG emissions from California's transportation fuels by 10 percent, equal to 16 $MMTCO_2e$, by 2020. The regulation requires providers, refiners, importers, and blenders to ensure that the fuels they provide for the California market meet an average declining standard of "carbon intensity". This is established by determining the sum of greenhouse gas emissions associated with the production, transportation, and consumption of a fuel, also referred to as the "fuel pathway" (CARB 2009b). The LCFS is undergoing public review; LCFS regulatory action is anticipated in 2010.

4.2.7 Attorney General

The California Attorney General (AG) has filed numerous comment letters with agencies whose analysis under CEQA failed to properly analyze or mitigate a project's potential significant environmental impacts. As part of the AG's efforts to work with agencies as they confront the challenge of addressing global warming in their CEQA documents, the AG publishes a

document with "information that may be helpful to local agencies in carrying out their duties under CEQA as they relate to global warming. Included in this document are various measures that may reduce the global warming related impacts of a project" (DOJ 2008). The AG measures are addressed in Section 6.3 of this analysis.

4.2.8 California Air Pollution Control Officers Association

The California Air Pollution Control Officers Association (CAPCOA) is not a state agency; it is an association of the air pollution control officers from all 35 local air quality agencies throughout California. CAPCOA was formed in 1976 to promote clean air and to provide a forum for sharing of knowledge, experience, and information among the air quality regulatory agencies around the State (CAPCOA 2009a). CAPCOA has been a leader in providing white papers and resource material relative to addressing climate change impacts under CEQA. In June 2009, CAPCOA published *Model Policies for Greenhouse Gases in General Plans, A Resource for Local Government to Incorporate General Plan Policies to Reduce Greenhouse Gas Emissions* (CAPCOA 2009b). The publication emphasizes that it is a resource, not a guidance document. The circulation element opportunities that CAPCOA lists are very similar to those identified by the AG and discussed in Section 6.4 below.

4.3 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Air quality in Orange County is regulated by the South Coast Air Quality Management District (SCAQMD). The SCAQMD is the agency that is principally responsible for comprehensive air pollution control in the SoCAB. To that end, the SCAQMD, a regional agency, works directly with SCAG, County transportation commissions and local governments and also cooperates actively with all federal and State government agencies. The SCAQMD develops rules and regulations; establishes permitting requirements for stationary sources; inspects emissions sources; and enforces such measures through educational programs or fines, when necessary.

Beginning in April 2008, the SCAQMD convened a working group to provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. The Working Group meets approximately once per month. On December 5, 2008, the SCAQMD Governing Board adopted its staff proposal for an interim CEQA GHG significance threshold for industrial projects where the SCAQMD is the lead agency (SCAQMD 2008). SCAQMD uses a tiered approach to determining significance. Tier 1 requires no further action if a project is exempt under CEQA. Tier 2 consists of determining whether or not the project is consistent with a GHG reduction plan that may be part of a local general plan or similar regional plan. The GHG reduction plan must, at a minimum, comply with AB 32 GHG reduction goals; include emissions estimates agreed upon by either CARB or the SCAQMD, have been analyzed under CEQA, and have a certified Final CEQA document. Further, the GHG reduction plan must include a GHG emissions inventory tracking mechanism; a process to monitor progress in achieving GHG emission reduction targets; and a commitment to remedy the excess emissions if GHG reduction goals are not met (enforcement). If the proposed project is consistent with the qualifying local GHG reduction plan, it is not significant for GHG emissions.

Tier 2 may eventually become the principal methodology for project-level GHG analysis, but the completion of most qualifying regional GHG plans is not anticipated in the near future. Therefore, Tier 3 is expected to be the primary tier by which the SCAQMD will determine significance for projects where it is the lead agency, and will recommend as a methodology for lead agencies. Tier 3 establishes a screening significance threshold level to determine significance using a 90 percent emission capture rate approach. A 90 percent emission capture rate means that 90 percent of total emissions from all new or modified stationary source projects would be subject to a CEQA analysis. Projects that are "small" have or would have fewer emissions than the smallest of the group of projects that emit 90 percent of the regional GHG

emissions. Projects with GHG emissions less than the threshold or significance screening level defining small projects are considered to have emissions that are less than cumulatively considerable, and would be less than significant under CEQA. The SCAQMD-adopted interim screening threshold for industrial projects where SCAQMD is the lead agency is 10,000 metric tons of carbon dioxide equivalent per year ($MTCO_2e$/yr).

The SCAQMD Governing Board deferred action on selecting a screening threshold for residential and commercial projects and also deferred approval of proposed Tier 4 performance standards. The Working Group is continuing to develop further recommendations in these areas.

4.4 CITY OF HUNTINGTON BEACH

There are no local statutes, policies or programs related to global climate change that would apply to the proposed project.

SECTION 5.0 EXISTING CONDITIONS

As described in Section 3.0, GHG is a global pollutant. Therefore, local or regional measurements of GHG concentrations at or near ground level are not relevant to the issue. The existing GHG emissions from vehicles within the City of Huntington Beach are described in Section 6.4 below.

SECTION 6.0 CLIMATE CHANGE IMPACTS

6.1 THRESHOLDS OF SIGNIFICANCE

There are no established federal, State, or local significance criteria for global climate change impacts or GHG emissions. It is accepted as very unlikely that any individual project would have GHG emissions of a magnitude to directly impact global climate change; therefore, any impact would be considered on a cumulative basis.

In October 2009, the CNRA issued updated proposed revisions to the CEQA Guidelines. The guidelines would leave the selection of specific significance criteria to lead agencies in a similar manner as occurs for criteria air quality pollutants. As described in Section 4.4.2, the SCAQMD has adopted interim thresholds for industrial projects where the SCAQMD is the lead agency and continues to develop CEQA Guidelines for lead agencies to use in climate change analyses.

For purposes of the CEQA analysis for the proposed Circulation Element Update, and considering the most recent proposed revisions to the CEQA Guidelines, the following significance criteria will be used to analyze impacts to global climate change.

The Project would create a significant cumulative contribution to global climate change if it would:

1. Conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs, or

2. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

6.2 METHODOLOGY

As described in Section 4.2, the June 2008 OPR Technical Advisory encourages lead agencies to analyze GHG emissions in environmental documents and to follow three basic steps: (1) identify and quantify the GHG emissions that could result from a proposed project; (2) analyze the effects of those emissions and determine whether the effect is significant; and (3) identify feasible mitigation measures or alternatives that will reduce the impact to below a level of significance if the impact is significant (OPR 2008). However, the analysis of the proposed update to the Circulation Element differs from a typical project because, in the Circulation Element, the relevance to global climate change is focused on policies that are consistent with State policies and plans. The methodology used is a comparison of the policies with a menu of Circulation Element measures published by the California AG.

The purpose of the Circulation Element is to manage anticipated traffic growth in the most efficient manner. As described in the impact analyses below, the proposed policies would result in technological improvements and transportation mode shifts that would result in reductions of GHG emissions; however these reductions cannot be quantified at the General Plan level. For information purposes, and consistent with the OPR guidance, the quantity of GHG emissions from vehicle travel in the City in 2009 and in 2030 is included in this analysis. The following paragraph describes the calculation methodology.

GHG emissions from vehicle travel in the city were calculated by using the CARB EMission FACtor model, EMFAC 2007, and vehicle miles traveled (VMT) data provided by the project traffic consultant (Austin-Foust 2009b). The EMFAC model is used to calculate emission rates from all motor vehicles (such as passenger cars to heavy-duty trucks) that are operating on highways, freeways, and local roads in California. EMFAC2007 is the most recent version of this model. The model reflects the CARB's current understanding of how vehicles travel and how much they pollute. EMFAC calculates the emission rates of 1965 and newer vehicles powered by gasoline, diesel, or electricity. Emission factors are calculated for criteria air quality pollutants and for the GHGs CO_2 and CH_4 for each vehicle class within each calendar year, for 24 1-hour periods, for each month of the year, for each district, basin, and county in California. EMFAC can report the gram per mile emission rates of a single technology group or the ton per day inventory for the entire 28,000,000 vehicle California fleet. Output data can be obtained as a function of ambient temperature, relative humidity, and speed. Vehicle testing provides basic emission data. Fleet composition is based on vehicle registration data (CARB 2009c). VMT data used to calculate regional emissions is estimated from odometer readings reported in smog testing. Major updates of EMFAC have occurred at three to five year intervals. EMFAC is not currently used as the basis for CARB's official GHG inventory, which is based on fuel usage information. CARB is working towards reconciling the differences between the two methodologies (CARB 2009d).

6.3 CONFLICT WITH APPLICABLE PLANS, POLICIES, AND REGULATIONS

The principal adopted policy for reduction of GHG in California is AB 32. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. The elements of AB 32 defined in the Scoping Plan are classified by sector; the Transportation Sector is the sector related to the proposed Circulation Element Update. The currently defined actions to be taken within the Transportation Sector are to be implemented at the State level, and not by individual cities. The most prominent of these actions are the Light-Duty Vehicle GHG Standards (Pavley) and the LCFS, which are described in Section 4.2 above. Further implementation of some Scoping Measure actions, such as setting regional transportation-related GHG targets, may result in regulations applicable at the local level, but at the present time, actions taken at the Circulation Element level would not directly conflict with AB 32.

Although there are as yet no locally applicable plans, policies, or regulations for GHGs, the California AG has made it very clear through letters to and actions against local agencies, that lead agencies have an obligation under CEQA to address global warming, and to include project measures to reduce GHG emissions. To assist lead agencies, the AG publishes and periodically updates *The California Environmental Quality Act – Addressing Global Warming Impacts at the Local Agency Level* (DOJ 2008). This publication includes a list of project-level measures to reduce GHG emissions and global warming impacts. The publication also addresses actions at the General Plan level with the following comments:

> Global warming measures may be reflected in a general plan as goals, policies, or programs; in land use designations; or as additional mitigation measures identified during the CEQA review process. Many of the (project-level) measures listed above may be appropriate for inclusion in a general plan. In addition, a non-exhaustive list of measures specific to the general plan context follows. The examples are listed under required general plan elements. A given example may, however, be appropriate for inclusion in more than one element.

Table 4 contains the AG's list of Circulation Element measures. For each applicable measure, the right-hand columns of the table compare the relevant policies and programs of the proposed Circulation Element Update.

TABLE 4
COMPARISON CIRCULATION ELEMENT UPDATE POLICIES AND PROGRAMS WITH AG GLOBAL WARMING MEASURES

AG Global Warming Measure	Proposed Circulation Element Update	
Circulation Element	**Policy**	**Implementation Program[a]**
In conjunction with measures that encourage public transit, ride sharing, bicycling and walking, implement circulation improvements that reduce vehicle idling. For example, coordinate controlled intersections so that traffic passes more efficiently through congested areas.	CE 1.7: Use Intelligent Transportation System (ITS) measures to reduce congestion at intersections, as applicable.	CE-13: Traffic Technology. Use appropriate technologies to improve traffic flow and reduce and manage congestion, such as: • Installing and maintaining preemptive emergency signaling devices for each direction at appropriate traffic signal-controlled intersections within the City. • Continuing to implement a traffic signal coordination program to improve traffic flow. • Developing a citywide traffic management center
	CE 7.8: Implement and operate appropriate traffic control devices throughout the community to reduce conflicts between pedestrians, bicycles, and motor vehicles.	CE-2: Accident Monitoring. Monitor recurring accident locations (including vehicle versus vehicle, bicycle and/or pedestrian accidents), and determine necessary recommendations and modifications to the appropriate facilities. This may include the use of advance technologies where appropriate.

TABLE 4 (Continued)
COMPARISON CIRCULATION ELEMENT UPDATE POLICIES AND PROGRAMS WITH AG GLOBAL WARMING MEASURES

AG Global Warming Measure	Proposed Circulation Element Update	
Circulation Element	**Policy**	**Implementation Program[a]**
Create an interconnected transportation system that allows a shift in travel from private passenger vehicles to alternative modes, including public transit, ride sharing, car sharing, bicycling and walking. Before funding transportation improvements that increase vehicle miles traveled, consider alternatives such as increasing public transit or improving bicycle or pedestrian travel routes.	CE 7.1: Coordinate the planning of equestrian, bicycle, bus and pedestrian routes and facilities to promote an interconnected system.	CE-6: Bikeway Plan: Implement and update Huntington Beach's Bikeway Plan[b] to plan and prioritize facilities for both recreational cyclists and commuters.
Give funding preference to investment in public transit over investment in infrastructure for private automobile traffic.	Not addressed	Not addressed
Include safe and convenient bicycle and pedestrian access in all transportation improvement projects.	CE 7.4: Encourage the use of easements and/or rights-of-way along flood control channels, public utilities, railroads, and streets, for use by bicyclists and/or pedestrians, where safe and appropriate. And CE 7.5: Maintain existing pedestrian and bicycle facilities, and require developers to provide pedestrian walkways and/or bicycle pathways between new residences and schools, parks, and public facilities.	CE-19: Alternative Transportation Mode Design Features Require new development to incorporate transit-oriented design features and attractive, accessible, and appropriate transit, bicycle, equestrian, and pedestrian amenities to promote and support public transit and alternate modes of transportation, including but not limited to: • Requiring bus turn-outs and shaded bus stops where appropriate. • Requiring new development to provide convenient and well-lit pedestrian facilities consistent with applicable standards. • Requiring that all new bicycle trip destinations, including schools, shopping areas, and transit stops be equipped with bicycle racks and/or bicycle lockers. • Continue to allow equestrian access to the beach. • Encouraging developments to incorporate easements and/or rights of way along flood control channels, public utilities, railroads and streets for the use of bicyclists and/or pedestrians.

TABLE 4 (Continued)
COMPARISON CIRCULATION ELEMENT UPDATE POLICIES AND PROGRAMS WITH AG GLOBAL WARMING MEASURES

AG Global Warming Measure	Proposed Circulation Element Update	
Circulation Element	**Policy**	**Implementation Program[a]**
Ensure that non-motorized transportation systems are complete, connected and not interrupted by impassable barriers, such as freeways.	See CE 7.1 above, plus CE 7.2: Coordinate with neighboring jurisdictions to ensure that bicycle routes within the City connect to and are consistent with routes in adjacent jurisdictions.	See CE-6 above, plus CE-28: Orange County Transportation Authority Work with the Orange County Transportation Authority (OCTA) to achieve the following: Support and implement the OCTA Commuter Bikeways Strategic Plan and participate in future updates and revisions to the Plan. Review, every five years, the Orange County Master Plan of Bikeways to assure consistency. Update Huntington Beach's Bike Plan, as appropriate.
Require amenities for non-motorized transportation, such as secure and convenient bicycle parking.	See CE 7.5 above, plus CE 7.10: Ensure that bicycle and pedestrian facilities within the City comply with accessibility provisions of the Americans with Disabilities Act (ADA).	See CE-6 and CE-19 above.
Provide adequate and affordable public transportation choices including expanded bus routes and service and other transit choices such as shuttles, light rail, and rail where feasible.	CE 4.1: Encourage and support the various public transit agencies and companies, ride-sharing programs, and other incentive programs that provide forms of transportation other than the private automobile. CE 4.3: Explore the possibility of locating a transportation center in or near Downtown. CE 4.4: Pursue an urban transit system that serves Huntington Beach. CE 4.5: Maintain a system of transit and para-transit services that assist seniors and persons with disabilities.	CE-14: Transit Encourage and support development of convenient and attractive transit facilities in addition to the Goldenwest Transportation Center. Support efforts to make both new and existing facilities available and accessible to the disabled and seniors. CE-28: Orange County Transportation Authority Work with the Orange County Transportation Authority (OCTA) to achieve the following: Expand and improve bus service within the City. • Encourage provision of attractive and appropriate transit amenities, including shaded bus stops. • Provide special transit services (such as direct shuttle or dial-a-ride services). • Plan and implement an urban rail system that links the City to central Orange County and Los Angeles County. • Invest in and pursue the development of a transportation center in the coastal area.

TABLE 4 (Continued)
COMPARISON CIRCULATION ELEMENT UPDATE POLICIES AND PROGRAMS WITH AG GLOBAL WARMING MEASURES

AG Global Warming Measure	Proposed Circulation Element Update	
Circulation Element	**Policy**	**Implementation Program[a]**
Assess transportation impact fees on new development in order to maintain and increase public transit service.		
Provide public transit incentives, including free and reduced fare areas.	See CE 4.1 thru CE 4.5, above.	
Adopt a comprehensive parking policy that discourages private vehicle use and encourages the use of alternative transportation. For example, reduce parking for private vehicles while increasing options for alternative transportation; eliminate minimum parking requirements for new buildings; "unbundle" parking (require that parking is paid for separately and is not included in rent for residential or commercial space); and set appropriate pricing for parking.	CE 5.1: Require developers to incorporate design features that reduce air pollution from motor vehicles, such as transit facilities and park-and-ride sites; bus benches, shelters, pads, or turnouts; bicycle racks and lockers; and preferred parking for ride sharers. CE 6: Ensure that . . . the City's parking policies support reduced reliance on personal auto use	See CE-19 above, plus CE-21: Transportation Demand Management and Air Quality Require new employers to comply with the City's Transportation Demand Management (TDM) Ordinance and the Air Quality Element of the General Plan. (The TDM Ordinance includes: employers with 100 or more employees are required to support alternative forms of transportation by providing appropriate facilities, including showers and lockers, parking for vanpools, bicycle parking, and passenger loading areas.)
Develop school transit plans to substantially reduce automobile trips to, and congestion surrounding, schools. (According to some estimates, parents driving their children to school account for 20-25% of the morning commute.) Plans may address, *e.g.*, necessary infrastructure improvements and potential funding sources; replacing older diesel buses with low or zero-emission vehicles; mitigation fees to expand school bus service; and Safe Routes to School programs and other formal efforts to increase walking and biking by students.	Not addressed in a policy.	See CE-19 above, plus CE-15: Pedestrian Facilities and Enhancement Zones Maintain existing pedestrian facilities and require new development to provide accessible pedestrian walkways between developments, schools, and public facilities. Prepare and maintain a Pedestrian Facilities Technical Administrative Report describing the location and proposed improvements in enhancement zones and other pedestrian facility related analyses. Such improvements may include wider sidewalks, enhanced or new crosswalks, trees, pedestrian-scale lighting, or traffic-calming measures. All improvements shall comply with ADA accessibility standards.
Create financing programs for the purchase or lease of vehicles used in employer ride sharing programs.	Not addressed.	Not addressed.

TABLE 4 (Continued)
COMPARISON CIRCULATION ELEMENT UPDATE POLICIES AND PROGRAMS WITH AG GLOBAL WARMING MEASURES

AG Global Warming Measure	Proposed Circulation Element Update	
Circulation Element	**Policy**	**Implementation Program[a]**
Enter into partnerships to create and expand polluting vehicle buy-back programs to include vehicles with high greenhouse gas emissions.	Not addressed.	Not addressed.
Provide public education and information about options for reducing motor vehicle-related greenhouse gas emissions. Include information on trip reduction; trip linking; public transit; biking and walking; vehicle performance and efficiency (*e.g.*, keeping tires inflated); low or zero-emission vehicles; and car and ride sharing.	CE 5.3: Require businesses to provide employee incentives for using alternatives to the conventional automobile, including carpools, vanpools, buses, bicycles, walking, and telecommuting. CE 5.4: Support the efforts of businesses to use transportation management techniques such as flex-time, staggered working hours and other means to lessen commuter traffic during peak hours. CE 5.5: Support the promotion of ride sharing through publicity and public education.	CE-35: Transportation Management Outreach Promote, publicize, and encourage the use of transportation management strategies that will aid in meeting SCAQMD mandates and guidelines, including: • Use of low emission and alternative fuel vehicles within the City, including neighborhood electric vehicles (NEVs). • Use of carpools, vanpools, walking, and multioccupancy programs for midday uses. • Employers creating Commuter Rideshare Matching Services or databases containing employees' zip codes and commuting preferences to be provided to interested participants. • Employers participating in Guaranteed Ride Home programs that provide a rides home to employees. • Employers using flex time, staggered working hours, and other means to reduce commuter traffic during peak hours. • Creating NEV roadway systems and encouraging electrical vehicle charging stations. • Participate with SCAG in the creation of a Sustainable Communities Strategy per SB 375

[a] Limited to the parts of the implementation program that relate to the corresponding policy.
[b] The Proposed Circulation Element Update includes a City Bikeway Plan with an interconnected network of Class I, II, and III bike lanes.

Source: Huntington Beach 2009b.

The proposed Huntington Beach Circulation Element Update would contribute to the reduction of future GHG emissions in the following aspects:

- ***Vehicle Technology.*** Policy CE 5.2 and Implementation Measure CE-35 would encourage and support the use of low-emission vehicles within the City. GHG emissions would be reduced through advanced vehicle technology that would improve the energy efficiency (i.e., miles per gallon) or emission efficiency (i.e., grams of CO_2e per VMT) of the vehicle fleet.

- ***Fuel Technology.*** Policy CE 5.2 and Implementation Measure CE-35 would encourage and support the use of alternative fuel vehicles within the City. GHG emissions would be reduced by the use of vehicles fueled by natural gas, biofuels, hydrogen fuel cells, and other low-carbon fuels.

- ***Travel Activity.*** A number of policies and implementation measures described in Table 4 encourage the use of public transit, bicycles, and pedestrian transportation as an alternate to vehicle travel. There are additional policies that encourage carpool and ride-share as an alternative to single occupancy driving. Development of these alternative modes of transportation would reduce VMT and corresponding GHG emissions.

- ***Vehicle and System Operations.*** Policies CE 1.7 and CE 2.2 and Implementation Measures CE-11, CE-12, and CE-13 would improve the efficiency of the transportation network so that a larger share of vehicle operations occur in favorable conditions, with respect to speed and smoothness of traffic flow, resulting in more fuel efficient vehicle operations and a reduction in GHG emissions.

6.4 GHG EMISSIONS

The proposed update to the Circulation Element is designed to accommodate long range traffic volumes to minimize congestion problems on an existing streets and highway network, and would not generate any new stationary or mobile sources of GHG pollutant emissions. Therefore, the calculation of GHG is based upon the forecast of total daily VMT in the City. Mobile source emissions were calculated for the existing conditions, the current Circulation Element, and the proposed Project. Although traffic volumes will increase and a system to manage traffic more efficiently will be implemented, the speeds on most roadways are, and will continue to be, governed by posted speed limits. For purposes of calculation, it was assumed that the average traffic speed for all vehicles in 2009 and in 2030 is 35 miles per hour. The VMT data and the estimated emissions are shown in Table 5.

TABLE 5
ESTIMATED ANNUAL GHG EMISSIONS FROM VEHICLES IN THE CITY OF HUNTINGTON BEACH

Scenario	Daily VMT in Huntington Beach	GHG Emissions ($MTCO_2e$/yr)
Existing Conditions – 2009	2,735,124	437,061
Proposed Circulation Element – 2030	3,302,762	536,421
Increase: Proposed Circulation Element less Existing	***567,638***	***99,360***
Current General Plan – 2030	3,353,350	544,637
Decrease: Proposed Circulation Element less Current Circulation Element	***-50,588***	***-8,216***

VMT: vehicle miles traveled; $MTCO_2e$/yr: metric tons of carbon dioxide equivalent per year.
Source: Austin-Foust 2009b (VMT data).

As shown in Table 5, the daily VMT in the City of Huntington Beach is forecasted to increase by more than 22 percent between 2009 and 2030. In that same period, GHG emissions would increase by 99,360 $MTCO_2e$ per year, approximately 25 percent, because the CO_2 emission factor in the EMFAC model is forecasted to increase by approximately 2 percent between 2009 and 2030. The data in Table 5 also show that, with implementation of the proposed Circulation Element Update, the forecasted VMT in the City would be approximately two percent less than with the existing Circulation Element, and GHG emissions would be less by the same percentage.

It is assumed that the 2030 GHG emission data derived from EMFAC emission factors and shown in Table 5 are overestimates because the EMFAC 2007 model does not currently project the changes in CO_2 emissions that will occur once CAFE and LCFS regulations are implemented.

The proposed CEQA Guidelines state that a lead agency should consider "The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting". The data indicate that there would be a substantial increase in vehicle GHG emissions in the City between 2009 and 2030, that the increase would be due to the anticipated increases in VMT and CO_2 emission factors, and that these increases would occur regardless of the proposed Circulation Element Update. Therefore, the proposed Project would not generate GHG emissions, either directly or indirectly, that would have a significant impact on the environment.

6.5 DETERMINATION OF SIGNIFICANCE

As discussed in Section 6.3 and Table 4, the proposed Project would support many of the General Plan Circulation Element measures recommended by the California Attorney General to reduce GHG emissions and would not conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.

As shown in Table 5 (see Section 6.4) and the accompanying discussion, the proposed Project, which does not involve changes in land use assumptions, would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

Therefore, the Project impact to global climate change would be less than significant.

SECTION 7.0 MITIGATION MEASURES

No mitigation measures are required.

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SECTION 9.0 LIST OF ACRONYMS AND SYMBOLS

A

AB	Assembly Bill
ADA	Americans with Disabilities Act
AG	Attorney General (California)
APA	Administrative Procedure Act

C

C	Celsius
C_2F_6	Hexafluorethane
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCAR	California Climate Action Registry
City	City of Huntington Beach
CF_4	Tetrafluoromethane
CH_4	methane
CNRA	California Natural Resources Agency
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent

F

F	Fahrenheit
FCAA	Federal Clean Air Act

G

GHG	greenhouse gas
GWP	global warming potential

H

HFCs	hydrofluorocarbons
HR	House of Representatives
HRA	Health Risk Assessment

I

ISCST3	Industrial Source Complex, Short Term Version 3
ITS	Intelligent Transportation System

L

LCFS	Low Carbon Fuel Standard

M

$MMTCO_2e$	million metric tonnes of carbon dioxide equivalent
$MTCO_2e$	metric tonnes of carbon dioxide equivalent
$MTCO_2e/yr$	metric tonnes of carbon dioxide equivalent per year
mpg	miles per gallon

N

N_2O	Nitrous oxide
NEV	neighborhood electric vehicle
NF_3	Nitrogen Trifluoride

O

O_3	ozone
OCTA	Orange County Transportation Agency
OPR	California Governor's Office of Planning and Research

P

PFCs	perfluorcarbons

S

SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SF_6	sulfur hexafluroide
SoCAB	South Coast Air Basin

T

TAC	Toxic Air Contaminant
TDM	Transportation Demand Management
T-BACT	best available control technology for toxics

U

USDOT	U.S. Department of Transporation

V

VMT	vehicle miles traveled

Symbols

$\mu g/m^3$	micrograms per cubic meter

Scenario	Daily VMT	CO2	CH4		CO2e			CO2e
35 mph	2009 emfac	396.752	0.026	gram/mile				
	2030 emfac	403.589	0.009					
					21			
2009	2735124	436516	29	tpy	437061	MTCO2e/yr		
Current CE	3353350	544406	12		544637		curr/2009	1.246
Proposed CE	3302762	536193	12		536421		prop/curr	0.98
Proj less Exist	567,638				99,359			
update less curr	-50,588				-8,216			
		OC mobile	13.2	MMT				CO2 factor 2030/2009
			13200000	MT				1.017232
		2009 HB	437061	MT				VMT factor
			3.31	percent				1.226
								combine
								1.24716

HUNTINGTON BEACH CIRCULATION ELEMENT UPDATE

Greenhouse Gas Emissions

Scenario	Daily VMT in Huntington Beach	GHG Emissions - tons per year[1]		GHG Emissions - metric tons per year
		CO2	CH4	CO2e
Existing Conditions - 2009	2735124	436516	28.6	437061
Proposed Circulation Element - 2030	3302762	536193	12.0	536421
Increase: Proposed CE less Existing	567638			99360
Current General Plan - 2030	3353350	544406	12.1	544637
Decrease: Proposed CE less Current General Plan	-50588			-8216

VMT- vehicle miles traveled; CO2 - carbon dioxide; CH4 - methane; CO2e - carbon dioxide equivalent

1 - CO2 and CH4 emissions = VMT x Emission Factor /454 x 365.25/2000; 2 - CO2e emissions = (CO2 emissions + (CH4 emissions x GWP)) x 0.907; GWP = global warming potential for CH4 = 21

EMFAC 2007 Emission Factors

Scenario	Year	CO2	CH4
		grams per mile	
35 mph	2009	396.752	0.026
35 mph	2030	403.589	0.009

Scenario	Daily VMT	CO2	CH4		CO2e			CO2e
35 mph	2009 emfac	396.752	0.026	gram/mile				
	2030 emfac	250	0.009					
					21			
2009	2735124	436516	29	tpy	437061	MTCO2e/yr		
Current CE	3353350	337228	12		337459		curr/2009	0.772
Proposed CE	3302762	332140	12		332368		prop/curr	0.98
Proj less Exist	567,638				-104,693			
update less curr	-50,588				-5,091			
		OC mobile	13.2	MMT				CO2 factor 2030/2009
			13200000	MT				0.630117
		2009 HB	437061	MT				VMT factor
			3.31	percent				1.226
								combine
								0.772543

Appendix F Traffic Study

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City of Huntington Beach

GENERAL PLAN CIRCULATION ELEMENT UPDATE

Traffic Study

June 2012

AUSTIN-FOUST ASSOCIATES, INC.

City of Huntington Beach

GENERAL PLAN CIRCULATION ELEMENT UPDATE
Traffic Study

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June 1, 2012

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EXECUTIVE SUMMARY

This report presents the results of a citywide traffic study carried out for the City of Huntington Beach. The information has been prepared in support of updating the General Plan Circulation Element.

OVERVIEW

This citywide traffic study has been prepared to provide technical information for updating the General Plan Circulation Element. It has involved three major work tasks:

1. Development of a citywide traffic forecasting model
2. Preparing long-range traffic forecasts for the city's arterial highway plan
3. Evaluating potential changes to the existing Circulation Element

The technical work has focused on the arterial highway plan of the Circulation Element, and has resulted in recommended changes to the Element. Features of the work effort are as follows:

Citywide Traffic Model - The first part of this work effort involved creating a citywide traffic model from the Orange County Transportation Analysis Model (OCTAM), consistent with the subarea modeling guidelines established by the Orange County Transportation Authority (OCTA). Referred to as the Huntington Beach Traffic Model (HBTM), it was certified by the OCTA in June 2009. The model produces average daily traffic (ADT) forecasts for the roadway system and peak hour forecasts for major intersections and freeway ramps.

Traffic Forecasts - The traffic forecasts provided by the HBTM represent a 2030 time frame, and land use data based on the General Plan Land Use Element has been used as the basis for the forecasts. The results thereby show future transportation system needs in relation to future land use projections.

Circulation Element - The third part of the traffic study work effort involved evaluating the existing Circulation Element and formulating potential changes. Improvements needed to the arterial highway plan to serve the 2030 traffic demand were identified, and these together with the proposed street classification system represent the roadway component of the updated Circulation Element.

PROPOSED CHANGES TO THE EXISTING CIRCULATION ELEMENT

The roadway component of the updated Circulation Element contains two major proposals for changing the existing Element:

1. **Performance Criteria** – Changes are recommended for the procedures under which the performance of the roadway system is evaluated.

2. **Roadway Classifications** – Changes are recommended for the arterial roadway functional classification system, and to the classifications for individual roadway segments.

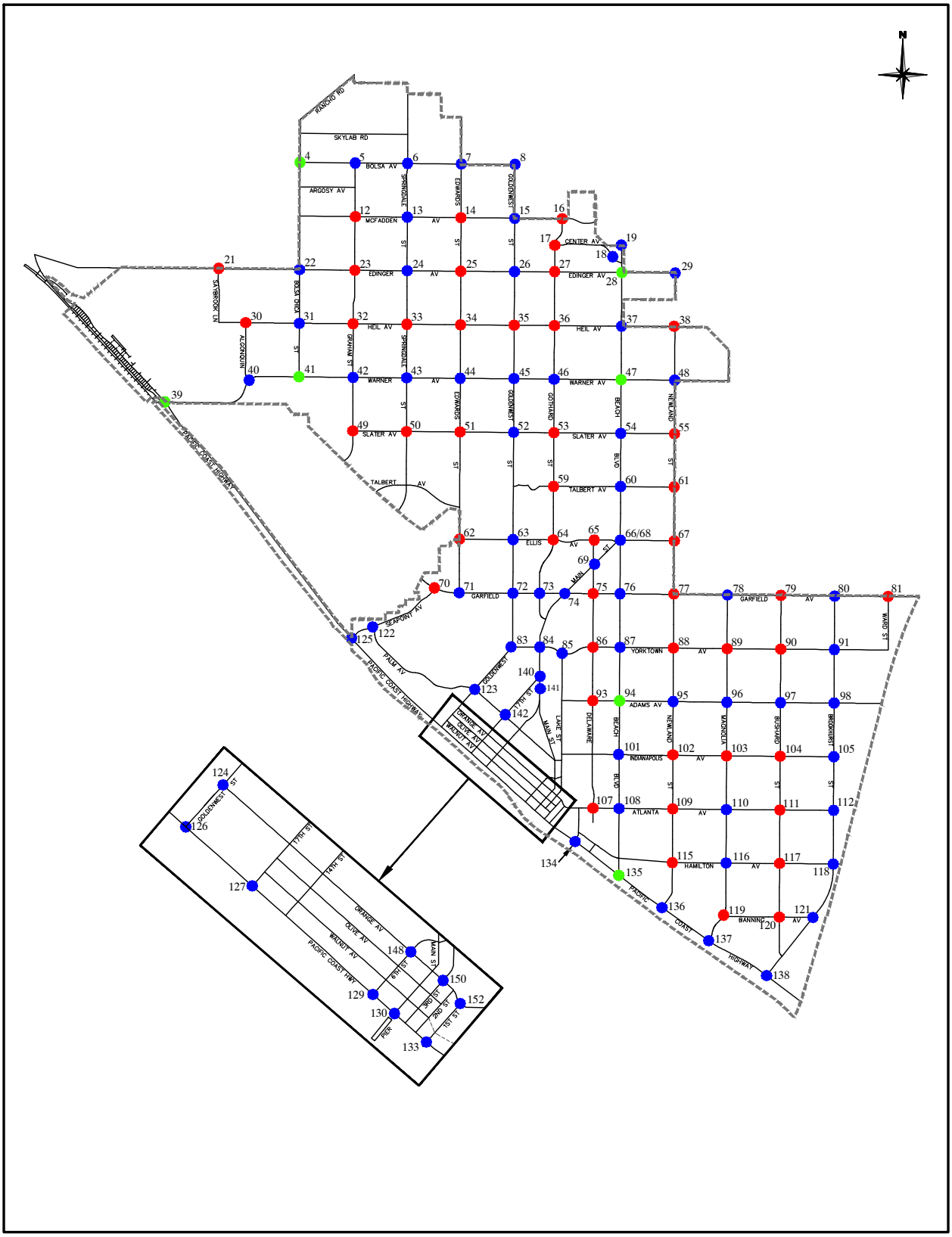
These proposed changes, together with a discussion of proposed intersection designations, are summarized in the sections that follow.

Principal and Secondary Intersections

It is proposed that the General Plan Circulation Element include a reference to a set of "Principal Intersections" and "Secondary Intersections". Together, these determine the overall performance of the city's roadway system, and are thereby considered to have strategic importance within the overall Highway Plan. The intent is that these intersections be regularly monitored and that priority be given to them when implementing roadway improvements. Also, as noted in the Performance Criteria discussion in Chapter 1.0, different level of service (LOS) thresholds are applied to each.

One further proposed intersection definition is "Critical Intersection". This is for isolated cases where the long-range level of service is projected to be worse than the desired threshold and no feasible improvements can be identified. The intent is that such locations be monitored over time.

The currently proposed Principal and Secondary Intersections are identified in Figure ES-1. Changes to this initial set may occur over time, and such changes are intended to be undertaken as an administrative function rather than as a General Plan Amendment. It should be noted that seven intersections in the City are designated Congestion Management Program (CMP) locations, and as such are subject to specific requirements of the CMP Program.



Legend

- CMP intersection (LOS E)
- Principal intersection
- Secondary intersection

Figure ES-1

PROPOSED INTERSECTION DESIGNATIONS

Performance Criteria

The City currently uses two types of performance criteria for assessing roadway level of service (LOS). The first is based on average daily traffic (ADT) link volumes and is described in the current General Plan. The second is based on peak hour intersection volumes and is used by the City in traffic impact studies. Hence, the first dates back to the 1996 General Plan and is applied largely in a General Plan context. The second recognizes the more rigorous requirements of the California Environmental Quality Act (CEQA), and is the more realistic measure of arterial system performance. It is also used by Caltrans and by all local jurisdictions in Orange County, since it is a requirement of both the countywide Growth Management Plan (GMP) and the CMP.

It is proposed that only the intersection criteria be used in the updated Circulation Element. Several reasons for this are as follows:

1. The ADT link-based methodology seldom provides a realistic measure of system performance. It dates back to a time when forecasting tools and analysis procedures were less refined than they are today, and when in many cases, ADT volumes were the only information available.

2. Erroneous conclusions can be reached from ADT results. An adverse level of service (LOS) may suggest that a roadway needs to be widened while in actuality improving one or both of the intersections at the ends of the link will ensure satisfactory performance. Conversely, an acceptable LOS may hide the fact that intersection improvements are needed.

The few jurisdictions that have not yet eliminated the link criteria use both links and intersections for evaluation purposes, and when a link is deficient, they simply refer to the intersection performance. Essentially, there is recognition that link performance does not provide the necessary information for evaluating system performance. The only exception is for long uninterrupted stretches of roadway where maximum flow per lane tends to determine how much traffic can reasonably be carried. In such cases, peak hour flow by direction is used to measure LOS.

Accordingly, the recommendation is for intersection performance to be the primary criteria and that link-based performance be used only in specially designated locations using appropriate criteria based on peak hour volumes. An example would be sections of Pacific Coast Highway without

signalized intersections, recognizing that this is a Caltrans facility with its own specific performance criteria.

Roadway Classifications

The Arterial Highway Plan in the Circulation Element is defined using a hierarchy of arterial roadway classifications. Each classification is described by size and function, and has specific physical dimensions, particularly with respect to the number of lanes.

The proposed Arterial Highway Plan refines the classification system in the existing Circulation Element. The intent is to create a more "customized" approach to street classifications, allowing the unique character of different roadways in different parts of the city to be represented. These classifications are listed in Table ES-1 (see Chapter 3.0 for conceptual cross-sections). The following are brief descriptions of each classification.

Smart Street Arterial

Smart Street Arterials are six- to eight-lane roadways with enhanced capacity compared to a standard arterial street. Beach Boulevard is designated as a Smart Street Arterial within the city. Beach Boulevard (SR-39), along with Pacific Coast Highway (SR-1), is under Caltrans' jurisdiction.

Traffic-carrying capacities of Smart Streets can range from 60,000 to 79,000 vehicles per day, depending on the number of lanes, degree of access control, peak-period loading, and configurations of major intersections. Smart Streets are designated by the OCTA as important regional routes and improved with Measure M funds to increase traffic capacity and flow through such techniques as signal synchronization, bus turnouts, intersection improvements, driveway consolidations, and prohibition of on-street parking.

Principal Arterials

Principal Arterials act as main thoroughfares and provide access to major activity centers and the regional freeway system. Principal Arterials are typically eight-lane roadways featuring raised or striped medians. Desirable minimum spacing for street intersections along a Principal Arterial is approximately

Table ES-1

ROADWAY CLASSIFICATIONS

Standard Roadway Classification	Functional Classification	Definition	Minimum Width (ROW Pavement)*	Configuration	Representative Maximum ADT**
Smart Street Arterial	6/8-Lane Boulevard	Roadways carrying high volumes of regional and local traffic. Priority is given to through traffic flow, and access is generally limited to signalized intersections.	Variable ROW (120' – 144')	6/8 lanes with raised or painted median and additional turn lanes at intersections	79,000
Principal Arterial	8-Lane Boulevard	Main thoroughfares providing access to major activity centers and the regional freeway system. Direct access to adjacent properties is discouraged, except at signalized intersections.	120'/104'	8 lanes with raised or painted median and additional turn lanes at intersections	65,000
Major Arterial	6-Lane Arterial	Roadways acting as main thoroughfares and providing access to major activity centers and to the regional freeway system. Only limited access is provided, typically to commercial properties and not to residential properties.	120'/ 104'	6 lanes with raised or painted median and additional turn lanes at intersections	50,000
Primary Arterial	4-Lane Arterial	Roadways intended to carry traffic between local streets and Smart Street or Major Arterials. They are similar to Major Arterials, with only limited access to adjacent properties.	100' / 84'	4 lanes divided, with turn lanes as needed	35,000
	Augmented 4-Lane Arterial	Similar to a Primary Arterial, but with painted median. Access is less limited than for a 4-lane Arterial because of the painted median.	100' / 84'	4 lanes with painted median. Median width may vary, and in some sections may allow	35,000

Table ES-1 (cont)
ROADWAY CLASSIFICATIONS

Standard Roadway Classification	Functional Classification	Definition	Minimum Width (ROW Pavement)*	Configuration	Representative Maximum ADT**
Secondary Arterial	4-lane Arterial	Roadways intended to carry traffic between Local streets and Major or Primary Arterials. They are similar to Primary Arterials, with only limited access to adjacent properties.	80’ / 64’	4 lanes undivided, with turn lanes as needed	25,000
	Augmented 4-lane Arterial	Similar to a Secondary Arterial, but with painted median. Access is less limited than for a 4-lane Arterial because of the painted median.	80’ / 64’	4 lanes undivided, with turn lanes as needed	25,000
Collector Arterial	2-lane Roadway	Roadways providing property access and linking properties to Secondary, Major, and Primary Arterials.	Varies	2 lanes undivided	12,500

* ROW – Right-of-way including pavement and parkway (values are recommended for future Engineering Services Department standards).

** Used as a general guideline only. Actual roadway performance is determined from peak hour intersection volumes.

one-quarter mile. Unsignalized minor street and driveway access may be allowed, but signalized access is preferred and left-turn restrictions are typically planned at unsignalized access locations.

Curbside parking is prohibited. Traffic carrying capacities of 65,000± vehicles per day can be achieved depending on the degree of access control, peak-period loadings, and lane configurations at major intersections.

While the City does not currently have any Principal Arterials, this classification is part of the County Master Plan of Arterial Highways and could be used for later reclassifications if appropriate.

Major Arterials

Major Arterials provide high-capacity roadways. Major Arterials are six-lane roadways with painted or raised landscaped medians. Left-turn restrictions at minor unsignalized driveways enhance vehicle flow.

Curbside parking is usually not appropriate along some of the more heavily traveled Major Arterial street segments within the city. Maximum service volumes of +/- 50,000 vehicles per day (vpd) can be achieved, depending on the degree of access control, intersection operations and peak-period loadings.

Primary Arterials

Primary Arterials are four-lane divided roadways carrying local and regional commuter traffic. Unsignalized minor street and driveway access may be allowed, but signalized access is preferred and left-turn restrictions are typically planned at unsignalized access locations.

Curbside parking is prohibited. Maximum service volumes of +/- 35,000 vpd can be achieved depending on the degree of access control, peak-period loadings and lane configurations at the major intersections.

Secondary Arterials

Secondary Arterials are four-lane roadways without medians. Direct access from private residential properties to Secondary Arterials should be avoided wherever possible unless medians can be provided at such access points.

While Secondary Arterials have curbside parking, localized circumstances could warrant parking restrictions, such as prohibiting parking near intersections where left-turn lane striping is provided. In some locations, Secondary Arterials may include a limited median or be restriped to provide a left-turn pocket. Maximum service volumes of +/- 25,000 vpd can be achieved depending on the degree of access allowed, intersection operations and peak-period traffic loadings.

Collector Arterials

Collector Arterials provide access to local streets from the arterial roadway network. Collectors are typically two-lane roadways that sometimes feature painted medians for left-turn movements.

Collectors allow curbside parking. Parking should be restricted near intersection approaches where a separate right-turn lane is provided. Maximum service volumes of +/- 12,500 vpd can be achieved depending on the degree of access control and peak-period traffic loadings.

Local Streets

Local streets are two-lane roadways without medians. Centerline striping is typically not provided, and curbside parking is allowed. Traffic carrying capacity is physically similar to a Collector, however, the qualitative limit of acceptable traffic volumes in a residential environment is lower (less than 5,000 vpd). Local streets are not shown on the Arterial Highway Plan.

Augmented Roadways

The "Augmented" qualifier for Primary and Secondary arterials provides flexibility for customizing sections of roadway while retaining the basic qualities of the classification such as the number of lanes. Whether for aesthetic or capacity reasons, the intent is to allow these four-lane arterials

to be compatible with their localized settings, providing a "context-sensitive" approach to the actual design parameters. Examples include the type and size of medians, and the size and use of parkways.

BEACH-EDINGER CORRIDOR SPECIFIC PLAN (BECSP)

The sections of Beach Boulevard and Edinger Avenue that fall within the BECSP area have cross-sections that are unique to the Specific Plan and which allow for deviation from the standard cross-sections described above.

PROPOSED ARTERIAL HIGHWAY PLAN

Figure ES-2 shows the proposed arterial roadway component of the Circulation Element (the Arterial Highway Plan). Illustrated here by color and by line width are the recommended functional classifications. Future traffic volumes are estimated for this Arterial Highway Plan to show its ability to serve the future traffic demands created by buildout of the General Plan Land Use Element and are presented in Chapter 4.0 of this report.

It should be noted that no specific classifications have been given to the two State Highways within the overall Arterial Highway Plan. Since the City does not have jurisdiction over those roadways, their classifications are not included in the Circulation Element. They are, however, part of the countywide highway system and are included in any traffic analyses carried out by the City, including this study for the Circulation Element update.

MASTER PLAN OF ARTERIAL HIGHWAYS

The OCTA administers the County Master Plan of Arterial Highways (MPAH). The MPAH defines the long-range highway system for the County. Local jurisdictions are required to have consistency between the Circulation Element and the MPAH. Changes to the MPAH can be requested, and are subject to a set of guidelines for the requisite technical studies and administrative actions.

The proposed Arterial Highway Plan will require amendments to the MPAH. These are illustrated in Figure ES-3. Several roadways are recommended for deletion from the MPAH while others are recommended for downgrading to a lower classification. The following eight MPAH deletions are for roadways not yet built:

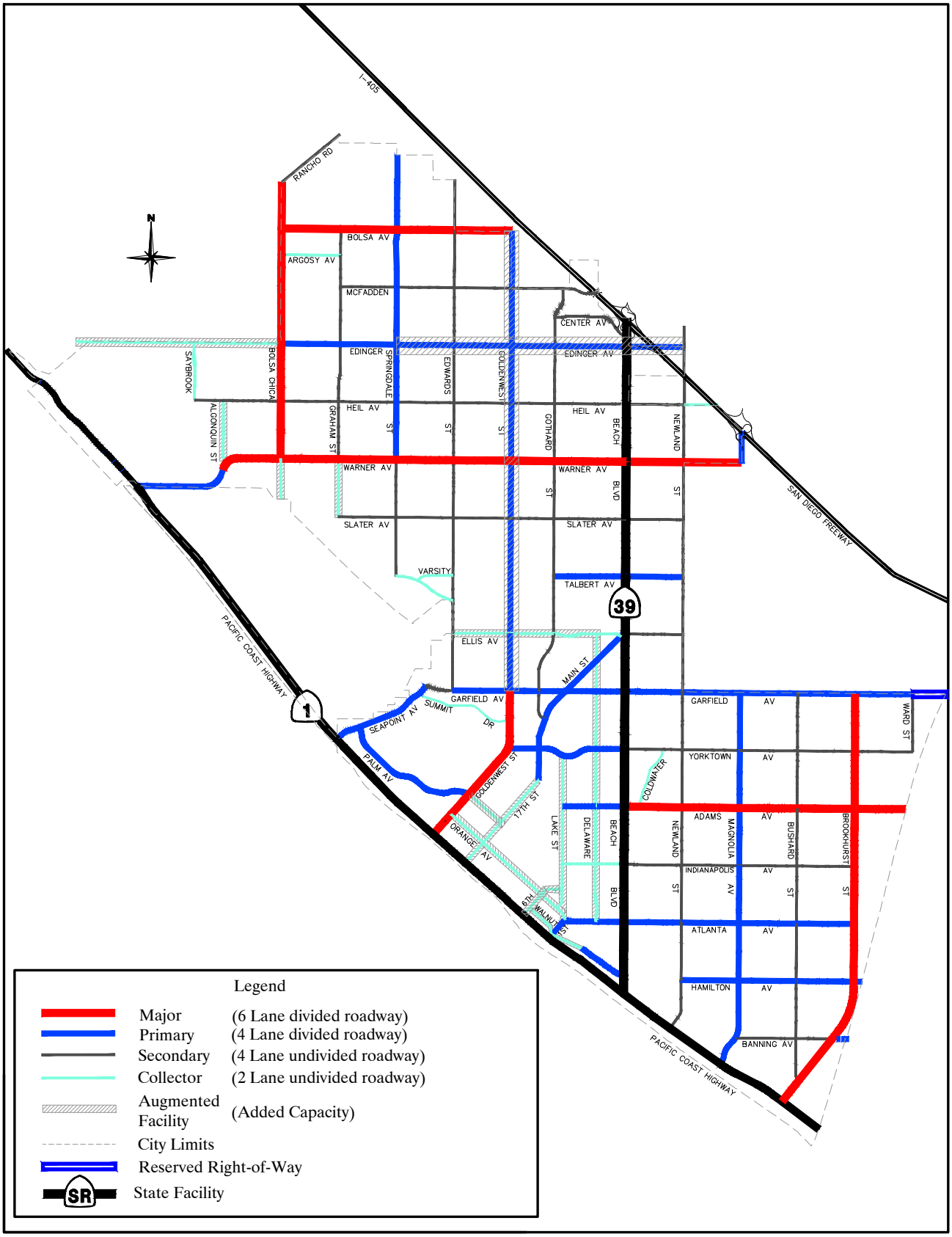


Figure ES-2

PROPOSED CIRCULATION ELEMENT
HIGHWAY COMPONENT

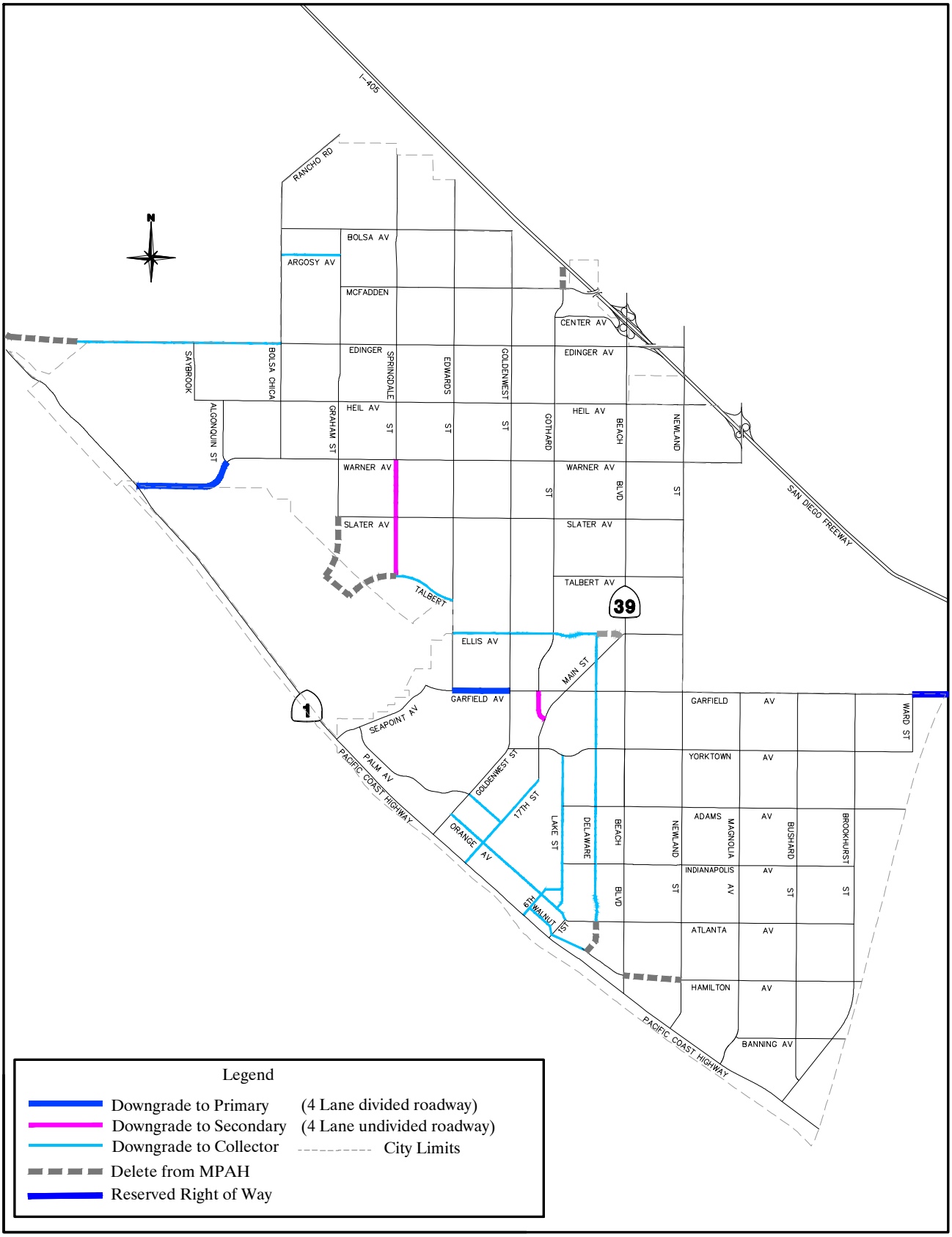


Figure ES-3

PROPOSED CHANGES TO MPAH

1. Hamilton Avenue/Pacific View Avenue between Beach Boulevard and Newland Street
2. Delaware Street between Atlanta Avenue and Pacific View Avenue
3. Gothard/Hoover Street between McFadden Avenue and Bolsa Ave
4. Ellis Avenue between Delaware Street and Main Street
5. Edinger Avenue at current terminus at Perimeter Road (at the western City boundary) to PCH
6. Graham Street southward extension from Slater Avenue (to item 7 below)
7. Talbert Avenue western extension (to item 6 above)
8. Road connection between Graham extension (item 6 above) and Talbert extension (item 7 above)

The proposed downgrades are in response to currently built roadway sections and/or related compatibility with adjacent land uses. In all cases, verification has been made that the proposed classifications will have adequate capacity to serve future traffic demands.

The easternmost end of Garfield Avenue is designated as "Reserved Right-of-Way." This is a special MPAH category that is applied by OCTA to specific situations where a previous deletion has been approved with the stipulation that the right-of-way be reserved. In this case, the designation arose out the MPAH deletion of the Garfield-Gisler bridge over the Santa Ana River. While the designation has already been approved by OCTA, it is shown here since it represents a change to the existing Circulation Element.

TRAFFIC ANALYSIS

To evaluate the proposed Arterial Highway Plan, an analysis was made using the HBTM 2030 traffic forecasts. The results were used to identify intersection improvements needed to serve the future traffic demand. For EIR purposes, comparisons were also made with the current Arterial Highway Plan, which is consistent with the current MPAH.

Table ES-2 summarizes the intersection improvements currently identified as needed to serve the 2030 forecasts under the proposed Arterial Highway Plan. These will be documented in a Transportation Administrative Report (TAR) and used for establishing funding and implementation priorities. The TAR will be regularly updated, and over time, the improvement list and the individual intersection

Table ES-2

RECOMMENDED LONG-RANGE IMPROVEMENTS

Principal Intersections	**Recommended Improvements**
8. Goldenwest St & Bolsa Ave	Add 2nd southbound left turn lane. Add separate northbound right turn lane. Allow westbound right turn overlap.
28. Beach Blvd & Edinger Ave	Add 4th northbound through lane. Add 3rd westbound through lane.
37. Beach Blvd & Heil Ave	***Option 1*** Add 2nd northbound left turn lane. ***Option 2*** Add defacto westbound right turn lane. Add defacto southbound right turn lane.
39. PCH & Warner Ave	Add 3rd northbound through lane.
47. Beach Blvd & Warner Ave	***Option 1*** Add separate westbound right turn lane. ***Option 2*** Add defacto westbound right turn lane. Add separate northbound right turn lane.
48. Newland St & Warner Ave	Convert separate westbound right turn lane to a defacto right turn lane. Add 3rd westbound through lane.
52. Goldenwest St & Slater Ave	***Option 1*** Add 2nd southbound left turn lane. ***Option 2*** Convert separate northbound right turn lane to third northbound through lane.
54. Beach Blvd & Slater Ave	Add separate eastbound right turn lane.
60. Beach Blvd & Talbert Ave	Add 2nd westbound left turn lane. Add defacto westbound right turn lane. Add separate northbound right turn lane. Add 2nd eastbound left turn lane. Stripe defacto eastbound right turn lane.
76. Beach Blvd & Garfield Ave	***Option 1*** Add defacto northbound right turn lane. Add defacto southbound right turn lane. ***Option 2*** Add 2nd northbound left turn lane. Add 2nd southbound left turn lane.
87. Beach Blvd & Yorktown Ave	Add separate westbound right turn lane.
98. Brookhurst St & Adams Ave	Add 4th northbound through lane. Add separate northbound right turn lane. Add 4th southbound through lane. Add 4th eastbound through lane. Add 4th westbound through lane. Allow northbound right turn overlap. Allow westbound right turn overlap.
126. Goldenwest St & PCH	Add 2nd eastbound left turn lane. Allow southbound right turn overlap.
138. Brookhurst & PCH	Add 2nd eastbound left turn lane. Allow southbound right turn overlap

Table ES-2
RECOMMENDED LONG-RANGE IMPROVEMENTS

Secondary Intersections	**Recommended Improvements**
53. Gothard St & Slater Ave	Add second northbound left turn lane.
59. Gothard St & Talbert Ave	***Option 1*** Add second southbound left turn lane. ***Option 2*** Convert separate eastbound right turn lane to second eastbound through lane.
61. Newland St & Talbert Ave	Add second eastbound left turn lane.
81. Ward St & Garfield Ave	Add second eastbound left turn lane. Remove separate eastbound right turn lane.
88. Newland St & Yorktown Ave	Restripe westbound right turn lane to a second westbound through lane.

Note: See intersection location map in Chapter 4 (Figure 4-3).

improvements will change in response to future conditions. The intent is that the TAR will serve as a technical resource document in support of the Circulation Element.

CONCLUSIONS

Three intersections have been identified in the traffic analysis as candidates for the "Critical Intersection" designation (see discussion in Chapter 3.0). This designation is for isolated cases where the long-range LOS is projected to be worse than the desired threshold and no feasible improvements can be identified. The following intersections meet this criteria:

48. Newland St & Warner Ave (Principal)
68. Main St & Ellis Ave (Principal)
138. Brookhurst St & PCH (Principal)

Two of these intersections remain deficient even with the recommended intersection improvements (Option 2) identified above (see previously referenced Table ES-2), and one (Intersection 68 - Main Street and Ellis Avenue) is a candidate because it meets the criteria for inadequate operating conditions even though its theoretical LOS is within the City's performance criteria.

In summary, the analysis shows that with the exception of the three intersections with "Critical Intersection" status, the proposed Arterial Highway Plan for the updated Circulation Element is able to serve the 2030 traffic demand at the LOS standards being recommended for the City's arterial highway plan. These three locations will be monitored over time, evaluating changing conditions and the feasibility of implementing improvements.

Chapter 1.0
INTRODUCTION

This report presents the results of a citywide traffic study carried out for the City of Huntington Beach. It contains existing and future traffic information, and presents recommendations for the arterial roadway component of the updated General Plan Circulation Element.

BACKGROUND AND SCOPE

This citywide traffic study has been prepared to provide technical information for updating the General Plan Circulation Element. It focuses on the arterial roadway component of the Element and involves three major work tasks:

1. Developing a citywide traffic forecasting model
2. Preparing long-range traffic forecasts for the city's arterial highway plan
3. Evaluating potential changes to the arterial roadway component of the Circulation Element

The first part of this work effort involved creating a citywide traffic model from the Orange County Transportation Analysis Model (OCTAM), consistent with the subarea modeling guidelines established by the Orange County Transportation Authority (OCTA). This model, which is referred to as the Huntington Beach Traffic Model (HBTM), is currently undergoing certification by the OCTA. It produces average daily traffic (ADT) forecasts for the roadway system and peak hour forecasts for major intersections and for freeway ramps.

The traffic forecasts used in this traffic analysis represent a 2030 time frame, and the General Plan Land Use Element has been the basis for the land use projections used in preparing these traffic forecasts. The results thereby show future circulation system needs in relation to future land use projections.

The third part of the analysis identified improvements needed to the arterial highway plan to serve the 2030 traffic demand. These together with the proposed street classification system, represent the arterial roadway component of the updated Circulation Element.

Changes being recommended to the existing Circulation Element involve classifications within the street system and the performance criteria used to evaluate that system. These performance criteria changes are discussed later in this chapter, and the arterial street classification system is outlined in Chapter 3.0.

PERFORMANCE CRITERIA

This section discusses the proposed methodology to be used in analyzing the arterial highway plan. To evaluate the roadway system in relation to future land use in the city, use is made of performance criteria. These criteria include "performance standards" and "thresholds of significance." The latter are used for identifying project impacts in an environmental impact report (EIR) context, and while not specifically applied in this study, they are given here for informational purposes and to show how policies in the Circulation Element are applied to traffic impact studies.

The performance standards are defined as Policies in the Circulation Element, and represent desired operating conditions for the city's roadway system. For the Circulation Element to be in balance with the Land Use Element of the General Plan, the circulation system must achieve such criteria.

Overview

The City currently uses two types of performance criteria for assessing roadway level of service (LOS). The first is based on ADT link volumes and is described in the current General Plan. The second is based on peak hour intersection volumes and is used by the City in traffic impact studies. Hence, the first dates back to the 1996 General Plan and is applied largely in a General Plan context. The second recognizes the more rigorous requirements of the California Environmental Quality Act (CEQA), and is the more realistic measure of arterial system performance. It is also used by Caltrans and by all local jurisdictions in Orange County, since it is a requirement of both the countywide Growth Management Plan (GMP) and Congestion Management Program (CMP).

It is proposed that only the intersection criteria be used in the updated Circulation Element. Several reasons for this are as follows:

1. The ADT link-based methodology seldom provides a realistic measure of system performance. It dates back to a time when forecasting tools and analysis procedures were

less refined then they are today, and when in many cases ADT volumes were the only information available.

2. Erroneous conclusions can be reached from ADT results. An adverse level of service (LOS) may suggest that a roadway needs to be widened while in actuality improving one or both of the intersections at the ends of the link will ensure satisfactory performance. Conversely, an acceptable LOS may hide the fact that intersection improvements are needed.

The few jurisdictions that have not yet eliminated the link criteria use both links and intersections for evaluation purposes, and when a link is deficient, they simply refer to the intersection performance. Essentially, there is recognition that link performance does not provide the necessary information for evaluating system performance. The only exception is for long uninterrupted stretches of roadway where maximum flow per lane tends to determine how much traffic can reasonably be carried. In such cases, peak hour flow by direction is used to measure LOS.

Accordingly, the recommendation is for intersection performance to be the primary criteria and that link-based performance be changed to a peak hour directional measure and used only in specially designated locations.

Proposed Methodology

The performance criteria used here are based on two primary measures. The first is "capacity" which establishes the vehicle-carrying ability of a roadway and the second is "volume." The volume measure is either a traffic count (in the case of existing volumes) or a forecast for a future point in time. The ratio between the volume and the capacity gives a volume/capacity (V/C) ratio and based on that V/C ratio, a corresponding level of service (LOS) is defined.

The peak hour is the accepted time period used for roadway performance evaluation, and a number of techniques are available to establish suitable V/C ratios and define the corresponding LOS's. Those defined here are considered appropriate for planning level analyses (rather than detailed traffic operations analyses) and also apply to EIR traffic impact analyses.

The analysis of the arterial road system is based on intersection capacity since this is the defining capacity limitation on an arterial roadway system. Levels of service for arterial roadway intersections are determined based on operating conditions during the AM and PM peak hours.

For signalized intersections, the intersection capacity utilization (ICU) methodology is applied using peak hour volumes and the geometric configuration of the intersection. This methodology sums the V/C ratios for the critical movements of an intersection, and results in a total V/C for an intersection. The LOS is determined accordingly. For Caltrans intersections, the delay methodology as outlined in the Highway Capacity Manual (HCM) is also used (the HCM is Reference 1 at the end of this chapter).

The calculation methodology and associated impact criteria used for the arterial highway plan are summarized in Table 1-1. The ICU saturation flow rate and clearance interval parameters used here are representative values for planning purposes, and are used by the City for intersection analyses.

As shown in later chapters of this report, there are situations where constraints such as closely spaced intersections do not allow the theoretical ICU values to be achieved. In such cases, the City may require an operational analysis to be carried out to reflect the unique characteristics of a particular intersection or group of intersections.

Two recommendations in this report pertain to policy considerations for acceptable LOS. The first is to designate "Principal" and "Secondary" intersections in the city and to treat them as a specific component of the Circulation Element. A discussion of these and their role in the Circulation Element is given in Chapter 3.0 of this report. Different LOS criteria are proposed for each:

Intersection Type	**LOS Criteria**
Principal	LOS "D" (ICU less than .91)
Secondary	LOS "C" (ICU less than .81)

The dual standard recognizes that the Principal intersections serve major thoroughfares, often with substantial through traffic components. The Secondary intersections are more typically associated with roadways serving residential areas. Also recognized are "Critical" intersections whose LOS standards may require improvements that are not considered feasible at this time (see discussion in Chapter 3.0).

Table 1-1

PERFORMANCE CRITERIA - ARTERIAL INTERSECTIONS

SIGNALIZED INTERSECTIONS – ICU METHODOLOGY

Methodology

Level of service based on "peak hour intersection capacity utilization (ICU) values" calculated using the following assumptions:

Saturation Flow Rate: 1,700 vehicles/hour/lane
Clearance Interval: .05
Right-Turn-on-Red Factor: .50

Performance Standard

Level of Service D (peak hour ICU less than or equal to 0.90) for Principal Intersections
Level of Service C (peak hour ICU less than or equal to 0.80) for Secondary Intersections
Level of Service E or F (peak hour ICU in excess of .90) for Critical Intersections

CALTRANS INTERSECTIONS – DELAY METHODOLOGY

Calculation Methodology

Level of service based on "stopped delay" as calculated using the HCM signalized intersection methodology.

Performance Standard

Level of Service D (stopped delay to not exceed 55 seconds)

LEVELS OF SERVICE

Level of service ranges are as follows:

Level of Service (LOS)	ICU	Delay (in Seconds)
A	0.00 – 0.60	0 – 10.00
B	0.61 – 0.70	10.01 – 20.00
C	0.71 – 0.80	20.01 – 35.00
D	0.81 – 0.90	35.01 – 55.00
E	0.91 – 1.00	55.01 – 80.00
F	Above 1.00	80.01 and up

Level of Service Descriptions

Table 1-2 summarizes the level of service descriptions for arterial intersections. These descriptions are taken from material contained in HCM 2000, and generally show the driving experience at intersections operating at the different levels of service.

INFORMATION IN THIS REPORT

The information presented in this report is arranged as follows:

Chapter 1.0	Introduction – background and scope plus a description of the performance criteria used in the traffic analysis.
Chapter 2.0	Transportation Setting – describes existing conditions with respect to circulation and future growth forecasts.
Chapter 3.0	Arterial Highway Plan – presents the proposed arterial roadway component of the Circulation Plan.
Chapter 4.0	Traffic Analysis - discusses future traffic volumes and levels of service, and shows the improvements needed to implement the proposed Arterial Highway Plan.

Technical appendices contain tabular data as appropriate, and traffic model data can be found in the previously referenced traffic model report and technical notebook (References 2 and 3 at the end of this chapter).

DEFINITIONS

Certain names or acronyms used throughout this report are defined below to clarify their intended meaning:

ADT	Average Daily Traffic. Generally used to measure the total two-directional traffic volumes passing a given point on a roadway.
DU	Dwelling Unit. Used in quantifying residential land use.
ICU	Intersection Capacity Utilization. A measure of the volume to capacity ratio for an intersection. Typically used to determine the peak hour level of service for a given set of intersection volumes.

Table 1-2

LEVEL OF SERVICE DESCRIPTIONS - INTERSECTIONS

Levels of service (LOS) is defined in terms of control delay as follows:

LOS	DESCRIPTION	Delay Per Vehicle (in seconds)	Volume/ Capacity (ICU value)
A	LOS A describes operations with low control delay, up to 10 seconds per vehicle. This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.	< 10.0	< .61
B	LOS B describes operations with control delay greater than 10 and up to 20 seconds per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than the LOS A, causing higher levels of delay.	10.1 – 20.0	.61 - .70
C	LOS C describes operations with control delay greater than 20 and up to 35 seconds per vehicle. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles, and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.	20.1 – 35.0	.71 - .80
D	LOS D describes operations with control delay greater than 35 and up to 55 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and high V/C ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	35.1 – 55.0	.81 - .90
E	LOS E describes operations with control delay greater than 55 and up to 80 seconds per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent.	55.1 – 80.0	.91 – 1.00
F	LOS F describes operations with control delay in excess of 80 seconds per vehicle. This level, considered unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high V/C ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.	> 80.1	> 1.00

Source: Highway Capacity Manual 2000, Transportation Research Board, National Research Council.

LOS	Level of Service. A scale used to evaluate circulation system performance based on intersection ICU values or volume/capacity ratios of arterial segments.
Peak Hour	This refers to the hour during the AM peak period (typically 7 AM - 9 AM) or the PM peak period (typically 3 PM - 6 PM) in which the greatest number of vehicle trips is generated by a given land use or are traveling on a given roadway.
Tripend	A trip generation measure, which represents the total trips entering and leaving a location.
TSF	Thousand Square Feet. Used in quantifying non-residential land uses, and refers to building floor area.
V/C	Volume to Capacity Ratio. This is typically used to describe the percentage of capacity utilized by existing or projected traffic on a segment of an arterial or intersection.
VPD	Vehicles Per Day. Similar to ADT, but more typically applied to trip generation (i.e., the amount of traffic generated by a given amount of land use).
VPH	Vehicles Per Hour. Used for roadway volumes (counts or forecasts) and trip generation estimates. Measures the number of vehicles in a one-hour period, typically the AM or PM peak hour.

REFERENCES

1. "Highway Capacity Manual 2000," Transportation Research Board, National Research Council.

2. "City of Huntington Beach Traffic Model Description," Austin-Foust Associates, Inc., August 2004.

3. "City of Huntington Beach, Huntington Beach Traffic Model (HBTM), Technical Notebook," Austin-Foust Associates, Inc., August 2009.

4. "Orange County Projections 2006," Center for Demographic Research, 2007.

5. "Orange County Projections 2010," Center for Demographic Research, 2012.

Chapter 2.0
TRANSPORTATION SETTING

This chapter describes the transportation setting for this traffic analysis. Recent traffic volumes are summarized together with the existing operating conditions. Future growth is then discussed together with the future context for the 2030 traffic analysis presented in Chapter 4.0.

EXISTING CIRCULATION SYSTEM

The existing arterial roadway network system is illustrated in Figure 2-1. Included here are all the currently built Circulation Element roadways together with the number of midblock travel lanes on individual roadway segments.

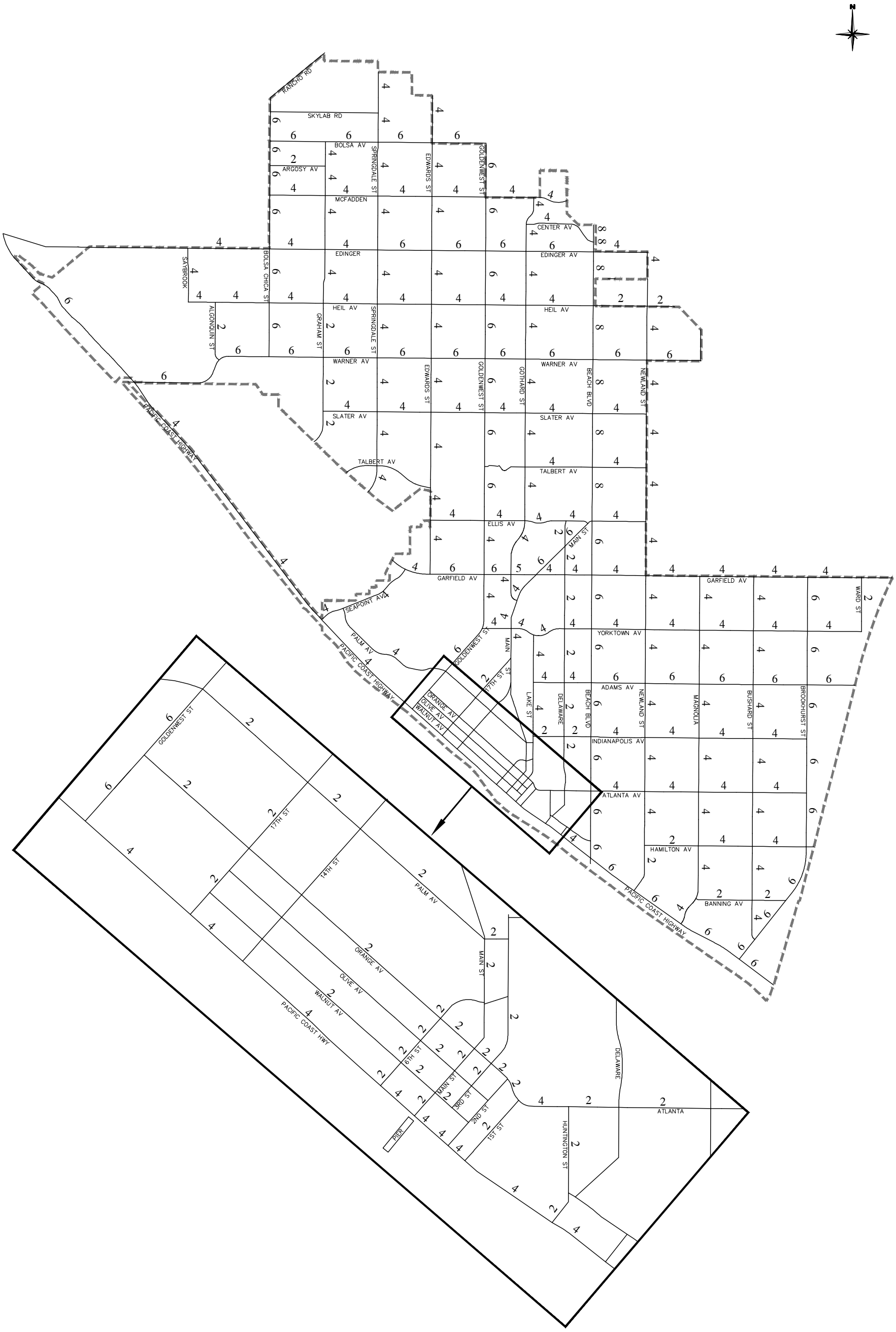
Regional access for the city is via four interchanges with the I-405 Freeway, these being located at Springdale Street, Goldenwest Street, Beach Boulevard and Magnolia Street/Warner Avenue (see Figure 2-2). Two arterial State Highway facilities in the city are Beach Boulevard (SR-39) and Pacific Coast Highway (SR-1). Most of the city's arterial highway plan is currently built, and further discussion on this is given in Chapter 3.0.

AVERAGE DAILY TRAFFIC VOLUMES

Existing average daily traffic (ADT) volumes on the arterial highway plan are illustrated in Figure 2-3. These volumes are from a comprehensive count program carried out in late 2005 and early 2006. In 2008, a selective count program was carried out to determine if the 2005 count data was adequate for representing 2008/2009 conditions. The results are summarized in Appendix A and showed that minimal growth in traffic had occurred over that three-year period. Hence, the existing traffic data presented in this report is representative of 2008/2009 volumes on the arterial highway plan.

EXISTING LEVELS OF SERVICE

As discussed in the performance criteria section of Chapter 1.0, level of service (LOS) is defined according to peak hour intersection performance using intersection capacity utilization (ICU) values. For



Legend

X Midblock Lanes

Figure 2-1

EXISTING (2005) MIDBLOCK LANES

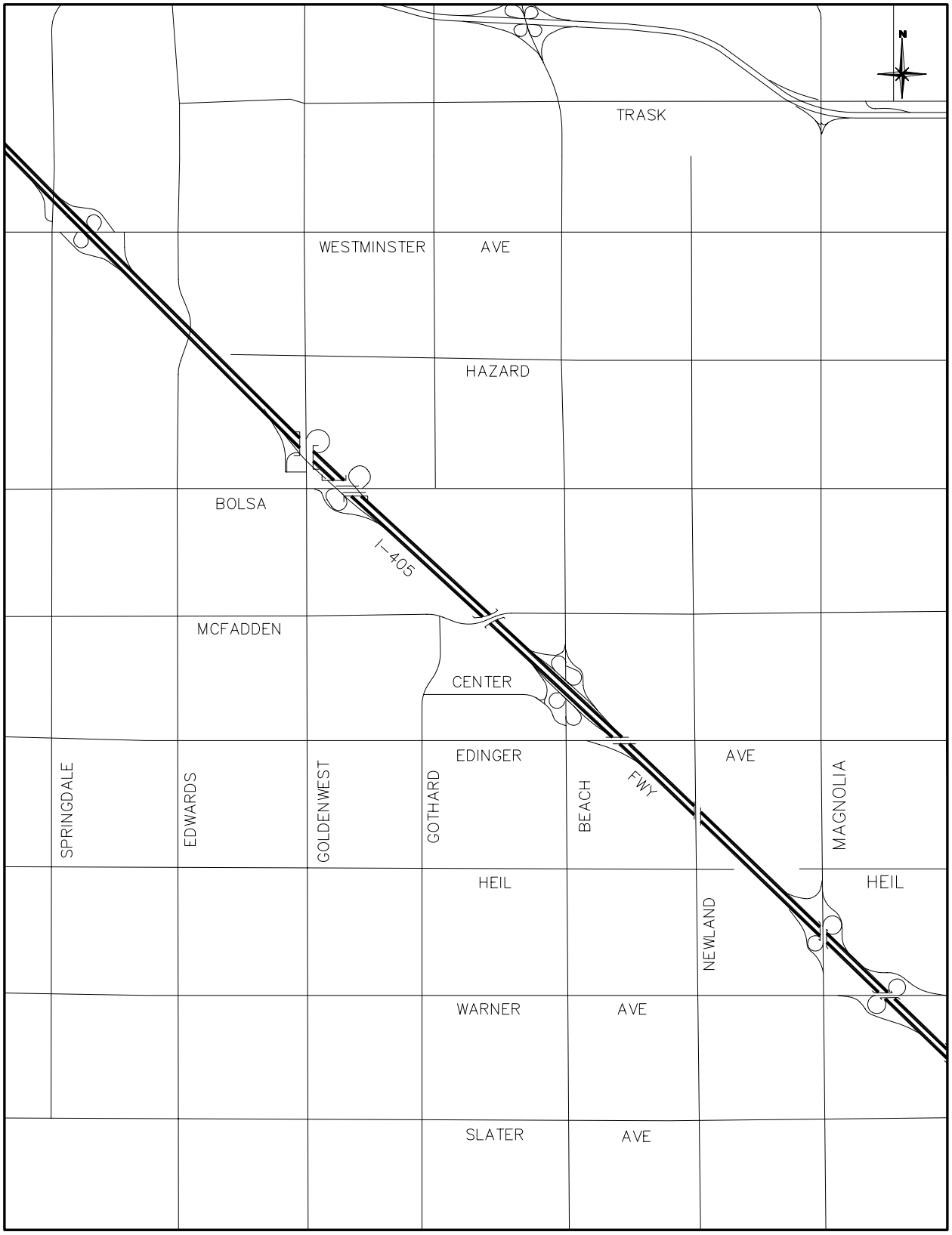
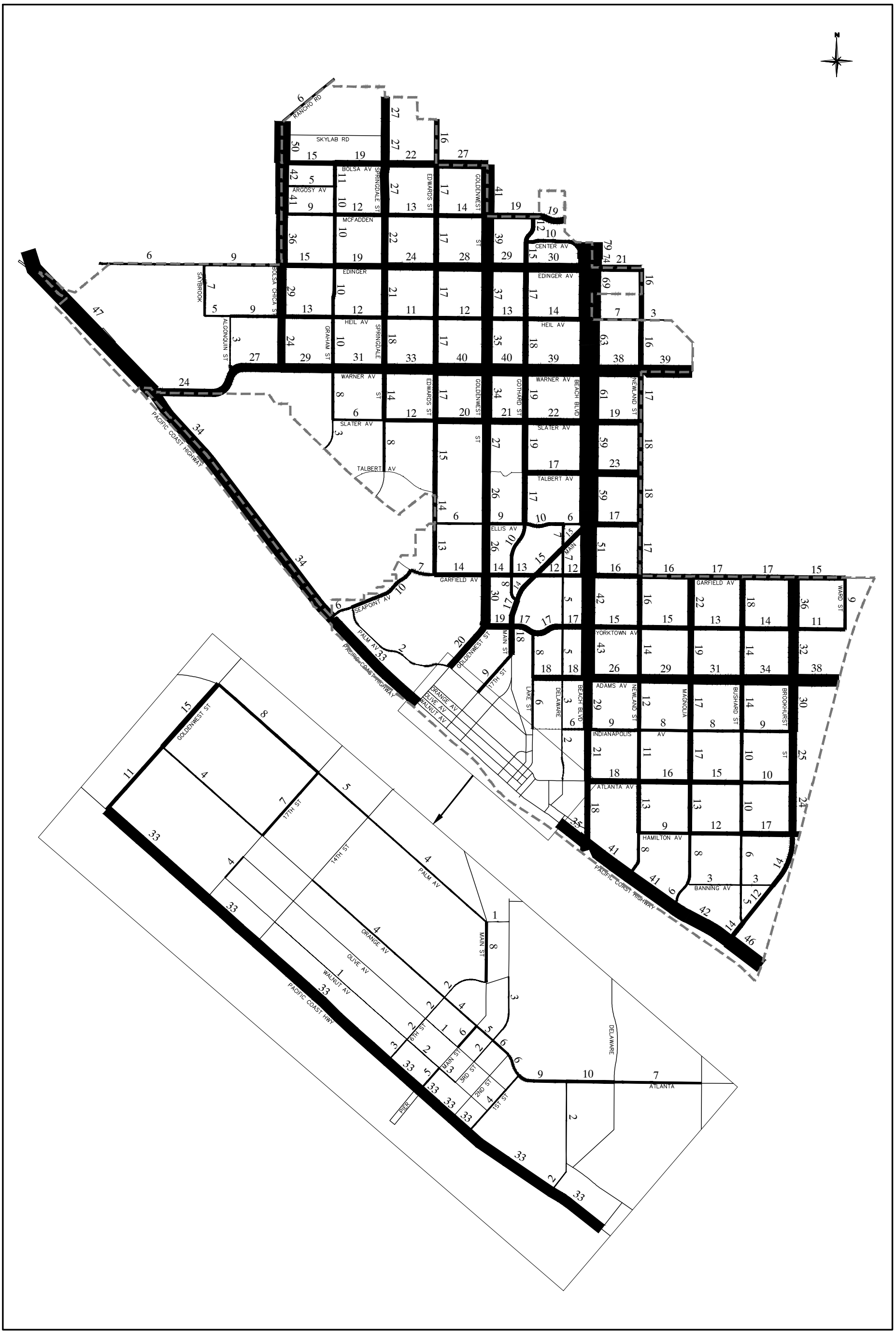


Figure 2-2

I-405 FREEWAY ACCESS



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10 20 30

ADT Volumes (000s)

Figure 2-3

EXISTING (2005/2006) ADT VOLUMES (000's)

Caltrans intersections, delay-based LOS is also calculated. Figure 2-4 shows the intersections included in this evaluation and Table 2-1 lists the existing ICUs, delay (for Caltrans intersections) and corresponding LOS values. Actual ICU calculation worksheets are included in Appendix B. Also listed here are the HCM delay-based LOS results for the Caltrans intersections (worksheets for these can be found in Appendix D).

As discussed in Chapter 1.0, different LOS criteria have been proposed for intersections according to their designation of either Principal or Secondary, as follows:

Intersection Type	LOS Criteria
Principal	LOS "D" (ICU less than .91)
Secondary	LOS "C" (ICU less than .81)

The dual standard recognizes that the Principal intersections serve major thoroughfares, often with substantial through traffic components. The Secondary intersections are more typically associated with roadways serving residential areas. Also recognized are "Critical" intersections whose LOS standards may require improvements that are not considered feasible at this time (see discussion in Chapter 3.0).

Figure 2-5 illustrates the existing peak hour ICUs and levels of service for the highest AM/PM peak hour for intersections designated as Principal. Figure 2-6 illustrates the corresponding peak hours ICUs and level of service for intersections designated as Secondary. As shown, two Principal intersections are currently deficient:

60. Beach Blvd & Talbert Ave
126. Goldenwest St & PCH

It should be noted that the ICU values are calculated on the assumption of ideal operating conditions. Certain conditions such as short roadway sections that cause vehicle queues to block adjacent intersections, high pedestrian volumes, or uneven lane utilization can prevent ideal conditions. The following intersections meet this criteria and thereby have a lower operational LOS than given by the ICU value:

28. Beach Blvd & Edinger Ave – Principal
68. Main St & Ellis Ave – Principal

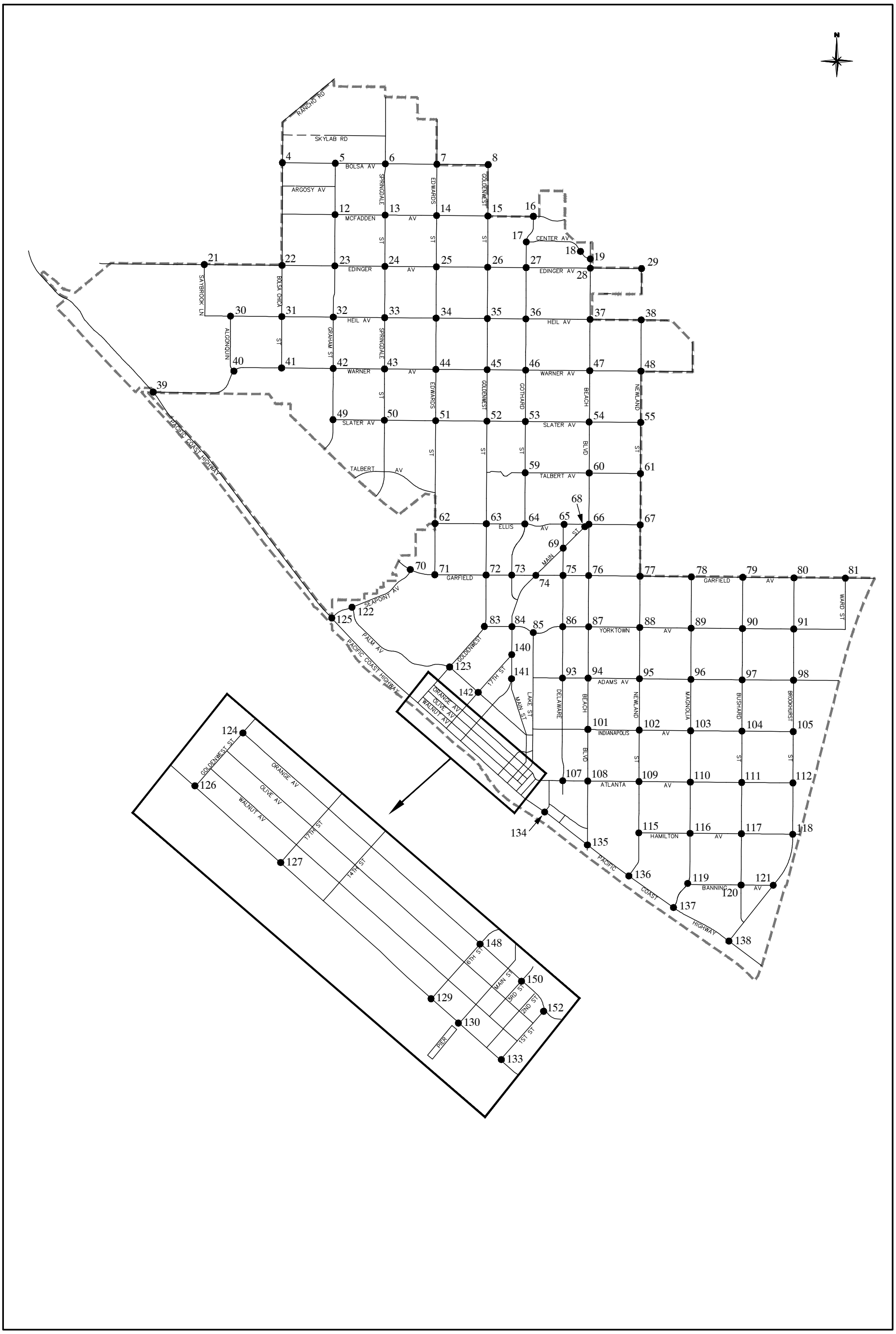


Figure 2-4

INTERSECTION LOCATION MAP

Table 2-1

EXISTING (2005/2006) ICU AND DELAY SUMMARY

Intersection	Designation*	AM Peak Hour		PM Peak Hour	
		ICU	LOS	ICU	LOS
4. Bolsa Chica St & Bolsa Ave	Principal	.62	B	.62	B
5. Graham St & Bolsa Ave	Principal	.38	A	.51	A
6. Springdale St & Bolsa Ave	Principal	.64	B	.63	B
7. Edwards St & Bolsa Ave	Principal	.56	A	.60	A
8. Goldenwest St & Bolsa Ave	Principal	.64	B	.86	D
12. Graham St & McFadden Ave	Secondary	.39	A	.41	A
13. Springdale St & McFadden Ave	Principal	.56	A	.70	B
14. Edwards St & McFadden Ave	Secondary	.62	B	.55	A
15. Goldenwest St & McFadden Ave	Principal	.68	B	.72	C
16. Gothard St & McFadden Ave	Secondary	.48	A	.51	A
17. Gothard St & Center Ave	Secondary	.28	A	.47	A
18. I-405 SB Ramps & Center Ave	Principal	.40	A	.75	C
19. Beach Blvd & Center Ave	Principal	.66	B	.68	B
21. Saybrook Ln & Edinger Ave	Secondary	.34	A	.33	A
22. Bolsa Chica St & Edinger Ave	Principal	.73	C	.60	A
23. Graham St & Edinger Ave	Secondary	.47	A	.47	A
24. Springdale St & Edinger Ave	Principal	.65	B	.55	A
25. Edwards St & Edinger Ave	Secondary	.59	A	.57	A
26. Goldenwest St & Edinger Ave	Principal	.62	B	.60	A
27. Gothard St & Edinger Ave	Secondary	.47	A	.57	A
28. Beach Blvd & Edinger Ave	Principal	.71	C	.88	D
29. Newland St & Edinger Ave	Principal	.71	C	.62	B
30. Algonquin St & Heil Ave	Secondary	.34	A	.33	A
31. Bolsa Chica St & Heil Ave	Principal	.69	B	.52	A
32. Graham St & Heil Ave	Secondary	.41	A	.43	A
33. Springdale St & Heil Ave	Secondary	.45	A	.51	A
34. Edwards St & Heil Ave	Secondary	.62	B	.55	A
35. Goldenwest St & Heil Ave	Secondary	.54	A	.58	A
36. Gothard St & Heil Ave	Secondary	.56	A	.62	B
37. Beach Blvd & Heil Ave	Principal	.78	C	.80	C
38. Newland St & Heil Ave	Secondary	.51	A	.46	A
39. PCH & Warner Ave	Principal	.79	C	.79	C
40. Algonquin St & Warner Ave	Principal	.51	A	.50	A
41. Bolsa Chica St & Warner Ave	Principal	.64	B	.60	A
42. Graham St & Warner Ave	Principal	.55	A	.55	A
43. Springdale St & Warner Ave	Principal	.66	B	.65	B
44. Edwards St & Warner Ave	Principal	.67	B	.61	B
45. Goldenwest St & Warner Ave	Principal	.68	B	.67	B
46. Gothard St & Warner Ave	Principal	.56	A	.77	C
47. Beach Blvd & Warner Ave	Principal	.69	B	.89	D
48. Newland St & Warner Ave	Principal	.81	D	.87	D

Cont.

Table 2-1 (cont)
EXISTING (2005/2006) ICU AND DELAY SUMMARY

Intersection	Designation*	AM Peak Hour		PM Peak Hour	
		ICU	LOS	ICU	LOS
49. Graham St & Slater Ave	Secondary	.34	A	.40	A
50. Springdale St & Slater Ave	Secondary	.62	B	.46	A
51. Edwards St & Slater Ave	Secondary	.57	A	.49	A
52. Goldenwest St & Slater Ave	Principal	.74	C	.79	C
53. Gothard St & Slater Ave	Secondary	.68	B	.61	B
54. Beach Blvd & Slater Ave	Principal	.80	C	.82	D
55. Newland St & Slater Ave	Secondary	.57	A	.61	B
59. Gothard St & Talbert Ave	Secondary	.48	A	.69	B
60. Beach Blvd & Talbert Ave	Principal	.70	B	.94	E
61. Newland St & Talbert Ave	Secondary	.60	A	.69	B
62. Edwards St & Ellis Ave	Secondary	.31	A	.45	A
63. Goldenwest St & Ellis Ave	Principal	.40	A	.50	A
64. Gothard St & Ellis Ave	Secondary	.39	A	.39	A
65. Delaware St & Ellis Ave	Secondary	.29	A	.49	A
66. Beach Blvd & Ellis Ave	Principal	.64	B	.74	C
67. Newland St & Ellis Ave	Secondary	.47	A	.47	A
68. Main St & Ellis Ave	Principal	.27	A	.37	A
69. Delaware St & Main St	Principal	.30	A	.42	A
70. Seapoint Ave & Garfield Ave	Secondary	.20	A	.25	A
71. Edwards St & Garfield Ave	Principal	.48	A	.54	A
72. Goldenwest St & Garfield Ave	Principal	.44	A	.45	A
73. Gothard St & Garfield Ave	Principal	.34	A	.34	A
74. Main St & Garfield Ave	Principal	.28	A	.37	A
75. Delaware St & Garfield Ave	Secondary	.58	A	.51	A
76. Beach Blvd & Garfield Ave	Principal	.61	B	.81	D
77. Newland St & Garfield Ave	Secondary	.48	A	.53	A
78. Magnolia St & Garfield Ave	Principal	.54	A	.62	B
79. Bushard St & Garfield Ave	Secondary	.49	A	.53	A
80. Brookhurst St & Garfield Ave	Principal	.80	C	.74	C
81. Ward St & Garfield Ave	Secondary	.75	C	.48	A
83. Goldenwest St & Yorktown Ave	Principal	.47	A	.71	C
84. Main St & Yorktown Ave	Principal	.51	A	.56	A
85. Lake St & Yorktown Ave	Principal	.46	A	.45	A
86. Delaware St & Yorktown Ave	Secondary	.43	A	.40	A
87. Beach Blvd & Yorktown Ave	Principal	.60	A	.79	C
88. Newland St & Yorktown Ave	Secondary	.55	A	.60	A
89. Magnolia St & Yorktown Ave	Secondary	.52	A	.47	A
90. Bushard St & Yorktown Ave	Secondary	.46	A	.44	A
91. Brookhurst St & Yorktown Ave	Principal	.44	A	.61	B
93. Delaware St & Adams Ave	Secondary	.43	A	.41	A

Cont.

Table 2-1 (cont)
EXISTING (2005/2006) ICU AND DELAY SUMMARY

Intersection	Designation*	AM Peak Hour		PM Peak Hour	
		ICU	LOS	ICU	LOS
94. Beach Blvd & Adams Ave	Principal	.57	A	.75	C
95. Newland St & Adams Ave	Principal	.57	A	.65	B
96. Magnolia St & Adams Ave	Principal	.76	C	.77	C
97. Bushard St & Adams Ave	Principal	.59	A	.65	B
98. Brookhurst St & Adams Ave	Principal	.88	D	.86	D
101. Beach Blvd & Indianapolis	Principal	.49	A	.50	A
102. Newland St & Indianapolis	Secondary	.36	A	.41	A
103. Magnolia St & Indianapolis	Secondary	.65	B	.41	A
104. Bushard St & Indianapolis	Secondary	.45	A	.30	A
105. Brookhurst & Indianapolis	Principal	.36	A	.40	A
107. Delaware St & Atlanta Ave	Secondary	.35	A	.30	A
108. Beach Blvd & Atlanta Ave	Principal	.46	A	.66	B
109. Newland St & Atlanta Ave	Secondary	.41	A	.47	A
110. Magnolia St & Atlanta Ave	Principal	.51	A	.46	A
111. Bushard St & Atlanta Ave	Secondary	.47	A	.35	A
112. Brookhurst St & Atlanta	Principal	.42	A	.44	A
115. Newland St & Hamilton Ave	Secondary	.41	A	.56	A
116. Magnolia St & Hamilton Ave	Principal	.47	A	.59	A
117. Bushard St & Hamilton Ave	Secondary	.38	A	.40	A
118. Brookhurst St & Hamilton Ave	Principal	.68	B	.67	B
119. Magnolia St & Banning Ave	Secondary	.20	A	.22	A
120. Bushard St & Banning Ave	Secondary	.23	A	.20	A
121. Brookhurst St & Banning	Principal	.23	A	.22	A
122. Seapoint Ave & Palm Ave	Principal	.20	A	.21	A
123. Goldenwest St & Palm Ave	Principal	.47	A	.37	A
124. Goldenwest St & Orange Ave	Principal	.28	A	.29	A
125. Seapoint Ave & PCH	Principal	.68	B	.65	B
126. Goldenwest St & PCH	Principal	.74	C	.91	E
127. 17th & PCH	Principal	.76	C	.63	B
129. 6th & PCH	Principal	.53	A	.52	A
130. Main St & PCH	Principal	.80	C	.74	C
133. 1st St & PCH	Principal	.54	A	.50	A
134. Huntington St & PCH	Principal	.76	C	.65	B
135. Beach Blvd & PCH	Principal	.61	B	.72	C
136. Newland St & PCH	Principal	.68	B	.62	B
137. Magnolia St & PCH	Principal	.64	B	.66	B
138. Brookhurst St & PCH	Principal	.67	B	.76	C
140. Main St & Utica Ave	Secondary	.47	A	.41	A
141. Main St & Adams Ave	Secondary	.51	A	.59	A
142. 17th St & Palm Ave	Secondary	.56	A	.34	A
148. 6th St & Orange Ave	Principal	.24	A	.21	A
150. 3rd St & Orange Ave	Secondary	.30	A	.36	A
152. 1st & Atlanta Ave/Orange	Principal	.35	A	.31	A

Cont.

Table 2-1 (cont)
EXISTING (2005/2006) ICU AND DELAY SUMMARY

HCM Analysis

Caltrans Locations	Designation*	AM Peak Hour Delay**	AM Peak Hour LOS	PM Peak Hour Delay**	PM Peak Hour LOS
Beach Boulevard (SR-39) Intersections					
18. I-405 SB & Center Ave	Principal	31	C	35	C
19. Beach Blvd & Center Ave	Principal	10	A	17	B
28. Beach Blvd & Edinger Ave	Principal	59	E	57	E
37. Beach Blvd & Heil Ave	Principal	21	C	16	B
47. Beach Blvd & Warner Ave	Principal	49	D	42	D
54. Beach Blvd & Slater Ave	Principal	44	D	48	D
60. Beach Blvd & Talbert Ave	Principal	38	D	60	E
66. Beach Blvd & Ellis Ave	Principal	35	D	37	D
76. Beach Blvd & Garfield Ave	Principal	35	D	46	D
87. Beach Blvd & Yorktown Ave	Principal	35	D	42	D
94. Beach Blvd & Adams Ave	Principal	36	D	43	D
101. Beach Blvd & Indianapolis Ave	Principal	25	C	21	C
108. Beach Blvd & Atlanta Ave	Principal	22	C	32	C
Pacific Coast Hwy (SR-1) Intersections					
39. PCH & Warner	Principal	36	D	36	D
125. Seapoint Ave & PCH	Principal	10	B	12	B
126. Goldenwest & PCH	Principal	19	B	32	C
127. 17th St & PCH	Principal	11	B	10	B
129. 6th St & PCH	Principal	8	A	9	A
130. Main St & PCH	Principal	8	A	10	A
133. 1st St & PCH	Principal	14	B	17	B
134. Huntington St & PCH	Principal	18	B	15	B
135. Beach Blvd & PCH	Principal	24	C	25	C
136. Newland St & PCH	Principal	14	B	11	B
137. Magnolia Ave & PCH	Principal	19	B	18	B
138. Brookhurst St & PCH	Principal	24	C	26	C

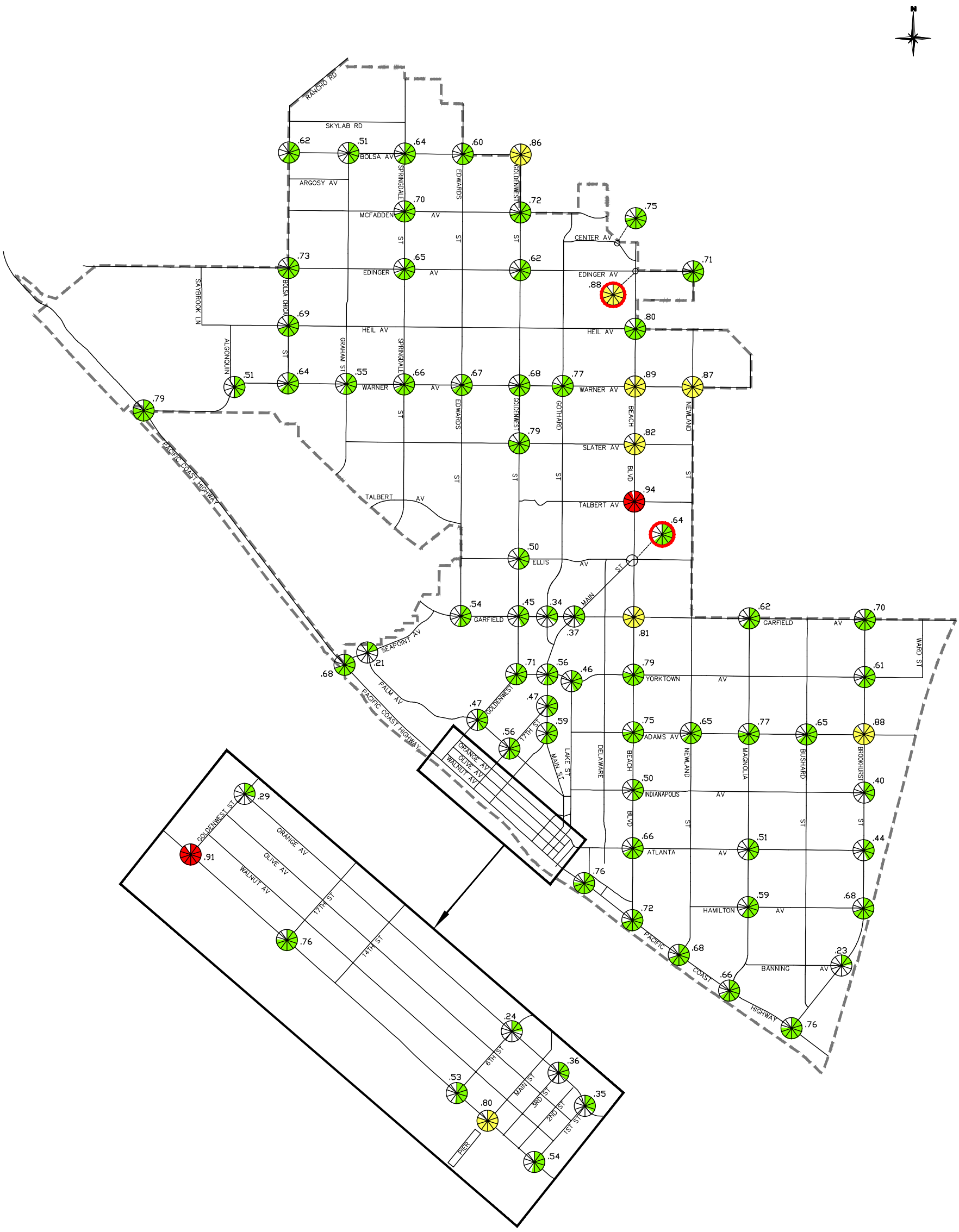
Shading denotes intersections that exceed the City performance standard of:
LOS "D" for Principal Intersections
LOS "C" for Secondary Intersections

*The two intersection designations are noted in Chapter 1.0 and are discussed in more detail in Chapter 3.0.

**Delay given in seconds.

Level of service ranges:

Level of Service	ICU	Delay (in seconds)
A	.00 - .60	0 – 10.00
B	.61 - .70	10.01 – 20.00
C	.71 - .80	20.01 – 35.00
D	.81 - .90	35.01 – 55.00
E	.91 – 1.00	55.01 – 80.00
F	Above 1.00	80.01 and up



LEGEND

.XX Highest ICU value during the AM or PM peak hour

LOS A-C | LOS D | LOS E-F

Operational LOS E-F

Level of service (LOS) ranges:

LOS A .00-.60	LOS D .81-.90
LOS B .61-.70	LOS E .91-1.00
LOS C .71-.80	LOS F Above 1.00

Figure 2-5

EXISTING PEAK HOUR ICUs
(HIGHEST AM OR PM PEAK)
- PRINCIPAL INTERSECTIONS

LEGEND

.XX Highest ICU value during the AM or PM peak hour

LOS A-C

LOS D

LOS E-F

Operational LOS E-F

Level of service (LOS) ranges:

LOS A .00-.60	LOS D .81-.90
LOS B .61-.70	LOS E .91-1.00
LOS C .71-.80	LOS F Above 1.00

Figure 2-6

EXISTING PEAK HOUR ICUs
(HIGHEST AM OR PM PEAK)
- SECONDARY INTERSECTIONS

For the intersection of Main Street and PCH, a pedestrian ICU delay is added to the AM and PM ICU values in order to estimate the additional signal time provided to the pedestrians at this intersection. The resulting ICU and LOS as reported in Table 2-1 show that this intersection operates at a satisfactory level of service. On occasions, the high number of pedestrians will cause this intersection to experience longer than average delays. However, this does not occur often enough for this intersection to be identified as an operational delay location.

SUMMER TRAFFIC VOLUME VARIATIONS

The existing traffic volume data presented in this report represents average weekday non-summer conditions. Since summer beach traffic can cause higher volumes on roadways serving the beach and recreation areas, counts were taken during the summer for selected locations (see Appendix E).

Table 2-2 summarizes the results for selected roadway segments. As shown, the summer traffic count data increase over the corresponding non-summer counts ranges from three to 16 percent.

Also counted during the summer was traffic and pedestrians at the Main Street intersection with Pacific Coast Highway. The results at that location are summarized in Table 2-3. The intersection count was carried out on a Saturday in August when a special event (surf contest) was taking place at the beach. Traffic was counted during the contest between the hours of 11:00 am and 2:00 pm, and the peak traffic hour was identified as occurring between 12:15 and 1:15 pm. This differs from the weekday AM and PM peak hours of roadways, which typically occur between 7:30 and 8:30 am, and 4:30 to 5:30 pm, respectively.

As shown in the table, the non-summer weekday AM and PM ICU's (.80 and .74, respectively) and LOS's (both "C") are slightly higher than the noontime summer Saturday ICU (.68). While the summer Saturday volume is higher than the non-summer weekday volume, the Saturday peak hour is lower since the traffic is spread out over a longer period during the day.

EXISTING AND FUTURE LAND USE

This section summarizes the land use databases prepared for use in the traffic analysis. Both existing and future databases are discussed, with summary information presented as appropriate. A

Table 2-2

SUMMER TRAFFIC VOLUMES (ROADWAY SEGMENTS)

Location	**Non-Summer (January 2006)**	**Summer Volume (August 2005)**	**% Increase**
PCH (South of Warner Ave)			
Friday	--	42,100	--
Saturday	--	40,200	--
Sunday	--	33,400	--
Average Weekday	34,000	38,425	13%
PCH (North of 17th St)			
Friday	--	41,800	--
Saturday	--	39,900	--
Sunday	--	34,400	--
Average Weekday	33,000	38,400	16%
Beach Blvd (North of Pacific View St)			
Friday	--	22,100	--
Saturday	--	24,800	--
Sunday	--	20,000	--
Average Weekday	18,000	18,575	3%
PCH (South of 1st St)			
Friday	--	41,400	--
Saturday	--	41,200	--
Sunday	--	36,000	--
Average Weekday	33,000	36,950	12%

Table 2-3

SUMMER TRAFFIC VOLUMES (MAIN ST/PCH INTERSECTION ICU)

	Non-Summer Weekday (March 2006)		**Summer Saturday (August 2005)**
Location	**AM**	**PM**	**Noon**
130. Main St & PCH	.80	.74	.68

Level of service ranges: .00 - .60 A
.61 - .70 B
.71 - .80 C
.81 - .90 D
.91 – 1.00 E
Above 1.00 F

detailed discussion on land use database preparation can be found in Appendix C, and the following is a summary of that information plus a comparison with OCP-2010 (see Reference 4 in Chapter 1.0).

Existing Land Use Data

As part of the overall work effort, a detailed inventory was made for existing land uses throughout the city. The information was compiled by parcel, consistent with the City's Geographic Information System (GIS). Aggregation was then made to the Traffic Analysis Zones (TAZ's) defined for traffic modeling purposes. For residential land uses, dwelling units by type/density were compiled, and for non-residential uses, building floor area was the unit of measurement.

Future Land Use Data

Three different scenarios were developed for the future land use data and the following summarizes the assumptions used in each.

1. General Plan Buildout – A long-range scenario was developed that applied the maximum density or intensity allowed under the General Plan to each parcel in the city. This represented a theoretical maximum level of development that could occur. However, in actuality it would be unlikely that such a level of absorption could occur in any realistic planning time frame. In particular, it postulated an amount of retail development that was an order of magnitude greater than could be supported by the population in the city and surrounding area.

2. Selective Recycling - This scenario was based on future density and intensity changes occurring in selected parts of the city that were considered to be currently underutilized. Specific assumptions were used for the areas designated for intensification, and all other locations use an average floor area ratio (FAR) and/or dwelling unit (DU)/acre value. The conclusions from the citywide totals were that the growth in employment, particularly retail employment, is substantially higher than indicated by the OCP-2010 projections and would be unlikely to occur by a planning horizon year such as 2030.

3. 2030 Projections - This scenario built on Scenario 2 by depicting a more realistic land use absorption by 2030. The main focus was on retail land uses in categories such as Regional Commercial and Mixed Use. For Regional Commercial uses areas that are candidates for recycling by year 2030 were identified and representative FAR's rather than maximum FAR's applied. For Mixed-Use, representative

ratios of housing to commercial were used. The commercial use was further subdivided into office and retail uses, with different ratios used according to location. For those selective recycling areas not covered by the Regional Commercial or Mixed-Use categories, an average density (residential) or average FAR (non-residential) was applied based on the existing (2006) average FAR for each land use category. Hence, this differs from the Selective Recycling scenario in which the maximum General Plan intensity was applied. Furthermore, this scenario includes known cumulative projects as identified by the City as of January 2009.

Because this scenario represented a realistic absorption by 2030 (see also the OCP comparison later in this section), it has been used for the 2030 traffic forecasts. It should be noted that development of this "2030 Projections" Baseline land use alternative does not imply "defacto" land use or trip ceilings with respect to the zonal land use data. The label "2030" recognizes it as a projection and not necessarily as ultimate buildout of the General Plan.

A summary of the "2030 Projections" land use and trip generation for the city can be seen in Table 2-4. Within the city, the major land use categories and their associated average daily trip generation are listed. As can be seen from this summary, traffic growth within the city is estimated to increase by around 16 percent between year 2006 and year 2030.

OCP-2010 Comparison

The citywide land use databases for 2006 and 2030 were translated into demographic data to provide a comparison with the OCP-2010 projections. For residential uses, this required applying representative population/housing factors to the dwelling units in each type of residential use. For non-residential land uses, employment factors were applied to the building area square footages. These factors converted the square footage by land use into the respective demographic components of retail, service and other employment.

A comparison between OCP-2010 and the city land use databases (2006 and 2030 Projections) is given in Table 2-5. While the absolute numbers differ somewhat (which is related to specific factors applied to the land use data), the amount of growth is comparable.

Table 2-4

LAND USE AND TRIP GENERATION SUMMARY - 2030 PROJECTIONS

Land Use Type[1]	Units	2006		2030 Projections		Increase	
		Amount	ADT[2]	Amount	ADT[2]	Amount	ADT(%)
1. Single Family Residential	DU	35,958	344,119	37,644	360,254	1,686	5%
2. Multi-Family Residential	DU	40,761	329,246	47,620	377,367	6,859	15%
3. Commercial	TSF	9,984	514,238	15,008	725,086	5,024	41%
4. Office/Business Park	TSF	2,852	32,862	2,215	25,694	(637)	(22%)
5. Industrial/Manufacturing	TSF	20,261	141,013	23,899	166,336	3,638	18%
6. School	STU	45,661	64,735	47,125	67,346	1,464	4%
7. Other	--	--	17,442	--	28,917	--	66%
Grand Total		--	1,443,655	--	1,751,000	--	21%

[1]Land Use Types consist of the following land use categories in the Huntington Beach Traffic Model (HBTM):

1. Single Family Residential – land use code 1
2. Multi-Family Residential – land use codes 3-5,20
3. Commercial – land use codes 7,9-10,12,21,47
4. Office/Business Park – land use codes 15,32
5. Industrial/Manufacturing – land use code 16
6. School – land use codes 39,41
7. Other – land use codes 2, 8,11,17,22-31,33-38,40,42-46

(Note: The HBTM does not utilize the following numbers: 6,13-14,18-19.)

[2]ADT was calculated first by the individual HBTM land use code and corresponding trip generation rate, then combined according to Land Use Type for the summary total given in this table. Trip generation rates are documented in the HBTM Technical Notebook (see Reference 3 at the end of Chapter 1.0)

DU = Dwelling Units
TSF = Thousand Square Feet
STU = Students

Table 2-5

DEMOGRAPHIC DATA COMPARISON

Data Set/Time Period	Population	Housing	Employment			
			Retail	Service	Other	Total
OCP-2010						
2010	190,171	77,961				73,317
2035	205,524	82,802				80,580
Growth (%)	8%	6%				10%
HB 2006						
Amount	216,038	76,719	15,688	18,085	48,054	81,826
HB 2030 Projections						
Amount	237,503	85,264	18,412	22,352	54,797	95,561
Growth (%)	10%	11%	17%	23%	14%	17%

COMMITTED ROADWAY NETWORK

The "committed" roadway network addressed in this analysis represents a year 2030 scenario in which only currently programmed improvements are made to the city's arterial system (i.e., projects that are fully funded and thereby have reasonable assurance of being completed by the year 2030). The purpose of the analysis is to understand the implications of the year 2030 traffic forecasts in relation to this work.

Table 2-6 summarizes the committed freeway improvements for the regional highway system and the committed arterial improvements for the City of Huntington Beach. While the freeway improvements are not directly addressed in this traffic study, they form background assumptions for the 2030 traffic forecasts.

Table 2-7 summarizes the committed intersection improvements for the city. The majority of the arterial improvements are in the form of roadway widenings whereby midblock lanes are added to selected segments.

Table 2-6

COMMITTED ROADWAY IMPROVEMENTS

ID	I. Roadways	Segment	Improvement	Classification
Regional Improvements Freeway Improvements				
1	SR-73 Freeway	Spruce Ave to I-405 Freeway	Widen to provide four general purpose lanes in each direction	
2	I-405 Freeway	Euclid Street to Harbor Boulevard	Widen to provide six general purpose lanes in the southbound direction	
3	I-405 Freeway	Harbor Boulevard to Fairview Street	Widen to provide eight general purpose lanes in the southbound direction	
4	I-405 Freeway	Fairview Street to SR-73 Freeway	Widen to provide seven general purpose lanes in the southbound direction	
5	I-405 Freeway	From I-5 Freeway to SR-55 Freeway	Add one lane in each direction	
6	I-405 Freeway	From SR-73 Freeway to I-605 Freeway	Add one lane in each direction	
7	I-405 Freeway	SR-22 Freeway to I-605 Freeway	Add one HOV lane in each direction	
City of Huntington Beach Roadway Widening				
8	Atlanta Avenue	Huntington Street to First Street	Widen to 4-lanes	Secondary
10	Garfield Avenue	Delaware Street to Florida Street	Widen to 4-lanes	Secondary
11	Heil Avenue	Beach Boulevard to Gothard Street	Widen to 4-lanes	Secondary
12	Newland Street	Pacific Coast Hwy to Hamilton Avenue	Widen 2 lane undivided roadway to 2-lane divided roadway with bike lanes	Secondary

Table 2-7

COMMITTED INTERSECTION IMPROVEMENTS

Intersection	Southbound			Westbound			Northbound			Eastbound			Source
	Left	**Through**	**Right**	**Left**	**Through**	**Right**	**Left**	**Through**	**Right**	**Left**	**Through**	**Right**	
107. Delaware St & Atlanta Ave													
Existing (2006)	1	1	1	1	1	1	0	1	1	1	1	0	1
Committed Improvements	1	1	1	1	2	1	0	1	1	1	2	0	1

Notes: Gray shading denotes added or changed lane configuration.
d – defacto right turn
f – free right turn

Source: (1) Atlanta Ave Widening

Chapter 3.0
ARTERIAL HIGHWAY PLAN

This chapter discusses the arterial roadway component of the Circulation Element. Referred to as the "Arterial Highway Plan" or simply the "Highway Plan," it defines the proposed arterial roadway system. The discussion includes a comparison between the Arterial Highway Plan in the existing Circulation Element and that being proposed in the updated Element.

ROADWAY CLASSIFICATIONS

The Arterial Highway Plan in the Circulation Element is defined using a hierarchy of arterial roadway classifications. Each classification is described by size and function, and has specific physical dimensions, particularly with respect to the number of lanes.

The proposed Arterial Highway Plan refines the classification system in the existing Circulation Element. The intent is to create a more "customized" approach to street classifications, allowing the unique character of different roadways in different parts of the city to be represented. These classifications are listed in Table 3-1 and conceptual cross-sections are illustrated in Figure 3-1. The following are brief descriptions of each classification.

Smart Street Arterial

Smart Street Arterials are six- to eight-lane roadways with enhanced capacity compared to a standard arterial street. Beach Boulevard is designated as a Smart Street Arterial within the city. Beach Boulevard (SR-39), along with Pacific Coast Highway (SR-1), is under Caltrans' jurisdiction.

Traffic-carrying capacities of Smart Streets can range from 60,000 to 79,000 vehicles per day, depending on the number of lanes, degree of access control, peak-period loading, and configurations of major intersections. Smart Streets are designated by OCTA as important regional routes and improved with Measure M funds to increase traffic capacity and flow through such techniques as signal synchronization, bus turnouts, intersection improvements, driveway consolidations, and prohibition of on-street parking.

Table 3-1

ROADWAY CLASSIFICATIONS

Standard Roadway Classification	Functional Classification	Definition	Minimum Width (ROW) (Pavement)*	Configuration	Maximum Two-Way Daily Traffic Volume**
Smart Street Arterial	6/8-Lane Boulevard	Roadways carrying high volumes of regional and local traffic. Priority is given to through traffic flow, and access is generally limited to signalized intersections.	Variable ROW (120' – 144')	6/8 lanes with raised or painted median and additional turn lanes at intersections	79,000
Principal Arterial		Main thoroughfares providing access to major activity centers and the regional freeway system. Direct access to adjacent properties is discouraged, except at signalized intersections.	120'/104'	8 lanes with raised or painted median and additional turn lanes at intersections	65,000
Major Arterial	6-Lane Arterial	Roadways acting as main thoroughfares and providing access to major activity centers and to the regional freeway system. Only limited access is provided, typically to commercial properties and not to residential properties.	120'/ 104'	6 lanes with raised or painted median and additional turn lanes at intersections	50,000
Primary Arterial	4-Lane Arterial	Roadways intended to carry traffic between local streets and Smart Street or Major Arterials. They are similar to Major Arterials, with only limited access to adjacent properties.	100' / 84'	4 lanes divided, with turn lanes as needed	35,000
	Augmented 4-Lane Arterial	Similar to a Primary Arterial, but with painted median. Access is less limited than for a 4-lane Arterial because of the painted median.	100' / 84'	4 lanes with painted median. Median width may vary, and in some sections may allow	35,000

Table 3-1 (cont)
ROADWAY CLASSIFICATIONS

Standard Roadway Classification	Functional Classification	Definition	Width (ROW) (Pavement)*	Configuration	Maximum Two-Way Daily Traffic Volume**
Secondary Arterial	4-lane Arterial	Roadways intended to carry traffic between Local streets and Major or Primary Arterials. They are similar to Primary Arterials, with only limited access to adjacent properties.	80’ / 64’	4 lanes undivided, with turn lanes as needed	25,000
	Augmented 4-lane Arterial	Similar to a Secondary Arterial, but with painted median. Access is less limited than for a 4-lane Arterial because of the painted median.	80’ / 64’	4 lanes undivided, with turn lanes as needed	25,000
Collector Arterial	2-lane Roadway	Roadways providing property access and linking properties to Secondary, Major, and Primary Arterials.	Varies	2 lanes undivided	12,500

* ROW – Right-of-way including pavement and parkway (values are recommended for future Engineering Services Department standards).

** Used as a general guideline only. Actual roadway performance is determined from peak hour intersection volumes.

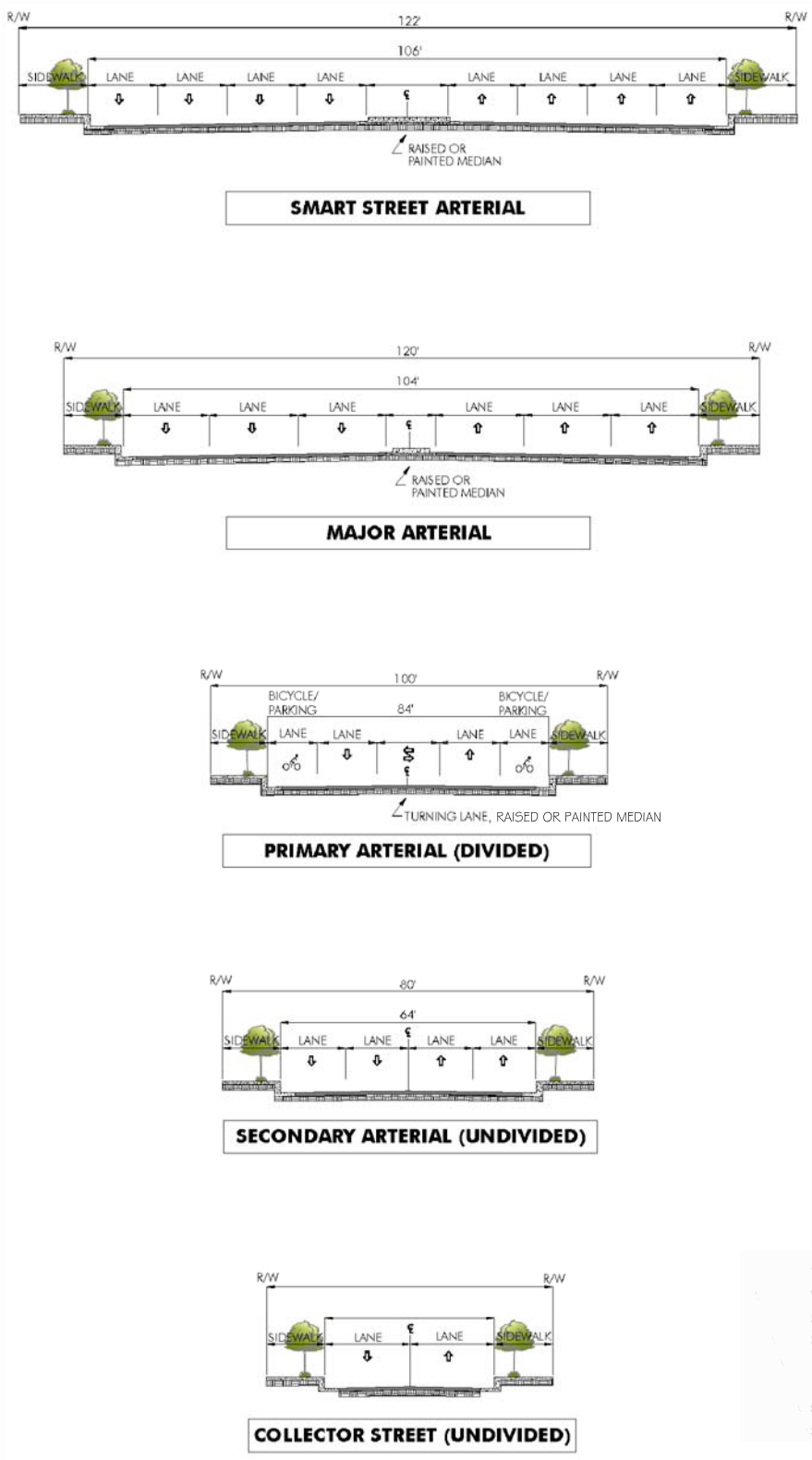


Figure 3-1

TYPICAL ROADWAY CROSS-SECTIONS

Principal Arterials

Principal Arterials act as main thoroughfares and provide access to major activity centers and the regional freeway system. Principal Arterials are typically eight-lane roadways featuring raised or striped medians. Desirable minimum spacing for street intersections along a Principal Arterial is approximately one-quarter mile. Unsignalized minor street and driveway access may be allowed, but signalized access is preferred and left-turn restrictions are typically planned at unsignalized access locations.

Curbside parking is prohibited. Traffic carrying capacities of 65,000± vehicles per day can be achieved depending on the degree of access control, peak-period loadings, and lane configurations at major intersections.

While the City does not currently have any Principal Arterials, this classification is part of the County Master Plan of Arterial Highways and could be used for later reclassifications if appropriate.

Major Arterials

Major Arterials provide high-capacity roadways. Major Arterials are six-lane roadways with painted or raised landscaped medians. Left-turn restrictions at minor unsignalized driveways enhance vehicle flow.

Curbside parking is usually not appropriate along some of the more heavily traveled Major Arterial street segments within the city. Maximum service volumes of +/- 50,000 vehicles per day (vpd) can be achieved, depending on the degree of access control, intersection operations and peak-period loadings.

Primary Arterials

Primary Arterials are four-lane divided roadways carrying local and regional commuter traffic. Unsignalized minor street and driveway access may be allowed, but signalized access is preferred and left-turn restrictions are typically planned at unsignalized access locations.

Curbside parking is prohibited. Maximum service volumes of +/- 35,000 vpd can be achieved depending on the degree of access control, peak-period loadings and lane configurations at the major intersections.

Secondary Arterials

Secondary Arterials are four-lane roadways without medians. Direct access from private residential properties to Secondary Arterials should be avoided wherever possible unless medians can be provided at such access points.

While Secondary Arterials have curbside parking, localized circumstances could warrant parking restrictions, such as prohibiting parking near intersections where left-turn lane striping is provided. In some locations, Secondary Arterials may include a limited median or be restriped to provide a left-turn pocket. Maximum service volumes of +/- 25,000 vpd can be achieved depending on the degree of access allowed, intersection operations and peak-period traffic loadings.

Collector Arterials

Collector Arterials provide access to local streets from the arterial roadway network. Collectors are typically two-lane roadways that sometimes feature painted medians for left-turn movements.

Collectors allow curbside parking. Parking should be restricted near intersection approaches where a separate right-turn lane is provided. Maximum service volumes of +/- 12,500 vpd can be achieved depending on the degree of access control and peak-period traffic loadings.

Local Streets

Local streets are two-lane roadways without medians. Centerline striping is typically not provided, and curbside parking is allowed. Traffic carrying capacity is physically similar to a Collector, however, the qualitative limit of acceptable traffic volumes in a residential environment is lower (less than 5,000 vpd). Local streets are not shown on the Arterial Highway Plan.

Augmented Roadways

The "Augmented" qualifier for Primary and Secondary arterials provides flexibility for customizing sections of roadway while retaining the basic qualities of the classification such as the number of lanes. Whether for aesthetic or capacity reasons, the intent is to allow these four-lane arterials to be compatible with their localized settings, providing a "context-sensitive" approach to the actual design parameters. Examples include the type and size of medians, and the size and use of parkways.

ROADWAY DIMENSIONS

The preceding discussion on roadway classifications included general ranges for right-of-way (ROW) and pavement width. While the maximum value represents a desirable standard, variations in right-of-way width and specific roadway improvements will occur, in certain cases, due to physical constraints and/or right-of-way limitations. Hence, the roadway sections may deviate from the standards where physical constraints exist or where preservation of community character dictates special treatment. Bikeways and sidewalks also affect the specific standards applied to various roadways. However, the overriding circulation goal is that all roadways carry the designed volumes of traffic at desired performance standards.

PRINCIPAL AND SECONDARY INTERSECTIONS

It is proposed that the General Plan Circulation Element include a reference to a set of "Principal Intersections" and "Secondary Intersections." Together, these generally determine the overall performance of the city's roadway system, and are thereby considered to have strategic importance within the overall Highway Plan. These designations are also intended to recognize that it is desirable to have a street system where most intersections operate at LOS "C" or better. Management of the traffic signal system and ultimately minimizing travel times is facilitated by limiting the number of potential LOS "D" intersections. The intent is that these intersections be regularly monitored and that priority be given to them when implementing roadway improvements. Also, as noted in the Performance Criteria discussion in Chapter 1.0, different LOS thresholds are applied to each.

One further proposed intersection definition is "Critical Intersection." This is for isolated cases where the long-range level of service is projected to be worse than the desired threshold and no feasible improvements can be identified. The intent is that such locations be monitored over time.

The currently proposed Principal and Secondary intersections are identified in Table 3-2 and illustrated in Figure 3-2. Changes to this initial set may occur over time, and such changes are intended to be undertaken as an administrative function rather than as a General Plan Amendment. It should be noted that seven intersections in the City are designated Congestion Management Program (CMP) locations, and as such are subject to specific requirements of the CMP Program.

PROPOSED ARTERIAL HIGHWAY PLAN

Figure 3-3 shows the proposed arterial roadway component of the Circulation Element (the Arterial Highway Plan). Illustrated here by color and by line width are the recommended functional classifications as discussed earlier in this chapter. In the next chapter, future traffic volumes are estimated for this Highway Plan to show its ability to serve the future traffic demands created by buildout of the General Plan Land Use Element.

It should be noted that no specific classifications have been given to the two State Highways within the overall Arterial Highway Plan. Since the City does not have jurisdiction over those roadways, their classifications are not included in the Circulation Element. They are, however, part of the countywide highway system and are included in any traffic analyses carried out by the City, including this study for the Circulation Element update.

CHANGES TO THE CURRENT CIRCULATION ELEMENT

The current Circulation Element has two descriptions of the Arterial Highway Plan. The first is labeled "Circulation Plan of Arterial Streets and Highways" and second is referred to as the "Potential for 2010 Circulation Plan of Arterial Highways." In the updated Circulation Element it is proposed that these be consolidated into a single Arterial Highway Plan as presented in the previous section.

Figure 3-4 shows the changes between the current and proposed Arterial Highway Plans.

MASTER PLAN OF ARTERIAL HIGHWAYS

The Orange County Transportation Authority (OCTA) administers the County Master Plan of Arterial Highways (MPAH). The MPAH defines the long-range highway system for the County. Local jurisdictions are required to have consistency between the Circulation Element and the MPAH. Changes

Table 3-2

LIST OF PROPOSED INTERSECTION DESIGNATIONS

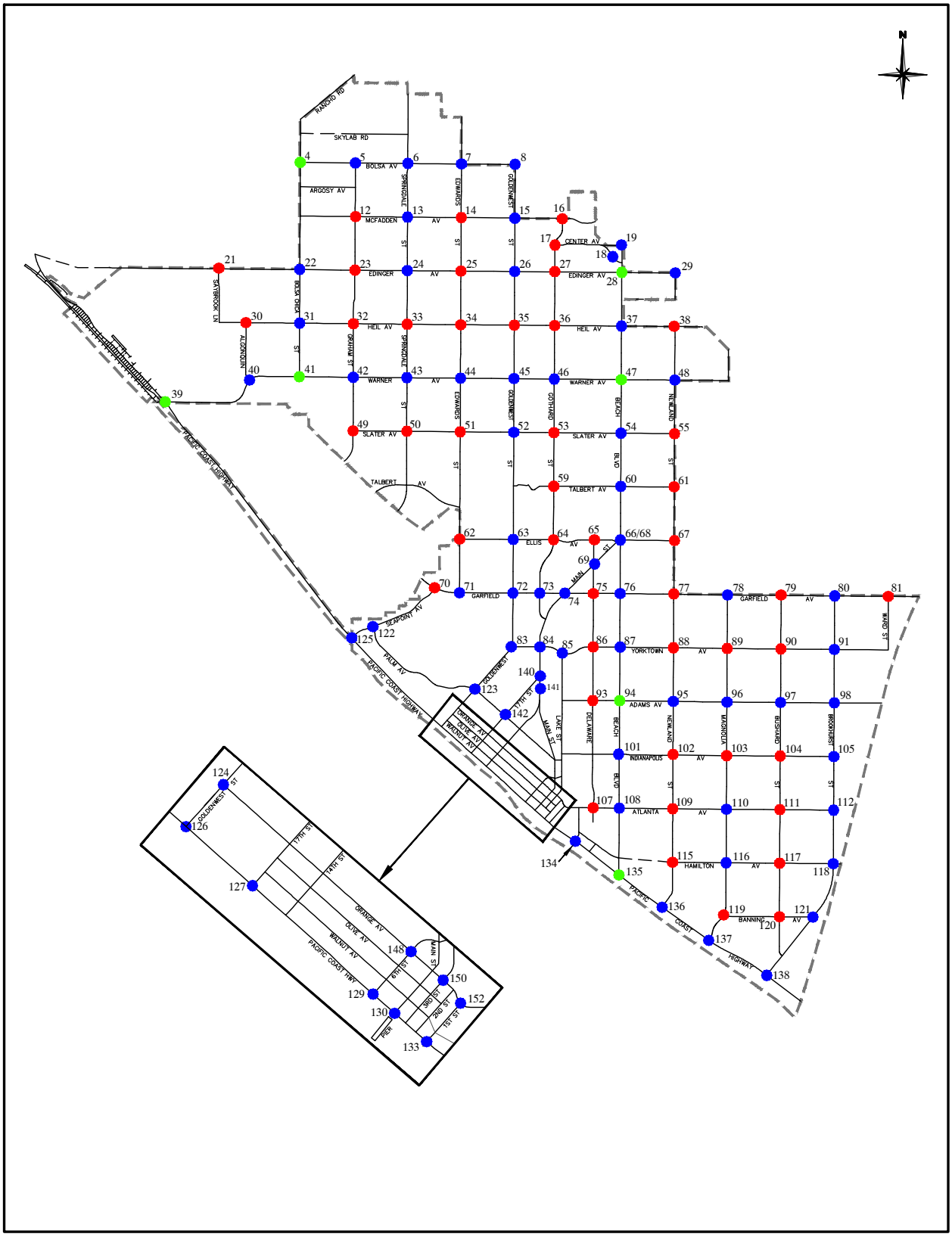
PRINCIPAL INTERSECTIONS	
4. Bolsa Chica St & Bolsa Ave	78. Magnolia St & Garfield Ave
5. Graham St & Bolsa Ave	80. Brookhurst St & Garfield Ave
6. Springdale St & Bolsa Ave	83. Goldenwest St & Yorktown Ave
7. Edwards St & Bolsa Ave	84. Main St & Yorktown Ave
8. Goldenwest St & Bolsa Ave	85. Lake St & Yorktown Ave
13. Springdale St & McFadden Ave	87. Beach Blvd & Yorktown Ave
15. Goldenwest St & McFadden Ave	91. Brookhurst St & Yorktown Ave
18. I-405 SB Ramps & Center Ave	94. Beach Blvd & Adams Ave
19. Beach Blvd & Center Ave	95. Newland St & Adams Ave
22. Bolsa Chica St & Edinger Ave	96. Magnolia St & Adams Ave
24. Springdale St & Edinger Ave	97. Bushard St & Adams Ave
26. Goldenwest St & Edinger Ave	98. Brookhurst St & Adams Ave
28. Beach Blvd & Edinger Ave	101. Beach Blvd & Indianapolis
29. Newland St & Edinger Ave	105. Brookhurst & Indianapolis
31. Bolsa Chica St & Heil Ave	108. Beach Blvd & Atlanta Ave
37. Beach Blvd & Heil Ave	110. Magnolia St & Atlanta Ave
39. PCH & Warner Ave	112. Brookhurst St & Atlanta
40. Algonquin St & Warner Ave	116. Magnolia St & Hamilton Ave
41. Bolsa Chica St & Warner Ave	118. Brookhurst St. & Hamilton Ave
42. Graham St & Warner Ave	121. Brookhurst St & Banning
43. Springdale St & Warner Ave	122. Seapoint Ave & Palm Ave
44. Edwards St & Warner Ave	123. Goldenwest St & Palm Ave
45. Goldenwest St & Warner Ave	124. Goldenwest St & Orange Ave
46. Gothard St & Warner Ave	125. Seapoint Ave & PCH
47. Beach Blvd & Warner Ave	126. Goldenwest St & PCH
48. Newland St & Warner Ave	127. 17th & PCH
52. Goldenwest St & Slater Ave	129. 6th & PCH
54. Beach Blvd & Slater Ave	130. Main St & PCH
60. Beach Blvd & Talbert Ave	133. 1st St & PCH
63. Goldenwest St & Ellis Ave	134. Huntington St & PCH
66/68. Beach Blvd & Ellis Ave/Main St & Ellis Ave	135. Beach Blvd & PCH
69. Delaware St & Main St	136. Newland St & PCH
71. Edwards St & Garfield Ave	137. Magnolia St & PCH
72. Goldenwest St & Garfield Ave	138. Brookhurst St & PCH
73. Gothard St & Garfield Ave	148. 6th St & Orange Ave
74. Main St & Garfield Ave	152. 1st & Atlanta Ave/Orange
76. Beach Blvd & Garfield Ave	
SECONDARY INTERSECTIONS	
12. Graham St & McFadden Ave	17. Gothard St & Center Ave
14. Edwards St & McFadden Ave	21. Saybrook Ln & Edinger Ave
16. Gothard St & McFadden Ave	23. Graham St & Edinger Ave

Cont.

Table 3-2
LIST OF PROPOSED INTERSECTION DESIGNATIONS (cont.)

SECONDARY INTERSECTIONS (cont.)	
25. Edwards St & Edinger Ave	77. Newland St & Garfield Ave
27. Gothard St & Edinger Ave	79. Bushard St & Garfield Ave
30. Algonquin St & Heil Ave	81. Ward St & Garfield Ave
32. Graham St & Heil Ave	86. Delaware St & Yorktown Ave
33. Springdale St & Heil Ave	88. Newland St & Yorktown Ave
34. Edwards St & Heil Ave	89. Magnolia St & Yorktown Ave
35. Goldenwest St & Heil Ave	90. Bushard St & Yorktown Ave
36. Gothard St & Heil Ave	93. Delaware St & Adams Ave
38. Newland St & Heil Ave	102. Newland St & Indianapolis
49. Graham St & Slater Ave	103. Magnolia St & Indianapolis
50. Springdale St & Slater Ave	104. Bushard St & Indianapolis
51. Edwards St & Slater Ave	107. Delaware St & Atlanta Ave
53. Gothard St & Slater Ave	109. Newland St & Atlanta Ave
55. Newland St & Slater Ave	111. Bushard St & Atlanta Ave
59. Gothard St & Talbert Ave	115. Newland St & Hamilton Ave
61. Newland St & Talbert Ave	117. Bushard St & Hamilton Ave
62. Edwards St & Ellis Ave	119. Magnolia St & Banning Ave
64. Gothard St & Ellis Ave	120. Bushard St & Banning Ave
65. Delaware St & Ellis Ave	140. Main St & Utica Ave
67. Newland St & Ellis Ave	141. Main St & Adams Ave
70. Seapoint Ave & Garfield Ave	142. 17th St & Palm Ave
75. Delaware St & Garfield Ave	150. 3rd St & Orange Ave

Note: See intersection locations in Figure 3-2.



Legend

- CMP intersection (LOS E)
- Principal intersection
- Secondary intersection

Figure 3-2

PROPOSED INTERSECTION DESIGNATIONS

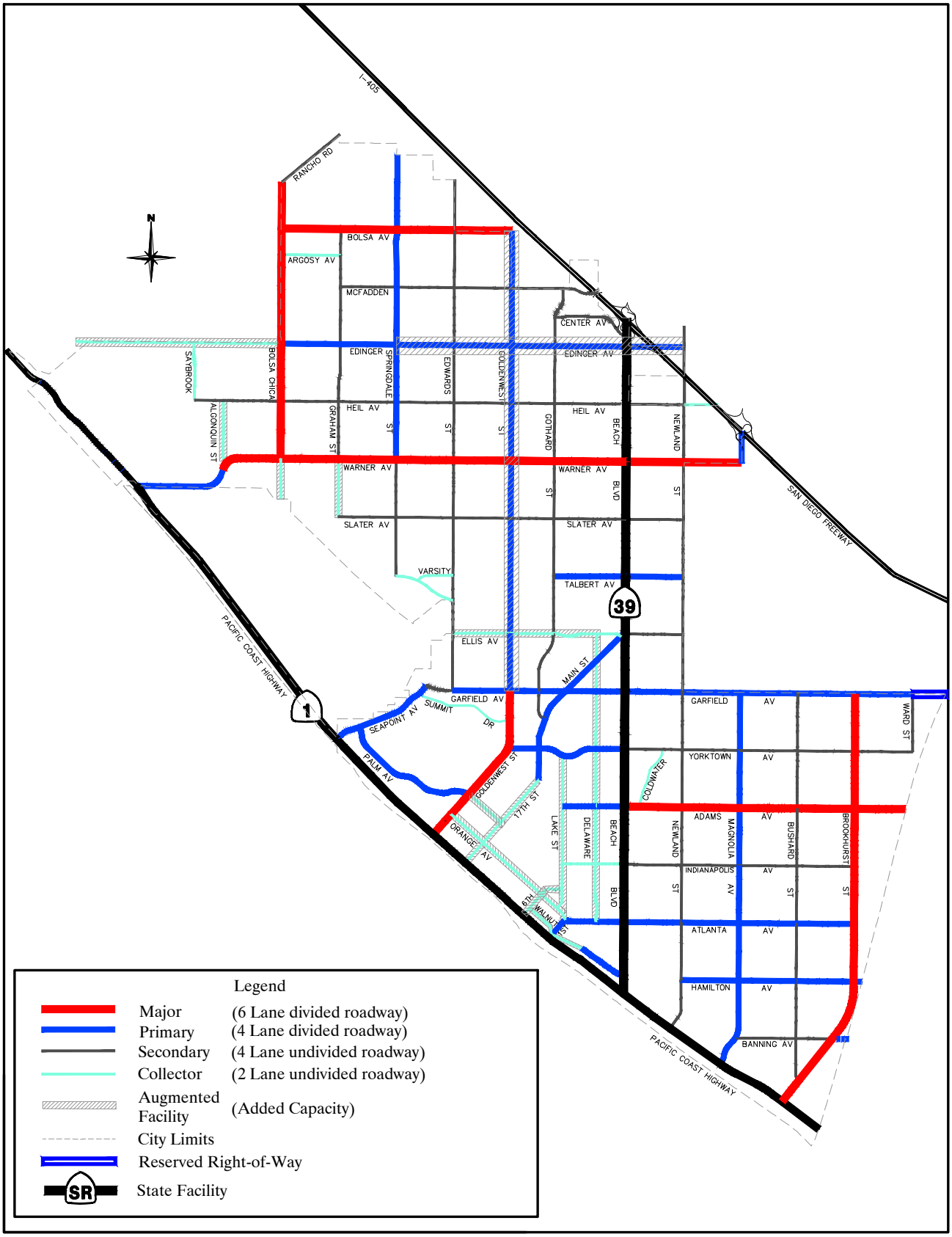


Figure 3-3

PROPOSED CIRCULATION ELEMENT
HIGHWAY COMPONENT

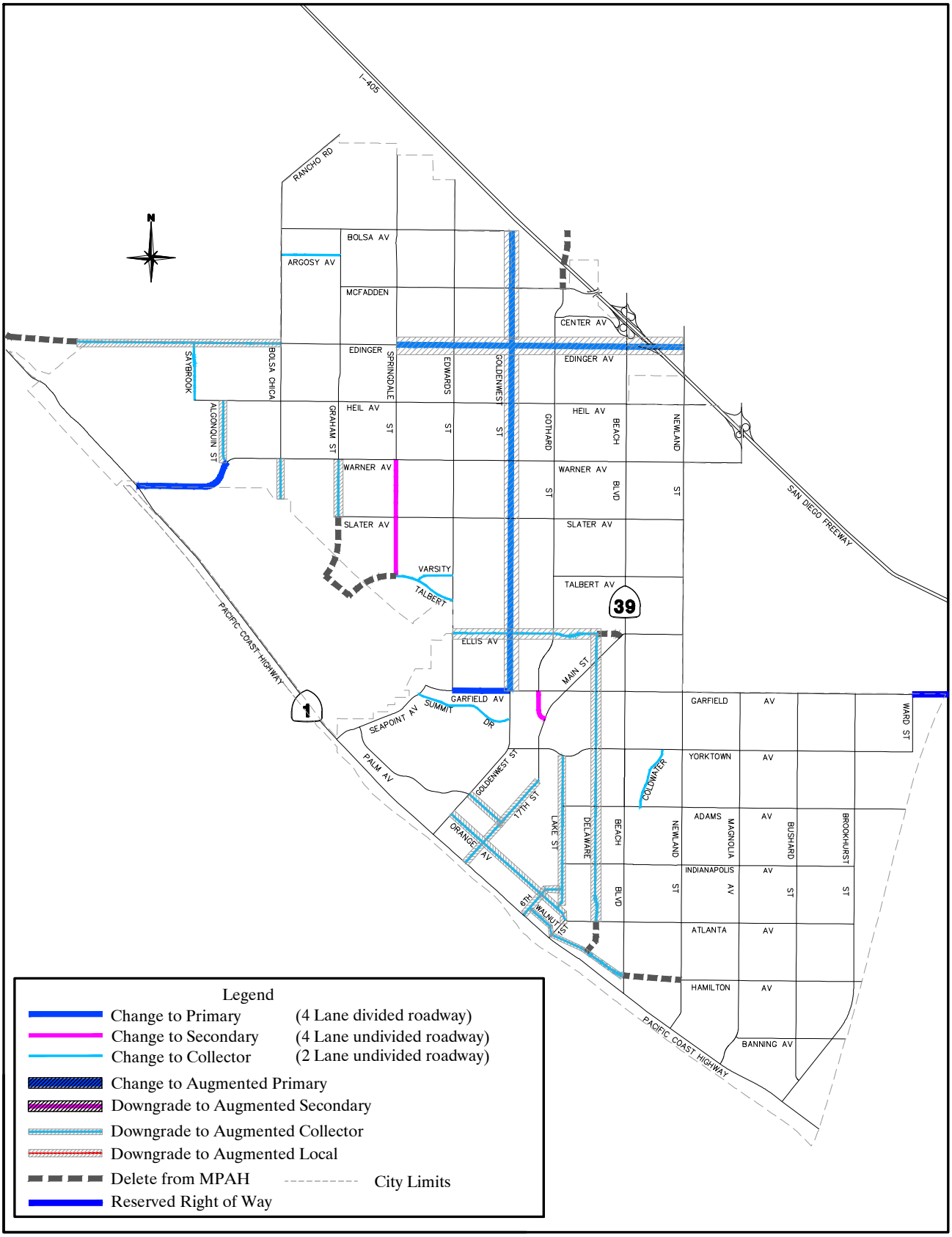


Figure 3-4

PROPOSED CHANGES TO CIRCULATION ELEMENT - ROADWAY COMPONENT

to the MPAH can be requested, and are subject to a set of guidelines for requisite technical studies and administrative actions.

The proposed Highway Plan will require amendments to the MPAH and these are illustrated in Figure 3-5. Several roadways are recommended for deletion from the MPAH while others are recommended for downgrading to a lower classification. The following eight deletions are for roadways not yet built:

1. Hamilton Avenue/Pacific View Avenue between Beach Boulevard and Newland Street
2. Delaware Street between Atlanta Avenue and Pacific View Avenue
3. Gothard/Hoover Street between McFadden Avenue and Bolsa Ave
4. Ellis Avenue between Delaware Street and Main Street
5. Edinger Avenue at current terminus at Perimeter Road (at the western City boundary) to PCH
6. Graham Street southward extension from Slater Avenue (to item 7 below)
7. Talbert Avenue western extension (to item 6 above)
8. Road connection between Graham extension (item 6 above) and Talbert extension (item 7 above)

The proposed downgrades are in response to currently built roadway sections and/or related compatibility with adjacent land uses. In all cases, verification has been made that the proposed classifications will have adequate capacity to serve future demands.

The easternmost end of Garfield Avenue is designated as “Reserved Right-of-Way”. This is a special MPAH category that is applied to specific situations where a previous deletion has been approved with the stipulation that the right-of-way be reserved. In this case, the designation arose out the MPAH deletion of the Garfield-Gisler bridge over the Santa Ana River. While the designation has already been approved by OCTA, it is shown here since it represents a change to the existing Circulation Element.

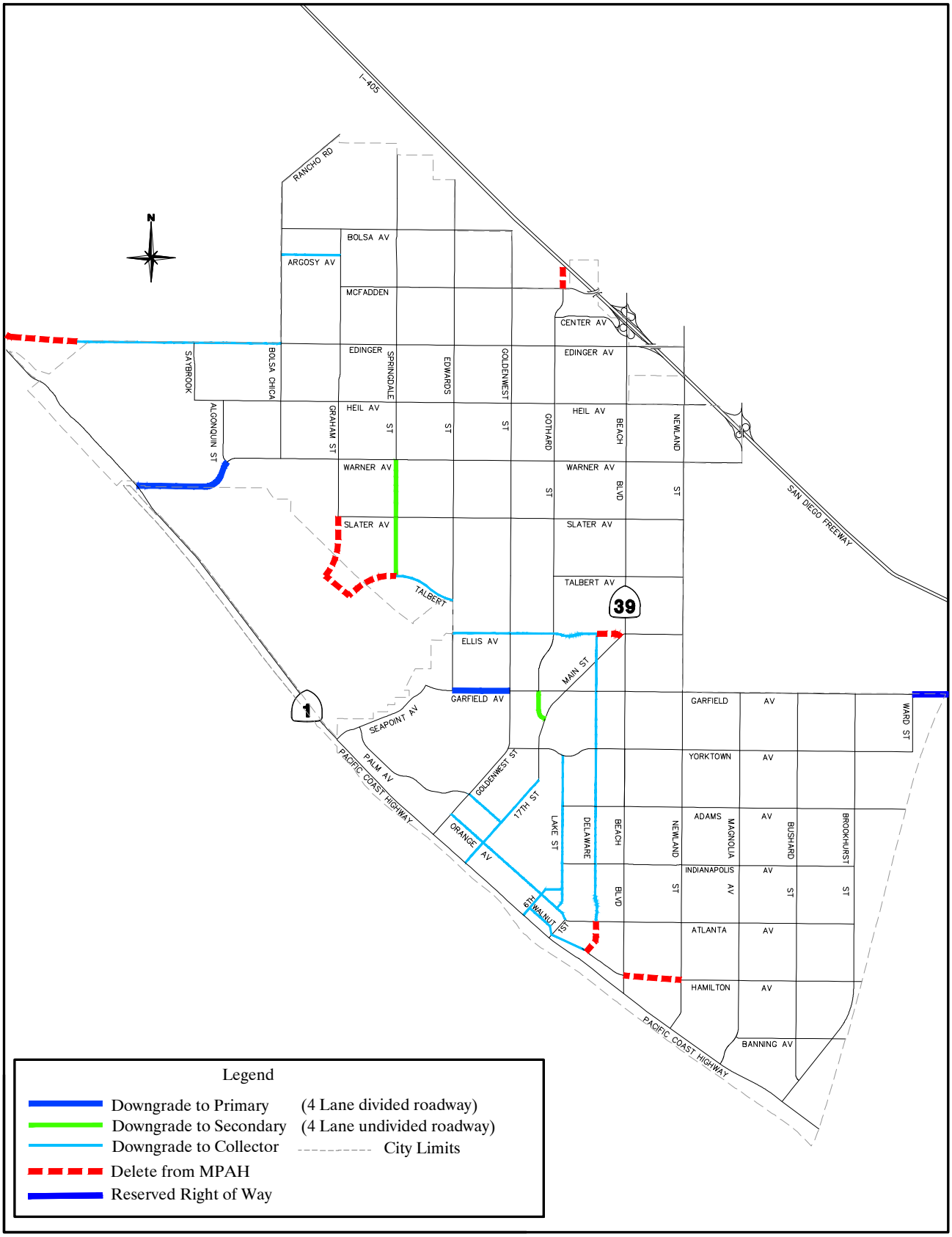


Figure 3-5

PROPOSED CHANGES TO MPAH

Chapter 4.0
TRAFFIC ANALYSIS

This report summarizes the results from a year 2030 analysis of the citywide arterial roadway system. Using the performance criteria defined in Chapter 1.0, it evaluates the proposed Highway Plan against future traffic demand.

OVERVIEW

The previous chapter outlined the recommended Arterial Highway Plan to be incorporated into the updated Circulation Element. Comparisons were made with the Highway Plan in the current Circulation Element and also with the County Master Plan of Arterial Highways (MPAH). The purpose of this analysis is to compare the previous and proposed plans, and identify the transportation improvements needed to serve the proposed Plan.

This 2030 analysis addresses three scenarios:

1. Current Highway Plan with Committed Intersection Improvements
2. Proposed Highway Plan with Committed Intersection Improvements
3. Proposed Highway Plan with Recommended Intersection Improvements

The first two scenarios provide plan-to-plan comparisons, using the actual roadway networks but only the currently committed intersection improvements. This comparison is provided for EIR purposes. The third scenario represents the proposed Highway Plan with the functional classifications described in the previous chapter, plus a set of associated roadway improvements.

The year 2030 forecasts were derived from the City of Huntington Beach Traffic Model (HBTM). As described in Chapter 2.0, this has a specially prepared 2030 land use database within the city and uses OCP-2006 demographic data outside the city (i.e., for the remainder of the region). These traffic forecasts provide a set of demand volumes against which the Highway Plan was evaluated, potential deficiencies identified and improvements proposed.

2030 ANALYSIS RESULTS

Figure 4-1 shows the year 2030 average daily traffic (ADT) volumes for the current Highway Plan. Figure 4-2 shows the corresponding volumes for the proposed Highway Plan.

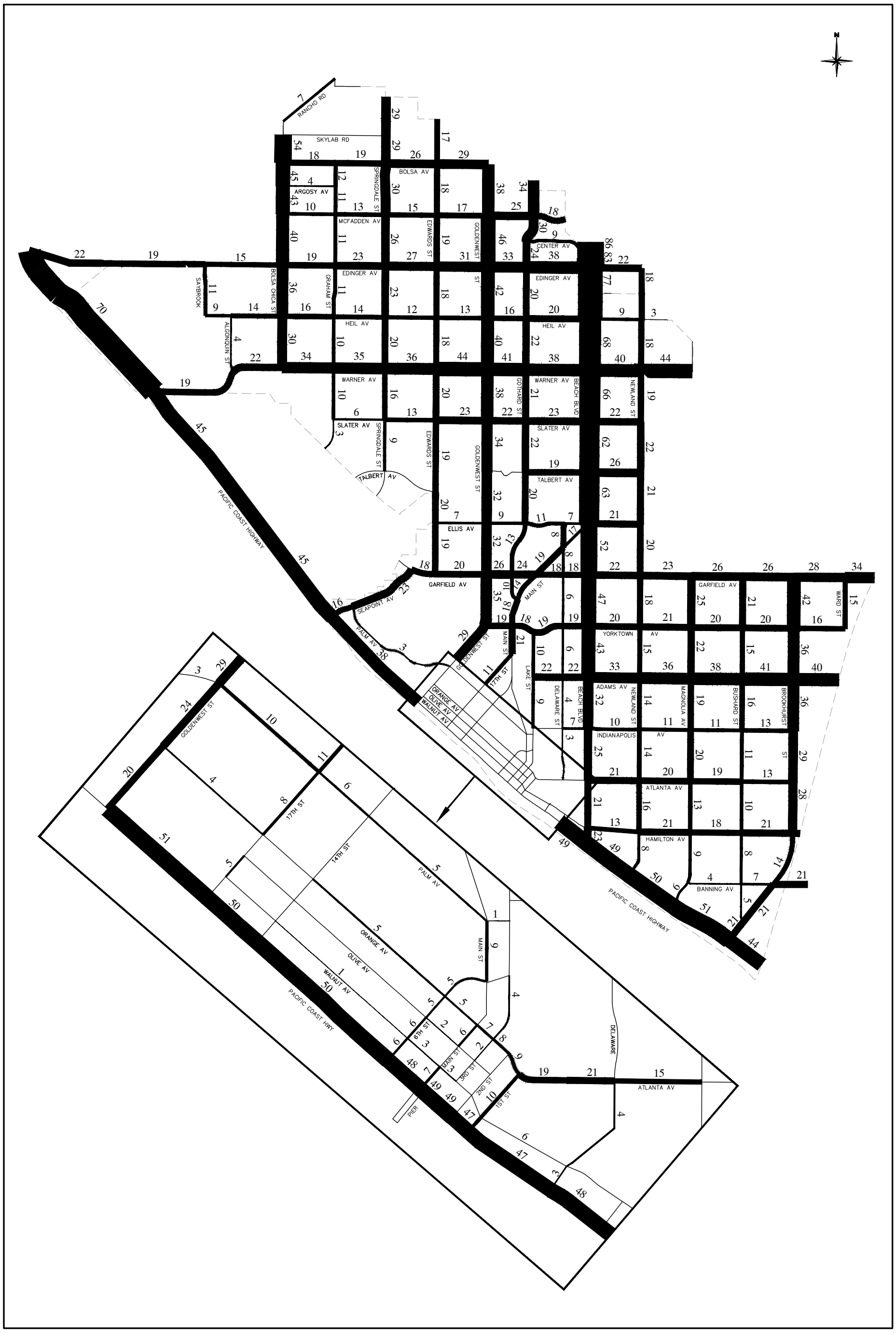
Year 2030 peak hour ICU values, delay (for Caltrans intersections) and level of service are summarized in Table 4-1 for the current and proposed Highway Plans and an intersection location map is provided in Figure 4-3. As discussed in Chapter 1.0, different LOS criteria have been proposed for intersections according to their designation of either Principal or Secondary, as follows:

Intersection Type	LOS Criteria
Principal	LOS "D" (ICU less than .91)
Secondary	LOS "C" (ICU less than .81)

The dual standard recognizes that the Principal intersections serve major thoroughfares, often with substantial through traffic components. The Secondary intersections are more typically associated with roadways serving residential areas. Also recognized are "Critical" intersections whose LOS standards may require improvements that are not considered feasible at this time (see discussion in Chapter 3.0).

Figure 4-4 illustrates the 2030 Proposed Highway Plan peak hour ICUs and level of service for the highest AM/PM peak hour for intersections designated as Principal. Figure 4-5 illustrates the corresponding peak hours ICUs and level of service for intersections designated as Secondary. As shown, 14 Principal intersections and five Secondary intersections are forecast to be deficient under the 2030 Proposed Highway Plan based on ICU values. Recommended improvements for these deficiencies are discussed in the following section.

It should be noted that the ICU values are calculated on the assumption of ideal operating conditions. Certain conditions such as short roadway sections that cause vehicle queues to block adjacent intersections, high pedestrian volumes, or uneven lane utilization can prevent ideal conditions. Four intersections meet this criteria and thereby have a lower operational LOS than given by the ICU value. These deficient locations are also candidates for the long-range improvements discussed in the next section.



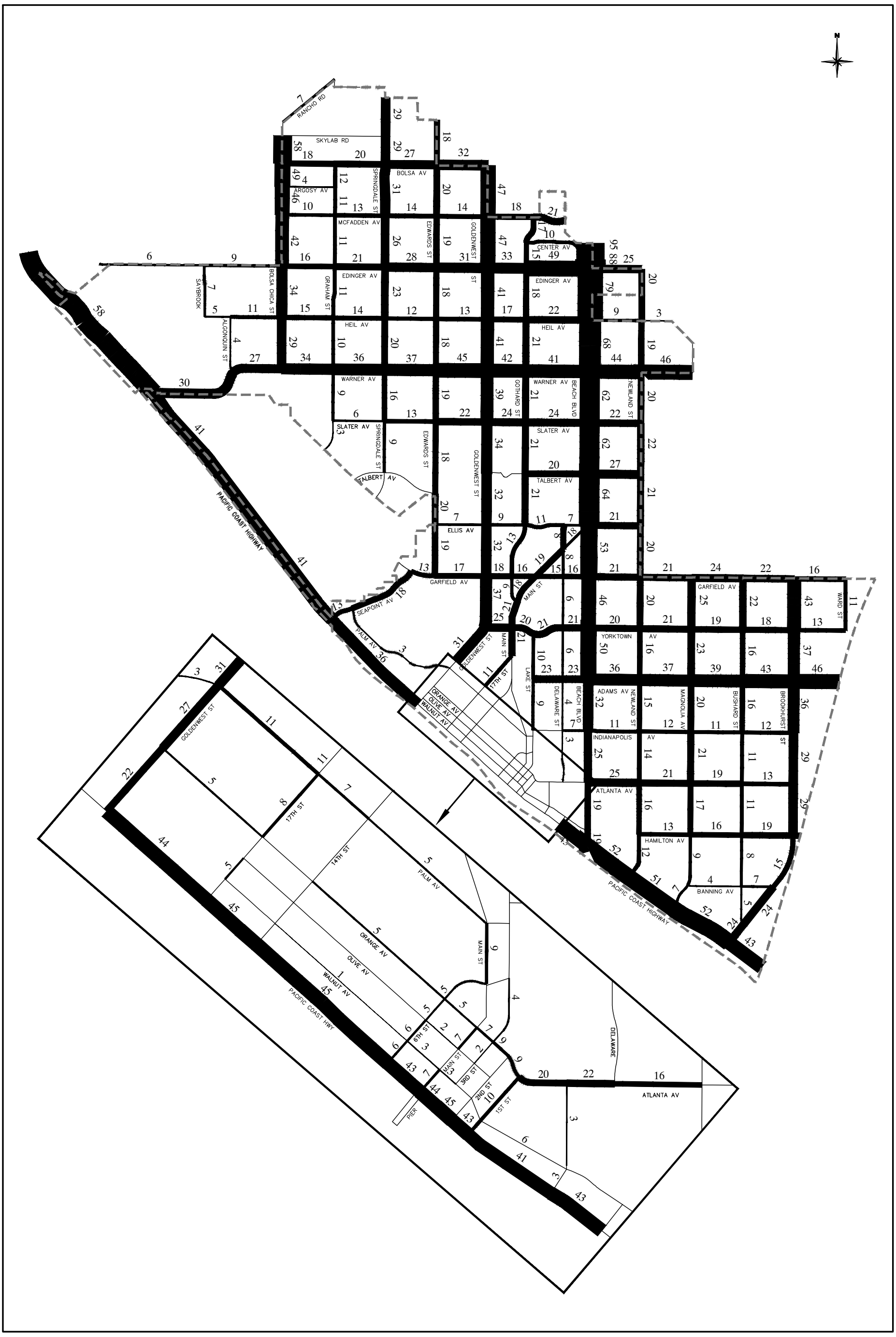
Legend

HB City Boundary

10 20 30 ADT Volumes (000s)

Figure 4-1

2030 ADT VOLUMES (000s)
- CURRENT ROADWAY PLAN



Legend

10 20 30

HB City Boundary

ADT Volumes (000s)

Figure 4-2

2030 ADT VOLUMES (000s)
- PROPOSED ROADWAY PLAN

Table 4-1

2030 ICU AND DELAY SUMMARY – CURRENT AND PROPOSED HIGHWAY PLANS
- COMMITTED INTERSECTION IMPROVEMENTS

Intersection*	Designa-tion*	Current Highway Plan				Proposed Highway Plan			
		AM		PM		AM		PM	
		ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
4. Bolsa Chica St & Bolsa Ave	Principal	.61	B	.70	B	.65	B	.74	C
5. Graham St & Bolsa Ave	Principal	.48	A	.55	A	.52	A	.59	A
6. Springdale St & Bolsa Ave	Principal	.69	B	.76	C	.75	C	.80	C
7. Edwards St & Bolsa Ave	Principal	.59	A	.65	B	.66	B	.76	C
8. Goldenwest St & Bolsa Ave	Principal	.79	C	1.02	F	.89	D	1.05	F
12. Graham St & McFadden Ave	Secondary	.41	A	.44	A	.40	A	.54	A
13. Springdale St & McFadden Ave	Principal	.76	C	.81	D	.73	C	.85	D
14.Edwards St & McFadden Ave	Secondary	.64	B	.61	B	.68	B	.65	B
15. Goldenwest St & McFadden Ave	Principal	.86	D	.86	D	.77	C	.81	D
16. Gothard St & McFadden Ave	Secondary	.36	A	.44	A	.68	B	.69	B
17. Gothard St & Center Ave	Secondary	.42	A	.69	B	.39	A	.57	A
18. I-405 SB Ramps & Center Ave	Principal	.42	A	.76	C	.52	A	.87	D
19. Beach Blvd & Center Ave	Principal	.75	C	.70	B	.77	C	.75	C
21. Saybrook Ln & Edinger Ave	Secondary	.71	C	.78	C	.37	A	.34	A
22. Bolsa Chica St & Edinger Ave	Principal	.86	D	.76	C	.86	D	.69	B
23. Graham St & Edinger Ave	Secondary	.53	A	.57	A	.50	A	.54	A
24. Springdale St & Edinger Ave	Principal	.69	B	.61	B	.74	C	.61	B
25. Edwards St & Edinger Ave	Secondary	.68	B	.65	B	.70	B	.64	B
26. Goldenwest St & Edinger Ave	Principal	.69	B	.76	C	.67	B	.75	C
27. Gothard St & Edinger Ave	Secondary	.59	A	.75	C	.60	A	.68	B
28. Beach Blvd & Edinger Ave	Principal	.83	D	.92	E	.86	D	1.02	F
29. Newland St & Edinger Ave	Principal	.74	C	.80	C	.87	D	.83	D
30. Algonquin St & Heil Ave	Secondary	.47	A	.48	A	.40	A	.41	A
31. Bolsa Chica St & Heil Ave	Principal	.79	C	.76	C	.76	C	.65	B
32. Graham St & Heil Ave	Secondary	.49	A	.53	A	.50	A	.50	A
33. Springdale St & Heil Ave	Secondary	.51	A	.66	B	.50	A	.65	B
34. Edwards St & Heil Ave	Secondary	.64	B	.55	A	.66	B	.59	A
35. Goldenwest St & Heil Ave	Secondary	.65	B	.62	B	.64	B	.64	B
36. Gothard St & Heil Ave	Secondary	.70	B	.75	C	.73	C	.80	C
37. Beach Blvd & Heil Ave	Principal	.80	C	.85	D	.88	D	.96	E

Cont.

Table 4-1 (cont)
2030 ICU AND DELAY SUMMARY – CURRENT AND PROPOSED HIGHWAY PLANS
COMMITTED INTERSECTION IMPROVEMENTS

Intersection*	Designa-tion*	Current Highway Plan				Proposed Highway Plan			
		AM		PM		AM		PM	
		ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
38. Newland St & Heil Ave	Secondary	.54	A	.62	B	.63	B	.62	B
39. PCH & Warner Ave	Principal	.89	D	.81	D	.91	E	.98	E
40. Algonquin St & Warner Ave	Principal	.30	A	.39	A	.60	A	.60	A
41. Bolsa Chica St & Warner Ave	Principal	.81	D	.81	D	.73	C	.72	C
42. Graham St & Warner Ave	Principal	.65	B	.56	A	.62	B	.65	B
43. Springdale St & Warner Ave	Principal	.76	C	.78	C	.77	C	.75	C
44. Edwards St & Warner Ave	Principal	.71	C	.75	C	.72	C	.78	C
45. Goldenwest St & Warner Ave	Principal	.74	C	.75	C	.73	C	.75	C
46. Gothard St & Warner Ave	Principal	.64	B	.81	D	.66	B	.81	D
47. Beach Blvd & Warner Ave	Principal	.74	C	.89	D	.78	C	.97	E
48. Newland St & Warner Ave	Principal	.90	D	.87	D	.91	E	.94	E
49. Graham St & Slater Ave	Secondary	.41	A	.42	A	.39	A	.45	A
50. Springdale St & Slater Ave	Secondary	.64	B	.49	A	.64	B	.54	A
51. Edwards St & Slater Ave	Secondary	.66	B	.64	B	.64	B	.62	B
52. Goldenwest St & Slater Ave	Principal	.86	D	1.01	F	.85	D	1.00	E
53. Gothard St & Slater Ave	Secondary	.85	D	.69	B	.85	D	.71	C
54. Beach Blvd & Slater Ave	Principal	.77	C	.90	D	.85	D	.91	E
55. Newland St & Slater Ave	Secondary	.65	B	.66	B	.67	B	.71	C
59. Gothard St & Talbert Ave	Secondary	.53	A	.80	C	.58	A	.88	D
60. Beach Blvd & Talbert Ave	Principal	.82	D	.99	E	.85	D	1.02	F
61. Newland St & Talbert Ave	Secondary	.70	B	.90	D	.68	B	.89	D
62. Edwards St & Ellis Ave	Secondary	.38	A	.52	A	.38	A	.54	A
63. Goldenwest St & Ellis Ave	Principal	.47	A	.55	A	.49	A	.58	A
64. Gothard St & Ellis Ave	Secondary	.51	A	.40	A	.54	A	.46	A
65. Delaware St & Ellis Ave	Secondary	.35	A	.51	A	.39	A	.53	A
66. Beach Blvd & Ellis Ave	Principal	.62	B	.69	B	.65	B	.73	C
67. Newland St & Ellis Ave	Secondary	.57	A	.64	B	.57	A	.64	B
68. Main St & Ellis Ave	Secondary	.31	A	.41	A	.30	A	.43	A
69. Delaware St & Main St	Principal	.37	A	.47	A	.39	A	.48	A
70. Seapoint Ave & Garfield Ave	Secondary	.33	A	.38	A	.29	A	.33	A
71. Edwards St & Garfield Ave	Principal	.67	B	.69	B	.63	B	.68	B

Cont.

Table 4-1 (cont)
2030 ICU AND DELAY SUMMARY – CURRENT AND PROPOSED HIGHWAY PLANS
COMMITTED INTERSECTION IMPROVEMENTS

Intersection*	Designa-tion*	Current Highway Plan				Proposed Highway Plan			
		AM		PM		AM		PM	
		ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
72. Goldenwest St & Garfield Ave	Principal	.50	A	.59	A	.49	A	.59	A
73. Gothard St & Garfield Ave	Principal	.49	A	.51	A	.43	A	.46	A
74. Main St & Garfield Ave	Principal	.34	A	.48	A	.34	A	.43	A
75. Delaware St & Garfield Ave	Secondary	.72	C	.71	C	.70	B	.70	B
76. Beach Blvd & Garfield Ave	Principal	.74	C	.98	E	.74	C	.98	E
77. Newland St & Garfield Ave	Secondary	.58	A	.62	B	.55	A	.63	B
78. Magnolia St & Garfield Ave	Principal	.73	C	.80	C	.72	C	.79	C
79. Bushard St & Garfield Ave	Secondary	.56	A	.66	B	.54	A	.74	C
80. Brookhurst St & Garfield Ave	Principal	.67	B	.94	E	.72	C	.85	D
81. Ward St & Garfield Ave	Secondary	.61	B	.39	A	.85	D	.58	A
83. Goldenwest St & Yorktown Ave	Principal	.52	A	.70	B	.58	A	.79	C
84. Main St & Yorktown Ave	Principal	.61	B	.54	A	.61	B	.60	A
85. Lake St & Yorktown Ave	Principal	.45	A	.49	A	.48	A	.51	A
86. Delaware St & Yorktown Ave	Secondary	.52	A	.45	A	.53	A	.46	A
87. Beach Blvd & Yorktown Ave	Principal	.70	B	.82	D	.67	B	.92	E
88. Newland St & Yorktown Ave	Secondary	.69	B	.80	C	.72	C	.88	D
89. Magnolia St & Yorktown Ave	Secondary	.60	A	.61	B	.64	B	.65	B
90. Bushard St & Yorktown Ave	Secondary	.63	B	.62	B	.62	B	.64	B
91. Brookhurst St & Yorktown Ave	Principal	.58	A	.71	C	.59	A	.70	B
93. Delaware St & Adams Ave	Secondary	.50	A	.51	A	.54	A	.54	A
94. Beach Blvd & Adams Ave	Principal	.65	B	.86	D	.69	B	.86	D
95. Newland St & Adams Ave	Principal	.67	B	.69	B	.68	B	.74	C
96. Magnolia St & Adams Ave	Principal	.84	D	.86	D	.87	D	.82	D
97. Bushard St & Adams Ave	Principal	.72	C	.78	C	.75	C	.81	D
98. Brookhurst St & Adams Ave	Principal	.93	E	.95	E	.97	E	1.04	F
101. Beach Blvd & Indianapolis	Principal	.55	A	.56	A	.60	A	.59	A
102. Newland St & Indianapolis	Secondary	.50	A	.54	A	.55	A	.58	A
103. Magnolia St & Indianapolis	Secondary	.76	C	.46	A	.80	C	.48	A
104. Bushard St & Indianapolis	Secondary	.52	A	.43	A	.51	A	.43	A
105. Brookhurst & Indianapolis	Principal	.40	A	.51	A	.40	A	.51	A

Cont.

Table 4-1 (cont)
2030 ICU AND DELAY SUMMARY – CURRENT AND PROPOSED HIGHWAY PLANS
COMMITTED INTERSECTION IMPROVEMENTS

Intersection*	Designa-tion*	Current Highway Plan				Proposed Highway Plan			
		AM		PM		AM		PM	
		ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
107. Delaware St & Atlanta Ave	Secondary	.38	A	.34	A	.37	A	.37	A
108. Beach Blvd & Atlanta Ave	Principal	.58	A	.89	D	.62	B	.88	D
109. Newland St & Atlanta Ave	Secondary	.48	A	.53	A	.59	A	.62	B
110. Magnolia St & Atlanta Ave	Principal	.60	A	.55	A	.63	B	.57	A
111. Bushard St & Atlanta Ave	Secondary	.56	A	.44	A	.55	A	.47	A
112. Brookhurst St & Atlanta	Principal	.67	B	.74	C	.54	A	.58	A
115. Newland St & Hamilton Ave	Secondary	.35	A	.52	A	.45	A	.68	B
116. Magnolia St & Hamilton Ave	Principal	.69	B	.83	D	.59	A	.74	C
117. Bushard St & Hamilton Ave	Secondary	.52	A	.51	A	.50	A	.47	A
118. Brookhurst & Hamilton	Principal	.63	B	.79	C	.65	B	.86	D
119. Magnolia St & Banning Ave	Secondary	.26	A	.25	A	.29	A	.27	A
120. Bushard St & Banning Ave	Secondary	.40	A	.33	A	.42	A	.37	A
121. Brookhurst St & Banning	Principal	.17	A	.19	A	.18	A	.20	A
122. Seapoint Ave & Palm Ave	Principal	.32	A	.32	A	.31	A	.27	A
123. Goldenwest St & Palm Ave	Principal	.59	A	.50	A	.61	B	.55	A
124. Goldenwest St & Orange Ave	Principal	.33	A	.33	A	.41	A	.38	A
125. Seapoint Ave & PCH	Principal	.84	D	.87	D	.83	D	.84	D
126. Goldenwest St & PCH	Principal	.94	E	1.03	F	.88	D	1.14	F
127. 17th & PCH	Principal	.88	D	.96	E	.82	D	.90	D
129. 6th & Pacific Coast Hwy	Principal	.63	B	.86	D	.59	A	.72	C
130. Main St & Pacific Coast	Principal	.93	E	.93	E	.88	D	.89	D
133. 1st St & Pacific Coast Hwy	Principal	.67	B	.66	B	.62	B	.62	B
134. Delaware St & PCH	Principal	.95	E	.88	D	.88	D	.78	C
135. Beach Blvd & PCH	Principal	.64	B	.89	D	.69	B	.80	C
136. Newland St & PCH	Principal	.75	C	.66	B	.77	C	.74	C
137. Magnolia St & PCH	Principal	.70	B	.74	C	.70	B	.76	C
138. Brookhurst St & PCH	Principal	.68	B	1.02	F	.73	C	1.10	F
140. Main St & 17th St	Secondary	.53	A	.47	A	.50	A	.49	A
141. Main St & Adams Ave	Secondary	.59	A	.66	B	.62	B	.69	B
142. 17th St & Palm Ave	Secondary	.67	B	.39	A	.68	B	.42	A
148. 6th St & Orange Ave	Principal	.30	A	.26	A	.32	A	.29	A
150. 3rd St & Orange Ave	Secondary	.41	A	.46	A	.42	A	.55	A
152. 1st & Atlanta Ave/Orange	Principal	.61	B	.63	B	.60	A	.60	A

Cont.

Table 4-1 (cont)
2030 ICU AND DELAY SUMMARY – CURRENT AND PROPOSED HIGHWAY PLANS
COMMITTED INTERSECTION IMPROVEMENTS

HCM Analysis

Caltrans Locations	Designa-tion*	Current Highway Plan				Proposed Highway Plan			
		AM		PM		AM		PM	
		Delay **	LOS	Delay **	LOS	Delay **	LOS	Delay **	LOS
Beach Boulevard (SR-39) Intersections									
18. I-405 SB & Center Ave	Principal	31	C	35	C	27	C	41	D
19. Beach Blvd & Center Ave	Principal	12	B	18	B	12	B	19	B
28. Beach Blvd & Edinger Ave	Principal	115	F	78	E	150	F	96	F
37. Beach Blvd & Heil Ave	Principal	24	C	40	D	30	C	66	E
47. Beach Blvd & Warner Ave	Principal	53	D	40	D	54	D	45	D
54. Beach Blvd & Slater Ave	Principal	47	D	58	E	49	D	61	E
60. Beach Blvd & Talbert Ave	Principal	47	D	68	E	49	D	75	E
66. Beach Blvd & Ellis Ave	Principal	42	D	39	D	44	D	41	D
76. Beach Blvd & Garfield Ave	Principal	41	D	78	E	41	D	77	E
87. Beach Blvd & Yorktown Ave	Principal	40	D	50	D	39	D	56	E
94. Beach Blvd & Adams Ave	Principal	38	D	50	D	40	D	53	D
101. Beach Blvd & Indianapolis Ave	Principal	30	C	24	C	31	C	26	C
108. Beach Blvd & Atlanta Ave	Principal	25	C	48	D	28	C	57	E
Pacific Coast Hwy (SR-1) Intersections									
39. PCH & Warner	Principal	46	D	29	C	56	E	75	E
125. Seapoint Ave & PCH	Principal	15	B	21	C	13	B	21	C
126. Goldenwest & PCH	Principal	44	D	70	E	28	C	74	E
127. 17th St & PCH	Principal	26	C	67	E	14	B	27	C
129. 6th St & PCH	Principal	12	B	42	D	10	A	17	B
130. Main St & PCH	Principal	12	B	24	C	9	A	13	B
133. 1st St & PCH	Principal	22	C	26	C	18	B	22	C
134. Huntington St & PCH	Principal	109	F	69	E	47	D	20	B
135. Beach Blvd & PCH	Principal	24	C	76	E	26	C	33	C
136. Newland St & PCH	Principal	15	B	8	A	20	C	14	B
137. Magnolia Ave & PCH	Principal	21	C	21	C	21	C	23	C
138. Brookhurst St & PCH	Principal	30	C	73	E	30	C	89	F

Cont.

Table 4-1 (cont)
2030 ICU AND DELAY SUMMARY – CURRENT AND PROPOSED HIGHWAY PLANS
COMMITTED INTERSECTION IMPROVEMENTS

* See intersection location map in Figure 4-3.

Shading denotes intersections that exceed the City performance standard of:
LOS "D" for Principal Intersections
LOS "C" for Secondary Intersections

*The two intersection designations are noted in Chapter 1.0 and are discussed in more detail in Chapter 3.0.

**Delay given in seconds.

Level of service ranges:

Level of Service	ICU	Delay (in seconds)
A	.00 - .60	0 – 10.00
B	.61 - .70	10.01 – 20.00
C	.71 - .80	20.01 – 35.00
D	.81 - .90	35.01 – 55.00
E	.91 – 1.00	55.01 – 80.00
F	Above 1.00	80.01 and up

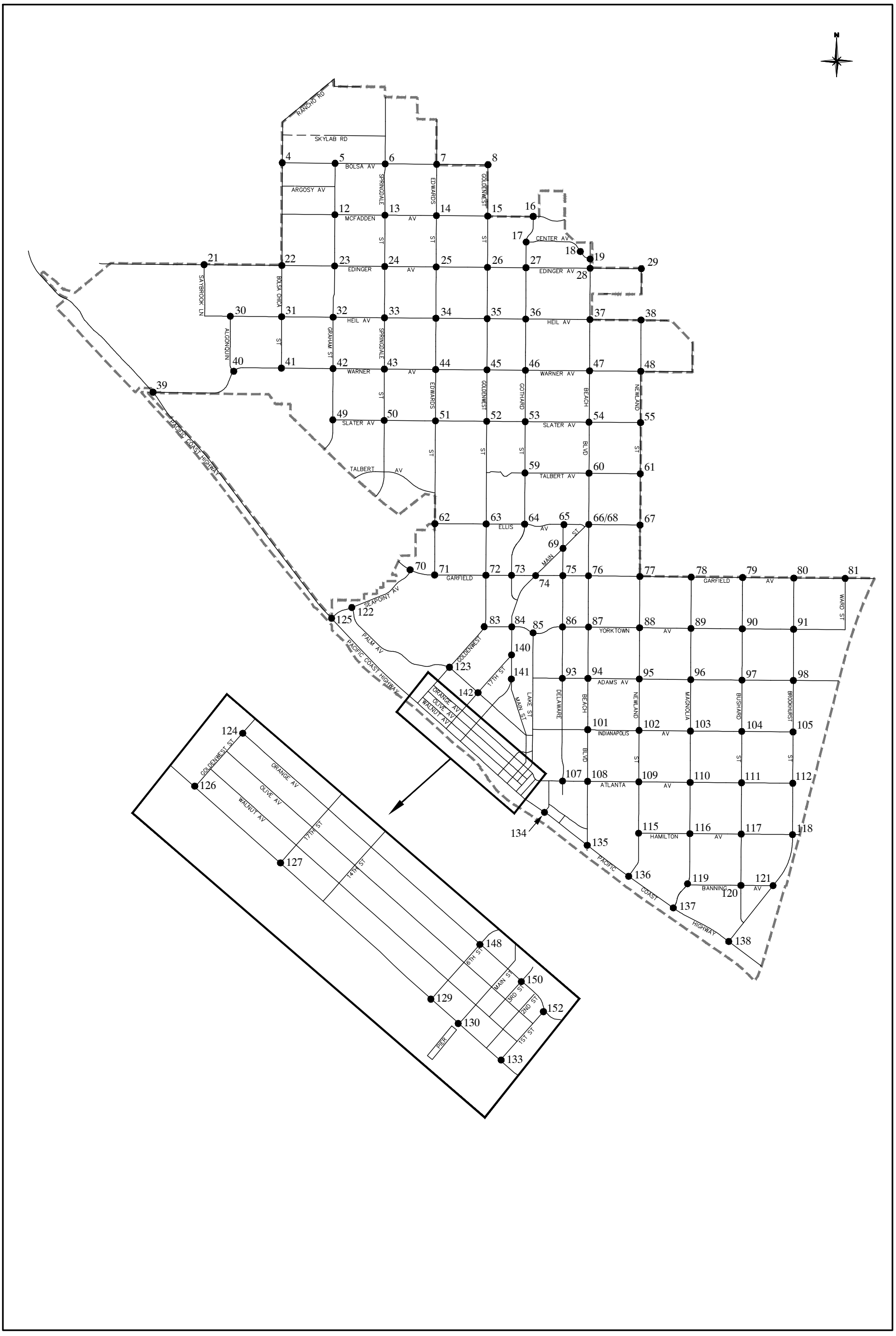
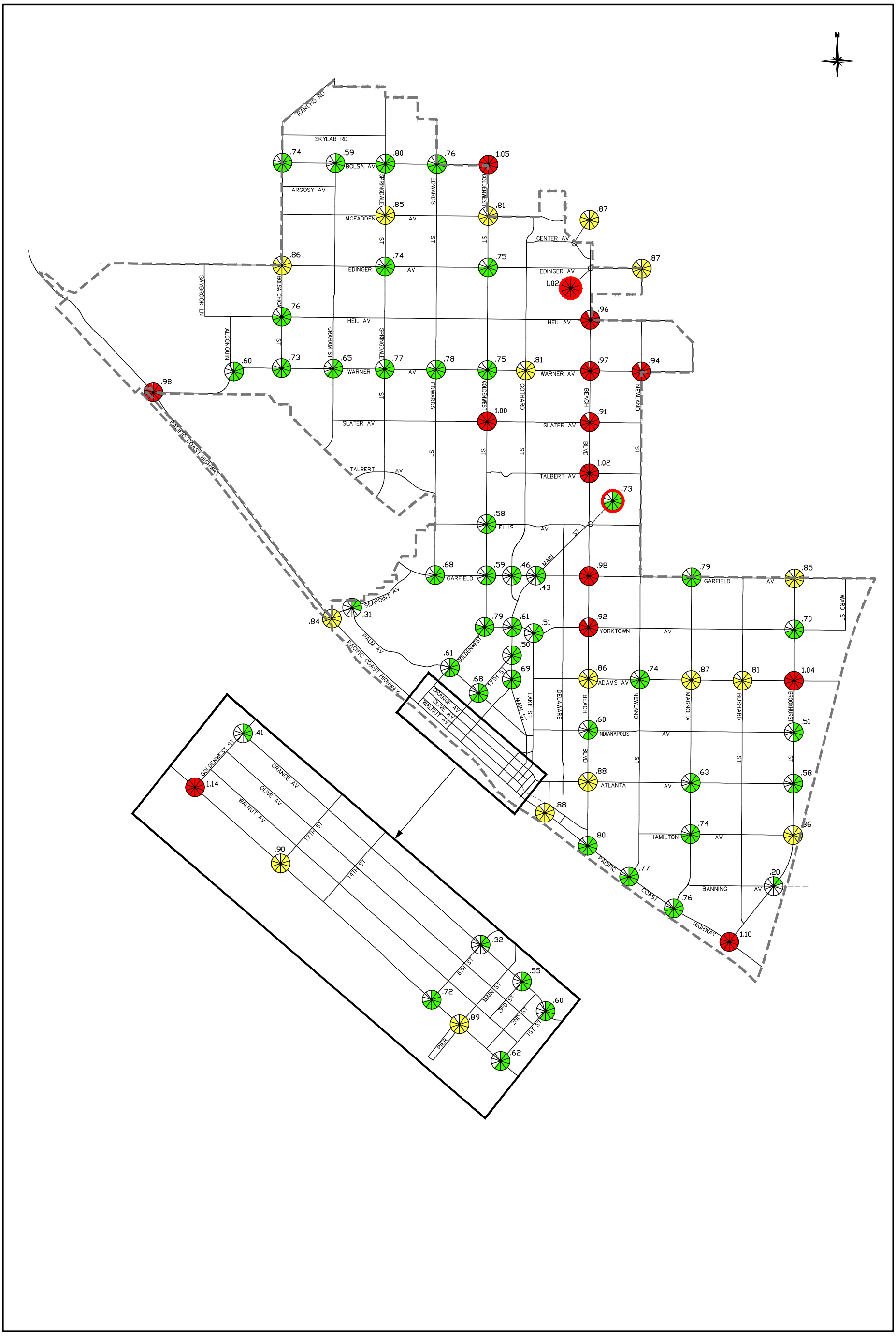


Figure 4-3

INTERSECTION LOCATION MAP



LEGEND

.xx Highest ICU value during the AM or PM peak hour

---- Future Roadway

LOS A-C

LOS D

LOS E-F

Operational LOS E-F

Level of service (LOS) ranges:

LOS A .00-.60	LOS D .81-.90
LOS B .61-.70	LOS E .91-1.00
LOS C .71-.80	LOS F Above 1.00

Figure 4-4

2030 PEAK HOUR ICUs
(HIGHEST AM OR PM PEAK)
- PRINCIPAL INTERSECTIONS

LEGEND

.xx Highest ICU value during the AM or PM peak hour

– – – – Future Roadway

LOS A-C

LOS D

LOS E-F

Operational LOS E-F

Level of service (LOS) ranges:

LOS A .00-.60	LOS D .81-.90
LOS B .61-.70	LOS E .91-1.00
LOS C .71-.80	LOS F Above 1.00

Figure 4-5

2030 PEAK HOUR ICUs
(HIGHEST AM OR PM PEAK)
- SECONDARY INTERSECTIONS

RECOMMENDED IMPROVEMENTS

A set of recommended improvements were identified for the deficient intersections identified in the previous section and these are summarized in Table 4-2. For some intersections, a second improvement option has been identified to ascertain the value of one set of roadway improvements over another. The "Option 2" improvements, as they are labeled, generally are greater in magnitude but provide greater benefit than the Option 1 improvements.

Table 4-3 summarizes the peak hour ICU and delay values for the deficient intersections with the recommended improvements. With the Option 1 improvements, six Principal intersections remain deficient with the recommended improvements under ICU methodology. However, three of the Principal intersections are under the jurisdiction of Caltrans and, as such, the delay methodology prevails. The City's (and Caltrans') performance standard of LOS "D" is achieved at these intersections with the recommended improvements under delay methodology. Hence, for the purpose of this analysis they are not considered deficient. The remaining three deficiencies under Option 1 improvements are listed below:

48. Newland St & Warner Ave (Principal)
52. Goldenwest St & Slater Ave (Principal)
138. Brookhurst St & PCH (Principal)

With the Option 2 improvements, three Principal intersections remain deficient with the recommended improvements under ICU methodology. However, one of the Principal intersections is under the jurisdiction of Caltrans and, as such, the delay methodology prevails. The City's (and Caltrans') performance standard of LOS "D" is achieved here with the recommended improvements under delay methodology. The remaining two deficiencies under Option 2 improvements are listed below and are candidates for the "Critical Intersection" designation discussed in Chapter 3.0.

49. Newland St & Warner Ave (Principal)
138. Brookhurst St & PCH (Principal)

Table 4-2

RECOMMENDED LONG-RANGE IMPROVEMENTS

Principal Intersections	**Recommended Improvements**
8. Goldenwest St & Bolsa Ave	Add 2nd southbound left turn lane. Add separate northbound right turn lane. Allow westbound right turn overlap.
28. Beach Blvd & Edinger Ave	Add 4th northbound through lane. Add 3rd westbound through lane.
37. Beach Blvd & Heil Ave	***Option 1*** Add 2nd northbound left turn lane. ***Option 2*** Add defacto westbound right turn lane. Add defacto southbound right turn lane.
39. PCH & Warner Ave	Add 3rd northbound through lane.
47. Beach Blvd & Warner Ave	***Option 1*** Add separate westbound right turn lane. ***Option 2*** Add defacto westbound right turn lane. Add separate northbound right turn lane.
48. Newland St & Warner Ave	Convert separate westbound right turn lane to a defacto right turn lane. Add 3rd westbound through lane.
52. Goldenwest St & Slater Ave	***Option 1*** Add 2nd southbound left turn lane. ***Option 2*** Convert separate northbound right turn lane to third northbound through lane.
54. Beach Blvd & Slater Ave	Add separate eastbound right turn lane.
60. Beach Blvd & Talbert Ave	Add 2nd westbound left turn lane. Add defacto westbound right turn lane. Add separate northbound right turn lane. Add 2nd eastbound left turn lane. Stripe defacto eastbound right turn lane.
76. Beach Blvd & Garfield Ave	***Option 1*** Add defacto northbound right turn lane. Add defacto southbound right turn lane. ***Option 2*** Add 2nd northbound left turn lane. Add 2nd southbound left turn lane.
87. Beach Blvd & Yorktown Ave	Add separate westbound right turn lane.
98. Brookhurst St & Adams Ave	Add 4th northbound through lane. Add separate northbound right turn lane. Add 4th southbound through lane. Add 4th eastbound through lane. Add 4th westbound through lane. Allow northbound right turn overlap. Allow westbound right turn overlap.
126. Goldenwest St & PCH	Add 2nd eastbound left turn lane. Allow southbound right turn overlap.
138. Brookhurst & PCH	Add 2nd eastbound left turn lane. Allow southbound right turn overlap.

Table 4-2
RECOMMENDED LONG-RANGE IMPROVEMENTS

Secondary Intersections	**Recommended Improvements**
53. Gothard St & Slater Ave	Add second northbound left turn lane.
59. Gothard St & Talbert Ave	***Option 1*** Add second southbound left turn lane. ***Option 2*** Convert separate eastbound right turn lane to second eastbound through lane.
61. Newland St & Talbert Ave	Add second eastbound left turn lane.
81. Ward St & Garfield Ave	Add second eastbound left turn lane. Remove separate eastbound right turn lane.
88. Newland St & Yorktown Ave	Restripe westbound right turn lane to a second westbound through lane.

Note: See intersection location map in Figure 4-3.

Table 4-3

2030 ICU AND DELAY SUMMARY
– PROPOSED HIGHWAY PLAN WITH RECOMMENDED IMPROVEMENTS

	With Committed Improvements				**With Recommended Improvements**							
					Option 1				**Option 2**			
	AM		**PM**		**AM**		**PM**		**AM**		**PM**	
Intersection*	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**
Principal Intersections												
8. Goldenwest St & Bolsa Ave	.89	D	1.05	F	.74	C	.90	D	*Same as Option 1*			
28. Beach Blvd & Edinger Ave	.86	D	1.02	F	.75	C	.87	D	*Same as Option 1*			
37. Beach Blvd & Heil Ave	.88	D	.96	E	.84	D	.90	D	.82	D	.87	D
39. PCH & Warner Ave	.91	E	.98	E	.87	D	.81	D	*Same as Option 1*			
47. Beach Blvd & Warner Ave	.78	C	.97	E	.78	C	.91	E	.76	C	.87	D
48. Newland St & Warner Ave	.91	E	.94	E	.91	E	.88	D	*Same as Option 1*			
52. Goldenwest St & Slater Ave	.85	D	1.00	E	.76	C	.91	E	.79	C	.88	D
54. Beach Blvd & Slater Ave	.85	D	.91	E	.82	D	.89	D	*Same as Option 1*			
60. Beach Blvd & Talbert Ave	.85	D	1.02	F	.78	C	.81	D	*Same as Option 1*			
76. Beach Blvd & Garfield Ave	.74	C	.98	E	.73	C	.94	E	.66	B	.87	D
87. Beach Blvd & Yorktown Ave	.67	B	.92	E	.67	B	.88	D	*Same as Option 1*			
98. Brookhurst St & Adams Ave	.97	E	1.04	F	.82	D	.81	D	*Same as Option 1*			
126. Goldenwest St & PCH	.88	D	1.14	F	.74	C	.92	E	*Same as Option 1*			
138. Brookhurst St & PCH	.73	C	1.10	F	.65	B	.96	E	*Same as Option 1*			
Secondary Intersections												
53. Gothard St & Slater Ave	.85	D	.71	C	.74	C	.64	B	*Same as Option 1*			
59. Gothard St & Talbert Ave	.58	A	.88	D	.49	A	.76	C	.58	A	.79	C
61. Newland St & Talbert Ave	.68	B	.89	D	.68	B	.80	D	*Same as Option 1*			
81. Ward St & Garfield Ave	.85	D	.58	A	.66	B	.50	A	*Same as Option 1*			
88. Newland St & Yorktown Ave	.72	C	.88	D	.58	A	.71	C	*Same as Option 1*			

Cont.

Table 4-3 (cont)
2030 ICU AND DELAY SUMMARY
– PROPOSED HIGHWAY PLAN WITH RECOMMENDED IMPROVEMENTS

	With Committed Improvements				With Recommended Improvements							
					Option 1				Option 2			
	AM		PM		AM		PM		AM		PM	
Caltrans Intersection*	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
Principal Intersections												
28. Beach Blvd & Edinger Ave	150	F	96	F	34	C	47	D	*Same as Option 1*			
37. Beach Blvd & Heil Ave	30	C	66	E	29	C	54	D	28	C	55	D
47. Beach Blvd & Warner Ave	54	D	45	D	54	D	49	D	53	D	42	D
54. Beach Blvd & Slater Ave	49	D	61	E	45	D	55	D	*Same as Option 1*			
60. Beach Blvd & Talbert Ave	49	D	75	E	41	D	43	D	*Same as Option 1*			
76. Beach Blvd & Garfield Ave	41	D	77	E	37	D	55	D	40	D	70	E
87. Beach Blvd & Yorktown Ave	39	D	56	E	38	D	50	D	*Same as Option 1*			
Secondary Intersections												
39. PCH & Warner	56	E	75	E	43	D	42	D	*Same as Option 1*			
126. Goldenwest & PCH	28	C	74	E	18	B	30	C	*Same as Option 1*			
138. Brookhurst St & PCH	30	C	89	F	24	C	39	D	*Same as Option 1*			

As was noted earlier (see Chapter 2.0), ICU values are calculated on the assumption of ideal operating conditions. Certain conditions such as short roadway sections that cause vehicle queues to block adjacent intersections, high pedestrian volumes, or uneven lane utilization can prevent ideal conditions. The following intersection meets this criteria in 2030 and thereby has a lower operational LOS than given by the ICU value:

69. Main St & Ellis Ave (Principal)

At this time, no improvements are proposed for this location. Accordingly, it is also a candidate for the "Critical Intersection" designation discussed in Chapter 3.0.

In summary, the analysis shows that with the exception of the three intersections with "Critical Intersection" status, the proposed Highway Plan for the updated Circulation Element is able to serve the 2030 traffic demand at the LOS standards being recommended for the City's arterial highway plan. These three locations will be monitored over time, evaluating changing conditions and the feasibility of implementing improvements.

Chapter 5.0
SPECIAL ISSUES

This chapter discusses related traffic items such as the approved Beach/Edinger Specific Plan and the Downtown Specific Plan, and the Banning Avenue Bridge deletion from the Circulation Element. These are discussed here to provide background information and pertinent findings in relation to the Circulation Element.

DOWNTOWN SPECIFIC PLAN

The Downtown Specific Plan (DTSP) as approved by the City in 2010 proposed land use changes to the area bounded by Pacific Coast Highway, Beach Boulevard and Goldenwest Street. Figure 5-1 illustrates the area covered by the DTSP. At buildout, the DTSP will allow an additional 107 hotel rooms and 19,000 square feet of commercial land uses and envisions 486 less residential units than the General Plan.

Table 5-1 summarizes the land use and trip generation for the DTSP and provides a comparison against the General Plan land uses assumed in the Circulation Element. The land use and trip generation change associated with the DTSP results in a one percent decrease in daily trips and a three percent decrease in the AM and PM peak hours. The conclusion from this trip generation analysis is that the DTSP will generate fewer trips than that assumed in the Circulation Element traffic study and will not result in any additional impacts from trip generation.

BEACH/EDINGER SPECIFIC PLAN

The Beach-Edinger Specific Plan as approved in 2010 proposed land use changes to the area that extends along Beach Boulevard from Edinger Avenue to just south of Atlanta Avenue, and along Edinger Avenue from Goldenwest Street to Beach Boulevard. Figure 5-2 illustrates the area covered by the Beach-Edinger Specific Plan. At buildout, the Specific Plan will allow 4,500 residential units, approximately 739,000 square feet of commercial uses, 112,000 square feet of office uses and 350 hotel

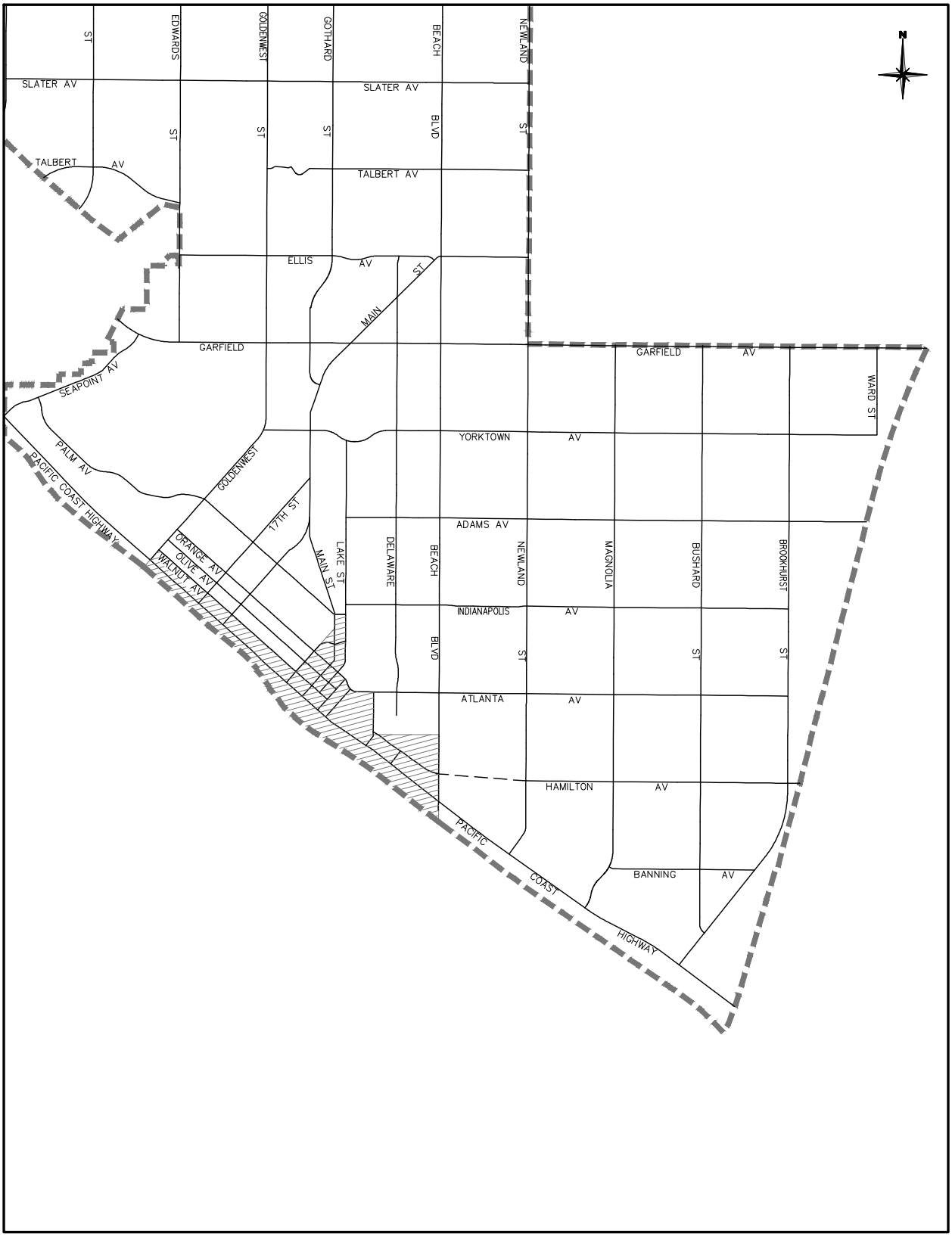


Figure 5-1

DOWNTOWN SPECIFIC PLAN (DTSP) AREA

Table 5-1

TRIP GENERATION SUMMARY
DOWNTOWN SPECIFIC PLAN

Project Description	Amount	AM Peak Hour			PM Peak Hour			ADT
		In	Out	Total	In	Out	Total	
CURRENT GENERAL PLAN								
Res. Med. High Density	78DU	12	38	50	41	23	64	636
Res. High Density	252 DU	25	103	128	101	56	157	1,694
Overnight Accommodations	339 Rooms	127	40	167	89	156	245	2,389
Commercial General	228 TSF	290	258	548	396	409	805	12,207
Commercial Office	36 TSF	48	6	54	9	44	53	391
Mixed-Use Residential	1,676 DU	169	689	858	671	368	1,039	11,263
Mixed-Use Commercial	950 TSF	901	808	1,709	1,215	1,274	2,489	38,141
Grand Total		1,572	1,942	3,514	2,522	2,330	4,852	66,721
DOWNTOWN SPECIFIC PLAN								
Res. Med. High Density	164 DU	23	80	103	84	49	133	1,335
Res. High Density	290 DU	29	119	148	116	64	180	1,949
Overnight Accommodations	446 Rooms	167	53	220	118	205	323	3,144
Commercial Visitor	24 TSF	14	18	32	27	36	63	1,043
Commercial General	358 TSF	457	404	861	621	642	1,263	19,176
Commercial Office	59 TSF	81	10	91	16	73	89	653
Mixed-Use Residential	1,066 DU	105	437	542	425	237	662	7,164
Mixed-Use Commercial	779 TSF	740	660	1,400	997	1,043	2,040	31,244
Government Office	13 TSF	13	3	16	8	15	23	215
Grand Total		1,629	1,784	3,413	2,412	2,364	4,776	65,923
Net Change		***57***	***-158***	***-101***	***-110***	***34***	***-76***	***-798***
% Difference				***-3%***			***-2%***	***-1%***

ADT – average daily traffic
DU – dwelling unit
TSF – thousand square feet of floor area

[1] The Specific Plan shows a net reduction in office square footage due to the addition of residential units that replace existing non-residential square footage.

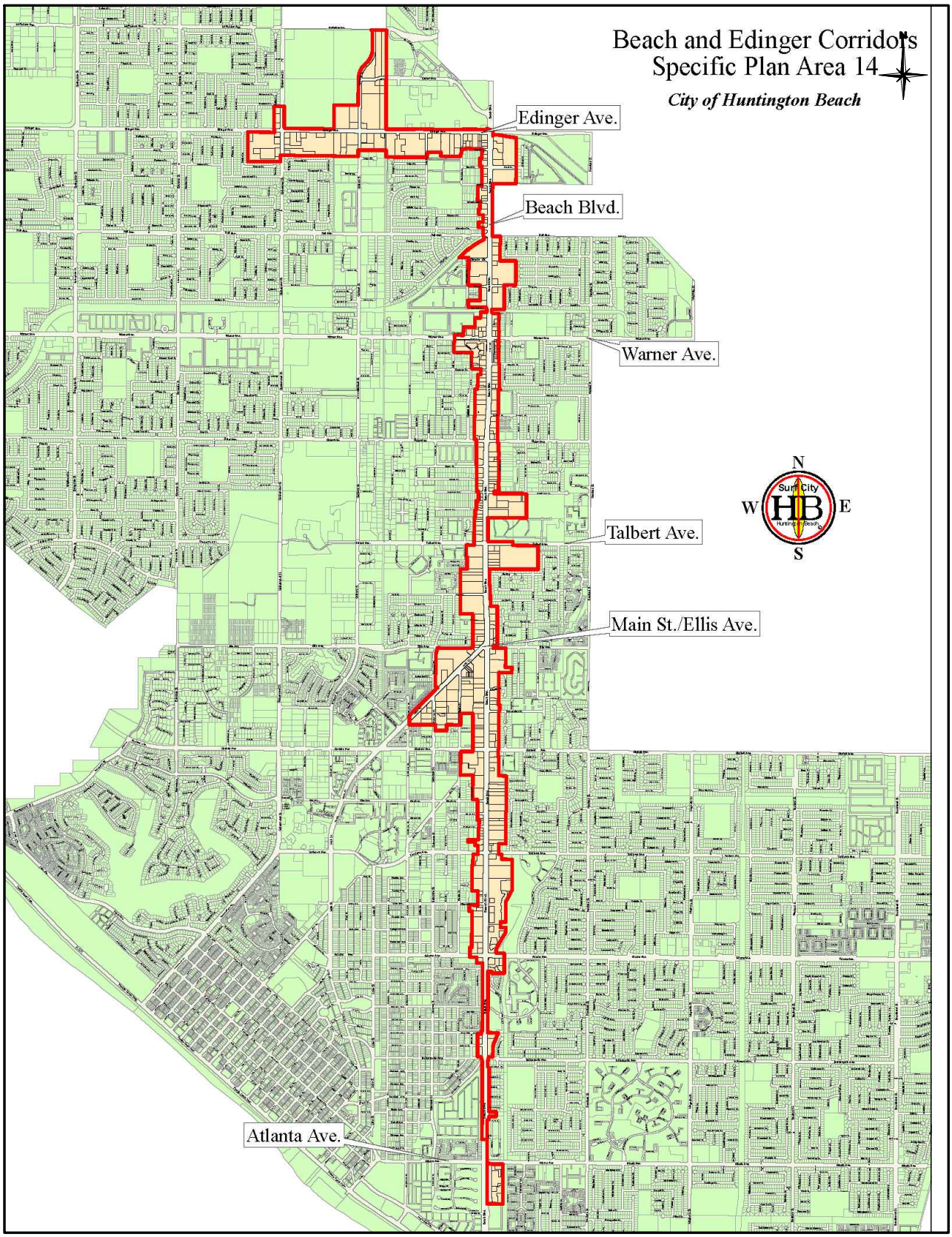


Figure 5-2

BEACH-EDINGER SPECIFIC PLAN

rooms. By way of comparison, the current General Plan would allow an additional 363 residential units, 1,748,000 square feet of commercial uses and 240 hotel rooms.

Table 5-2 summarizes the land use and trip generation for the Beach-Edinger Specific Plan and provides a comparison against the General Plan land uses assumed in the Circulation Element. This proposed change results in a 17 percent decrease in daily trips, a six percent decrease in the AM peak hour and a 12 percent decrease in the PM peak hour. The conclusion from this trip generation analysis is that the Specific Plan will generate fewer trips than that assumed in the Circulation Element traffic study and will not result in any additional impacts from trip generation.

2030 FORECAST VOLUMES WITH SPECIFIC PLAN LAND USES

The long-range analysis summarizes the traffic impacts of the combined land use changes. A year 2030 time frame is used for this analysis, and traffic forecasts are prepared for a land use scenario that contains both Specific Plans.

Figure 5-3 illustrates the year 2030 ADT volumes for this alternative and provides a comparison against the current General Plan land uses. The circulation system is the proposed highway plan for the Circulation Element update.

The 2030 peak hour ICU values and levels of service (LOS) are summarized in Table 5-3 for the land use alternative (refer to Figure 5-4 for an intersection location map). As discussed previously, LOS criteria have been proposed for intersections according to their designation of either Principal or Secondary, as follows:

Intersection Type	**LOS Criteria**
Principal	LOS “D” (ICU less than .91)
Secondary	LOS “C” (ICU less than .81)

As shown, 12 Principal intersections and five Secondary intersections are forecast to be deficient under the 2030 land use alternative. Two Principal intersections that were identified as deficient under the current General Plan/proposed highway plan are improved to an acceptable LOS with the land use alternative. These improvements are considered a beneficial effect of the land use alternative and the two locations are identified below:

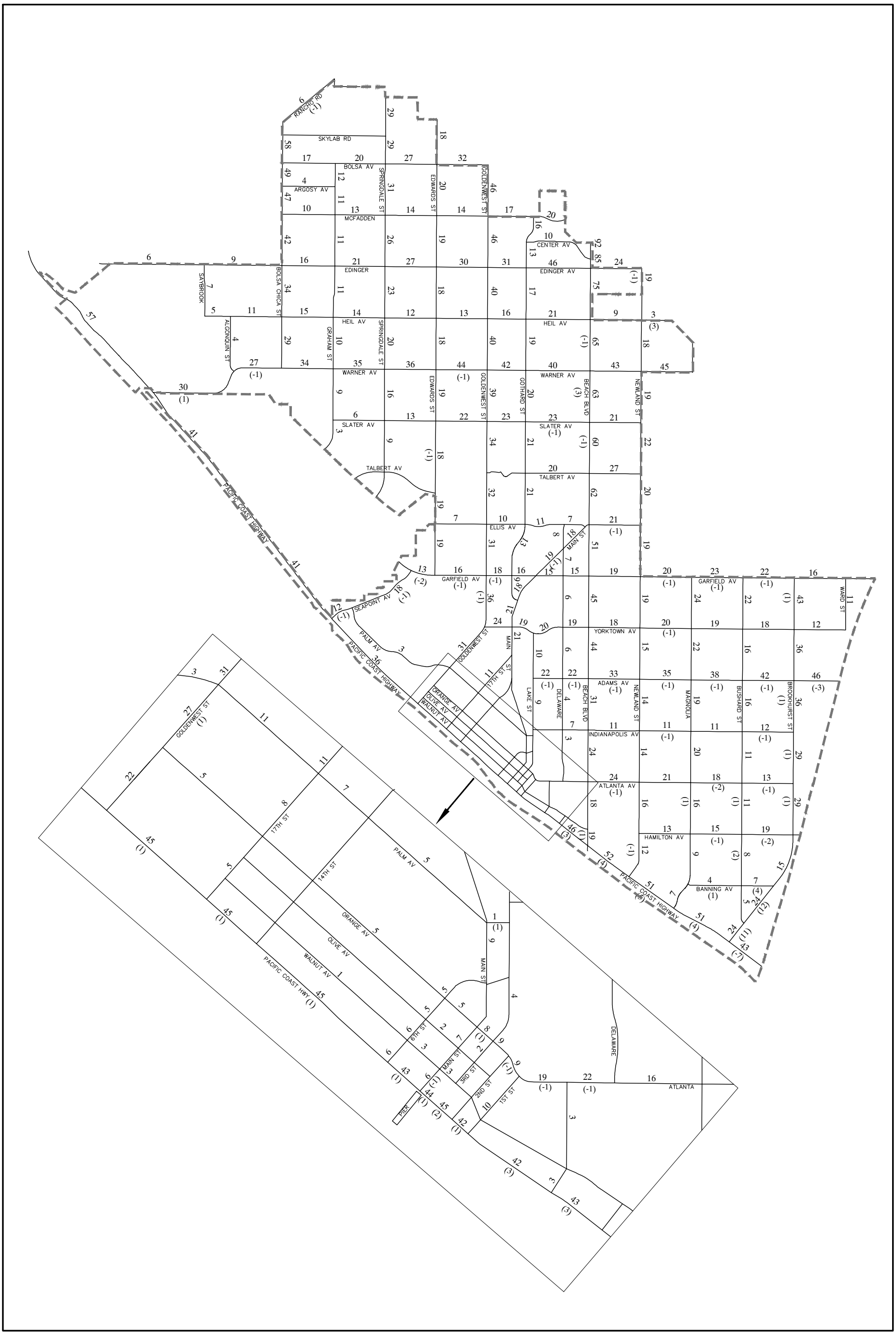
Table 5-2

TRIP GENERATION SUMMARY
BEACH-EDINGER CORRIDORS SPECIFIC PLAN

Project Description	Amount	AM Peak Hour			PM Peak Hour			ADT
		In	Out	Total	In	Out	Total	
CURRENT GENERAL PLAN								
Residential	6,063 DU	851	2,880	3,731	3,026	1,727	4,753	47,891
Commercial	5,568 TSF	6,550	5,746	12,296	9,504	9,813	19,317	285,923
Office	989 TSF	1,347	189	1,536	248	1,227	1,475	10,887
Industrial	500 TSF	345	75	420	90	340	430	3,483
Other	--	361	91	452	202	356	558	5,781
General Plan Trip Generation Total		9,454	8,981	18,435	13,070	13,463	26,533	353,965
SPECIFIC PLAN								
Residential	12,100 DU	1,501	5,431	6,932	5,553	3,129	8,682	89,790
Commercial	3,642 TSF	4,371	3,880	8,251	6,026	6,239	12,265	185,518
Office[1]	844 TSF	1,146	163	1,309	215	1,046	1,261	9,318
Industrial	440 TSF	304	66	370	79	299	378	3,064
Other	--	404	105	509	232	409	641	6,592
Specific Plan Trip Generation Total		7,726	9,645	17,371	12,105	11,122	23,227	294,282
Increment over current General Plan		-1,728	664	-1,064	-965	-2,341	-3,306	-59,683
% Difference				***-6%***			***-12%***	***-17%***

ADT – average daily traffic
DU – dwelling unit
TSF – thousand square feet of floor area

[1] The Specific Plan shows a net reduction in office square footage due to the addition of residential units that replace existing non-residential square footage.



Legend

XX / (YY) — With Specific Plans LU / Difference from current General Plan

Figure 5-3

2030 ADT VOLUME (000's) COMPARISON
- WITH DOWNTOWN AND BEACH-EDINGER
SPECIFIC PLANS

Table 5-3

2030 ICU SUMMARY – CURRENT GENERAL PLAN VS. WITH SPECIFIC PLANS
- COMMITTED INTERSECTION IMPROVEMENTS

Intersection*	Designa-tion*	With Proposed Highway Plan							
		Current General Plan				With Specific Plans			
		AM		PM		AM		PM	
		ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
4. Bolsa Chica St & Bolsa Ave	Principal	.65	B	.74	C	.65	B	.72	C
5. Graham St & Bolsa Ave	Principal	.52	A	.59	A	.51	A	.58	A
6. Springdale St & Bolsa Ave	Principal	.75	C	.80	C	.73	C	.80	C
7. Edwards St & Bolsa Ave	Principal	.66	B	.76	C	.65	B	.77	C
8. Goldenwest St & Bolsa Ave	Principal	.89	D	1.05	F	.91	E	1.05	F
12. Graham St & McFadden Ave	Secondary	.40	A	.54	A	.41	A	.54	A
13. Springdale St & McFadden Ave	Principal	.73	C	.85	D	.73	C	.85	D
14.Edwards St & McFadden Ave	Secondary	.68	B	.65	B	.71	C	.64	B
15. Goldenwest St & McFadden Ave	Principal	.77	C	.81	D	.73	C	.81	D
16. Gothard St & McFadden Ave	Secondary	.68	B	.69	B	.65	B	.67	B
17. Gothard St & Center Ave	Secondary	.39	A	.57	A	.39	A	.58	A
18. I-405 SB Ramps & Center Ave	Principal	.52	A	.87	D	.55	A	.87	D
19. Beach Blvd & Center Ave	Principal	.77	C	.75	C	.73	C	.75	C
21. Saybrook Ln & Edinger Ave	Secondary	.37	A	.34	A	.36	A	.33	A
22. Bolsa Chica St & Edinger Ave	Principal	.86	D	.69	B	.86	D	.68	B
23. Graham St & Edinger Ave	Secondary	.50	A	.54	A	.51	A	.56	A
24. Springdale St & Edinger Ave	Principal	.74	C	.61	B	.76	C	.61	B
25. Edwards St & Edinger Ave	Secondary	.70	B	.64	B	.69	B	.65	B
26. Goldenwest St & Edinger Ave	Principal	.67	B	.75	C	.66	B	.72	C
27. Gothard St & Edinger Ave	Secondary	.60	A	.68	B	.58	A	.65	B
28. Beach Blvd & Edinger Ave	Principal	.86	D	1.02	F	.90	D	.99	E
29. Newland St & Edinger Ave	Principal	.87	D	.83	D	.87	D	.82	D
30. Algonquin St & Heil Ave	Secondary	.40	A	.41	A	.40	A	.41	A
31. Bolsa Chica St & Heil Ave	Principal	.76	C	.65	B	.77	C	.64	B
32. Graham St & Heil Ave	Secondary	.50	A	.50	A	.49	A	.50	A
33. Springdale St & Heil Ave	Secondary	.50	A	.65	B	.51	A	.65	B
34. Edwards St & Heil Ave	Secondary	.66	B	.59	A	.66	B	.57	A
35. Goldenwest St & Heil Ave	Secondary	.64	B	.64	B	.65	B	.64	B
36. Gothard St & Heil Ave	Secondary	.73	C	.80	C	.72	C	.80	C
37. Beach Blvd & Heil Ave	Principal	.88	D	.96	E	.87	D	.98	E

Table 5-3(cont)
2030 ICU SUMMARY – CURRENT GENERAL PLAN VS. WITH SPECIFIC PLANS
COMMITTED INTERSECTION IMPROVEMENTS

		Current General Plan				With Specific Plans			
		With Proposed Highway Plan				With Proposed Highway Plan			
	Designa-	AM		PM		AM		PM	
Intersection*	**tion***	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**
38. Newland St & Heil Ave	Secondary	.63	B	.62	B	.60	A	.61	B
39. PCH & Warner Ave	Principal	.91	E	.98	E	.92	E	.97	E
40. Algonquin St & Warner Ave	Principal	.60	A	.60	A	.60	A	.61	B
41. Bolsa Chica St & Warner Ave	Principal	.73	C	.72	C	.74	C	.71	C
42. Graham St & Warner Ave	Principal	.62	B	.65	B	.60	A	.65	B
43. Springdale St & Warner Ave	Principal	.77	C	.75	C	.75	C	.75	C
44. Edwards St & Warner Ave	Principal	.72	C	.78	C	.71	C	.76	C
45. Goldenwest St & Warner Ave	Principal	.73	C	.75	C	.73	C	.74	C
46. Gothard St & Warner Ave	Principal	.66	B	.81	D	.65	B	.80	C
47. Beach Blvd & Warner Ave	Principal	.78	C	.97	E	.78	C	.95	E
48. Newland St & Warner Ave	Principal	.91	E	.94	E	.89	D	.91	E
49. Graham St & Slater Ave	Secondary	.39	A	.45	A	.41	A	.44	A
50. Springdale St & Slater Ave	Secondary	.64	B	.54	A	.66	B	.54	A
51. Edwards St & Slater Ave	Secondary	.64	B	.62	B	.64	B	.62	B
52. Goldenwest St & Slater Ave	Principal	.85	D	1.00	E	.84	D	.99	E
53. Gothard St & Slater Ave	Secondary	.85	D	.71	C	.85	D	.69	B
54. Beach Blvd & Slater Ave	Principal	.85	D	.91	E	.85	D	.89	D
55. Newland St & Slater Ave	Secondary	.67	B	.71	C	.67	B	.69	B
59. Gothard St & Talbert Ave	Secondary	.58	A	.88	D	.59	A	.87	D
60. Beach Blvd & Talbert Ave	Principal	.85	D	1.02	F	.83	D	.99	E
61. Newland St & Talbert Ave	Secondary	.68	B	.89	D	.68	B	.89	D
62. Edwards St & Ellis Ave	Secondary	.38	A	.54	A	.39	A	.54	A
63. Goldenwest St & Ellis Ave	Principal	.49	A	.58	A	.48	A	.58	A
64. Gothard St & Ellis Ave	Secondary	.54	A	.46	A	.53	A	.45	A
65. Delaware St & Ellis Ave	Secondary	.39	A	.53	A	.40	A	.53	A
66. Beach Blvd & Ellis Ave	Principal	.65	B	.73	C	.64	B	.78	C
67. Newland St & Ellis Ave	Secondary	.57	A	.64	B	.56	A	.61	B
68. Main St & Ellis Ave	Secondary	.30	A	.43	A	.32	A	.45	A
69. Delaware St & Main St	Principal	.39	A	.48	A	.38	A	.49	A
70. Seapoint Ave & Garfield Ave	Secondary	.29	A	.33	A	.28	A	.32	A
71. Edwards St & Garfield Ave	Principal	.63	B	.68	B	.64	B	.66	B

Table 5-3 (cont)
2030 ICU SUMMARY – CURRENT GENERAL PLAN VS. WITH SPECIFIC PLANS
COMMITTED INTERSECTION IMPROVEMENTS

		Current General Plan				With Specific Plans			
		With Proposed Highway Plan				With Proposed Highway Plan			
	Designa-	AM		PM		AM		PM	
Intersection*	**tion***	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**
72. Goldenwest St & Garfield Ave	Principal	.49	A	.59	A	.51	A	.56	A
73. Gothard St & Garfield Ave	Principal	.43	A	.46	A	.41	A	.44	A
74. Main St & Garfield Ave	Principal	.34	A	.43	A	.34	A	.43	A
75. Delaware St & Garfield Ave	Secondary	.70	B	.70	B	.66	B	.69	B
76. Beach Blvd & Garfield Ave	Principal	.74	C	.98	E	.72	C	.98	E
77. Newland St & Garfield Ave	Secondary	.55	A	.63	B	.54	A	.62	B
78. Magnolia St & Garfield Ave	Principal	.72	C	.79	C	.72	C	.78	C
79. Bushard St & Garfield Ave	Secondary	.54	A	.74	C	.55	A	.73	C
80. Brookhurst St & Garfield Ave	Principal	.72	C	.85	D	.72	C	.84	D
81. Ward St & Garfield Ave	Secondary	.85	D	.58	A	.86	D	.58	A
83. Goldenwest St & Yorktown Ave	Principal	.58	A	.79	C	.56	A	.77	C
84. Main St & Yorktown Ave	Principal	.61	B	.60	A	.64	B	.59	A
85. Lake St & Yorktown Ave	Principal	.48	A	.51	A	.47	A	.51	A
86. Delaware St & Yorktown Ave	Secondary	.53	A	.46	A	.51	A	.44	A
87. Beach Blvd & Yorktown Ave	Principal	.67	B	.92	E	.61	B	.88	D
88. Newland St & Yorktown Ave	Secondary	.72	C	.88	D	.68	B	.86	D
89. Magnolia St & Yorktown Ave	Secondary	.64	B	.65	B	.65	B	.63	B
90. Bushard St & Yorktown Ave	Secondary	.62	B	.64	B	.64	B	.62	B
91. Brookhurst St & Yorktown Ave	Principal	.59	A	.70	B	.59	A	.69	B
93. Delaware St & Adams Ave	Secondary	.54	A	.54	A	.53	A	.52	A
94. Beach Blvd & Adams Ave	Principal	.69	B	.86	D	.68	B	.86	D
95. Newland St & Adams Ave	Principal	.68	B	.74	C	.69	B	.73	C
96. Magnolia St & Adams Ave	Principal	.87	D	.82	D	.86	D	.80	C
97. Bushard St & Adams Ave	Principal	.75	C	.81	D	.76	C	.83	D
98. Brookhurst St & Adams Ave	Principal	.97	E	1.04	F	.99	E	1.03	F
101. Beach Blvd & Indianapolis	Principal	.60	A	.59	A	.61	B	.57	A
102. Newland St & Indianapolis	Secondary	.55	A	.58	A	.52	A	.57	A
103. Magnolia St & Indianapolis	Secondary	.80	C	.48	A	.79	C	.47	A
104. Bushard St & Indianapolis	Secondary	.51	A	.43	A	.51	A	.43	A
105. Brookhurst & Indianapolis	Principal	.40	A	.51	A	.40	A	.52	A

Table 5-3 (cont)
2030 ICU SUMMARY – CURRENT GENERAL PLAN VS. WITH SPECIFIC PLANS
COMMITTED INTERSECTION IMPROVEMENTS

		Current General Plan				With Specific Plans			
		With Proposed Highway Plan				With Proposed Highway Plan			
	Designa-	AM		PM		AM		PM	
Intersection*	**tion***	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**
107. Delaware St & Atlanta Ave	Secondary	.37	A	.37	A	.36	A	.36	A
108. Beach Blvd & Atlanta Ave	Principal	.62	B	.88	D	.59	A	.89	D
109. Newland St & Atlanta Ave	Secondary	.59	A	.62	B	.59	A	.60	A
110. Magnolia St & Atlanta Ave	Principal	.63	B	.57	A	.63	B	.57	A
111. Bushard St & Atlanta Ave	Secondary	.55	A	.47	A	.56	A	.46	A
112. Brookhurst St & Atlanta	Principal	.54	A	.58	A	.54	A	.57	A
115. Newland St & Hamilton Ave	Secondary	.45	A	.68	B	.45	A	.69	B
116. Magnolia St & Hamilton Ave	Principal	.59	A	.74	C	.58	A	.74	C
117. Bushard St & Hamilton Ave	Secondary	.50	A	.47	A	.50	A	.48	A
118. Brookhurst & Hamilton	Principal	.65	B	.86	D	.65	B	.86	D
119. Magnolia St & Banning Ave	Secondary	.29	A	.27	A	.28	A	.27	A
120. Bushard St & Banning Ave	Secondary	.42	A	.37	A	.40	A	.38	A
121. Brookhurst St & Banning	Principal	.18	A	.20	A	.18	A	.20	A
122. Seapoint Ave & Palm Ave	Principal	.31	A	.27	A	.31	A	.27	A
123. Goldenwest St & Palm Ave	Principal	.61	B	.55	A	.59	A	.54	A
124. Goldenwest St & Orange Ave	Principal	.41	A	.38	A	.41	A	.39	A
125. Seapoint Ave & PCH	Principal	.83	D	.84	D	.83	D	.83	D
126. Goldenwest St & PCH	Principal	.88	D	1.14	F	.88	D	1.14	F
127. 17th & PCH	Principal	.82	D	.90	D	.82	D	.89	D
129. 6th & Pacific Coast Hwy	Principal	.59	A	.72	C	.59	A	.75	C
130. Main St & Pacific Coast	Principal	.88	D	.89	D	.87	D	.89	D
133. 1st St & Pacific Coast Hwy	Principal	.62	B	.62	B	.61	B	.60	A
134. Delaware St & PCH	Principal	.88	D	.78	C	.88	D	.79	C
135. Beach Blvd & PCH	Principal	.69	B	.80	C	.69	B	.80	C
136. Newland St & PCH	Principal	.77	C	.74	C	.77	C	.73	C
137. Magnolia St & PCH	Principal	.70	B	.76	C	.70	B	.77	C
138. Brookhurst St & PCH	Principal	.73	C	1.10	F	.74	C	1.10	F
140. Main St & 17th St	Secondary	.50	A	.49	A	.50	A	.49	A
141. Main St & Adams Ave	Secondary	.62	B	.69	B	.61	B	.67	B
142. 17th St & Palm Ave	Secondary	.68	B	.42	A	.66	B	.44	A
148. 6th St & Orange Ave	Principal	.32	A	.29	A	.33	A	.29	A
150. 3rd St & Orange Ave	Secondary	.42	A	.55	A	.43	A	.54	A
152. 1st & Atlanta Ave/Orange	Principal	.60	A	.60	A	.61	B	.60	A

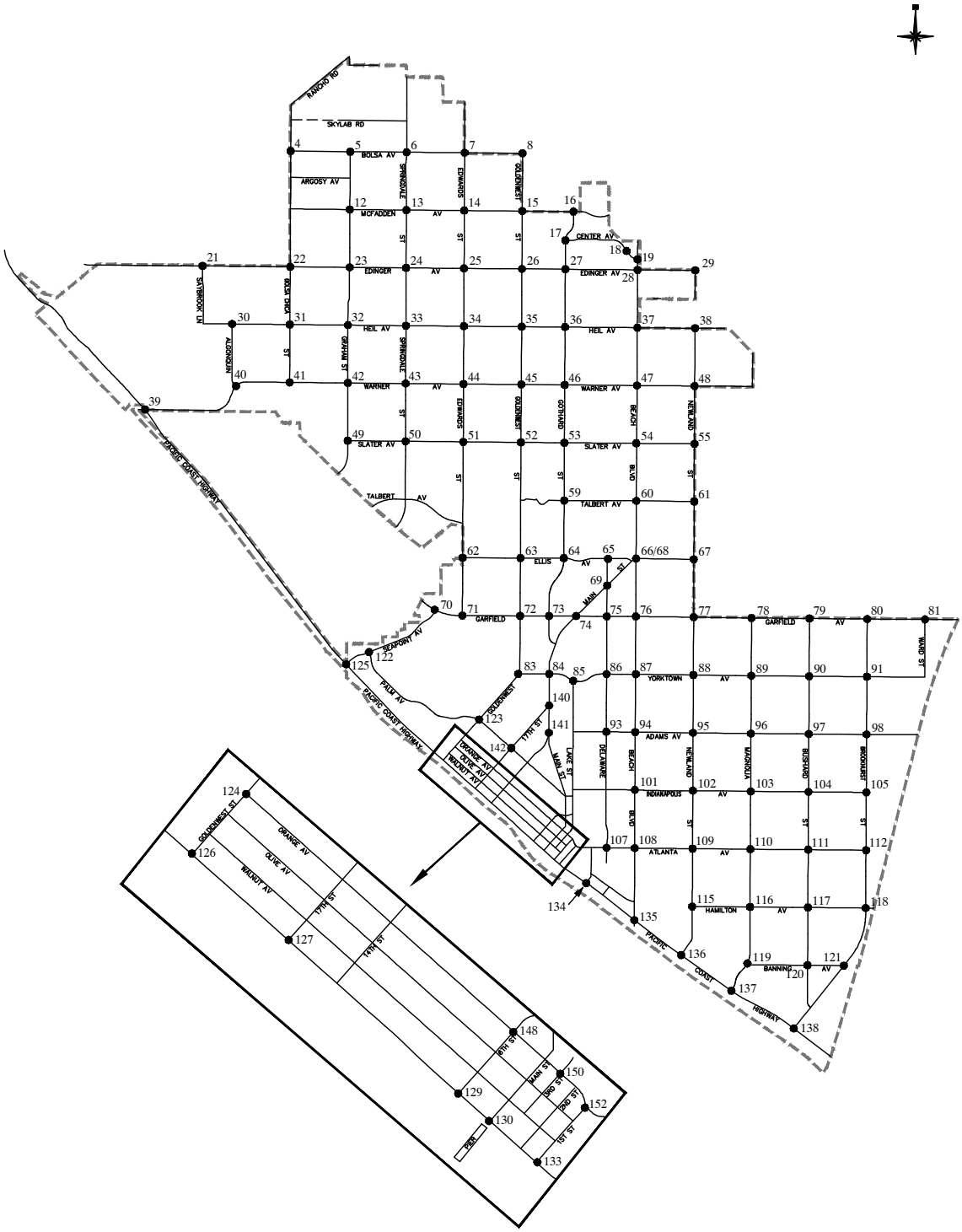


Figure 5-4

INTERSECTION LOCATION MAP

54. Beach Blvd & Slater Ave (Principal)
87. Beach Blvd & Yorktown Ave (Principal)

A set of recommended intersection improvements were identified in Chapter 4.0 to mitigate the deficiencies identified under the proposed highway plan with the current General Plan land uses (refer to Table 4-2 for summary of improvements). The next section summarizes the improvements needed to accommodate the future Citywide land uses with the two approved Specific Plans.

RECOMMENDED IMPROVEMENTS

Table 5-4 summarizes the peak hour ICU and LOS for the deficient intersections with the recommended improvements. With the Option 1 improvements, four Principal intersections remain deficient with the recommended improvements under ICU methodology. These deficiencies are listed below:

37. Beach Blvd & Heil Ave (Principal)
76. Beach Blvd & Garfield Ave (Principal)
126. Goldenwest St & PCH (Principal)
138. Brookhurst St & PCH (Principal)

With the Option 2 improvements, two intersections are mitigated to an acceptable LOS and two remain deficient with the recommended improvements. These remaining deficiencies are candidates for the "Critical Intersection" designation and are listed below:

126. Goldenwest St & PCH (Principal)
138. Brookhurst St & PCH (Principal)

DELETION OF BANNING AVENUE BRIDGE

A focused analysis was performed to identify the impacts of the Banning Avenue Bridge not being built. Forecasts were prepared for a scenario where the bridge is not built, and Banning Avenue does not extend beyond its current terminus at Brookhurst Street. The 2030 forecasts used in this analysis assume the DTSP and the Beach-Edinger Specific Plan land uses.

Table 5-4

2030 ICU SUMMARY WITH RECOMMENDED IMPROVEMENTS
- WITH SPECIFIC PLANS LAND USE AND PROPOSED HIGHWAY PLAN

	With Committed Improvements[1]				**With Recommended Improvements**							
					Option 1				**Option 2**			
	AM		**PM**		**AM**		**PM**		**AM**		**PM**	
Intersection*	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**
Principal Intersections												
8. Goldenwest St & Bolsa Ave	.91	E	1.05	F	.75	C	.90	D	*Same as Option 1*			
28. Beach Blvd & Edinger Ave	.90	D	.99	E	.79	C	.85	D	*Same as Option 1*			
37. Beach Blvd & Heil Ave	.87	D	.98	E	.83	D	.91	E	.81	D	.90	D
39. Pacific Coast Hwy & Warner A	.92	E	.97	E	.85	D	.80	C	*Same as Option 1*			
47. Beach Blvd & Warner Ave	.78	C	.95	E	.78	C	.90	D	.76	C	.86	D
48. Newland St & Warner Ave	.89	D	.91	E	.89	D	.84	D	*Same as Option 1*			
52. Goldenwest St & Slater Ave	.84	D	.99	E	.75	C	.90	D	.79	C	.87	D
60. Beach Blvd & Talbert Ave	.83	D	.99	E	.75	C	.88	D	*Same as Option 1*			
76. Beach Blvd & Garfield Ave	.72	C	.98	E	.71	C	.95	E	.65	B	.88	D
98. Brookhurst St & Adams Ave	.99	E	1.03	F	.85	D	.82	D	*Same as Option 1*			
126. Goldenwest St & PCH	.88	D	1.14	F	.74	C	.91	E	*Same as Option 1*			
138. Brookhurst St & PCH	.74	C	1.10	F	.66	B	.96	E	*Same as Option 1*			
Secondary Intersections												
53. Gothard St & Slater Ave	.85	D	.69	B	.75	C	.64	B	*Same as Option 1*			
59. Gothard St & Talbert Ave	.59	A	.87	D	.50	A	.75	C	*Same as Option 1*			
61. Newland St & Talbert Ave	.68	B	.89	D	.68	B	.80	C	*Same as Option 1*			
81. Ward St & Garfield Ave	.86	D	.58	A	.67	B	.50	A	*Same as Option 1*			
88. Newland St & Yorktown Ave	.68	B	.86	D	.59	A	.69	B	*Same as Option 1*			

[1] Committed intersection improvements as previously defined in Chapter 2.0 (Table 2-7).

Table 5-5 summarizes the peak hour ICU and LOS values for the intersections affected by the Banning Bridge deletion. As shown, one intersection will have a beneficial effect (Brookhurst Street at PCH) and two intersections will have a significant impact: Brookhurst Street at Adams Avenue and Magnolia Street at Indianapolis Avenue.

Table 5-6 summarizes the peak hour ICU and LOS for the deficient intersections with the recommended improvements for the without Banning Bridge alternative. These improvements will reduce the impact at the Brookhurst Street at Adams Avenue intersection, but will not fully mitigate this location. As such, this intersection is recommended for the Critical Intersection list for the scenario where the Banning Bridge is not built. The intersection of Magnolia Street at Indianapolis Avenue shows an AM deficiency under this alternative only; hence no improvements have been identified for this location. The recommendation here is to reclassify this intersection as a Principal Intersection.

CONCLUSION

In conclusion, the analysis shows that with the exception of the two intersections with "Critical Intersection" status, the proposed highway plan for the Circulation Element and the recommended improvements are able to accommodate the 2030 traffic demand from the DTSP and the Beach-Edinger Specific Plan land uses. The two Critical Intersections are listed as follows:

126. Goldenwest St & PCH (Principal)
138. Brookhurst St & PCH (Principal)

The two Critical Intersection locations will be monitored over time, evaluating changing conditions and the feasibility of implementing improvements.

Under a future scenario where the Banning Avenue Bridge is not built, the proposed highway system can accommodate the 2030 traffic volumes with two exceptions. The intersection of Brookhurst Street at Adams Avenue would replace the intersection of Brookhurst Street and PCH on the Critical Intersection list, and the intersection of Magnolia Street at Indianapolis Avenue would be reclassified as a Principal Intersection.

Table 5-5

2030 ICU SUMMARY – WITHOUT BANNING BRIDGE
AND WITH COMMITTED INTERSECTION IMPROVEMENTS

		With Banning Bridge				Without Banning Bridge			
	Designa-	AM		PM		AM		PM	
Intersection*	**tion***	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**
96. Magnolia St & Adams Ave	Principal	.86	D	.80	C	.88	D	.81	D
97. Bushard St & Adams Ave	Principal	.76	C	.83	D	.77	C	.82	D
98. Brookhurst St & Adams Ave	Principal	.99	E	1.03	F	1.10	F	1.05	F
103. Magnolia St & Indianapolis	Secondary	.79	C	.47	A	.82	D	.48	A
104. Bushard St & Indianapolis	Secondary	.51	A	.43	A	.49	A	.43	A
105. Brookhurst & Indianapolis	Principal	.40	A	.52	A	.40	A	.53	A
110. Magnolia St & Atlanta Ave	Principal	.63	B	.57	A	.64	B	.56	A
111. Bushard St & Atlanta Ave	Secondary	.56	A	.46	A	.56	A	.45	A
112. Brookhurst St & Atlanta	Principal	.54	A	.57	A	.54	A	.59	A
116. Magnolia St & Hamilton Ave	Principal	.58	A	.74	C	.60	A	.75	C
117. Bushard St & Hamilton Ave	Secondary	.50	A	.48	A	.45	A	.44	A
118. Brookhurst & Hamilton	Principal	.65	B	.86	D	.79	C	.85	D
119. Magnolia St & Banning Ave	Secondary	.28	A	.27	A	.21	A	.23	A
120. Bushard St & Banning Ave	Secondary	.40	A	.38	A	.25	A	.21	A
121. Brookhurst St & Banning	Principal	.18	A	.20	A	.24	A	.24	A
137. Magnolia St & PCH	Principal	.70	B	.77	C	.68	B	.73	C
138. Brookhurst St & PCH	Principal	.74	C	1.10	F	.71	C	.84	D

Table 5-6

2030 ICU SUMMARY WITH RECOMMENDED IMPROVEMENTS
– WITHOUT BANNING BRIDGE CONSTRUCTION AND PROPOSED HIGHWAY PLAN

	With Committed Improvements				**With Recommended Improvements**							
					Option 1				**Option 2**			
	AM		**PM**		**AM**		**PM**		**AM**		**PM**	
Intersection*	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**
Principal Intersections												
98. Brookhurst St & Adams Ave	1.10	F	1.05	F	.94	E	.82	D	*Same as Option 1*			
Secondary Intersections												
103. Magnolia St & Indianapolis	.82	D	.48	A	Reclassify as Principal				*Same as Option 1*			

[1]Committed intersection improvements as previously defined in Chapter 2.0 (Table 2-7).

APPENDIX A

TRAFFIC COUNT SURVEY RESULTS

A traffic count survey was performed in October 2008 for selected screenlines within the City of Huntington Beach in order to determine whether the Citywide traffic counts performed in late 2005 and early 2006 were suitable for use in this EIR traffic study. Table A-1 summarizes the 2008 count data and compares it with the 2005/2006 data. Figures A-1 and A-2 illustrate the percentage change for the ADT volumes and the PM peak hour, respectively.

As shown, the 2008 count data does not show substantial changes from that taken in 2005/2006. In general, the 2008 volumes are lower, the exception being north-south counts on Magnolia Street, Bushard Avenue and Brookhurst Street south of Yorktown Avenue. Various construction activities have been taking place in the part of Fountain Valley to the north, and while every effort is made to avoid construction activity when carrying out a count program, the extent of that construction may have influenced counts in that area.

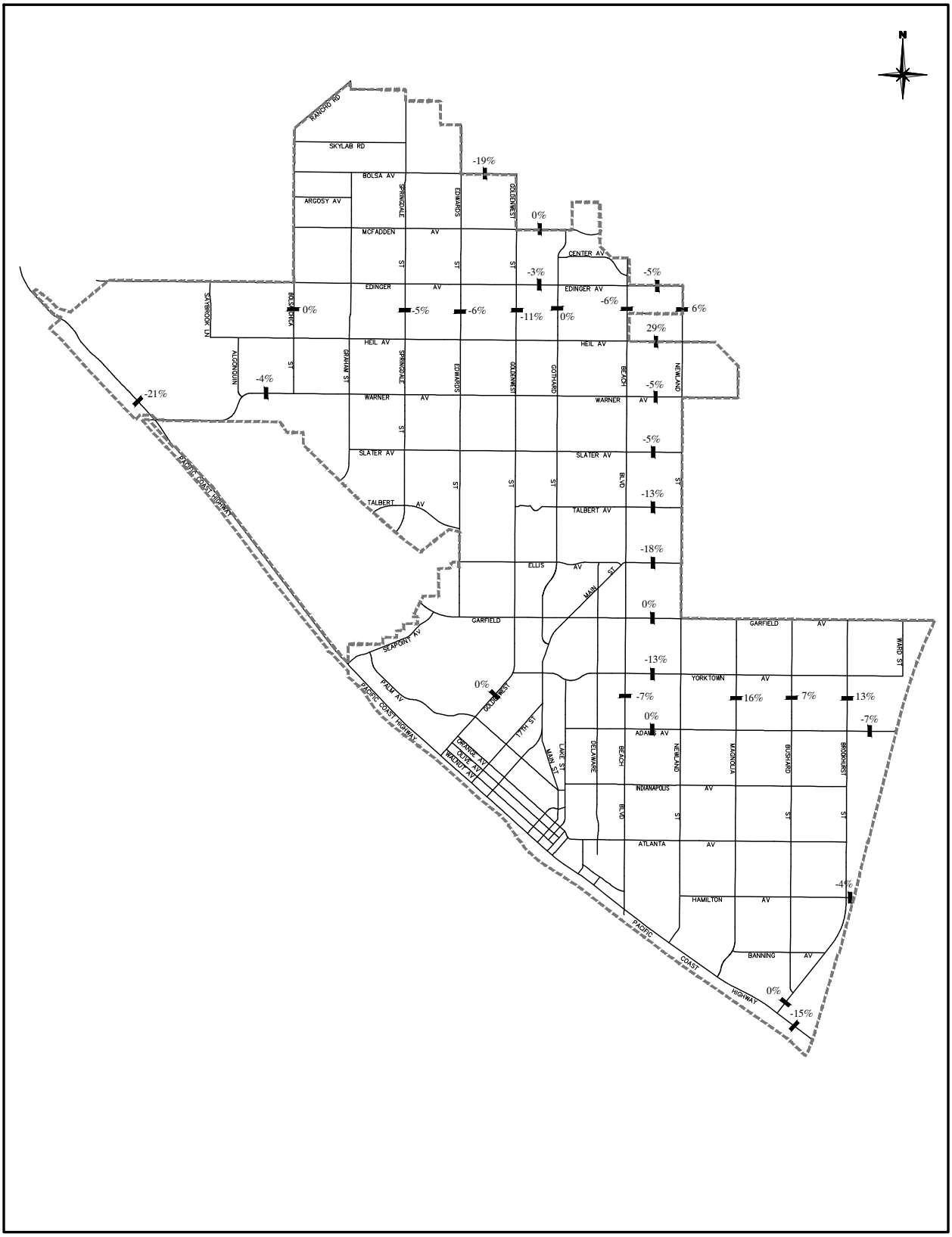
Table A-1

HBTM CITYWIDE COUNT UPDATE

Link		2005			2008			Difference			Difference		
#	Location	ADT	AM	PM	ADT	AM	PM	ADT	AM	PM	% ADT	% AM	% PM
7	Bolsa Ave e/o Edwards	27,000	2,080	2,200	22,000	1,870	1,920	(5,000)	(210)	(280)	-19%	-10%	-13%
13	Mcfadden e/o Goldenwest	19,000	1,510	1,830	19,000	1,610	1,770	0	100	(60)	0%	7%	-3%
23	Edinger e/o Goldenwest	29,000	1,850	2,380	28,000	1,980	2,310	(1,000)	130	(70)	-3%	7%	-3%
25	Edinger e/o Beach Blvd	21,000	2,320	2,680	20,000	1,510	1,780	(1,000)	(810)	(900)	-5%	-35%	-34%
34	Heil e/o Beach Blvd	7,000	434	805	9,000	820	900	2,000	386	95	29%	89%	12%
37	Warner w/o Bolsa Chica	27,000	2,050	2,280	26,000	2,080	2,220	(1,000)	30	(60)	-4%	1%	-3%
44	Warner e/o Beach Blvd	38,000	2,610	2,760	36,000	2,620	2,520	(2,000)	10	(240)	-5%	0%	-9%
51	Slater e/o Beach Blvd	19,000	1,680	1,710	18,000	1,590	1,690	(1,000)	(90)	(20)	-5%	-5%	-1%
56	Talbert e/o Beach Blvd	23,000	1,500	1,970	20,000	1,240	1,730	(3,000)	(260)	(240)	-13%	-17%	-12%
61	Ellis St e/o Beach Blvd	17,000	1,330	1,500	14,000	950	1,260	(3,000)	(380)	(240)	-18%	-29%	-16%
69	Garfield Ave e/o Beach Blvd	16,000	1,290	1,320	16,000	1,180	1,310	0	(110)	(10)	0%	-9%	-1%
79	Yorktown Ave e/o Beach Blvd	15,000	1,280	1,470	13,000	1,120	1,160	(2,000)	(160)	(310)	-13%	-13%	-21%
90	Adams e/o Brookhurst St	38,000	3,530	3,940	38,000	2,990	3,970	0	(540)	30	0%	-15%	1%
113	PCH s/o Edinger Ave	47,000	4,600	4,200	37,000	3,540	3,190	(10,000)	(1,060)	(1,010)	-21%	-23%	-24%
130	PCH s/o Brookhurst	46,000	3,940	4,600	39,000	3,470	3,690	(7,000)	(470)	(910)	-15%	-12%	-20%
138	Bolsa Chica s/o Edinger Ave	29,000	2,440	2,530	29,000	2,380	2,410	0	(60)	(120)	0%	-2%	-5%
151	Springdale s/o Edinger Ave	21,000	1,920	1,890	20,000	1,940	1,740	(1,000)	20	(150)	-5%	1%	-8%
161	Edwards s/o Edinger Ave	17,000	1,700	1,460	16,000	1,590	1,420	(1,000)	(110)	(40)	-6%	-6%	-3%
169	Goldenwest s/o Edinger Ave	37,000	2,250	2,710	33,000	2,220	2,730	(4,000)	(30)	20	-11%	-1%	1%
176	Goldenwest s/o Yorktown Ave	20,000	1,730	1,600	20,000	1,690	1,540	0	(40)	(60)	0%	-2%	-4%
181	Gothard s/o Edinger Ave	17,000	970	1,620	17,000	1,120	1,580	0	150	(40)	0%	15%	-2%
190	Beach Blvd s/o Edinger Ave	69,000	4,220	4,820	65,000	3,970	4,740	(4,000)	(250)	(80)	-6%	-6%	-2%
197	Beach Blvd s/o Yorktown Ave	43,000	2,840	3,450	40,000	2,580	3,260	(3,000)	(260)	(190)	-7%	-9%	-6%

Table A-1 (cont)
HBTM CITYWIDE COUNT UPDATE

Link #	Location	2005			2008			Difference			Difference		
		ADT	AM	PM	ADT	AM	PM	ADT	AM	PM	% ADT	% AM	% PM
222	Newland St s/o Edinger Ave	16,000	1,520	1,710	17,000	1,470	1,530	1,000	(50)	(180)	6%	-3%	-11%
235	Magnolia s/o Yorktown Ave	19,000	1,580	1,690	22,000	1,710	1,890	3,000	130	200	16%	8%	12%
242	Bushard s/o Yorktown Ave	14,000	1,170	1,310	15,000	1,610	1,380	1,000	440	70	7%	38%	5%
249	Brookhurst s/o Yorktown Ave	32,000	2,230	3,350	36,000	2,240	3,140	4,000	10	(210)	13%	0%	-6%
255	Brookhurst n/o PCH	14,000	1,140	1,340	14,000	1,170	1,300	0	30	(40)	0%	3%	-3%
306	Hamilton e/o Brookhurst St	28,000	2,330	2,760	27,000	2,290	2,670	(1,000)	(40)	(90)	-4%	-2%	-3%
	Average of e/o Beach	8 Locations						(1,250)	(177)	(233)	-4%	-2%	-10%
	Average of s/o yorktown	5 Locations						1,000	56	(38)	6%	7%	0%
	Average s/o Edinger	7 Locations						(1,286)	(47)	(84)	-3%	0%	-4%

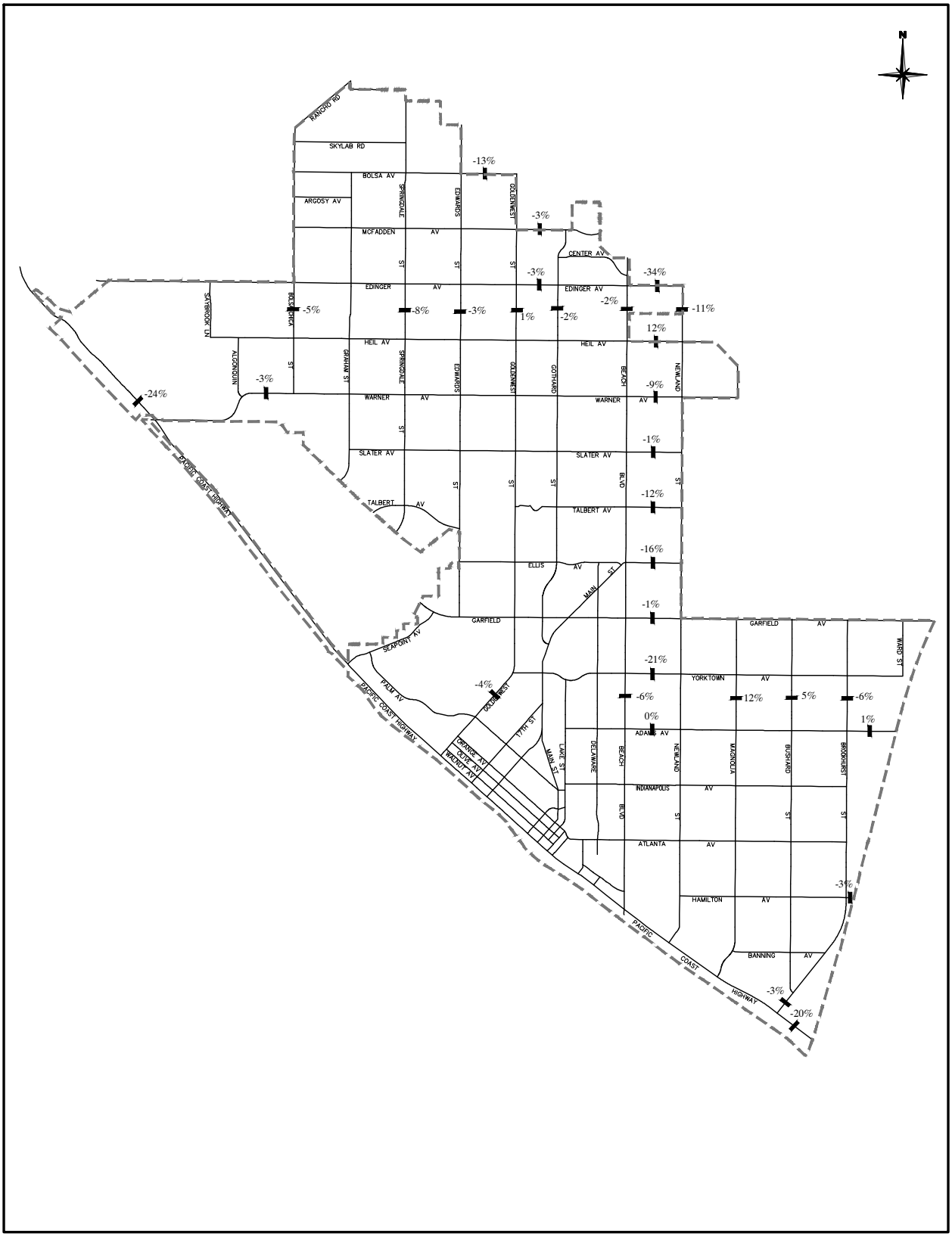


LEGEND

x% Percent Change

Figure A-1

PERCENTAGE CHANGE OF ADT SURVEY DATA - MACHINE LOCATIONS



LEGEND

x% Percent Change

Figure A-2

PERCENTAGE CHANGE OF PM SURVEY DATA - MACHINE LOCATIONS

APPENDIX B

INTERSECTION CAPACITY UTILIZATION

Peak hour intersection volume/capacity ratios are calculated by means of intersection capacity utilization (ICU) values. ICU calculations were performed for the intersections shown in Figure B-1. For simplicity, signalization is assumed at each intersection. Precise ICU calculations of existing non-signalized intersections would require a more detailed analysis.

The procedure is based on the critical movement methodology, and shows the amount of capacity utilized by each critical move. A capacity of 1700 vehicles per hour (VPH) per lane is assumed together with a .05 clearance interval. A "de-facto" right-turn lane is used in the ICU calculation for cases where a curb lane is wide enough to separately serve both thru and right-turn traffic (typically with a width of 19 feet from curb to outside of thru-lane with parking prohibited during peak periods). Such lanes are treated the same as striped right-turn lanes during the ICU calculations, but they are denoted on the ICU calculation worksheets using the letter "d" in place of a numerical entry for right-turn lanes.

The methodology also incorporates a check for right-turn capacity utilization. Both right-turn-on-green (RTOG) and right-turn-on-red (RTOR) capacity availability are calculated and checked against the total right-turn capacity need. If insufficient capacity is available, then an adjustment is made to the total capacity utilization value. The following example shows how this adjustment is made.

Example For Northbound Right

1. Right-Turn-On-Green (RTOG)

If NBT is critical move, then:
RTOG = V/C (NBT)
Otherwise,
RTOG = V/C (NBL) + V/C (SBT) - V/C (SBL)

2. Right-Turn-On-Red (RTOR)

If WBL is critical move, then:
RTOR = V/C (WBL)
Otherwise,
RTOR = V/C (EBL) + V/C (WBT) - V/C (EBT)

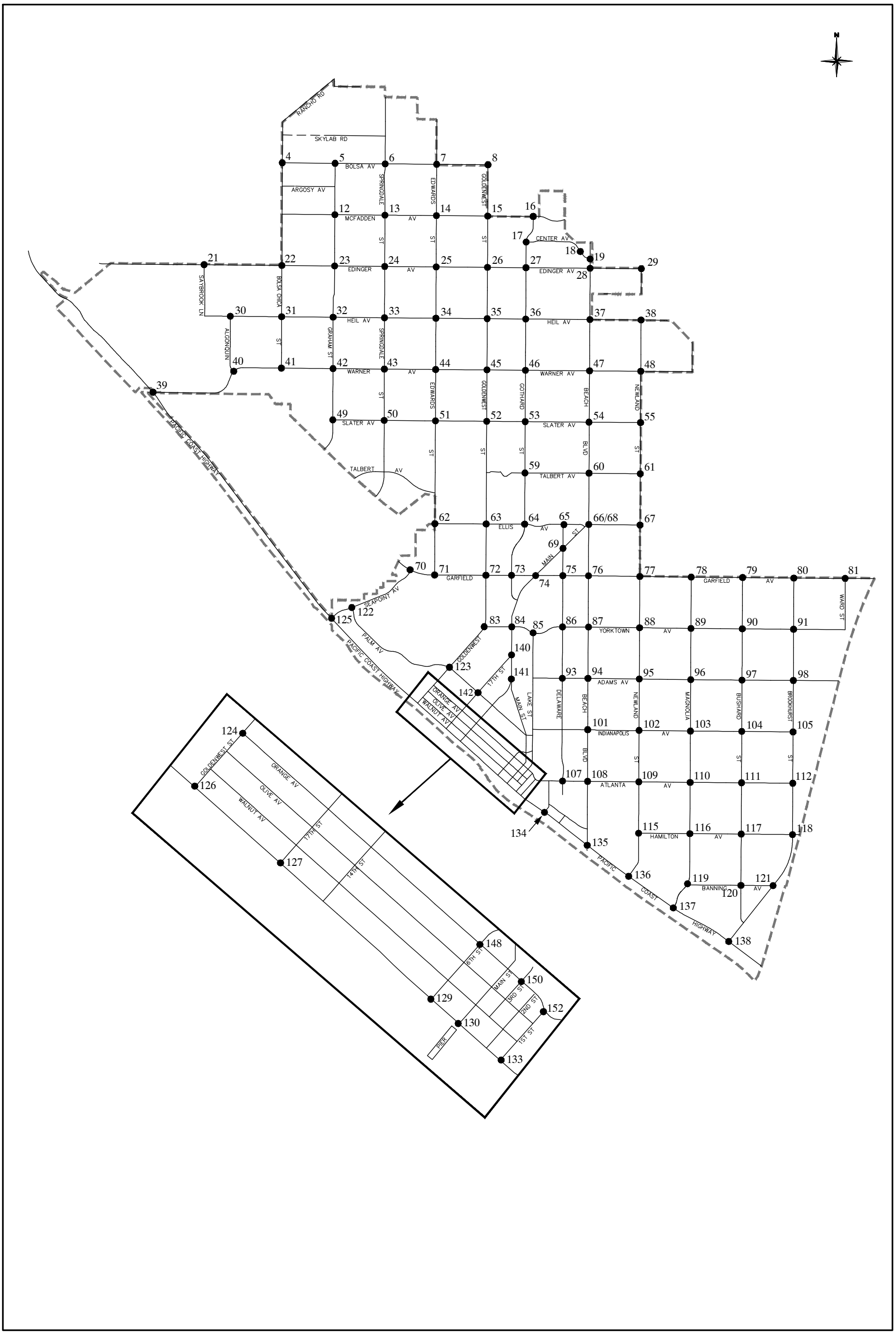


Figure B-1

INTERSECTION LOCATION MAP

3. Right-Turn Overlap Adjustment

If the northbound right is assumed to overlap with the adjacent westbound left, adjustments to the RTOG and RTOR values are made as follows:

RTOG = RTOG + V/C (WBL)
RTOR = RTOR - V/C (WBL)

4. Total Right-Turn Capacity (RTC) Availability For NBR

RTC = RTOG + factor x RTOR
Where factor = RTOR saturation flow factor (50%)

Right-turn adjustment is then as follows: Additional ICU = V/C (NBR) - RTC

A zero or negative value indicates that adequate capacity is available and no adjustment is necessary. A positive value indicates that the available RTOR and RTOG capacity does not adequately accommodate the right-turn V/C, therefore the right-turn is essentially considered to be a critical movement. In such cases, the right-turn adjustment is noted on the ICU worksheet and it is included in the total capacity utilization value. When it is determined that a right-turn adjustment is required for more than one right-turn movement, the word "multi" is printed on the worksheet instead of an actual right-turn movement reference, and the right-turn adjustments are cumulatively added to the total capacity utilization value. In such cases, further operational evaluation is typically carried out to determine if under actual operational conditions, the critical right-turns would operate simultaneously, and therefore a right-turn adjustment credit should be applied.

Shared Lane V/C Methodology

For intersection approaches where shared usage of a lane is permitted by more than one turn movement (e.g., left/thru, thru/right, left/thru/right), the individual turn volumes are evaluated to determine whether dedication of the shared lane is warranted to any one given turn movement. The following example demonstrates how this evaluation is carried out:

Example for Shared Left/Thru Lane

1. Average Lane Volume (ALV)

$$ALV = \frac{\text{Left-Turn Volume + Thru Volume}}{\text{Total Left + Thru Approach Lanes (including shared lane)}}$$

2. ALV for Each Approach

$$ALV\ (Left) = \frac{\text{Left-Turn Volume}}{\text{Left Approach Lanes (including shared lane)}}$$

$$ALV\ (Thru) = \frac{\text{Thru Volume}}{\text{Thru Approach Lanes (including shared lane)}}$$

3. Lane Dedication is Warranted

If ALV (Left) is greater than ALV then full dedication of the shared lane to the left-turn approach is warranted. Left-turn and thru V/C ratios for this case are calculated as follows:

$$V/C\ (Left) = \frac{\text{Left-Turn Volume}}{\text{Left Approach Capacity (including shared lane)}}$$

$$V/C\ (Thru) = \frac{\text{Thru Volume}}{\text{Thru Approach Capacity (excluding shared lane)}}$$

Similarly, if ALV (Thru) is greater than ALV then full dedication to the thru approach is warranted, and left-turn and thru V/C ratios are calculated as follows:

$$V/C\ (Left) = \frac{\text{Left-Turn Volume}}{\text{Left Approach Capacity (excluding shared lane)}}$$

$$V/C\ (Thru) = \frac{\text{Thru Volume}}{\text{Thru Approach Capacity (including shared lane)}}$$

4. Lane Dedication is not Warranted

If ALV (Left) and ALV (Thru) are both less than ALV, the left/thru lane is assumed to be truly shared and each left, left/thru or thru approach lane carries an evenly distributed volume of traffic equal to ALV. A combined left/thru V/C ratio is calculated as follows:

$$V/C\ (Left/Thru) = \frac{\text{Left-Turn Volume + Thru Volume}}{\text{Total Left + Thru Approach Capacity (including shared lane)}}$$

This V/C (Left/Thru) ratio is assigned as the V/C (Thru) ratio for the critical movement analysis and ICU summary listing.

If split phasing has not been designated for this approach, the relative proportion of V/C (Thru) that is attributed to the left-turn volume is estimated as follows:

If approach has more than one left-turn (including shared lane), then:

V/C (Left) = V/C (Thru)

If approach has only one left-turn lane (shared lane), then:

$$\text{V/C (Left)} = \frac{\text{Left-Turn Volume}}{\text{Single Approach Lane Capacity}}$$

If this left-turn movement is determined to be a critical movement, the V/C (Left) value is posted in brackets on the ICU summary printout.

These same steps are carried out for shared thru/right lanes. If full dedication of a shared thru/right lane to the right-turn movement is warranted, the right-turn V/C value calculated in step three is checked against the RTOR and RTOG capacity availability if the option to include right-turns in the V/C ratio calculations is selected. If the V/C value that is determined using the shared lane methodology described here is reduced due to RTOR and RTOG capacity availability, the V/C value for the thru/right lanes is posted in brackets.

When an approach contains more than one shared lane (e.g., left/thru and thru/right), steps one and two listed above are carried out for the three turn movements combined. Step four is carried out if dedication is not warranted for either of the shared lanes. If dedication of one of the shared lanes is warranted to one movement or another, step three is carried out for the two movements involved, and then steps one through four are repeated for the two movements involved in the other shared lane.

4. Bolsa Chica St & Bolsa Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	5100	1630	.32*	1400	.27
NBR	d	1700	200	.12	90	.05
SBL	2	3400	740	.22*	210	.06
SBT	3	5100	1580	.31	1860	.36*
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3400	90	.03*	220	.06*
WBT	0	0	0		0	
WBR	2	3400	180	.05	880	.26
Right Turn Adjustment					WBR	.15*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.62**		**.62**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	5100	1580	.31*	1510	.30
NBR	d	1700	280	.16	200	.12
SBL	2	3400	830	.24*	140	.04
SBT	3	5100	1810	.35	1820	.36*
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3400	110	.03*	340	.10*
WBT	0	0	0		0	
WBR	2	3400	160	.05	1090	.32
Right Turn Adjustment					WBR	.19*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.63**		**.70**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	5100	1820	.36*	1660	.33*
NBR	d	1700	300	.18	150	.09
SBL	2	3400	730	.21*	220	.06*
SBT	3	5100	2040	.40	2000	.39
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3400	100	.03*	340	.10*
WBT	0	0	0		0	
WBR	2	3400	180	.05	1120	.33
Right Turn Adjustment					WBR	.20*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.65**		**.74**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	5100	1860	.36*	1650	.32
NBR	d	1700	300	.18	140	.08
SBL	2	3400	720	.21*	220	.06
SBT	3	5100	2010	.39	2010	.39*
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3400	100	.03*	330	.10*
WBT	0	0	0		0	
WBR	2	3400	190	.06	1100	.32
Right Turn Adjustment					WBR	.18*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.65**		**.72**

4. Bolsa Chica St & Bolsa Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	5100	1870	.37*	1650	.32
NBR	d	1700	300	.18	140	.08
SBL	2	3400	720	.21*	220	.06
SBT	3	5100	2010	.39	2020	.40*
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3400	100	.03*	330	.10*
WBT	0	0	0		0	
WBR	2	3400	190	.06	1100	.32
Right Turn Adjustment					WBR	.18*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .66 .73

5. Graham St & Bolsa Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		150		230	
NBT	1.5	5100	80	.07*	10	.07*
NBR	0		130	.08	460	.27
SBL	1.5		10		120	
SBT	1.5	5100	10	.01*	70	.06*
SBR	0		10		110	.06
EBL	1	1700	50	.03	10	.01
EBT	3	5100	340	.07*	480	.09*
EBR	d	1700	180	.11	110	.06
WBL	1	1700	310	.18*	150	.09*
WBT	3	5100	500	.10	390	.08
WBR	d	1700	130	.08	10	.01
Right Turn Adjustment					NBR	.15*
Clearance Interval				.05*		.05*
Note: Assumes N/S Split Phasing						
TOTAL CAPACITY UTILIZATION				**.38**		**.51**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		260		310	
NBT	1.5	5100	80	.09*	10	.09*
NBR	0		140		490	.29
SBL	1.5		10		110	
SBT	1.5	5100	10	.01*	70	.05*
SBR	0		10		120	.07
EBL	1	1700	60	.04	10	.01
EBT	3	5100	620	.12*	710	.14*
EBR	d	1700	210	.12	110	.06
WBL	1	1700	370	.22*	130	.08*
WBT	3	5100	540	.11	720	.14
WBR	d	1700	140	.08	10	.01
Right Turn Adjustment					NBR	.16*
Clearance Interval				.05*		.05*
Note: Assumes N/S Split Phasing						
TOTAL CAPACITY UTILIZATION				**.49**		**.57**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		300		340	
NBT	1.5	5100	80	.10*	10	.10*
NBR	0		140		520	.31
SBL	1.5		10		120	
SBT	1.5	5100	10	.01*	70	.06*
SBR	0		10		120	.07
EBL	1	1700	60	.04	10	.01
EBT	3	5100	590	.12*	650	.13*
EBR	d	1700	190	.11	150	.09
WBL	1	1700	400	.24*	150	.09*
WBT	3	5100	500	.10	660	.13
WBR	d	1700	140	.08	10	.01
Right Turn Adjustment					NBR	.16*
Clearance Interval				.05*		.05*
Note: Assumes N/S Split Phasing						
TOTAL CAPACITY UTILIZATION				**.52**		**.59**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		310		340	
NBT	1.5	5100	90	.11*	10	.10*
NBR	0		140		520	.31
SBL	1.5		10		120	
SBT	1.5	5100	10	.01*	70	.06*
SBR	0		10		120	.07
EBL	1	1700	60	.04	10	.01
EBT	3	5100	580	.11*	630	.12*
EBR	d	1700	180	.11	150	.09
WBL	1	1700	390	.23*	150	.09*
WBT	3	5100	500	.10	660	.13
WBR	d	1700	140	.08	10	.01
Right Turn Adjustment					NBR	.16*
Clearance Interval				.05*		.05*
Note: Assumes N/S Split Phasing						
TOTAL CAPACITY UTILIZATION				**.51**		**.58**

5. Graham St & Bolsa Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1.5		310		330	
NBT	1.5	5100	90	.11*	10	.10*
NBR	0		150		520	.31
SBL	1.5		10		120	
SBT	1.5	5100	10	.01*	70	.06*
SBR	0		10		120	.07
EBL	1	1700	60	.04	10	.01
EBT	3	5100	570	.11*	630	.12*
EBR	d	1700	190	.11	150	.09
WBL	1	1700	390	.23*	150	.09*
WBT	3	5100	510	.10	660	.13
WBR	d	1700	140	.08	10	.01
Right Turn Adjustment					NBR	.16*
Clearance Interval				.05*		.05*

Note: Assumes N/S Split Phasing

TOTAL CAPACITY UTILIZATION .51 .58

6. Springdale St & Bolsa Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	140	.04*	60	.02
NBT	2	3400	720	.21	730	.21*
NBR	d	1700	50	.03	130	.08
SBL	1	1700	200	.12	160	.09*
SBT	2	3400	1200	.35*	820	.24
SBR	1	1700	200	.12	40	.02
EBL	1	1700	50	.03*	170	.10
EBT	3	5100	210	.04	980	.19*
EBR	d	1700	40	.02	100	.06
WBL	1	1700	260	.15	160	.09*
WBT	3	5100	870	.17*	420	.08
WBR	d	1700	160	.09	110	.06
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.64**		**.63**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	150	.04*	80	.02
NBT	2	3400	730	.21	770	.23*
NBR	d	1700	80	.05	190	.11
SBL	1	1700	260	.15	170	.10*
SBT	2	3400	1330	.39*	960	.28
SBR	1	1700	160	.09	40	.02
EBL	1	1700	50	.03	170	.10
EBT	3	5100	240	.05*	1230	.24*
EBR	d	1700	20	.01	110	.06
WBL	1	1700	340	.20*	240	.14*
WBT	3	5100	890	.17	430	.08
WBR	d	1700	240	.14	190	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.73**		**.76**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	150	.04*	60	.02
NBT	2	3400	780	.23	830	.24*
NBR	d	1700	120	.07	170	.10
SBL	1	1700	240	.14	190	.11*
SBT	2	3400	1380	.41*	950	.28
SBR	1	1700	200	.12	50	.03
EBL	1	1700	60	.04	170	.10
EBT	3	5100	260	.05*	1300	.25*
EBR	d	1700	40	.02	110	.06
WBL	1	1700	340	.20*	260	.15*
WBT	3	5100	920	.18	510	.10
WBR	d	1700	240	.14	170	.10
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.75**		**.80**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	150	.04*	50	.01
NBT	2	3400	820	.24	830	.24*
NBR	d	1700	110	.06	170	.10
SBL	1	1700	240	.14	190	.11*
SBT	2	3400	1410	.41*	950	.28
SBR	1	1700	150	.09	50	.03
EBL	1	1700	50	.03	170	.10
EBT	3	5100	270	.05*	1280	.25*
EBR	d	1700	40	.02	110	.06
WBL	1	1700	300	.18*	260	.15*
WBT	3	5100	970	.19	500	.10
WBR	d	1700	230	.14	170	.10
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.73**		**.80**

6. Springdale St & Bolsa Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3400	150	.04*	50	.01
NBT	2	3400	810	.24	820	.24*
NBR	d	1700	120	.07	180	.11
SBL	1	1700	240	.14	190	.11*
SBT	2	3400	1340	.39*	950	.28
SBR	1	1700	220	.13	50	.03
EBL	1	1700	50	.03	170	.10
EBT	3	5100	270	.05*	1280	.25*
EBR	d	1700	40	.02	110	.06
WBL	1	1700	330	.19*	270	.16*
WBT	3	5100	930	.18	510	.10
WBR	d	1700	230	.14	170	.10
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.72**		**.81**

7. Edwards St & Bolsa Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	100	.06*	50	.03
NBT	2	3400	510	.15	740	.22*
NBR	1	1700	110	.06	120	.07
SBL	1	1700	210	.12	120	.07*
SBT	2	3400	750	.22*	660	.19
SBR	d	1700	70	.04	60	.04
EBL	1	1700	30	.02*	140	.08
EBT	3	5100	370	.07	880	.17*
EBR	d	1700	80	.05	140	.08
WBL	1	1700	150	.09	160	.09*
WBT	3	5100	1060	.21*	350	.07
WBR	1	1700	140	.08	170	.10
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.56**		**.60**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	110	.06	50	.03
NBT	2	3400	540	.16*	780	.23*
NBR	1	1700	140	.08	110	.06
SBL	1	1700	230	.14*	130	.08*
SBT	2	3400	750	.22	740	.22
SBR	d	1700	70	.04	40	.02
EBL	1	1700	40	.02*	130	.08
EBT	3	5100	470	.09	1280	.25*
EBR	d	1700	90	.05	150	.09
WBL	1	1700	200	.12	140	.08*
WBT	3	5100	1330	.26*	440	.09
WBR	1	1700	150	.09	180	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.63**		**.69**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	110	.06*	50	.03
NBT	2	3400	590	.17	850	.25*
NBR	1	1700	160	.09	130	.08
SBL	1	1700	220	.13	130	.08*
SBT	2	3400	870	.26*	810	.24
SBR	d	1700	80	.05	50	.03
EBL	1	1700	40	.02*	150	.09
EBT	3	5100	550	.11	1340	.26*
EBR	d	1700	80	.05	140	.08
WBL	1	1700	250	.15	210	.12*
WBT	3	5100	1360	.27*	500	.10
WBR	1	1700	150	.09	180	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.66**		**.76**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	110	.06	40	.02
NBT	2	3400	600	.18*	840	.25*
NBR	1	1700	170	.10	120	.07
SBL	1	1700	230	.14*	130	.08*
SBT	2	3400	850	.25	800	.24
SBR	d	1700	90	.05	60	.04
EBL	1	1700	40	.02*	130	.08
EBT	3	5100	560	.11	1350	.26*
EBR	d	1700	80	.05	140	.08
WBL	1	1700	230	.14	220	.13*
WBT	3	5100	1350	.26*	500	.10
WBR	1	1700	150	.09	180	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.65**		**.77**

7. Edwards St & Bolsa Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	110	.06	50	.03
NBT	2	3400	600	.18*	830	.24*
NBR	1	1700	180	.11	120	.07
SBL	1	1700	220	.13*	130	.08*
SBT	2	3400	840	.25	810	.24
SBR	d	1700	80	.05	60	.04
EBL	1	1700	40	.02*	150	.09
EBT	3	5100	560	.11	1340	.26*
EBR	d	1700	80	.05	140	.08
WBL	1	1700	250	.15	210	.12*
WBT	3	5100	1360	.27*	500	.10
WBR	1	1700	160	.09	180	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.65**		**.75**

8. Goldenwest St & Bolsa Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	100	.03	220	.06
NBT	3	5100	1120	.25*	1430	.33*
NBR	0	0	180		250	
SBL	1	1700	160	.09*	140	.08*
SBT	3	5100	1470	.29	1350	.26
SBR	d	1700	100	.06	110	.06
EBL	2	3400	140	.04*	370	.11
EBT	3	5100	590	.12	1190	.23*
EBR	1	1700	120	.07	340	.20
WBL	2	3400	280	.08	310	.09*
WBT	3	5100	1060	.21*	650	.13
WBR	1	1700	380	.22	560	.33
Right Turn Adjustment					WBR	.08*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.64**		**.86**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	100	.03	240	.07
NBT	3	5100	1080	.24*	1350	.30*
NBR	0	0	120		160	
SBL	1	1700	330	.19*	270	.16*
SBT	3	5100	1310	.26	1350	.26
SBR	d	1700	280	.16	150	.09
EBL	2	3400	270	.08*	560	.16
EBT	3	5100	510	.10	1370	.27*
EBR	1	1700	110	.06	310	.18
WBL	2	3400	80	.02	110	.03*
WBT	3	5100	1130	.22*	600	.12
WBR	1	1700	490	.29	740	.44
Right Turn Adjustment					WBR	.22*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.78**		**1.03**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	100	.03	240	.07
NBT	3	5100	1320	.31*	1600	.37*
NBR	0	0	270		270	
SBL	1	1700	360	.21*	300	.18*
SBT	3	5100	1500	.29	1470	.29
SBR	d	1700	160	.09	120	.07
EBL	2	3400	220	.06*	370	.11
EBT	3	5100	640	.13	1640	.32*
EBR	1	1700	130	.08	350	.21
WBL	2	3400	390	.11	450	.13*
WBT	3	5100	1340	.26*	830	.16
WBR	1	1700	460	.27	720	.42
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.89**		**1.05**

2030 Proposed Roadway Plan (Rec. Lanes Opt. 1)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	100	.03	240	.07
NBT	3	5100	1320	.26*	1600	.31*
NBR	1	1700	270	.16	270	.16
SBL	2	3400	360	.11*	300	.09*
SBT	3	5100	1500	.29	1470	.29
SBR	d	1700	160	.09	120	.07
EBL	2	3400	220	.06*	370	.11
EBT	3	5100	640	.13	1640	.32*
EBR	1	1700	130	.08	350	.21
WBL	2	3400	390	.11	450	.13*
WBT	3	5100	1340	.26*	830	.16
WBR	1	1700	460	.27	720	.42
Clearance Interval				.05*		.05*
Note: Assumes Right-Turn Overlap for WBR						
TOTAL CAPACITY UTILIZATION				**.74**		**.90**

8. Goldenwest St & Bolsa Ave

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	110	.03	220	.06
NBT	3	5100	1370	.33*	1550	.36*
NBR	0	0	290		270	
SBL	1	1700	360	.21*	310	.18*
SBT	3	5100	1470	.29	1490	.29
SBR	d	1700	140	.08	130	.08
EBL	2	3400	220	.06*	400	.12
EBT	3	5100	660	.13	1600	.31*
EBR	1	1700	130	.08	350	.21
WBL	2	3400	350	.10	440	.13*
WBT	3	5100	1340	.26*	830	.16
WBR	1	1700	460	.27	730	.43
Right Turn Adjustment					WBR	.02*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .91 1.05

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	110	.03	220	.06
NBT	3	5100	1380	.33*	1560	.36*
NBR	0	0	280		270	
SBL	1	1700	390	.23*	300	.18*
SBT	3	5100	1470	.29	1480	.29
SBR	d	1700	170	.10	120	.07
EBL	2	3400	220	.06*	380	.11
EBT	3	5100	670	.13	1620	.32*
EBR	1	1700	130	.08	350	.21
WBL	2	3400	350	.10	440	.13*
WBT	3	5100	1340	.26*	830	.16
WBR	1	1700	460	.27	730	.43
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .93 1.04

2030 Specific Plan w/Option 1 Mit

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	110	.03	220	.06
NBT	3	5100	1370	.27*	1550	.30*
NBR	1	1700	290	.17	270	.16
SBL	2	3400	360	.11*	310	.09*
SBT	3	5100	1470	.29	1490	.29
SBR	d	1700	140	.08	130	.08
EBL	2	3400	220	.06*	400	.12
EBT	3	5100	660	.13	1600	.31*
EBR	1	1700	130	.08	350	.21
WBL	2	3400	350	.10	440	.13*
WBT	3	5100	1340	.26*	830	.16
WBR	1	1700	460	.27	730	.43
Right Turn Adjustment					WBR	.02*
Clearance Interval				.05*		.05*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION .75 .90

12. Graham St & Mcfadden Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	40	.02
NBT	2	3400	400	.12*	150	.04*
NBR	d	1700	80	.05	120	.07
SBL	1	1700	40	.02*	170	.10*
SBT	2	3400	100	.03	350	.10
SBR	d	1700	30	.02	20	.01
EBL	1	1700	20	.01	40	.02
EBT	1	1700	250	.15*	270	.16*
EBR	d	1700	60	.04	40	.02
WBL	1	1700	80	.05*	100	.06*
WBT	1	1700	270	.16	210	.12
WBR	1	1700	160	.09	80	.05
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.39**		**.41**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	30	.02	60	.04
NBT	2	3400	340	.10*	320	.09*
NBR	d	1700	90	.05	140	.08
SBL	1	1700	50	.03*	170	.10*
SBT	2	3400	110	.03	490	.14
SBR	d	1700	80	.05	40	.02
EBL	1	1700	20	.01	50	.03
EBT	1	1700	380	.22*	380	.22*
EBR	d	1700	100	.06	50	.03
WBL	1	1700	80	.05*	100	.06*
WBT	1	1700	400	.24	320	.19
WBR	1	1700	220	.13	90	.05
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.45**		**.52**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	50	.03	40	.02
NBT	2	3400	400	.12*	350	.10*
NBR	d	1700	90	.05	130	.08
SBL	1	1700	50	.03*	190	.11*
SBT	2	3400	120	.04	520	.15
SBR	d	1700	90	.05	30	.02
EBL	1	1700	20	.01	50	.03
EBT	1	1700	260	.15*	370	.22*
EBR	d	1700	160	.09	50	.03
WBL	1	1700	90	.05*	110	.06*
WBT	1	1700	330	.19	300	.18
WBR	1	1700	240	.14	100	.06
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.40**		**.54**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	50	.03	40	.02
NBT	2	3400	420	.12*	350	.10*
NBR	d	1700	90	.05	140	.08
SBL	1	1700	50	.03*	190	.11*
SBT	2	3400	110	.03	510	.15
SBR	d	1700	80	.05	30	.02
EBL	1	1700	20	.01*	50	.03
EBT	1	1700	260	.15	380	.22*
EBR	d	1700	160	.09	50	.03
WBL	1	1700	80	.05	110	.06*
WBT	1	1700	340	.20*	290	.17
WBR	1	1700	260	.15	100	.06
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.41**		**.54**

12. Graham St & Mcfadden Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	50	.03	40	.02
NBT	2	3400	420	.12*	350	.10*
NBR	d	1700	90	.05	130	.08
SBL	1	1700	50	.03*	180	.11*
SBT	2	3400	110	.03	510	.15
SBR	d	1700	80	.05	30	.02
EBL	1	1700	20	.01	50	.03
EBT	1	1700	260	.15*	380	.22*
EBR	d	1700	160	.09	50	.03
WBL	1	1700	80	.05*	110	.06*
WBT	1	1700	330	.19	290	.17
WBR	1	1700	270	.16	100	.06
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .40 .54

13. Springdale St & Mcfadden Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	140	.08	130	.08*
NBT	2	3400	700	.21*	640	.19
NBR	1	1700	100	.06	180	.11
SBL	1	1700	180	.11*	280	.16
SBT	2	3400	740	.22	940	.28*
SBR	1	1700	170	.10	120	.07
EBL	1	1700	50	.03*	290	.17*
EBT	2	3400	230	.07	720	.21
EBR	d	1700	50	.03	120	.07
WBL	1	1700	150	.09	120	.07
WBT	2	3400	540	.16*	410	.12*
WBR	d	1700	130	.08	120	.07
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.56**		**.70**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	270	.16*	170	.10
NBT	2	3400	690	.20	900	.26*
NBR	1	1700	120	.07	220	.13
SBL	1	1700	190	.11	290	.17*
SBT	2	3400	1000	.29*	1010	.30
SBR	1	1700	170	.10	100	.06
EBL	1	1700	40	.02	300	.18
EBT	2	3400	340	.10*	870	.26*
EBR	d	1700	80	.05	140	.08
WBL	1	1700	260	.15*	160	.09*
WBT	2	3400	620	.18	530	.16
WBR	d	1700	150	.09	120	.07
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.75**		**.83**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	280	.16*	160	.09
NBT	2	3400	720	.21	970	.29*
NBR	1	1700	100	.06	200	.12
SBL	1	1700	180	.11	290	.17*
SBT	2	3400	1030	.30*	1050	.31
SBR	1	1700	180	.11	130	.08
EBL	1	1700	60	.04	330	.19*
EBT	2	3400	240	.07*	880	.26
EBR	d	1700	90	.05	130	.08
WBL	1	1700	250	.15*	140	.08
WBT	2	3400	590	.17	510	.15*
WBR	d	1700	140	.08	130	.08
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.73**		**.85**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	280	.16*	140	.08
NBT	2	3400	740	.22	950	.28*
NBR	1	1700	100	.06	210	.12
SBL	1	1700	170	.10	300	.18*
SBT	2	3400	1020	.30*	1060	.31
SBR	1	1700	180	.11	140	.08
EBL	1	1700	60	.04*	330	.19*
EBT	2	3400	240	.07	870	.26
EBR	d	1700	90	.05	130	.08
WBL	1	1700	240	.14	140	.08
WBT	2	3400	600	.18*	500	.15*
WBR	d	1700	140	.08	130	.08
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.73**		**.85**

13. Springdale St & Mcfadden Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	300	.18*	150	.09
NBT	2	3400	740	.22	960	.28*
NBR	1	1700	100	.06	200	.12
SBL	1	1700	170	.10	300	.18*
SBT	2	3400	1010	.30*	1060	.31
SBR	1	1700	180	.11	140	.08
EBL	1	1700	60	.04*	330	.19*
EBT	2	3400	240	.07	890	.26
EBR	d	1700	90	.05	130	.08
WBL	1	1700	240	.14	140	.08
WBT	2	3400	620	.18*	500	.15*
WBR	d	1700	140	.08	130	.08
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.75**		**.85**

14.Edwards St & Mcfadden Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	190	.11*	80	.05*
NBT	2	3400	660	.19	520	.15
NBR	d	1700	70	.04	70	.04
SBL	1	1700	190	.11	100	.06
SBT	2	3400	720	.21*	680	.20*
SBR	d	1700	50	.03	60	.04
EBL	1	1700	80	.05*	110	.06
EBT	2	3400	610	.18	670	.20*
EBR	d	1700	90	.05	100	.06
WBL	1	1700	80	.05	90	.05*
WBT	2	3400	680	.20*	400	.12
WBR	d	1700	70	.04	100	.06
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.62**		**.55**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	200	.12*	140	.08*
NBT	2	3400	720	.21	510	.15
NBR	d	1700	130	.08	100	.06
SBL	1	1700	180	.11	140	.08
SBT	2	3400	840	.25*	720	.21*
SBR	d	1700	80	.05	50	.03
EBL	1	1700	60	.04*	130	.08
EBT	2	3400	690	.20	750	.22*
EBR	d	1700	110	.06	100	.06
WBL	1	1700	100	.06	120	.07*
WBT	2	3400	830	.24*	490	.14
WBR	d	1700	80	.05	90	.05
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.70**		**.63**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	210	.12*	150	.09*
NBT	2	3400	780	.23	530	.16
NBR	d	1700	80	.05	80	.05
SBL	1	1700	200	.12	110	.06
SBT	2	3400	880	.26*	800	.24*
SBR	d	1700	150	.09	100	.06
EBL	1	1700	90	.05*	170	.10
EBT	2	3400	610	.18	720	.21*
EBR	d	1700	90	.05	110	.06
WBL	1	1700	90	.05	100	.06*
WBT	2	3400	690	.20*	410	.12
WBR	d	1700	70	.04	110	.06
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.68**		**.65**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	240	.14*	140	.08*
NBT	2	3400	790	.23	540	.16
NBR	d	1700	80	.05	80	.05
SBL	1	1700	190	.11	110	.06
SBT	2	3400	870	.26*	800	.24*
SBR	d	1700	130	.08	100	.06
EBL	1	1700	100	.06*	160	.09
EBT	2	3400	590	.17	730	.21*
EBR	d	1700	90	.05	100	.06
WBL	1	1700	90	.05	100	.06*
WBT	2	3400	690	.20*	390	.11
WBR	d	1700	80	.05	100	.06
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.71**		**.64**

14.Edwards St & Mcfadden Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	230	.14*	140	.08*
NBT	2	3400	800	.24	530	.16
NBR	d	1700	80	.05	80	.05
SBL	1	1700	200	.12	110	.06
SBT	2	3400	870	.26*	800	.24*
SBR	d	1700	130	.08	100	.06
EBL	1	1700	100	.06*	160	.09
EBT	2	3400	590	.17	730	.21*
EBR	d	1700	90	.05	110	.06
WBL	1	1700	90	.05	90	.05*
WBT	2	3400	700	.21*	390	.11
WBR	d	1700	80	.05	100	.06
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .72 .63

15. Goldenwest St & Mcfadden Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	100	.06*	100	.06
NBT	3	5100	1020	.20	1310	.26*
NBR	d	1700	70	.04	100	.06
SBL	1	1700	220	.13	180	.11*
SBT	3	5100	1490	.31*	1480	.30
SBR	0	0	70		70	
EBL	1	1700	140	.08	140	.08
EBT	2	3400	520	.15*	580	.17*
EBR	d	1700	190	.11	130	.08
WBL	1	1700	180	.11*	220	.13*
WBT	2	3400	550	.16	470	.14
WBR	d	1700	140	.08	290	.17
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.68**		**.72**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08*	130	.08*
NBT	3	5100	1110	.22	1420	.28
NBR	d	1700	350	.21	440	.26
SBL	1	1700	170	.10	90	.05
SBT	3	5100	1270	.25*	1380	.28*
SBR	0	0	30		70	
EBL	1	1700	90	.05	120	.07
EBT	2	3400	730	.21*	670	.20*
EBR	d	1700	180	.11	130	.08
WBL	1	1700	460	.27*	450	.26*
WBT	2	3400	760	.22	560	.16
WBR	d	1700	80	.05	190	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.86**		**.87**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	120	.07*	100	.06
NBT	3	5100	1340	.26	1660	.33*
NBR	d	1700	80	.05	160	.09
SBL	1	1700	250	.15	190	.11*
SBT	3	5100	1670	.34*	1740	.36
SBR	0	0	80		80	
EBL	1	1700	150	.09	150	.09
EBT	2	3400	530	.16*	600	.18*
EBR	d	1700	200	.12	130	.08
WBL	1	1700	250	.15*	230	.14*
WBT	2	3400	560	.16	480	.14
WBR	d	1700	150	.09	300	.18
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.77**		**.81**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	120	.07*	110	.06
NBT	3	5100	1350	.26	1610	.32*
NBR	d	1700	80	.05	160	.09
SBL	1	1700	230	.14	210	.12*
SBT	3	5100	1610	.33*	1730	.35
SBR	0	0	80		70	
EBL	1	1700	160	.09	150	.09
EBT	2	3400	510	.15*	600	.18*
EBR	d	1700	200	.12	150	.09
WBL	1	1700	220	.13*	230	.14*
WBT	2	3400	570	.17	450	.13
WBR	d	1700	200	.12	280	.16
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.73**		**.81**

15. Goldenwest St & Mcfadden Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	120	.07*	110	.06
NBT	3	5100	1340	.26	1620	.32*
NBR	d	1700	80	.05	160	.09
SBL	1	1700	230	.14	210	.12*
SBT	3	5100	1600	.33*	1730	.35
SBR	0	0	80		70	
EBL	1	1700	160	.09	150	.09
EBT	2	3400	510	.15*	610	.18*
EBR	d	1700	200	.12	140	.08
WBL	1	1700	220	.13*	230	.14*
WBT	2	3400	580	.17	460	.14
WBR	d	1700	210	.12	280	.16
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .73 .81

16. Gothard St & Mcfadden Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	190	.06*	420	.12*
NBT	0	0	0		0	
NBR	1	1700	240	.14	420	.25
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3400	660	.19*	520	.15*
EBR	d	1700	360	.21	280	.16
WBL	1	1700	300	.18*	200	.12*
WBT	2	3400	570	.17	710	.21
WBR	0	0	0		0	
Right Turn Adjustment					NBR	.07*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.48**		**.51**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	110	.03*	200	.06*
NBT	0	0	0		0	
NBR	1	1700	100	.06	230	.14
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3400	700	.21*	800	.24*
EBR	d	1700	330	.19	120	.07
WBL	1	1700	190	.11*	70	.04*
WBT	2	3400	880	.26	890	.26
WBR	0	0	0		0	
Right Turn Adjustment					NBR	.06*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.40**		**.45**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	200	.06*	430	.13*
NBT	0	0	0		0	
NBR	1	1700	380	.22	660	.39
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3400	670	.20*	520	.15*
EBR	d	1700	550	.32	310	.18
WBL	1	1700	430	.25*	340	.20*
WBT	2	3400	640	.19	720	.21
WBR	0	0	0		0	
Right Turn Adjustment			Multi	.12*	NBR	.16*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.68**		**.69**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	270	.08*	400	.12*
NBT	0	0	0		0	
NBR	1	1700	370	.22	640	.38
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3400	680	.20*	500	.15*
EBR	d	1700	500	.29	350	.21
WBL	1	1700	440	.26*	330	.19*
WBT	2	3400	600	.18	700	.21
WBR	0	0	0		0	
Right Turn Adjustment			Multi	.06*	NBR	.16*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.65**		**.67**

16. Gothard St & Mcfadden Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3400	280	.08*	400	.12*
NBT	0	0	0		0	
NBR	1	1700	380	.22	630	.37
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3400	690	.20*	500	.15*
EBR	d	1700	500	.29	350	.21
WBL	1	1700	450	.26*	340	.20*
WBT	2	3400	600	.18	710	.21
WBR	0	0	0		0	
Right Turn Adjustment			Multi	.06*	NBR	.15*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .65 .67

17. Gothard St & Center Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	70	.04	30	.02
NBT	2	3400	360	.11*	630	.19*
NBR	d	1700	90	.05	100	.06
SBL	1	1700	90	.05*	130	.08*
SBT	2	3400	350	.10	310	.09
SBR	d	1700	40	.02	10	.01
EBL	1	1700	10	.01	20	.01
EBT	1	1700	10	.02*	50	.04*
EBR	0	0	20		20	
WBL	1	1700	80	.05*	180	.11*
WBT	2	3400	50	.03	20	.01
WBR	0	0	40		140	.08
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .28 .47

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	50	.03*	20	.01
NBT	2	3400	640	.19	1150	.34*
NBR	d	1700	100	.06	120	.07
SBL	1	1700	100	.06	190	.11*
SBT	2	3400	990	.29*	890	.26
SBR	d	1700	360	.21	40	.02
EBL	1	1700	40	.02*	150	.09*
EBT	1	1700	10	.01	30	.04
EBR	0	0	10		30	
WBL	1	1700	60	.04	100	.06
WBT	2	3400	50	.03*	30	.02*
WBR	0	0	70	.04	260	.15
Right Turn Adjustment					WBR	.07*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .42 .68

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	150	.09*	30	.02
NBT	2	3400	390	.11	730	.21*
NBR	d	1700	100	.06	100	.06
SBL	1	1700	130	.08	260	.15*
SBT	2	3400	570	.17*	320	.09
SBR	d	1700	70	.04	10	.01
EBL	1	1700	30	.02	90	.05
EBT	1	1700	10	.02*	50	.05*
EBR	0	0	20		30	
WBL	1	1700	100	.06*	190	.11*
WBT	2	3400	110	.04	30	.02
WBR	0	0	40		160	.09
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .39 .57

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	190	.11*	30	.02
NBT	2	3400	380	.11	670	.20*
NBR	d	1700	100	.06	80	.05
SBL	1	1700	130	.08	300	.18*
SBT	2	3400	510	.15*	330	.10
SBR	d	1700	110	.06	20	.01
EBL	1	1700	40	.02*	120	.07
EBT	1	1700	10	.02	50	.05*
EBR	0	0	20		30	
WBL	1	1700	80	.05	170	.10*
WBT	2	3400	100	.06*	30	.02
WBR	0	0	110	.06	150	.09
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .39 .58

17. Gothard St & Center Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	170	.10*	30	.02
NBT	2	3400	390	.11	680	.20*
NBR	d	1700	100	.06	80	.05
SBL	1	1700	140	.08	300	.18*
SBT	2	3400	490	.14*	330	.10
SBR	d	1700	130	.08	20	.01
EBL	1	1700	40	.02*	110	.06
EBT	1	1700	10	.02	50	.05*
EBR	0	0	20		30	
WBL	1	1700	80	.05	180	.11*
WBT	2	3400	100	.06*	30	.02
WBR	0	0	110	.06	140	.08
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .37 .59

18. I-405 SB Ramps & Center Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3400	800	.24*	930	.27*
SBT	0	0	0		0	
SBR	1	1700	150	.09	200	.12
EBL	1	1700	50	.03*	350	.21*
EBT	2	3400	90	.03	210	.06
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	260	.08*	240	.07*
WBR	1	1700	310	.18	610	.36
Right Turn Adjustment					WBR	.15*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.40**		**.75**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3400	900	.26*	980	.29*
SBT	0	0	0		0	
SBR	1	1700	130	.08	250	.15
EBL	1	1700	50	.03*	290	.17*
EBT	2	3400	80	.02	120	.04
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	160	.05*	140	.04*
WBR	1	1700	370	.22	670	.39
Right Turn Adjustment			WBR	.04*	WBR	.20*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.43**		**.75**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3400	890	.26*	990	.29*
SBT	0	0	0		0	
SBR	1	1700	160	.09	240	.14
EBL	1	1700	70	.04*	450	.26*
EBT	2	3400	110	.03	210	.06
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	320	.09*	290	.09*
WBR	1	1700	510	.30	710	.42
Right Turn Adjustment			WBR	.08*	WBR	.18*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.52**		**.87**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3400	880	.26*	1020	.30*
SBT	0	0	0		0	
SBR	1	1700	170	.10	250	.15
EBL	1	1700	80	.05*	440	.26*
EBT	2	3400	150	.04	200	.06
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	320	.09*	290	.09*
WBR	1	1700	550	.32	690	.41
Right Turn Adjustment			WBR	.10*	WBR	.17*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.55**		**.87**

18. I-405 SB Ramps & Center Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3400	820	.24*	1010	.30*
SBT	0	0	0		0	
SBR	1	1700	160	.09	240	.14
EBL	1	1700	80	.05*	430	.25*
EBT	2	3400	150	.04	210	.06
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	330	.10*	300	.09*
WBR	1	1700	560	.33	700	.41
Right Turn Adjustment			WBR	.11*	WBR	.17*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .55 .86

19. Beach Blvd & Center Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	4	6800	2940	.43*	3050	.45*
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	4	6800	2850	.42	2620	.39
SBR	f		810		980	
EBL	2	3400	170	.05*	160	.05*
EBT	0	0	0		0	
EBR	2	3400	810	.24	980	.29
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Right Turn Adjustment			EBR	.18*	EBR	.21*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .71 .76

21. Saybrook Ln & Edinger Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	50	.03*	120	.07*
NBT	0	0	0		0	
NBR	1	1700	310	.18	180	.11
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3400	280	.08*	160	.05*
EBR	d	1700	80	.05	70	.04
WBL	1	1700	120	.07*	270	.16*
WBT	2	3400	110	.03	230	.07
WBR	0	0	0		0	
Right Turn Adjustment			NBR	.11*		
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .34 .33

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	520	.31*	490	.29*
NBT	0	0	0		0	
NBR	1	1700	170	.10	240	.14
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3400	860	.25*	810	.24*
EBR	d	1700	330	.19	470	.28
WBL	1	1700	150	.09*	370	.22*
WBT	2	3400	810	.24	610	.18
WBR	0	0	0		0	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .70 .80

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	60	.04*	130	.08*
NBT	0	0	0		0	
NBR	1	1700	320	.19	190	.11
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3400	320	.09*	160	.05*
EBR	d	1700	100	.06	70	.04
WBL	1	1700	130	.08*	280	.16*
WBT	2	3400	120	.04	240	.07
WBR	0	0	0		0	
Right Turn Adjustment			NBR	.11*		
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .37 .34

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	60	.04*	120	.07*
NBT	0	0	0		0	
NBR	1	1700	320	.19	190	.11
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3400	320	.09*	160	.05*
EBR	d	1700	100	.06	60	.04
WBL	1	1700	120	.07*	270	.16*
WBT	2	3400	120	.04	240	.07
WBR	0	0	0		0	
Right Turn Adjustment			NBR	.11*		
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .36 .33

21. Saybrook Ln & Edinger Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	60	.04*	120	.07*
NBT	0	0	0		0	
NBR	1	1700	320	.19	190	.11
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3400	320	.09*	160	.05*
EBR	d	1700	100	.06	60	.04
WBL	1	1700	120	.07*	270	.16*
WBT	2	3400	120	.04	240	.07
WBR	0	0	0		0	
Right Turn Adjustment			NBR	.11*		
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .36 .33

22. Bolsa Chica St & Edinger Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	30	.02	20	.01
NBT	3	5100	1110	.24*	730	.16*
NBR	0	0	120		100	
SBL	1	1700	320	.19*	290	.17*
SBT	3	5100	1220	.24	1470	.29
SBR	d	1700	190	.11	260	.15
EBL	1.5		380		260	
EBT	1.5	5100	400	.16*	240	.10*
EBR	0		40		30	
WBL	1	1700	160	.09*	210	.12*
WBT	2	3400	210	.06	260	.08
WBR	d	1700	170	.10	170	.10
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .73 .60

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	310	.18	80	.05*
NBT	3	5100	1220	.25*	1020	.21
NBR	0	0	80		70	
SBL	1	1700	340	.20*	290	.17
SBT	3	5100	1340	.26	1790	.35*
SBR	d	1700	190	.11	110	.06
EBL	1.5		400	{.24}*	220	.13
EBT	1.5	5100	790	.25	470	.28*
EBR	0		70		430	.25
WBL	1	1700	130	.08	150	.09*
WBT	2	3400	490	.14*	650	.19
WBR	d	1700	140	.08	150	.09
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .88 .82

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	30	.02
NBT	3	5100	1110	.26*	1010	.22*
NBR	0	0	210		110	
SBL	1	1700	390	.23*	310	.18*
SBT	3	5100	1300	.25	1840	.36
SBR	d	1700	200	.12	280	.16
EBL	1.5		590		250	
EBT	1.5	5100	400	.20*	250	.11*
EBR	0		40		60	
WBL	1	1700	200	.12*	220	.13*
WBT	2	3400	220	.06	290	.09
WBR	d	1700	170	.10	250	.15
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .86 .69

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	30	.02
NBT	3	5100	1140	.26*	990	.21*
NBR	0	0	210		100	
SBL	1	1700	390	.23*	300	.18*
SBT	3	5100	1290	.25	1840	.36
SBR	d	1700	190	.11	280	.16
EBL	1.5		600		250	
EBT	1.5	5100	400	.20*	250	.11*
EBR	0		40		60	
WBL	1	1700	210	.12*	220	.13*
WBT	2	3400	220	.06	280	.08
WBR	d	1700	180	.11	240	.14
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .86 .68

22. Bolsa Chica St & Edinger Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	40	.02	30	.02
NBT	3	5100	1150	.27*	1000	.22*
NBR	0	0	210		100	
SBL	1	1700	390	.23*	310	.18*
SBT	3	5100	1290	.25	1840	.36
SBR	d	1700	190	.11	280	.16
EBL	1.5		590		250	
EBT	1.5	5100	400	.20*	250	.11*
EBR	0		40		50	
WBL	1	1700	210	.12*	230	.14*
WBT	2	3400	220	.06	280	.08
WBR	d	1700	180	.11	230	.14
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.87**		**.70**

23. Graham St & Edinger Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	120	.07	60	.04
NBT	2	3400	440	.13*	190	.06*
NBR	d	1700	170	.10	90	.05
SBL	1	1700	60	.04*	230	.14*
SBT	2	3400	100	.03	410	.12
SBR	d	1700	40	.02	90	.05
EBL	1	1700	100	.06	40	.02
EBT	2	3400	730	.21*	550	.16*
EBR	d	1700	70	.04	70	.04
WBL	1	1700	70	.04*	100	.06*
WBT	2	3400	450	.13	540	.16
WBR	d	1700	130	.08	60	.04
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .47 .47

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	140	.08	70	.04
NBT	2	3400	440	.13*	270	.08*
NBR	d	1700	190	.11	90	.05
SBL	1	1700	80	.05*	250	.15*
SBT	2	3400	120	.04	410	.12
SBR	d	1700	30	.02	150	.09
EBL	1	1700	160	.09	60	.04
EBT	2	3400	940	.28*	720	.21*
EBR	d	1700	100	.06	80	.05
WBL	1	1700	60	.04*	150	.09*
WBT	2	3400	630	.19	850	.25
WBR	d	1700	130	.08	90	.05
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .55 .58

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	120	.07	70	.04
NBT	2	3400	450	.13*	270	.08*
NBR	d	1700	180	.11	100	.06
SBL	1	1700	80	.05*	280	.16*
SBT	2	3400	110	.03	420	.12
SBR	d	1700	40	.02	100	.06
EBL	1	1700	120	.07	60	.04
EBT	2	3400	780	.23*	560	.16*
EBR	d	1700	90	.05	80	.05
WBL	1	1700	70	.04*	160	.09*
WBT	2	3400	480	.14	700	.21
WBR	d	1700	150	.09	70	.04
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .50 .54

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	120	.07	80	.05
NBT	2	3400	460	.14*	260	.08*
NBR	d	1700	180	.11	100	.06
SBL	1	1700	80	.05*	290	.17*
SBT	2	3400	110	.03	410	.12
SBR	d	1700	40	.02	110	.06
EBL	1	1700	130	.08	70	.04
EBT	2	3400	770	.23*	550	.16*
EBR	d	1700	90	.05	80	.05
WBL	1	1700	70	.04*	170	.10*
WBT	2	3400	490	.14	670	.20
WBR	d	1700	150	.09	70	.04
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .51 .56

23. Graham St & Edinger Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	120	.07	70	.04
NBT	2	3400	460	.14*	270	.08*
NBR	d	1700	180	.11	100	.06
SBL	1	1700	80	.05*	290	.17*
SBT	2	3400	110	.03	410	.12
SBR	d	1700	40	.02	110	.06
EBL	1	1700	130	.08	70	.04
EBT	2	3400	770	.23*	560	.16*
EBR	d	1700	90	.05	80	.05
WBL	1	1700	70	.04*	160	.09*
WBT	2	3400	490	.14	680	.20
WBR	d	1700	150	.09	70	.04
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.51**		**.55**

24. Springdale St & Edinger Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08	60	.04*
NBT	2	3400	820	.24*	510	.15
NBR	d	1700	200	.12	100	.06
SBL	1	1700	150	.09*	190	.11
SBT	2	3400	460	.14	780	.23*
SBR	1	1700	50	.03	160	.09
EBL	1	1700	120	.07	160	.09*
EBT	3	5100	720	.14*	630	.12
EBR	d	1700	100	.06	90	.05
WBL	1	1700	220	.13*	180	.11
WBT	2	3400	620	.18	470	.14*
WBR	1	1700	90	.05	150	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.65**		**.55**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	150	.09	60	.04*
NBT	2	3400	900	.26*	570	.17
NBR	d	1700	230	.14	110	.06
SBL	1	1700	150	.09*	190	.11
SBT	2	3400	520	.15	850	.25*
SBR	1	1700	60	.04	170	.10
EBL	1	1700	120	.07*	190	.11*
EBT	3	5100	920	.18	870	.17
EBR	d	1700	100	.06	190	.11
WBL	1	1700	250	.15	200	.12
WBT	2	3400	980	.29*	690	.20*
WBR	1	1700	70	.04	200	.12
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.76**		**.65**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	140	.08	70	.04*
NBT	2	3400	890	.26*	580	.17
NBR	d	1700	240	.14	120	.07
SBL	1	1700	160	.09*	200	.12
SBT	2	3400	490	.14	840	.25*
SBR	1	1700	60	.04	170	.10
EBL	1	1700	130	.08*	170	.10*
EBT	3	5100	810	.16	780	.15
EBR	d	1700	110	.06	210	.12
WBL	1	1700	230	.14	190	.11
WBT	2	3400	900	.26*	580	.17*
WBR	1	1700	90	.05	210	.12
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.74**		**.61**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	150	.09	70	.04*
NBT	2	3400	920	.27*	560	.16
NBR	d	1700	220	.13	110	.06
SBL	1	1700	150	.09*	200	.12
SBT	2	3400	480	.14	860	.25*
SBR	1	1700	50	.03	170	.10
EBL	1	1700	130	.08*	170	.10*
EBT	3	5100	780	.15	790	.15
EBR	d	1700	110	.06	210	.12
WBL	1	1700	230	.14	180	.11
WBT	2	3400	930	.27*	570	.17*
WBR	1	1700	90	.05	190	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.76**		**.61**

24. Springdale St & Edinger Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	150	.09	70	.04*
NBT	2	3400	920	.27*	560	.16
NBR	d	1700	230	.14	100	.06
SBL	1	1700	150	.09*	210	.12
SBT	2	3400	480	.14	840	.25*
SBR	1	1700	50	.03	170	.10
EBL	1	1700	130	.08*	170	.10*
EBT	3	5100	780	.15	790	.15
EBR	d	1700	110	.06	210	.12
WBL	1	1700	230	.14	190	.11
WBT	2	3400	920	.27*	570	.17*
WBR	1	1700	90	.05	190	.11
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .76 .61

25. Edwards St & Edinger Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	160	.09*	150	.09*
NBT	2	3400	620	.18	570	.17
NBR	d	1700	180	.11	170	.10
SBL	1	1700	140	.08	120	.07
SBT	2	3400	610	.20*	600	.20*
SBR	0	0	60		90	
EBL	1	1700	60	.04	100	.06
EBT	3	5100	1020	.20*	740	.15*
EBR	d	1700	110	.06	120	.07
WBL	1	1700	80	.05*	130	.08*
WBT	3	5100	580	.11	780	.15
WBR	d	1700	40	.02	170	.10
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .59 .57

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	240	.14*	170	.10*
NBT	2	3400	650	.19	750	.22
NBR	d	1700	190	.11	190	.11
SBL	1	1700	170	.10	140	.08
SBT	2	3400	740	.23*	610	.20*
SBR	0	0	50		80	
EBL	1	1700	150	.09*	100	.06
EBT	3	5100	1070	.21	1010	.20*
EBR	d	1700	130	.08	140	.08
WBL	1	1700	80	.05	160	.09*
WBT	3	5100	860	.17*	1130	.22
WBR	d	1700	50	.03	230	.14
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .68 .64

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	240	.14*	160	.09*
NBT	2	3400	640	.19	790	.23
NBR	d	1700	190	.11	180	.11
SBL	1	1700	140	.08	120	.07
SBT	2	3400	760	.24*	680	.23*
SBR	0	0	60		100	
EBL	1	1700	180	.11*	110	.06
EBT	3	5100	1020	.20	980	.19*
EBR	d	1700	110	.06	120	.07
WBL	1	1700	80	.05	130	.08*
WBT	3	5100	800	.16*	1090	.21
WBR	d	1700	50	.03	180	.11
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .70 .64

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	220	.13*	170	.10*
NBT	2	3400	650	.19	750	.22
NBR	d	1700	190	.11	180	.11
SBL	1	1700	160	.09	130	.08
SBT	2	3400	740	.23*	680	.23*
SBR	0	0	50		100	
EBL	1	1700	190	.11*	110	.06
EBT	3	5100	960	.19	980	.19*
EBR	d	1700	110	.06	130	.08
WBL	1	1700	80	.05	130	.08*
WBT	3	5100	870	.17*	1050	.21
WBR	d	1700	60	.04	180	.11
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .69 .65

25. Edwards St & Edinger Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	220	.13*	170	.10*
NBT	2	3400	650	.19	760	.22
NBR	d	1700	190	.11	180	.11
SBL	1	1700	150	.09	120	.07
SBT	2	3400	740	.24*	680	.23*
SBR	0	0	60		100	
EBL	1	1700	190	.11*	100	.06
EBT	3	5100	960	.19	990	.19*
EBR	d	1700	110	.06	130	.08
WBL	1	1700	80	.05	140	.08*
WBT	3	5100	870	.17*	1050	.21
WBR	d	1700	60	.04	180	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.70**		**.65**

26. Goldenwest St & Edinger Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08	160	.09
NBT	3	5100	1130	.22*	1130	.22*
NBR	d	1700	100	.06	80	.05
SBL	1	1700	190	.11*	210	.12*
SBT	3	5100	1110	.22	1060	.21
SBR	d	1700	110	.06	100	.06
EBL	1	1700	150	.09	120	.07*
EBT	3	5100	1000	.20*	670	.13
EBR	d	1700	110	.06	160	.09
WBL	1	1700	60	.04*	140	.08
WBT	3	5100	480	.09	720	.14*
WBR	d	1700	80	.05	230	.14
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.62**		**.60**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	150	.09	130	.08
NBT	3	5100	1400	.27*	1400	.27*
NBR	d	1700	130	.08	70	.04
SBL	1	1700	260	.15*	230	.14*
SBT	3	5100	1450	.28	1070	.21
SBR	d	1700	110	.06	110	.06
EBL	1	1700	140	.08	220	.13*
EBT	3	5100	1090	.21*	890	.17
EBR	d	1700	90	.05	160	.09
WBL	1	1700	70	.04*	160	.09
WBT	3	5100	710	.14	980	.19*
WBR	d	1700	130	.08	380	.22
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.72**		**.78**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	170	.10	180	.11
NBT	3	5100	1310	.26*	1220	.24*
NBR	d	1700	160	.09	90	.05
SBL	1	1700	200	.12*	230	.14*
SBT	3	5100	1370	.27	1140	.22
SBR	d	1700	120	.07	120	.07
EBL	1	1700	160	.09	250	.15*
EBT	3	5100	1010	.20*	840	.16
EBR	d	1700	110	.06	170	.10
WBL	1	1700	70	.04*	150	.09
WBT	3	5100	670	.13	880	.17*
WBR	d	1700	110	.06	360	.21
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.67**		**.75**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	170	.10*	170	.10
NBT	3	5100	1320	.26	1180	.23*
NBR	d	1700	150	.09	100	.06
SBL	1	1700	170	.10	200	.12*
SBT	3	5100	1320	.26*	1140	.22
SBR	d	1700	120	.07	120	.07
EBL	1	1700	170	.10*	250	.15*
EBT	3	5100	940	.18	860	.17
EBR	d	1700	120	.07	160	.09
WBL	1	1700	90	.05	150	.09
WBT	3	5100	760	.15*	850	.17*
WBR	d	1700	120	.07	300	.18
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.66**		**.72**

26. Goldenwest St & Edinger Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	170	.10*	170	.10
NBT	3	5100	1320	.26	1190	.23*
NBR	d	1700	150	.09	100	.06
SBL	1	1700	170	.10	200	.12*
SBT	3	5100	1330	.26*	1150	.23
SBR	d	1700	120	.07	120	.07
EBL	1	1700	170	.10*	250	.15*
EBT	3	5100	950	.19	850	.17
EBR	d	1700	110	.06	160	.09
WBL	1	1700	80	.05	150	.09
WBT	3	5100	760	.15*	850	.17*
WBR	d	1700	120	.07	300	.18
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .66 .72

27. Gothard St & Edinger Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	120	.07*	120	.07
NBT	2	3400	430	.13	630	.19*
NBR	d	1700	90	.05	210	.12
SBL	1	1700	40	.02	70	.04*
SBT	2	3400	290	.09*	440	.13
SBR	d	1700	90	.05	160	.09
EBL	1	1700	90	.05*	80	.05*
EBT	3	5100	900	.18	1030	.20
EBR	d	1700	100	.06	120	.07
WBL	1	1700	90	.05	120	.07
WBT	3	5100	960	.21*	1110	.24*
WBR	0	0	90		110	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .47 .57

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	190	.11*	180	.11*
NBT	2	3400	700	.21	920	.27
NBR	d	1700	50	.03	80	.05
SBL	1	1700	50	.03	60	.04
SBT	2	3400	640	.19*	750	.22*
SBR	d	1700	330	.19	470	.28
EBL	1	1700	210	.12*	200	.12*
EBT	3	5100	940	.18	1100	.22
EBR	d	1700	130	.08	150	.09
WBL	1	1700	10	.01	50	.03
WBT	3	5100	970	.21*	1230	.26*
WBR	0	0	80		80	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .68 .76

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	120	.07	210	.12*
NBT	2	3400	580	.17*	630	.19
NBR	d	1700	100	.06	220	.13
SBL	1	1700	130	.08*	80	.05
SBT	2	3400	370	.11	500	.15*
SBR	d	1700	130	.08	170	.10
EBL	1	1700	100	.06*	100	.06*
EBT	3	5100	1060	.21	1140	.22
EBR	d	1700	110	.06	140	.08
WBL	1	1700	90	.05	160	.09
WBT	3	5100	1100	.24*	1400	.30*
WBR	0	0	100		110	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .60 .68

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	110	.06	210	.12*
NBT	2	3400	570	.17*	600	.18
NBR	d	1700	120	.07	240	.14
SBL	1	1700	90	.05*	50	.03
SBT	2	3400	420	.12	480	.14*
SBR	d	1700	250	.15	150	.09
EBL	1	1700	100	.06*	110	.06*
EBT	3	5100	980	.19	1170	.23
EBR	d	1700	110	.06	150	.09
WBL	1	1700	100	.06	140	.08
WBT	3	5100	1150	.25*	1360	.28*
WBR	0	0	100		90	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .58 .65

27. Gothard St & Edinger Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	120	.07	210	.12*
NBT	2	3400	570	.17*	610	.18
NBR	d	1700	120	.07	230	.14
SBL	1	1700	90	.05*	60	.04
SBT	2	3400	400	.12	480	.14*
SBR	d	1700	250	.15	150	.09
EBL	1	1700	100	.06*	100	.06*
EBT	3	5100	990	.19	1160	.23
EBR	d	1700	110	.06	150	.09
WBL	1	1700	100	.06	150	.09
WBT	3	5100	1130	.24*	1360	.28*
WBR	0	0	90		90	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .57 .65

28. Beach Blvd & Edinger Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	130	.04	550	.16
NBT	3	5100	1690	.33*	2290	.45*
NBR	1	1700	390	.23	560	.33
SBL	2	3400	490	.14*	360	.11*
SBT	4	6800	2570	.38	2340	.34
SBR	2	3400	300	.09	680	.20
EBL	2	3400	170	.05	350	.10*
EBT	3	5100	670	.13*	710	.14
EBR	1	1700	120	.07	290	.17
WBL	1	1700	100	.06*	200	.12
WBT	2	3400	370	.11	580	.17*
WBR	1	1700	300	.18	270	.16
Clearance Interval				.05*		.05*

Note: Assumes Right-Turn Overlap for EBR

TOTAL CAPACITY UTILIZATION .71 .88

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	130	.04	480	.14
NBT	3	5100	2030	.40*	2780	.55*
NBR	1	1700	410	.24	630	.37
SBL	2	3400	760	.22*	350	.10*
SBT	4	6800	2860	.42	2570	.38
SBR	2	3400	280	.08	450	.13
EBL	2	3400	50	.01	200	.06*
EBT	3	5100	650	.13*	710	.14
EBR	1	1700	90	.05	230	.14
WBL	2	3400	140	.04*	230	.07
WBT	2	3400	370	.11	570	.17*
WBR	1	1700	290	.17	280	.16
Clearance Interval				.05*		.05*

Note: Assumes Right-Turn Overlap for EBR

TOTAL CAPACITY UTILIZATION .84 .93

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	140	.04	600	.18
NBT	3	5100	2130	.42*	2700	.53*
NBR	1	1700	400	.24	710	.42
SBL	2	3400	650	.19*	400	.12*
SBT	4	6800	2820	.41	2580	.38
SBR	2	3400	450	.13	940	.28
EBL	2	3400	170	.05	400	.12*
EBT	3	5100	840	.16*	800	.16
EBR	1	1700	120	.07	310	.18
WBL	2	3400	140	.04*	270	.08
WBT	2	3400	440	.13	690	.20*
WBR	1	1700	310	.18	280	.16
Clearance Interval				.05*		.05*

Note: Assumes Right-Turn Overlap for EBR

TOTAL CAPACITY UTILIZATION .86 1.02

2030 Proposed Roadway Plan (Rec. Lanes Opt. 1)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	140	.04	600	.18*
NBT	4	6800	2130	.31*	2700	.40
NBR	1	1700	400	.24	710	.42
SBL	2	3400	650	.19*	400	.12
SBT	4	6800	2820	.41	2580	.38*
SBR	2	3400	450	.13	940	.28
EBL	2	3400	170	.05	400	.12*
EBT	3	5100	840	.16*	800	.16
EBR	1	1700	120	.07	310	.18
WBL	2	3400	140	.04*	270	.08
WBT	3	5100	440	.09	690	.14*
WBR	1	1700	310	.18	280	.16
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .75 .87

28. Beach Blvd & Edinger Ave

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	140	.04	570	.17
NBT	3	5100	2290	.45*	2590	.51*
NBR	1	1700	440	.26	640	.38
SBL	2	3400	640	.19*	410	.12*
SBT	4	6800	2590	.38	2630	.39
SBR	2	3400	430	.13	900	.26
EBL	2	3400	170	.05	380	.11*
EBT	3	5100	900	.18*	760	.15
EBR	1	1700	140	.08	320	.19
WBL	2	3400	100	.03*	270	.08
WBT	2	3400	380	.11	670	.20*
WBR	1	1700	310	.18	290	.17
Clearance Interval				.05*		.05*

Note: Assumes Right-Turn Overlap for EBR

TOTAL CAPACITY UTILIZATION .90 .99

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	140	.04	570	.17
NBT	3	5100	2280	.45*	2600	.51*
NBR	1	1700	430	.25	640	.38
SBL	2	3400	640	.19*	410	.12*
SBT	4	6800	2590	.38	2630	.39
SBR	2	3400	420	.12	910	.27
EBL	2	3400	180	.05	370	.11*
EBT	3	5100	910	.18*	770	.15
EBR	1	1700	140	.08	320	.19
WBL	2	3400	100	.03*	280	.08
WBT	2	3400	380	.11	660	.19*
WBR	1	1700	300	.18	290	.17
Clearance Interval				.05*		.05*

Note: Assumes Right-Turn Overlap for EBR

TOTAL CAPACITY UTILIZATION .90 .98

2030 Specific Plan w/Option 1 Mit

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	140	.04	570	.17*
NBT	4	6800	2290	.34*	2590	.38
NBR	1	1700	440	.26	640	.38
SBL	2	3400	640	.19*	410	.12
SBT	4	6800	2590	.38	2630	.39*
SBR	2	3400	430	.13	900	.26
EBL	2	3400	170	.05	380	.11*
EBT	3	5100	900	.18*	760	.15
EBR	1	1700	140	.08	320	.19
WBL	2	3400	100	.03*	270	.08
WBT	3	5100	380	.07	670	.13*
WBR	1	1700	310	.18	290	.17
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .79 .85

28. Beach Blvd & Edinger Ave

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	140	.04	570	.17
NBT	3	5100	2290	.45*	2590	.51*
NBR	1	1700	440	.26	640	.38
SBL	2	3400	640	.19*	410	.12*
SBT	4	6800	2590	.38	2630	.39
SBR	2	3400	430	.13	900	.26
EBL	2	3400	170	.05	380	.11*
EBT	3	5100	900	.18*	760	.15
EBR	1	1700	140	.08	320	.19
WBL	2	3400	100	.03*	270	.08
WBT	2	3400	380	.11	670	.20*
WBR	1	1700	310	.18	290	.17
Clearance Interval				.05*		.05*

Note: Assumes Right-Turn Overlap for EBR

TOTAL CAPACITY UTILIZATION .90 .99

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	140	.04	570	.17
NBT	3	5100	2280	.45*	2600	.51*
NBR	1	1700	430	.25	640	.38
SBL	2	3400	640	.19*	410	.12*
SBT	4	6800	2590	.38	2630	.39
SBR	2	3400	420	.12	910	.27
EBL	2	3400	180	.05	370	.11*
EBT	3	5100	910	.18*	770	.15
EBR	1	1700	140	.08	320	.19
WBL	2	3400	100	.03*	280	.08
WBT	2	3400	380	.11	660	.19*
WBR	1	1700	300	.18	290	.17
Clearance Interval				.05*		.05*

Note: Assumes Right-Turn Overlap for EBR

TOTAL CAPACITY UTILIZATION .90 .98

2030 Specific Plan w/Option 1 Mit

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	140	.04	570	.17*
NBT	4	6800	2290	.34*	2590	.38
NBR	1	1700	440	.26	640	.38
SBL	2	3400	640	.19*	410	.12
SBT	4	6800	2590	.38	2630	.39*
SBR	2	3400	430	.13	900	.26
EBL	2	3400	170	.05	380	.11*
EBT	3	5100	900	.18*	760	.15
EBR	1	1700	140	.08	320	.19
WBL	2	3400	100	.03*	270	.08
WBT	3	5100	380	.07	670	.13*
WBR	1	1700	310	.18	290	.17
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .79 .85

29. Newland St & Edinger Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	180	.11*	110	.06
NBT	2	3400	400	.15	680	.23*
NBR	0	0	110		90	
SBL	1	1700	170	.10	100	.06*
SBT	2	3400	540	.18*	580	.19
SBR	0	0	80		80	
EBL	1	1700	30	.02	110	.06
EBT	2	3400	840	.25*	660	.19*
EBR	d	1700	90	.05	90	.05
WBL	1	1700	200	.12*	160	.09*
WBT	2	3400	660	.19	710	.21
WBR	d	1700	80	.05	180	.11
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .71 .62

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	180	.11*	120	.07
NBT	2	3400	360	.15	810	.27*
NBR	0	0	140		110	
SBL	1	1700	240	.14	250	.15*
SBT	2	3400	760	.25*	560	.18
SBR	0	0	80		50	
EBL	1	1700	70	.04	40	.02
EBT	2	3400	830	.24*	680	.20*
EBR	d	1700	110	.06	100	.06
WBL	1	1700	210	.12*	240	.14*
WBT	2	3400	680	.20	760	.22
WBR	d	1700	140	.08	260	.15
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .77 .81

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	200	.12*	140	.08
NBT	2	3400	460	.19	910	.30*
NBR	0	0	170		100	
SBL	1	1700	180	.11	190	.11*
SBT	2	3400	910	.32*	670	.23
SBR	0	0	170		100	
EBL	1	1700	100	.06	110	.06
EBT	2	3400	900	.26*	790	.23*
EBR	d	1700	120	.07	100	.06
WBL	1	1700	210	.12*	230	.14*
WBT	2	3400	730	.21	830	.24
WBR	d	1700	90	.05	210	.12
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .87 .83

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	200	.12*	130	.08
NBT	2	3400	480	.19	910	.30*
NBR	0	0	180		100	
SBL	1	1700	190	.11	200	.12*
SBT	2	3400	890	.30*	680	.23
SBR	0	0	120		90	
EBL	1	1700	120	.07	80	.05
EBT	2	3400	940	.28*	730	.21*
EBR	d	1700	120	.07	110	.06
WBL	1	1700	210	.12*	230	.14*
WBT	2	3400	660	.19	850	.25
WBR	d	1700	90	.05	210	.12
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .87 .82

29. Newland St & Edinger Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	200	.12*	130	.08
NBT	2	3400	470	.19	910	.29*
NBR	0	0	180		90	
SBL	1	1700	190	.11	190	.11*
SBT	2	3400	890	.30*	680	.23
SBR	0	0	130		100	
EBL	1	1700	120	.07	80	.05
EBT	2	3400	940	.28*	740	.22*
EBR	d	1700	120	.07	100	.06
WBL	1	1700	210	.12*	240	.14*
WBT	2	3400	660	.19	840	.25
WBR	d	1700	90	.05	200	.12
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .87 .81

30. Algonquin St & Heil Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	100	.06
NBT	1	1700	10	.09*	10	.09*
NBR	0	0	150		150	
SBL	0	0	10	{.01}*	10	{.01}*
SBT	1	1700	10	.02	10	.02
SBR	0	0	10		10	
EBL	1	1700	10	.01	0	.00
EBT	2	3400	260	.11*	150	.06*
EBR	0	0	100		40	
WBL	1	1700	130	.08*	200	.12*
WBT	2	3400	150	.05	200	.06
WBR	0	0	10		10	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .34 .33

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	90	.05	220	.13*
NBT	1	1700	10	.12*	10	.12
NBR	0	0	190		200	
SBL	0	0	10	{.01}*	10	
SBT	1	1700	10	.02	10	.02*
SBR	0	0	10		10	
EBL	1	1700	10	.01	0	.00
EBT	2	3400	580	.20*	490	.16*
EBR	0	0	110		70	
WBL	1	1700	150	.09*	240	.14*
WBT	2	3400	510	.15	470	.14
WBR	0	0	10		10	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .47 .50

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	90	.05	110	.06
NBT	1	1700	10	.12*	10	.12*
NBR	0	0	200		200	
SBL	0	0	10	{.01}*	10	{.01}*
SBT	1	1700	10	.02	10	.02
SBR	0	0	10		10	
EBL	1	1700	10	.01	0	.00
EBT	2	3400	260	.11*	180	.07*
EBR	0	0	120		50	
WBL	1	1700	180	.11*	270	.16*
WBT	2	3400	160	.05	260	.08
WBR	0	0	10		10	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .40 .41

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	90	.05	110	.06
NBT	1	1700	10	.12*	10	.12*
NBR	0	0	200		200	
SBL	0	0	10	{.01}*	10	{.01}*
SBT	1	1700	10	.02	10	.02
SBR	0	0	10		10	
EBL	1	1700	10	.01	0	.00
EBT	2	3400	260	.11*	180	.07*
EBR	0	0	120		60	
WBL	1	1700	180	.11*	270	.16*
WBT	2	3400	170	.05	250	.08
WBR	0	0	10		10	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .40 .41

30. Algonquin St & Heil Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	90	.05	110	.06
NBT	1	1700	10	.12*	10	.12*
NBR	0	0	200		200	
SBL	0	0	10	{.01}*	10	{.01}*
SBT	1	1700	10	.02	10	.02
SBR	0	0	10		10	
EBL	1	1700	10	.01	0	.00
EBT	2	3400	260	.11*	180	.07*
EBR	0	0	120		60	
WBL	1	1700	180	.11*	270	.16*
WBT	2	3400	170	.05	250	.08
WBR	0	0	10		10	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .40 .41

31. Bolsa Chica St & Heil Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	60	.04	100	.06*
NBT	3	5100	940	.18*	670	.13
NBR	d	1700	50	.03	70	.04
SBL	1	1700	250	.15*	200	.12
SBT	3	5100	860	.17	1070	.21*
SBR	d	1700	100	.06	370	.22
EBL	1	1700	370	.22*	190	.11*
EBT	2	3400	470	.14	270	.08
EBR	d	1700	60	.04	40	.02
WBL	1	1700	40	.02	80	.05
WBT	2	3400	150	.04*	320	.09*
WBR	d	1700	290	.17	90	.05
Right Turn Adjustment			WBR	.05*		
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.69**		**.52**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	140	.08*
NBT	3	5100	1270	.25*	860	.17
NBR	d	1700	50	.03	80	.05
SBL	1	1700	250	.15*	210	.12
SBT	3	5100	980	.19	1700	.33*
SBR	d	1700	120	.07	370	.22
EBL	1	1700	460	.27*	280	.16*
EBT	2	3400	590	.17	470	.14
EBR	d	1700	90	.05	50	.03
WBL	1	1700	40	.02	100	.06
WBT	2	3400	250	.07*	510	.15*
WBR	d	1700	360	.21	110	.06
Right Turn Adjustment			WBR	.06*		
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.85**		**.77**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	110	.06*
NBT	3	5100	1230	.24*	770	.15
NBR	d	1700	100	.06	110	.06
SBL	1	1700	260	.15*	210	.12
SBT	3	5100	980	.19	1410	.28*
SBR	d	1700	120	.07	410	.24
EBL	1	1700	380	.22*	260	.15*
EBT	2	3400	470	.14	320	.09
EBR	d	1700	70	.04	50	.03
WBL	1	1700	50	.03	130	.08
WBT	2	3400	190	.06*	380	.11*
WBR	d	1700	300	.18	110	.06
Right Turn Adjustment			WBR	.04*		
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.76**		**.65**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	110	.06*
NBT	3	5100	1240	.24*	760	.15
NBR	d	1700	80	.05	120	.07
SBL	1	1700	260	.15*	210	.12
SBT	3	5100	970	.19	1400	.27*
SBR	d	1700	120	.07	420	.25
EBL	1	1700	390	.23*	260	.15*
EBT	2	3400	450	.13	320	.09
EBR	d	1700	70	.04	50	.03
WBL	1	1700	60	.04	120	.07
WBT	2	3400	200	.06*	370	.11*
WBR	d	1700	300	.18	110	.06
Right Turn Adjustment			WBR	.04*		
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.77**		**.64**

31. Bolsa Chica St & Heil Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	110	.06*
NBT	3	5100	1250	.25*	760	.15
NBR	d	1700	80	.05	120	.07
SBL	1	1700	260	.15*	200	.12
SBT	3	5100	970	.19	1400	.27*
SBR	d	1700	120	.07	420	.25
EBL	1	1700	390	.23*	260	.15*
EBT	2	3400	450	.13	320	.09
EBR	d	1700	70	.04	50	.03
WBL	1	1700	60	.04	120	.07
WBT	2	3400	200	.06*	370	.11*
WBR	d	1700	300	.18	110	.06
Right Turn Adjustment			WBR	.04*		
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .78 .64

32. Graham St & Heil Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08	80	.05*
NBT	1	1700	280	.16*	150	.09
NBR	d	1700	40	.02	40	.02
SBL	1	1700	50	.03*	70	.04
SBT	1	1700	130	.08	280	.16*
SBR	1	1700	60	.04	150	.09
EBL	1	1700	130	.08	60	.04*
EBT	2	3400	510	.15*	410	.12
EBR	d	1700	90	.05	80	.05
WBL	1	1700	40	.02*	40	.02
WBT	2	3400	270	.08	450	.13*
WBR	d	1700	90	.05	30	.02
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .41 .43

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	140	.08	110	.06*
NBT	1	1700	270	.16*	160	.09
NBR	d	1700	70	.04	50	.03
SBL	1	1700	50	.03*	80	.05
SBT	1	1700	160	.09	320	.19*
SBR	1	1700	70	.04	190	.11
EBL	1	1700	140	.08	90	.05*
EBT	2	3400	700	.21*	620	.18
EBR	d	1700	100	.06	70	.04
WBL	1	1700	50	.03*	40	.02
WBT	2	3400	380	.11	630	.19*
WBR	d	1700	130	.08	40	.02
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .48 .54

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	140	.08	90	.05*
NBT	1	1700	290	.17*	170	.10
NBR	d	1700	60	.04	50	.03
SBL	1	1700	60	.04*	80	.05
SBT	1	1700	150	.09	300	.18*
SBR	1	1700	70	.04	210	.12
EBL	1	1700	130	.08	110	.06*
EBT	2	3400	680	.20*	520	.15
EBR	d	1700	100	.06	80	.05
WBL	1	1700	60	.04*	50	.03
WBT	2	3400	310	.09	560	.16*
WBR	d	1700	120	.07	40	.02
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .50 .50

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	140	.08	80	.05*
NBT	1	1700	290	.17*	170	.10
NBR	d	1700	70	.04	50	.03
SBL	1	1700	60	.04*	80	.05
SBT	1	1700	140	.08	300	.18*
SBR	1	1700	70	.04	210	.12
EBL	1	1700	130	.08	100	.06*
EBT	2	3400	650	.19*	510	.15
EBR	d	1700	90	.05	80	.05
WBL	1	1700	70	.04*	40	.02
WBT	2	3400	320	.09	550	.16*
WBR	d	1700	120	.07	40	.02
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .49 .50

32. Graham St & Heil Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	140	.08	80	.05*
NBT	1	1700	290	.17*	170	.10
NBR	d	1700	70	.04	50	.03
SBL	1	1700	60	.04*	80	.05
SBT	1	1700	140	.08	300	.18*
SBR	1	1700	70	.04	210	.12
EBL	1	1700	140	.08	110	.06*
EBT	2	3400	650	.19*	510	.15
EBR	d	1700	90	.05	80	.05
WBL	1	1700	60	.04*	40	.02
WBT	2	3400	330	.10	550	.16*
WBR	d	1700	120	.07	40	.02
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.49**		**.50**

33. Springdale St & Heil Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	70	.04	90	.05*
NBT	2	3400	600	.18*	580	.17
NBR	d	1700	60	.04	70	.04
SBL	1	1700	120	.07*	180	.11
SBT	2	3400	530	.16	770	.23*
SBR	d	1700	70	.04	120	.07
EBL	1	1700	100	.06	120	.07*
EBT	2	3400	440	.13*	390	.11
EBR	d	1700	50	.03	70	.04
WBL	1	1700	40	.02*	100	.06
WBT	2	3400	260	.08	380	.11*
WBR	d	1700	180	.11	90	.05
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.45**		**.51**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	160	.09*	170	.10*
NBT	2	3400	610	.18	660	.19
NBR	d	1700	60	.04	70	.04
SBL	1	1700	130	.08	260	.15
SBT	2	3400	630	.19*	840	.25*
SBR	d	1700	100	.06	130	.08
EBL	1	1700	130	.08	190	.11*
EBT	2	3400	550	.16*	410	.12
EBR	d	1700	120	.07	160	.09
WBL	1	1700	30	.02*	100	.06
WBT	2	3400	300	.09	520	.15*
WBR	d	1700	200	.12	100	.06
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.51**		**.66**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08*	140	.08
NBT	2	3400	620	.18	690	.20*
NBR	d	1700	70	.04	70	.04
SBL	1	1700	130	.08	250	.15*
SBT	2	3400	610	.18*	880	.26
SBR	d	1700	80	.05	120	.07
EBL	1	1700	140	.08	190	.11*
EBT	2	3400	530	.16*	390	.11
EBR	d	1700	110	.06	80	.05
WBL	1	1700	50	.03*	110	.06
WBT	2	3400	270	.08	490	.14*
WBR	d	1700	190	.11	100	.06
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.50**		**.65**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08	130	.08
NBT	2	3400	630	.19*	670	.20*
NBR	d	1700	60	.04	80	.05
SBL	1	1700	130	.08*	250	.15*
SBT	2	3400	610	.18	890	.26
SBR	d	1700	70	.04	120	.07
EBL	1	1700	130	.08	190	.11*
EBT	2	3400	530	.16*	400	.12
EBR	d	1700	110	.06	80	.05
WBL	1	1700	50	.03*	120	.07
WBT	2	3400	300	.09	470	.14*
WBR	d	1700	190	.11	100	.06
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.51**		**.65**

33. Springdale St & Heil Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08	130	.08
NBT	2	3400	630	.19*	670	.20*
NBR	d	1700	60	.04	80	.05
SBL	1	1700	130	.08*	240	.14*
SBT	2	3400	600	.18	890	.26
SBR	d	1700	70	.04	120	.07
EBL	1	1700	140	.08	180	.11*
EBT	2	3400	520	.15*	400	.12
EBR	d	1700	100	.06	80	.05
WBL	1	1700	50	.03*	110	.06
WBT	2	3400	300	.09	480	.14*
WBR	d	1700	190	.11	100	.06
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.50**		**.64**

34. Edwards St & Heil Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	110	.06	110	.06*
NBT	2	3400	720	.21*	580	.17
NBR	d	1700	90	.05	80	.05
SBL	1	1700	140	.08*	100	.06
SBT	2	3400	570	.17	650	.19*
SBR	d	1700	90	.05	70	.04
EBL	1	1700	140	.08	100	.06*
EBT	2	3400	670	.20*	580	.17
EBR	d	1700	80	.05	80	.05
WBL	1	1700	130	.08*	100	.06
WBT	2	3400	430	.13	630	.19*
WBR	d	1700	100	.06	100	.06
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.62**		**.55**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08	120	.07
NBT	2	3400	780	.23*	760	.22*
NBR	d	1700	90	.05	130	.08
SBL	1	1700	170	.10*	140	.08*
SBT	2	3400	700	.21	590	.17
SBR	d	1700	100	.06	120	.07
EBL	1	1700	140	.08	100	.06*
EBT	2	3400	770	.23*	610	.18
EBR	d	1700	80	.05	170	.10
WBL	1	1700	160	.09*	120	.07
WBT	2	3400	460	.14	700	.21*
WBR	d	1700	120	.07	180	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.70**		**.62**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08	130	.08
NBT	2	3400	770	.23*	760	.22*
NBR	d	1700	90	.05	100	.06
SBL	1	1700	140	.08*	100	.06*
SBT	2	3400	700	.21	660	.19
SBR	d	1700	120	.07	130	.08
EBL	1	1700	160	.09	100	.06*
EBT	2	3400	750	.22*	630	.19
EBR	d	1700	80	.05	120	.07
WBL	1	1700	140	.08*	110	.06
WBT	2	3400	420	.12	670	.20*
WBR	d	1700	120	.07	180	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.66**		**.59**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	110	.06	120	.07
NBT	2	3400	780	.23*	720	.21*
NBR	d	1700	90	.05	100	.06
SBL	1	1700	150	.09*	110	.06*
SBT	2	3400	680	.20	650	.19
SBR	d	1700	130	.08	130	.08
EBL	1	1700	160	.09	110	.06*
EBT	2	3400	730	.21*	630	.19
EBR	d	1700	80	.05	120	.07
WBL	1	1700	140	.08*	110	.06
WBT	2	3400	470	.14	650	.19*
WBR	d	1700	130	.08	170	.10
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.66**		**.57**

34. Edwards St & Heil Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	110	.06	130	.08*
NBT	2	3400	780	.23*	720	.21
NBR	d	1700	90	.05	100	.06
SBL	1	1700	160	.09*	110	.06
SBT	2	3400	680	.20	660	.19*
SBR	d	1700	130	.08	130	.08
EBL	1	1700	150	.09	110	.06*
EBT	2	3400	730	.21*	630	.19
EBR	d	1700	80	.05	120	.07
WBL	1	1700	140	.08*	110	.06
WBT	2	3400	470	.14	660	.19*
WBR	d	1700	120	.07	160	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.66**		**.57**

35. Goldenwest St & Heil Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	60	.04	140	.08*
NBT	3	5100	1020	.20*	1270	.25
NBR	d	1700	40	.02	70	.04
SBL	1	1700	130	.08*	80	.05
SBT	3	5100	1020	.20	1210	.24*
SBR	d	1700	30	.02	50	.03
EBL	1	1700	80	.05	80	.05
EBT	2	3400	610	.18*	500	.15*
EBR	d	1700	110	.06	110	.06
WBL	1	1700	50	.03*	100	.06*
WBT	2	3400	310	.09	520	.15
WBR	d	1700	40	.02	170	.10
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.54**		**.58**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	70	.04	140	.08
NBT	3	5100	1360	.27*	1550	.30*
NBR	d	1700	40	.02	170	.10
SBL	1	1700	140	.08*	90	.05*
SBT	3	5100	1340	.26	1240	.24
SBR	d	1700	40	.02	60	.04
EBL	1	1700	90	.05	80	.05
EBT	2	3400	770	.23*	540	.16*
EBR	d	1700	130	.08	130	.08
WBL	1	1700	60	.04*	170	.10*
WBT	2	3400	360	.11	680	.20
WBR	d	1700	70	.04	220	.13
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.67**		**.66**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	70	.04	150	.09*
NBT	3	5100	1300	.25*	1350	.26
NBR	d	1700	50	.03	260	.15
SBL	1	1700	130	.08*	90	.05
SBT	3	5100	1280	.25	1310	.26*
SBR	d	1700	30	.02	60	.04
EBL	1	1700	90	.05	90	.05*
EBT	2	3400	740	.22*	490	.14
EBR	d	1700	120	.07	150	.09
WBL	1	1700	70	.04*	140	.08
WBT	2	3400	320	.09	630	.19*
WBR	d	1700	90	.05	290	.17
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.64**		**.64**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	70	.04	150	.09*
NBT	3	5100	1290	.25*	1310	.26
NBR	d	1700	40	.02	270	.16
SBL	1	1700	130	.08*	80	.05
SBT	3	5100	1280	.25	1310	.26*
SBR	d	1700	40	.02	60	.04
EBL	1	1700	90	.05	100	.06*
EBT	2	3400	740	.22*	480	.14
EBR	d	1700	110	.06	150	.09
WBL	1	1700	80	.05*	110	.06
WBT	2	3400	350	.10	600	.18*
WBR	d	1700	90	.05	280	.16
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.65**		**.64**

35. Goldenwest St & Heil Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	70	.04	150	.09*
NBT	3	5100	1290	.25*	1310	.26
NBR	d	1700	40	.02	270	.16
SBL	1	1700	130	.08*	80	.05
SBT	3	5100	1270	.25	1320	.26*
SBR	d	1700	40	.02	60	.04
EBL	1	1700	90	.05	100	.06*
EBT	2	3400	730	.21*	480	.14
EBR	d	1700	120	.07	160	.09
WBL	1	1700	80	.05*	120	.07
WBT	2	3400	350	.10	600	.18*
WBR	d	1700	90	.05	280	.16
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.64**		**.64**

36. Gothard St & Heil Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08*	270	.16*
NBT	2	3400	570	.17	700	.21
NBR	d	1700	120	.07	140	.08
SBL	1	1700	40	.02	70	.04
SBT	2	3400	520	.15*	550	.16*
SBR	d	1700	40	.02	120	.07
EBL	1	1700	120	.07	90	.05
EBT	2	3400	670	.20*	530	.16*
EBR	d	1700	180	.11	150	.09
WBL	1	1700	130	.08*	150	.09*
WBT	2	3400	400	.12	540	.16
WBR	d	1700	30	.02	60	.04
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.56**		**.62**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	150	.09*	260	.15*
NBT	2	3400	800	.24	870	.26
NBR	d	1700	160	.09	190	.11
SBL	1	1700	50	.03	100	.06
SBT	2	3400	770	.23*	710	.21*
SBR	d	1700	50	.03	180	.11
EBL	1	1700	120	.07	80	.05
EBT	2	3400	800	.24*	690	.20*
EBR	d	1700	210	.12	170	.10
WBL	1	1700	180	.11*	250	.15*
WBT	2	3400	490	.14	760	.22
WBR	d	1700	40	.02	70	.04
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.72**		**.76**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	160	.09*	340	.20*
NBT	2	3400	640	.19	720	.21
NBR	d	1700	240	.14	220	.13
SBL	1	1700	50	.03	110	.06
SBT	2	3400	570	.17*	580	.17*
SBR	d	1700	50	.03	130	.08
EBL	1	1700	130	.08	90	.05
EBT	2	3400	810	.24*	730	.21*
EBR	d	1700	190	.11	170	.10
WBL	1	1700	300	.18*	290	.17*
WBT	2	3400	490	.14	730	.21
WBR	d	1700	40	.02	90	.05
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.73**		**.80**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	160	.09*	350	.21*
NBT	2	3400	620	.18	710	.21
NBR	d	1700	200	.12	210	.12
SBL	1	1700	50	.03	110	.06
SBT	2	3400	610	.18*	560	.16*
SBR	d	1700	60	.04	120	.07
EBL	1	1700	140	.08	90	.05
EBT	2	3400	780	.23*	760	.22*
EBR	d	1700	170	.10	160	.09
WBL	1	1700	290	.17*	280	.16*
WBT	2	3400	540	.16	680	.20
WBR	d	1700	40	.02	80	.05
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.72**		**.80**

36. Gothard St & Heil Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	160	.09*	340	.20*
NBT	2	3400	630	.19	720	.21
NBR	d	1700	200	.12	210	.12
SBL	1	1700	50	.03	110	.06
SBT	2	3400	590	.17*	560	.16*
SBR	d	1700	60	.04	130	.08
EBL	1	1700	140	.08	90	.05
EBT	2	3400	780	.23*	760	.22*
EBR	d	1700	180	.11	160	.09
WBL	1	1700	300	.18*	280	.16*
WBT	2	3400	540	.16	680	.20
WBR	d	1700	40	.02	80	.05
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .72 .79

37. Beach Blvd & Heil Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	150	.09*	190	.11*
NBT	4	6800	2080	.31	2570	.38
NBR	0	0	20		40	
SBL	1	1700	70	.04	150	.09
SBT	4	6800	2540	.40*	2530	.40*
SBR	0	0	180		210	
EBL	1	1700	170	.10*	170	.10*
EBT	2	3400	420	.19	300	.14
EBR	0	0	210		170	
WBL	1	1700	50	.03	50	.03
WBT	1	1700	240	.14*	230	.14*
WBR	1	1700	80	.05	110	.06
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.78**		**.80**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	180	.11*	180	.11*
NBT	4	6800	2450	.36	2700	.41
NBR	0	0	30		80	
SBL	1	1700	80	.05	150	.09
SBT	4	6800	2680	.43*	2570	.42*
SBR	0	0	270		260	
EBL	1	1700	120	.07	220	.13*
EBT	2	3400	610	.25*	410	.17
EBR	0	0	240		180	
WBL	1	1700	60	.04*	60	.04
WBT	2	3400	320	.12	400	.15*
WBR	0	0	80		120	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.88**		**.86**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	160	.09*	220	.13*
NBT	4	6800	2490	.37	2720	.41
NBR	0	0	30		40	
SBL	1	1700	80	.05	160	.09
SBT	4	6800	2600	.44*	2610	.43*
SBR	0	0	360		320	
EBL	1	1700	180	.11	320	.19*
EBT	2	3400	630	.26*	470	.19
EBR	0	0	260		180	
WBL	1	1700	60	.04*	60	.04
WBT	2	3400	350	.13	420	.16*
WBR	0	0	90		120	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.88**		**.96**

2030 Proposed Roadway Plan (Rec. Lanes Opt. 1)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	160	.05*	220	.06
NBT	4	6800	2490	.37	2720	.41*
NBR	0	0	30		40	
SBL	1	1700	80	.05	160	.09*
SBT	4	6800	2600	.44*	2610	.43
SBR	0	0	360		320	
EBL	1	1700	180	.11	320	.19*
EBT	2	3400	630	.26*	470	.19
EBR	0	0	260		180	
WBL	1	1700	60	.04*	60	.04
WBT	2	3400	350	.13	420	.16*
WBR	0	0	90		120	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.84**		**.90**

37. Beach Blvd & Heil Ave

2030 Proposed Roadway Plan (Rec. Lanes Opt. 2)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	160	.09*	220	.13*
NBT	4	6800	2490	.37	2720	.41
NBR	0	0	30		40	
SBL	1	1700	80	.05	160	.09
SBT	4	6800	2600	.38*	2610	.38*
SBR	d	1700	360	.21	320	.19
EBL	1	1700	180	.11	320	.19*
EBT	2	3400	630	.26*	470	.19
EBR	0	0	260		180	
WBL	1	1700	60	.04*	60	.04
WBT	2	3400	350	.10	420	.12*
WBR	d	1700	90	.05	120	.07
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .82 .87

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	160	.09*	220	.13*
NBT	4	6800	2470	.37	2710	.40
NBR	0	0	30		40	
SBL	1	1700	80	.05	160	.09
SBT	4	6800	2610	.44*	2590	.43*
SBR	0	0	380		300	
EBL	1	1700	170	.10	350	.21*
EBT	2	3400	640	.26*	470	.18
EBR	0	0	250		150	
WBL	1	1700	50	.03*	60	.04
WBT	2	3400	330	.12	430	.16*
WBR	0	0	80		130	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .87 .98

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	160	.09*	220	.13*
NBT	4	6800	2470	.37	2710	.40
NBR	0	0	30		40	
SBL	1	1700	80	.05	160	.09
SBT	4	6800	2600	.44*	2590	.42*
SBR	0	0	390		290	
EBL	1	1700	170	.10	350	.21*
EBT	2	3400	640	.26*	470	.18
EBR	0	0	250		150	
WBL	1	1700	50	.03*	60	.04
WBT	2	3400	340	.12	430	.16*
WBR	0	0	80		130	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .87 .97

2030 Specific Plan w/Option 1 Mit

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	160	.05*	220	.06
NBT	4	6800	2470	.37	2710	.40*
NBR	0	0	30		40	
SBL	1	1700	80	.05	160	.09*
SBT	4	6800	2610	.44*	2590	.43
SBR	0	0	380		300	
EBL	1	1700	170	.10	350	.21*
EBT	2	3400	640	.26*	470	.18
EBR	0	0	250		150	
WBL	1	1700	50	.03*	60	.04
WBT	2	3400	330	.12	430	.16*
WBR	0	0	80		130	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .83 .91

37. Beach Blvd & Heil Ave

2030 Specific Plan w/Option 2 Mit

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	160	.09*	220	.13*
NBT	4	6800	2470	.37	2710	.40
NBR	0	0	30		40	
SBL	1	1700	80	.05	160	.09
SBT	4	6800	2610	.38*	2590	.38*
SBR	d	1700	380	.22	300	.18
EBL	1	1700	170	.10	350	.21*
EBT	2	3400	640	.26*	470	.18
EBR	0	0	250		150	
WBL	1	1700	50	.03*	60	.04
WBT	2	3400	330	.10	430	.13*
WBR	d	1700	80	.05	130	.08
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.81**		**.90**

38. Newland St & Heil Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	180	.11*	230	.14*
NBT	2	3400	430	.13	620	.18
NBR	d	1700	10	.01	20	.01
SBL	1	1700	30	.02	50	.03
SBT	2	3400	500	.15*	410	.12*
SBR	d	1700	160	.09	120	.07
EBL	1	1700	210	.12*	160	.09*
EBT	1	1700	70	.04	40	.02
EBR	1	1700	280	.16	120	.07
WBL	1	1700	10	.01	20	.01
WBT	1	1700	70	.08*	60	.06*
WBR	0	0	60		50	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.51**		**.46**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	230	.14*	360	.21*
NBT	2	3400	480	.14	620	.18
NBR	d	1700	10	.01	20	.01
SBL	1	1700	40	.02	60	.04
SBT	2	3400	660	.19*	470	.14*
SBR	d	1700	140	.08	100	.06
EBL	1	1700	170	.10*	230	.14*
EBT	1	1700	70	.04	50	.03
EBR	1	1700	370	.22	120	.07
WBL	1	1700	10	.01	20	.01
WBT	1	1700	80	.09*	60	.08*
WBR	0	0	70		70	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.57**		**.62**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	200	.12*	320	.19*
NBT	2	3400	510	.15	690	.20
NBR	d	1700	10	.01	20	.01
SBL	1	1700	40	.02	60	.04
SBT	2	3400	740	.22*	500	.15*
SBR	d	1700	210	.12	140	.08
EBL	1	1700	270	.16*	270	.16*
EBT	1	1700	70	.04	50	.03
EBR	1	1700	280	.16	120	.07
WBL	1	1700	10	.01	20	.01
WBT	1	1700	80	.08*	60	.07*
WBR	0	0	60		60	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.63**		**.62**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	170	.10*	320	.19*
NBT	2	3400	530	.16	670	.20
NBR	d	1700	10	.01	20	.01
SBL	1	1700	40	.02	60	.04
SBT	2	3400	730	.21*	490	.14*
SBR	d	1700	210	.12	150	.09
EBL	1	1700	280	.16*	280	.16*
EBT	1	1700	70	.04	50	.03
EBR	1	1700	290	.17	100	.06
WBL	1	1700	10	.01	20	.01
WBT	1	1700	70	.08*	60	.07*
WBR	0	0	60		60	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.60**		**.61**

38. Newland St & Heil Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	170	.10*	320	.19*
NBT	2	3400	530	.16	670	.20
NBR	d	1700	10	.01	20	.01
SBL	1	1700	40	.02	60	.04
SBT	2	3400	720	.21*	500	.15*
SBR	d	1700	220	.13	150	.09
EBL	1	1700	270	.16*	280	.16*
EBT	1	1700	70	.04	50	.03
EBR	1	1700	300	.18	110	.06
WBL	1	1700	10	.01	20	.01
WBT	1	1700	70	.08*	60	.07*
WBR	0	0	60		60	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .60 .62

39. Pacific Coast Hwy & Warner Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	10	.01
NBT	2	3400	1440	.42*	1390	.41*
NBR	1	1700	280	.16	390	.23
SBL	2	3400	540	.16*	650	.19*
SBT	2	3400	1800	.54	1200	.36
SBR	0	0	40		10	
EBL	1	1700	20	.01	10	.01
EBT	1	1700	50	.06*	60	.05*
EBR	0	0	50		20	
WBL	2	3400	350	.10*	300	.09*
WBT	1	1700	60	.04	40	.02
WBR	2	3400	700	.21	580	.17
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .79 .79

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01*	10	.01
NBT	2	3400	1760	.52	1990	.59*
NBR	1	1700	300	.18	300	.18
SBL	2	3400	280	.08	160	.05*
SBT	2	3400	2310	.69*	1480	.44
SBR	0	0	40		10	
EBL	1	1700	20	.01	10	.01
EBT	1	1700	50	.06*	50	.05*
EBR	0	0	60		30	
WBL	2	3400	350	.10*	290	.09*
WBT	1	1700	60	.04	40	.02
WBR	2	3400	300	.09	250	.07
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .91 .83

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	10	.01
NBT	2	3400	1570	.46*	1780	.52*
NBR	1	1700	330	.19	410	.24
SBL	2	3400	730	.21*	880	.26*
SBT	2	3400	2130	.64	1300	.39
SBR	0	0	40		10	
EBL	1	1700	20	.01	10	.01
EBT	1	1700	50	.06*	60	.05*
EBR	0	0	50		20	
WBL	2	3400	370	.11*	340	.10*
WBT	1	1700	60	.04	40	.02
WBR	2	3400	950	.28	870	.26
Right Turn Adjustment			WBR	.02*		
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .91 .98

2030 Proposed Roadway Plan (Rec. Lanes Opt. 1)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01*	10	.01
NBT	3	5100	1570	.31	1780	.35*
NBR	1	1700	330	.19	410	.24
SBL	2	3400	730	.21	880	.26*
SBT	2	3400	2130	.64*	1300	.39
SBR	0	0	40		10	
EBL	1	1700	20	.01	10	.01
EBT	1	1700	50	.06*	60	.05*
EBR	0	0	50		20	
WBL	2	3400	370	.11*	340	.10*
WBT	1	1700	60	.04	40	.02
WBR	2	3400	950	.28	870	.26
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .87 .81

39. Pacific Coast Hwy & Warner Ave

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	10	.01
NBT	2	3400	1600	.47*	1740	.51*
NBR	1	1700	320	.19	420	.25
SBL	2	3400	690	.20*	890	.26*
SBT	2	3400	2080	.62	1300	.39
SBR	0	0	40		10	
EBL	1	1700	20	.01	10	.01
EBT	1	1700	50	.06*	60	.05*
EBR	0	0	50		20	
WBL	2	3400	380	.11*	340	.10*
WBT	1	1700	60	.04	40	.02
WBR	2	3400	980	.29	870	.26
Right Turn Adjustment			WBR	.03*		
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .92 .97

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	10	.01
NBT	2	3400	1600	.47*	1740	.51*
NBR	1	1700	320	.19	420	.25
SBL	2	3400	700	.21*	890	.26*
SBT	2	3400	2060	.62	1290	.38
SBR	0	0	40		10	
EBL	1	1700	20	.01	10	.01
EBT	1	1700	50	.06*	60	.05*
EBR	0	0	50		20	
WBL	2	3400	380	.11*	340	.10*
WBT	1	1700	60	.04	40	.02
WBR	2	3400	970	.29	870	.26
Right Turn Adjustment			WBR	.03*		
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .93 .97

2030 Specific Plan w/Option 1 Mit

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01*	10	.01
NBT	3	5100	1600	.31	1740	.34*
NBR	1	1700	320	.19	420	.25
SBL	2	3400	690	.20	890	.26*
SBT	2	3400	2080	.62*	1300	.39
SBR	0	0	40		10	
EBL	1	1700	20	.01	10	.01
EBT	1	1700	50	.06*	60	.05*
EBR	0	0	50		20	
WBL	2	3400	380	.11*	340	.10*
WBT	1	1700	60	.04	40	.02
WBR	2	3400	980	.29	870	.26
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .85 .80

40. Algonquin St & Warner Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01*	10	.01*
NBT	1	1700	10	.01	10	.01
NBR	0	0	10		10	
SBL	1.5		220		200	
SBT	0.5	3400	10	.07*	10	.06*
SBR	1	1700	330	.19	190	.11
EBL	1	1700	130	.08*	270	.16*
EBT	3	5100	870	.17	800	.16
EBR	0	0	10		10	
WBL	1	1700	10	.01	10	.01
WBT	2	3400	740	.22*	760	.22*
WBR	1	1700	190	.11	290	.17
Right Turn Adjustment			SBR	.08*		
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.51**		**.50**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01*	20	.01
NBT	1	1700	10	.01	20	.02*
NBR	0	0	10		10	
SBL	1.5		260		220	{.07}*
SBT	0.5	3400	10	.08*	20	.07
SBR	1	1700	200	.12	80	.05
EBL	1	1700	60	.04*	150	.09*
EBT	3	5100	640	.13	310	.06
EBR	0	0	20		10	
WBL	1	1700	10	.01	10	.01
WBT	2	3400	390	.11*	500	.15*
WBR	1	1700	200	.12	340	.20
Right Turn Adjustment			SBR	.02*	WBR	.01*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.31**		**.39**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01*	20	.01
NBT	1	1700	10	.01	20	.02*
NBR	0	0	10		10	
SBL	1.5		260		220	{.07}*
SBT	0.5	3400	10	.08*	10	.07
SBR	1	1700	420	.25	260	.15
EBL	1	1700	170	.10*	290	.17*
EBT	3	5100	1060	.21	920	.18
EBR	0	0	20		10	
WBL	1	1700	10	.01	10	.01
WBT	2	3400	810	.24*	990	.29*
WBR	1	1700	200	.12	330	.19
Right Turn Adjustment			SBR	.12*		
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.60**		**.60**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01*	20	.01
NBT	1	1700	10	.01	20	.02*
NBR	0	0	10		10	
SBL	1.5		260		220	{.07}*
SBT	0.5	3400	20	.08*	20	.07
SBR	1	1700	430	.25	270	.16
EBL	1	1700	170	.10*	300	.18*
EBT	3	5100	1020	.20	920	.18
EBR	0	0	20		10	
WBL	1	1700	10	.01	10	.01
WBT	2	3400	830	.24*	980	.29*
WBR	1	1700	210	.12	320	.19
Right Turn Adjustment			SBR	.12*		
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.60**		**.61**

40. Algonquin St & Warner Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01*	20	.01
NBT	1	1700	10	.01	20	.02*
NBR	0	0	10		10	
SBL	1.5		270		220	{.07}*
SBT	0.5	3400	20	.09*	20	.07
SBR	1	1700	430	.25	270	.16
EBL	1	1700	170	.10*	300	.18*
EBT	3	5100	1030	.21	920	.18
EBR	0	0	20		10	
WBL	1	1700	10	.01	10	.01
WBT	2	3400	820	.24*	990	.29*
WBR	1	1700	210	.12	320	.19
Right Turn Adjustment			SBR	.11*		
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .60 .61

41. Bolsa Chica St & Warner Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	40	.02
NBT	2	3400	110	.03*	70	.02*
NBR	d	1700	120	.07	80	.05
SBL	2	3400	560	.16*	580	.17*
SBT	1	1700	50	.03	90	.05
SBR	2	3400	310	.09	480	.14
EBL	1	1700	380	.22*	280	.16*
EBT	3	5100	870	.17	810	.16
EBR	d	1700	10	.01	40	.02
WBL	1	1700	30	.02	100	.06
WBT	3	5100	670	.13*	1040	.20*
WBR	d	1700	440	.26	400	.24
Right Turn Adjustment			WBR	.05*		
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.64**		**.60**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	60	.04
NBT	2	3400	120	.04*	150	.04*
NBR	d	1700	280	.16	130	.08
SBL	2	3400	650	.19*	1100	.32*
SBT	1	1700	90	.05	360	.21
SBR	2	3400	210	.06	260	.08
EBL	1	1700	330	.19*	230	.14*
EBT	3	5100	850	.17	460	.09
EBR	d	1700	10	.01	50	.03
WBL	1	1700	90	.05	120	.07
WBT	3	5100	530	.10*	950	.19*
WBR	d	1700	720	.42	690	.41
Right Turn Adjustment			Multi	.28*	WBR	.06*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.85**		**.80**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	40	.02
NBT	2	3400	210	.06*	220	.06*
NBR	d	1700	240	.14	120	.07
SBL	2	3400	590	.17*	700	.21*
SBT	1	1700	90	.05	330	.19
SBR	2	3400	320	.09	450	.13
EBL	1	1700	480	.28*	280	.16*
EBT	3	5100	950	.19	850	.17
EBR	d	1700	10	.01	40	.02
WBL	1	1700	80	.05	100	.06
WBT	3	5100	750	.15*	1090	.21*
WBR	d	1700	450	.26	590	.35
Right Turn Adjustment			WBR	.02*	WBR	.03*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.73**		**.72**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	40	.02
NBT	2	3400	200	.06*	220	.06*
NBR	d	1700	240	.14	110	.06
SBL	2	3400	590	.17*	700	.21*
SBT	1	1700	100	.06	330	.19
SBR	2	3400	320	.09	460	.14
EBL	1	1700	470	.28*	280	.16*
EBT	3	5100	920	.18	850	.17
EBR	d	1700	10	.01	40	.02
WBL	1	1700	80	.05	110	.06
WBT	3	5100	780	.15*	1070	.21*
WBR	d	1700	460	.27	580	.34
Right Turn Adjustment			WBR	.03*	WBR	.02*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.74**		**.71**

41. Bolsa Chica St & Warner Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	40	.02
NBT	2	3400	210	.06*	220	.06*
NBR	d	1700	240	.14	110	.06
SBL	2	3400	590	.17*	690	.20*
SBT	1	1700	100	.06	330	.19
SBR	2	3400	320	.09	460	.14
EBL	1	1700	470	.28*	280	.16*
EBT	3	5100	930	.18	860	.17
EBR	d	1700	10	.01	40	.02
WBL	1	1700	80	.05	110	.06
WBT	3	5100	780	.15*	1070	.21*
WBR	d	1700	470	.28	590	.35
Right Turn Adjustment			WBR	.04*	WBR	.04*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .75 .72

42. Graham St & Warner Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	250	.15*	240	.14*
NBT	1	1700	290	.17	160	.09
NBR	1	1700	50	.03	30	.02
SBL	1	1700	60	.04	90	.05
SBT	1	1700	170	.10*	180	.11*
SBR	d	1700	30	.02	60	.04
EBL	1	1700	80	.05	50	.03*
EBT	3	5100	1230	.24*	1070	.21
EBR	d	1700	160	.09	250	.15
WBL	1	1700	10	.01*	50	.03
WBT	3	5100	670	.13	1100	.22*
WBR	d	1700	80	.05	60	.04
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.55**		**.55**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	360	.21*	370	.22*
NBT	1	1700	260	.15	160	.09
NBR	1	1700	60	.04	40	.02
SBL	1	1700	60	.04	240	.14
SBT	1	1700	180	.11*	180	.11*
SBR	d	1700	30	.02	60	.04
EBL	1	1700	120	.07	50	.03*
EBT	3	5100	1390	.27*	1110	.22
EBR	d	1700	260	.15	430	.25
WBL	1	1700	10	.01*	60	.04
WBT	3	5100	740	.15	1210	.24*
WBR	d	1700	90	.05	170	.10
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.65**		**.65**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	320	.19*	350	.21*
NBT	1	1700	280	.16	180	.11
NBR	1	1700	70	.04	50	.03
SBL	1	1700	60	.04	220	.13
SBT	1	1700	170	.10*	180	.11*
SBR	d	1700	30	.02	70	.04
EBL	1	1700	100	.06	60	.04*
EBT	3	5100	1390	.27*	1110	.22
EBR	d	1700	250	.15	400	.24
WBL	1	1700	10	.01*	50	.03
WBT	3	5100	720	.14	1220	.24*
WBR	d	1700	90	.05	150	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.62**		**.65**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	320	.19*	350	.21*
NBT	1	1700	280	.16	170	.10
NBR	1	1700	60	.04	50	.03
SBL	1	1700	60	.04	230	.14
SBT	1	1700	160	.09*	180	.11*
SBR	d	1700	40	.02	70	.04
EBL	1	1700	110	.06	60	.04*
EBT	3	5100	1350	.26*	1090	.21
EBR	d	1700	260	.15	420	.25
WBL	1	1700	10	.01*	50	.03
WBT	3	5100	750	.15	1210	.24*
WBR	d	1700	90	.05	150	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.60**		**.65**

42. Graham St & Warner Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	330	.19*	350	.21*
NBT	1	1700	280	.16	170	.10
NBR	1	1700	60	.04	50	.03
SBL	1	1700	60	.04	230	.14
SBT	1	1700	160	.09*	180	.11*
SBR	d	1700	40	.02	70	.04
EBL	1	1700	110	.06	60	.04*
EBT	3	5100	1340	.26*	1090	.21
EBR	d	1700	270	.16	410	.24
WBL	1	1700	10	.01*	50	.03
WBT	3	5100	750	.15	1200	.24*
WBR	d	1700	90	.05	150	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.60**		**.65**

43. Springdale St & Warner Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	220	.13	210	.12*
NBT	2	3400	670	.20*	440	.13
NBR	d	1700	70	.04	80	.05
SBL	1	1700	210	.12*	280	.16
SBT	2	3400	540	.16	620	.18*
SBR	d	1700	60	.04	100	.06
EBL	1	1700	90	.05	170	.10*
EBT	3	5100	1200	.24*	890	.17
EBR	d	1700	200	.12	180	.11
WBL	1	1700	80	.05*	110	.06
WBT	3	5100	590	.12	1000	.20*
WBR	d	1700	190	.11	190	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.66**		**.65**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	220	.13	260	.15*
NBT	2	3400	800	.24*	460	.14
NBR	d	1700	130	.08	150	.09
SBL	1	1700	300	.18*	390	.23
SBT	2	3400	620	.18	750	.22*
SBR	d	1700	70	.04	100	.06
EBL	1	1700	90	.05	170	.10*
EBT	3	5100	1320	.26*	1060	.21
EBR	d	1700	320	.19	250	.15
WBL	1	1700	90	.05*	120	.07
WBT	3	5100	730	.14	1290	.25*
WBR	d	1700	240	.14	300	.18
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.78**		**.77**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	220	.13	200	.12*
NBT	2	3400	800	.24*	450	.13
NBR	d	1700	110	.06	150	.09
SBL	1	1700	290	.17*	360	.21
SBT	2	3400	610	.18	740	.22*
SBR	d	1700	80	.05	110	.06
EBL	1	1700	100	.06	180	.11*
EBT	3	5100	1350	.26*	1060	.21
EBR	d	1700	280	.16	220	.13
WBL	1	1700	90	.05*	120	.07
WBT	3	5100	690	.14	1300	.25*
WBR	d	1700	250	.15	300	.18
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.77**		**.75**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	230	.14	200	.12*
NBT	2	3400	790	.23*	450	.13
NBR	d	1700	110	.06	140	.08
SBL	1	1700	270	.16*	360	.21
SBT	2	3400	620	.18	740	.22*
SBR	d	1700	70	.04	110	.06
EBL	1	1700	100	.06	180	.11*
EBT	3	5100	1330	.26*	1060	.21
EBR	d	1700	260	.15	210	.12
WBL	1	1700	90	.05*	120	.07
WBT	3	5100	700	.14	1290	.25*
WBR	d	1700	260	.15	300	.18
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.75**		**.75**

43. Springdale St & Warner Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	230	.14	190	.11*
NBT	2	3400	800	.24*	440	.13
NBR	d	1700	110	.06	140	.08
SBL	1	1700	270	.16*	340	.20
SBT	2	3400	610	.18	750	.22*
SBR	d	1700	70	.04	110	.06
EBL	1	1700	100	.06	180	.11*
EBT	3	5100	1320	.26*	1090	.21
EBR	d	1700	250	.15	190	.11
WBL	1	1700	90	.05*	120	.07
WBT	3	5100	700	.14	1280	.25*
WBR	d	1700	260	.15	290	.17
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .76 .74

44. Edwards St & Warner Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	120	.07	120	.07
NBT	2	3400	520	.15*	450	.13*
NBR	d	1700	130	.08	100	.06
SBL	1	1700	200	.12*	160	.09*
SBT	2	3400	470	.14	460	.14
SBR	d	1700	40	.02	160	.09
EBL	1	1700	110	.06	140	.08*
EBT	3	5100	1590	.31*	990	.19
EBR	d	1700	120	.07	130	.08
WBL	1	1700	60	.04*	170	.10
WBT	3	5100	620	.12	1310	.26*
WBR	d	1700	140	.08	220	.13
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.67**		**.61**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08	190	.11
NBT	2	3400	540	.16*	470	.14*
NBR	d	1700	280	.16	170	.10
SBL	1	1700	210	.12*	170	.10*
SBT	2	3400	620	.18	450	.13
SBR	d	1700	50	.03	170	.10
EBL	1	1700	170	.10	270	.16*
EBT	3	5100	1770	.35*	1050	.21
EBR	d	1700	120	.07	240	.14
WBL	1	1700	70	.04*	310	.18
WBT	3	5100	820	.16	1510	.30*
WBR	d	1700	140	.08	260	.15
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.72**		**.75**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08	200	.12*
NBT	2	3400	550	.16*	450	.13
NBR	d	1700	240	.14	130	.08
SBL	1	1700	210	.12*	160	.09
SBT	2	3400	590	.17	480	.14*
SBR	d	1700	50	.03	160	.09
EBL	1	1700	160	.09	290	.17*
EBT	3	5100	1800	.35*	1070	.21
EBR	d	1700	120	.07	190	.11
WBL	1	1700	70	.04*	280	.16
WBT	3	5100	800	.16	1510	.30*
WBR	d	1700	150	.09	250	.15
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.72**		**.78**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08	190	.11*
NBT	2	3400	520	.15*	440	.13
NBR	d	1700	250	.15	130	.08
SBL	1	1700	210	.12*	160	.09
SBT	2	3400	580	.17	480	.14*
SBR	d	1700	50	.03	170	.10
EBL	1	1700	190	.11	280	.16*
EBT	3	5100	1760	.35*	1060	.21
EBR	d	1700	120	.07	200	.12
WBL	1	1700	60	.04*	280	.16
WBT	3	5100	830	.16	1510	.30*
WBR	d	1700	140	.08	230	.14
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.71**		**.76**

44. Edwards St & Warner Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	130	.08	190	.11*
NBT	2	3400	530	.16*	440	.13
NBR	d	1700	240	.14	130	.08
SBL	1	1700	210	.12*	160	.09
SBT	2	3400	580	.17	470	.14*
SBR	d	1700	50	.03	170	.10
EBL	1	1700	180	.11	280	.16*
EBT	3	5100	1750	.34*	1060	.21
EBR	d	1700	120	.07	200	.12
WBL	1	1700	60	.04*	280	.16
WBT	3	5100	820	.16	1500	.29*
WBR	d	1700	140	.08	240	.14
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.71**		**.75**

45. Goldenwest St & Warner Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	180	.05	370	.11*
NBT	3	5100	1000	.20*	1020	.20
NBR	1	1700	160	.09	120	.07
SBL	2	3400	300	.09*	230	.07
SBT	3	5100	770	.17	850	.20*
SBR	0	0	80		150	
EBL	2	3400	190	.06	220	.06*
EBT	3	5100	1590	.31*	910	.18
EBR	d	1700	240	.14	180	.11
WBL	2	3400	110	.03*	180	.05
WBT	3	5100	570	.11	1270	.25*
WBR	d	1700	130	.08	210	.12
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.68**		**.67**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	330	.10	530	.16*
NBT	3	5100	1010	.20*	1180	.23
NBR	1	1700	140	.08	120	.07
SBL	2	3400	460	.14*	260	.08
SBT	3	5100	920	.20	840	.21*
SBR	0	0	90		250	
EBL	2	3400	500	.15	270	.08*
EBT	3	5100	1630	.32*	900	.18
EBR	d	1700	230	.14	200	.12
WBL	2	3400	120	.04*	300	.09
WBT	3	5100	600	.12	1270	.25*
WBR	d	1700	130	.08	350	.21
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.75**		**.75**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	290	.09	500	.15*
NBT	3	5100	1030	.20*	1180	.23
NBR	1	1700	150	.09	140	.08
SBL	2	3400	410	.12*	280	.08
SBT	3	5100	930	.20	900	.22*
SBR	0	0	90		230	
EBL	2	3400	420	.12	230	.07*
EBT	3	5100	1630	.32*	910	.18
EBR	d	1700	300	.18	220	.13
WBL	2	3400	120	.04*	260	.08
WBT	3	5100	630	.12	1310	.26*
WBR	d	1700	140	.08	280	.16
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.73**		**.75**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	290	.09	500	.15*
NBT	3	5100	1020	.20*	1180	.23
NBR	1	1700	150	.09	150	.09
SBL	2	3400	400	.12*	260	.08
SBT	3	5100	940	.20	880	.22*
SBR	0	0	90		230	
EBL	2	3400	400	.12	240	.07*
EBT	3	5100	1640	.32*	880	.17
EBR	d	1700	290	.17	220	.13
WBL	2	3400	120	.04*	250	.07
WBT	3	5100	640	.13	1290	.25*
WBR	d	1700	140	.08	260	.15
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.73**		**.74**

45. Goldenwest St & Warner Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3400	290	.09	500	.15*
NBT	3	5100	1030	.20*	1200	.24
NBR	1	1700	160	.09	140	.08
SBL	2	3400	400	.12*	260	.08
SBT	3	5100	940	.20	900	.22*
SBR	0	0	90		220	
EBL	2	3400	390	.11	230	.07*
EBT	3	5100	1640	.32*	880	.17
EBR	d	1700	280	.16	220	.13
WBL	2	3400	120	.04*	260	.08
WBT	3	5100	640	.13	1290	.25*
WBR	d	1700	140	.08	250	.15
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.73**		**.74**

46. Gothard St & Warner Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08	250	.15
NBT	2	3400	380	.11*	720	.21*
NBR	d	1700	40	.02	70	.04
SBL	1	1700	130	.08*	150	.09*
SBT	2	3400	340	.10	470	.14
SBR	d	1700	40	.02	180	.11
EBL	1	1700	180	.11	220	.13*
EBT	3	5100	1370	.27*	1070	.21
EBR	1	1700	200	.12	300	.18
WBL	1	1700	80	.05*	60	.04
WBT	3	5100	730	.14	1470	.29*
WBR	d	1700	120	.07	230	.14
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.56**		**.77**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	160	.09	270	.16
NBT	2	3400	640	.19*	840	.25*
NBR	d	1700	30	.02	50	.03
SBL	1	1700	150	.09*	150	.09*
SBT	2	3400	580	.17	510	.15
SBR	d	1700	70	.04	350	.21
EBL	1	1700	170	.10	240	.14*
EBT	3	5100	1480	.29*	1080	.21
EBR	1	1700	240	.14	310	.18
WBL	1	1700	70	.04*	90	.05
WBT	3	5100	700	.14	1480	.29*
WBR	d	1700	160	.09	230	.14
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.66**		**.82**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	140	.08	270	.16
NBT	2	3400	590	.17*	790	.23*
NBR	d	1700	70	.04	80	.05
SBL	1	1700	140	.08*	160	.09*
SBT	2	3400	530	.16	480	.14
SBR	d	1700	70	.04	320	.19
EBL	1	1700	190	.11	240	.14*
EBT	3	5100	1560	.31*	1170	.23
EBR	1	1700	210	.12	300	.18
WBL	1	1700	90	.05*	130	.08
WBT	3	5100	760	.15	1530	.30*
WBR	d	1700	140	.08	290	.17
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.66**		**.81**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	140	.08*	280	.16
NBT	2	3400	560	.16	790	.23*
NBR	d	1700	80	.05	80	.05
SBL	1	1700	140	.08	150	.09*
SBT	2	3400	540	.16*	460	.14
SBR	d	1700	80	.05	320	.19
EBL	1	1700	190	.11	240	.14*
EBT	3	5100	1560	.31*	1130	.22
EBR	1	1700	210	.12	300	.18
WBL	1	1700	90	.05*	130	.08
WBT	3	5100	770	.15	1470	.29*
WBR	d	1700	140	.08	280	.16
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.65**		**.80**

46. Gothard St & Warner Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	140	.08*	270	.16
NBT	2	3400	560	.16	790	.23*
NBR	d	1700	90	.05	80	.05
SBL	1	1700	130	.08	150	.09*
SBT	2	3400	540	.16*	470	.14
SBR	d	1700	80	.05	320	.19
EBL	1	1700	190	.11	240	.14*
EBT	3	5100	1560	.31*	1130	.22
EBR	1	1700	210	.12	290	.17
WBL	1	1700	90	.05*	130	.08
WBT	3	5100	770	.15	1480	.29*
WBR	d	1700	130	.08	280	.16
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.65**		**.80**

47. Beach Blvd & Warner Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	150	.04*	350	.10
NBT	4	6800	1320	.21	2330	.38*
NBR	0	0	110		260	
SBL	2	3400	260	.08	270	.08*
SBT	4	6800	1830	.27*	2050	.30
SBR	1	1700	240	.14	470	.28
EBL	2	3400	290	.09	430	.13*
EBT	3	5100	1160	.26*	1000	.25
EBR	0	0	160		250	
WBL	2	3400	250	.07*	290	.09
WBT	3	5100	700	.15	1100	.25*
WBR	0	0	60		200	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.69**		**.89**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	200	.06	380	.11
NBT	4	6800	1540	.26*	2470	.40*
NBR	0	0	210		220	
SBL	2	3400	300	.09*	280	.08*
SBT	4	6800	1910	.28	2110	.31
SBR	1	1700	280	.16	430	.25
EBL	2	3400	300	.09	390	.11*
EBT	3	5100	1090	.25*	1040	.26
EBR	0	0	190		280	
WBL	2	3400	320	.09*	290	.09
WBT	3	5100	670	.15	1080	.27*
WBR	0	0	70		300	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.74**		**.91**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	200	.06	380	.11
NBT	4	6800	1530	.26*	2450	.40*
NBR	0	0	240		250	
SBL	2	3400	300	.09*	290	.09*
SBT	4	6800	1840	.27	2100	.31
SBR	1	1700	310	.18	480	.28
EBL	2	3400	350	.10	430	.13*
EBT	3	5100	1210	.27*	1160	.28
EBR	0	0	190		290	
WBL	2	3400	370	.11*	320	.09
WBT	3	5100	760	.16	1210	.30*
WBR	0	0	70		300	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.78**		**.97**

2030 Proposed Roadway Plan (Rec. Lanes Opt. 1)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	200	.06	380	.11
NBT	4	6800	1530	.26*	2450	.40*
NBR	0	0	240		250	
SBL	2	3400	300	.09*	290	.09*
SBT	4	6800	1840	.27	2100	.31
SBR	1	1700	310	.18	480	.28
EBL	2	3400	350	.10	430	.13
EBT	3	5100	1210	.27*	1160	.28*
EBR	0	0	190		290	
WBL	2	3400	370	.11*	320	.09*
WBT	3	5100	760	.15	1210	.24
WBR	1	1700	70	.04	300	.18
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.78**		**.91**

47. Beach Blvd & Warner Ave

2030 Proposed Roadway Plan (Rec. Lanes Opt. 2)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	200	.06*	380	.11
NBT	4	6800	1530	.23	2450	.36*
NBR	1	1700	240	.14	250	.15
SBL	2	3400	300	.09	290	.09*
SBT	4	6800	1840	.27*	2100	.31
SBR	1	1700	310	.18	480	.28
EBL	2	3400	350	.10	430	.13
EBT	3	5100	1210	.27*	1160	.28*
EBR	0	0	190		290	
WBL	2	3400	370	.11*	320	.09*
WBT	3	5100	760	.15	1210	.24
WBR	d	1700	70	.04	300	.18
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.76**		**.87**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	210	.06	350	.10
NBT	4	6800	1530	.26*	2460	.40*
NBR	0	0	230		240	
SBL	2	3400	290	.09*	260	.08*
SBT	4	6800	1840	.27	2100	.31
SBR	1	1700	330	.19	460	.27
EBL	2	3400	340	.10	430	.13*
EBT	3	5100	1230	.27*	1140	.28
EBR	0	0	150		270	
WBL	2	3400	360	.11*	320	.09
WBT	3	5100	740	.15	1190	.29*
WBR	0	0	50		290	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.78**		**.95**

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	210	.06	360	.11
NBT	4	6800	1520	.26*	2460	.40*
NBR	0	0	230		240	
SBL	2	3400	290	.09*	260	.08*
SBT	4	6800	1830	.27	2090	.31
SBR	1	1700	330	.19	470	.28
EBL	2	3400	340	.10	430	.13*
EBT	3	5100	1230	.27*	1130	.27
EBR	0	0	150		270	
WBL	2	3400	360	.11*	320	.09
WBT	3	5100	740	.15	1190	.29*
WBR	0	0	50		290	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.78**		**.95**

2030 Specific Plan w/Option 1 Mit

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	210	.06	350	.10
NBT	4	6800	1530	.26*	2460	.40*
NBR	0	0	230		240	
SBL	2	3400	290	.09*	260	.08*
SBT	4	6800	1840	.27	2100	.31
SBR	1	1700	330	.19	460	.27
EBL	2	3400	340	.10	430	.13
EBT	3	5100	1230	.27*	1140	.28*
EBR	0	0	150		270	
WBL	2	3400	360	.11*	320	.09*
WBT	3	5100	740	.15	1190	.23
WBR	1	1700	50	.03	290	.17
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.78**		**.90**

47. Beach Blvd & Warner Ave

2030 Specific Plan w/Option 2 Mit

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	210	.06*	350	.10
NBT	4	6800	1530	.23	2460	.36*
NBR	1	1700	230	.14	240	.14
SBL	2	3400	290	.09	260	.08*
SBT	4	6800	1840	.27*	2100	.31
SBR	1	1700	330	.19	460	.27
EBL	2	3400	340	.10	430	.13
EBT	3	5100	1230	.27*	1140	.28*
EBR	0	0	150		270	
WBL	2	3400	360	.11*	320	.09*
WBT	3	5100	740	.15	1190	.23
WBR	d	1700	50	.03	290	.17
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.76**		**.86**

48. Newland St & Warner Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	120	.07	140	.08
NBT	2	3400	520	.15*	840	.25*
NBR	d	1700	150	.09	90	.05
SBL	1	1700	270	.16*	170	.10*
SBT	2	3400	800	.24	500	.15
SBR	d	1700	100	.06	80	.05
EBL	1	1700	50	.03	100	.06*
EBT	3	5100	1840	.36*	1250	.25
EBR	d	1700	110	.06	100	.06
WBL	1	1700	150	.09*	130	.08
WBT	2	3400	850	.25	1400	.41*
WBR	1	1700	120	.07	240	.14
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.81**		**.87**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	140	.08	160	.09
NBT	2	3400	500	.15*	850	.25*
NBR	d	1700	200	.12	160	.09
SBL	1	1700	360	.21*	210	.12*
SBT	2	3400	800	.24	540	.16
SBR	d	1700	270	.16	120	.07
EBL	1	1700	50	.03	90	.05*
EBT	3	5100	1910	.37*	1340	.26
EBR	d	1700	110	.06	110	.06
WBL	1	1700	200	.12*	300	.18
WBT	2	3400	780	.23	1350	.40*
WBR	1	1700	260	.15	390	.23
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.90**		**.87**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08*	160	.09
NBT	2	3400	520	.15	880	.26*
NBR	d	1700	230	.14	150	.09
SBL	1	1700	260	.15	180	.11*
SBT	2	3400	810	.24*	550	.16
SBR	d	1700	350	.21	130	.08
EBL	1	1700	60	.04	130	.08*
EBT	3	5100	2080	.41*	1460	.29
EBR	d	1700	120	.07	110	.06
WBL	1	1700	220	.13*	290	.17
WBT	2	3400	860	.25	1500	.44*
WBR	1	1700	220	.13	350	.21
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.91**		**.94**

2030 Proposed Roadway Plan (Rec. Lanes Opt. 1)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08*	160	.09
NBT	2	3400	520	.15	880	.26*
NBR	d	1700	230	.14	150	.09
SBL	1	1700	260	.15	180	.11*
SBT	2	3400	810	.24*	550	.16
SBR	d	1700	350	.21	130	.08
EBL	1	1700	60	.04	130	.08
EBT	3	5100	2080	.41*	1460	.29*
EBR	d	1700	120	.07	110	.06
WBL	1	1700	220	.13*	290	.17*
WBT	3	5100	860	.17	1500	.29
WBR	d	1700	220	.13	350	.21
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.91**		**.88**

48. Newland St & Warner Ave

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08*	150	.09
NBT	2	3400	520	.15	850	.25*
NBR	d	1700	240	.14	180	.11
SBL	1	1700	280	.16	160	.09*
SBT	2	3400	790	.23*	540	.16
SBR	d	1700	350	.21	130	.08
EBL	1	1700	50	.03	140	.08*
EBT	3	5100	2100	.41*	1400	.27
EBR	d	1700	120	.07	100	.06
WBL	1	1700	210	.12*	300	.18
WBT	2	3400	820	.24	1490	.44*
WBR	1	1700	220	.13	360	.21
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .89 .91

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08	150	.09
NBT	2	3400	510	.15*	850	.25*
NBR	d	1700	240	.14	180	.11
SBL	1	1700	290	.17*	160	.09*
SBT	2	3400	800	.24	560	.16
SBR	d	1700	340	.20	130	.08
EBL	1	1700	50	.03	130	.08*
EBT	3	5100	2100	.41*	1400	.27
EBR	d	1700	120	.07	100	.06
WBL	1	1700	210	.12*	300	.18
WBT	2	3400	820	.24	1490	.44*
WBR	1	1700	220	.13	360	.21
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .90 .91

2030 Specific Plan w/Option 1 Mit

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08*	150	.09
NBT	2	3400	520	.15	850	.25*
NBR	d	1700	240	.14	180	.11
SBL	1	1700	280	.16	160	.09*
SBT	2	3400	790	.23*	540	.16
SBR	d	1700	350	.21	130	.08
EBL	1	1700	50	.03	140	.08
EBT	3	5100	2100	.41*	1400	.27*
EBR	d	1700	120	.07	100	.06
WBL	1	1700	210	.12*	300	.18*
WBT	3	5100	820	.16	1490	.29
WBR	d	1700	220	.13	360	.21
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .89 .84

49. Graham St & Slater Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1700	130	.11*	60	.05
NBR	0	0	60		20	
SBL	0	0	220	{.13}*	260	
SBT	1	1700	40	.15	140	.24*
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1700	30	.02*	50	.03*
WBT	0	0	0		0	
WBR	1	1700	210	.12	350	.21
Right Turn Adjustment			WBR	.03*	WBR	.08*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.34**		**.40**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1700	150	.12*	70	.05
NBR	0	0	60		20	
SBL	0	0	310	{.18}*	280	
SBT	1	1700	50	.21	160	.26*
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1700	30	.02*	60	.04*
WBT	0	0	0		0	
WBR	1	1700	250	.15	410	.24
Right Turn Adjustment			WBR	.04*	WBR	.09*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.41**		**.44**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1700	150	.12*	70	.05
NBR	0	0	60		20	
SBL	0	0	290	{.17}*	270	
SBT	1	1700	50	.20	160	.25*
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1700	30	.02*	60	.04*
WBT	0	0	0		0	
WBR	1	1700	240	.14	420	.25
Right Turn Adjustment			WBR	.03*	WBR	.11*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.39**		**.45**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1700	150	.12*	70	.05
NBR	0	0	60		20	
SBL	0	0	300	{.18}*	270	
SBT	1	1700	50	.21	160	.25*
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1700	30	.02*	50	.03*
WBT	0	0	0		0	
WBR	1	1700	250	.15	400	.24
Right Turn Adjustment			WBR	.04*	WBR	.11*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.41**		**.44**

49. Graham St & Slater Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1700	150	.12*	70	.05
NBR	0	0	60		20	
SBL	0	0	310	{.18}*	270	
SBT	1	1700	50	.21	160	.25*
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1700	30	.02*	60	.04*
WBT	0	0	0		0	
WBR	1	1700	250	.15	410	.24
Right Turn Adjustment			WBR	.04*	WBR	.10*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .41 .44

50. Springdale St & Slater Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	70	.04	60	.04
NBT	2	3400	510	.15*	280	.08*
NBR	d	1700	100	.06	50	.03
SBL	1	1700	460	.27*	250	.15*
SBT	2	3400	370	.11	380	.11
SBR	d	1700	20	.01	40	.02
EBL	1	1700	60	.04*	30	.02*
EBT	2	3400	290	.09	200	.06
EBR	d	1700	90	.05	60	.04
WBL	1	1700	30	.02	70	.04
WBT	1	1700	190	.11*	280	.16*
WBR	1	1700	300	.18	310	.18
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.62**		**.46**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	90	.05	140	.08
NBT	2	3400	540	.16*	320	.09*
NBR	d	1700	100	.06	60	.04
SBL	1	1700	520	.31*	310	.18*
SBT	2	3400	440	.13	520	.15
SBR	d	1700	40	.02	50	.03
EBL	1	1700	70	.04*	80	.05*
EBT	2	3400	320	.09	180	.05
EBR	d	1700	110	.06	90	.05
WBL	1	1700	30	.02	90	.05
WBT	1	1700	200	.12*	290	.17*
WBR	1	1700	360	.21	420	.25
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.68**		**.54**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	120	.07
NBT	2	3400	520	.15*	310	.09*
NBR	d	1700	100	.06	60	.04
SBL	1	1700	480	.28*	290	.17*
SBT	2	3400	430	.13	480	.14
SBR	d	1700	40	.02	50	.03
EBL	1	1700	70	.04*	70	.04*
EBT	2	3400	330	.10	190	.06
EBR	d	1700	90	.05	80	.05
WBL	1	1700	30	.02	80	.05
WBT	1	1700	210	.12*	320	.19*
WBR	1	1700	350	.21	370	.22
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.64**		**.54**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	130	.08
NBT	2	3400	540	.16*	290	.09*
NBR	d	1700	100	.06	60	.04
SBL	1	1700	470	.28*	290	.17*
SBT	2	3400	430	.13	480	.14
SBR	d	1700	40	.02	40	.02
EBL	1	1700	70	.04*	80	.05*
EBT	2	3400	320	.09	190	.06
EBR	d	1700	100	.06	80	.05
WBL	1	1700	30	.02	80	.05
WBT	1	1700	220	.13*	310	.18*
WBR	1	1700	340	.20	380	.22
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.66**		**.54**

50. Springdale St & Slater Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	70	.04	140	.08
NBT	2	3400	530	.16*	290	.09*
NBR	d	1700	100	.06	60	.04
SBL	1	1700	460	.27*	280	.16*
SBT	2	3400	430	.13	480	.14
SBR	d	1700	30	.02	50	.03
EBL	1	1700	70	.04*	80	.05*
EBT	2	3400	340	.10	180	.05
EBR	d	1700	90	.05	90	.05
WBL	1	1700	30	.02	80	.05
WBT	1	1700	230	.14*	300	.18*
WBR	1	1700	340	.20	370	.22
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.66**		**.53**

51. Edwards St & Slater Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	70	.04	90	.05*
NBT	2	3400	490	.14*	400	.12
NBR	d	1700	150	.09	90	.05
SBL	1	1700	200	.12*	120	.07
SBT	2	3400	390	.11	520	.15*
SBR	d	1700	20	.01	40	.02
EBL	1	1700	30	.02	20	.01
EBT	2	3400	670	.20*	520	.15*
EBR	d	1700	60	.04	70	.04
WBL	1	1700	110	.06*	160	.09*
WBT	2	3400	400	.12	720	.21
WBR	d	1700	120	.07	170	.10
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.57**		**.49**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	180	.11	90	.05
NBT	2	3400	590	.17*	590	.17*
NBR	d	1700	150	.09	100	.06
SBL	1	1700	250	.15*	230	.14*
SBT	2	3400	520	.15	610	.18
SBR	d	1700	20	.01	50	.03
EBL	1	1700	30	.02	20	.01
EBT	2	3400	780	.23*	570	.17*
EBR	d	1700	70	.04	60	.04
WBL	1	1700	110	.06*	180	.11*
WBT	2	3400	400	.12	780	.23
WBR	d	1700	160	.09	210	.12
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.66**		**.64**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	190	.11	100	.06
NBT	2	3400	580	.17*	570	.17*
NBR	d	1700	160	.09	90	.05
SBL	1	1700	240	.14*	200	.12*
SBT	2	3400	490	.14	590	.17
SBR	d	1700	20	.01	50	.03
EBL	1	1700	30	.02	20	.01
EBT	2	3400	750	.22*	550	.16*
EBR	d	1700	70	.04	70	.04
WBL	1	1700	110	.06*	200	.12*
WBT	2	3400	400	.12	740	.22
WBR	d	1700	140	.08	200	.12
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.64**		**.62**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	180	.11	130	.08
NBT	2	3400	590	.17*	560	.16*
NBR	d	1700	150	.09	90	.05
SBL	1	1700	240	.14*	200	.12*
SBT	2	3400	480	.14	590	.17
SBR	d	1700	20	.01	50	.03
EBL	1	1700	30	.02	20	.01
EBT	2	3400	740	.22*	570	.17*
EBR	d	1700	70	.04	50	.03
WBL	1	1700	110	.06*	210	.12*
WBT	2	3400	400	.12	700	.21
WBR	d	1700	130	.08	190	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.64**		**.62**

51. Edwards St & Slater Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	190	.11	120	.07
NBT	2	3400	580	.17*	560	.16*
NBR	d	1700	150	.09	100	.06
SBL	1	1700	240	.14*	220	.13*
SBT	2	3400	480	.14	580	.17
SBR	d	1700	20	.01	50	.03
EBL	1	1700	30	.02	20	.01
EBT	2	3400	750	.22*	530	.16*
EBR	d	1700	70	.04	70	.04
WBL	1	1700	110	.06*	210	.12*
WBT	2	3400	400	.12	710	.21
WBR	d	1700	140	.08	180	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.64**		**.62**

52. Goldenwest St & Slater Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	60	.04	220	.13
NBT	2	3400	900	.26*	1080	.32*
NBR	1	1700	70	.04	90	.05
SBL	1	1700	260	.15*	200	.12*
SBT	3	5100	790	.15	900	.18
SBR	d	1700	60	.04	90	.05
EBL	1	1700	80	.05	50	.03*
EBT	2	3400	890	.26*	490	.14
EBR	d	1700	70	.04	110	.06
WBL	1	1700	40	.02*	70	.04
WBT	2	3400	520	.15	910	.27*
WBR	d	1700	70	.04	300	.18
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.74**		**.79**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	90	.05	250	.15
NBT	2	3400	1090	.32*	1500	.44*
NBR	1	1700	220	.13	70	.04
SBL	1	1700	290	.17*	320	.19*
SBT	3	5100	1050	.21	1000	.20
SBR	d	1700	70	.04	80	.05
EBL	1	1700	80	.05	60	.04*
EBT	2	3400	980	.29*	510	.15
EBR	d	1700	200	.12	330	.19
WBL	1	1700	50	.03*	90	.05
WBT	2	3400	550	.16	1050	.31*
WBR	d	1700	170	.10	320	.19
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.86**		**1.03**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	240	.14
NBT	2	3400	1040	.31*	1420	.42*
NBR	1	1700	230	.14	100	.06
SBL	1	1700	300	.18*	300	.18*
SBT	3	5100	1000	.20	1010	.20
SBR	d	1700	80	.05	100	.06
EBL	1	1700	100	.06	60	.04*
EBT	2	3400	930	.27*	510	.15
EBR	d	1700	200	.12	290	.17
WBL	1	1700	60	.04*	100	.06
WBT	2	3400	550	.16	1040	.31*
WBR	d	1700	190	.11	300	.18
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.85**		**1.00**

2030 Proposed Roadway Plan (Rec. Lanes Opt. 1)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	240	.14
NBT	2	3400	1040	.31*	1420	.42*
NBR	1	1700	230	.14	100	.06
SBL	2	3400	300	.09*	300	.09*
SBT	3	5100	1000	.20	1010	.20
SBR	d	1700	80	.05	100	.06
EBL	1	1700	100	.06	60	.04*
EBT	2	3400	930	.27*	510	.15
EBR	d	1700	200	.12	290	.17
WBL	1	1700	60	.04*	100	.06
WBT	2	3400	550	.16	1040	.31*
WBR	d	1700	190	.11	300	.18
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.76**		**.91**

52. Goldenwest St & Slater Ave

2030 Proposed Roadway Plan (Rec. Lanes Opt. 2)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	240	.14
NBT	3	5100	1040	.25*	1420	.30*
NBR	0	0	230		100	
SBL	1	1700	300	.18*	300	.18*
SBT	3	5100	1000	.20	1010	.20
SBR	d	1700	80	.05	100	.06
EBL	1	1700	100	.06	60	.04*
EBT	2	3400	930	.27*	510	.15
EBR	d	1700	200	.12	290	.17
WBL	1	1700	60	.04*	100	.06
WBT	2	3400	550	.16	1040	.31*
WBR	d	1700	190	.11	300	.18
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .79 .88

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	210	.12
NBT	2	3400	1020	.30*	1430	.42*
NBR	1	1700	240	.14	100	.06
SBL	1	1700	310	.18*	300	.18*
SBT	3	5100	990	.19	1000	.20
SBR	d	1700	80	.05	100	.06
EBL	1	1700	100	.06	60	.04*
EBT	2	3400	920	.27*	490	.14
EBR	d	1700	190	.11	330	.19
WBL	1	1700	60	.04*	100	.06
WBT	2	3400	540	.16	1030	.30*
WBR	d	1700	200	.12	300	.18
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .84 .99

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	210	.12
NBT	2	3400	1030	.30*	1420	.42*
NBR	1	1700	240	.14	100	.06
SBL	1	1700	310	.18*	290	.17*
SBT	3	5100	990	.19	1020	.20
SBR	d	1700	80	.05	100	.06
EBL	1	1700	100	.06	60	.04*
EBT	2	3400	920	.27*	500	.15
EBR	d	1700	200	.12	300	.18
WBL	1	1700	60	.04*	110	.06
WBT	2	3400	540	.16	1020	.30*
WBR	d	1700	190	.11	310	.18
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .84 .98

2030 Specific Plan w/Option 1 Mit

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	210	.12
NBT	2	3400	1020	.30*	1430	.42*
NBR	1	1700	240	.14	100	.06
SBL	2	3400	310	.09*	300	.09*
SBT	3	5100	990	.19	1000	.20
SBR	d	1700	80	.05	100	.06
EBL	1	1700	100	.06	60	.04*
EBT	2	3400	920	.27*	490	.14
EBR	d	1700	190	.11	330	.19
WBL	1	1700	60	.04*	100	.06
WBT	2	3400	540	.16	1030	.30*
WBR	d	1700	200	.12	300	.18
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .75 .90

52. Goldenwest St & Slater Ave

2030 Specific Plan w/Option 2 Mit

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	80	.05	210	.12
NBT	3	5100	1020	.25*	1430	.30*
NBR	0	0	240		100	
SBL	1	1700	310	.18*	300	.18*
SBT	3	5100	990	.19	1000	.20
SBR	d	1700	80	.05	100	.06
EBL	1	1700	100	.06	60	.04*
EBT	2	3400	920	.27*	490	.14
EBR	d	1700	190	.11	330	.19
WBL	1	1700	60	.04*	100	.06
WBT	2	3400	540	.16	1030	.30*
WBR	d	1700	200	.12	300	.18
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.79**		**.87**

53. Gothard St & Slater Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	120	.07	240	.14*
NBT	2	3400	480	.14*	760	.22
NBR	d	1700	80	.05	90	.05
SBL	1	1700	180	.11*	120	.07
SBT	2	3400	440	.13	580	.17*
SBR	d	1700	100	.06	30	.02
EBL	1	1700	110	.06	70	.04*
EBT	2	3400	1100	.32*	480	.14
EBR	d	1700	230	.14	120	.07
WBL	1	1700	100	.06*	70	.04
WBT	2	3400	550	.16	720	.21*
WBR	d	1700	160	.09	150	.09
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .68 .61

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	350	.21*	310	.18*
NBT	2	3400	560	.16	900	.26
NBR	d	1700	90	.05	120	.07
SBL	1	1700	210	.12	130	.08
SBT	2	3400	710	.21*	710	.21*
SBR	d	1700	110	.06	70	.04
EBL	1	1700	320	.19	80	.05*
EBT	2	3400	1190	.35*	590	.17
EBR	d	1700	240	.14	110	.06
WBL	1	1700	120	.07*	110	.06
WBT	2	3400	570	.17	730	.21*
WBR	d	1700	170	.10	170	.10
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .89 .70

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	350	.21*	320	.19*
NBT	2	3400	550	.16	830	.24
NBR	d	1700	90	.05	140	.08
SBL	1	1700	210	.12	130	.08
SBT	2	3400	620	.18*	670	.20*
SBR	d	1700	110	.06	70	.04
EBL	1	1700	310	.18	80	.05*
EBT	2	3400	1170	.34*	610	.18
EBR	d	1700	270	.16	130	.08
WBL	1	1700	120	.07*	110	.06
WBT	2	3400	560	.16	750	.22*
WBR	d	1700	180	.11	160	.09
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .85 .71

2030 Proposed Roadway Plan (Rec. Lanes Opt. 1)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	350	.10*	320	.09
NBT	2	3400	550	.16	830	.24*
NBR	d	1700	90	.05	140	.08
SBL	1	1700	210	.12	130	.08*
SBT	2	3400	620	.18*	670	.20
SBR	d	1700	110	.06	70	.04
EBL	1	1700	310	.18	80	.05*
EBT	2	3400	1170	.34*	610	.18
EBR	d	1700	270	.16	130	.08
WBL	1	1700	120	.07*	110	.06
WBT	2	3400	560	.16	750	.22*
WBR	d	1700	180	.11	160	.09
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .74 .64

53. Gothard St & Slater Ave

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	340	.20*	300	.18*
NBT	2	3400	540	.16	830	.24
NBR	d	1700	100	.06	130	.08
SBL	1	1700	210	.12	130	.08
SBT	2	3400	640	.19*	650	.19*
SBR	d	1700	110	.06	70	.04
EBL	1	1700	300	.18	80	.05*
EBT	2	3400	1190	.35*	590	.17
EBR	d	1700	260	.15	120	.07
WBL	1	1700	110	.06*	110	.06
WBT	2	3400	560	.16	750	.22*
WBR	d	1700	160	.09	160	.09
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .85 .69

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	340	.20*	300	.18*
NBT	2	3400	540	.16	830	.24
NBR	d	1700	90	.05	140	.08
SBL	1	1700	190	.11	130	.08
SBT	2	3400	640	.19*	660	.19*
SBR	d	1700	110	.06	70	.04
EBL	1	1700	300	.18	80	.05*
EBT	2	3400	1210	.36*	590	.17
EBR	d	1700	250	.15	120	.07
WBL	1	1700	120	.07*	110	.06
WBT	2	3400	570	.17	760	.22*
WBR	d	1700	160	.09	160	.09
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .87 .69

2030 Specific Plan w/Option 1 Mit

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	340	.10*	300	.09
NBT	2	3400	540	.16	830	.24*
NBR	d	1700	100	.06	130	.08
SBL	1	1700	210	.12	130	.08*
SBT	2	3400	640	.19*	650	.19
SBR	d	1700	110	.06	70	.04
EBL	1	1700	300	.18	80	.05*
EBT	2	3400	1190	.35*	590	.17
EBR	d	1700	260	.15	120	.07
WBL	1	1700	110	.06*	110	.06
WBT	2	3400	560	.16	750	.22*
WBR	d	1700	160	.09	160	.09
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .75 .64

54. Beach Blvd & Slater Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	170	.10*	210	.12*
NBT	4	6800	1450	.22	2060	.32
NBR	0	0	50		100	
SBL	1	1700	200	.12	170	.10
SBT	4	6800	1930	.31*	1860	.30*
SBR	0	0	210		170	
EBL	1	1700	160	.09	210	.12*
EBT	2	3400	780	.28*	630	.24
EBR	0	0	180		190	
WBL	1	1700	100	.06*	100	.06
WBT	2	3400	440	.16	610	.23*
WBR	0	0	100		170	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.80**		**.82**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	180	.11*	220	.13
NBT	4	6800	1630	.25	2240	.35*
NBR	0	0	50		120	
SBL	1	1700	200	.12	210	.12*
SBT	4	6800	2110	.34*	1840	.30
SBR	0	0	230		210	
EBL	1	1700	170	.10	210	.12
EBT	2	3400	780	.29*	690	.27*
EBR	0	0	190		220	
WBL	1	1700	100	.06*	190	.11*
WBT	2	3400	570	.20	590	.23
WBR	0	0	120		180	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.85**		**.90**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	190	.11*	230	.14
NBT	4	6800	1640	.25	2220	.35*
NBR	0	0	60		130	
SBL	1	1700	200	.12	210	.12*
SBT	4	6800	2090	.34*	1870	.31
SBR	0	0	220		210	
EBL	1	1700	180	.11	230	.14
EBT	2	3400	780	.29*	730	.28*
EBR	0	0	210		210	
WBL	1	1700	110	.06*	190	.11*
WBT	2	3400	600	.21	620	.23
WBR	0	0	110		170	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.85**		**.91**

2030 Proposed Roadway Plan (Rec. Lanes Opt. 1)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	190	.11*	230	.14
NBT	4	6800	1640	.25	2220	.35*
NBR	0	0	60		130	
SBL	1	1700	200	.12	210	.12*
SBT	4	6800	2090	.34*	1870	.31
SBR	0	0	220		210	
EBL	1	1700	180	.11*	230	.14*
EBT	2	3400	780	.23	730	.21
EBR	1	1700	210	.12	210	.12
WBL	1	1700	110	.06	190	.11
WBT	2	3400	600	.21*	620	.23*
WBR	0	0	110		170	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.82**		**.89**

54. Beach Blvd & Slater Ave

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	170	.10*	230	.14
NBT	4	6800	1640	.25	2210	.35*
NBR	0	0	60		140	
SBL	1	1700	200	.12	200	.12*
SBT	4	6800	2130	.35*	1870	.31
SBR	0	0	240		210	
EBL	1	1700	170	.10	220	.13
EBT	2	3400	800	.29*	730	.27*
EBR	0	0	200		190	
WBL	1	1700	110	.06*	170	.10*
WBT	2	3400	580	.20	620	.24
WBR	0	0	110		180	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .85 .89

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	170	.10*	230	.14
NBT	4	6800	1630	.25	2220	.34*
NBR	0	0	60		120	
SBL	1	1700	200	.12	200	.12*
SBT	4	6800	2110	.34*	1860	.30
SBR	0	0	230		210	
EBL	1	1700	170	.10	220	.13
EBT	2	3400	810	.29*	730	.27*
EBR	0	0	190		180	
WBL	1	1700	110	.06*	190	.11*
WBT	2	3400	580	.20	620	.23
WBR	0	0	110		160	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .84 .89

2030 Specific Plan w/Option 1 Mit

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	170	.10*	230	.14
NBT	4	6800	1640	.25	2210	.35*
NBR	0	0	60		140	
SBL	1	1700	200	.12	200	.12*
SBT	4	6800	2130	.35*	1870	.31
SBR	0	0	240		210	
EBL	1	1700	170	.10*	220	.13*
EBT	2	3400	800	.24	730	.21
EBR	1	1700	200	.12	190	.11
WBL	1	1700	110	.06	170	.10
WBT	2	3400	580	.20*	620	.24*
WBR	0	0	110		180	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .80 .89

55. Newland St & Slater Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	120	.07*	160	.09
NBT	2	3400	440	.13	760	.22*
NBR	d	1700	80	.05	40	.02
SBL	1	1700	170	.10	60	.04*
SBT	2	3400	560	.16*	540	.16
SBR	d	1700	70	.04	80	.05
EBL	1	1700	40	.02	110	.06*
EBT	2	3400	910	.27*	630	.19
EBR	d	1700	110	.06	140	.08
WBL	1	1700	40	.02*	90	.05
WBT	2	3400	410	.14	690	.24*
WBR	0	0	50		110	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.57**		**.61**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	200	.12*	160	.09
NBT	2	3400	470	.14	920	.27*
NBR	d	1700	100	.06	40	.02
SBL	1	1700	170	.10	80	.05*
SBT	2	3400	650	.19*	590	.17
SBR	d	1700	70	.04	130	.08
EBL	1	1700	40	.02	120	.07*
EBT	2	3400	930	.27*	630	.19
EBR	d	1700	130	.08	320	.19
WBL	1	1700	50	.03*	70	.04
WBT	2	3400	450	.15	760	.26*
WBR	0	0	70		120	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.66**		**.70**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	180	.11*	160	.09
NBT	2	3400	500	.15	940	.28*
NBR	d	1700	100	.06	40	.02
SBL	1	1700	170	.10	80	.05*
SBT	2	3400	670	.20*	600	.18
SBR	d	1700	80	.05	140	.08
EBL	1	1700	50	.03	120	.07*
EBT	2	3400	950	.28*	680	.20
EBR	d	1700	120	.07	320	.19
WBL	1	1700	50	.03*	80	.05
WBT	2	3400	490	.16	780	.26*
WBR	0	0	60		120	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.67**		**.71**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	180	.11*	170	.10
NBT	2	3400	530	.16	930	.27*
NBR	d	1700	100	.06	40	.02
SBL	1	1700	170	.10	70	.04*
SBT	2	3400	660	.19*	600	.18
SBR	d	1700	80	.05	140	.08
EBL	1	1700	40	.02	120	.07*
EBT	2	3400	970	.29*	680	.20
EBR	d	1700	120	.07	300	.18
WBL	1	1700	50	.03*	100	.06
WBT	2	3400	460	.15	770	.26*
WBR	0	0	50		120	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.67**		**.69**

55. Newland St & Slater Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	180	.11*	160	.09
NBT	2	3400	530	.16	930	.27*
NBR	d	1700	100	.06	40	.02
SBL	1	1700	160	.09	60	.04*
SBT	2	3400	660	.19*	600	.18
SBR	d	1700	80	.05	150	.09
EBL	1	1700	40	.02	110	.06*
EBT	2	3400	980	.29*	680	.20
EBR	d	1700	120	.07	310	.18
WBL	1	1700	50	.03*	100	.06
WBT	2	3400	460	.15	770	.26*
WBR	0	0	50		120	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.67**		**.68**

59. Gothard St & Talbert Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	20	.01
NBT	2	3400	450	.13*	620	.18*
NBR	d	1700	190	.11	220	.13
SBL	1	1700	280	.16*	380	.22*
SBT	2	3400	320	.09	550	.16
SBR	d	1700	10	.01	20	.01
EBL	1	1700	10	.01	30	.02
EBT	1	1700	80	.05*	150	.09*
EBR	1	1700	10	.01	20	.01
WBL	1	1700	160	.09*	250	.15*
WBT	1	1700	70	.04	170	.10
WBR	1	1700	190	.11	480	.28
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.48**		**.69**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	30	.02
NBT	2	3400	580	.17*	780	.23*
NBR	d	1700	250	.15	190	.11
SBL	1	1700	290	.17*	390	.23*
SBT	2	3400	460	.14	660	.19
SBR	d	1700	90	.05	60	.04
EBL	1	1700	30	.02	90	.05
EBT	1	1700	130	.08*	310	.18*
EBR	1	1700	10	.01	50	.03
WBL	1	1700	150	.09*	250	.15*
WBT	1	1700	240	.14	210	.12
WBR	1	1700	280	.16	510	.30
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.56**		**.84**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	30	.02
NBT	2	3400	580	.17*	760	.22*
NBR	d	1700	280	.16	250	.15
SBL	1	1700	300	.18*	390	.23*
SBT	2	3400	440	.13	620	.18
SBR	d	1700	50	.03	60	.04
EBL	1	1700	20	.01*	60	.04
EBT	1	1700	140	.08	340	.20*
EBR	1	1700	10	.01	50	.03
WBL	1	1700	160	.09	300	.18*
WBT	1	1700	290	.17*	220	.13
WBR	1	1700	280	.16	500	.29
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.58**		**.88**

2030 Proposed Roadway Plan (Rec. Lanes Opt. 1)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	30	.02
NBT	2	3400	580	.17*	760	.22*
NBR	d	1700	280	.16	250	.15
SBL	2	3400	300	.09*	390	.11*
SBT	2	3400	440	.13	620	.18
SBR	d	1700	50	.03	60	.04
EBL	1	1700	20	.01*	60	.04
EBT	1	1700	140	.08	340	.20*
EBR	1	1700	10	.01	50	.03
WBL	1	1700	160	.09	300	.18*
WBT	1	1700	290	.17*	220	.13
WBR	1	1700	280	.16	500	.29
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.49**		**.76**

59. Gothard St & Talbert Ave

2030 Proposed Roadway Plan (Rec. Lanes Opt. 2)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	30	.02
NBT	2	3400	580	.17*	760	.22*
NBR	d	1700	280	.16	250	.15
SBL	1	1700	300	.18*	390	.23*
SBT	2	3400	440	.13	620	.18
SBR	d	1700	50	.03	60	.04
EBL	1	1700	20	.01*	60	.04
EBT	2	3400	140	.04	340	.11*
EBR	0	0	10		50	
WBL	1	1700	160	.09	300	.18*
WBT	1	1700	290	.17*	220	.13
WBR	1	1700	280	.16	500	.29
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .58 .79

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	30	.02
NBT	2	3400	580	.17*	750	.22*
NBR	d	1700	280	.16	240	.14
SBL	1	1700	300	.18*	390	.23*
SBT	2	3400	440	.13	610	.18
SBR	d	1700	40	.02	50	.03
EBL	1	1700	20	.01*	70	.04
EBT	1	1700	130	.08	320	.19*
EBR	1	1700	10	.01	60	.04
WBL	1	1700	170	.10	310	.18*
WBT	1	1700	300	.18*	220	.13
WBR	1	1700	270	.16	490	.29
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .59 .87

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	30	.02
NBT	2	3400	580	.17*	760	.22*
NBR	d	1700	290	.17	250	.15
SBL	1	1700	290	.17*	380	.22*
SBT	2	3400	450	.13	630	.19
SBR	d	1700	50	.03	40	.02
EBL	1	1700	20	.01*	70	.04
EBT	1	1700	130	.08	320	.19*
EBR	1	1700	10	.01	60	.04
WBL	1	1700	170	.10	310	.18*
WBT	1	1700	300	.18*	220	.13
WBR	1	1700	270	.16	480	.28
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .58 .86

2030 Specific Plan w/Option 1 Mit

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	30	.02
NBT	2	3400	580	.17*	750	.22*
NBR	d	1700	280	.16	240	.14
SBL	2	3400	300	.09*	390	.11*
SBT	2	3400	440	.13	610	.18
SBR	d	1700	40	.02	50	.03
EBL	1	1700	20	.01*	70	.04
EBT	1	1700	130	.08	320	.19*
EBR	1	1700	10	.01	60	.04
WBL	1	1700	170	.10	310	.18*
WBT	1	1700	300	.18*	220	.13
WBR	1	1700	270	.16	490	.29
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .50 .75

59. Gothard St & Talbert Ave

2030 Specific Plan w/Option 2 Mit

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	40	.02	30	.02
NBT	2	3400	580	.17*	750	.22*
NBR	d	1700	280	.16	240	.14
SBL	1	1700	300	.18*	390	.23*
SBT	2	3400	440	.13	610	.18
SBR	d	1700	40	.02	50	.03
EBL	1	1700	20	.01*	70	.04
EBT	2	3400	130	.04	320	.11*
EBR	0	0	10		60	
WBL	1	1700	170	.10	310	.18*
WBT	1	1700	300	.18*	220	.13
WBR	1	1700	270	.16	490	.29
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .59 .79

60. Beach Blvd & Talbert Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	170	.10	200	.12
NBT	4	6800	1470	.24*	2100	.35*
NBR	0	0	180		280	
SBL	1	1700	290	.17*	310	.18*
SBT	4	6800	1750	.28	2110	.33
SBR	0	0	160		100	
EBL	1	1700	60	.04	170	.10*
EBT	2	3400	400	.12*	540	.16
EBR	d	1700	170	.10	120	.07
WBL	1	1700	200	.12*	260	.15
WBT	2	3400	410	.16	520	.26*
WBR	0	0	150		350	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.70**		**.94**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	320	.19*	200	.12
NBT	4	6800	1530	.25	2200	.37*
NBR	0	0	180		340	
SBL	1	1700	310	.18	310	.18*
SBT	4	6800	1890	.31*	2100	.33
SBR	0	0	200		170	
EBL	1	1700	100	.06	190	.11*
EBT	2	3400	450	.13*	490	.14
EBR	d	1700	160	.09	210	.12
WBL	1	1700	240	.14*	290	.17
WBT	2	3400	430	.18	490	.27*
WBR	0	0	170		420	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.82**		**.98**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	320	.19*	220	.13
NBT	4	6800	1580	.26	2160	.37*
NBR	0	0	170		330	
SBL	1	1700	290	.17	330	.19*
SBT	4	6800	1890	.31*	2110	.33
SBR	0	0	220		160	
EBL	1	1700	100	.06	220	.13*
EBT	2	3400	500	.15*	530	.16
EBR	d	1700	170	.10	220	.13
WBL	1	1700	260	.15*	300	.18
WBT	2	3400	460	.19	530	.28*
WBR	0	0	170		410	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.85**		**1.02**

2030 Proposed Roadway Plan (Rec. Lanes Opt. 1)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	320	.19*	220	.13
NBT	4	6800	1580	.23	2160	.32*
NBR	1	1700	170	.10	330	.19
SBL	1	1700	290	.17	330	.19*
SBT	4	6800	1890	.31*	2110	.33
SBR	0	0	220		160	
EBL	2	3400	100	.03	220	.06
EBT	2	3400	500	.15*	530	.16*
EBR	1	1700	170	.10	220	.13
WBL	2	3400	260	.08*	300	.09*
WBT	2	3400	460	.14	530	.16
WBR	d	1700	170	.10	410	.24
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.78**		**.81**

60. Beach Blvd & Talbert Ave

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	330	.19*	220	.13
NBT	4	6800	1580	.26	2150	.36*
NBR	0	0	190		310	
SBL	1	1700	290	.17	310	.18*
SBT	4	6800	1830	.30*	2150	.34
SBR	0	0	230		160	
EBL	1	1700	100	.06	220	.13*
EBT	2	3400	490	.14*	540	.16
EBR	d	1700	170	.10	200	.12
WBL	1	1700	250	.15*	280	.16
WBT	2	3400	450	.18	530	.27*
WBR	0	0	170		380	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .83 .99

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	330	.19*	220	.13
NBT	4	6800	1570	.26	2150	.36*
NBR	0	0	200		310	
SBL	1	1700	280	.16	310	.18*
SBT	4	6800	1810	.30*	2130	.34
SBR	0	0	230		180	
EBL	1	1700	100	.06	220	.13*
EBT	2	3400	490	.14*	550	.16
EBR	d	1700	170	.10	210	.12
WBL	1	1700	250	.15*	290	.17
WBT	2	3400	450	.18	520	.26*
WBR	0	0	170		380	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .83 .98

2030 Specific Plan w/Option 1 Mit

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	330	.19*	220	.13
NBT	4	6800	1580	.26	2150	.36*
NBR	0	0	190		310	
SBL	1	1700	290	.17	310	.18*
SBT	4	6800	1830	.30*	2150	.34
SBR	0	0	230		160	
EBL	1	1700	100	.06	220	.13*
EBT	2	3400	490	.14*	540	.16
EBR	d	1700	170	.10	200	.12
WBL	2	3400	250	.07*	280	.08
WBT	2	3400	450	.13	530	.16*
WBR	d	1700	170	.10	380	.22
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .75 .88

61. Newland St & Talbert Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	140	.08*	150	.09
NBT	2	3400	590	.17	700	.21*
NBR	d	1700	110	.06	90	.05
SBL	1	1700	140	.08	120	.07*
SBT	2	3400	580	.17*	560	.16
SBR	d	1700	100	.06	90	.05
EBL	1	1700	50	.03	140	.08*
EBT	2	3400	880	.26*	820	.24
EBR	d	1700	70	.04	150	.09
WBL	1	1700	60	.04*	130	.08
WBT	2	3400	470	.14	940	.28*
WBR	1	1700	60	.04	180	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.60**		**.69**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	240	.14*	190	.11
NBT	2	3400	660	.19	710	.21*
NBR	d	1700	150	.09	100	.06
SBL	1	1700	180	.11	310	.18*
SBT	2	3400	650	.19*	590	.17
SBR	d	1700	110	.06	100	.06
EBL	1	1700	40	.02	330	.19*
EBT	2	3400	920	.27*	770	.23
EBR	d	1700	80	.05	170	.10
WBL	1	1700	70	.04*	110	.06
WBT	2	3400	450	.13	980	.29*
WBR	1	1700	150	.09	210	.12
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.69**		**.92**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	220	.13*	220	.13
NBT	2	3400	690	.20	710	.21*
NBR	d	1700	170	.10	100	.06
SBL	1	1700	170	.10	260	.15*
SBT	2	3400	630	.19*	640	.19
SBR	d	1700	130	.08	90	.05
EBL	1	1700	50	.03	330	.19*
EBT	2	3400	920	.27*	820	.24
EBR	d	1700	90	.05	160	.09
WBL	1	1700	70	.04*	110	.06
WBT	2	3400	500	.15	1000	.29*
WBR	1	1700	120	.07	200	.12
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.68**		**.89**

2030 Proposed Roadway Plan (Rec. Lanes Opt. 1)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	220	.13*	220	.13
NBT	2	3400	690	.20	710	.21*
NBR	d	1700	170	.10	100	.06
SBL	1	1700	170	.10	260	.15*
SBT	2	3400	630	.19*	640	.19
SBR	d	1700	130	.08	90	.05
EBL	2	3400	50	.01	330	.10*
EBT	2	3400	920	.27*	820	.24
EBR	d	1700	90	.05	160	.09
WBL	1	1700	70	.04*	110	.06
WBT	2	3400	500	.15	1000	.29*
WBR	1	1700	120	.07	200	.12
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.68**		**.80**

61. Newland St & Talbert Ave

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	220	.13*	200	.12
NBT	2	3400	730	.21	720	.21*
NBR	d	1700	160	.09	100	.06
SBL	1	1700	170	.10	280	.16*
SBT	2	3400	620	.18*	640	.19
SBR	d	1700	130	.08	110	.06
EBL	1	1700	50	.03	330	.19*
EBT	2	3400	940	.28*	800	.24
EBR	d	1700	90	.05	170	.10
WBL	1	1700	70	.04*	100	.06
WBT	2	3400	490	.14	960	.28*
WBR	1	1700	120	.07	200	.12
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .68 .89

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	230	.14*	200	.12
NBT	2	3400	710	.21	720	.21*
NBR	d	1700	170	.10	100	.06
SBL	1	1700	170	.10	270	.16*
SBT	2	3400	620	.18*	660	.19
SBR	d	1700	130	.08	100	.06
EBL	1	1700	50	.03	320	.19*
EBT	2	3400	950	.28*	810	.24
EBR	d	1700	90	.05	170	.10
WBL	1	1700	70	.04*	110	.06
WBT	2	3400	500	.15	1000	.29*
WBR	1	1700	120	.07	200	.12
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .69 .90

2030 Specific Plan w/Option 1 Mit

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	220	.13*	200	.12
NBT	2	3400	730	.21	720	.21*
NBR	d	1700	160	.09	100	.06
SBL	1	1700	170	.10	280	.16*
SBT	2	3400	620	.18*	640	.19
SBR	d	1700	130	.08	110	.06
EBL	2	3400	50	.01	330	.10*
EBT	2	3400	940	.28*	800	.24
EBR	d	1700	90	.05	170	.10
WBL	1	1700	70	.04*	100	.06
WBT	2	3400	490	.14	960	.28*
WBR	1	1700	120	.07	200	.12
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .68 .80

62. Edwards St & Ellis Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	2	3400	390	.11*	550	.16*
NBR	d	1700	60	.04	60	.04
SBL	1	1700	210	.12*	130	.08*
SBT	2	3400	540	.16	700	.21
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1700	30	.02*	60	.04*
WBT	0	0	0		0	
WBR	1	1700	160	.09	340	.20
Right Turn Adjustment			WBR	.01*	WBR	.12*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.31**		**.45**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	2	3400	640	.19*	870	.26*
NBR	d	1700	80	.05	60	.04
SBL	1	1700	230	.14*	150	.09*
SBT	2	3400	750	.22	970	.29
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1700	40	.02*	110	.06*
WBT	0	0	0		0	
WBR	1	1700	160	.09	350	.21
Right Turn Adjustment					WBR	.10*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.40**		**.56**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	2	3400	610	.18*	820	.24*
NBR	d	1700	100	.06	80	.05
SBL	1	1700	220	.13*	130	.08*
SBT	2	3400	700	.21	940	.28
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1700	40	.02*	130	.08*
WBT	0	0	0		0	
WBR	1	1700	160	.09	350	.21
Right Turn Adjustment					WBR	.09*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.38**		**.54**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	2	3400	610	.18*	800	.24*
NBR	d	1700	90	.05	80	.05
SBL	1	1700	220	.13*	130	.08*
SBT	2	3400	700	.21	930	.27
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1700	50	.03*	130	.08*
WBT	0	0	0		0	
WBR	1	1700	160	.09	350	.21
Right Turn Adjustment					WBR	.09*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.39**		**.54**

62. Edwards St & Ellis Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	2	3400	610	.18*	800	.24*
NBR	d	1700	90	.05	70	.04
SBL	1	1700	220	.13*	130	.08*
SBT	2	3400	690	.20	940	.28
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1700	50	.03*	130	.08*
WBT	0	0	0		0	
WBR	1	1700	160	.09	350	.21
Right Turn Adjustment					WBR	.09*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .39 .54

63. Goldenwest St & Ellis Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	70	.04	70	.04
NBT	3	5100	930	.18*	1000	.20*
NBR	d	1700	100	.06	40	.02
SBL	1	1700	110	.06*	150	.09*
SBT	3	5100	880	.17	920	.18
SBR	d	1700	30	.02	60	.04
EBL	1	1700	40	.02	40	.02*
EBT	2	3400	260	.08*	160	.05
EBR	d	1700	100	.06	30	.02
WBL	1	1700	50	.03*	50	.03
WBT	1	1700	110	.06	230	.14*
WBR	1	1700	130	.08	170	.10
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.40**		**.50**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	70	.04	70	.04
NBT	3	5100	1250	.25*	1230	.24*
NBR	d	1700	140	.08	40	.02
SBL	1	1700	120	.07*	200	.12*
SBT	3	5100	1140	.22	1200	.24
SBR	d	1700	30	.02	130	.08
EBL	1	1700	60	.04	50	.03*
EBT	2	3400	300	.09*	170	.05
EBR	d	1700	120	.07	50	.03
WBL	1	1700	60	.04*	60	.04
WBT	1	1700	110	.06	210	.12*
WBR	1	1700	160	.09	160	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.50**		**.56**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	70	.04
NBT	3	5100	1160	.23*	1170	.23*
NBR	d	1700	180	.11	40	.02
SBL	1	1700	130	.08*	220	.13*
SBT	3	5100	1080	.21	1160	.23
SBR	d	1700	40	.02	130	.08
EBL	1	1700	60	.04	50	.03*
EBT	2	3400	310	.09*	170	.05
EBR	d	1700	120	.07	40	.02
WBL	1	1700	60	.04*	60	.04
WBT	1	1700	110	.06	230	.14*
WBR	1	1700	190	.11	170	.10
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.49**		**.58**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	70	.04
NBT	3	5100	1160	.23*	1160	.23*
NBR	d	1700	190	.11	40	.02
SBL	1	1700	120	.07*	230	.14*
SBT	3	5100	1080	.21	1170	.23
SBR	d	1700	40	.02	120	.07
EBL	1	1700	60	.04	40	.02*
EBT	2	3400	300	.09*	180	.05
EBR	d	1700	120	.07	40	.02
WBL	1	1700	60	.04*	60	.04
WBT	1	1700	120	.07	240	.14*
WBR	1	1700	180	.11	170	.10
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.48**		**.58**

63. Goldenwest St & Ellis Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	80	.05	70	.04
NBT	3	5100	1160	.23*	1160	.23*
NBR	d	1700	180	.11	50	.03
SBL	1	1700	120	.07*	240	.14*
SBT	3	5100	1080	.21	1160	.23
SBR	d	1700	40	.02	130	.08
EBL	1	1700	60	.04	40	.02*
EBT	2	3400	300	.09*	170	.05
EBR	d	1700	120	.07	40	.02
WBL	1	1700	60	.04*	60	.04
WBT	1	1700	120	.07	240	.14*
WBR	1	1700	190	.11	170	.10
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .48 .58

64. Gothard St & Ellis Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	20	.01
NBT	2	3400	470	.14*	320	.09*
NBR	d	1700	10	.01	20	.01
SBL	1	1700	90	.05*	180	.11*
SBT	2	3400	320	.09	450	.13
SBR	d	1700	70	.04	110	.06
EBL	1	1700	150	.09*	60	.04*
EBT	2	3400	270	.08	220	.06
EBR	d	1700	40	.02	60	.04
WBL	1	1700	10	.01	20	.01
WBT	2	3400	170	.05*	330	.10*
WBR	d	1700	160	.09	260	.15
Right Turn Adjustment			WBR	.01*		
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.39**		**.39**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	20	.01
NBT	2	3400	590	.17*	460	.14*
NBR	d	1700	20	.01	50	.03
SBL	1	1700	90	.05*	180	.11*
SBT	2	3400	370	.11	620	.18
SBR	d	1700	60	.04	90	.05
EBL	1	1700	190	.11*	50	.03*
EBT	2	3400	300	.09	220	.06
EBR	d	1700	50	.03	90	.05
WBL	1	1700	20	.01	30	.02
WBT	2	3400	180	.05*	330	.10*
WBR	d	1700	240	.14	260	.15
Right Turn Adjustment			WBR	.06*		
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.49**		**.43**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	50	.03	20	.01
NBT	2	3400	530	.16*	480	.14*
NBR	d	1700	10	.01	40	.02
SBL	1	1700	100	.06*	220	.13*
SBT	2	3400	360	.11	580	.17
SBR	d	1700	70	.04	120	.07
EBL	1	1700	260	.15*	70	.04*
EBT	2	3400	290	.09	230	.07
EBR	d	1700	50	.03	90	.05
WBL	1	1700	20	.01	30	.02
WBT	2	3400	170	.05*	330	.10*
WBR	d	1700	260	.15	270	.16
Right Turn Adjustment			WBR	.07*		
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.54**		**.46**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	20	.01
NBT	2	3400	520	.15*	460	.14*
NBR	d	1700	10	.01	40	.02
SBL	1	1700	100	.06*	200	.12*
SBT	2	3400	360	.11	590	.17
SBR	d	1700	70	.04	120	.07
EBL	1	1700	260	.15*	70	.04*
EBT	2	3400	280	.08	250	.07
EBR	d	1700	50	.03	90	.05
WBL	1	1700	20	.01	30	.02
WBT	2	3400	170	.05*	330	.10*
WBR	d	1700	260	.15	270	.16
Right Turn Adjustment			WBR	.07*		
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.53**		**.45**

64. Gothard St & Ellis Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	50	.03	20	.01
NBT	2	3400	540	.16*	470	.14*
NBR	d	1700	10	.01	40	.02
SBL	1	1700	100	.06*	210	.12*
SBT	2	3400	370	.11	600	.18
SBR	d	1700	70	.04	120	.07
EBL	1	1700	260	.15*	70	.04*
EBT	2	3400	280	.08	250	.07
EBR	d	1700	50	.03	90	.05
WBL	1	1700	20	.01	30	.02
WBT	2	3400	180	.05*	330	.10*
WBR	d	1700	260	.15	270	.16
Right Turn Adjustment			WBR	.07*		
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .54 .45

65. Delaware St & Ellis Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	110	{.06}*	250	{.15}*
NBT	1	1700	20	.08	20	.18
NBR	0	0	10		30	
SBL	0	0	10		10	
SBT	1	1700	20	.04*	50	.06*
SBR	0	0	30		50	
EBL	1	1700	20	.01	30	.02*
EBT	1	1700	220	.13*	320	.19
EBR	d	1700	110	.06	190	.11
WBL	1	1700	10	.01*	30	.02
WBT	1	1700	140	.08	350	.21*
WBR	d	1700	10	.01	20	.01
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.29**		**.49**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	120		240	
NBT	1	1700	80	.12*	20	.22*
NBR	0	0	10		120	
SBL	0	0	10	{.01}*	10	{.01}*
SBT	1	1700	20	.04	70	.07
SBR	0	0	40		40	
EBL	1	1700	30	.02*	30	.02*
EBT	1	1700	280	.16	310	.18
EBR	d	1700	90	.05	240	.14
WBL	1	1700	10	.01	30	.02
WBT	1	1700	280	.16*	370	.22*
WBR	d	1700	20	.01	20	.01
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.36**		**.52**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	120		260	
NBT	1	1700	90	.13*	20	.24*
NBR	0	0	10		120	
SBL	0	0	10	{.01}*	10	{.01}*
SBT	1	1700	20	.04	80	.08
SBR	0	0	40		40	
EBL	1	1700	30	.02*	30	.02*
EBT	1	1700	260	.15	330	.19
EBR	d	1700	110	.06	260	.15
WBL	1	1700	10	.01	30	.02
WBT	1	1700	310	.18*	360	.21*
WBR	d	1700	10	.01	20	.01
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.39**		**.53**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	130		260	
NBT	1	1700	90	.14*	20	.24*
NBR	0	0	10		120	
SBL	0	0	10	{.01}*	10	{.01}*
SBT	1	1700	20	.04	80	.08
SBR	0	0	40		40	
EBL	1	1700	30	.02*	30	.02*
EBT	1	1700	250	.15	340	.20
EBR	d	1700	110	.06	270	.16
WBL	1	1700	10	.01	30	.02
WBT	1	1700	310	.18*	350	.21*
WBR	d	1700	30	.02	20	.01
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.40**		**.53**

65. Delaware St & Ellis Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	130		260	
NBT	1	1700	90	.14*	20	.24*
NBR	0	0	10		120	
SBL	0	0	10	{.01}*	10	{.01}*
SBT	1	1700	20	.04	80	.08
SBR	0	0	40		50	
EBL	1	1700	30	.02*	30	.02*
EBT	1	1700	240	.14	340	.20
EBR	d	1700	120	.07	280	.16
WBL	1	1700	10	.01	30	.02
WBT	1	1700	310	.18*	350	.21*
WBR	d	1700	20	.01	20	.01
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .40 .53

66. Beach Blvd & Ellis Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	80	.02	180	.05*
NBT	4	6800	1460	.23*	1630	.26
NBR	0	0	120		150	
SBL	2	3400	160	.05*	240	.07
SBT	3	5100	1270	.25	1450	.28*
SBR	1	1700	330	.19	540	.32
EBL	2	3400	350	.10	410	.12*
EBT	2	3400	460	.14*	350	.10
EBR	1	1700	80	.05	50	.03
WBL	1	1700	120	.07*	130	.08
WBT	2	3400	340	.10	460	.14*
WBR	1	1700	130	.08	170	.10
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.54**		**.64**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	80	.02	190	.06*
NBT	4	6800	1620	.26*	1640	.26
NBR	0	0	140		160	
SBL	2	3400	150	.04*	250	.07
SBT	3	5100	1330	.26	1460	.29*
SBR	1	1700	360	.21	630	.37
EBL	2	3400	340	.10	480	.14*
EBT	2	3400	730	.21*	370	.11
EBR	1	1700	90	.05	40	.02
WBL	1	1700	110	.06*	150	.09
WBT	2	3400	420	.12	500	.15*
WBR	1	1700	120	.07	270	.16
Right Turn Adjustment					SBR	.01*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.62**		**.70**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	110	.03	190	.06*
NBT	4	6800	1640	.26*	1660	.27
NBR	0	0	130		160	
SBL	2	3400	160	.05*	250	.07
SBT	3	5100	1360	.27	1460	.29*
SBR	1	1700	360	.21	640	.38
EBL	2	3400	360	.11	460	.14*
EBT	2	3400	750	.22*	420	.12
EBR	1	1700	90	.05	50	.03
WBL	1	1700	120	.07*	160	.09
WBT	2	3400	440	.13	580	.17*
WBR	1	1700	140	.08	250	.15
Right Turn Adjustment					SBR	.02*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.65**		**.73**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	140	.04	190	.06*
NBT	4	6800	1600	.26*	1560	.26
NBR	0	0	170		180	
SBL	2	3400	160	.05*	240	.07
SBT	3	5100	1270	.25	1410	.28*
SBR	1	1700	370	.22	730	.43
EBL	2	3400	410	.12	520	.15*
EBT	2	3400	750	.22*	390	.11
EBR	1	1700	90	.05	50	.03
WBL	1	1700	110	.06*	220	.13
WBT	2	3400	400	.12	590	.17*
WBR	1	1700	170	.10	230	.14
Right Turn Adjustment					SBR	.07*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.64**		**.78**

66. Beach Blvd & Ellis Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	140	.04	200	.06*
NBT	4	6800	1590	.26*	1560	.26
NBR	0	0	170		180	
SBL	2	3400	150	.04*	230	.07
SBT	3	5100	1250	.25	1410	.28*
SBR	1	1700	370	.22	730	.43
EBL	2	3400	410	.12	500	.15*
EBT	2	3400	750	.22*	410	.12
EBR	1	1700	90	.05	50	.03
WBL	1	1700	110	.06*	220	.13
WBT	2	3400	400	.12	580	.17*
WBR	1	1700	180	.11	240	.14
Right Turn Adjustment					SBR	.07*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .63 .78

67. Newland St & Ellis Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	50	.03	90	.05
NBT	2	3400	530	.16*	480	.14*
NBR	d	1700	90	.05	60	.04
SBL	1	1700	80	.05*	110	.06*
SBT	2	3400	560	.16	440	.13
SBR	d	1700	70	.04	80	.05
EBL	1	1700	40	.02	90	.05*
EBT	2	3400	660	.19*	530	.16
EBR	d	1700	60	.04	70	.04
WBL	1	1700	40	.02*	80	.05
WBT	2	3400	330	.10	590	.17*
WBR	d	1700	100	.06	90	.05
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.47**		**.47**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	100	.06*	100	.06
NBT	2	3400	570	.17	560	.16*
NBR	d	1700	110	.06	100	.06
SBL	1	1700	70	.04	120	.07*
SBT	2	3400	670	.20*	410	.12
SBR	d	1700	60	.04	110	.06
EBL	1	1700	80	.05	100	.06
EBT	2	3400	810	.24*	640	.19*
EBR	d	1700	70	.04	100	.06
WBL	1	1700	40	.02*	240	.14*
WBT	2	3400	320	.09	660	.19
WBR	d	1700	170	.10	90	.05
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.57**		**.61**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	110	.06*	90	.05
NBT	2	3400	570	.17	600	.18*
NBR	d	1700	110	.06	90	.05
SBL	1	1700	70	.04	120	.07*
SBT	2	3400	650	.19*	420	.12
SBR	d	1700	80	.05	140	.08
EBL	1	1700	110	.06	90	.05
EBT	2	3400	800	.24*	690	.20*
EBR	d	1700	70	.04	110	.06
WBL	1	1700	50	.03*	230	.14*
WBT	2	3400	340	.10	690	.20
WBR	d	1700	150	.09	90	.05
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.57**		**.64**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05*	90	.05
NBT	2	3400	600	.18	570	.17*
NBR	d	1700	110	.06	80	.05
SBL	1	1700	70	.04	110	.06*
SBT	2	3400	650	.19*	420	.12
SBR	d	1700	70	.04	160	.09
EBL	1	1700	110	.06	120	.07
EBT	2	3400	830	.24*	650	.19*
EBR	d	1700	70	.04	80	.05
WBL	1	1700	50	.03*	230	.14*
WBT	2	3400	310	.09	710	.21
WBR	d	1700	150	.09	90	.05
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.56**		**.61**

67. Newland St & Ellis Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	70	.04*	90	.05
NBT	2	3400	600	.18	550	.16*
NBR	d	1700	110	.06	80	.05
SBL	1	1700	70	.04	120	.07*
SBT	2	3400	650	.19*	430	.13
SBR	d	1700	70	.04	150	.09
EBL	1	1700	110	.06	130	.08
EBT	2	3400	820	.24*	650	.19*
EBR	d	1700	70	.04	70	.04
WBL	1	1700	50	.03*	250	.15*
WBT	2	3400	310	.09	710	.21
WBR	d	1700	160	.09	80	.05
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .55 .62

68. Main St & Ellis Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01*	40	.02*
NBT	3	5100	600	.12	820	.16
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	5100	530	.13*	950	.24*
SBR	0	0	140		270	
EBL	2	3400	270	.08*	210	.06*
EBT	0	0	0		0	
EBR	1	1700	10	.01	40	.02
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.27**		**.37**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01*	40	.02*
NBT	3	5100	780	.15	870	.17
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	5100	500	.15*	1030	.26*
SBR	0	0	280	.16	290	
EBL	2	3400	330	.10*	260	.08*
EBT	0	0	0		0	
EBR	1	1700	10	.01	50	.03
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.31**		**.41**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01*	40	.02*
NBT	3	5100	840	.16	890	.17
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	5100	520	.15*	1150	.28*
SBR	0	0	300	.18	270	
EBL	2	3400	300	.09*	270	.08*
EBT	0	0	0		0	
EBR	1	1700	10	.01	50	.03
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.30**		**.43**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	40	.02*
NBT	3	5100	900	.18*	930	.18
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	5100	510	.15	1250	.30*
SBR	0	0	320	.19	270	
EBL	2	3400	300	.09*	280	.08*
EBT	0	0	0		0	
EBR	1	1700	10	.01	50	.03
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.32**		**.45**

68. Main St & Ellis Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	40	.02*
NBT	3	5100	910	.18*	930	.18
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	5100	520	.15	1250	.30*
SBR	0	0	310	.18	270	
EBL	2	3400	290	.09*	280	.08*
EBT	0	0	0		0	
EBR	1	1700	10	.01	50	.03
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .32 .45

69. Delaware St & Main St

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01	40	.02
NBT	1	1700	90	.05*	170	.10*
NBR	1	1700	50	.03	110	.06
SBL	1	1700	40	.02*	50	.03*
SBT	1	1700	80	.05	110	.06
SBR	1	1700	30	.02	40	.02
EBL	1	1700	90	.05	190	.11*
EBT	3	5100	600	.12*	530	.10
EBR	f		30		40	
WBL	1	1700	110	.06*	200	.12
WBT	3	5100	420	.08	660	.13*
WBR	f		10		80	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.30**		**.42**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01	40	.02
NBT	1	1700	130	.08*	180	.11*
NBR	1	1700	70	.04	140	.08
SBL	1	1700	80	.05*	100	.06*
SBT	1	1700	80	.05	120	.07
SBR	1	1700	40	.02	50	.03
EBL	1	1700	100	.06	190	.11*
EBT	3	5100	710	.14*	570	.11
EBR	f		30		50	
WBL	1	1700	110	.06*	200	.12
WBT	3	5100	430	.08	710	.14*
WBR	f		30		70	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.38**		**.47**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01	40	.02
NBT	1	1700	130	.08*	180	.11*
NBR	1	1700	60	.04	140	.08
SBL	1	1700	90	.05*	100	.06*
SBT	1	1700	90	.05	140	.08
SBR	1	1700	40	.02	50	.03
EBL	1	1700	110	.06	190	.11*
EBT	3	5100	750	.15*	590	.12
EBR	f		30		50	
WBL	1	1700	100	.06*	200	.12
WBT	3	5100	450	.09	790	.15*
WBR	f		20		90	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.39**		**.48**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01	40	.02
NBT	1	1700	130	.08*	170	.10*
NBR	1	1700	70	.04	130	.08
SBL	1	1700	110	.06*	130	.08*
SBT	1	1700	70	.04	120	.07
SBR	1	1700	40	.02	50	.03
EBL	1	1700	120	.07	190	.11*
EBT	3	5100	680	.13*	580	.11
EBR	f		30		50	
WBL	1	1700	100	.06*	200	.12
WBT	3	5100	440	.09	780	.15*
WBR	f		20		90	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.38**		**.49**

69. Delaware St & Main St

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01	40	.02
NBT	1	1700	130	.08*	170	.10*
NBR	1	1700	70	.04	130	.08
SBL	1	1700	110	.06*	130	.08*
SBT	1	1700	70	.04	130	.08
SBR	1	1700	40	.02	50	.03
EBL	1	1700	120	.07	190	.11*
EBT	3	5100	710	.14*	580	.11
EBR	f		30		50	
WBL	1	1700	100	.06*	210	.12
WBT	3	5100	440	.09	780	.15*
WBR	f		20		90	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .39 .49

70. Seapoint Ave & Garfield Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1700	0	.00	40	.02*
NBR	2	3400	340	.10	430	.13
SBL	0	0	0		10	{.01}*
SBT	1	1700	0	.00*	0	.01
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3400	350	.10*	420	.12*
WBT	0	0	0		0	
WBR	1	1700	0	.00	10	.01
Right Turn Adjustment			NBR	.05*	NBR	.05*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .20 .25

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1700	0	.00	40	.02*
NBR	2	3400	630	.19	610	.18
SBL	0	0	0		10	{.01}*
SBT	1	1700	0	.00*	0	.01
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3400	620	.18*	960	.28*
WBT	0	0	0		0	
WBR	1	1700	0	.00	10	.01
Right Turn Adjustment			NBR	.10*	NBR	.02*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .33 .38

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1700	0	.00	40	.02*
NBR	2	3400	540	.16	350	.10
SBL	0	0	0		10	{.01}*
SBT	1	1700	0	.00*	0	.01
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3400	570	.17*	850	.25*
WBT	0	0	0		0	
WBR	1	1700	0	.00	10	.01
Right Turn Adjustment			NBR	.07*		
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .29 .33

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1700	0	.00	40	.02*
NBR	2	3400	510	.15	370	.11
SBL	0	0	0		10	{.01}*
SBT	1	1700	0	.00*	0	.01
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3400	590	.17*	830	.24*
WBT	0	0	0		0	
WBR	1	1700	0	.00	10	.01
Right Turn Adjustment			NBR	.06*		
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .28 .32

70. Seapoint Ave & Garfield Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1700	0	.00	40	.02*
NBR	2	3400	520	.15	370	.11
SBL	0	0	0		10	{.01}*
SBT	1	1700	0	.00*	0	.01
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3400	600	.18*	840	.25*
WBT	0	0	0		0	
WBR	1	1700	0	.00	10	.01
Right Turn Adjustment			NBR	.06*		
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .29 .33

71. Edwards St & Garfield Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	10	.01
NBT	2	3400	110	.03*	60	.02*
NBR	d	1700	70	.04	40	.02
SBL	1	1700	440	.26*	440	.26*
SBT	2	3400	90	.03	130	.04
SBR	d	1700	140	.08	130	.08
EBL	1	1700	160	.09*	170	.10*
EBT	3	5100	190	.04	170	.03
EBR	d	1700	10	.01	10	.01
WBL	1	1700	120	.07	60	.04
WBT	3	5100	270	.05*	150	.03*
WBR	d	1700	240	.14	400	.24
Right Turn Adjustment					WBR	.08*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.48**		**.54**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	10	.01
NBT	2	3400	130	.04*	150	.04*
NBR	d	1700	100	.06	130	.08
SBL	1	1700	540	.32*	560	.33*
SBT	2	3400	100	.03	140	.04
SBR	d	1700	220	.13	330	.19
EBL	1	1700	300	.18*	270	.16*
EBT	3	5100	360	.07	290	.06
EBR	d	1700	10	.01	10	.01
WBL	1	1700	120	.07	80	.05
WBT	3	5100	460	.09*	400	.08*
WBR	d	1700	400	.24	490	.29
Right Turn Adjustment					WBR	.04*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.68**		**.70**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	10	.01
NBT	2	3400	130	.04*	210	.06*
NBR	d	1700	170	.10	120	.07
SBL	1	1700	480	.28*	540	.32*
SBT	2	3400	100	.03	170	.05
SBR	d	1700	240	.14	350	.21
EBL	1	1700	310	.18*	180	.11*
EBT	3	5100	250	.05	140	.03
EBR	d	1700	10	.01	10	.01
WBL	1	1700	130	.08	80	.05
WBT	3	5100	390	.08*	290	.06*
WBR	d	1700	380	.22	510	.30
Right Turn Adjustment					WBR	.08*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.63**		**.68**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	10	.01
NBT	2	3400	130	.04*	200	.06*
NBR	d	1700	160	.09	120	.07
SBL	1	1700	490	.29*	520	.31*
SBT	2	3400	100	.03	170	.05
SBR	d	1700	230	.14	350	.21
EBL	1	1700	310	.18*	180	.11*
EBT	3	5100	220	.04	150	.03
EBR	d	1700	10	.01	10	.01
WBL	1	1700	130	.08	80	.05
WBT	3	5100	420	.08*	270	.05*
WBR	d	1700	370	.22	500	.29
Right Turn Adjustment					WBR	.08*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.64**		**.66**

71. Edwards St & Garfield Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	10	.01
NBT	2	3400	130	.04*	200	.06*
NBR	d	1700	170	.10	120	.07
SBL	1	1700	480	.28*	530	.31*
SBT	2	3400	100	.03	170	.05
SBR	d	1700	230	.14	350	.21
EBL	1	1700	310	.18*	180	.11*
EBT	3	5100	220	.04	150	.03
EBR	d	1700	10	.01	10	.01
WBL	1	1700	130	.08	80	.05
WBT	3	5100	430	.08*	280	.05*
WBR	d	1700	370	.22	490	.29
Right Turn Adjustment					WBR	.08*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.63**		**.66**

72. Goldenwest St & Garfield Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	140	.04	160	.05*
NBT	3	5100	880	.17*	890	.17
NBR	d	1700	110	.06	120	.07
SBL	2	3400	170	.05*	100	.03
SBT	3	5100	750	.15	800	.16*
SBR	d	1700	60	.04	60	.04
EBL	2	3400	80	.02	130	.04
EBT	3	5100	420	.08*	350	.07*
EBR	d	1700	310	.18	270	.16
WBL	2	3400	90	.03*	190	.06*
WBT	3	5100	250	.05	340	.07
WBR	d	1700	60	.04	120	.07
Right Turn Adjustment			EBR	.06*	EBR	.06*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.44**		**.45**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	230	.07	190	.06
NBT	3	5100	1190	.23*	1030	.20*
NBR	d	1700	150	.09	230	.14
SBL	2	3400	190	.06*	290	.09*
SBT	3	5100	960	.19	840	.16
SBR	d	1700	130	.08	50	.03
EBL	2	3400	60	.02	130	.04
EBT	3	5100	750	.15*	550	.11*
EBR	d	1700	330	.19	410	.24
WBL	2	3400	150	.04*	260	.08*
WBT	3	5100	360	.07	720	.14
WBR	d	1700	90	.05	180	.11
Right Turn Adjustment					EBR	.06*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.53**		**.59**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	270	.08	210	.06
NBT	3	5100	1130	.22*	1000	.20*
NBR	d	1700	120	.07	240	.14
SBL	2	3400	180	.05*	260	.08*
SBT	3	5100	910	.18	810	.16
SBR	d	1700	120	.07	70	.04
EBL	2	3400	90	.03	130	.04*
EBT	3	5100	620	.12*	340	.07
EBR	d	1700	320	.19	440	.26
WBL	2	3400	110	.03*	200	.06
WBT	3	5100	270	.05	610	.12*
WBR	d	1700	70	.04	140	.08
Right Turn Adjustment			EBR	.02*	EBR	.10*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.49**		**.59**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	250	.07	210	.06
NBT	3	5100	1120	.22*	990	.19*
NBR	d	1700	110	.06	230	.14
SBL	2	3400	180	.05*	240	.07*
SBT	3	5100	880	.17	840	.16
SBR	d	1700	150	.09	70	.04
EBL	2	3400	100	.03	130	.04*
EBT	3	5100	550	.11*	370	.07
EBR	d	1700	350	.21	410	.24
WBL	2	3400	110	.03*	200	.06
WBT	3	5100	290	.06	570	.11*
WBR	d	1700	80	.05	150	.09
Right Turn Adjustment			EBR	.05*	EBR	.10*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.51**		**.56**

72. Goldenwest St & Garfield Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	250	.07	210	.06
NBT	3	5100	1130	.22*	980	.19*
NBR	d	1700	110	.06	240	.14
SBL	2	3400	170	.05*	240	.07*
SBT	3	5100	880	.17	830	.16
SBR	d	1700	150	.09	70	.04
EBL	2	3400	100	.03	130	.04*
EBT	3	5100	570	.11*	370	.07
EBR	d	1700	340	.20	420	.25
WBL	2	3400	110	.03*	210	.06
WBT	3	5100	290	.06	580	.11*
WBR	d	1700	70	.04	150	.09
Right Turn Adjustment			EBR	.04*	EBR	.11*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .50 .57

73. Gothard St & Garfield Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	70	.04	80	.05*
NBT	2	3400	240	.07*	200	.06
NBR	d	1700	10	.01	10	.01
SBL	1	1700	70	.04*	120	.07
SBT	2	3400	200	.06	330	.10*
SBR	d	1700	80	.05	90	.05
EBL	1	1700	80	.05	80	.05*
EBT	2	3400	570	.17*	420	.12
EBR	1	1700	110	.06	70	.04
WBL	1	1700	10	.01*	10	.01
WBT	3	5100	340	.07	440	.09*
WBR	d	1700	60	.04	90	.05
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .34 .34

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	60	.04	130	.08*
NBT	2	3400	370	.11*	250	.07
NBR	d	1700	20	.01	20	.01
SBL	1	1700	80	.05*	150	.09
SBT	2	3400	210	.06	420	.12*
SBR	d	1700	90	.05	180	.11
EBL	1	1700	110	.06	150	.09*
EBT	2	3400	890	.26*	800	.24
EBR	1	1700	110	.06	70	.04
WBL	1	1700	10	.01*	10	.01
WBT	3	5100	570	.11	810	.16*
WBR	d	1700	70	.04	100	.06
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .48 .50

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	70	.04	130	.08*
NBT	2	3400	350	.10*	270	.08
NBR	d	1700	20	.01	20	.01
SBL	1	1700	80	.05*	160	.09
SBT	2	3400	210	.06	390	.11*
SBR	d	1700	80	.05	150	.09
EBL	1	1700	90	.05	150	.09*
EBT	2	3400	750	.22*	590	.17
EBR	1	1700	100	.06	60	.04
WBL	1	1700	10	.01*	10	.01
WBT	3	5100	360	.07	640	.13*
WBR	d	1700	80	.05	110	.06
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .43 .46

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	70	.04	130	.08*
NBT	2	3400	330	.10*	260	.08
NBR	d	1700	20	.01	20	.01
SBL	1	1700	80	.05*	170	.10
SBT	2	3400	210	.06	390	.11*
SBR	d	1700	80	.05	150	.09
EBL	1	1700	90	.05	140	.08*
EBT	2	3400	680	.20*	580	.17
EBR	1	1700	100	.06	70	.04
WBL	1	1700	10	.01*	10	.01
WBT	3	5100	400	.08	620	.12*
WBR	d	1700	80	.05	110	.06
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .41 .44

73. Gothard St & Garfield Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	70	.04	140	.08*
NBT	2	3400	350	.10*	260	.08
NBR	d	1700	20	.01	20	.01
SBL	1	1700	80	.05*	160	.09
SBT	2	3400	210	.06	400	.12*
SBR	d	1700	80	.05	150	.09
EBL	1	1700	90	.05	150	.09*
EBT	2	3400	690	.20*	590	.17
EBR	1	1700	100	.06	70	.04
WBL	1	1700	10	.01*	10	.01
WBT	3	5100	400	.08	630	.12*
WBR	d	1700	80	.05	110	.06
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.41**		**.46**

74. Main St & Garfield Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	30	.02*	20	.01
NBT	3	5100	430	.08	590	.12*
NBR	d	1700	80	.05	80	.05
SBL	1	1700	30	.02	30	.02*
SBT	3	5100	420	.08*	660	.13
SBR	d	1700	50	.03	130	.08
EBL	2	3400	80	.02	90	.03
EBT	3	5100	470	.09*	600	.12*
EBR	f		10		40	
WBL	1	1700	70	.04*	110	.06*
WBT	3	5100	280	.05	480	.09
WBR	f		10		100	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .28 .37

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	30	.02	20	.01*
NBT	3	5100	370	.07*	520	.10
NBR	d	1700	70	.04	90	.05
SBL	1	1700	50	.03*	40	.02
SBT	3	5100	420	.08	590	.12*
SBR	d	1700	110	.06	320	.19
EBL	2	3400	270	.08	180	.05
EBT	3	5100	630	.12*	950	.19*
EBR	f		10		40	
WBL	1	1700	100	.06*	140	.08*
WBT	3	5100	450	.09	660	.13
WBR	f		10		150	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .33 .45

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	30	.02*	20	.01*
NBT	3	5100	460	.09	630	.12
NBR	d	1700	80	.05	90	.05
SBL	1	1700	40	.02	40	.02
SBT	3	5100	470	.09*	730	.14*
SBR	d	1700	80	.05	250	.15
EBL	2	3400	210	.06	100	.03
EBT	3	5100	570	.11*	840	.16*
EBR	f		10		40	
WBL	1	1700	120	.07*	120	.07*
WBT	3	5100	320	.06	580	.11
WBR	f		10		130	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .34 .43

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	30	.02*	20	.01*
NBT	3	5100	430	.08	640	.13
NBR	d	1700	90	.05	90	.05
SBL	1	1700	40	.02	40	.02
SBT	3	5100	490	.10*	720	.14*
SBR	d	1700	100	.06	270	.16
EBL	2	3400	180	.05	100	.03
EBT	3	5100	530	.10*	840	.16*
EBR	f		10		30	
WBL	1	1700	120	.07*	120	.07*
WBT	3	5100	330	.06	550	.11
WBR	f		10		130	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .34 .43

74. Main St & Garfield Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	30	.02*	20	.01*
NBT	3	5100	430	.08	640	.13
NBR	d	1700	90	.05	90	.05
SBL	1	1700	40	.02	40	.02
SBT	3	5100	490	.10*	720	.14*
SBR	d	1700	110	.06	270	.16
EBL	2	3400	200	.06	100	.03
EBT	3	5100	520	.10*	850	.17*
EBR	f		10		30	
WBL	1	1700	120	.07*	130	.08*
WBT	3	5100	320	.06	560	.11
WBR	f		10		130	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .34 .45

75. Delaware St & Garfield Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	30	.02	30	.02
NBT	1	1700	110	.10*	110	.09*
NBR	0	0	60		40	
SBL	1	1700	70	.04*	80	.05*
SBT	1	1700	70	.04	130	.08
SBR	d	1700	20	.01	20	.01
EBL	1	1700	20	.01	20	.01
EBT	1	1700	640	.38*	500	.29*
EBR	1	1700	40	.02	60	.04
WBL	1	1700	20	.01*	50	.03*
WBT	2	3400	340	.10	530	.16
WBR	d	1700	40	.02	70	.04
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.58**		**.51**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	20	.01
NBT	1	1700	150	.16*	130	.10*
NBR	0	0	130		40	
SBL	1	1700	80	.05*	80	.05*
SBT	1	1700	70	.04	190	.11
SBR	d	1700	30	.02	30	.02
EBL	1	1700	20	.01	20	.01
EBT	1	1700	750	.44*	840	.49*
EBR	1	1700	50	.03	70	.04
WBL	1	1700	20	.01*	40	.02*
WBT	2	3400	540	.16	710	.21
WBR	d	1700	40	.02	90	.05
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.71**		**.71**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	30	.02
NBT	1	1700	140	.17*	140	.11*
NBR	0	0	150		50	
SBL	1	1700	80	.05*	100	.06*
SBT	1	1700	80	.05	200	.12
SBR	d	1700	30	.02	30	.02
EBL	1	1700	20	.01	20	.01
EBT	1	1700	720	.42*	750	.44*
EBR	1	1700	40	.02	70	.04
WBL	1	1700	20	.01*	60	.04*
WBT	2	3400	460	.14	640	.19
WBR	d	1700	50	.03	90	.05
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.70**		**.70**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	30	.02
NBT	1	1700	130	.17*	140	.11*
NBR	0	0	160		50	
SBL	1	1700	70	.04*	90	.05*
SBT	1	1700	80	.05	190	.11
SBR	d	1700	30	.02	30	.02
EBL	1	1700	20	.01	20	.01
EBT	1	1700	660	.39*	760	.45*
EBR	1	1700	40	.02	70	.04
WBL	1	1700	20	.01*	50	.03*
WBT	2	3400	470	.14	610	.18
WBR	d	1700	60	.04	70	.04
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.66**		**.69**

75. Delaware St & Garfield Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	30	.02
NBT	1	1700	130	.17*	140	.11*
NBR	0	0	160		50	
SBL	1	1700	70	.04*	100	.06*
SBT	1	1700	80	.05	190	.11
SBR	d	1700	30	.02	30	.02
EBL	1	1700	20	.01	20	.01
EBT	1	1700	660	.39*	770	.45*
EBR	1	1700	40	.02	70	.04
WBL	1	1700	20	.01*	50	.03*
WBT	2	3400	470	.14	630	.19
WBR	d	1700	60	.04	80	.05
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.66**		**.70**

76. Beach Blvd & Garfield Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	140	.08	260	.15*
NBT	3	5100	1250	.26*	1680	.35
NBR	0	0	80		120	
SBL	1	1700	150	.09*	220	.13
SBT	3	5100	1200	.25	1580	.34*
SBR	0	0	80		170	
EBL	1	1700	170	.10	200	.12*
EBT	2	3400	520	.15*	500	.15
EBR	1	1700	160	.09	140	.08
WBL	1	1700	110	.06*	170	.10
WBT	2	3400	280	.08	500	.15*
WBR	d	1700	140	.08	160	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.61**		**.81**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	170	.10	340	.20*
NBT	3	5100	1340	.28*	1690	.36
NBR	0	0	90		160	
SBL	1	1700	240	.14*	300	.18
SBT	3	5100	1190	.25	1590	.35*
SBR	0	0	100		200	
EBL	1	1700	210	.12*	300	.18*
EBT	2	3400	630	.19	570	.17
EBR	1	1700	240	.14	360	.21
WBL	1	1700	60	.04	240	.14
WBT	2	3400	510	.15*	730	.21*
WBR	d	1700	170	.10	160	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.74**		**.99**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	160	.09	350	.21*
NBT	3	5100	1410	.29*	1680	.37
NBR	0	0	90		210	
SBL	1	1700	250	.15*	320	.19
SBT	3	5100	1220	.26	1610	.36*
SBR	0	0	110		210	
EBL	1	1700	200	.12	310	.18*
EBT	2	3400	590	.17*	520	.15
EBR	1	1700	250	.15	360	.21
WBL	1	1700	130	.08*	260	.15
WBT	2	3400	420	.12	620	.18*
WBR	d	1700	150	.09	190	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.74**		**.98**

2030 Proposed Roadway Plan (Rec. Lanes Opt. 1)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	160	.09	350	.21*
NBT	3	5100	1410	.28*	1680	.33
NBR	d	1700	90	.05	210	.12
SBL	1	1700	250	.15*	320	.19
SBT	3	5100	1220	.24	1610	.32*
SBR	d	1700	110	.06	210	.12
EBL	1	1700	200	.12	310	.18*
EBT	2	3400	590	.17*	520	.15
EBR	1	1700	250	.15	360	.21
WBL	1	1700	130	.08*	260	.15
WBT	2	3400	420	.12	620	.18*
WBR	d	1700	150	.09	190	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.73**		**.94**

76. Beach Blvd & Garfield Ave

2030 Proposed Roadway Plan (Rec. Lanes Opt. 2)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	160	.05	350	.10*
NBT	3	5100	1410	.29*	1680	.37
NBR	0	0	90		210	
SBL	2	3400	250	.07*	320	.09
SBT	3	5100	1220	.26	1610	.36*
SBR	0	0	110		210	
EBL	1	1700	200	.12	310	.18*
EBT	2	3400	590	.17*	520	.15
EBR	1	1700	250	.15	360	.21
WBL	1	1700	130	.08*	260	.15
WBT	2	3400	420	.12	620	.18*
WBR	d	1700	150	.09	190	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.66**		**.87**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	180	.11	360	.21*
NBT	3	5100	1360	.28*	1660	.36
NBR	0	0	90		190	
SBL	1	1700	240	.14*	260	.15
SBT	3	5100	1180	.26	1610	.35*
SBR	0	0	130		190	
EBL	1	1700	190	.11	330	.19*
EBT	2	3400	600	.18*	520	.15
EBR	1	1700	250	.15	360	.21
WBL	1	1700	120	.07*	240	.14
WBT	2	3400	420	.12	610	.18*
WBR	d	1700	140	.08	180	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.72**		**.98**

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	180	.11	350	.21*
NBT	3	5100	1360	.28*	1680	.37
NBR	0	0	90		190	
SBL	1	1700	240	.14*	270	.16
SBT	3	5100	1170	.25	1600	.35*
SBR	0	0	130		190	
EBL	1	1700	190	.11	320	.19*
EBT	2	3400	620	.18*	520	.15
EBR	1	1700	250	.15	370	.22
WBL	1	1700	130	.08*	240	.14
WBT	2	3400	420	.12	640	.19*
WBR	d	1700	140	.08	170	.10
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.73**		**.99**

2030 Specific Plan w/Option 1 Mit

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	180	.11	360	.21*
NBT	3	5100	1360	.27*	1660	.33
NBR	d	1700	90	.05	190	.11
SBL	1	1700	240	.14*	260	.15
SBT	3	5100	1180	.23	1610	.32*
SBR	d	1700	130	.08	190	.11
EBL	1	1700	190	.11	330	.19*
EBT	2	3400	600	.18*	520	.15
EBR	1	1700	250	.15	360	.21
WBL	1	1700	120	.07*	240	.14
WBT	2	3400	420	.12	610	.18*
WBR	d	1700	140	.08	180	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.71**		**.95**

76. Beach Blvd & Garfield Ave

2030 Specific Plan w/Option 2 Mit

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	3400	180	.05	360	.11*
NBT	3	5100	1360	.28*	1660	.36
NBR	0	0	90		190	
SBL	2	3400	240	.07*	260	.08
SBT	3	5100	1180	.26	1610	.35*
SBR	0	0	130		190	
EBL	1	1700	190	.11	330	.19*
EBT	2	3400	600	.18*	520	.15
EBR	1	1700	250	.15	360	.21
WBL	1	1700	120	.07*	240	.14
WBT	2	3400	420	.12	610	.18*
WBR	d	1700	140	.08	180	.11
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.65**		**.88**

77. Newland St & Garfield Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	90	.05	110	.06
NBT	2	3400	530	.16*	650	.19*
NBR	d	1700	60	.04	60	.04
SBL	1	1700	80	.05*	80	.05*
SBT	2	3400	480	.14	460	.14
SBR	d	1700	80	.05	100	.06
EBL	1	1700	50	.03	70	.04
EBT	2	3400	680	.20*	630	.19*
EBR	d	1700	100	.06	90	.05
WBL	1	1700	40	.02*	80	.05*
WBT	2	3400	310	.09	540	.16
WBR	d	1700	70	.04	100	.06
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.48**		**.53**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	180	.11*	130	.08
NBT	2	3400	530	.16	750	.22*
NBR	d	1700	100	.06	70	.04
SBL	1	1700	120	.07	110	.06*
SBT	2	3400	540	.16*	480	.14
SBR	d	1700	100	.06	150	.09
EBL	1	1700	60	.04	80	.05
EBT	2	3400	780	.23*	810	.24*
EBR	d	1700	170	.10	110	.06
WBL	1	1700	50	.03*	80	.05*
WBT	2	3400	430	.13	770	.23
WBR	d	1700	110	.06	170	.10
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.58**		**.62**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	170	.10*	200	.12
NBT	2	3400	550	.16	760	.22*
NBR	d	1700	170	.10	90	.05
SBL	1	1700	90	.05	100	.06*
SBT	2	3400	540	.16*	510	.15
SBR	d	1700	100	.06	100	.06
EBL	1	1700	60	.04	80	.05
EBT	2	3400	720	.21*	780	.23*
EBR	d	1700	210	.12	130	.08
WBL	1	1700	50	.03*	120	.07*
WBT	2	3400	400	.12	690	.20
WBR	d	1700	100	.06	140	.08
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.55**		**.63**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	170	.10*	210	.12
NBT	2	3400	530	.16	740	.22*
NBR	d	1700	180	.11	90	.05
SBL	1	1700	90	.05	110	.06*
SBT	2	3400	540	.16*	460	.14
SBR	d	1700	100	.06	100	.06
EBL	1	1700	70	.04	70	.04
EBT	2	3400	730	.21*	700	.21*
EBR	d	1700	220	.13	120	.07
WBL	1	1700	40	.02*	140	.08*
WBT	2	3400	340	.10	670	.20
WBR	d	1700	100	.06	140	.08
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.54**		**.62**

77. Newland St & Garfield Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	170	.10*	210	.12
NBT	2	3400	520	.15	720	.21*
NBR	d	1700	200	.12	90	.05
SBL	1	1700	90	.05	100	.06*
SBT	2	3400	540	.16*	460	.14
SBR	d	1700	100	.06	130	.08
EBL	1	1700	60	.04	70	.04
EBT	2	3400	750	.22*	700	.21*
EBR	d	1700	220	.13	120	.07
WBL	1	1700	40	.02*	140	.08*
WBT	2	3400	350	.10	660	.19
WBR	d	1700	90	.05	140	.08
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .55 .61

78. Magnolia St & Garfield Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	140	.08*
NBT	2	3400	720	.21*	790	.23
NBR	d	1700	170	.10	140	.08
SBL	1	1700	90	.05*	90	.05
SBT	2	3400	590	.17	800	.24*
SBR	1	1700	40	.02	110	.06
EBL	1	1700	60	.04	110	.06
EBT	2	3400	620	.18*	480	.14*
EBR	d	1700	100	.06	100	.06
WBL	1	1700	80	.05*	190	.11*
WBT	2	3400	220	.06	560	.16
WBR	d	1700	70	.04	100	.06
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.54**		**.62**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	150	.09*
NBT	2	3400	920	.27*	830	.24
NBR	d	1700	180	.11	160	.09
SBL	1	1700	160	.09*	100	.06
SBT	2	3400	610	.18	920	.27*
SBR	1	1700	50	.03	120	.07
EBL	1	1700	70	.04	270	.16*
EBT	2	3400	800	.24*	550	.16
EBR	d	1700	100	.06	100	.06
WBL	1	1700	130	.08*	200	.12
WBT	2	3400	390	.11	860	.25*
WBR	d	1700	90	.05	140	.08
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.73**		**.82**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	90	.05	170	.10*
NBT	2	3400	950	.28*	850	.25
NBR	d	1700	190	.11	160	.09
SBL	1	1700	130	.08*	110	.06
SBT	2	3400	620	.18	890	.26*
SBR	1	1700	50	.03	170	.10
EBL	1	1700	70	.04	290	.17*
EBT	2	3400	770	.23*	490	.14
EBR	d	1700	100	.06	110	.06
WBL	1	1700	140	.08*	260	.15
WBT	2	3400	350	.10	720	.21*
WBR	d	1700	80	.05	110	.06
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.72**		**.79**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	170	.10*
NBT	2	3400	940	.28*	860	.25
NBR	d	1700	190	.11	160	.09
SBL	1	1700	120	.07*	110	.06
SBT	2	3400	640	.19	890	.26*
SBR	1	1700	40	.02	160	.09
EBL	1	1700	50	.03	270	.16*
EBT	2	3400	790	.23*	450	.13
EBR	d	1700	120	.07	110	.06
WBL	1	1700	150	.09*	260	.15
WBT	2	3400	300	.09	730	.21*
WBR	d	1700	90	.05	100	.06
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.72**		**.78**

78. Magnolia St & Garfield Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	170	.10*
NBT	2	3400	940	.28*	830	.24
NBR	d	1700	180	.11	160	.09
SBL	1	1700	130	.08*	110	.06
SBT	2	3400	610	.18	880	.26*
SBR	1	1700	40	.02	160	.09
EBL	1	1700	50	.03	280	.16*
EBT	2	3400	820	.24*	440	.13
EBR	d	1700	120	.07	110	.06
WBL	1	1700	150	.09*	280	.16
WBT	2	3400	300	.09	730	.21*
WBR	d	1700	90	.05	110	.06
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .74 .78

79. Bushard St & Garfield Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	90	.05	170	.10*
NBT	2	3400	540	.16*	600	.18
NBR	d	1700	120	.07	90	.05
SBL	1	1700	60	.04*	100	.06
SBT	2	3400	480	.14	540	.16*
SBR	d	1700	60	.04	100	.06
EBL	1	1700	110	.06	90	.05*
EBT	2	3400	760	.22*	440	.13
EBR	d	1700	110	.06	100	.06
WBL	1	1700	40	.02*	110	.06
WBT	2	3400	280	.08	570	.17*
WBR	d	1700	40	.02	40	.02
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .49 .53

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05*	120	.07*
NBT	2	3400	530	.16	780	.23
NBR	d	1700	270	.16	110	.06
SBL	1	1700	90	.05	110	.06
SBT	2	3400	590	.17*	770	.23*
SBR	d	1700	140	.08	70	.04
EBL	1	1700	140	.08	90	.05*
EBT	2	3400	970	.29*	720	.21
EBR	d	1700	130	.08	100	.06
WBL	1	1700	60	.04*	120	.07
WBT	2	3400	510	.15	1110	.33*
WBR	d	1700	110	.06	90	.05
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .60 .73

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	100	.06*	180	.11*
NBT	2	3400	540	.16	770	.23
NBR	d	1700	300	.18	100	.06
SBL	1	1700	70	.04	100	.06
SBT	2	3400	560	.16*	800	.24*
SBR	d	1700	260	.15	90	.05
EBL	1	1700	190	.11	100	.06*
EBT	2	3400	820	.24*	640	.19
EBR	d	1700	170	.10	120	.07
WBL	1	1700	50	.03*	120	.07
WBT	2	3400	330	.10	940	.28*
WBR	d	1700	90	.05	50	.03
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .54 .74

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	100	.06*	190	.11*
NBT	2	3400	570	.17	750	.22
NBR	d	1700	280	.16	110	.06
SBL	1	1700	70	.04	100	.06
SBT	2	3400	550	.16*	790	.23*
SBR	d	1700	240	.14	90	.05
EBL	1	1700	200	.12	100	.06*
EBT	2	3400	840	.25*	600	.18
EBR	d	1700	170	.10	130	.08
WBL	1	1700	50	.03*	130	.08
WBT	2	3400	320	.09	940	.28*
WBR	d	1700	80	.05	50	.03
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .55 .73

79. Bushard St & Garfield Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	100	.06*	190	.11*
NBT	2	3400	560	.16	740	.22
NBR	d	1700	320	.19	110	.06
SBL	1	1700	70	.04	110	.06
SBT	2	3400	530	.16*	790	.23*
SBR	d	1700	240	.14	90	.05
EBL	1	1700	220	.13	100	.06*
EBT	2	3400	840	.25*	600	.18
EBR	d	1700	180	.11	120	.07
WBL	1	1700	50	.03*	120	.07
WBT	2	3400	310	.09	970	.29*
WBR	d	1700	90	.05	50	.03
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .55 .74

80. Brookhurst St & Garfield Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	70	.04	200	.12*
NBT	3	5100	1060	.21*	1590	.31
NBR	d	1700	60	.04	90	.05
SBL	1	1700	40	.02*	80	.05
SBT	3	5100	740	.15	1250	.25*
SBR	1	1700	100	.06	340	.20
EBL	1	1700	270	.16*	290	.17*
EBT	2	3400	480	.14	330	.10
EBR	d	1700	160	.09	200	.12
WBL	1	1700	120	.07	200	.12
WBT	2	3400	190	.06*	370	.11*
WBR	1	1700	110	.06	120	.07
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.50**		**.70**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	60	.04	230	.14
NBT	3	5100	1230	.24*	1710	.34*
NBR	d	1700	300	.18	160	.09
SBL	1	1700	100	.06*	200	.12*
SBT	3	5100	880	.17	1480	.29
SBR	1	1700	100	.06	280	.16
EBL	1	1700	240	.14	290	.17*
EBT	2	3400	860	.25*	600	.18
EBR	d	1700	170	.10	210	.12
WBL	1	1700	140	.08*	230	.14
WBT	2	3400	610	.18	910	.27*
WBR	1	1700	320	.19	210	.12
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.68**		**.95**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	100	.06	260	.15*
NBT	3	5100	1300	.25*	1840	.36
NBR	d	1700	220	.13	90	.05
SBL	1	1700	50	.03*	80	.05
SBT	3	5100	1000	.20	1550	.30*
SBR	1	1700	120	.07	500	.29
EBL	1	1700	510	.30*	380	.22*
EBT	2	3400	500	.15	390	.11
EBR	d	1700	160	.09	210	.12
WBL	1	1700	130	.08	200	.12
WBT	2	3400	310	.09*	450	.13*
WBR	1	1700	120	.07	130	.08
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.72**		**.85**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	90	.05	260	.15*
NBT	3	5100	1290	.25*	1830	.36
NBR	d	1700	240	.14	90	.05
SBL	1	1700	50	.03*	80	.05
SBT	3	5100	990	.19	1540	.30*
SBR	1	1700	110	.06	530	.31
EBL	1	1700	510	.30*	350	.21*
EBT	2	3400	480	.14	380	.11
EBR	d	1700	170	.10	210	.12
WBL	1	1700	130	.08	210	.12
WBT	2	3400	300	.09*	440	.13*
WBR	1	1700	120	.07	130	.08
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.72**		**.84**

80. Brookhurst St & Garfield Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	100	.06	270	.16*
NBT	3	5100	1270	.25*	1760	.35
NBR	d	1700	250	.15	90	.05
SBL	1	1700	50	.03*	80	.05
SBT	3	5100	960	.19	1550	.30*
SBR	1	1700	110	.06	540	.32
EBL	1	1700	530	.31*	340	.20*
EBT	2	3400	500	.15	380	.11
EBR	d	1700	170	.10	210	.12
WBL	1	1700	130	.08	220	.13
WBT	2	3400	290	.09*	450	.13*
WBR	1	1700	120	.07	130	.08
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .73 .84

81. Ward St & Garfield Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10		20	{.01}*
NBT	1	1700	580	.35*	340	.22
NBR	0	0	10		10	
SBL	0	0	30	{.02}*	0	
SBT	1	1700	260	.17	420	.25*
SBR	1	1700	140	.08	380	.22
EBL	1	1700	520	.31*	220	.13*
EBT	1	1700	30	.02	10	.01
EBR	1	1700	30	.02	40	.02
WBL	1	1700	10	.01	10	.01
WBT	1	1700	20	.02*	30	.04*
WBR	0	0	20		40	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.75**		**.48**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10		30	{.02}*
NBT	1	1700	340	.21*	300	.20
NBR	0	0	10		10	
SBL	0	0	30	{.02}*	0	
SBT	1	1700	190	.13	470	.28*
SBR	1	1700	10	.01	160	.09
EBL	1	1700	520	.31*	10	.01*
EBT	1	1700	30	.02	10	.01
EBR	1	1700	30	.02	30	.02
WBL	1	1700	10	.01	10	.01
WBT	1	1700	10	.02*	40	.04*
WBR	0	0	20		30	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.61**		**.40**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10		20	{.01}*
NBT	1	1700	620	.38*	430	.27
NBR	0	0	10		10	
SBL	0	0	30	{.02}*	0	
SBT	1	1700	280	.18	530	.31*
SBR	1	1700	230	.14	420	.25
EBL	1	1700	640	.38*	290	.17*
EBT	1	1700	30	.02	10	.01
EBR	1	1700	30	.02	40	.02
WBL	1	1700	10	.01	10	.01
WBT	1	1700	20	.02*	30	.04*
WBR	0	0	20		40	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.85**		**.58**

2030 Proposed Roadway Plan (Rec. Lanes Opt. 1)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10		20	{.01}*
NBT	1	1700	620	.38*	430	.27
NBR	0	0	10		10	
SBL	0	0	30	{.02}*	0	
SBT	1	1700	280	.18	530	.31*
SBR	1	1700	230	.14	420	.25
EBL	2	3400	640	.19*	290	.09*
EBT	1	1700	30	.04	10	.03
EBR	0	0	30		40	
WBL	1	1700	10	.01	10	.01
WBT	1	1700	20	.02*	30	.04*
WBR	0	0	20		40	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.66**		**.50**

81. Ward St & Garfield Ave

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10		20	{.01}*
NBT	1	1700	640	.39*	420	.26
NBR	0	0	10		10	
SBL	0	0	30	{.02}*	0	
SBT	1	1700	260	.17	530	.31*
SBR	1	1700	230	.14	410	.24
EBL	1	1700	650	.38*	290	.17*
EBT	1	1700	30	.02	10	.01
EBR	1	1700	30	.02	40	.02
WBL	1	1700	10	.01	10	.01
WBT	1	1700	20	.02*	30	.04*
WBR	0	0	20		40	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .86 .58

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10		20	{.01}*
NBT	1	1700	650	.39*	430	.27
NBR	0	0	10		10	
SBL	0	0	30	{.02}*	0	
SBT	1	1700	260	.17	530	.31*
SBR	1	1700	220	.13	430	.25
EBL	1	1700	680	.40*	280	.16*
EBT	1	1700	30	.02	10	.01
EBR	1	1700	30	.02	40	.02
WBL	1	1700	10	.01	10	.01
WBT	1	1700	20	.02*	30	.04*
WBR	0	0	20		40	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .88 .57

2030 Specific Plan w/Option 1 Mit

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10		20	{.01}*
NBT	1	1700	640	.39*	420	.26
NBR	0	0	10		10	
SBL	0	0	30	{.02}*	0	
SBT	1	1700	260	.17	530	.31*
SBR	1	1700	230	.14	410	.24
EBL	2	3400	650	.19*	290	.09*
EBT	1	1700	30	.04	10	.03
EBR	0	0	30		40	
WBL	1	1700	10	.01	10	.01
WBT	1	1700	20	.02*	30	.04*
WBR	0	0	20		40	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .67 .50

83. Goldenwest St & Yorktown Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	5100	680	.13*	790	.15*
NBR	1	1700	340	.20	280	.16
SBL	2	3400	500	.15*	760	.22*
SBT	3	5100	520	.10	620	.12
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3400	280	.08*	480	.14*
WBT	0	0	0		0	
WBR	1	1700	330	.19	680	.40
Right Turn Adjustment			Multi	.06*	WBR	.15*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.47**		**.71**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	5100	1040	.20*	1220	.24*
NBR	1	1700	420	.25	340	.20
SBL	2	3400	400	.12*	660	.19*
SBT	3	5100	870	.17	1010	.20
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3400	300	.09*	590	.17*
WBT	0	0	0		0	
WBR	1	1700	350	.21	580	.34
Right Turn Adjustment			WBR	.06*	WBR	.08*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.52**		**.73**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	5100	940	.18*	1150	.23*
NBR	1	1700	460	.27	410	.24
SBL	2	3400	510	.15*	770	.23*
SBT	3	5100	650	.13	840	.16
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3400	400	.12*	690	.20*
WBT	0	0	0		0	
WBR	1	1700	420	.25	680	.40
Right Turn Adjustment			Multi	.08*	WBR	.08*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.58**		**.79**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	5100	900	.18*	1150	.23*
NBR	1	1700	450	.26	410	.24
SBL	2	3400	500	.15*	750	.22*
SBT	3	5100	670	.13	860	.17
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3400	400	.12*	660	.19*
WBT	0	0	0		0	
WBR	1	1700	410	.24	650	.38
Right Turn Adjustment			Multi	.06*	WBR	.08*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.56**		**.77**

83. Goldenwest St & Yorktown Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	5100	910	.18*	1150	.23*
NBR	1	1700	460	.27	400	.24
SBL	2	3400	490	.14*	750	.22*
SBT	3	5100	680	.13	860	.17
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3400	390	.11*	660	.19*
WBT	0	0	0		0	
WBR	1	1700	420	.25	640	.38
Right Turn Adjustment			Multi	.10*	WBR	.08*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .58 .77

84. Main St & Yorktown Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	210	.12*	230	.14*
NBT	2	3400	550	.16	410	.12
NBR	1	1700	120	.07	40	.02
SBL	2	3400	140	.04	200	.06
SBT	2	3400	440	.13*	520	.15*
SBR	d	1700	90	.05	80	.05
EBL	1	1700	90	.05	80	.05*
EBT	2	3400	440	.13*	490	.14
EBR	d	1700	190	.11	140	.08
WBL	1	1700	140	.08*	70	.04
WBT	2	3400	400	.12	580	.17*
WBR	d	1700	120	.07	140	.08
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.51**		**.56**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	360	.21*	210	.12*
NBT	2	3400	620	.18	450	.13
NBR	1	1700	140	.08	40	.02
SBL	2	3400	140	.04	290	.09
SBT	2	3400	440	.13*	510	.15*
SBR	d	1700	70	.04	70	.04
EBL	1	1700	50	.03	20	.01*
EBT	2	3400	390	.11*	410	.12
EBR	d	1700	220	.13	270	.16
WBL	1	1700	150	.09*	80	.05
WBT	2	3400	350	.10	580	.17*
WBR	d	1700	110	.06	140	.08
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.59**		**.50**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	380	.22*	260	.15*
NBT	2	3400	620	.18	490	.14
NBR	1	1700	130	.08	40	.02
SBL	2	3400	140	.04	320	.09
SBT	2	3400	440	.13*	510	.15*
SBR	d	1700	140	.08	140	.08
EBL	1	1700	120	.07	110	.06*
EBT	2	3400	450	.13*	510	.15
EBR	d	1700	230	.14	300	.18
WBL	1	1700	140	.08*	80	.05
WBT	2	3400	440	.13	660	.19*
WBR	d	1700	120	.07	160	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.61**		**.60**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	390	.23*	240	.14*
NBT	2	3400	580	.17	500	.15
NBR	1	1700	130	.08	40	.02
SBL	2	3400	150	.04	320	.09
SBT	2	3400	460	.14*	500	.15*
SBR	d	1700	150	.09	140	.08
EBL	1	1700	120	.07	100	.06*
EBT	2	3400	440	.13*	500	.15
EBR	d	1700	220	.13	290	.17
WBL	1	1700	150	.09*	80	.05
WBT	2	3400	400	.12	630	.19*
WBR	d	1700	130	.08	150	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.64**		**.59**

84. Main St & Yorktown Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	380	.22*	250	.15*
NBT	2	3400	600	.18	510	.15
NBR	1	1700	130	.08	40	.02
SBL	2	3400	140	.04	320	.09
SBT	2	3400	470	.14*	510	.15*
SBR	d	1700	140	.08	140	.08
EBL	1	1700	130	.08	100	.06*
EBT	2	3400	450	.13*	490	.14
EBR	d	1700	210	.12	300	.18
WBL	1	1700	150	.09*	80	.05
WBT	2	3400	420	.12	610	.18*
WBR	d	1700	120	.07	150	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.63**		**.59**

85. Lake St & Yorktown Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	190	.11*	250	.15*
NBT	1	1700	10	.01	20	.01
NBR	d	1700	130	.08	110	.06
SBL	0	0	20		10	
SBT	1	1700	30	.05*	10	.03*
SBR	0	0	30		30	
EBL	1	1700	10	.01	40	.02
EBT	2	3400	480	.14*	590	.17*
EBR	d	1700	150	.09	190	.11
WBL	1	1700	190	.11*	90	.05*
WBT	2	3400	470	.14	460	.14
WBR	d	1700	10	.01	20	.01
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.46**		**.45**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	180	.11*	240	.14*
NBT	1	1700	10	.01	20	.01
NBR	d	1700	240	.14	160	.09
SBL	0	0	20		10	
SBT	1	1700	40	.05*	20	.04*
SBR	0	0	30		40	
EBL	1	1700	10	.01	50	.03
EBT	2	3400	430	.13*	570	.17*
EBR	d	1700	150	.09	230	.14
WBL	1	1700	180	.11*	100	.06*
WBT	2	3400	430	.13	500	.15
WBR	d	1700	10	.01	30	.02
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.45**		**.46**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	200	.12*	280	.16*
NBT	1	1700	10	.01	20	.01
NBR	d	1700	240	.14	170	.10
SBL	0	0	20		10	
SBT	1	1700	30	.05*	10	.03*
SBR	0	0	30		30	
EBL	1	1700	10	.01	50	.03
EBT	2	3400	490	.14*	650	.19*
EBR	d	1700	150	.09	270	.16
WBL	1	1700	200	.12*	130	.08*
WBT	2	3400	500	.15	550	.16
WBR	d	1700	10	.01	30	.02
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.48**		**.51**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	190	.11*	270	.16*
NBT	1	1700	10	.01	20	.01
NBR	d	1700	230	.14	160	.09
SBL	0	0	20		10	
SBT	1	1700	30	.05*	10	.04*
SBR	0	0	30		40	
EBL	1	1700	10	.01	50	.03
EBT	2	3400	490	.14*	650	.19*
EBR	d	1700	150	.09	260	.15
WBL	1	1700	210	.12*	120	.07*
WBT	2	3400	500	.15	510	.15
WBR	d	1700	10	.01	30	.02
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.47**		**.51**

85. Lake St & Yorktown Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	190	.11*	240	.14*
NBT	1	1700	10	.01	10	.01
NBR	d	1700	240	.14	160	.09
SBL	0	0	20		10	
SBT	1	1700	30	.05*	10	.04*
SBR	0	0	30		40	
EBL	1	1700	10	.01	50	.03
EBT	2	3400	480	.14*	650	.19*
EBR	d	1700	150	.09	250	.15
WBL	1	1700	210	.12*	130	.08*
WBT	2	3400	510	.15	520	.15
WBR	d	1700	10	.01	30	.02
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .47 .50

86. Delaware St & Yorktown Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	60	.04	50	.03
NBT	1	1700	120	.07*	140	.08*
NBR	d	1700	80	.05	20	.01
SBL	1	1700	60	.04*	70	.04*
SBT	2	3400	100	.04	120	.06
SBR	0	0	30		80	
EBL	1	1700	20	.01	100	.06*
EBT	2	3400	820	.24*	530	.16
EBR	d	1700	30	.02	50	.03
WBL	1	1700	50	.03*	20	.01
WBT	2	3400	640	.19	580	.17*
WBR	d	1700	40	.02	50	.03
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.43**		**.40**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	50	.03	50	.03
NBT	1	1700	170	.10*	150	.09*
NBR	d	1700	100	.06	30	.02
SBL	1	1700	70	.04*	80	.05*
SBT	2	3400	110	.04	140	.07
SBR	0	0	30		90	
EBL	1	1700	20	.01	100	.06*
EBT	2	3400	920	.27*	510	.15
EBR	d	1700	40	.02	60	.04
WBL	1	1700	80	.05*	40	.02
WBT	2	3400	580	.17	650	.19*
WBR	d	1700	60	.04	80	.05
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.51**		**.44**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	70	.04	50	.03
NBT	1	1700	180	.11*	160	.09*
NBR	d	1700	100	.06	30	.02
SBL	1	1700	70	.04*	80	.05*
SBT	2	3400	110	.04	150	.07
SBR	0	0	40		100	
EBL	1	1700	30	.02	110	.06*
EBT	2	3400	960	.28*	590	.17
EBR	d	1700	40	.02	70	.04
WBL	1	1700	80	.05*	40	.02
WBT	2	3400	650	.19	710	.21*
WBR	d	1700	50	.03	70	.04
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.53**		**.46**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	60	.04	50	.03
NBT	1	1700	160	.09*	150	.09*
NBR	d	1700	100	.06	20	.01
SBL	1	1700	70	.04*	70	.04*
SBT	2	3400	120	.05	140	.07
SBR	0	0	40		90	
EBL	1	1700	30	.02	110	.06*
EBT	2	3400	940	.28*	590	.17
EBR	d	1700	40	.02	70	.04
WBL	1	1700	80	.05*	40	.02
WBT	2	3400	650	.19	670	.20*
WBR	d	1700	40	.02	70	.04
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.51**		**.44**

86. Delaware St & Yorktown Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	60	.04	50	.03
NBT	1	1700	160	.09*	150	.09*
NBR	d	1700	100	.06	20	.01
SBL	1	1700	70	.04*	70	.04*
SBT	2	3400	120	.05	130	.06
SBR	0	0	40		90	
EBL	1	1700	30	.02	110	.06*
EBT	2	3400	940	.28*	590	.17
EBR	d	1700	40	.02	70	.04
WBL	1	1700	80	.05*	40	.02
WBT	2	3400	660	.19	700	.21*
WBR	d	1700	40	.02	70	.04
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .51 .45

87. Beach Blvd & Yorktown Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	110	.06*	240	.14
NBT	3	5100	1140	.24	1760	.38*
NBR	0	0	100		200	
SBL	1	1700	100	.06	190	.11*
SBT	3	5100	1140	.24*	1380	.30
SBR	0	0	100		160	
EBL	1	1700	160	.09*	190	.11*
EBT	2	3400	420	.12	460	.14
EBR	1	1700	220	.13	90	.05
WBL	1	1700	120	.07	140	.08
WBT	2	3400	420	.16*	340	.14*
WBR	0	0	120		140	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.60**		**.79**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08	240	.14
NBT	3	5100	1200	.27*	1740	.41*
NBR	0	0	170		370	
SBL	1	1700	100	.06*	170	.10*
SBT	3	5100	1090	.24	1550	.34
SBR	0	0	110		160	
EBL	1	1700	140	.08	180	.11*
EBT	2	3400	540	.16*	540	.16
EBR	1	1700	220	.13	90	.05
WBL	1	1700	280	.16*	140	.08
WBT	2	3400	380	.14	550	.21*
WBR	0	0	110		160	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.70**		**.88**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08*	260	.15
NBT	3	5100	1210	.27	1800	.42*
NBR	0	0	180		320	
SBL	1	1700	100	.06	210	.12*
SBT	3	5100	1200	.26*	1550	.34
SBR	0	0	110		180	
EBL	1	1700	180	.11*	200	.12*
EBT	2	3400	510	.15	580	.17
EBR	1	1700	250	.15	110	.06
WBL	1	1700	220	.13	130	.08
WBT	2	3400	440	.17*	570	.21*
WBR	0	0	150		150	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.67**		**.92**

2030 Proposed Roadway Plan (Rec. Lanes Opt. 1)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08*	260	.15
NBT	3	5100	1210	.27	1800	.42*
NBR	0	0	180		320	
SBL	1	1700	100	.06	210	.12*
SBT	3	5100	1200	.26*	1550	.34
SBR	0	0	110		180	
EBL	1	1700	180	.11	200	.12*
EBT	2	3400	510	.15*	580	.17
EBR	1	1700	250	.15	110	.06
WBL	1	1700	220	.13*	130	.08
WBT	2	3400	440	.13	570	.17*
WBR	1	1700	150	.09	150	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.67**		**.88**

87. Beach Blvd & Yorktown Ave

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	120	.07	200	.12
NBT	3	5100	1130	.25*	1730	.38*
NBR	0	0	170		230	
SBL	1	1700	100	.06*	200	.12*
SBT	3	5100	1110	.24	1510	.33
SBR	0	0	120		160	
EBL	1	1700	160	.09*	190	.11*
EBT	2	3400	550	.16	600	.18
EBR	1	1700	200	.12	90	.05
WBL	1	1700	160	.09	90	.05
WBT	2	3400	420	.16*	610	.22*
WBR	0	0	140		150	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .61 .88

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	120	.07	190	.11
NBT	3	5100	1130	.25*	1730	.39*
NBR	0	0	170		240	
SBL	1	1700	100	.06*	200	.12*
SBT	3	5100	1110	.24	1510	.33
SBR	0	0	120		160	
EBL	1	1700	150	.09*	190	.11*
EBT	2	3400	560	.16	610	.18
EBR	1	1700	200	.12	80	.05
WBL	1	1700	150	.09	80	.05
WBT	2	3400	430	.17*	630	.23*
WBR	0	0	150		160	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .62 .90

2030 Specific Plan w/Option 1 Mit

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	120	.07	200	.12
NBT	3	5100	1130	.25*	1730	.38*
NBR	0	0	170		230	
SBL	1	1700	100	.06*	200	.12*
SBT	3	5100	1110	.24	1510	.33
SBR	0	0	120		160	
EBL	1	1700	160	.09	190	.11*
EBT	2	3400	550	.16*	600	.18
EBR	1	1700	200	.12	90	.05
WBL	1	1700	160	.09*	90	.05
WBT	2	3400	420	.12	610	.18*
WBR	1	1700	140	.08	150	.09
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .61 .84

88. Newland St & Yorktown Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05*	80	.05
NBT	2	3400	430	.13	720	.21*
NBR	d	1700	50	.03	20	.01
SBL	1	1700	130	.08	90	.05*
SBT	2	3400	560	.16*	500	.15
SBR	d	1700	80	.05	60	.04
EBL	1	1700	40	.02*	70	.04*
EBT	2	3400	550	.16	490	.14
EBR	d	1700	90	.05	110	.06
WBL	1	1700	50	.03	70	.04
WBT	1	1700	460	.27*	420	.25*
WBR	1	1700	90	.05	110	.06
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.55**		**.60**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	90	.05	90	.05
NBT	2	3400	440	.13*	700	.21*
NBR	d	1700	140	.08	40	.02
SBL	1	1700	200	.12*	90	.05*
SBT	2	3400	630	.19	620	.18
SBR	d	1700	100	.06	50	.03
EBL	1	1700	60	.04*	170	.10*
EBT	2	3400	750	.22	630	.19
EBR	d	1700	80	.05	110	.06
WBL	1	1700	60	.04	80	.05
WBT	1	1700	590	.35*	710	.42*
WBR	1	1700	130	.08	150	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.69**		**.83**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	90	.05	90	.05
NBT	2	3400	480	.14*	790	.23*
NBR	d	1700	130	.08	40	.02
SBL	1	1700	210	.12*	110	.06*
SBT	2	3400	670	.20	640	.19
SBR	d	1700	80	.05	100	.06
EBL	1	1700	110	.06*	170	.10*
EBT	2	3400	770	.23	640	.19
EBR	d	1700	100	.06	110	.06
WBL	1	1700	60	.04	70	.04
WBT	1	1700	600	.35*	740	.44*
WBR	1	1700	120	.07	170	.10
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.72**		**.88**

2030 Proposed Roadway Plan (Rec. Lanes Opt. 1)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	90	.05	90	.05
NBT	2	3400	480	.14*	790	.23*
NBR	d	1700	130	.08	40	.02
SBL	1	1700	210	.12*	110	.06*
SBT	2	3400	670	.20	640	.19
SBR	d	1700	80	.05	100	.06
EBL	1	1700	110	.06	170	.10*
EBT	2	3400	770	.23*	640	.19
EBR	d	1700	100	.06	110	.06
WBL	1	1700	60	.04*	70	.04
WBT	2	3400	600	.21	740	.27*
WBR	0	0	120		170	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.58**		**.71**

88. Newland St & Yorktown Ave

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	90	.05	90	.05
NBT	2	3400	470	.14*	810	.24*
NBR	d	1700	100	.06	40	.02
SBL	1	1700	210	.12*	100	.06*
SBT	2	3400	700	.21	620	.18
SBR	d	1700	60	.04	90	.05
EBL	1	1700	90	.05*	140	.08*
EBT	2	3400	810	.24	600	.18
EBR	d	1700	100	.06	110	.06
WBL	1	1700	60	.04	70	.04
WBT	1	1700	550	.32*	730	.43*
WBR	1	1700	130	.08	160	.09
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .68 .86

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	90	.05	90	.05
NBT	2	3400	460	.14*	800	.24*
NBR	d	1700	110	.06	40	.02
SBL	1	1700	210	.12*	110	.06*
SBT	2	3400	680	.20	620	.18
SBR	d	1700	70	.04	90	.05
EBL	1	1700	100	.06*	150	.09*
EBT	2	3400	800	.24	610	.18
EBR	d	1700	110	.06	110	.06
WBL	1	1700	70	.04	70	.04
WBT	1	1700	550	.32*	780	.46*
WBR	1	1700	130	.08	160	.09
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .69 .90

2030 Specific Plan w/Option 1 Mit

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	90	.05	90	.05
NBT	2	3400	470	.14*	810	.24*
NBR	d	1700	100	.06	40	.02
SBL	1	1700	210	.12*	100	.06*
SBT	2	3400	700	.21	620	.18
SBR	d	1700	60	.04	90	.05
EBL	1	1700	90	.05	140	.08*
EBT	2	3400	810	.24*	600	.18
EBR	d	1700	100	.06	110	.06
WBL	1	1700	60	.04*	70	.04
WBT	2	3400	550	.20	730	.26*
WBR	0	0	130		160	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .59 .69

89. Magnolia St & Yorktown Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	60	.04	80	.05*
NBT	2	3400	680	.20*	710	.21
NBR	d	1700	110	.06	70	.04
SBL	1	1700	70	.04*	70	.04
SBT	2	3400	560	.16	670	.20*
SBR	d	1700	70	.04	90	.05
EBL	1	1700	110	.06	80	.05
EBT	2	3400	600	.18*	420	.12*
EBR	d	1700	80	.05	80	.05
WBL	1	1700	90	.05*	80	.05*
WBT	2	3400	380	.11	390	.11
WBR	d	1700	40	.02	60	.04
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .52 .47

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	140	.08	80	.05*
NBT	2	3400	700	.21*	820	.24
NBR	d	1700	160	.09	80	.05
SBL	1	1700	90	.05*	70	.04
SBT	2	3400	560	.16	910	.27*
SBR	d	1700	180	.11	110	.06
EBL	1	1700	280	.16	100	.06*
EBT	2	3400	770	.23*	610	.18
EBR	d	1700	80	.05	90	.05
WBL	1	1700	170	.10*	100	.06
WBT	2	3400	420	.12	740	.22*
WBR	d	1700	60	.04	60	.04
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .64 .65

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	170	.10*	80	.05*
NBT	2	3400	710	.21	870	.26
NBR	d	1700	140	.08	70	.04
SBL	1	1700	110	.06	90	.05
SBT	2	3400	600	.18*	940	.28*
SBR	d	1700	170	.10	110	.06
EBL	1	1700	320	.19	90	.05*
EBT	2	3400	740	.22*	640	.19
EBR	d	1700	80	.05	90	.05
WBL	1	1700	160	.09*	90	.05
WBT	2	3400	390	.11	740	.22*
WBR	d	1700	60	.04	80	.05
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .64 .65

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	150	.09	80	.05*
NBT	2	3400	710	.21*	870	.26
NBR	d	1700	140	.08	70	.04
SBL	1	1700	120	.07*	90	.05
SBT	2	3400	610	.18	930	.27*
SBR	d	1700	180	.11	110	.06
EBL	1	1700	300	.18	80	.05*
EBT	2	3400	770	.23*	600	.18
EBR	d	1700	90	.05	90	.05
WBL	1	1700	150	.09*	80	.05
WBT	2	3400	360	.11	730	.21*
WBR	d	1700	60	.04	80	.05
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .65 .63

89. Magnolia St & Yorktown Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	170	.10*	90	.05*
NBT	2	3400	670	.20	850	.25
NBR	d	1700	170	.10	70	.04
SBL	1	1700	120	.07	90	.05
SBT	2	3400	590	.17*	940	.28*
SBR	d	1700	160	.09	110	.06
EBL	1	1700	320	.19	80	.05*
EBT	2	3400	740	.22*	620	.18
EBR	d	1700	90	.05	90	.05
WBL	1	1700	160	.09*	90	.05
WBT	2	3400	360	.11	770	.23*
WBR	d	1700	60	.04	70	.04
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .63 .66

90. Bushard St & Yorktown Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	100	.06	100	.06
NBT	2	3400	510	.15*	690	.20*
NBR	d	1700	170	.10	50	.03
SBL	1	1700	90	.05*	30	.02*
SBT	2	3400	440	.13	500	.15
SBR	d	1700	70	.04	40	.02
EBL	1	1700	80	.05	60	.04
EBT	2	3400	580	.17*	390	.11*
EBR	d	1700	110	.06	90	.05
WBL	1	1700	60	.04*	100	.06*
WBT	2	3400	360	.11	420	.12
WBR	d	1700	40	.02	70	.04
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.46**		**.44**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	110	.06	160	.09*
NBT	2	3400	670	.20*	720	.21
NBR	d	1700	170	.10	50	.03
SBL	1	1700	130	.08*	40	.02
SBT	2	3400	540	.16	530	.16*
SBR	d	1700	100	.06	120	.07
EBL	1	1700	70	.04	150	.09*
EBT	2	3400	960	.28*	490	.14
EBR	d	1700	110	.06	130	.08
WBL	1	1700	60	.04*	270	.16
WBT	2	3400	510	.15	710	.21*
WBR	d	1700	60	.04	50	.03
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.65**		**.60**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	110	.06	240	.14*
NBT	2	3400	720	.21*	740	.22
NBR	d	1700	180	.11	50	.03
SBL	1	1700	120	.07*	40	.02
SBT	2	3400	580	.17	580	.17*
SBR	d	1700	80	.05	140	.08
EBL	1	1700	90	.05	150	.09
EBT	2	3400	840	.25*	500	.15*
EBR	d	1700	170	.10	130	.08
WBL	1	1700	60	.04*	220	.13*
WBT	2	3400	460	.14	560	.16
WBR	d	1700	50	.03	70	.04
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.62**		**.64**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	110	.06	230	.14*
NBT	2	3400	740	.22*	760	.22
NBR	d	1700	170	.10	50	.03
SBL	1	1700	120	.07*	50	.03
SBT	2	3400	580	.17	590	.17*
SBR	d	1700	80	.05	120	.07
EBL	1	1700	90	.05	130	.08
EBT	2	3400	890	.26*	480	.14*
EBR	d	1700	150	.09	150	.09
WBL	1	1700	60	.04*	200	.12*
WBT	2	3400	440	.13	590	.17
WBR	d	1700	50	.03	70	.04
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.64**		**.62**

90. Bushard St & Yorktown Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	100	.06	250	.15*
NBT	2	3400	730	.21*	740	.22
NBR	d	1700	210	.12	50	.03
SBL	1	1700	120	.07*	50	.03
SBT	2	3400	560	.16	580	.17*
SBR	d	1700	80	.05	130	.08
EBL	1	1700	120	.07	140	.08
EBT	2	3400	860	.25*	500	.15*
EBR	d	1700	160	.09	130	.08
WBL	1	1700	60	.04*	210	.12*
WBT	2	3400	470	.14	620	.18
WBR	d	1700	50	.03	70	.04
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .62 .64

91. Brookhurst St & Yorktown Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	60	.04	140	.08
NBT	3	5100	990	.19*	1500	.29*
NBR	d	1700	70	.04	100	.06
SBL	1	1700	50	.03*	80	.05*
SBT	3	5100	890	.17	1310	.26
SBR	d	1700	90	.05	200	.12
EBL	1	1700	180	.11*	210	.12*
EBT	2	3400	420	.12	290	.09
EBR	d	1700	130	.08	160	.09
WBL	1	1700	90	.05	140	.08
WBT	2	3400	190	.06*	330	.10*
WBR	d	1700	60	.04	40	.02
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.44**		**.61**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	70	.04	160	.09
NBT	3	5100	1420	.28*	1580	.31*
NBR	d	1700	100	.06	130	.08
SBL	1	1700	50	.03*	90	.05*
SBT	3	5100	860	.17	1310	.26
SBR	d	1700	150	.09	350	.21
EBL	1	1700	180	.11	230	.14*
EBT	2	3400	690	.20*	440	.13
EBR	d	1700	120	.07	90	.05
WBL	1	1700	120	.07*	290	.17
WBT	2	3400	330	.10	590	.17*
WBR	d	1700	60	.04	50	.03
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.63**		**.72**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	70	.04	150	.09
NBT	3	5100	1380	.27*	1770	.35*
NBR	d	1700	80	.05	130	.08
SBL	1	1700	50	.03*	90	.05*
SBT	3	5100	1000	.20	1420	.28
SBR	d	1700	160	.09	400	.24
EBL	1	1700	270	.16*	230	.14*
EBT	2	3400	470	.14	380	.11
EBR	d	1700	170	.10	160	.09
WBL	1	1700	90	.05	200	.12
WBT	2	3400	270	.08*	380	.11*
WBR	d	1700	60	.04	40	.02
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.59**		**.70**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	70	.04	150	.09
NBT	3	5100	1380	.27*	1790	.35*
NBR	d	1700	90	.05	110	.06
SBL	1	1700	50	.03*	80	.05*
SBT	3	5100	1000	.20	1410	.28
SBR	d	1700	160	.09	400	.24
EBL	1	1700	280	.16*	220	.13*
EBT	2	3400	490	.14	390	.11
EBR	d	1700	170	.10	140	.08
WBL	1	1700	100	.06	190	.11
WBT	2	3400	260	.08*	390	.11*
WBR	d	1700	70	.04	40	.02
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.59**		**.69**

91. Brookhurst St & Yorktown Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	70	.04	150	.09
NBT	3	5100	1380	.27*	1730	.34*
NBR	d	1700	80	.05	110	.06
SBL	1	1700	50	.03*	80	.05*
SBT	3	5100	930	.18	1390	.27
SBR	d	1700	190	.11	450	.26
EBL	1	1700	260	.15*	210	.12
EBT	2	3400	510	.15	400	.12*
EBR	d	1700	170	.10	170	.10
WBL	1	1700	100	.06	200	.12*
WBT	2	3400	250	.07*	390	.11
WBR	d	1700	70	.04	40	.02
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.57**		**.68**

93. Delaware St & Adams Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	60	.04	40	.02
NBT	2	3400	120	.07*	100	.05*
NBR	0	0	140	.08	80	
SBL	1	1700	90	.05*	60	.04*
SBT	2	3400	100	.05	110	.05
SBR	0	0	70		50	
EBL	1	1700	40	.02	40	.02*
EBT	2	3400	840	.25*	580	.17
EBR	d	1700	30	.02	40	.02
WBL	1	1700	20	.01*	100	.06
WBT	2	3400	420	.12	860	.25*
WBR	d	1700	30	.02	70	.04
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.43**		**.41**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	60	.04	50	.03*
NBT	2	3400	170	.10*	100	.06
NBR	0	0	190	.11	100	
SBL	1	1700	100	.06*	70	.04
SBT	2	3400	110	.06	180	.07*
SBR	0	0	80		60	
EBL	1	1700	40	.02	50	.03*
EBT	2	3400	980	.29*	720	.21
EBR	d	1700	50	.03	60	.04
WBL	1	1700	20	.01*	100	.06
WBT	2	3400	470	.14	1070	.31*
WBR	d	1700	50	.03	90	.05
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.51**		**.49**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	60	.04	70	.04*
NBT	2	3400	170	.10*	110	.06
NBR	0	0	190	.11	120	.07
SBL	1	1700	110	.06*	70	.04
SBT	2	3400	110	.06	200	.08*
SBR	0	0	80		70	
EBL	1	1700	40	.02	50	.03*
EBT	2	3400	1090	.32*	750	.22
EBR	d	1700	60	.04	90	.05
WBL	1	1700	20	.01*	100	.06
WBT	2	3400	560	.16	1160	.34*
WBR	d	1700	60	.04	80	.05
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.54**		**.54**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	50	.03	50	.03
NBT	2	3400	150	.09*	110	.06*
NBR	0	0	180	.11	130	.08
SBL	1	1700	110	.06*	80	.05*
SBT	2	3400	120	.06	180	.08
SBR	0	0	80		80	
EBL	1	1700	40	.02	50	.03*
EBT	2	3400	1040	.31*	740	.22
EBR	d	1700	50	.03	60	.04
WBL	1	1700	20	.01*	100	.06
WBT	2	3400	550	.16	1120	.33*
WBR	d	1700	50	.03	90	.05
Right Turn Adjustment			NBR	.01*		
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.53**		**.52**

93. Delaware St & Adams Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	50	.03	50	.03*
NBT	2	3400	160	.09*	110	.06
NBR	0	0	190	.11	140	.08
SBL	1	1700	110	.06*	70	.04
SBT	2	3400	120	.06	190	.08*
SBR	0	0	80		70	
EBL	1	1700	40	.02	50	.03*
EBT	2	3400	1050	.31*	740	.22
EBR	d	1700	50	.03	70	.04
WBL	1	1700	20	.01*	100	.06
WBT	2	3400	560	.16	1120	.33*
WBR	d	1700	50	.03	90	.05
Right Turn Adjustment			NBR	.01*		
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .53 .52

94. Beach Blvd & Adams Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	140	.08
NBT	3	5100	820	.20*	1090	.24*
NBR	0	0	200		120	
SBL	2	3400	280	.08*	360	.11*
SBT	3	5100	960	.20	1160	.26
SBR	0	0	70		160	
EBL	1	1700	160	.09	140	.08*
EBT	3	5100	940	.19*	530	.12
EBR	0	0	50		60	
WBL	1	1700	80	.05*	190	.11
WBT	2	3400	380	.11	930	.27*
WBR	1	1700	290	.17	370	.22
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .57 .75

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	60	.04	250	.15*
NBT	3	5100	790	.23*	1110	.25
NBR	0	0	430	.25	170	
SBL	2	3400	280	.08*	350	.10
SBT	3	5100	910	.19	1160	.27*
SBR	0	0	70		200	
EBL	1	1700	220	.13	130	.08*
EBT	3	5100	1070	.22*	700	.15
EBR	0	0	40		80	
WBL	1	1700	80	.05*	330	.19
WBT	2	3400	490	.14	940	.28*
WBR	1	1700	330	.19	410	.24
Right Turn Adjustment			WBR	.01*		
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .64 .83

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	90	.05	290	.17*
NBT	3	5100	800	.24*	1100	.25
NBR	0	0	460	.27	200	
SBL	2	3400	290	.09*	360	.11
SBT	3	5100	980	.21	1200	.27*
SBR	0	0	70		180	
EBL	1	1700	230	.14*	140	.08*
EBT	3	5100	1170	.24	750	.16
EBR	0	0	50		70	
WBL	1	1700	80	.05	340	.20
WBT	2	3400	570	.17*	1000	.29*
WBR	1	1700	350	.21	470	.28
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .69 .86

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	300	.18*
NBT	3	5100	740	.22*	1100	.26
NBR	0	0	420	.25	210	
SBL	2	3400	340	.10*	350	.10
SBT	3	5100	1010	.21	1150	.26*
SBR	0	0	80		180	
EBL	1	1700	250	.15*	150	.09*
EBT	3	5100	1090	.22	740	.16
EBR	0	0	50		70	
WBL	1	1700	80	.05	320	.19
WBT	2	3400	550	.16*	960	.28*
WBR	1	1700	310	.18	530	.31
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .68 .86

94. Beach Blvd & Adams Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	70	.04	280	.16*
NBT	3	5100	740	.22*	1110	.25
NBR	0	0	440	.26	190	
SBL	2	3400	340	.10*	360	.11
SBT	3	5100	1000	.21	1130	.26*
SBR	0	0	80		190	
EBL	1	1700	250	.15*	150	.09*
EBT	3	5100	1110	.23	750	.16
EBR	0	0	50		60	
WBL	1	1700	80	.05	340	.20
WBT	2	3400	570	.17*	980	.29*
WBR	1	1700	310	.18	500	.29
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .69 .85

95. Newland St & Adams Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	80	.05
NBT	2	3400	440	.13*	570	.17*
NBR	d	1700	120	.07	80	.05
SBL	1	1700	160	.09*	150	.09*
SBT	2	3400	460	.14	470	.14
SBR	d	1700	50	.03	90	.05
EBL	1	1700	60	.04	80	.05*
EBT	3	5100	1430	.28*	850	.17
EBR	d	1700	90	.05	110	.06
WBL	1	1700	40	.02*	120	.07
WBT	3	5100	550	.11	1460	.29*
WBR	d	1700	130	.08	270	.16
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .57 .65

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	150	.09*	80	.05
NBT	2	3400	440	.13	560	.16*
NBR	d	1700	190	.11	120	.07
SBL	1	1700	170	.10	160	.09*
SBT	2	3400	560	.16*	490	.14
SBR	d	1700	50	.03	100	.06
EBL	1	1700	60	.04	80	.05*
EBT	3	5100	1690	.33*	1120	.22
EBR	d	1700	150	.09	140	.08
WBL	1	1700	40	.02*	140	.08
WBT	3	5100	700	.14	1750	.34*
WBR	d	1700	120	.07	250	.15
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .65 .69

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	160	.09*	90	.05
NBT	2	3400	510	.15	640	.19*
NBR	d	1700	160	.09	90	.05
SBL	1	1700	180	.11	160	.09*
SBT	2	3400	620	.18*	610	.18
SBR	d	1700	50	.03	70	.04
EBL	1	1700	50	.03	80	.05*
EBT	3	5100	1750	.34*	1210	.24
EBR	d	1700	160	.09	120	.07
WBL	1	1700	40	.02*	100	.06
WBT	3	5100	810	.16	1840	.36*
WBR	d	1700	130	.08	270	.16
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .68 .74

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	160	.09*	80	.05
NBT	2	3400	490	.14	650	.19*
NBR	d	1700	160	.09	100	.06
SBL	1	1700	180	.11	160	.09*
SBT	2	3400	640	.19*	590	.17
SBR	d	1700	50	.03	70	.04
EBL	1	1700	50	.03	80	.05*
EBT	3	5100	1740	.34*	1160	.23
EBR	d	1700	140	.08	110	.06
WBL	1	1700	40	.02*	110	.06
WBT	3	5100	700	.14	1800	.35*
WBR	d	1700	100	.06	280	.16
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .69 .73

95. Newland St & Adams Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	150	.09*	80	.05
NBT	2	3400	480	.14	600	.18*
NBR	d	1700	160	.09	110	.06
SBL	1	1700	180	.11	160	.09*
SBT	2	3400	630	.19*	580	.17
SBR	d	1700	50	.03	70	.04
EBL	1	1700	50	.03	80	.05*
EBT	3	5100	1760	.35*	1160	.23
EBR	d	1700	140	.08	100	.06
WBL	1	1700	40	.02*	120	.07
WBT	3	5100	720	.14	1790	.35*
WBR	d	1700	90	.05	310	.18
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .70 .72

96. Magnolia St & Adams Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08	190	.11
NBT	2	3400	670	.20*	660	.19*
NBR	d	1700	280	.16	130	.08
SBL	1	1700	240	.14*	280	.16*
SBT	2	3400	640	.19	690	.20
SBR	d	1700	60	.04	140	.08
EBL	1	1700	100	.06	120	.07*
EBT	3	5100	1560	.31*	850	.17
EBR	d	1700	80	.05	110	.06
WBL	1	1700	110	.06*	150	.09
WBT	3	5100	520	.10	1510	.30*
WBR	d	1700	120	.07	330	.19
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.76**		**.77**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	150	.09	170	.10
NBT	2	3400	740	.22*	680	.20*
NBR	d	1700	330	.19	140	.08
SBL	1	1700	240	.14*	290	.17*
SBT	2	3400	650	.19	700	.21
SBR	d	1700	60	.04	360	.21
EBL	1	1700	110	.06	110	.06
EBT	3	5100	1930	.38*	1160	.23*
EBR	d	1700	90	.05	90	.05
WBL	1	1700	120	.07*	360	.21*
WBT	3	5100	650	.13	1520	.30
WBR	d	1700	220	.13	330	.19
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.86**		**.86**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	200	.12	200	.12
NBT	2	3400	740	.22*	710	.21*
NBR	d	1700	310	.18	120	.07
SBL	1	1700	250	.15*	250	.15*
SBT	2	3400	700	.21	720	.21
SBR	d	1700	60	.04	380	.22
EBL	1	1700	120	.07	120	.07
EBT	3	5100	1950	.38*	1190	.23*
EBR	d	1700	100	.06	110	.06
WBL	1	1700	120	.07*	310	.18*
WBT	3	5100	740	.15	1520	.30
WBR	d	1700	250	.15	360	.21
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.87**		**.82**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	180	.11	210	.12
NBT	2	3400	730	.21*	690	.20*
NBR	d	1700	310	.18	110	.06
SBL	1	1700	250	.15*	240	.14*
SBT	2	3400	690	.20	730	.21
SBR	d	1700	60	.04	380	.22
EBL	1	1700	110	.06	150	.09
EBT	3	5100	1950	.38*	1150	.23*
EBR	d	1700	90	.05	110	.06
WBL	1	1700	120	.07*	300	.18*
WBT	3	5100	620	.12	1510	.30
WBR	d	1700	220	.13	360	.21
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.86**		**.80**

96. Magnolia St & Adams Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	180	.11	190	.11
NBT	2	3400	710	.21*	680	.20*
NBR	d	1700	320	.19	120	.07
SBL	1	1700	250	.15*	250	.15*
SBT	2	3400	670	.20	720	.21
SBR	d	1700	60	.04	360	.21
EBL	1	1700	100	.06	120	.07
EBT	3	5100	1980	.39*	1170	.23*
EBR	d	1700	90	.05	110	.06
WBL	1	1700	130	.08*	310	.18*
WBT	3	5100	620	.12	1570	.31
WBR	d	1700	250	.15	370	.22
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .88 .81

97. Bushard St & Adams Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	100	.06	100	.06
NBT	2	3400	360	.11*	430	.13*
NBR	d	1700	130	.08	60	.04
SBL	1	1700	160	.09*	100	.06*
SBT	2	3400	460	.14	250	.07
SBR	d	1700	60	.04	80	.05
EBL	1	1700	100	.06	90	.05*
EBT	3	5100	1500	.29*	800	.16
EBR	d	1700	110	.06	80	.05
WBL	1	1700	80	.05*	130	.08
WBT	3	5100	560	.11	1830	.36*
WBR	d	1700	70	.04	280	.16
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .59 .65

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	100	.06	110	.06
NBT	2	3400	440	.13*	510	.15*
NBR	d	1700	200	.12	70	.04
SBL	1	1700	170	.10*	180	.11*
SBT	2	3400	550	.16	340	.10
SBR	d	1700	70	.04	120	.07
EBL	1	1700	100	.06	110	.06*
EBT	3	5100	1860	.36*	1050	.21
EBR	d	1700	140	.08	100	.06
WBL	1	1700	100	.06*	180	.11
WBT	3	5100	820	.16	2060	.40*
WBR	d	1700	80	.05	260	.15
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .70 .77

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	120	.07	110	.06
NBT	2	3400	480	.14*	520	.15*
NBR	d	1700	150	.09	80	.05
SBL	1	1700	250	.15*	220	.13*
SBT	2	3400	560	.16	340	.10
SBR	d	1700	70	.04	100	.06
EBL	1	1700	120	.07	120	.07*
EBT	3	5100	1850	.36*	1020	.20
EBR	d	1700	150	.09	100	.06
WBL	1	1700	90	.05*	180	.11
WBT	3	5100	940	.18	2080	.41*
WBR	d	1700	80	.05	360	.21
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .75 .81

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	110	.06	110	.06
NBT	2	3400	490	.14*	530	.16*
NBR	d	1700	150	.09	70	.04
SBL	1	1700	250	.15*	230	.14*
SBT	2	3400	550	.16	330	.10
SBR	d	1700	60	.04	90	.05
EBL	1	1700	110	.06	120	.07*
EBT	3	5100	1880	.37*	970	.19
EBR	d	1700	150	.09	100	.06
WBL	1	1700	90	.05*	180	.11
WBT	3	5100	840	.16	2090	.41*
WBR	d	1700	90	.05	350	.21
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .76 .83

97. Bushard St & Adams Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	110	.06	110	.06
NBT	2	3400	480	.14*	490	.14*
NBR	d	1700	150	.09	70	.04
SBL	1	1700	270	.16*	220	.13*
SBT	2	3400	510	.15	320	.09
SBR	d	1700	70	.04	100	.06
EBL	1	1700	140	.08	130	.08*
EBT	3	5100	1900	.37*	1010	.20
EBR	d	1700	140	.08	100	.06
WBL	1	1700	90	.05*	180	.11
WBT	3	5100	860	.17	2140	.42*
WBR	d	1700	80	.05	380	.22
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.77**		**.82**

98. Brookhurst St & Adams Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	110	.03	280	.08
NBT	3	5100	720	.21*	1200	.27*
NBR	0	0	430	.25	180	
SBL	2	3400	490	.14*	420	.12*
SBT	3	5100	930	.20	1160	.26
SBR	0	0	110		150	
EBL	2	3400	180	.05	250	.07*
EBT	3	5100	2070	.41*	930	.18
EBR	1	1700	80	.05	90	.05
WBL	2	3400	200	.06*	350	.10
WBT	3	5100	480	.09	1790	.35*
WBR	1	1700	220	.13	360	.21
Right Turn Adjustment			NBR	.01*		
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .88 .86

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	140	.04	320	.09*
NBT	3	5100	930	.27*	1290	.30
NBR	0	0	510	.30	250	
SBL	2	3400	340	.10*	280	.08
SBT	3	5100	940	.21	1280	.31*
SBR	0	0	130		290	
EBL	2	3400	370	.11	360	.11*
EBT	3	5100	2220	.44*	1130	.22
EBR	1	1700	90	.05	100	.06
WBL	2	3400	220	.06*	410	.12
WBT	3	5100	570	.11	1960	.38*
WBR	1	1700	150	.09	180	.11
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .92 .94

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	140	.04	300	.09
NBT	3	5100	920	.27*	1430	.33*
NBR	0	0	510	.30	230	
SBL	2	3400	420	.12*	460	.14*
SBT	3	5100	1060	.23	1380	.30
SBR	0	0	130		170	
EBL	2	3400	230	.07	320	.09*
EBT	3	5100	2410	.47*	1210	.24
EBR	1	1700	80	.05	100	.06
WBL	2	3400	180	.05*	370	.11
WBT	3	5100	720	.14	2200	.43*
WBR	1	1700	250	.15	340	.20
Right Turn Adjustment			NBR	.01*		
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .97 1.04

2030 Proposed Roadway Plan (Rec. Lanes Opt. 1)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	140	.04	300	.09
NBT	4	6800	920	.14*	1430	.21*
NBR	1	1700	510	.30	230	.14
SBL	2	3400	420	.12*	460	.14*
SBT	4	6800	1060	.18	1380	.23
SBR	0	0	130		170	
EBL	2	3400	230	.07	320	.09*
EBT	4	6800	2410	.35*	1210	.18
EBR	1	1700	80	.05	100	.06
WBL	2	3400	180	.05*	370	.11
WBT	4	6800	720	.11	2200	.32*
WBR	1	1700	250	.15	340	.20
Right Turn Adjustment			NBR	.11*		
Clearance Interval				.05*		.05*

Note: Assumes Right-Turn Overlap for WBR NBR

TOTAL CAPACITY UTILIZATION .82 .81

98. Brookhurst St & Adams Ave

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	130	.04	300	.09
NBT	3	5100	910	.27*	1420	.32*
NBR	0	0	520	.31	230	
SBL	2	3400	440	.13*	430	.13*
SBT	3	5100	1060	.23	1360	.30
SBR	0	0	130		170	
EBL	2	3400	240	.07	330	.10*
EBT	3	5100	2420	.47*	1180	.23
EBR	1	1700	70	.04	90	.05
WBL	2	3400	200	.06*	380	.11
WBT	3	5100	640	.13	2210	.43*
WBR	1	1700	250	.15	350	.21
Right Turn Adjustment			NBR	.01*		
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .99 1.03

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	130	.04	290	.09
NBT	3	5100	850	.25*	1290	.31*
NBR	0	0	660	.39	290	
SBL	2	3400	490	.14*	480	.14*
SBT	3	5100	930	.21	1330	.29
SBR	0	0	130		160	
EBL	2	3400	240	.07	330	.10*
EBT	3	5100	2480	.49*	1210	.24
EBR	1	1700	70	.04	90	.05
WBL	2	3400	240	.07*	470	.14
WBT	3	5100	660	.13	2310	.45*
WBR	1	1700	280	.16	390	.23
Right Turn Adjustment			NBR	.10*		
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION 1.10 1.05

2030 Specific Plan w/Option 1 Mit

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3400	130	.04	300	.09
NBT	4	6800	910	.13*	1420	.21*
NBR	1	1700	520	.31	230	.14
SBL	2	3400	440	.13*	430	.13*
SBT	4	6800	1060	.18	1360	.23
SBR	0	0	130		170	
EBL	2	3400	240	.07	330	.10*
EBT	4	6800	2420	.36*	1180	.17
EBR	1	1700	70	.04	90	.05
WBL	2	3400	200	.06*	380	.11
WBT	4	6800	640	.09	2210	.33*
WBR	1	1700	250	.15	350	.21
Right Turn Adjustment			NBR	.12*		
Clearance Interval				.05*		.05*

Note: Assumes Right-Turn Overlap for WBR NBR

TOTAL CAPACITY UTILIZATION .85 .82

101. Beach Blvd & Indianapolis

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	0	.00	20	.01
NBT	3	5100	700	.14*	1010	.20*
NBR	0	0	30		20	
SBL	1	1700	230	.14*	200	.12*
SBT	3	5100	860	.17	890	.19
SBR	0	0	30		80	
EBL	1	1700	130	.08	80	.05*
EBT	1	1700	210	.14*	80	.06
EBR	0	0	30		20	
WBL	1	1700	30	.02*	20	.01
WBT	1	1700	100	.06	130	.08*
WBR	1	1700	220	.13	140	.08
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.49**		**.50**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	30	.02	20	.01
NBT	3	5100	710	.17*	1070	.22*
NBR	0	0	140		40	
SBL	1	1700	210	.12*	190	.11*
SBT	3	5100	830	.17	980	.21
SBR	0	0	40		90	
EBL	1	1700	240	.14*	90	.05*
EBT	1	1700	200	.15	100	.08
EBR	0	0	50		30	
WBL	1	1700	60	.04	50	.03
WBT	1	1700	140	.08*	190	.11*
WBR	1	1700	220	.13	100	.06
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.56**		**.54**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	30	.02	20	.01
NBT	3	5100	770	.18*	1080	.23*
NBR	0	0	160		70	
SBL	1	1700	230	.14*	210	.12*
SBT	3	5100	900	.18	1030	.22
SBR	0	0	40		90	
EBL	1	1700	220	.13*	90	.05*
EBT	1	1700	230	.15	120	.09
EBR	0	0	30		30	
WBL	1	1700	60	.04	60	.04
WBT	1	1700	170	.10*	230	.14*
WBR	1	1700	230	.14	160	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.60**		**.59**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	20	.01
NBT	3	5100	700	.17*	1120	.23*
NBR	0	0	180		60	
SBL	1	1700	240	.14*	200	.12*
SBT	3	5100	920	.19	1010	.22
SBR	0	0	40		100	
EBL	1	1700	260	.15*	90	.05*
EBT	1	1700	190	.13	110	.08
EBR	0	0	30		30	
WBL	1	1700	50	.03	60	.04
WBT	1	1700	170	.10*	210	.12*
WBR	1	1700	210	.12	160	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.61**		**.57**

101. Beach Blvd & Indianapolis

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	20	.01	20	.01
NBT	3	5100	730	.18*	1110	.23*
NBR	0	0	180		80	
SBL	1	1700	250	.15*	190	.11*
SBT	3	5100	890	.18	1000	.22
SBR	0	0	40		100	
EBL	1	1700	250	.15*	90	.05*
EBT	1	1700	220	.15	120	.09
EBR	0	0	30		30	
WBL	1	1700	60	.04	70	.04
WBT	1	1700	180	.11*	220	.13*
WBR	1	1700	200	.12	150	.09
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .64 .57

102. Newland St & Indianapolis

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	30	.02	60	.04
NBT	2	3400	330	.10*	530	.16*
NBR	d	1700	40	.02	20	.01
SBL	1	1700	80	.05*	60	.04*
SBT	2	3400	390	.11	370	.11
SBR	d	1700	80	.05	90	.05
EBL	1	1700	80	.05*	70	.04*
EBT	2	3400	310	.09	200	.06
EBR	d	1700	70	.04	30	.02
WBL	1	1700	20	.01	30	.02
WBT	1	1700	180	.11*	200	.12*
WBR	1	1700	80	.05	90	.05
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.36**		**.41**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	30	.02	60	.04
NBT	2	3400	490	.14*	630	.19*
NBR	d	1700	40	.02	30	.02
SBL	1	1700	200	.12*	90	.05*
SBT	2	3400	430	.13	430	.13
SBR	d	1700	110	.06	100	.06
EBL	1	1700	70	.04*	60	.04*
EBT	2	3400	400	.12	280	.08
EBR	d	1700	70	.04	30	.02
WBL	1	1700	20	.01	50	.03
WBT	1	1700	200	.12*	330	.19*
WBR	1	1700	80	.05	80	.05
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.47**		**.52**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	30	.02	120	.07
NBT	2	3400	490	.14*	630	.19*
NBR	d	1700	40	.02	30	.02
SBL	1	1700	260	.15*	120	.07*
SBT	2	3400	410	.12	440	.13
SBR	d	1700	110	.06	100	.06
EBL	1	1700	120	.07*	90	.05*
EBT	2	3400	410	.12	330	.10
EBR	d	1700	90	.05	30	.02
WBL	1	1700	20	.01	50	.03
WBT	1	1700	230	.14*	370	.22*
WBR	1	1700	80	.05	120	.07
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.55**		**.58**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	30	.02	120	.07
NBT	2	3400	480	.14*	630	.19*
NBR	d	1700	40	.02	30	.02
SBL	1	1700	260	.15*	100	.06*
SBT	2	3400	420	.12	440	.13
SBR	d	1700	120	.07	100	.06
EBL	1	1700	100	.06*	90	.05*
EBT	2	3400	400	.12	300	.09
EBR	d	1700	90	.05	30	.02
WBL	1	1700	20	.01	50	.03
WBT	1	1700	200	.12*	370	.22*
WBR	1	1700	80	.05	110	.06
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.52**		**.57**

102. Newland St & Indianapolis

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	30	.02	110	.06
NBT	2	3400	460	.14*	620	.18*
NBR	d	1700	60	.04	30	.02
SBL	1	1700	230	.14*	100	.06*
SBT	2	3400	420	.12	440	.13
SBR	d	1700	110	.06	100	.06
EBL	1	1700	110	.06*	90	.05*
EBT	2	3400	440	.13	330	.10
EBR	d	1700	90	.05	30	.02
WBL	1	1700	30	.02	60	.04
WBT	1	1700	220	.13*	390	.23*
WBR	1	1700	90	.05	90	.05
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.52**		**.57**

103. Magnolia St & Indianapolis

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	80	.05
NBT	2	3400	780	.23*	780	.23*
NBR	d	1700	140	.08	70	.04
SBL	1	1700	160	.09*	60	.04*
SBT	2	3400	820	.24	560	.16
SBR	d	1700	40	.02	70	.04
EBL	1	1700	100	.06	50	.03*
EBT	2	3400	690	.20*	140	.04
EBR	d	1700	40	.02	50	.03
WBL	1	1700	140	.08*	20	.01
WBT	2	3400	330	.10	190	.06*
WBR	d	1700	100	.06	80	.05
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.65**		**.41**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	40	.02
NBT	2	3400	890	.26*	800	.24*
NBR	d	1700	150	.09	90	.05
SBL	1	1700	200	.12*	60	.04*
SBT	2	3400	800	.24	640	.19
SBR	d	1700	70	.04	90	.05
EBL	1	1700	140	.08	50	.03*
EBT	2	3400	840	.25*	240	.07
EBR	d	1700	60	.04	80	.05
WBL	1	1700	240	.14*	30	.02
WBT	2	3400	300	.09	370	.11*
WBR	d	1700	100	.06	150	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.82**		**.47**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	90	.05
NBT	2	3400	940	.28*	830	.24*
NBR	d	1700	140	.08	60	.04
SBL	1	1700	160	.09*	60	.04*
SBT	2	3400	870	.26	640	.19
SBR	d	1700	90	.05	80	.05
EBL	1	1700	130	.08	60	.04*
EBT	2	3400	900	.26*	270	.08
EBR	d	1700	80	.05	120	.07
WBL	1	1700	200	.12*	30	.02
WBT	2	3400	320	.09	380	.11*
WBR	d	1700	100	.06	150	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.80**		**.48**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	90	.05
NBT	2	3400	920	.27*	830	.24*
NBR	d	1700	140	.08	70	.04
SBL	1	1700	160	.09*	70	.04*
SBT	2	3400	880	.26	630	.19
SBR	d	1700	70	.04	80	.05
EBL	1	1700	120	.07	50	.03*
EBT	2	3400	900	.26*	250	.07
EBR	d	1700	80	.05	110	.06
WBL	1	1700	210	.12*	30	.02
WBT	2	3400	310	.09	380	.11*
WBR	d	1700	90	.05	140	.08
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.79**		**.47**

103. Magnolia St & Indianapolis

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	80	.05
NBT	2	3400	900	.26*	780	.23*
NBR	d	1700	140	.08	70	.04
SBL	1	1700	180	.11*	60	.04*
SBT	2	3400	840	.25	630	.19
SBR	d	1700	80	.05	80	.05
EBL	1	1700	130	.08	60	.04*
EBT	2	3400	950	.28*	270	.08
EBR	d	1700	70	.04	120	.07
WBL	1	1700	200	.12*	30	.02
WBT	2	3400	330	.10	400	.12*
WBR	d	1700	90	.05	150	.09
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .82 .48

104. Bushard St & Indianapolis

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05*	40	.02
NBT	2	3400	330	.10	420	.12*
NBR	d	1700	40	.02	20	.01
SBL	1	1700	80	.05	40	.02*
SBT	2	3400	440	.13*	380	.11
SBR	d	1700	120	.07	100	.06
EBL	1	1700	230	.14*	80	.05*
EBT	2	3400	440	.13	200	.06
EBR	d	1700	210	.12	50	.03
WBL	1	1700	70	.04	20	.01
WBT	2	3400	270	.08*	210	.06*
WBR	d	1700	40	.02	40	.02
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.45**		**.30**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	140	.08	50	.03
NBT	2	3400	400	.12*	450	.13*
NBR	d	1700	40	.02	20	.01
SBL	1	1700	150	.09*	80	.05*
SBT	2	3400	450	.13	420	.12
SBR	d	1700	170	.10	220	.13
EBL	1	1700	300	.18*	130	.08*
EBT	2	3400	530	.16	270	.08
EBR	d	1700	230	.14	60	.04
WBL	1	1700	70	.04	20	.01
WBT	2	3400	290	.09*	420	.12*
WBR	d	1700	40	.02	60	.04
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.53**		**.43**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08*	50	.03
NBT	2	3400	430	.13	480	.14*
NBR	d	1700	40	.02	20	.01
SBL	1	1700	160	.09	70	.04*
SBT	2	3400	460	.14*	410	.12
SBR	d	1700	150	.09	230	.14
EBL	1	1700	280	.16*	130	.08*
EBT	2	3400	560	.16	270	.08
EBR	d	1700	240	.14	60	.04
WBL	1	1700	70	.04	20	.01
WBT	2	3400	260	.08*	410	.12*
WBR	d	1700	40	.02	50	.03
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.51**		**.43**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	130	.08*	50	.03
NBT	2	3400	430	.13	480	.14*
NBR	d	1700	40	.02	20	.01
SBL	1	1700	160	.09	70	.04*
SBT	2	3400	460	.14*	420	.12
SBR	d	1700	150	.09	220	.13
EBL	1	1700	280	.16*	130	.08*
EBT	2	3400	550	.16	260	.08
EBR	d	1700	240	.14	60	.04
WBL	1	1700	70	.04	20	.01
WBT	2	3400	260	.08*	420	.12*
WBR	d	1700	40	.02	60	.04
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.51**		**.43**

104. Bushard St & Indianapolis

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	120	.07*	50	.03
NBT	2	3400	420	.12	430	.13*
NBR	d	1700	40	.02	20	.01
SBL	1	1700	110	.06	60	.04*
SBT	2	3400	450	.13*	420	.12
SBR	d	1700	160	.09	230	.14
EBL	1	1700	280	.16*	140	.08*
EBT	2	3400	650	.19	300	.09
EBR	d	1700	220	.13	50	.03
WBL	1	1700	70	.04	20	.01
WBT	2	3400	280	.08*	450	.13*
WBR	d	1700	40	.02	60	.04
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.49**		**.43**

105. Brookhurst & Indianapolis

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05*	90	.05*
NBT	3	5100	930	.18	1230	.24
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	5100	640	.16*	1180	.25*
SBR	0	0	160		80	
EBL	2	3400	340	.10*	170	.05*
EBT	0	0	0		0	
EBR	1	1700	80	.05	30	.02
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.36**		**.40**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05	160	.09*
NBT	3	5100	1210	.24*	1320	.26
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	5100	680	.18	1350	.30*
SBR	0	0	220		160	
EBL	2	3400	370	.11*	230	.07*
EBT	0	0	0		0	
EBR	1	1700	210	.12	50	.03
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.40**		**.51**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	90	.05*	160	.09*
NBT	3	5100	1170	.23	1430	.28
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	5100	770	.19*	1380	.30*
SBR	0	0	200		160	
EBL	2	3400	380	.11*	230	.07*
EBT	0	0	0		0	
EBR	1	1700	230	.14	50	.03
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.40**		**.51**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	80	.05*	170	.10*
NBT	3	5100	1180	.23	1410	.28
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	5100	780	.19*	1360	.30*
SBR	0	0	200		160	
EBL	2	3400	370	.11*	230	.07*
EBT	0	0	0		0	
EBR	1	1700	240	.14	50	.03
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.40**		**.52**

105. Brookhurst & Indianapolis

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	90	.05	170	.10*
NBT	3	5100	1180	.23*	1290	.25
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	5100	670	.17	1360	.30*
SBR	0	0	210		190	
EBL	2	3400	420	.12*	260	.08*
EBT	0	0	0		0	
EBR	1	1700	210	.12	40	.02
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.40**		**.53**

107. Delaware St & Atlanta Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10		10	
NBT	1	1700	10	.01*	10	.01*
NBR	f		20		20	
SBL	1	1700	60	.04*	60	.04*
SBT	1	1700	10	.01	10	.01
SBR	1	1700	20	.01	20	.01
EBL	1	1700	10	.01	20	.01
EBT	1	1700	390	.24*	300	.18*
EBR	0	0	10		10	
WBL	1	1700	10	.01*	30	.02*
WBT	2	3400	310	.09	480	.14
WBR	1	1700	30	.02	80	.05
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.35**		**.30**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10		10	
NBT	1	1700	10	.01*	10	.01*
NBR	f		20		20	
SBL	1	1700	70	.04*	100	.06*
SBT	1	1700	10	.01	10	.01
SBR	1	1700	60	.04	60	.04
EBL	1	1700	20	.01	20	.01
EBT	2	3400	700	.21*	610	.18*
EBR	0	0	10		10	
WBL	1	1700	10	.01*	30	.02*
WBT	2	3400	460	.14	640	.19
WBR	1	1700	50	.03	120	.07
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.32**		**.32**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10		10	
NBT	1	1700	10	.01*	10	.01*
NBR	f		20		20	
SBL	1	1700	100	.06*	100	.06*
SBT	1	1700	10	.01	10	.01
SBR	1	1700	50	.03	50	.03
EBL	1	1700	20	.01	20	.01*
EBT	2	3400	790	.24*	680	.20
EBR	0	0	10		10	
WBL	1	1700	10	.01*	30	.02
WBT	2	3400	530	.16	800	.24*
WBR	1	1700	50	.03	160	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.37**		**.37**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10		10	
NBT	1	1700	10	.01*	10	.01*
NBR	f		20		20	
SBL	1	1700	100	.06*	100	.06*
SBT	1	1700	10	.01	10	.01
SBR	1	1700	60	.04	50	.03
EBL	1	1700	20	.01	10	.01*
EBT	2	3400	770	.23*	690	.21
EBR	0	0	10		10	
WBL	1	1700	10	.01*	30	.02
WBT	2	3400	550	.16	780	.23*
WBR	1	1700	40	.02	160	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.36**		**.36**

107. Delaware St & Atlanta Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10		10	
NBT	1	1700	10	.01*	10	.01*
NBR	f		20		20	
SBL	1	1700	90	.05*	100	.06*
SBT	1	1700	10	.01	10	.01
SBR	1	1700	60	.04	50	.03
EBL	1	1700	20	.01	10	.01*
EBT	2	3400	820	.24*	720	.21
EBR	0	0	10		10	
WBL	1	1700	10	.01*	30	.02
WBT	2	3400	570	.17	830	.24*
WBR	1	1700	40	.02	160	.09
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .36 .37

108. Beach Blvd & Atlanta Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01	80	.05
NBT	3	5100	370	.08*	890	.19*
NBR	0	0	60		90	
SBL	1	1700	270	.16*	370	.22*
SBT	3	5100	620	.14	500	.12
SBR	0	0	80		120	
EBL	1	1700	100	.06	100	.06*
EBT	2	3400	420	.14*	300	.10
EBR	0	0	40		30	
WBL	1	1700	50	.03*	40	.02
WBT	2	3400	350	.10	460	.14*
WBR	d	1700	270	.16	260	.15
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .46 .66

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	90	.05
NBT	3	5100	410	.09*	900	.19*
NBR	0	0	70		70	
SBL	1	1700	310	.18*	450	.26*
SBT	3	5100	540	.14	450	.12
SBR	0	0	180		170	
EBL	1	1700	160	.09	210	.12*
EBT	2	3400	550	.21*	420	.15
EBR	0	0	180		100	
WBL	1	1700	10	.01*	20	.01
WBT	2	3400	420	.12	620	.18*
WBR	d	1700	250	.15	280	.16
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .54 .80

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	100	.06
NBT	3	5100	440	.10*	960	.20*
NBR	0	0	60		80	
SBL	1	1700	300	.18*	460	.27*
SBT	3	5100	610	.15	500	.13
SBR	0	0	170		170	
EBL	1	1700	180	.11	220	.13*
EBT	2	3400	750	.25*	560	.18
EBR	0	0	90		40	
WBL	1	1700	60	.04*	40	.02
WBT	2	3400	500	.15	790	.23*
WBR	d	1700	290	.17	270	.16
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .62 .88

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	100	.06
NBT	3	5100	410	.09*	940	.20*
NBR	0	0	60		80	
SBL	1	1700	290	.17*	460	.27*
SBT	3	5100	630	.16	480	.12
SBR	0	0	170		150	
EBL	1	1700	180	.11	240	.14*
EBT	2	3400	740	.24*	540	.17
EBR	0	0	80		40	
WBL	1	1700	60	.04*	40	.02
WBT	2	3400	520	.15	790	.23*
WBR	d	1700	270	.16	280	.16
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .59 .89

108. Beach Blvd & Atlanta Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	20	.01	90	.05
NBT	3	5100	430	.10*	950	.21*
NBR	0	0	70		100	
SBL	1	1700	260	.15*	430	.25*
SBT	3	5100	640	.16	500	.13
SBR	0	0	170		150	
EBL	1	1700	180	.11	240	.14*
EBT	2	3400	770	.25*	570	.18
EBR	0	0	80		30	
WBL	1	1700	50	.03*	40	.02
WBT	2	3400	540	.16	830	.24*
WBR	d	1700	260	.15	270	.16
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .58 .89

109. Newland St & Atlanta Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	120	.07*	250	.15*
NBT	2	3400	240	.07	450	.13
NBR	d	1700	40	.02	40	.02
SBL	1	1700	130	.08	70	.04
SBT	2	3400	350	.10*	260	.08*
SBR	d	1700	50	.03	80	.05
EBL	1	1700	30	.02	60	.04*
EBT	2	3400	590	.17*	450	.13
EBR	d	1700	140	.08	130	.08
WBL	1	1700	30	.02*	70	.04
WBT	2	3400	400	.12	510	.15*
WBR	d	1700	80	.05	110	.06
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.41**		**.47**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	110	.06	130	.08
NBT	2	3400	280	.08*	490	.14*
NBR	d	1700	60	.04	50	.03
SBL	1	1700	160	.09*	120	.07*
SBT	2	3400	340	.10	220	.06
SBR	d	1700	90	.05	140	.08
EBL	1	1700	50	.03	90	.05*
EBT	2	3400	750	.22*	560	.16
EBR	d	1700	110	.06	120	.07
WBL	1	1700	40	.02*	140	.08
WBT	2	3400	320	.09	650	.19*
WBR	d	1700	150	.09	120	.07
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.46**		**.50**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	250	.15*	340	.20*
NBT	2	3400	290	.09	480	.14
NBR	d	1700	50	.03	40	.02
SBL	1	1700	140	.08	100	.06
SBT	2	3400	380	.11*	310	.09*
SBR	d	1700	80	.05	110	.06
EBL	1	1700	50	.03	90	.05
EBT	2	3400	890	.26*	660	.19*
EBR	d	1700	150	.09	180	.11
WBL	1	1700	30	.02*	150	.09*
WBT	2	3400	350	.10	650	.19
WBR	d	1700	160	.09	200	.12
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.59**		**.62**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	250	.15*	330	.19*
NBT	2	3400	290	.09	490	.14
NBR	d	1700	50	.03	40	.02
SBL	1	1700	140	.08	80	.05
SBT	2	3400	380	.11*	310	.09*
SBR	d	1700	90	.05	130	.08
EBL	1	1700	60	.04	90	.05
EBT	2	3400	880	.26*	650	.19*
EBR	d	1700	160	.09	170	.10
WBL	1	1700	40	.02*	140	.08*
WBT	2	3400	350	.10	650	.19
WBR	d	1700	140	.08	200	.12
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.59**		**.60**

109. Newland St & Atlanta Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	180	.11*	300	.18*
NBT	2	3400	300	.09	490	.14
NBR	d	1700	40	.02	40	.02
SBL	1	1700	140	.08	90	.05
SBT	2	3400	390	.11*	270	.08*
SBR	d	1700	90	.05	130	.08
EBL	1	1700	60	.04	80	.05
EBT	2	3400	900	.26*	680	.20*
EBR	d	1700	140	.08	170	.10
WBL	1	1700	30	.02*	150	.09*
WBT	2	3400	410	.12	710	.21
WBR	d	1700	110	.06	160	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.55**		**.60**

110. Magnolia St & Atlanta Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	110	.06*	160	.09
NBT	2	3400	450	.13	520	.15*
NBR	d	1700	140	.08	80	.05
SBL	1	1700	100	.06	120	.07*
SBT	2	3400	570	.17*	330	.10
SBR	d	1700	90	.05	120	.07
EBL	1	1700	130	.08	110	.06*
EBT	2	3400	520	.15*	340	.10
EBR	d	1700	150	.09	80	.05
WBL	1	1700	140	.08*	80	.05
WBT	2	3400	370	.11	440	.13*
WBR	d	1700	140	.08	140	.08
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.51**		**.46**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	100	.06*	90	.05
NBT	2	3400	480	.14	490	.14*
NBR	d	1700	220	.13	70	.04
SBL	1	1700	120	.07	130	.08*
SBT	2	3400	660	.19*	390	.11
SBR	d	1700	130	.08	280	.16
EBL	1	1700	170	.10	180	.11*
EBT	2	3400	700	.21*	470	.14
EBR	d	1700	80	.05	80	.05
WBL	1	1700	150	.09*	130	.08
WBT	2	3400	370	.11	600	.18*
WBR	d	1700	190	.11	160	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.60**		**.56**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	110	.06*	140	.08
NBT	2	3400	610	.18	620	.18*
NBR	d	1700	210	.12	90	.05
SBL	1	1700	110	.06	120	.07*
SBT	2	3400	730	.21*	440	.13
SBR	d	1700	120	.07	270	.16
EBL	1	1700	120	.07	140	.08*
EBT	2	3400	740	.22*	490	.14
EBR	d	1700	210	.12	180	.11
WBL	1	1700	150	.09*	110	.06
WBT	2	3400	380	.11	650	.19*
WBR	d	1700	150	.09	130	.08
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.63**		**.57**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	110	.06*	140	.08
NBT	2	3400	590	.17	630	.19*
NBR	d	1700	200	.12	80	.05
SBL	1	1700	120	.07	120	.07*
SBT	2	3400	730	.21*	440	.13
SBR	d	1700	120	.07	260	.15
EBL	1	1700	130	.08	120	.07*
EBT	2	3400	750	.22*	490	.14
EBR	d	1700	200	.12	180	.11
WBL	1	1700	150	.09*	110	.06
WBT	2	3400	370	.11	650	.19*
WBR	d	1700	140	.08	130	.08
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.63**		**.57**

110. Magnolia St & Atlanta Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	120	.07*	170	.10
NBT	2	3400	540	.16	530	.16*
NBR	d	1700	220	.13	80	.05
SBL	1	1700	110	.06	130	.08*
SBT	2	3400	680	.20*	420	.12
SBR	d	1700	100	.06	280	.16
EBL	1	1700	140	.08	140	.08*
EBT	2	3400	770	.23*	540	.16
EBR	d	1700	170	.10	140	.08
WBL	1	1700	150	.09*	120	.07
WBT	2	3400	400	.12	630	.19*
WBR	d	1700	170	.10	160	.09
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .64 .56

111. Bushard St & Atlanta Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	70	.04*	100	.06*
NBT	2	3400	270	.08	300	.09
NBR	d	1700	20	.01	20	.01
SBL	1	1700	60	.04	30	.02
SBT	2	3400	460	.19*	210	.09*
SBR	0	0	170		100	
EBL	1	1700	120	.07	60	.04*
EBT	2	3400	580	.17*	360	.11
EBR	d	1700	80	.05	50	.03
WBL	1	1700	30	.02*	50	.03
WBT	2	3400	300	.09	390	.11*
WBR	d	1700	50	.03	50	.03
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.47**		**.35**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	90	.05*	110	.06*
NBT	2	3400	320	.09	320	.09
NBR	d	1700	20	.01	30	.02
SBL	1	1700	60	.04	40	.02
SBT	2	3400	450	.19*	280	.11*
SBR	0	0	190		110	
EBL	1	1700	150	.09	70	.04*
EBT	2	3400	790	.23*	470	.14
EBR	d	1700	80	.05	20	.01
WBL	1	1700	30	.02*	50	.03
WBT	2	3400	270	.08	590	.17*
WBR	d	1700	50	.03	50	.03
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.54**		**.43**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	90	.05*	140	.08*
NBT	2	3400	330	.10	350	.10
NBR	d	1700	20	.01	20	.01
SBL	1	1700	60	.04	40	.02
SBT	2	3400	480	.20*	300	.12*
SBR	0	0	200		100	
EBL	1	1700	180	.11	80	.05*
EBT	2	3400	780	.23*	470	.14
EBR	d	1700	80	.05	60	.04
WBL	1	1700	30	.02*	40	.02
WBT	2	3400	230	.07	580	.17*
WBR	d	1700	50	.03	50	.03
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.55**		**.47**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	90	.05*	140	.08*
NBT	2	3400	330	.10	350	.10
NBR	d	1700	20	.01	30	.02
SBL	1	1700	60	.04	40	.02
SBT	2	3400	480	.20*	310	.12*
SBR	0	0	200		90	
EBL	1	1700	160	.09	70	.04*
EBT	2	3400	800	.24*	460	.14
EBR	d	1700	80	.05	60	.04
WBL	1	1700	30	.02*	40	.02
WBT	2	3400	240	.07	590	.17*
WBR	d	1700	50	.03	50	.03
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.56**		**.46**

111. Bushard St & Atlanta Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	80	.05*	120	.07*
NBT	2	3400	320	.09	300	.09
NBR	d	1700	20	.01	30	.02
SBL	1	1700	60	.04	40	.02
SBT	2	3400	450	.19*	280	.11*
SBR	0	0	190		80	
EBL	1	1700	150	.09	60	.04*
EBT	2	3400	840	.25*	520	.15
EBR	d	1700	80	.05	60	.04
WBL	1	1700	30	.02*	50	.03
WBT	2	3400	300	.09	620	.18*
WBR	d	1700	50	.03	50	.03
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .56 .45

112. Brookhurst St & Atlanta

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	60	.04*	150	.09*
NBT	3	5100	790	.16	990	.20
NBR	0	0	20		40	
SBL	1	1700	20	.01	20	.01
SBT	3	5100	720	.16*	690	.17*
SBR	0	0	120		180	
EBL	1	1700	280	.16*	200	.12*
EBT	2	3400	30	.01	20	.01
EBR	d	1700	260	.15	100	.06
WBL	1	1700	30	.02	20	.01
WBT	2	3400	30	.01*	30	.01*
WBR	d	1700	10	.01	10	.01
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.42**		**.44**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	90	.05*	320	.19*
NBT	3	5100	920	.18	1070	.22
NBR	0	0	20		40	
SBL	1	1700	20	.01	20	.01
SBT	3	5100	880	.19*	780	.19*
SBR	0	0	70		190	
EBL	1	1700	430	.25*	240	.14*
EBT	2	3400	20	.01	20	.01
EBR	d	1700	320	.19	220	.13
WBL	1	1700	30	.02	10	.01
WBT	2	3400	40	.01*	30	.01*
WBR	d	1700	10	.01	10	.01
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.55**		**.58**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	60	.04*	310	.18*
NBT	3	5100	940	.19	1210	.25
NBR	0	0	20		60	
SBL	1	1700	20	.01	20	.01
SBT	3	5100	990	.22*	820	.20*
SBR	0	0	110		180	
EBL	1	1700	380	.22*	240	.14*
EBT	2	3400	40	.01	20	.01
EBR	d	1700	380	.22	220	.13
WBL	1	1700	30	.02	40	.02
WBT	2	3400	40	.01*	30	.01*
WBR	d	1700	10	.01	10	.01
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.54**		**.58**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	60	.04*	310	.18*
NBT	3	5100	940	.19	1210	.25
NBR	0	0	20		60	
SBL	1	1700	20	.01	20	.01
SBT	3	5100	1020	.22*	810	.19*
SBR	0	0	110		180	
EBL	1	1700	380	.22*	230	.14*
EBT	2	3400	50	.01	30	.01
EBR	d	1700	390	.23	220	.13
WBL	1	1700	30	.02	40	.02
WBT	2	3400	40	.01*	30	.01*
WBR	d	1700	10	.01	10	.01
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.54**		**.57**

112. Brookhurst St & Atlanta

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	90	.05*	320	.19*
NBT	3	5100	890	.18	1030	.21
NBR	0	0	20		50	
SBL	1	1700	20	.01	20	.01
SBT	3	5100	840	.19*	740	.19*
SBR	0	0	130		210	
EBL	1	1700	400	.24*	250	.15*
EBT	2	3400	50	.01	30	.01
EBR	d	1700	410	.24	260	.15
WBL	1	1700	30	.02	30	.02
WBT	2	3400	40	.01*	30	.01*
WBR	d	1700	10	.01	10	.01
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .54 .59

115. Newland St & Hamilton Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1700	160	.09*	340	.20*
NBR	d	1700	80	.05	60	.04
SBL	1	1700	350	.21*	220	.13*
SBT	1	1700	280	.16	220	.13
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1700	100	.06*	100	.06*
WBT	0	0	0		0	
WBR	1	1700	190	.11	420	.25
Right Turn Adjustment					WBR	.12*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .41 .56

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1700	180	.11*	350	.21*
NBR	d	1700	100	.06	10	.01
SBL	1	1700	350	.21*	140	.08*
SBT	1	1700	290	.17	270	.16
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1700	10	.01*	10	.01*
WBT	0	0	0		0	
WBR	1	1700	170	.10	340	.20
Right Turn Adjustment					WBR	.15*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .38 .50

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1700	190	.11*	410	.24*
NBR	d	1700	190	.11	60	.04
SBL	1	1700	380	.22*	270	.16*
SBT	1	1700	350	.21	320	.19
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1700	80	.05*	100	.06*
WBT	0	0	0		0	
WBR	1	1700	310	.18	530	.31
Right Turn Adjustment			WBR	.02*	WBR	.17*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .45 .68

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1700	190	.11*	420	.25*
NBR	d	1700	190	.11	60	.04
SBL	1	1700	380	.22*	280	.16*
SBT	1	1700	350	.21	320	.19
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1700	80	.05*	110	.06*
WBT	0	0	0		0	
WBR	1	1700	310	.18	530	.31
Right Turn Adjustment			WBR	.02*	WBR	.17*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .45 .69

115. Newland St & Hamilton Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1700	170	.10*	420	.25*
NBR	d	1700	210	.12	100	.06
SBL	1	1700	360	.21*	240	.14*
SBT	1	1700	360	.21	310	.18
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1700	190	.11*	160	.09*
WBT	0	0	0		0	
WBR	1	1700	250	.15	490	.29
Right Turn Adjustment					WBR	.13*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .47 .66

116. Magnolia St & Hamilton Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	20	.01
NBT	2	3400	260	.08*	340	.10*
NBR	d	1700	60	.04	30	.02
SBL	1	1700	180	.11*	200	.12*
SBT	2	3400	290	.09	200	.06
SBR	1	1700	40	.02	30	.02
EBL	1	1700	90	.05	20	.01*
EBT	1	1700	330	.21*	230	.15
EBR	0	0	30		30	
WBL	1	1700	40	.02*	40	.02
WBT	1	1700	240	.14	530	.31*
WBR	1	1700	300	.18	340	.20
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .47 .59

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	20	.01
NBT	2	3400	330	.10*	350	.10*
NBR	d	1700	130	.08	50	.03
SBL	1	1700	90	.05*	140	.08*
SBT	2	3400	300	.09	310	.09
SBR	1	1700	90	.05	100	.06
EBL	1	1700	130	.08	20	.01*
EBT	1	1700	750	.48*	570	.36
EBR	0	0	60		40	
WBL	1	1700	40	.02*	40	.02
WBT	1	1700	550	.32	1030	.61*
WBR	1	1700	290	.17	150	.09
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .70 .85

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	20	.01
NBT	2	3400	280	.08*	350	.10*
NBR	d	1700	130	.08	60	.04
SBL	1	1700	290	.17*	320	.19*
SBT	2	3400	360	.11	300	.09
SBR	1	1700	50	.03	30	.02
EBL	1	1700	190	.11*	10	.01*
EBT	1	1700	380	.24	220	.16
EBR	0	0	30		50	
WBL	1	1700	40	.02	40	.02
WBT	1	1700	300	.18*	670	.39*
WBR	1	1700	420	.25	420	.25
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .59 .74

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	20	.01
NBT	2	3400	270	.08*	350	.10*
NBR	d	1700	130	.08	60	.04
SBL	1	1700	280	.16*	320	.19*
SBT	2	3400	360	.11	300	.09
SBR	1	1700	60	.04	30	.02
EBL	1	1700	190	.11*	10	.01*
EBT	1	1700	380	.24	220	.16
EBR	0	0	30		50	
WBL	1	1700	40	.02	40	.02
WBT	1	1700	300	.18*	670	.39*
WBR	1	1700	380	.22	430	.25
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .58 .74

116. Magnolia St & Hamilton Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	10	.01	20	.01
NBT	2	3400	270	.08*	370	.11*
NBR	d	1700	140	.08	90	.05
SBL	1	1700	240	.14*	300	.18*
SBT	2	3400	300	.09	250	.07
SBR	1	1700	60	.04	30	.02
EBL	1	1700	210	.12*	10	.01*
EBT	1	1700	360	.22	240	.16
EBR	0	0	20		30	
WBL	1	1700	40	.02	40	.02
WBT	1	1700	360	.21*	680	.40*
WBR	1	1700	340	.20	340	.20
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .60 .75

117. Bushard St & Hamilton Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	60	.04*	40	.02*
NBT	0	0	180		250	
NBR	1	1700	40	.02	30	.02
SBL	1	1700	180	.11	100	.06
SBT	2	3400	290	.09*	160	.05*
SBR	d	1700	120	.07	20	.01
EBL	1	1700	50	.03	40	.02*
EBT	2	3400	550	.17*	380	.12
EBR	0	0	40		30	
WBL	1	1700	50	.03*	50	.03
WBT	2	3400	410	.12	880	.26*
WBR	d	1700	80	.05	160	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.38**		**.40**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	160	.09*	130	.08*
NBT	0	0	210		300	
NBR	1	1700	40	.02	30	.02
SBL	1	1700	90	.05	100	.06
SBT	2	3400	340	.10*	240	.07*
SBR	d	1700	140	.08	40	.02
EBL	1	1700	70	.04	60	.04*
EBT	2	3400	850	.26*	600	.19
EBR	0	0	20		30	
WBL	1	1700	50	.03*	50	.03
WBT	2	3400	570	.17	960	.28*
WBR	d	1700	60	.04	160	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.53**		**.52**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	160	.09*	140	.08*
NBT	0	0	210		320	
NBR	1	1700	40	.02	30	.02
SBL	1	1700	210	.12	90	.05
SBT	2	3400	360	.11*	240	.07*
SBR	d	1700	120	.07	20	.01
EBL	1	1700	60	.04	40	.02*
EBT	2	3400	690	.22*	480	.15
EBR	0	0	70		30	
WBL	1	1700	50	.03*	50	.03
WBT	2	3400	470	.14	850	.25*
WBR	d	1700	110	.06	160	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.50**		**.47**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	150	.09*	150	.09*
NBT	0	0	210		330	
NBR	1	1700	40	.02	30	.02
SBL	1	1700	210	.12	100	.06
SBT	2	3400	360	.11*	240	.07*
SBR	d	1700	110	.06	20	.01
EBL	1	1700	60	.04	40	.02*
EBT	2	3400	680	.22*	480	.15
EBR	0	0	60		40	
WBL	1	1700	50	.03*	50	.03
WBT	2	3400	470	.14	840	.25*
WBR	d	1700	100	.06	160	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.50**		**.48**

117. Bushard St & Hamilton Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	80	.05*	50	.03*
NBT	0	0	190		250	
NBR	1	1700	50	.03	30	.02
SBL	1	1700	190	.11	100	.06
SBT	2	3400	330	.10*	220	.06*
SBR	d	1700	120	.07	30	.02
EBL	1	1700	70	.04	40	.02*
EBT	2	3400	710	.22*	560	.17
EBR	0	0	50		30	
WBL	1	1700	50	.03*	50	.03
WBT	2	3400	590	.17	940	.28*
WBR	d	1700	90	.05	170	.10
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .45 .44

118. Brookhurst & Hamilton

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	50	.03	70	.04
NBT	3	5100	490	.10*	680	.13*
NBR	1	1700	360	.21	170	.10
SBL	2	3400	600	.18*	360	.11*
SBT	3	5100	560	.14	390	.10
SBR	0	0	140		100	
EBL	1	1700	100	.06	120	.07*
EBT	2	3400	700	.21*	330	.10
EBR	d	1700	50	.03	70	.04
WBL	1	1700	100	.06*	240	.14
WBT	2	3400	310	.09	1060	.31*
WBR	1	1700	260	.15	600	.35
Right Turn Adjustment			NBR	.08*		
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .68 .67

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	50	.03	70	.04
NBT	3	5100	580	.11*	780	.15*
NBR	1	1700	140	.08	110	.06
SBL	2	3400	630	.19*	370	.11*
SBT	3	5100	810	.18	580	.13
SBR	0	0	120		60	
EBL	1	1700	120	.07	120	.07*
EBT	2	3400	890	.26*	520	.15
EBR	d	1700	60	.04	90	.05
WBL	1	1700	40	.02*	140	.08
WBT	2	3400	490	.14	1040	.31*
WBR	1	1700	330	.19	790	.46
Right Turn Adjustment					WBR	.09*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .63 .78

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	50	.03	70	.04
NBT	3	5100	580	.11*	930	.18*
NBR	1	1700	190	.11	130	.08
SBL	2	3400	760	.22*	400	.12*
SBT	3	5100	840	.19	610	.14
SBR	0	0	150		100	
EBL	1	1700	110	.06	120	.07*
EBT	2	3400	760	.22*	420	.12
EBR	d	1700	60	.04	80	.05
WBL	1	1700	80	.05*	150	.09
WBT	2	3400	390	.11	960	.28*
WBR	1	1700	330	.19	850	.50
Right Turn Adjustment					WBR	.16*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .65 .86

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	50	.03	70	.04
NBT	3	5100	580	.11*	940	.18*
NBR	1	1700	200	.12	140	.08
SBL	2	3400	770	.23*	390	.11*
SBT	3	5100	850	.20	590	.14
SBR	0	0	160		100	
EBL	1	1700	110	.06	120	.07*
EBT	2	3400	760	.22*	410	.12
EBR	d	1700	50	.03	80	.05
WBL	1	1700	70	.04*	150	.09
WBT	2	3400	390	.11	960	.28*
WBR	1	1700	320	.19	870	.51
Right Turn Adjustment					WBR	.17*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .65 .86

118. Brookhurst & Hamilton

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	50	.03	70	.04
NBT	3	5100	520	.10*	700	.14*
NBR	1	1700	360	.21	240	.14
SBL	2	3400	910	.27*	450	.13*
SBT	3	5100	600	.15	480	.12
SBR	0	0	150		110	
EBL	1	1700	120	.07	130	.08*
EBT	2	3400	790	.23*	480	.14
EBR	d	1700	50	.03	70	.04
WBL	1	1700	110	.06*	280	.16
WBT	2	3400	540	.16	1120	.33*
WBR	1	1700	360	.21	890	.52
Right Turn Adjustment			NBR	.08*	WBR	.12*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.79**		**.85**

119. Magnolia St & Banning Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	2	3400	160	.05*	320	.09*
NBR	d	1700	30	.02	50	.03
SBL	1	1700	80	.05*	100	.06*
SBT	2	3400	230	.07	170	.05
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3400	60	.02*	20	.01*
WBT	0	0	0		0	
WBR	1	1700	140	.08	80	.05
Right Turn Adjustment			WBR	.03*	WBR	.01*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .20 .22

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	2	3400	180	.05*	300	.09*
NBR	d	1700	70	.04	40	.02
SBL	1	1700	170	.10*	140	.08*
SBT	2	3400	200	.06	220	.06
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3400	160	.05*	10	.00
WBT	0	0	0		0	
WBR	1	1700	150	.09	130	.08
Right Turn Adjustment					WBR	.04*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .25 .26

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	2	3400	200	.06*	300	.09*
NBR	d	1700	50	.03	50	.03
SBL	1	1700	210	.12*	200	.12*
SBT	2	3400	220	.06	240	.07
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3400	190	.06*	30	.01*
WBT	0	0	0		0	
WBR	1	1700	150	.09	110	.06
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .29 .27

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	2	3400	200	.06*	310	.09*
NBR	d	1700	30	.02	50	.03
SBL	1	1700	210	.12*	200	.12*
SBT	2	3400	220	.06	240	.07
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3400	180	.05*	30	.01*
WBT	0	0	0		0	
WBR	1	1700	150	.09	100	.06
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .28 .27

119. Magnolia St & Banning Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	2	3400	190	.06*	350	.10*
NBR	d	1700	30	.02	60	.04
SBL	1	1700	90	.05*	110	.06*
SBT	2	3400	260	.08	250	.07
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3400	80	.02*	40	.01*
WBT	0	0	0		0	
WBR	1	1700	140	.08	80	.05
Right Turn Adjustment			WBR	.03*	WBR	.01*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .21 .23

120. Bushard St & Banning Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01*	30	.02
NBT	2	3400	100	.04	230	.07*
NBR	0	0	40		10	
SBL	1	1700	10	.01	10	.01*
SBT	2	3400	180	.09*	130	.05
SBR	0	0	110		30	
EBL	1	1700	40	.02*	30	.02*
EBT	1	1700	80	.06	50	.04
EBR	0	0	30		20	
WBL	1	1700	20	.01	20	.01
WBT	1	1700	80	.06*	60	.05*
WBR	0	0	30		20	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.23**		**.20**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01*	10	.01
NBT	2	3400	90	.04	230	.07*
NBR	0	0	40		10	
SBL	1	1700	20	.01	40	.02*
SBT	2	3400	200	.10*	140	.05
SBR	0	0	130		40	
EBL	1	1700	30	.02*	10	.01*
EBT	1	1700	310	.19	120	.08
EBR	0	0	10		10	
WBL	1	1700	10	.01	10	.01
WBT	1	1700	220	.22*	120	.18*
WBR	0	0	150		190	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.40**		**.33**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01*	30	.02
NBT	2	3400	100	.04	240	.07*
NBR	0	0	50		10	
SBL	1	1700	40	.02	40	.02*
SBT	2	3400	220	.10*	150	.06
SBR	0	0	130		60	
EBL	1	1700	40	.02*	30	.02*
EBT	1	1700	290	.18	130	.09
EBR	0	0	10		30	
WBL	1	1700	30	.02	30	.02
WBT	1	1700	230	.24*	130	.21*
WBR	0	0	170		230	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.42**		**.37**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01*	30	.02
NBT	2	3400	100	.04	260	.08*
NBR	0	0	50		10	
SBL	1	1700	30	.02	40	.02*
SBT	2	3400	220	.10*	150	.06
SBR	0	0	130		60	
EBL	1	1700	40	.02*	30	.02*
EBT	1	1700	280	.17	130	.09
EBR	0	0	10		30	
WBL	1	1700	30	.02	30	.02
WBT	1	1700	220	.22*	130	.21*
WBR	0	0	160		230	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.40**		**.38**

120. Bushard St & Banning Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	20	.01*	40	.02
NBT	2	3400	100	.04	240	.07*
NBR	0	0	40		10	
SBL	1	1700	10	.01	20	.01*
SBT	2	3400	210	.10*	150	.06
SBR	0	0	120		60	
EBL	1	1700	40	.02	50	.03*
EBT	1	1700	90	.07*	60	.05
EBR	0	0	30		30	
WBL	1	1700	30	.02*	30	.02
WBT	1	1700	80	.06	70	.05*
WBR	0	0	30		20	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .25 .21

121. Brookhurst St & Banning

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01*	10	.01
NBT	3	5100	480	.09	730	.14*
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	5100	510	.10*	380	.07
SBR	d	1700	80	.05	100	.06
EBL	1	1700	120	.07*	50	.03*
EBT	0	0	0		0	
EBR	1	1700	10	.01	10	.01
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .23 .22

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01*	10	.01
NBT	3	5100	360	.07	650	.13*
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	5100	480	.09*	380	.07
SBR	d	1700	50	.03	10	.01
EBL	1	1700	40	.02*	10	.01*
EBT	0	0	0		0	
EBR	1	1700	10	.01	10	.01
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .17 .19

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01*	10	.01
NBT	3	5100	440	.09	710	.14*
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	5100	510	.10*	410	.08
SBR	d	1700	50	.03	50	.03
EBL	1	1700	40	.02*	10	.01*
EBT	0	0	0		0	
EBR	1	1700	10	.01	10	.01
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .18 .20

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01*	10	.01
NBT	3	5100	430	.08	700	.14*
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	5100	510	.10*	400	.08
SBR	d	1700	50	.03	40	.02
EBL	1	1700	40	.02*	10	.01*
EBT	0	0	0		0	
EBR	1	1700	10	.01	10	.01
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .18 .20

121. Brookhurst St & Banning

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01*	10	.01
NBT	3	5100	470	.09	740	.15*
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	5100	520	.10*	470	.09
SBR	d	1700	80	.05	120	.07
EBL	1	1700	140	.08*	60	.04*
EBT	0	0	0		0	
EBR	1	1700	10	.01	10	.01
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .24 .24

122. Seapoint Ave & Palm Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01*	10	.01
NBT	2	3400	140	.04	300	.09*
NBR	1	1700	20	.01	40	.02
SBL	1	1700	50	.03	60	.04*
SBT	2	3400	280	.08*	180	.05
SBR	1	1700	10	.01	10	.01
EBL	0	0	10		0	
EBT	1	1700	10	.02*	10	.01*
EBR	0	0	10		10	
WBL	1	1700	70	.04*	40	.02*
WBT	1	1700	10	.01	10	.01
WBR	1	1700	40	.02	50	.03
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.20**		**.21**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01*	10	.01
NBT	2	3400	390	.11	610	.18*
NBR	1	1700	30	.02	100	.06
SBL	1	1700	50	.03	60	.04*
SBT	2	3400	480	.14*	640	.19
SBR	1	1700	10	.01	10	.01
EBL	0	0	10		10	
EBT	1	1700	10	.02*	10	.02*
EBR	0	0	10		10	
WBL	1	1700	160	.09*	50	.03*
WBT	1	1700	10	.01	10	.01
WBR	1	1700	40	.02	50	.03
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.31**		**.32**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01*	10	.01*
NBT	2	3400	360	.11	420	.12
NBR	1	1700	30	.02	120	.07
SBL	1	1700	50	.03	60	.04
SBT	2	3400	460	.14*	550	.16*
SBR	1	1700	10	.01	10	.01
EBL	0	0	10		10	
EBT	1	1700	10	.02*	10	.02*
EBR	0	0	10		10	
WBL	1	1700	160	.09*	50	.03*
WBT	1	1700	10	.01	10	.01
WBR	1	1700	40	.02	50	.03
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.31**		**.27**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01*	10	.01*
NBT	2	3400	320	.09	420	.12
NBR	1	1700	30	.02	110	.06
SBL	1	1700	50	.03	50	.03
SBT	2	3400	480	.14*	540	.16*
SBR	1	1700	10	.01	10	.01
EBL	0	0	10		10	
EBT	1	1700	10	.02*	10	.02*
EBR	0	0	10		10	
WBL	1	1700	160	.09*	50	.03*
WBT	1	1700	10	.01	10	.01
WBR	1	1700	40	.02	50	.03
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.31**		**.27**

122. Seapoint Ave & Palm Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	10	.01*	10	.01*
NBT	2	3400	330	.10	420	.12
NBR	1	1700	30	.02	120	.07
SBL	1	1700	50	.03	50	.03
SBT	2	3400	490	.14*	540	.16*
SBR	1	1700	10	.01	10	.01
EBL	0	0	10		10	
EBT	1	1700	10	.02*	10	.02*
EBR	0	0	10		10	
WBL	1	1700	150	.09*	50	.03*
WBT	1	1700	10	.01	10	.01
WBR	1	1700	40	.02	50	.03
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .31 .27

123. Goldenwest St & Palm Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	30	.02
NBT	3	5100	540	.11*	680	.13*
NBR	d	1700	30	.02	20	.01
SBL	1	1700	240	.14*	150	.09*
SBT	3	5100	530	.10	570	.11
SBR	d	1700	70	.04	120	.07
EBL	1	1700	110	.06*	100	.06*
EBT	1	1700	120	.07	40	.02
EBR	1	1700	50	.03	20	.01
WBL	1	1700	30	.02	20	.01
WBT	1	1700	90	.05*	60	.04*
WBR	d	1700	300	.18	160	.09
Right Turn Adjustment			WBR	.06*		
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.47**		**.37**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	30	.02	40	.02
NBT	3	5100	880	.17*	1070	.21*
NBR	d	1700	10	.01	30	.02
SBL	1	1700	210	.12*	140	.08*
SBT	3	5100	920	.18	990	.19
SBR	d	1700	90	.05	170	.10
EBL	1	1700	180	.11*	170	.10*
EBT	1	1700	80	.05	30	.02
EBR	1	1700	60	.04	30	.02
WBL	1	1700	20	.01	10	.01
WBT	1	1700	160	.09*	40	.02*
WBR	d	1700	340	.20	180	.11
Right Turn Adjustment			WBR	.05*	WBR	.05*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.59**		**.51**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	30	.02	40	.02
NBT	3	5100	800	.16*	1090	.21*
NBR	d	1700	50	.03	30	.02
SBL	1	1700	270	.16*	230	.14*
SBT	3	5100	770	.15	870	.17
SBR	d	1700	80	.05	160	.09
EBL	1	1700	150	.09*	160	.09*
EBT	1	1700	120	.07	60	.04
EBR	1	1700	60	.04	30	.02
WBL	1	1700	40	.02	140	.08
WBT	1	1700	190	.11*	70	.04*
WBR	d	1700	390	.23	220	.13
Right Turn Adjustment			WBR	.04*	WBR	.02*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.61**		**.55**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	30	.02	40	.02
NBT	3	5100	790	.15*	1090	.21*
NBR	d	1700	50	.03	30	.02
SBL	1	1700	280	.16*	220	.13*
SBT	3	5100	780	.15	870	.17
SBR	d	1700	80	.05	150	.09
EBL	1	1700	150	.09*	160	.09*
EBT	1	1700	120	.07	60	.04
EBR	1	1700	60	.04	30	.02
WBL	1	1700	50	.03	130	.08
WBT	1	1700	190	.11*	60	.04*
WBR	d	1700	370	.22	220	.13
Right Turn Adjustment			WBR	.03*	WBR	.02*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.59**		**.54**

123. Goldenwest St & Palm Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	40	.02
NBT	3	5100	790	.15*	1090	.21*
NBR	d	1700	40	.02	30	.02
SBL	1	1700	280	.16*	210	.12*
SBT	3	5100	780	.15	890	.17
SBR	d	1700	80	.05	160	.09
EBL	1	1700	150	.09*	160	.09*
EBT	1	1700	120	.07	60	.04
EBR	1	1700	60	.04	30	.02
WBL	1	1700	50	.03	140	.08
WBT	1	1700	180	.11*	60	.04*
WBR	d	1700	380	.22	220	.13
Right Turn Adjustment			WBR	.03*	WBR	.03*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.59**		**.54**

124. Goldenwest St & Orange Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01	10	.01
NBT	3	5100	450	.09*	560	.11*
NBR	d	1700	20	.01	20	.01
SBL	1	1700	120	.07*	150	.09*
SBT	3	5100	470	.09	320	.06
SBR	d	1700	40	.02	50	.03
EBL	0	0	50		40	{.02}*
EBT	1	1700	40	.05*	10	.03
EBR	d	1700	20	.01	10	.01
WBL	0	0	30	{.02}*	20	
WBT	1	1700	10	.02	10	.02*
WBR	d	1700	80	.05	70	.04
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.28**		**.29**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01	10	.01
NBT	3	5100	750	.15*	900	.18*
NBR	d	1700	20	.01	10	.01
SBL	1	1700	80	.05*	130	.08*
SBT	3	5100	880	.17	720	.14
SBR	d	1700	60	.04	50	.03
EBL	0	0	80		60	{.04}*
EBT	1	1700	30	.06*	10	.04
EBR	d	1700	10	.01	10	.01
WBL	0	0	10	{.01}*	30	
WBT	1	1700	10	.01	10	.02*
WBR	d	1700	90	.05	70	.04
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.32**		**.37**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	10	.01
NBT	3	5100	700	.14*	880	.17*
NBR	d	1700	30	.02	30	.02
SBL	1	1700	190	.11*	170	.10*
SBT	3	5100	650	.13	690	.14
SBR	d	1700	50	.03	50	.03
EBL	0	0	70		50	
EBT	1	1700	40	.06*	20	.04*
EBR	d	1700	20	.01	10	.01
WBL	0	0	90	{.05}*	30	{.02}*
WBT	1	1700	10	.06	10	.02
WBR	d	1700	110	.06	100	.06
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.41**		**.38**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	10	.01
NBT	3	5100	690	.14*	880	.17*
NBR	d	1700	30	.02	40	.02
SBL	1	1700	180	.11*	180	.11*
SBT	3	5100	670	.13	680	.13
SBR	d	1700	50	.03	50	.03
EBL	0	0	70		50	
EBT	1	1700	40	.06*	20	.04*
EBR	d	1700	20	.01	10	.01
WBL	0	0	80	{.05}*	30	{.02}*
WBT	1	1700	10	.05	10	.02
WBR	d	1700	110	.06	100	.06
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.41**		**.39**

124. Goldenwest St & Orange Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	10	.01
NBT	3	5100	680	.13*	870	.17*
NBR	d	1700	30	.02	40	.02
SBL	1	1700	180	.11*	180	.11*
SBT	3	5100	670	.13	700	.14
SBR	d	1700	50	.03	50	.03
EBL	0	0	70		50	
EBT	1	1700	40	.06*	20	.04*
EBR	d	1700	20	.01	10	.01
WBL	0	0	80	{.05}*	30	{.02}*
WBT	1	1700	10	.05	10	.02
WBR	d	1700	110	.06	110	.06
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .40 .39

125. Seapoint Ave & PCH

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3400	90	.03*	20	.01*
SBT	0	0	0		0	
SBR	1	1700	260	.15	110	.06
EBL	1	1700	140	.08	220	.13*
EBT	2	3400	1980	.58*	1370	.40
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	1340	.39	1560	.46*
WBR	d	1700	20	.01	80	.05
Right Turn Adjustment			SBR	.02*		
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .68 .65

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3400	100	.03*	30	.01*
SBT	0	0	0		0	
SBR	1	1700	380	.22	280	.16
EBL	1	1700	280	.16	330	.19*
EBT	2	3400	2260	.66*	1590	.47
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	1530	.45	1950	.57*
WBR	d	1700	30	.02	100	.06
Right Turn Adjustment			SBR	.08*	SBR	.05*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .82 .87

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3400	90	.03*	30	.01*
SBT	0	0	0		0	
SBR	1	1700	440	.26	270	.16
EBL	1	1700	220	.13	380	.22*
EBT	2	3400	2170	.64*	1390	.41
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	1350	.40	1780	.52*
WBR	d	1700	30	.02	90	.05
Right Turn Adjustment			SBR	.11*	SBR	.04*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .83 .84

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3400	100	.03*	30	.01*
SBT	0	0	0		0	
SBR	1	1700	450	.26	260	.15
EBL	1	1700	200	.12	380	.22*
EBT	2	3400	2160	.64*	1390	.41
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	1360	.40	1760	.52*
WBR	d	1700	30	.02	90	.05
Right Turn Adjustment			SBR	.11*	SBR	.03*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .83 .83

125. Seapoint Ave & PCH

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3400	100	.03*	30	.01*
SBT	0	0	0		0	
SBR	1	1700	450	.26	260	.15
EBL	1	1700	190	.11	390	.23*
EBT	2	3400	2150	.63*	1380	.41
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	1360	.40	1760	.52*
WBR	d	1700	30	.02	90	.05
Right Turn Adjustment			SBR	.11*	SBR	.02*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .82 .83

126. Goldenwest St & PCH

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1700	0	.00*	0	.00*
NBR	0	0	0		0	
SBL	2	3400	350	.10*	300	.09*
SBT	0	0	0		0	
SBR	1	1700	230	.14	260	.15
EBL	1	1700	340	.20*	540	.32*
EBT	2	3400	1760	.52	1660	.49
EBR	0	0	0		0	
WBL	1	1700	20	.01	10	.01
WBT	2	3400	1330	.39*	1530	.45*
WBR	1	1700	180	.11	280	.16
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .74 .91

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1700	0	.00*	0	.00*
NBR	0	0	0		0	
SBL	2	3400	730	.21*	730	.21*
SBT	0	0	0		0	
SBR	1	1700	160	.09	260	.15
EBL	1	1700	310	.18*	390	.23*
EBT	2	3400	2260	.66	2380	.70
EBR	0	0	0		0	
WBL	1	1700	20	.01	10	.01
WBT	2	3400	1860	.55*	2170	.64*
WBR	1	1700	480	.28	690	.41
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .99 1.13

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1700	0	.00*	0	.00*
NBR	0	0	0		0	
SBL	2	3400	330	.10*	330	.10*
SBT	0	0	0		0	
SBR	1	1700	430	.25	590	.35
EBL	1	1700	480	.28*	760	.45*
EBT	2	3400	1970	.58	2040	.60
EBR	0	0	0		0	
WBL	1	1700	20	.01	10	.01
WBT	2	3400	1490	.44*	1760	.52*
WBR	1	1700	260	.15	320	.19
Right Turn Adjustment			SBR	.01*	SBR	.02*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .88 1.14

2030 Proposed Roadway Plan (Rec. Lanes Opt. 1)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1700	0	.00*	0	.00*
NBR	0	0	0		0	
SBL	2	3400	330	.10*	330	.10*
SBT	0	0	0		0	
SBR	1	1700	430	.25	590	.35
EBL	2	3400	480	.14	760	.22*
EBT	2	3400	1970	.58*	2040	.60
EBR	0	0	0		0	
WBL	1	1700	20	.01*	10	.01
WBT	2	3400	1490	.44	1760	.52*
WBR	1	1700	260	.15	320	.19
Right Turn Adjustment					SBR	.03*
Clearance Interval				.05*		.05*

Note: Assumes Right-Turn Overlap for SBR

TOTAL CAPACITY UTILIZATION .74 .92

126. Goldenwest St & PCH

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1700	0	.00*	0	.00*
NBR	0	0	0		0	
SBL	2	3400	330	.10*	340	.10*
SBT	0	0	0		0	
SBR	1	1700	430	.25	570	.34
EBL	1	1700	470	.28*	790	.46*
EBT	2	3400	1970	.58	2020	.59
EBR	0	0	0		0	
WBL	1	1700	20	.01	10	.01
WBT	2	3400	1500	.44*	1770	.52*
WBR	1	1700	250	.15	310	.18
Right Turn Adjustment			SBR	.01*	SBR	.01*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .88 1.14

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1700	0	.00*	0	.00*
NBR	0	0	0		0	
SBL	2	3400	340	.10*	350	.10*
SBT	0	0	0		0	
SBR	1	1700	420	.25	560	.33
EBL	1	1700	470	.28*	790	.46*
EBT	2	3400	1950	.57	1990	.59
EBR	0	0	0		0	
WBL	1	1700	20	.01	10	.01
WBT	2	3400	1500	.44*	1770	.52*
WBR	1	1700	240	.14	290	.17
Right Turn Adjustment			SBR	.01*		
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .88 1.13

2030 Specific Plan w/Option 1 Mit

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1700	0	.00*	0	.00*
NBR	0	0	0		0	
SBL	2	3400	330	.10*	340	.10*
SBT	0	0	0		0	
SBR	1	1700	430	.25	570	.34
EBL	2	3400	470	.14	790	.23*
EBT	2	3400	1970	.58*	2020	.59
EBR	0	0	0		0	
WBL	1	1700	20	.01*	10	.01
WBT	2	3400	1500	.44	1770	.52*
WBR	1	1700	250	.15	310	.18
Right Turn Adjustment					SBR	.01*
Clearance Interval				.05*		.05*

Note: Assumes Right-Turn Overlap for SBR

TOTAL CAPACITY UTILIZATION .74 .91

127. 17th & PCH

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1700	120	.07*	40	.02*
SBT	0	0	0		0	
SBR	1	1700	140	.08	110	.06
EBL	1	1700	130	.08	110	.06*
EBT	2	3400	2160	.64*	1230	.36
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	1110	.33	1660	.49*
WBR	d	1700	60	.04	50	.03
Right Turn Adjustment					SBR	.01*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .76 .63

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1700	100	.06*	60	.04*
SBT	0	0	0		0	
SBR	1	1700	260	.15	250	.15
EBL	1	1700	220	.13	350	.21*
EBT	2	3400	2940	.86*	2070	.61
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	1870	.55	2670	.79*
WBR	d	1700	90	.05	70	.04
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .97 1.09

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1700	140	.08*	120	.07*
SBT	0	0	0		0	
SBR	1	1700	140	.08	120	.07
EBL	1	1700	160	.09	320	.19*
EBT	2	3400	2350	.69*	1430	.42
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	1430	.42	1990	.59*
WBR	d	1700	70	.04	50	.03
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .82 .90

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1700	140	.08*	120	.07*
SBT	0	0	0		0	
SBR	1	1700	140	.08	120	.07
EBL	1	1700	150	.09	310	.18*
EBT	2	3400	2350	.69*	1420	.42
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	1430	.42	1990	.59*
WBR	d	1700	60	.04	50	.03
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .82 .89

127. 17th & PCH

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1700	140	.08*	110	.06*
SBT	0	0	0		0	
SBR	1	1700	140	.08	120	.07
EBL	1	1700	150	.09	280	.16*
EBT	2	3400	2330	.69*	1440	.42
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3400	1420	.42	1980	.58*
WBR	d	1700	60	.04	50	.03
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.82**		**.85**

129. 6th & Pacific Coast Hwy

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10	{.01}*	20	{.01}*
NBT	1	1700	10	.02	20	.04
NBR	0	0	10		20	
SBL	1	1700	40	.02	20	.01
SBT	1	1700	10	.04*	10	.04*
SBR	0	0	60		60	
EBL	1	1700	40	.02	60	.04*
EBT	3	5100	2120	.42*	1050	.21
EBR	d	1700	10	.01	20	.01
WBL	1	1700	20	.01*	20	.01
WBT	3	5100	1080	.21	1960	.38*
WBR	d	1700	20	.01	50	.03
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .53 .52

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10		20	
NBT	1	1700	10	.02*	20	.04*
NBR	0	0	10		20	
SBL	1	1700	90	.05*	90	.05*
SBT	1	1700	10	.05	10	.06
SBR	0	0	80		100	
EBL	1	1700	90	.05	390	.23*
EBT	3	5100	2840	.56*	1600	.31
EBR	d	1700	10	.01	20	.01
WBL	1	1700	30	.02*	20	.01
WBT	3	5100	1710	.34	2960	.58*
WBR	d	1700	70	.04	120	.07
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .70 .95

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10		20	
NBT	1	1700	10	.02*	20	.04*
NBR	0	0	10		20	
SBL	1	1700	80	.05*	80	.05*
SBT	1	1700	10	.05	10	.05
SBR	0	0	70		70	
EBL	1	1700	70	.04	240	.14*
EBT	3	5100	2270	.45*	1170	.23
EBR	d	1700	10	.01	20	.01
WBL	1	1700	30	.02*	20	.01
WBT	3	5100	1300	.25	2260	.44*
WBR	d	1700	60	.04	100	.06
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .59 .72

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10		20	
NBT	1	1700	10	.02*	20	.04*
NBR	0	0	10		20	
SBL	1	1700	80	.05*	100	.06*
SBT	1	1700	10	.05	10	.05
SBR	0	0	70		70	
EBL	1	1700	60	.04	260	.15*
EBT	3	5100	2300	.45*	1140	.22
EBR	d	1700	10	.01	20	.01
WBL	1	1700	30	.02*	20	.01
WBT	3	5100	1300	.25	2270	.45*
WBR	d	1700	60	.04	110	.06
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .59 .75

129. 6th & Pacific Coast Hwy

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	0	0	10		20	
NBT	1	1700	10	.02*	20	.04*
NBR	0	0	10		20	
SBL	1	1700	80	.05*	80	.05*
SBT	1	1700	10	.05	10	.05
SBR	0	0	70		70	
EBL	1	1700	70	.04	250	.15*
EBT	3	5100	2250	.44*	1130	.22
EBR	d	1700	10	.01	20	.01
WBL	1	1700	30	.02*	20	.01
WBT	3	5100	1280	.25	2240	.44*
WBR	d	1700	60	.04	110	.06
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .58 .73

130. Main St & Pacific Coast

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1700	50	.03*	100	.06*
SBT	0	0	0		0	
SBR	1	1700	60	.04	80	.05
EBL	1	1700	50	.03	90	.05*
EBT	3	5100	2260	.44*	1140	.22
EBR	0	0	0		0	
WBL	1	1700	10	.01*	40	.02
WBT	3	5100	1460	.29	1600	.31*
WBR	1	1700	40	.02	120	.07
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION	**.53**	**.47**
Pedestrian Cycle Delay	**.27**	**.27**
Total ICU Value	**.80**	**.74**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1700	110	.06*	230	.14*
SBT	0	0	0		0	
SBR	1	1700	70	.04	80	.05
EBL	1	1700	100	.06	120	.07*
EBT	3	5100	2990	.59*	1690	.33
EBR	0	0	0		0	
WBL	1	1700	10	.01*	40	.02
WBT	3	5100	2210	.43	2530	.50*
WBR	1	1700	50	.03	230	.14
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION	**.71**	**.76**
Pedestrian Cycle Delay	**.27**	**.27**
Total ICU Value	**.98**	**1.03**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1700	100	.06*	220	.13*
SBT	0	0	0		0	
SBR	1	1700	70	.04	80	.05
EBL	1	1700	50	.03	90	.05*
EBT	3	5100	2500	.49*	1280	.25
EBR	0	0	0		0	
WBL	1	1700	10	.01*	40	.02
WBT	3	5100	1810	.35	2000	.39*
WBR	1	1700	50	.03	230	.14
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION	**.61**	**.62**
Pedestrian Cycle Delay	.27	.27
Total ICU Value	.88	.89

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1700	90	.05*	200	.12*
SBT	0	0	0		0	
SBR	1	1700	70	.04	80	.05
EBL	1	1700	70	.04	90	.05*
EBT	3	5100	2500	.49*	1270	.25
EBR	0	0	0		0	
WBL	1	1700	10	.01*	40	.02
WBT	3	5100	1830	.36	2020	.40*
WBR	1	1700	50	.03	190	.11
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION	**.60**	**.62**
Pedestrian Cycle Delay	.27	.27
Total ICU Value	.87	.89

130. Main St & Pacific Coast

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1700	80	.05*	190	.11*
SBT	0	0	0		0	
SBR	1	1700	70	.04	80	.05
EBL	1	1700	70	.04	90	.05*
EBT	3	5100	2430	.48*	1250	.25
EBR	0	0	0		0	
WBL	1	1700	10	.01*	40	.02
WBT	3	5100	1790	.35	1950	.38*
WBR	1	1700	50	.03	180	.11
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION	**.59**	**.59**
Pedestrian Cycle Delay	.27	.27
Total ICU Delay	.86	.86

133. 1st St & Pacific Coast Hwy

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		10		10	.01*
NBT	0.5	3400	0	.00	10	.01
NBR	1	1700	10	.01	20	.01
SBL	1.5		100		100	
SBT	0.5	3400	10	.03*	20	.04*
SBR	1	1700	130	.08	50	.03
EBL	1	1700	50	.03	160	.09*
EBT	3	5100	2300	.45*	1070	.21
EBR	d	1700	10	.01	20	.01
WBL	1	1700	10	.01*	20	.01
WBT	3	5100	910	.18	1580	.31*
WBR	d	1700	30	.02	80	.05
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .54 .50

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		10		10	.01*
NBT	0.5	3400	0	.00	10	.01
NBR	1	1700	10	.01	20	.01
SBL	1.5		320		180	
SBT	0.5	3400	10	.10*	20	.06*
SBR	1	1700	150	.09	200	.12
EBL	1	1700	50	.03	200	.12*
EBT	3	5100	2990	.59*	1620	.32
EBR	d	1700	10	.01	20	.01
WBL	1	1700	10	.01*	20	.01
WBT	3	5100	1370	.27	2390	.47*
WBR	d	1700	140	.08	250	.15
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .75 .71

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		10		10	.01*
NBT	0.5	3400	0	.00	10	.01
NBR	1	1700	10	.01	20	.01
SBL	1.5		220		110	
SBT	0.5	3400	10	.07*	20	.04*
SBR	1	1700	200	.12	200	.12
EBL	1	1700	100	.06	240	.14*
EBT	3	5100	2490	.49*	1220	.24
EBR	d	1700	10	.01	20	.01
WBL	1	1700	10	.01*	20	.01
WBT	3	5100	990	.19	1890	.37*
WBR	d	1700	110	.06	180	.11
Right Turn Adjustment					SBR	.01*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .62 .62

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		10		10	.01*
NBT	0.5	3400	0	.00	10	.01
NBR	1	1700	10	.01	20	.01
SBL	1.5		230		130	
SBT	0.5	3400	10	.07*	20	.04*
SBR	1	1700	210	.12	190	.11
EBL	1	1700	90	.05	220	.13*
EBT	3	5100	2470	.48*	1200	.24
EBR	d	1700	10	.01	20	.01
WBL	1	1700	10	.01*	20	.01
WBT	3	5100	990	.19	1880	.37*
WBR	d	1700	130	.08	200	.12
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .61 .60

133. 1st St & Pacific Coast Hwy

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		10		10	.01*
NBT	0.5	3400	0	.00	10	.01
NBR	1	1700	10	.01	20	.01
SBL	1.5		190		120	
SBT	0.5	3400	10	.06*	20	.04*
SBR	1	1700	230	.14	200	.12
EBL	1	1700	70	.04	250	.15*
EBT	3	5100	2380	.47*	1130	.22
EBR	d	1700	10	.01	20	.01
WBL	1	1700	10	.01*	20	.01
WBT	3	5100	950	.19	1790	.35*
WBR	d	1700	110	.06	160	.09
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.59**		**.60**

134. Huntington St & PCH

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0.5		10	{.01}*	10	{.01}*
NBT	1.5	3400	10	.01	10	.01
NBR	0		10		10	
SBL	1	1700	30	.02	10	.01
SBT	1	1700	0	.02*	0	.01*
SBR	0	0	40		20	
EBL	1	1700	20	.01	40	.02*
EBT	2	3400	2290	.67*	1260	.37
EBR	d	1700	10	.01	0	.00
WBL	1	1700	10	.01*	10	.01
WBT	2	3400	970	.29	1910	.56*
WBR	1	1700	20	.01	60	.04
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .76 .65

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0.5		10		10	{.01}*
NBT	1.5	3400	10	.01*	10	.01
NBR	0		10		10	
SBL	1	1700	60	.04*	20	.01
SBT	1	1700	0	.03	0	.02*
SBR	0	0	50		30	
EBL	1	1700	50	.03	60	.04*
EBT	2	3400	3190	.94*	1940	.57
EBR	d	1700	10	.01	0	.00
WBL	1	1700	10	.01*	10	.01
WBT	2	3400	1570	.46	2900	.85*
WBR	1	1700	40	.02	140	.08
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION 1.05 .97

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0.5		10		10	{.01}*
NBT	1.5	3400	10	.01*	10	.01
NBR	0		10		10	
SBL	1	1700	70	.04*	30	.02
SBT	1	1700	0	.03	0	.02*
SBR	0	0	50		30	
EBL	1	1700	10	.01	40	.02*
EBT	2	3400	2630	.77*	1500	.44
EBR	d	1700	10	.01	0	.00
WBL	1	1700	10	.01*	10	.01
WBT	2	3400	1150	.34	2310	.68*
WBR	1	1700	50	.03	60	.04
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .88 .78

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0.5		10		10	{.01}*
NBT	1.5	3400	10	.01*	10	.01
NBR	0		10		10	
SBL	1	1700	70	.04*	30	.02
SBT	1	1700	0	.03	0	.02*
SBR	0	0	50		30	
EBL	1	1700	20	.01	50	.03*
EBT	2	3400	2610	.77*	1490	.44
EBR	d	1700	10	.01	0	.00
WBL	1	1700	10	.01*	10	.01
WBT	2	3400	1180	.35	2320	.68*
WBR	1	1700	60	.04	60	.04
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .88 .79

134. Huntington St & PCH

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0.5		10		10	{.01}*
NBT	1.5	3400	10	.01*	10	.01
NBR	0		10		10	
SBL	1	1700	70	.04*	30	.02
SBT	1	1700	0	.03	0	.02*
SBR	0	0	50		30	
EBL	1	1700	40	.02	50	.03*
EBT	2	3400	2470	.73*	1410	.41
EBR	d	1700	10	.01	0	.00
WBL	1	1700	10	.01*	10	.01
WBT	2	3400	1120	.33	2190	.64*
WBR	1	1700	60	.04	70	.04
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .84 .75

135. Beach Blvd & Pacific Coast

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	10	.01
NBT	2	3400	20	.01*	50	.01*
NBR	1	1700	10	.01	20	.01
SBL	2	3400	520	.15*	300	.09*
SBT	1	1700	40	.02	40	.02
SBR	f		170		200	
EBL	2	3400	100	.03	230	.07*
EBT	3	5100	1980	.39*	1100	.22
EBR	0	0	10		10	
WBL	1	1700	20	.01*	30	.02
WBT	2	3400	770	.23	1690	.50*
WBR	1	1700	260	.15	770	.45
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.61**		**.72**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	10	.01
NBT	2	3400	20	.01*	50	.01*
NBR	1	1700	10	.01	20	.01
SBL	2	3400	370	.11*	250	.07*
SBT	1	1700	40	.02	40	.02
SBR	f		610		720	
EBL	2	3400	460	.14	650	.19*
EBT	3	5100	2530	.50*	1360	.27
EBR	0	0	10		10	
WBL	1	1700	20	.01*	30	.02
WBT	2	3400	950	.28	2190	.64*
WBR	1	1700	270	.16	640	.38
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.68**		**.96**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	10	.01
NBT	2	3400	20	.01*	50	.01*
NBR	1	1700	10	.01	20	.01
SBL	2	3400	540	.16*	320	.09*
SBT	1	1700	40	.02	40	.02
SBR	f		180		210	
EBL	2	3400	100	.03	230	.07*
EBT	3	5100	2340	.46*	1380	.27
EBR	0	0	10		10	
WBL	1	1700	20	.01*	30	.02
WBT	2	3400	980	.29	1960	.58*
WBR	1	1700	340	.20	970	.57
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.69**		**.80**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	20	.01	10	.01
NBT	2	3400	20	.01*	50	.01*
NBR	1	1700	10	.01	20	.01
SBL	2	3400	560	.16*	300	.09*
SBT	1	1700	40	.02	40	.02
SBR	f		180		210	
EBL	2	3400	100	.03	230	.07*
EBT	3	5100	2330	.46*	1370	.27
EBR	0	0	10		10	
WBL	1	1700	20	.01*	30	.02
WBT	2	3400	1000	.29	1980	.58*
WBR	1	1700	300	.18	940	.55
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.69**		**.80**

135. Beach Blvd & Pacific Coast

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	20	.01	10	.01
NBT	2	3400	20	.01*	50	.01*
NBR	1	1700	10	.01	20	.01
SBL	2	3400	530	.16*	290	.09*
SBT	1	1700	40	.02	40	.02
SBR	f		180		200	
EBL	2	3400	100	.03	230	.07*
EBT	3	5100	2180	.43*	1280	.25
EBR	0	0	10		10	
WBL	1	1700	20	.01*	30	.02
WBT	2	3400	950	.28	1880	.55*
WBR	1	1700	310	.18	890	.52
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .66 .77

136. Newland St & Pacific Coast

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10		10	
NBT	1	1700	20	.02*	10	.01*
NBR	1	1700	10	.01	10	.01
SBL	0	0	190		70	
SBT	1	1700	10	.12*	0	.04*
SBR	1	1700	100	.06	120	.07
EBL	1	1700	80	.05	110	.06*
EBT	3	5100	2440	.48*	1290	.25
EBR	1	1700	10	.01	10	.01
WBL	1	1700	10	.01*	10	.01
WBT	3	5100	880	.17	2360	.46*
WBR	1	1700	40	.02	200	.12
Clearance Interval				.05*		.05*

Note: Assumes N/S Split Phasing

TOTAL CAPACITY UTILIZATION .68 .62

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10		10	
NBT	1	1700	20	.02*	10	.01*
NBR	1	1700	10	.01	10	.01
SBL	0	0	210		80	
SBT	1	1700	10	.13*	0	.05*
SBR	1	1700	10	.01	10	.01
EBL	1	1700	30	.02	10	.01*
EBT	3	5100	2830	.55*	1550	.30
EBR	1	1700	10	.01	10	.01
WBL	1	1700	10	.01*	10	.01
WBT	3	5100	1110	.22	2820	.55*
WBR	1	1700	50	.03	150	.09
Clearance Interval				.05*		.05*

Note: Assumes N/S Split Phasing

TOTAL CAPACITY UTILIZATION .76 .67

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10		10	
NBT	1	1700	20	.02*	10	.01*
NBR	1	1700	10	.01	10	.01
SBL	0	0	260		80	
SBT	1	1700	10	.16*	0	.05*
SBR	1	1700	130	.08	150	.09
EBL	1	1700	150	.09	130	.08*
EBT	3	5100	2680	.53*	1580	.31
EBR	1	1700	10	.01	10	.01
WBL	1	1700	10	.01*	10	.01
WBT	3	5100	1160	.23	2800	.55*
WBR	1	1700	40	.02	220	.13
Clearance Interval				.05*		.05*

Note: Assumes N/S Split Phasing

TOTAL CAPACITY UTILIZATION .77 .74

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10		10	
NBT	1	1700	20	.02*	10	.01*
NBR	1	1700	10	.01	10	.01
SBL	0	0	260		80	
SBT	1	1700	10	.16*	0	.05*
SBR	1	1700	140	.08	150	.09
EBL	1	1700	150	.09	120	.07*
EBT	3	5100	2690	.53*	1550	.30
EBR	1	1700	10	.01	10	.01
WBL	1	1700	10	.01*	10	.01
WBT	3	5100	1150	.23	2790	.55*
WBR	1	1700	40	.02	240	.14
Clearance Interval				.05*		.05*

Note: Assumes N/S Split Phasing

TOTAL CAPACITY UTILIZATION .77 .73

136. Newland St & Pacific Coast

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10		10	
NBT	1	1700	20	.02*	10	.01*
NBR	1	1700	10	.01	10	.01
SBL	0	0	270		70	
SBT	1	1700	10	.16*	0	.04*
SBR	1	1700	230	.14	190	.11
EBL	1	1700	160	.09	160	.09*
EBT	3	5100	2500	.49*	1420	.28
EBR	1	1700	10	.01	10	.01
WBL	1	1700	10	.01*	10	.01
WBT	3	5100	1010	.20	2600	.51*
WBR	1	1700	40	.02	230	.14
Right Turn Adjustment					SBR	.02*
Clearance Interval				.05*		.05*

Note: Assumes N/S Split Phasing

TOTAL CAPACITY UTILIZATION .73 .72

137. Magnolia St & PCH

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01	10	.01
NBT	1	1700	30	.02*	20	.02*
NBR	0	0	10		10	
SBL	1.5		160		80	
SBT	0.5	3400	50	.06*	30	.03*
SBR	1	1700	110	.06	100	.06
EBL	1	1700	90	.05	120	.07*
EBT	3	5100	2520	.49*	1240	.24
EBR	1	1700	40	.02	10	.01
WBL	1	1700	30	.02*	20	.01
WBT	3	5100	850	.17	2490	.49*
WBR	1	1700	60	.04	200	.12
Clearance Interval				.05*		.05*

Note: Assumes N/S Split Phasing

TOTAL CAPACITY UTILIZATION .64 .66

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01	10	.01
NBT	1	1700	30	.02*	20	.02*
NBR	0	0	10		10	
SBL	1.5		130		130	
SBT	0.5	3400	50	.05*	30	.05*
SBR	1	1700	200	.12	90	.05
EBL	1	1700	140	.08	100	.06*
EBT	3	5100	2880	.56*	1530	.30
EBR	1	1700	40	.02	10	.01
WBL	1	1700	30	.02*	20	.01
WBT	3	5100	1010	.20	2960	.58*
WBR	1	1700	70	.04	190	.11
Clearance Interval				.05*		.05*

Note: Assumes N/S Split Phasing

TOTAL CAPACITY UTILIZATION .70 .76

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01	10	.01
NBT	1	1700	30	.02*	20	.02*
NBR	0	0	10		10	
SBL	1.5		160		140	
SBT	0.5	3400	50	.06*	30	.05*
SBR	1	1700	240	.14	120	.07
EBL	1	1700	120	.07	120	.07*
EBT	3	5100	2800	.55*	1540	.30
EBR	1	1700	40	.02	10	.01
WBL	1	1700	30	.02*	20	.01
WBT	3	5100	1010	.20	2930	.57*
WBR	1	1700	90	.05	180	.11
Clearance Interval				.05*		.05*

Note: Assumes N/S Split Phasing

TOTAL CAPACITY UTILIZATION .70 .76

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01	10	.01
NBT	1	1700	30	.02*	20	.02*
NBR	0	0	10		10	
SBL	1.5		160		140	
SBT	0.5	3400	50	.06*	30	.05*
SBR	1	1700	240	.14	120	.07
EBL	1	1700	100	.06	120	.07*
EBT	3	5100	2830	.55*	1510	.30
EBR	1	1700	40	.02	10	.01
WBL	1	1700	30	.02*	20	.01
WBT	3	5100	990	.19	2940	.58*
WBR	1	1700	90	.05	190	.11
Clearance Interval				.05*		.05*

Note: Assumes N/S Split Phasing

TOTAL CAPACITY UTILIZATION .70 .77

137. Magnolia St & PCH

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01	10	.01
NBT	1	1700	30	.02*	20	.02*
NBR	0	0	10		10	
SBL	1.5		190		150	
SBT	0.5	3400	50	.07*	30	.05*
SBR	1	1700	130	.08	140	.08
EBL	1	1700	100	.06	140	.08*
EBT	3	5100	2660	.52*	1350	.26
EBR	1	1700	40	.02	10	.01
WBL	1	1700	30	.02*	20	.01
WBT	3	5100	960	.19	2700	.53*
WBR	1	1700	80	.05	210	.12
Clearance Interval				.05*		.05*

Note: Assumes N/S Split Phasing

TOTAL CAPACITY UTILIZATION .68 .73

138. Brookhurst St & PCH

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01	10	.01
NBT	1	1700	10	.01*	10	.01*
NBR	0	0	10		10	
SBL	2	3400	510	.15*	250	.07*
SBT	1	1700	10	.01	20	.01
SBR	1	1700	100	.06	170	.10
EBL	1	1700	240	.14	160	.09*
EBT	3	5100	2290	.45*	1020	.20
EBR	1	1700	10	.01	10	.01
WBL	1	1700	10	.01*	20	.01
WBT	3	5100	840	.16	2740	.54*
WBR	1	1700	270	.16	730	.43
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .67 .76

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01	10	.01
NBT	1	1700	10	.01*	10	.01*
NBR	0	0	10		10	
SBL	2	3400	460	.14*	190	.06*
SBT	1	1700	10	.01	20	.01
SBR	1	1700	120	.07	530	.31
EBL	1	1700	510	.30*	370	.22*
EBT	3	5100	2330	.46	1160	.23
EBR	1	1700	10	.01	10	.01
WBL	1	1700	10	.01	20	.01
WBT	3	5100	1000	.20*	2860	.56*
WBR	1	1700	210	.12	600	.35
Right Turn Adjustment					SBR	.14*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .70 1.04

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01	10	.01
NBT	1	1700	10	.01*	10	.01*
NBR	0	0	10		10	
SBL	2	3400	490	.14*	220	.06*
SBT	1	1700	10	.01	20	.01
SBR	1	1700	230	.14	610	.36
EBL	1	1700	600	.35*	470	.28*
EBT	3	5100	2230	.44	1080	.21
EBR	1	1700	10	.01	10	.01
WBL	1	1700	10	.01	20	.01
WBT	3	5100	900	.18*	2740	.54*
WBR	1	1700	240	.14	720	.42
Right Turn Adjustment					SBR	.16*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .73 1.10

2030 Proposed Roadway Plan (Rec. Lanes Opt. 1)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01	10	.01
NBT	1	1700	10	.01*	10	.01*
NBR	0	0	10		10	
SBL	2	3400	490	.14*	220	.06*
SBT	1	1700	10	.01	20	.01
SBR	1	1700	230	.14	610	.36
EBL	2	3400	600	.18	470	.14*
EBT	3	5100	2230	.44*	1080	.21
EBR	1	1700	10	.01	10	.01
WBL	1	1700	10	.01*	20	.01
WBT	3	5100	900	.18	2740	.54*
WBR	1	1700	240	.14	720	.42
Right Turn Adjustment					SBR	.16*
Clearance Interval				.05*		.05*

Note: Assumes Right-Turn Overlap for SBR

TOTAL CAPACITY UTILIZATION .65 .96

138. Brookhurst St & PCH

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01	10	.01
NBT	1	1700	10	.01*	10	.01*
NBR	0	0	10		10	
SBL	2	3400	500	.15*	210	.06*
SBT	1	1700	10	.01	20	.01
SBR	1	1700	220	.13	610	.36
EBL	1	1700	610	.36*	470	.28*
EBT	3	5100	2230	.44	1070	.21
EBR	1	1700	10	.01	10	.01
WBL	1	1700	10	.01	20	.01
WBT	3	5100	890	.17*	2760	.54*
WBR	1	1700	230	.14	730	.43
Right Turn Adjustment					SBR	.16*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .74 1.10

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01	10	.01
NBT	1	1700	10	.01*	10	.01*
NBR	0	0	10		10	
SBL	2	3400	520	.15*	260	.08*
SBT	1	1700	10	.01	20	.01
SBR	1	1700	110	.06	180	.11
EBL	1	1700	240	.14	200	.12*
EBT	3	5100	2500	.49*	1140	.22
EBR	1	1700	10	.01	10	.01
WBL	1	1700	10	.01*	20	.01
WBT	3	5100	960	.19	2970	.58*
WBR	1	1700	250	.15	740	.44
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .71 .84

2030 Specific Plan w/Option 1 Mit

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01	10	.01
NBT	1	1700	10	.01*	10	.01*
NBR	0	0	10		10	
SBL	2	3400	500	.15*	210	.06*
SBT	1	1700	10	.01	20	.01
SBR	1	1700	220	.13	610	.36
EBL	2	3400	610	.18	470	.14*
EBT	3	5100	2230	.44*	1070	.21
EBR	1	1700	10	.01	10	.01
WBL	1	1700	10	.01*	20	.01
WBT	3	5100	890	.17	2760	.54*
WBR	1	1700	230	.14	730	.43
Right Turn Adjustment					SBR	.16*
Clearance Interval				.05*		.05*

Note: Assumes Right-Turn Overlap for SBR

TOTAL CAPACITY UTILIZATION .66 .96

140. Main St & 17th St.

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	20	.01*
NBT	2	3400	700	.21*	600	.18
NBR	1	1700	60	.04	30	.02
SBL	0		210	{.12}*	120	
SBT	1.5	5100	660	.26	780	.26*
SBR	1.5		120	.07	120	.07
EBL	1	1700	100	.06	150	.09*
EBT	1	1700	60	.04*	20	.01
EBR	d	1700	30	.02	20	.01
WBL	0	0	80	{.05}*	20	
WBT	0	0	160		20	
WBR	0	0	60		50	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .47 .41

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	60	.04	20	.01*
NBT	2	3400	830	.24*	570	.17
NBR	1	1700	70	.04	30	.02
SBL	0		220	{.13}*	120	
SBT	1.5	5100	680	.26	850	.29*
SBR	1.5		150	.09	130	.08
EBL	1	1700	180	.11*	220	.13*
EBT	1	1700	60	.04	20	.01
EBR	d	1700	30	.02	20	.01
WBL	0	0	80		20	
WBT	0	0	160		20	
WBR	0	0	70		50	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .53 .48

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	60	.04	20	.01*
NBT	2	3400	820	.24*	620	.18
NBR	1	1700	70	.04	30	.02
SBL	0		210	{.12}*	120	
SBT	1.5	5100	720	.27	870	.29*
SBR	1.5		130	.08	140	.08
EBL	1	1700	150	.09*	230	.14*
EBT	1	1700	60	.04	20	.01
EBR	d	1700	30	.02	20	.01
WBL	0	0	80		20	
WBT	0	0	160		20	
WBR	0	0	70		50	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .50 .49

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	60	.04	20	.01*
NBT	2	3400	820	.24*	630	.19
NBR	1	1700	80	.05	30	.02
SBL	0		210	{.12}*	120	
SBT	1.5	5100	730	.28	860	.29*
SBR	1.5		140	.08	130	.08
EBL	1	1700	140	.08	240	.14*
EBT	1	1700	60	.04*	20	.01
EBR	d	1700	30	.02	20	.01
WBL	0	0	80	{.05}*	20	
WBT	0	0	160		20	
WBR	0	0	70		50	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .50 .49

140. Main St & 17th St.

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	60	.04	20	.01*
NBT	2	3400	820	.24*	630	.19
NBR	1	1700	70	.04	30	.02
SBL	0		210	{.12}*	120	
SBT	1.5	5100	720	.27	870	.29*
SBR	1.5		140	.08	140	.08
EBL	1	1700	150	.09*	240	.14*
EBT	1	1700	60	.04	20	.01
EBR	d	1700	30	.02	20	.01
WBL	0	0	80		20	
WBT	0	0	160		20	
WBR	0	0	70		50	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .50 .49

141. Main St & Adams Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	30	.02	10	.01*
NBT	1	1700	330	.19*	340	.20
NBR	d	1700	160	.09	80	.05
SBL	1	1700	70	.04*	90	.05
SBT	1	1700	280	.16	450	.26*
SBR	d	1700	20	.01	10	.01
EBL	0	0	0		10	{.01}*
EBT	1	1700	240	.14	140	.09
EBR	1	1700	50	.03	10	.01
WBL	0	0	140		160	
WBT	1	1700	210	.23*	230	.26*
WBR	0	0	40		60	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.51**		**.59**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	10	.01*
NBT	1	1700	420	.25*	300	.18
NBR	d	1700	160	.09	90	.05
SBL	1	1700	120	.07*	110	.06
SBT	1	1700	250	.15	490	.29*
SBR	d	1700	20	.01	10	.01
EBL	0	0	0		10	{.01}*
EBT	1	1700	180	.11	160	.10
EBR	1	1700	50	.03	10	.01
WBL	0	0	160		170	
WBT	1	1700	210	.24*	230	.27*
WBR	0	0	40		60	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.61**		**.63**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	10	.01*
NBT	1	1700	420	.25*	350	.21
NBR	d	1700	190	.11	90	.05
SBL	1	1700	110	.06*	120	.07
SBT	1	1700	290	.17	510	.30*
SBR	d	1700	20	.01	10	.01
EBL	0	0	0		10	{.01}*
EBT	1	1700	260	.15	180	.11
EBR	1	1700	60	.04	10	.01
WBL	0	0	150		190	
WBT	1	1700	250	.26*	290	.32*
WBR	0	0	50		60	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.62**		**.69**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	10	.01*
NBT	1	1700	410	.24*	350	.21
NBR	d	1700	180	.11	90	.05
SBL	1	1700	110	.06*	110	.06
SBT	1	1700	310	.18	510	.30*
SBR	d	1700	20	.01	10	.01
EBL	0	0	0		10	{.01}*
EBT	1	1700	250	.15	180	.11
EBR	1	1700	60	.04	10	.01
WBL	0	0	150		180	
WBT	1	1700	240	.26*	270	.30*
WBR	0	0	60		60	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.61**		**.67**

141. Main St & Adams Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	40	.02	10	.01*
NBT	1	1700	410	.24*	350	.21
NBR	d	1700	190	.11	80	.05
SBL	1	1700	100	.06*	120	.07
SBT	1	1700	310	.18	510	.30*
SBR	d	1700	20	.01	10	.01
EBL	0	0	0		10	{.01}*
EBT	1	1700	240	.14	170	.11
EBR	1	1700	60	.04	10	.01
WBL	0	0	150		190	
WBT	1	1700	250	.27*	280	.31*
WBR	0	0	60		60	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .62 .68

142. 17th St & Palm Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	60	.04	50	.03*
NBT	1	1700	370	.22*	170	.10
NBR	d	1700	20	.01	30	.02
SBL	1	1700	50	.03*	40	.02
SBT	1	1700	210	.12	200	.12*
SBR	1	1700	180	.11	190	.11
EBL	1	1700	210	.12*	100	.06*
EBT	1	1700	150	.09	110	.06
EBR	d	1700	20	.01	30	.02
WBL	1	1700	10	.01	10	.01
WBT	1	1700	110	.14*	100	.08*
WBR	0	0	120		30	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.56**		**.34**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	70	.04	50	.03
NBT	1	1700	470	.28*	340	.20*
NBR	d	1700	30	.02	30	.02
SBL	1	1700	60	.04*	60	.04*
SBT	1	1700	200	.12	260	.15
SBR	1	1700	240	.14	190	.11
EBL	1	1700	140	.08*	40	.02*
EBT	1	1700	120	.07	100	.06
EBR	d	1700	50	.03	50	.03
WBL	1	1700	10	.01	20	.01
WBT	1	1700	130	.18*	80	.08*
WBR	0	0	170		50	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.63**		**.39**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	100	.06	50	.03
NBT	1	1700	410	.24*	280	.16*
NBR	d	1700	30	.02	50	.03
SBL	1	1700	60	.04*	50	.03*
SBT	1	1700	200	.12	210	.12
SBR	1	1700	250	.15	310	.18
EBL	1	1700	240	.14*	100	.06*
EBT	1	1700	160	.09	150	.09
EBR	d	1700	30	.02	90	.05
WBL	1	1700	10	.01	10	.01
WBT	1	1700	200	.21*	160	.12*
WBR	0	0	150		50	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.68**		**.42**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	90	.05	50	.03
NBT	1	1700	400	.24*	280	.16*
NBR	d	1700	30	.02	60	.04
SBL	1	1700	70	.04*	50	.03*
SBT	1	1700	210	.12	200	.12
SBR	1	1700	240	.14	300	.18
EBL	1	1700	230	.14*	100	.06*
EBT	1	1700	170	.10	140	.08
EBR	d	1700	30	.02	90	.05
WBL	1	1700	10	.01	10	.01
WBT	1	1700	190	.19*	170	.14*
WBR	0	0	140		60	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.66**		**.44**

142. 17th St & Palm Ave

2030 Specific Plan LU & No Banning Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1700	100	.06	50	.03
NBT	1	1700	410	.24*	280	.16*
NBR	d	1700	30	.02	60	.04
SBL	1	1700	70	.04*	60	.04*
SBT	1	1700	220	.13	210	.12
SBR	1	1700	250	.15	300	.18
EBL	1	1700	230	.14*	100	.06*
EBT	1	1700	160	.09	140	.08
EBR	d	1700	30	.02	80	.05
WBL	1	1700	10	.01	10	.01
WBT	1	1700	190	.20*	170	.14*
WBR	0	0	150		60	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .67 .45

148. 6th St & Orange Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01*	20	.01*
NBT	1	1700	50	.03	50	.03
NBR	d	1700	10	.01	20	.01
SBL	1	1700	10	.01	10	.01
SBT	1	1700	70	.04*	50	.03*
SBR	d	1700	30	.02	40	.02
EBL	0	0	30		20	{.01}*
EBT	1	1700	190	.13*	130	.09
EBR	d	1700	30	.02	10	.01
WBL	0	0	20	{.01}*	20	
WBT	1	1700	80	.06	160	.11*
WBR	d	1700	10	.01	10	.01
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.24**		**.21**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01	40	.02
NBT	1	1700	140	.08*	150	.09*
NBR	d	1700	10	.01	70	.04
SBL	1	1700	10	.01*	10	.01*
SBT	1	1700	70	.04	100	.06
SBR	d	1700	140	.08	60	.04
EBL	0	0	40		10	
EBT	1	1700	170	.12*	120	.08*
EBR	d	1700	50	.03	10	.01
WBL	0	0	30	{.02}*	10	{.01}*
WBT	1	1700	100	.08	100	.06
WBR	d	1700	30	.02	10	.01
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.28**		**.24**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01	40	.02
NBT	1	1700	120	.07*	130	.08*
NBR	d	1700	20	.01	50	.03
SBL	1	1700	10	.01*	20	.01*
SBT	1	1700	80	.05	90	.05
SBR	d	1700	150	.09	70	.04
EBL	0	0	40		30	
EBT	1	1700	250	.17*	200	.14*
EBR	d	1700	50	.03	10	.01
WBL	0	0	30	{.02}*	20	{.01}*
WBT	1	1700	110	.08	160	.11
WBR	d	1700	50	.03	10	.01
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.32**		**.29**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01	50	.03
NBT	1	1700	120	.07*	160	.09*
NBR	d	1700	10	.01	40	.02
SBL	1	1700	10	.01*	10	.01*
SBT	1	1700	100	.06	100	.06
SBR	d	1700	120	.07	70	.04
EBL	0	0	40		30	
EBT	1	1700	260	.18*	190	.13*
EBR	d	1700	40	.02	10	.01
WBL	0	0	30	{.02}*	20	{.01}*
WBT	1	1700	110	.08	170	.11
WBR	d	1700	40	.02	10	.01
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.33**		**.29**

148. 6th St & Orange Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01	40	.02
NBT	1	1700	130	.08*	180	.11*
NBR	d	1700	10	.01	20	.01
SBL	1	1700	10	.01*	10	.01*
SBT	1	1700	100	.06	110	.06
SBR	d	1700	120	.07	70	.04
EBL	0	0	40		20	
EBT	1	1700	250	.17*	180	.12*
EBR	d	1700	50	.03	10	.01
WBL	0	0	40	{.02}*	20	{.01}*
WBT	1	1700	100	.08	170	.11
WBR	d	1700	40	.02	10	.01
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.33**		**.30**

150. 3rd St & Orange Ave

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10	{.01}*	10	{.01}*
NBT	1	1700	30	.02	70	.05
NBR	0	0	0		10	
SBL	0	0	60		50	
SBT	1	1700	70	.08*	100	.09*
SBR	0	0	10		10	
EBL	0	0	10		20	{.01}*
EBT	1	1700	230	.15*	130	.10
EBR	0	0	20		20	
WBL	0	0	10	{.01}*	10	
WBT	1	1700	130	.11	270	.20*
WBR	0	0	50		60	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .30 .36

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10	{.01}*	10	{.01}*
NBT	1	1700	20	.02	50	.04
NBR	0	0	0		10	
SBL	0	0	40		60	
SBT	1	1700	160	.12*	210	.16*
SBR	0	0	10		10	
EBL	0	0	10		20	{.01}*
EBT	1	1700	290	.19*	210	.15
EBR	0	0	20		30	
WBL	0	0	10	{.01}*	10	
WBT	1	1700	120	.12	250	.24*
WBR	0	0	80		140	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .38 .47

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10	{.01}*	10	{.01}*
NBT	1	1700	40	.03	80	.06
NBR	0	0	0		20	
SBL	0	0	60		70	
SBT	1	1700	110	.11*	250	.19*
SBR	0	0	20		10	
EBL	0	0	10		30	{.02}*
EBT	1	1700	380	.24*	250	.18
EBR	0	0	20		30	
WBL	0	0	10	{.01}*	10	
WBT	1	1700	150	.14	330	.28*
WBR	0	0	80		130	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .42 .55

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10	{.01}*	10	{.01}*
NBT	1	1700	30	.02	60	.06
NBR	0	0	0		30	
SBL	0	0	60		70	
SBT	1	1700	120	.12*	240	.19*
SBR	0	0	20		20	
EBL	0	0	10		20	{.01}*
EBT	1	1700	380	.24*	250	.18
EBR	0	0	20		30	
WBL	0	0	10	{.01}*	10	
WBT	1	1700	170	.15	330	.28*
WBR	0	0	80		140	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .43 .54

150. 3rd St & Orange Ave

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	10	{.01}*	10	{.01}*
NBT	1	1700	30	.02	60	.06
NBR	0	0	0		30	
SBL	0	0	60		70	
SBT	1	1700	110	.12*	240	.19*
SBR	0	0	30		20	
EBL	0	0	10		20	{.01}*
EBT	1	1700	360	.23*	250	.18
EBR	0	0	20		30	
WBL	0	0	10	{.01}*	10	
WBT	1	1700	170	.15	340	.28*
WBR	0	0	80		130	
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .42 .54

152. 1st & Atlanta Ave/Orange

Existing Count (2005/2006)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	10	.01*	50	.03*
NBT	1	1700	0	.00	10	.01
NBR	1	1700	100	.06	160	.09
SBL	0	0	10		10	
SBT	1	1700	10	.01*	0	.01*
SBR	0	0	0		10	
EBL	0	0	10		10	
EBT	1	1700	240	.15*	190	.12*
EBR	d	1700	50	.03	40	.02
WBL	1	1700	220	.13*	150	.09*
WBT	2	3400	170	.05	260	.08
WBR	0	0	0		20	
Right Turn Adjustment					NBR	.01*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.35**		**.31**

2030 Current Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	30	.02*	120	.07*
NBT	1	1700	0	.00	10	.01
NBR	1	1700	190	.11	270	.16
SBL	0	0	10		10	
SBT	1	1700	10	.01*	0	.01*
SBR	0	0	0		10	
EBL	0	0	10		10	
EBT	1	1700	410	.25*	400	.24*
EBR	d	1700	50	.03	40	.02
WBL	1	1700	450	.26*	380	.22*
WBT	2	3400	140	.04	200	.06
WBR	0	0	0		20	
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.59**		**.59**

2030 Proposed Roadway Plan (Com. Lanes)

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	30	.02*	90	.05*
NBT	1	1700	0	.00	10	.01
NBR	1	1700	260	.15	310	.18
SBL	0	0	10		10	
SBT	1	1700	10	.01*	0	.01*
SBR	0	0	0		10	
EBL	0	0	10		10	
EBT	1	1700	430	.26*	410	.25*
EBR	d	1700	50	.03	40	.02
WBL	1	1700	450	.26*	380	.22*
WBT	2	3400	180	.05	290	.09
WBR	0	0	0		20	
Right Turn Adjustment					NBR	.02*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.60**		**.60**

2030 Specific Plan LU & Proposed Rdwy Plan

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	30	.02*	100	.06*
NBT	1	1700	0	.00	10	.01
NBR	1	1700	260	.15	310	.18
SBL	0	0	10		10	
SBT	1	1700	10	.01*	0	.01*
SBR	0	0	0		10	
EBL	0	0	10		10	
EBT	1	1700	420	.25*	410	.25*
EBR	d	1700	50	.03	40	.02
WBL	1	1700	470	.28*	380	.22*
WBT	2	3400	190	.06	290	.09
WBR	0	0	0		20	
Right Turn Adjustment					NBR	.01*
Clearance Interval				.05*		.05*
TOTAL CAPACITY UTILIZATION				**.61**		**.60**

152. 1st & Atlanta Ave/Orange

2030 Specific Plan LU & No Banning Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1700	30	.02*	100	.06*
NBT	1	1700	0	.00	10	.01
NBR	1	1700	260	.15	340	.20
SBL	0	0	10		10	
SBT	1	1700	10	.01*	0	.01*
SBR	0	0	0		10	
EBL	0	0	10		10	
EBT	1	1700	450	.27*	410	.25*
EBR	d	1700	50	.03	40	.02
WBL	1	1700	490	.29*	410	.24*
WBT	2	3400	190	.06	300	.09
WBR	0	0	0		20	
Right Turn Adjustment					NBR	.02*
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION .64 .63

APPENDIX C
LAND USE DATA PREPARATION

This appendix describes the work carried out to prepare land use databases for this Circulation Element update.

OVERVIEW

The Huntington Beach Traffic Model (HBTM) uses geographically defined land use databases as primary inputs to the modeling process. The information is quantified by traffic analysis zones (TAZ's), of which there are 351 such zones in the city (for more information see Reference 2 in Chapter 1.0, the HBTM Model Description report).

The existing land use data represent January 2006 conditions. The future database has several variations, each representing a future scenario as defined by specific long-range development assumptions. Such assumptions enable future land use by type to be projected and allocated to the citywide traffic zone system in a manner that depicts a potential growth scenario for the city.

The following section discusses citywide growth as projected by the Countywide demographic data forecasting process. This provides a comparison check for the corresponding information derived from citywide land use databases. That discussion is followed by a description of the existing land use database, and then the future land use projection scenarios are presented.

OCP-2010 DEMOGRAPHIC DATA PROJECTIONS

The Orange County Projections 2010 (known as OCP-2006), approved by the Orange County Council of Governments (OCCOG) in January 2011, is the eleventh in a series of such projections dating back to 1978. The OCP series is developed to provide a consistent set of projections of population, housing and employment for use in a variety of activities, including transportation planning. In addition, the information provides Southern California Association of Governments (SCAG) with a set of projections for inclusion in their regional growth forecasts.

In OCP-2010, population, housing and employment (jobs) are projected through the year 2035 in five-year increments using 2010 as the base year. Those projections include totals for each of the 10 Regional Statistical Areas into which the County is subdivided, these being the geographic levels at which the projections are formally adopted by OCCOG. Additionally, projections are presented for a variety of other geographic areas including the 34 general government jurisdictions (Cities), the County's 70 Community Analysis Areas (CAAs), and the 577 census tracts in the County.

A summary of the OCP-2010 projections for 2005 and 2030 for the City of Huntington Beach follows:

OCP-2010 DEMOGRAPHIC DATA - CITY OF HUNTINGTON BEACH				
Type	**2010**	**2035**	**Growth**	**Growth (%)**
RESIDENTIAL				
Population	190,171	205,524	15,353	8%
Housing	77,961	82,802	4,841	6%
EMPLOYMENT				
Total Employment	**73,317**	**80,580**	**7,263**	**10%**

Hence, these projections show an 8 percent growth in population and a 10 percent growth in employment by 2035.

EXISTING LAND USE DATA

To create an existing land use database by TAZ, a special land use inventory was carried out between September 12, 2005 and February 8, 2006. The following describes the methodology and results.

Database Design and Management

Existing land uses were summarized by utilizing the City's Geographic Information System (GIS). This contains parcel data with Assessor Parcel Numbers (APNs) and General Plan land use codes, as well as separate datasets with the City's reporting grid system, parks, schools, and vacant lands. The land use classification system uses the parcel polygon GIS information layer and Table C-1 lists the fields and data captured and or verified for parcel polygon features.

To validate the existing land uses in the city, windshield and walking surveys were conducted. Using the City's Reporting Grid system as the boundary for each survey, confirmed land use information or identified changes were recorded. A digital map was maintained which tracked the preparation of the data from field survey to final database assembly. The basic principles underlying the land use database preparation were as follows:

(1) The geographic basis of classification for all uses is the parcel, as recorded and maintained by the City GIS Division.

(2) All parcels are classified to correspond to one of the following land uses:

- Land used for commercial or industrial purposes,
- Land used for public or quasi-public purposes,
- Land used for single- or multiple-family dwelling units,
- Vacant land.

(3) Each non-residential parcel is classified according to its primary activity, identified by the predominate products or groups of products or services produced or provided by the establishments on the parcel.

(4) The square footage of actual building areas on non-residential parcels is obtained by building footprints provided by the City or verified by aerial photography where footprints were unavailable.

The Field Coding system used the City's 1996 General Plan land use classification system as a basis for land use designations. The data were tabulated using a three-digit code or in some cases, larger use group coding, depending on the level of detail considered most appropriate for parcel cataloging. General Plan designations are assigned a single numeric code (GP_Code) derived from the City's General Plan Land Use Code. Each designation is categorized further into specific land uses (LU_Code). For example, Residential Low Density (GP_Code 1) is subdivided between Single-Family Residential (LU_Code 100) and Residential Private Space (LU_Code 110). Higher residential densities are further

Table C-1

EXISTING LAND USE SURVEY PARCEL ATTRIBUTES

Data Fields	Field Description
GP_CODE	A standardized, two-digit classification used to describe the current General Plan-level use of each parcel. The GP_Codes are derived from the City's General Plan Designations. One GP_Code is applied to each parcel, based on predominate land use
LU_CODE	A standardized, four-digit classification code used to describe the primary land use for each parcel correlating with the GP_Code. The LU_Codes were first derived from the City's General Plan 1994 existing Land Uses, and have been confirmed in the field.
DUS	For residential and mixed land uses, the estimated number of units on each parcel. These values were determined using a combination of field research and verification using lists of multiple-housing projects provided by the City.
DU_TYPE	For residential and mixed land uses, identifies whether the DUs are attached or detached. Verified generally through aerial photo interpretation and field observation.
PERCENT_MU	For mixed-use parcels that include residential use, the estimated percentage of the total square footage that is in non-residential use. This value represents the percentage of a mixed-use project devoted to either commercial or office use. Determined in the field.
SQFT_BLDG	Estimated total building square footage for non-residential uses (e.g. commercial and industrial uses) on a parcel. Determined from building footprints of commercial and industrial buildings provided by the City, and verified in the field. For multiple-story buildings, this value represents square footage of all floors within the building.
SQFT_PAR	Square footage of each parcel. Determined from GIS parcel data provided by the City.
ACREAGE	Acreage of each parcel. Equal to SQFT_Par * 43,560. Values are used for modeling non-residential uses where square foot information is not appropriate (e.g. parks and open spaces).
NR_FLOORS	Number of floors for non-residential uses where square foot information is utilized. Determined in the field.
NOTES	Field notes used to describe parcels, as needed.
BEDS	Number of beds for hospitals and related uses. Determined by contacting each appropriate facility.
ROOMS	Number of rooms for hotels and related uses. Determined by contacting each appropriate facility.
STUDENTS	Number of students for schools and university/college uses. Determined by contacting the appropriate facilities and from published reports by the school districts. Community college enrollment is based on "day students". All other colleges and schools are counted based on total enrollment.
EMPLOYEES	Number of employees for the top 50 employers in Huntington Beach, as reported in 2005 by Dun and Bradstreet.
PARKING	Within the Downtown Huntington Beach Area, the number of off-street parking spaces within each parcel. Derived from 2003 estimates provided by the City of Huntington Beach and field observations.

specified as Single Family, Duplex, Multifamily Townhouse or Apartment and Open Space. Each category is assigned a three-digit numeral correlating to the primary designation.

Each Parcel was evaluated independently, as follows:

For single-family residential uses, detailed examination of aerial photographs and the City's 1994 TAZ based Land Use inventory were used to verify current land use and check for vacancies, followed by field studies to verify density and vacancies and to determine whether units are attached or detached. Any land use anomalies and also Open Space (OS) areas were identified.

For multiple-family residential uses, an examination of aerial photographs and the City's 1994 TAZ based Land Use inventory were used, followed by field observations and verification of density, vacancies, and an estimate of the number of units in each project. Field observations identified residential structures as duplex, townhouse, apartment or mobile home. The City provided a recent inventory of multiple-family projects, and several property managers were contacted to verify the number of units within larger multiple-family residential projects and some gated communities. Where access to gated communities was denied, data were gathered from sources such as aerial data, the General Plan, and consultation with property managers.

For mixed uses, an examination of aerial photographs and the City's 1994 TAZ based Land Use inventory was used, followed by field verification of each use. The percentage of floor area dedicated to non-residential use, potential vacancies, and an estimate of the number of units and floors in each project was estimated at this time. For commercial/residential mixed uses both the number of units and floors were determined by visual observation. Building square footage was calculated and determined from building footprints provided by the City.

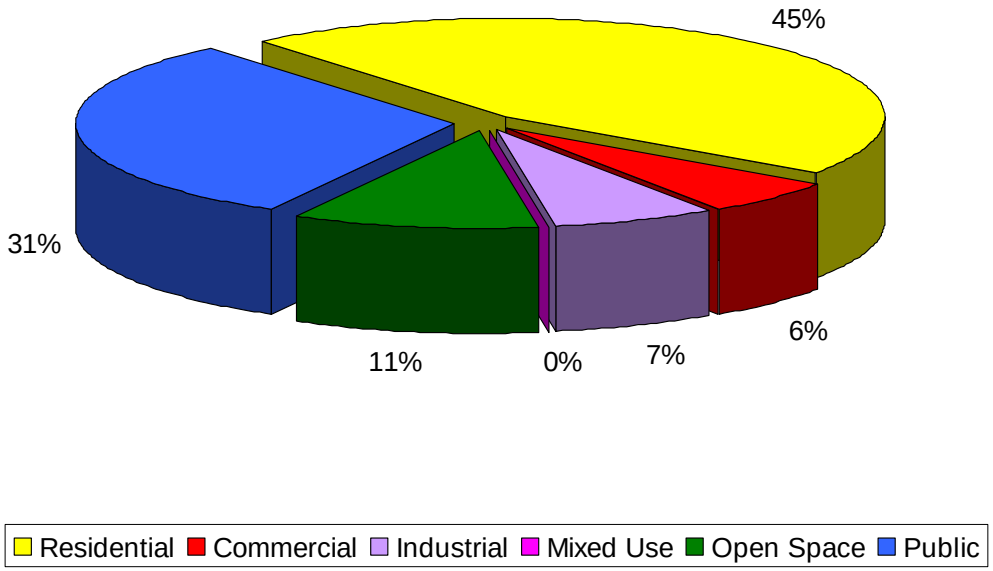
For Commercial uses, an examination of aerial photographs and the City's 1994 TAZ based Land Use inventory were used, followed by field verification of vacancies and classification of the predominate land use on each parcel i.e., Hotels, Museums, Restaurants, Office, Auto, Retail, Grocery and Parking. Building square footage was calculated and determined from building footprints of commercial buildings provided by the City.

For Industrial uses, an examination of aerial photographs and the City's 1994 TAZ based Land Use inventory were used, followed by field verification of vacancies, number of floors and classification of the predominate land use on each parcel i.e., Manufacturing, Warehouse, Business and Oil Production.

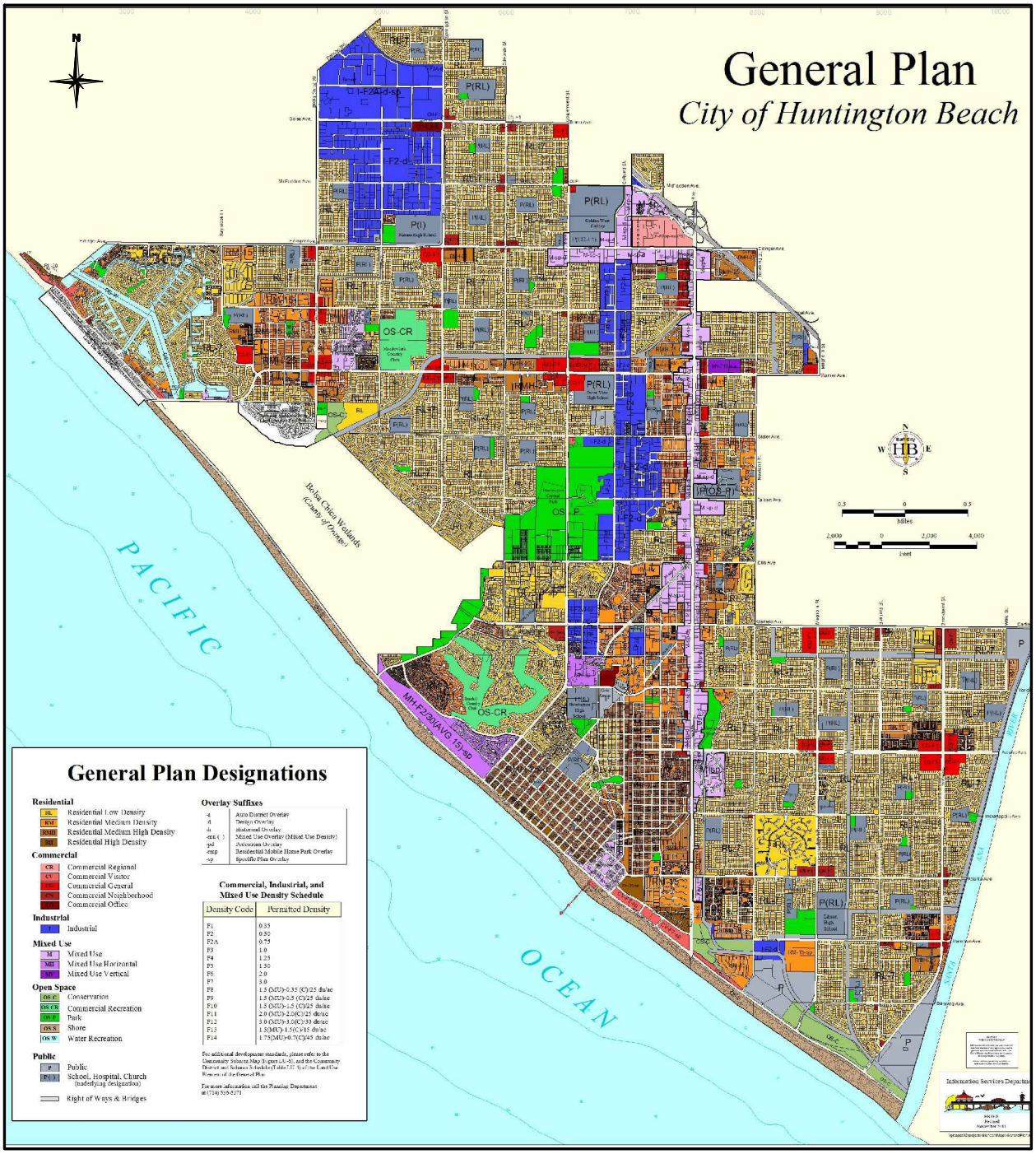
For public, institutional, agricultural and open space land uses, a brief examination of aerial photographs and the City's 1994 TAZ based Land Use inventory were used, followed by field verification of each use i.e., Habitat Preservation, Cemetery, Agricultural, Parks, Beaches and Commercial Recreation.

Summary of Results

The results of the existing land use inventory are depicted in Figure C-1 (Existing Land Use Map). The full color, computer generated GIS map portrays the current land uses in Huntington Beach, based on the 21 Land Use Categories used in the 1996 General Plan (GP Codes). A citywide summary of the uses by land area is as follows:



As shown here, Residential development comprises about 45 percent of the city's land area, most of which is Low Density single-family dwellings concentrated within the northwest and southeast portions of the city. Commercial uses account for only six percent of the city's land area, and are concentrated mostly along Beach Blvd and other major corridors. Industrial uses account for seven percent of the city's land area, most of which consists of manufacturing and industrial parks located on



Legend

Source: City of Huntington Beach

Figure C-1

LAND USE INVENTORY

the north end of Springdale Street or along Gothard Street. Since Mixed-use development is currently found only within the downtown corridor, the percentage for this type of use is very low. On the other hand, Open Space accounts for about 11 percent of the city's land area, which includes mostly conservation and recreational sites distributed evenly throughout the city. Public Facilities account for a variety of public services, including rights-of-way, schools, hospitals, and approximately 37 acres of developable land.

The GIS data was utilized to generate estimates of current acreages, square feet, and dwelling units and a breakdown of this information by Traffic Analysis Zone (TAZ) was prepared. Table C-2 summarizes the existing citywide land use database as defined for traffic modeling purposes. A zonal listing of the land use data can be found in the traffic model notebook.

LONG-RANGE LAND USE SCENARIO 1 – GENERAL PLAN BUILDOUT

A long-range scenario was developed that applies the maximum density or intensity allowed under the General Plan to each parcel in the city. This represents a theoretical maximum level of development that could occur. However, in actuality it would be difficult to achieve for a number of reasons, including the probability that the city would have such a level of absorption in any realistic planning time frame. In particular, it postulated an amount of retail development that was an order of magnitude greater than given in OCP-2010, and created a substantial out-of-balance between residential and retail uses. Accordingly, this scenario was calculated at a citywide level, but was not allocated to individual TAZs.

LAND USE SCENARIO 2 – SELECTIVE RECYCLING

This scenario was based on future density and intensity changes occurring in selected parts of the city. These infill opportunities would occur for sites that are considered to be currently underutilized. The following assumptions were used for the areas designated for intensification:

a) Within the RM and RMH General Plan designations, properties currently developed at 60 percent or less of General Plan development capacity were assigned the *maximum* DU/Acre value specified in the Land Use Element of the General Plan (15 and 25 DU/AC respectively). These represent the most likely residential infill opportunities within the city.

Table C-2

LAND USE SUMMARY
- Existing (2006)

	Land Use Type	Units	Amount
1.	Res. Low Density	Dwelling Unit	35,958
3.	Res. Medium Density	Dwelling Unit	13,532
4.	Res. Med. High Density	Dwelling Unit	25,157
5.	Res. High Density	Dwelling Unit	1,954
7.	Commercial Regional	TSF	415
8.	Overnight Accommodations	Room	1,682
9.	Commercial Visitor	TSF	133
10.	Commercial General	TSF	7,716
12.	Commercial Neighborhood	TSF	860
15.	Commercial Office	TSF	2,584
16.	Industrial	TSF	20,261
17.	Oil Production	Acre	259
20.	MU Vertical	Dwelling Unit	118
21.	MU Vertical	TSF	364
22.	Habitat Preservation	Acre	167
23.	Open Space/Cemetery	Acre	86
24.	Agricultural/Livestock	Acre	81
26.	Commercial Recreation	Acre	240
27.	Community Park	Acre	563
28.	Sports Park	Acre	77
30.	Water Recreation	Acre	245
31.	Fire Service Related	TSF	94
32.	Government Office	TSF	268
33.	Utilities	Acre	471
34.	Library	TSF	10
37.	Senior Center	TSF	97
38.	Religious	TSF	627
39.	Public School	Student	31,581

Cont.

Table C-2 (cont)
LAND USE SUMMARY
- Existing (2006)

Land Use Type		Units	Amount
40.	Hospital	Bed	264
41.	University/Community College	Student	14,080
42.	Streets/Alleys/Roadways	Acre	3,520
43.	Vacant	Acre	243
44.	Vacant Developed	Acre	26
46.	Seashore	Acre	365
47.	Commercial Eq. (82)	TSF	495

Source: Austin-Foust Associates, Inc.(February 2009) with assistance from City Planning Department staff and based on EDAW's 2007 survey data.

b) Within an overlay area along Beach Boulevard, all properties designated for Commercial General (CG) or Mixed Use (M, MH, MV) were assigned the *maximum* FAR and/or DU/Acre value specified in the Land Use Element of the General Plan, which vary by location. The City is actively focusing future infill and redevelopment opportunities within these areas.

All other locations and General Plan designations use the *average* FAR and/or DU/Acre value derived for properties within each designation from the 2006 Existing Land Use survey. This represents current levels of development of each type across the city as a whole.

Certain assumptions were made regarding the maximum development intensity of General Plan designations which do not specify maximum values (M-sp, MH-sp, CR, Public). Assumptions are also made for existing average levels of development for categories where the amount of current development is too low to be reliable (MH-F2-30, MH-F3-30, MH-F4-30, MV-F10, MV-F8). Finally, several modifications were made to the assumptions described in a) and b) above, related to individual properties that do not meet the assumptions described. For example, applying average assumptions for a General Plan category across individual TAZs causes some TAZs to be overestimated, while others show values less than those for existing conditions. In the final database, each TAZ either remains essentially the same as it is today, or shows growth potential from infill or new development.

Table C-3 summarizes the citywide land use results for this scenario. The conclusions from the citywide totals were that the growth in employment, particularly retail employment, is substantially higher than indicated by the OCP-2010 projections and would be unlikely to occur by a planning horizon year such as 2030.

LAND USE SCENARIO 3 – 2030 PROJECTIONS

This scenario builds on Scenario 2 by depicting a more realistic land use absorption by 2030. The main focus is on retail land uses in categories such as Regional Commercial and Mixed Use. Different assumptions were also made for the other recycle areas. The basis for this alternative is as follows:

Table C-3

LAND USE SUMMARY
- Selective Recycling

Land Use Type		Units	Amount
1.	Res. Low Density	Dwelling Unit	38,587
2.	Res. Open Space	Acre	14
3.	Res. Medium Density	Dwelling Unit	16,064
4.	Res. Med. High Density	Dwelling Unit	22,879
5.	Res. High Density	Dwelling Unit	2,743
7.	Commercial Regional	TSF	1,946
8.	Overnight Accommodations	Room	3,886
9.	Commercial Visitor	TSF	449
10.	Commercial General	TSF	8,960
11.	Commercial Parking Lots	Acre	13
12.	Commercial Neighborhood	TSF	1,140
15.	Commercial Office	TSF	1,174
16.	Industrial	TSF	27,953
17.	Oil Production	Acre	231
20.	MU Vertical	Dwelling Unit	3,003
21.	MU Vertical	TSF	4,372
22.	Habitat Preservation	Acre	113
23.	Open Space/Cemetery	Acre	45
24.	Agricultural/Livestock	Acre	53
25.	Conservation	Acre	16
26.	Commercial Recreation	Acre	240
27.	Community Park	Acre	370
28.	Sports Park	Acre	92
29.	Community Park	Acre	223
30.	Water Recreation	Acre	245
31.	Fire Service Related	TSF	56
32.	Government Office	TSF	239
33.	Utilities	Acre	479
34.	Library	TSF	10
36.	Rail and Transportation	Acre	15
37.	Senior Center	TSF	61
38.	Religious	TSF	448
39.	Public School	Student	31,072

Cont.

Table C-3 (cont)
LAND USE SUMMARY
- Selective Recycling

Land Use Type		Units	Amount
40.	Hospital	Bed	131
41.	University/Community College	Student	14,080
42.	Streets/Alleys/Roadways	Acre	3,506
43.	Vacant	Acre	23
44.	Vacant Developed	Acre	13
45.	Right of Ways and Bridges	Acre	14
46.	Seashore	Acre	365

Source: Austin-Foust Associates, Inc. (February 2009) with assistance from City Planning Department staff and EDAW.

1. **Regional Commercial –** Those areas that are candidates for recycling by year 2030 were identified and the square footage calculated using representative FAR's rather than maximum FAR's. For those parcels that were developed with an FAR that is lower than the existing (2006) FAR, the future square footage was calculated using the average FAR for this land use.

2. **Mixed-Use –** Representative ratios of housing to commercial were used for this land use. The housing is designated as "Mixed Use Residential" and is considered to be medium to high density. The commercial use is further subdivided into office and retail uses. Different ratios are used according to location.

3. **Other Recycle Areas** – For those selective recycling areas not covered by the Regional Commercial or Mixed-Use categories, an average density (residential) or average FAR (non-residential) was applied. Hence, this differs from Scenario 2 in which the maximum General Plan intensity was applied. The average FAR is based on the existing (2006) average FAR for each land use category.

Table C-4 shows the assumptions and calculations for the 26 mixed use TAZ's (see reference map in Figure C-2). The approach used was to estimate the mix of uses and then determine the overall maximum FAR based on providing adequate surface parking.

The Regional Commercial land use designation primarily applies to selected areas along the Edinger Corridor. The downtown/coastal area has the highest concentration of mixed-use areas, with the remainder scattered throughout the city.

Table C-5 summarizes the average FAR and density for each land use category in the other recycle areas based on data from the 2006 Existing land use survey prepared by Austin-Foust Associates, Inc. (February 2009) with assistance from City Planning Department staff and based on EDAW's 2007 survey data.

It should be noted that development of this "2030 Projections" baseline land use alternative does not imply "defacto" land use or trip ceilings with respect to the zonal land use data. The label "2030" recognizes it as a projection and not necessarily as ultimate buildout.

Table C-4

MIXED USE LAND USE – TAZ WORKSHEET

TAZ	Data	EDAW Land Use Amount	Derived FAR & TSF	Percentage	Calculated TSF	Mixed Use Units	Commercial Mix Code	Breakdown of Commercial TSF			Parking Spaces	Parking Space Per Acre
								Office	Rest.	Retail		
22	Acres	10.39	0.48									
	DU			85%	184.67	194					388	
	TSF		217.25	15%	32.59	32.59	1	0.00	4.89	27.70	187	
	Total										**575**	125
25	Acres	28.22	0.32									
	DU			22%	86.54	281					562	
	TSF		393.36	78%	306.82	300.00	3	150.00	30.00	120.00	1395	
	Total										**1957**	464
59	Acres	5.16	0.49									
	DU			55%	60.63	63					126	
	TSF		110.23	45%	49.60	19.00	1	0.00	2.85	16.15	95	
	Total										**221**	153
69	Acres	1.33	0.56									
	DU			85%	27.58	16					36	
	TSF		32.44	15%	4.87	4.87	1	0.00	0.73	4.14	25	
	Total										**61**	123
151	Acres	23.85	1.00									
	DU			75%	779.18	825					1650	
	TSF		1038.91	25%	254.98	254.98	3	127.49	25.50	101.99	1058	
	Total										**2708**	NA
200	Acres	89.45	0.40									
	DU			85%	1324.79	779					1753	
	TSF		1558.58	15%	233.79	233.79	3	116.89	23.38	93.51	971	
	Total										**2724**	60

Table C-4 (cont)
MIXED USE LAND USE – TAZ WORKSHEET

TAZ	Data	EDAW Land Use Amount	Derived FAR & TSF	Percentage	Calculated TSF	Mixed Use Units	Commercial Mix Code	Breakdown of Commercial TSF			Parking TAZ	Parking Space LUC
								Office	Rest.	Retail		
312	Acres	1.52	1.13									
	DU			66%	49.16	52					104	
	TSF		74.49	34%	25.33	25.33	2	6.33	3.80	15.19	116	
	Total										**220**	(1754)
313	Acres	0.64	1.13									
	DU			66%	20.70	22					44	
	TSF		31.36	34%	10.66	10.66	2	2.67	1.60	6.40	49	
	Total										**93**	(1761)
316	Acres	1.07	0.55									
	DU			85%	21.78	23					49	
	TSF		25.62	15%	3.84	3.84	3	1.92	0.38	1.54	16	
	Total										**65**	159
317	Acres	3.89	1.50									
	DU			75%	190.56	201					432	
	TSF		254.08	25%	63.52	63.52	3	31.76	6.35	25.41	264	
	Total										**696**	(477)
318	Acres	4.41	1.50									
	DU			75%	216.06	227					488	
	TSF		288.08	25%	72.02	72.02	1	0.00	10.80	61.22	414	
	Total										**902**	(546)
319	Acres	1.78	1.20									
	DU			66%	61.41	65					140	
	TSF		93.04	34%	31.64	31.64	3	15.82	3.16	12.65	131	
	Total										**271**	(1153)
320	Acres	1.79	1.20									
	DU			66%	61.75	65					140	
	TSF		93.57	34%	31.81	31.81	3	15.91	3.18	12.73	132	
	Total										**272**	(1151)

Table C-4 (cont)
MIXED USE LAND USE – TAZ WORKSHEET

TAZ	Data	EDAW Land Use Amount	Derived FAR & TSF	Percentage	Calculated TSF	Mixed Use Units	Commercial Mix Code	Breakdown of Commercial TSF			Parking TAZ	Parking Space LUC
								Office	Rest.	Retail		
321	Acres	1.78	2.25									
	DU			50%	87.27	92					198	
	TSF		174.55	50%	87.27	87.27	1	0.00	13.09	74.18	436	
	Total										**634**	(570)
322	Acres	1.75	2.25									
	DU			50%	85.59	90					194	
	TSF		171.19	50%	85.59	85.59	1	0.00	12.84	72.75	428	
	Total										**622**	(570)
323	Acres	1.77	1.50									
	DU			66%	76.44	80					172	
	TSF		115.83	34%	39.38	39.38	1	0.00	5.91	33.47	197	
	Total										**369**	(631)
325	Acres	3.76	1.50									
	DU			75%	184.08	194					417	
	TSF		245.44	25%	61.36	61.36	1	0.00	9.20	52.16	307	
	Total										**724**	(514)
326	Acres	1.88	1.50									
	DU			66%	81.20	85					183	
	TSF		123.03	34%	41.83	41.83	1	0.00	6.27	35.56	209	
	Total										**392**	(631)
327	Acres	1.91	1.50									
	DU			66%	82.57	87					187	
	TSF		125.11	34%	42.54	42.54	1	0.00	6.38	36.16	213	
	Total										**400**	(633)
328	Acres	2.25	2.25									
	DU			50%	110.33	116					249	
	TSF		220.67	50%	110.33	110.33	1	0.00	16.55	93.78	635	
	Total										**884**	(628)

Table C-4 (cont)
MIXED USE LAND USE – TAZ WORKSHEET

TAZ	Data	EDAW Land Use Amount	Derived FAR & TSF	Percentage	Calculated TSF	Mixed Use Units	Commercial Mix Code	Breakdown of Commercial TSF			Parking TAZ	Parking Space LUC
								Office	Rest.	Retail		
330	Acres	0.94	1.20									
	DU			66%	32.52	34					73	
	TSF		49.27	34%	16.75	16.75	3	8.38	1.68	6.70	70	
	Total										**143**	(1149)
331	Acres	0.94	1.20									
	DU			66%	32.50	34					73	
	TSF		49.24	34%	16.74	16.74	3	8.37	1.67	6.70	69	
	Total										**142**	(1142)
332	Acres	1.04	1.20									
	DU			66%	35.88	38					82	
	TSF		54.36	34%	18.48	18.48	3	9.24	1.85	7.39	76	
	Total										**158**	(1151)
333	Acres	2.38	1.20									
	DU			66%	82.11	86					185	
	TSF		124.41	34%	42.30	42.30	3	21.15	4.23	16.92	176	
	Total										**361**	(1149)
334	Acres	1.27	2.25									
	DU			50%	62.47	66					142	
	TSF		124.93	50%	62.47	62.47	2	15.62	9.37	37.48	286	
	Total										**428**	(537)

Notes:
Commercial Mix Code

Code	Office	Restaurant	Retail
1	0	15	85
2	25	15	60
3	50	10	40

Table C-4 (cont)
MIXED USE LAND USE – TAZ WORKSHEET

Source: Huntington Beach Parking Code
1 per 200 sqft (Retail sales not listed under another use)
1 per 200 sqft (AFA: Small restaurant, not included in exclusionary restaurant category)
1 per 100 sqft (Eating establishment more than 12 seats)
1 per 300 sqft (Office less than 250,000 sqft) *AFA: credit taking for shared parking with retail. City code is 1 per 250 sqft

Residential Assumptions:
Assumes average of 950 sq ft condo
1 parking space per studio/1-bedroom and .5 spaces per guest
2 parking spaces per 2-bedroom and .5 spaces per guest
2.5 parking spaces 3-bedroom and .5 spaces per guest

Goal is 125 parking spaces per acre for surface parking
Assumptions: 9 feet by 19 feet parking space
1 parking space = 350 sq. ft.

Abbreviations used:
DU – dwelling unit
TSF – thousand square feet
FAR – floor to area ratio

Source: Austin-Foust Associates, Inc. (February 2009) with assistance from City Planning Department staff and EDAW.

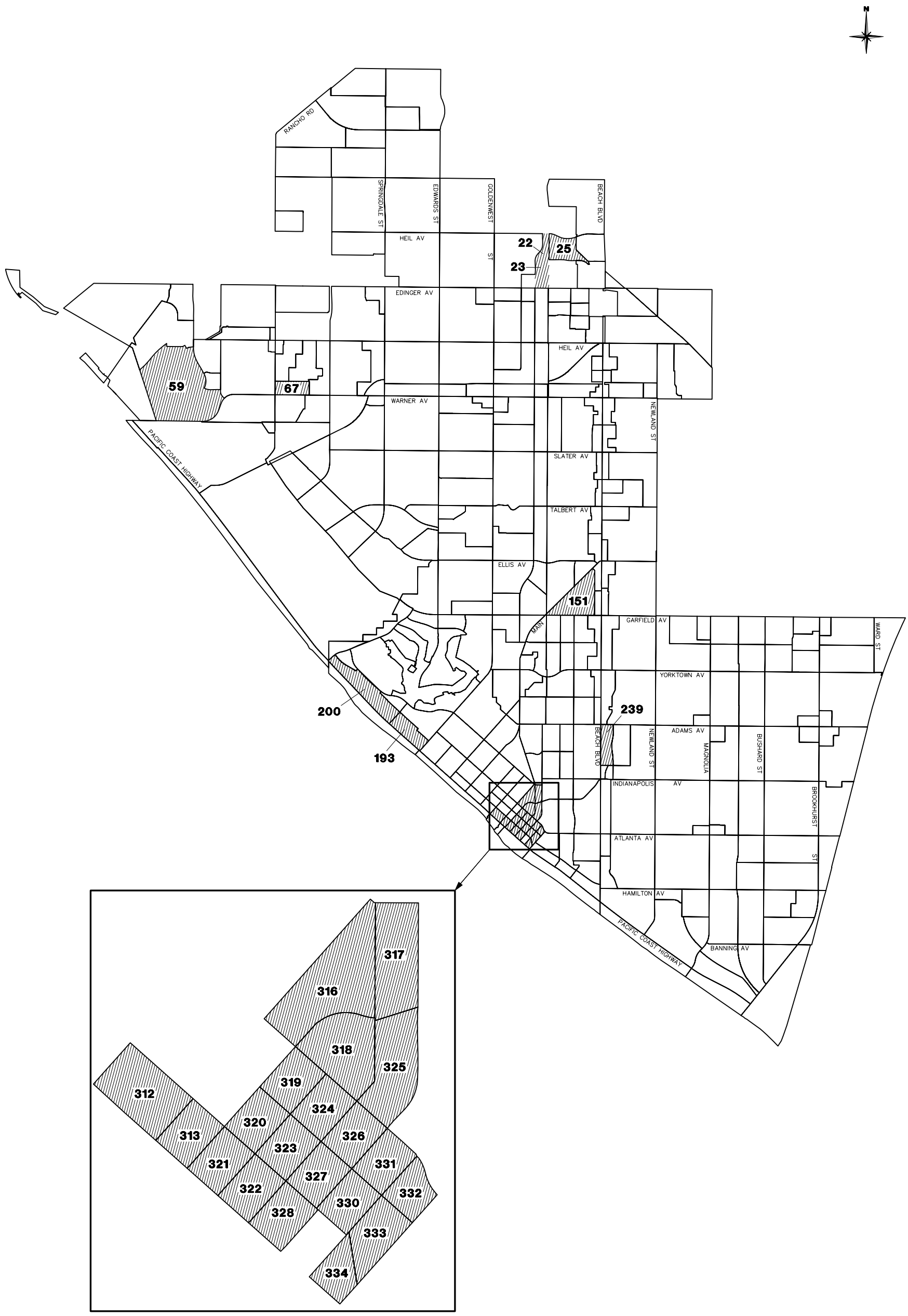


Figure C-2

MIXED-USE TAZ's

Table C-5

AVERAGE FAR AND DENSITY

Non-Residential Land Use	Subarea	Average FAR
General Commercial	Beach Boulevard	0.25
	Edinger Avenue	0.33
	Downtown/PCH	0.58
	Remainder of City	0.30
Industrial	Gothard Area	0.38
	Northwest Area of City	0.55
	Remainder of City	0.22
Regional Commercial	--	0.34
Visitor Commercial	--	0.35
Neighborhood Commercial	Downtown/PCH	0.52
	Remainder of City	0.26
Office	Beach Boulevard	0.36
	Downtown/PCH	0.60
	Remainder of City	0.41
Residential Land Use	**Average Density**	
Low Density Residential	6.45	
Medium Density Residential	14.43	
Medium High Density Residential	18.43	
High Density Residential	24.00	

Source: Austin-Foust Associates, Inc. (February 2009) with assistance from City Planning Department staff and EDAW.

Table C-6 summarizes the citywide results for this scenario, and a zonal listing of the data can be found in the traffic model notebook.

OCP-2010 COMPARISON

The citywide land use databases for 2006 and 2030 were translated into demographic data to provide a comparison with the OCP-2010 projections. For residential uses, this required applying representative population/housing factors to the dwelling units in each type of residential use. For non-residential land uses, employment factors were applied to the building area square footages. These factors converted the square footage by land use into the respective demographic components of retail, service and other employment.

A comparison between OCP-2010 and the three City land use databases (2006, Scenario 2 and Scenario 3) is as follows:

			Employment			
Data Set/Time Period	**Population**	**Housing**	**Retail**	**Service**	**Other**	**Total**
OCP-2010						
2010	190,171	77,961				73,317
2035	205,524	82,802				80,580
Growth (%)	8%	6%				10%
HB 2006						
Amount	216,038	76,719	15,688	18,085	48,054	81,826
HB Scenario 2 (Selective Recycling)						
Amount	231,674	83,276	21,648	26,054	60,223	107,925
Growth (%)	7%	8%	54%	47%	27%	36%
HB Scenario 3 (2030 Projections)						
Amount	237,503	85,264	18,412	22,352	54,797	95,561
Growth (%)	10%	11%	17%	24%	14%	17%

When the City data is converted to a 25-year growth rate (ie. 2005 to 2030), the comparison is as follows: Population: 10% (versus 8% in OCP), Housing: 11% (versus 6% in OCP), and Employment: 17% (versus 10% in OCP).

Table C-6

LAND USE SUMMARY
- 2030 Projections

Land Use Type		Units	Amount
1.	Res. Low Density	Dwelling Unit	37,644
3.	Res. Medium Density	Dwelling Unit	16,438
4.	Res. Med. High Density	Dwelling Unit	23,669
5.	Res. High Density	Dwelling Unit	2,409
7.	Commercial Regional	TSF	968
8.	Overnight Accommodations	Room	3,352
9.	Commercial Visitor	TSF	417
10.	Commercial General	TSF	8,965
12.	Commercial Neighborhood	TSF	943
15.	Commercial Office	TSF	1,975
16.	Industrial	TSF	23,899
17.	Oil Production	Acre	33
20.	MU Vertical	Dwelling Unit	5,104
21.	MU Vertical	TSF	2,733
22.	Habitat Preservation	Acre	136
23.	Open Space/Cemetery	Acre	41
24.	Agricultural/Livestock	Acre	53
25.	Conservation	Acre	16
26.	Commercial Recreation	Acre	240
27.	Community Park	Acre	515
28.	Sports Park	Acre	155
29.	Community Park	Acre	9
30.	Water Recreation	Acre	245
31.	Fire Service Related	TSF	94
32.	Government Office	TSF	240
33.	Utilities	Acre	467
34.	Library	TSF	10
37.	Senior Center	TSF	106
38.	Religious	TSF	493
39.	Public School	Student	31,635

Cont.

Table C-6 (cont)
LAND USE SUMMARY
- 2030 Projections

Land Use Type		Units	Amount
40.	Hospital	Bed	131
41.	University/Community College	Student	15,490
46.	Seashore	Acre	365
47.	Commercial Eq. (820)		982

REFERENCES

City of Huntington Beach General Plan May 13, 1996, as amended through 2004

Vacant Land Survey April 2004

McDonnell Centre Business Park, Specific Plan No. 11

Maps to Major Apartments, Condominiums and Mobile Home Parks

Sectional District Map

Site Plan Newland Street Residential

Site Plan Bella Terra Mall

Affordable Rental Housing List

Traffic Analysis Zone (TAZ) Table

Miscellaneous Affordable Housing Project Data

APPENDIX D

HIGHWAY CAPACITY MANUAL (HCM) WORKSHEETS

Existing (2005/2006)

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
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	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)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Volume (vph)	50	90	260	310	800	150
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	90	260	310	800	150
RTOR Reduction (vph)	0	0	0	136	0	109
Lane Group Flow (vph)	50	90	260	174	800	41
Turn Type	Prot			Perm		Perm
Protected Phases	1	6	2		8	
Permitted Phases				2		8
Actuated Green, G (s)	7.5	79.0	67.5	67.5	33.0	33.0
Effective Green, g (s)	7.5	79.0	67.5	67.5	33.0	33.0
Actuated g/C Ratio	0.06	0.66	0.56	0.56	0.28	0.28
Clearance Time (s)	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
Lane Grp Cap (vph)	111	2330	1991	890	944	435
v/s Ratio Prot	c0.03	0.03	0.07		c0.23	
v/s Ratio Perm				c0.11		0.03
v/c Ratio	0.45	0.04	0.13	0.20	0.85	0.09
Uniform Delay, d1	54.3	7.2	12.4	12.9	41.1	32.4
Progression Factor	1.00	1.00	0.77	0.42	1.00	1.00
Incremental Delay, d2	2.9	0.0	0.1	0.5	7.1	0.1
Delay (s)	57.2	7.2	9.6	5.9	48.3	32.5
Level of Service	E	A	A	A	D	C
Approach Delay (s)		25.1	7.6		45.8	
Approach LOS		C	A		D	

Intersection Summary

HCM Average Control Delay	30.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Volume (vph)	80	830	0	2320	2530	520
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	80	830	0	2320	2530	520
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	80	829	0	2320	2530	520
Turn Type		Perm				Free
Protected Phases	4			2	6	
Permitted Phases		4				Free
Actuated Green, G (s)	52.0	52.0		60.0	60.0	120.0
Effective Green, g (s)	52.0	52.0		60.0	60.0	120.0
Actuated g/C Ratio	0.43	0.43		0.50	0.50	1.00
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)	1488	1208		3204	3204	1583
v/s Ratio Prot	0.02			0.36	c0.39	
v/s Ratio Perm		c0.30				0.33
v/c Ratio	0.05	0.69		0.72	0.79	0.33
Uniform Delay, d1	19.7	27.4		23.5	24.8	0.0
Progression Factor	0.21	0.20		0.30	0.55	1.00
Incremental Delay, d2	0.0	1.1		0.9	1.4	0.4
Delay (s)	4.2	6.5		7.9	14.9	0.4
Level of Service	A	A		A	B	A
Approach Delay (s)	6.3			7.9	12.4	
Approach LOS	A			A	B	

Intersection Summary

HCM Average Control Delay	9.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0	4.0
Lane Util. Factor	0.97	*0.30	1.00	1.00	0.95	1.00	0.97	*0.70	1.00	*1.00	0.86	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	1676	1583	1770	3539	1583	3433	3912	1583	3539	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	1676	1583	1770	3539	1583	3433	3912	1583	3539	6408	2787
Volume (vph)	170	670	120	100	370	300	130	1690	390	490	2570	300
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	170	670	120	100	370	300	130	1690	390	490	2570	300
RTOR Reduction (vph)	0	0	44	0	0	171	0	0	109	0	0	133
Lane Group Flow (vph)	170	670	76	100	370	129	130	1690	281	490	2570	167
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	19.6	31.0	31.0	7.0	18.4	18.4	8.0	50.0	50.0	16.0	58.0	58.0
Effective Green, g (s)	19.6	31.0	31.0	7.0	18.4	18.4	8.0	50.0	50.0	16.0	58.0	58.0
Actuated g/C Ratio	0.16	0.26	0.26	0.06	0.15	0.15	0.07	0.42	0.42	0.13	0.48	0.48
Clearance Time (s)	4.0	4.0	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	3.0	3.0
Lane Grp Cap (vph)	561	433	409	103	543	243	229	1630	660	472	3097	1347
v/s Ratio Prot	0.05	c0.40		c0.06	0.10		0.04	c0.43		c0.14	0.40	
v/s Ratio Perm			0.05			0.08			0.18			0.06
v/c Ratio	0.30	1.55	0.19	0.97	0.68	0.53	0.57	1.04	0.43	1.04	0.83	0.12
Uniform Delay, d1	44.2	44.5	34.7	56.4	48.0	46.8	54.3	35.0	24.8	52.0	26.7	17.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.68	0.55	0.34	0.79	0.43	0.06
Incremental Delay, d2	0.3	257.5	1.0	79.0	3.5	2.2	2.5	30.0	1.6	43.6	1.8	0.1
Delay (s)	44.5	302.0	35.7	135.4	51.5	49.0	39.4	49.3	9.9	84.5	13.3	1.2
Level of Service	D	F	D	F	D	D	D	D	A	F	B	A
Approach Delay (s)		223.1			61.5			41.8			22.6	
Approach LOS		F			E			D			C	

Intersection Summary

HCM Average Control Delay	58.9	HCM Level of Service	E
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	1.00	1.00	1.00	0.86		1.00	0.86	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	1863	1583	1770	6399		1770	6344	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	1863	1583	1770	6399		1770	6344	
Volume (vph)	170	420	210	50	240	80	150	2080	20	70	2540	180
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	170	420	210	50	240	80	150	2080	20	70	2540	180
RTOR Reduction (vph)	0	0	132	0	0	66	0	1	0	0	8	0
Lane Group Flow (vph)	170	420	78	50	240	14	150	2099	0	70	2712	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	12.0	28.6	28.6	4.0	20.6	20.6	13.7	63.3		8.1	57.7	
Effective Green, g (s)	12.0	28.6	28.6	4.0	20.6	20.6	13.7	63.3		8.1	57.7	
Actuated g/C Ratio	0.10	0.24	0.24	0.03	0.17	0.17	0.11	0.53		0.07	0.48	
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	843	377	59	320	272	202	3375		119	3050	
v/s Ratio Prot	c0.10	0.12		0.03	c0.13		c0.08	0.33		0.04	c0.43	
v/s Ratio Perm			0.05			0.01						
v/c Ratio	0.96	0.50	0.21	0.85	0.75	0.05	0.74	0.62		0.59	0.89	
Uniform Delay, d1	53.8	39.5	36.6	57.7	47.3	41.5	51.4	19.9		54.3	28.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.45	0.38		1.30	0.31	
Incremental Delay, d2	55.9	0.5	0.3	64.8	9.5	0.1	12.5	0.8		4.1	2.5	
Delay (s)	109.6	40.0	36.9	122.5	56.7	41.6	87.3	8.5		74.8	11.3	
Level of Service	F	D	D	F	E	D	F	A		E	B	
Approach Delay (s)		54.0			62.4			13.7			12.9	
Approach LOS		D			E			B			B	

Intersection Summary

HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
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	0.97	0.95		1.00	0.95	1.00	1.00	1.00		0.97	1.00	0.88
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3528		1770	3539	1583	1770	1723		3433	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3528		1770	3539	1583	1770	1723		3433	1863	2787
Volume (vph)	540	1800	40	20	1440	280	20	50	50	350	60	700
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	540	1800	40	20	1440	280	20	50	50	350	60	700
RTOR Reduction (vph)	0	1	0	0	0	75	0	31	0	0	0	399
Lane Group Flow (vph)	540	1839	0	20	1440	205	20	69	0	350	60	301
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	19.7	69.0		1.5	50.8	50.8	1.5	12.6		13.4	24.5	24.5
Effective Green, g (s)	19.7	69.0		1.5	50.8	50.8	1.5	12.6		13.4	24.5	24.5
Actuated g/C Ratio	0.18	0.61		0.01	0.45	0.45	0.01	0.11		0.12	0.22	0.22
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)	601	2164		24	1598	715	24	193		409	406	607
v/s Ratio Prot	c0.16	0.52		0.01	c0.41		0.01	0.04		c0.10	0.03	
v/s Ratio Perm						0.13						c0.11
v/c Ratio	0.90	0.85		0.83	0.90	0.29	0.83	0.36		0.86	0.15	0.50
Uniform Delay, d1	45.4	17.6		55.4	28.5	19.4	55.4	46.2		48.6	35.6	38.6
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	16.1	3.3		110.4	7.4	0.2	110.4	1.1		15.9	0.2	0.6
Delay (s)	61.6	20.9		165.8	35.9	19.7	165.8	47.3		64.5	35.7	39.2
Level of Service	E	C		F	D	B	F	D		E	D	D
Approach Delay (s)		30.1			34.8			67.1			47.0	
Approach LOS		C			C			E			D	

Intersection Summary

HCM Average Control Delay	36.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	112.5	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.86		1.00	0.86	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	6334		1770	6408	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	6334		1770	6408	1583
Volume (vph)	290	1160	160	250	700	60	150	1320	110	260	1830	240
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	290	1160	160	250	700	60	150	1320	110	260	1830	240
RTOR Reduction (vph)	0	0	120	0	0	48	0	11	0	0	0	144
Lane Group Flow (vph)	290	1160	40	250	700	12	150	1419	0	260	1830	96
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	16.0	30.0	30.0	10.0	24.0	24.0	16.0	43.0		21.0	48.0	48.0
Effective Green, g (s)	16.0	30.0	30.0	10.0	24.0	24.0	16.0	43.0		21.0	48.0	48.0
Actuated g/C Ratio	0.13	0.25	0.25	0.08	0.20	0.20	0.13	0.36		0.18	0.40	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Grp Cap (vph)	458	1271	396	286	1017	317	236	2270		310	2563	633
v/s Ratio Prot	0.08	c0.23		c0.07	0.14		0.08	0.22		c0.15	c0.29	
v/s Ratio Perm			0.03			0.01						0.06
v/c Ratio	0.63	0.91	0.10	0.87	0.69	0.04	0.64	0.63		0.84	0.71	0.15
Uniform Delay, d1	49.2	43.7	34.6	54.4	44.5	38.7	49.2	31.8		47.9	30.2	23.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.10	1.36	4.52
Incremental Delay, d2	6.5	11.5	0.5	28.9	3.8	0.2	12.4	1.3		13.2	0.9	0.3
Delay (s)	55.7	55.2	35.1	83.3	48.3	38.9	61.6	33.1		65.7	41.9	104.3
Level of Service	E	E	D	F	D	D	E	C		E	D	F
Approach Delay (s)		53.3			56.4			35.9			51.0	
Approach LOS		D			E			D			D	

Intersection Summary

HCM Average Control Delay	48.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.86		1.00	0.86	
Frt	1.00	0.97		1.00	0.97		1.00	0.99		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	3440		1770	3441		1770	6376		1770	6314	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3440		1770	3441		1770	6376		1770	6314	
Volume (vph)	160	780	180	100	440	100	170	1450	50	200	1930	210
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	160	780	180	100	440	100	170	1450	50	200	1930	210
RTOR Reduction (vph)	0	17	0	0	16	0	0	4	0	0	15	0
Lane Group Flow (vph)	160	943	0	100	524	0	170	1496	0	200	2125	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	13.3	35.2		8.2	30.1		13.6	44.5		16.1	47.0	
Effective Green, g (s)	13.3	35.2		8.2	30.1		13.6	44.5		16.1	47.0	
Actuated g/C Ratio	0.11	0.29		0.07	0.25		0.11	0.37		0.13	0.39	
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)	196	1009		121	863		201	2364		237	2473	
v/s Ratio Prot	c0.09	c0.27		0.06	0.15		0.10	0.23		c0.11	c0.34	
v/s Ratio Perm												
v/c Ratio	0.82	0.93		0.83	0.61		0.85	0.63		0.84	0.86	
Uniform Delay, d1	52.2	41.3		55.2	39.7		52.2	31.0		50.7	33.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	22.4	15.0		34.9	1.2		26.5	1.3		23.0	4.2	
Delay (s)	74.5	56.3		90.1	40.9		78.6	32.3		73.7	37.6	
Level of Service	E	E		F	D		E	C		E	D	
Approach Delay (s)		58.9			48.6			37.0			40.7	
Approach LOS		E			D			D			D	

Intersection Summary

HCM Average Control Delay	44.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95		1.00	0.86		1.00	0.86	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3397		1770	6303		1770	6327	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3397		1770	6303		1770	6327	
Volume (vph)	60	400	170	200	410	150	170	1470	180	290	1750	160
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	60	400	170	200	410	150	170	1470	180	290	1750	160
RTOR Reduction (vph)	0	0	145	0	31	0	0	16	0	0	11	0
Lane Group Flow (vph)	60	400	25	200	529	0	170	1634	0	290	1899	0
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	7.0	17.9	17.9	17.3	28.2		15.9	45.4		23.4	52.9	
Effective Green, g (s)	7.0	17.9	17.9	17.3	28.2		15.9	45.4		23.4	52.9	
Actuated g/C Ratio	0.06	0.15	0.15	0.14	0.23		0.13	0.38		0.19	0.44	
Clearance Time (s)	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	
Lane Grp Cap (vph)	103	528	236	255	798		235	2385		345	2789	
v/s Ratio Prot	0.03	c0.11		c0.11	0.16		0.10	0.26		c0.16	c0.30	
v/s Ratio Perm			0.02									
v/c Ratio	0.58	0.76	0.11	0.78	0.66		0.72	0.69		0.84	0.68	
Uniform Delay, d1	55.1	49.0	44.1	49.5	41.6		49.9	31.3		46.5	26.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.1	6.2	0.2	14.6	2.1		10.5	1.6		16.6	1.4	
Delay (s)	63.2	55.1	44.3	64.1	43.7		60.4	32.9		63.1	28.2	
Level of Service	E	E	D	E	D		E	C		E	C	
Approach Delay (s)		53.0			49.0			35.5			32.8	
Approach LOS		D			D			D			C	

Intersection Summary

HCM Average Control Delay	38.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Lane Configurations												
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	4.0
Lane Util. Factor	1.00	0.97	1.00	0.97	0.86		0.97	0.91	1.00	0.97	0.88	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.85	0.85
Flt Protected	0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3433	1583	3433	6335		3433	5085	1583	3433	2787	1583
Flt Permitted	0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3433	1583	3433	6335		3433	5085	1583	3433	2787	1583
Volume (vph)	120	340	130	80	1460	120	160	1270	330	350	460	80
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	120	340	130	80	1460	120	160	1270	330	350	460	80
RTOR Reduction (vph)	0	0	112	0	10	0	0	0	60	0	0	59
Lane Group Flow (vph)	120	340	18	80	1570	0	160	1270	270	350	460	21
Turn Type	Split		Perm	Prot			Prot		pm+ov	Split		Perm
Protected Phases	4	4		1	6		1	6	8 9	8 9	8 9	
Permitted Phases			4						6			8 9
Actuated Green, G (s)	16.5	16.5	16.5	10.1	45.4		10.1	45.4	77.4	32.0	32.0	32.0
Effective Green, g (s)	16.5	16.5	16.5	10.1	45.4		10.1	45.4	77.4	32.0	32.0	32.0
Actuated g/C Ratio	0.14	0.14	0.14	0.08	0.38		0.08	0.38	0.65	0.27	0.27	0.27
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)	243	472	218	289	2397		289	1924	1074	915	743	422
v/s Ratio Prot	0.07	c0.10		0.02	0.25		c0.05	c0.25	0.07	0.10	c0.17	
v/s Ratio Perm			0.01						0.10			0.01
v/c Ratio	0.49	0.72	0.08	0.28	0.66		0.55	0.66	0.25	0.38	0.62	0.05
Uniform Delay, d1	47.9	49.5	45.1	51.5	30.8		52.8	30.9	9.0	35.9	38.6	32.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	0.97	0.96	1.41
Incremental Delay, d2	1.6	5.4	0.2	0.5	1.4		2.3	1.8	0.1	0.3	1.5	0.0
Delay (s)	49.5	54.9	45.3	52.0	32.2		55.1	32.7	9.1	35.3	38.5	46.3
Level of Service	D	D	D	D	C		E	C	A	D	D	D
Approach Delay (s)		51.7			33.2			30.3		37.9		
Approach LOS		D			C			C		D		

Intersection Summary

HCM Average Control Delay	35.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5039		1770	5038	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	5039		1770	5038	
Volume (vph)	170	520	160	110	280	140	140	1250	80	150	1200	80
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	170	520	160	110	280	140	140	1250	80	150	1200	80
RTOR Reduction (vph)	0	0	130	0	0	118	0	5	0	0	5	0
Lane Group Flow (vph)	170	520	30	110	280	22	140	1325	0	150	1275	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	16.2	22.4	22.4	12.3	18.5	18.5	14.1	54.5		14.8	55.2	
Effective Green, g (s)	16.2	22.4	22.4	12.3	18.5	18.5	14.1	54.5		14.8	55.2	
Actuated g/C Ratio	0.13	0.19	0.19	0.10	0.15	0.15	0.12	0.45		0.12	0.46	
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)	239	661	295	181	546	244	208	2289		218	2317	
v/s Ratio Prot	c0.10	c0.15		0.06	0.08		0.08	c0.26		c0.08	0.25	
v/s Ratio Perm			0.02			0.01						
v/c Ratio	0.71	0.79	0.10	0.61	0.51	0.09	0.67	0.58		0.69	0.55	
Uniform Delay, d1	49.7	46.5	40.5	51.5	46.6	43.5	50.7	24.3		50.4	23.4	
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	9.6	6.2	0.2	5.7	0.8	0.2	8.3	1.1		8.7	0.9	
Delay (s)	59.2	52.7	40.6	57.2	47.4	43.7	59.0	25.3		59.1	24.4	
Level of Service	E	D	D	E	D	D	E	C		E	C	
Approach Delay (s)		51.7			48.5			28.5			28.0	
Approach LOS		D			D			C			C	

Intersection Summary

HCM Average Control Delay	35.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3421		1770	5024		1770	5024	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3421		1770	5024		1770	5024	
Volume (vph)	160	420	220	120	420	120	110	1140	100	100	1140	100
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	160	420	220	120	420	120	110	1140	100	100	1140	100
RTOR Reduction (vph)	0	0	173	0	23	0	0	7	0	0	7	0
Lane Group Flow (vph)	160	420	47	120	517	0	110	1233	0	100	1233	0
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	15.6	25.4	25.4	13.0	22.8		12.5	53.9		11.7	53.1	
Effective Green, g (s)	15.6	25.4	25.4	13.0	22.8		12.5	53.9		11.7	53.1	
Actuated g/C Ratio	0.13	0.21	0.21	0.11	0.19		0.10	0.45		0.10	0.44	
Clearance Time (s)	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	
Lane Grp Cap (vph)	230	749	335	192	650		184	2257		173	2223	
v/s Ratio Prot	c0.09	c0.12		0.07	c0.15		c0.06	0.25		0.06	c0.25	
v/s Ratio Perm			0.03									
v/c Ratio	0.70	0.56	0.14	0.62	0.79		0.60	0.55		0.58	0.55	
Uniform Delay, d1	49.9	42.3	38.4	51.2	46.4		51.3	24.1		51.8	24.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.8	1.0	0.2	6.2	6.7		5.1	1.0		4.6	1.0	
Delay (s)	58.7	43.3	38.6	57.4	53.0		56.5	25.1		56.4	25.7	
Level of Service	E	D	D	E	D		E	C		E	C	
Approach Delay (s)		45.1			53.8			27.6			28.0	
Approach LOS		D			D			C			C	

Intersection Summary

HCM Average Control Delay	35.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91		1.00	0.95	1.00	1.00	0.91		0.97	0.91	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5047		1770	3539	1583	1770	4936		3433	5033	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5047		1770	3539	1583	1770	4936		3433	5033	
Volume (vph)	160	940	50	80	380	290	80	820	200	280	960	70
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	160	940	50	80	380	290	80	820	200	280	960	70
RTOR Reduction (vph)	0	5	0	0	0	232	0	28	0	0	5	0
Lane Group Flow (vph)	160	985	0	80	380	58	80	992	0	280	1025	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	15.8	30.4		9.3	23.9	23.9	9.3	49.5		14.8	55.0	
Effective Green, g (s)	15.8	30.4		9.3	23.9	23.9	9.3	49.5		14.8	55.0	
Actuated g/C Ratio	0.13	0.25		0.08	0.20	0.20	0.08	0.41		0.12	0.46	
Clearance Time (s)	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	
Lane Grp Cap (vph)	233	1279		137	705	315	137	2036		423	2307	
v/s Ratio Prot	c0.09	c0.20		0.05	0.11		0.05	c0.20		c0.08	0.20	
v/s Ratio Perm						0.04						
v/c Ratio	0.69	0.77		0.58	0.54	0.18	0.58	0.49		0.66	0.44	
Uniform Delay, d1	49.7	41.6		53.5	43.1	39.9	53.5	25.9		50.2	22.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.1	2.9		6.2	0.8	0.3	6.2	0.8		3.9	0.6	
Delay (s)	57.9	44.4		59.7	43.9	40.2	59.7	26.8		54.1	22.7	
Level of Service	E	D		E	D	D	E	C		D	C	
Approach Delay (s)		46.3			44.2			29.1			29.4	
Approach LOS		D			D			C			C	

Intersection Summary

HCM Average Control Delay	36.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		0.91		1.00	0.91	
Frt	1.00	0.98		1.00	1.00	0.85		0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1770	1828		1770	1863	1583		5054		1770	5060	
Flt Permitted	0.63	1.00		0.25	1.00	1.00		1.00		0.95	1.00	
Satd. Flow (perm)	1164	1828		472	1863	1583		5054		1770	5060	
Volume (vph)	130	210	30	30	100	220	0	700	30	230	860	30
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	130	210	30	30	100	220	0	700	30	230	860	30
RTOR Reduction (vph)	0	5	0	0	0	184	0	2	0	0	1	0
Lane Group Flow (vph)	130	235	0	30	100	36	0	728	0	230	889	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8						
Actuated Green, G (s)	19.6	19.6		19.6	19.6	19.6		68.7		19.7	92.4	
Effective Green, g (s)	19.6	19.6		19.6	19.6	19.6		68.7		19.7	92.4	
Actuated g/C Ratio	0.16	0.16		0.16	0.16	0.16		0.57		0.16	0.77	
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)	190	299		77	304	259		2893		291	3896	
v/s Ratio Prot		c0.13			0.05			c0.14		c0.13	0.18	
v/s Ratio Perm	0.11			0.06		0.02						
v/c Ratio	0.68	0.79		0.39	0.33	0.14		0.25		0.79	0.23	
Uniform Delay, d1	47.3	48.2		44.9	44.4	43.0		12.8		48.2	3.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	9.8	12.7		3.2	0.6	0.2		0.2		13.6	0.1	
Delay (s)	57.0	60.9		48.1	45.0	43.2		13.0		61.7	4.0	
Level of Service	E	E		D	D	D		B		E	A	
Approach Delay (s)		59.6			44.2			13.0			15.8	
Approach LOS		E			D			B			B	

Intersection Summary

HCM Average Control Delay	25.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	4979		1770	4998	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	4979		1770	4998	
Volume (vph)	100	420	40	50	350	270	10	370	60	270	620	80
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	105	442	42	53	368	284	11	389	63	284	653	84
RTOR Reduction (vph)	0	0	31	0	0	221	0	17	0	0	14	0
Lane Group Flow (vph)	105	442	11	53	368	63	11	435	0	284	723	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	7.3	17.3	17.3	4.3	14.3	14.3	0.9	14.7		12.4	26.2	
Effective Green, g (s)	7.3	17.3	17.3	4.3	14.3	14.3	0.9	14.7		12.4	26.2	
Actuated g/C Ratio	0.11	0.27	0.27	0.07	0.22	0.22	0.01	0.23		0.19	0.40	
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)	200	946	423	118	782	350	25	1131		339	2024	
v/s Ratio Prot	c0.06	c0.12		0.03	0.10		0.01	0.09		c0.16	c0.14	
v/s Ratio Perm			0.01			0.04						
v/c Ratio	0.53	0.47	0.03	0.45	0.47	0.18	0.44	0.38		0.84	0.36	
Uniform Delay, d1	27.1	19.8	17.5	29.1	21.9	20.4	31.6	21.2		25.2	13.4	
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	2.5	0.4	0.0	2.7	0.4	0.2	11.9	0.2		16.3	0.1	
Delay (s)	29.5	20.2	17.5	31.8	22.4	20.7	43.5	21.4		41.5	13.5	
Level of Service	C	C	B	C	C	C	D	C		D	B	
Approach Delay (s)		21.7			22.4			21.9			21.3	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	21.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	64.7	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3531		3433	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3531		3433	1583
Volume (vph)	140	1980	1340	20	90	260
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	140	1980	1340	20	90	260
RTOR Reduction (vph)	0	0	1	0	0	29
Lane Group Flow (vph)	140	1980	1359	0	90	231
Turn Type	Prot					pm+ov
Protected Phases	7	4	8		6	7
Permitted Phases						6
Actuated Green, G (s)	8.3	44.0	31.7		7.4	15.7
Effective Green, g (s)	8.3	44.0	31.7		7.4	15.7
Actuated g/C Ratio	0.14	0.74	0.53		0.12	0.26
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)	247	2621	1884		428	525
v/s Ratio Prot	0.08	c0.56	0.38		0.03	c0.06
v/s Ratio Perm						0.08
v/c Ratio	0.57	0.76	0.72		0.21	0.44
Uniform Delay, d1	23.9	4.5	10.5		23.4	18.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.0	1.3	1.4		0.2	0.6
Delay (s)	26.8	5.8	11.9		23.6	18.8
Level of Service	C	A	B		C	B
Approach Delay (s)		7.2	11.9		20.0	
Approach LOS		A	B		C	

Intersection Summary

HCM Average Control Delay	10.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	59.4	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
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	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)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Volume (vph)	340	1760	1330	180	350	230
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	340	1760	1330	180	350	230
RTOR Reduction (vph)	0	0	0	85	0	192
Lane Group Flow (vph)	340	1760	1330	95	350	38
Turn Type	Prot			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	21.4	65.6	40.2	40.2	14.4	14.4
Effective Green, g (s)	21.4	65.6	40.2	40.2	14.4	14.4
Actuated g/C Ratio	0.24	0.75	0.46	0.46	0.16	0.16
Clearance Time (s)	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
Lane Grp Cap (vph)	430	2638	1617	723	562	259
v/s Ratio Prot	c0.19	0.50	c0.38		c0.10	
v/s Ratio Perm				0.06		0.02
v/c Ratio	0.79	0.67	0.82	0.13	0.62	0.15
Uniform Delay, d1	31.2	5.7	20.8	13.8	34.3	31.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.6	0.6	3.5	0.1	2.2	0.3
Delay (s)	40.8	6.3	24.3	13.9	36.4	31.8
Level of Service	D	A	C	B	D	C
Approach Delay (s)		11.9	23.1		34.6	
Approach LOS		B	C		C	

Intersection Summary

HCM Average Control Delay	19.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	88.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
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	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)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	1770	1583
Volume (vph)	130	2160	1110	60	120	140
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	130	2160	1110	60	120	140
RTOR Reduction (vph)	0	0	0	26	0	119
Lane Group Flow (vph)	130	2160	1110	34	120	21
Turn Type	Prot			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	8.9	53.2	40.3	40.3	10.6	10.6
Effective Green, g (s)	8.9	53.2	40.3	40.3	10.6	10.6
Actuated g/C Ratio	0.12	0.74	0.56	0.56	0.15	0.15
Clearance Time (s)	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
Lane Grp Cap (vph)	219	2622	1986	889	261	234
v/s Ratio Prot	0.07	c0.61	0.31		c0.07	
v/s Ratio Perm				0.02		0.01
v/c Ratio	0.59	0.82	0.56	0.04	0.46	0.09
Uniform Delay, d1	29.7	6.2	10.1	7.1	28.0	26.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.3	2.2	0.3	0.0	1.3	0.2
Delay (s)	34.0	8.4	10.4	7.1	29.3	26.6
Level of Service	C	A	B	A	C	C
Approach Delay (s)		9.9	10.2		27.8	
Approach LOS		A	B		C	

Intersection Summary

HCM Average Control Delay	11.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	71.8	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91		1.00	0.91			1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00			0.95		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00			0.98		0.95	1.00	
Satd. Flow (prot)	1770	5082		1770	5071			1750		1770	1623	
Flt Permitted	0.95	1.00		0.95	1.00			0.90		0.74	1.00	
Satd. Flow (perm)	1770	5082		1770	5071			1595		1374	1623	
Volume (vph)	40	2120	10	20	1080	20	10	10	10	40	10	60
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	40	2120	10	20	1080	20	10	10	10	40	10	60
RTOR Reduction (vph)	0	0	0	0	2	0	0	9	0	0	51	0
Lane Group Flow (vph)	40	2130	0	20	1098	0	0	21	0	40	19	0
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	2.6	33.0		0.9	31.3			7.7		7.7	7.7	
Effective Green, g (s)	2.6	33.0		0.9	31.3			7.7		7.7	7.7	
Actuated g/C Ratio	0.05	0.62		0.02	0.58			0.14		0.14	0.14	
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)	86	3129		30	2961			229		197	233	
v/s Ratio Prot	c0.02	c0.42		0.01	0.22						0.01	
v/s Ratio Perm								0.01		c0.03		
v/c Ratio	0.47	0.68		0.67	0.37			0.09		0.20	0.08	
Uniform Delay, d1	24.8	6.8		26.2	5.9			19.9		20.2	19.9	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	3.9	0.6		44.1	0.1			0.2		0.5	0.1	
Delay (s)	28.8	7.4		70.3	6.0			20.1		20.8	20.0	
Level of Service	C	A		E	A			C		C	C	
Approach Delay (s)		7.8			7.1			20.1			20.3	
Approach LOS		A			A			C			C	

Intersection Summary

HCM Average Control Delay	8.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	53.6	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Ideal Flow (vphpl)	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	0.91	1.00	0.91	1.00	1.00	1.00
Frt	1.00	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	1770	5085	1583	1770	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	1770	5085	1583	1770	1583
Volume (vph)	50	2260	10	1460	40	50	60
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	2260	10	1460	40	50	60
RTOR Reduction (vph)	0	0	0	0	7	0	52
Lane Group Flow (vph)	50	2260	10	1460	33	50	8
Turn Type	Prot		Prot		Perm		Perm
Protected Phases	7	4	3	8		6	
Permitted Phases					8		6
Actuated Green, G (s)	3.0	33.8	1.1	31.9	31.9	7.0	7.0
Effective Green, g (s)	3.0	33.8	1.1	31.9	31.9	7.0	7.0
Actuated g/C Ratio	0.06	0.63	0.02	0.59	0.59	0.13	0.13
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)	99	3189	36	3009	937	230	206
v/s Ratio Prot	c0.03	c0.44	0.01	0.29		c0.03	
v/s Ratio Perm					0.02		0.00
v/c Ratio	0.51	0.71	0.28	0.49	0.04	0.22	0.04
Uniform Delay, d1	24.7	6.7	26.0	6.3	4.6	21.0	20.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.0	0.7	4.2	0.1	0.0	0.5	0.1
Delay (s)	28.7	7.5	30.2	6.4	4.6	21.5	20.6
Level of Service	C	A	C	A	A	C	C
Approach Delay (s)		7.9		6.5		21.0	
Approach LOS		A		A		C	

Intersection Summary

HCM Average Control Delay	7.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	53.9	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91		1.00	0.91		0.95		1.00	0.95	0.95	1.00
Frt	1.00	1.00		1.00	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	0.95	0.96	1.00
Satd. Flow (prot)	1770	5082		1770	5061		1681		1583	1681	1700	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95		1.00	0.95	0.96	1.00
Satd. Flow (perm)	1770	5082		1770	5061		1681		1583	1681	1700	1583
Volume (vph)	50	2300	10	10	910	30	10	0	10	100	10	130
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	2300	10	10	910	30	10	0	10	100	10	130
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	9	0	0	116
Lane Group Flow (vph)	50	2310	0	10	937	0	10	0	1	54	56	14
Turn Type	Prot			Prot			Split		Perm	Split		Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases									2			6
Actuated Green, G (s)	4.1	44.5		0.6	41.0		6.4		6.4	8.1	8.1	8.1
Effective Green, g (s)	4.1	44.5		0.6	41.0		6.4		6.4	8.1	8.1	8.1
Actuated g/C Ratio	0.05	0.59		0.01	0.54		0.08		0.08	0.11	0.11	0.11
Clearance Time (s)	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
Lane Grp Cap (vph)	96	2991		14	2745		142		134	180	182	170
v/s Ratio Prot	c0.03	c0.45		0.01	0.19		c0.01			0.03	c0.03	
v/s Ratio Perm									0.00			0.01
v/c Ratio	0.52	0.77		0.71	0.34		0.07		0.01	0.30	0.31	0.08
Uniform Delay, d1	34.8	11.7		37.4	9.7		31.9		31.7	31.1	31.2	30.4
Progression Factor	1.00	1.00		1.00	1.00		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	5.0	1.3		100.1	0.1		0.2		0.0	0.9	1.0	0.2
Delay (s)	39.8	13.0		137.5	9.8		32.1		31.7	32.1	32.1	30.6
Level of Service	D	B		F	A		C		C	C	C	C
Approach Delay (s)		13.6			11.1			31.9			31.3	
Approach LOS		B			B			C			C	

Intersection Summary

HCM Average Control Delay	14.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	75.6	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95	1.00		0.95		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.95		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.98		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583		3307		1770	1583	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.98		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583		3307		1770	1583	
Volume (vph)	20	2290	10	10	970	20	10	10	10	30	0	40
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	20	2290	10	10	970	20	10	10	10	30	0	40
RTOR Reduction (vph)	0	0	2	0	0	6	0	9	0	0	37	0
Lane Group Flow (vph)	20	2290	8	10	970	14	0	21	0	30	3	0
Turn Type	Prot		Perm	Prot		Perm	Split			Split		
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4			8						
Actuated Green, G (s)	1.9	68.2	68.2	0.7	67.0	67.0		6.1		7.2	7.2	
Effective Green, g (s)	1.9	68.2	68.2	0.7	67.0	67.0		6.1		7.2	7.2	
Actuated g/C Ratio	0.02	0.69	0.69	0.01	0.68	0.68		0.06		0.07	0.07	
Clearance Time (s)	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	
Lane Grp Cap (vph)	34	2458	1099	13	2415	1080		205		130	116	
v/s Ratio Prot	c0.01	c0.65		0.01	0.27			c0.01		c0.02	0.00	
v/s Ratio Perm			0.01			0.01						
v/c Ratio	0.59	0.93	0.01	0.77	0.40	0.01		0.10		0.23	0.03	
Uniform Delay, d1	47.8	13.0	4.6	48.7	6.8	5.0		43.5		42.9	42.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	23.4	7.2	0.0	128.6	0.1	0.0		0.2		0.9	0.1	
Delay (s)	71.1	20.2	4.6	177.3	6.9	5.0		43.7		43.8	42.3	
Level of Service	E	C	A	F	A	A		D		D	D	
Approach Delay (s)		20.5			8.6			43.7			43.0	
Approach LOS		C			A			D			D	

Intersection Summary

HCM Average Control Delay	17.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	98.2	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5081		1770	3539	1583	1770	3539	1583	3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5081		1770	3539	1583	1770	3539	1583	3433	1863	1583
Volume (vph)	100	1980	10	20	770	260	20	20	10	520	40	170
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	105	2084	11	21	811	274	21	21	11	547	42	179
RTOR Reduction (vph)	0	1	0	0	0	153	0	0	10	0	0	0
Lane Group Flow (vph)	105	2094	0	21	811	121	21	21	1	547	42	179
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			Free
Actuated Green, G (s)	5.8	43.7		1.2	39.1	39.1	1.5	9.5	9.5	17.9	25.9	88.3
Effective Green, g (s)	5.8	43.7		1.2	39.1	39.1	1.5	9.5	9.5	17.9	25.9	88.3
Actuated g/C Ratio	0.07	0.49		0.01	0.44	0.44	0.02	0.11	0.11	0.20	0.29	1.00
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)	225	2515		24	1567	701	30	381	170	696	546	1583
v/s Ratio Prot	c0.03	c0.41		0.01	0.23		0.01	0.01		c0.16	0.02	
v/s Ratio Perm						0.08			0.00			c0.11
v/c Ratio	0.47	0.83		0.88	0.52	0.17	0.70	0.06	0.01	0.79	0.08	0.11
Uniform Delay, d1	39.8	19.2		43.5	17.8	14.8	43.2	35.4	35.2	33.4	22.6	0.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	2.5		127.4	0.3	0.1	52.7	0.1	0.0	5.8	0.1	0.1
Delay (s)	41.3	21.7		170.8	18.1	15.0	95.9	35.4	35.2	39.2	22.6	0.1
Level of Service	D	C		F	B	B	F	D	D	D	C	A
Approach Delay (s)		22.6			20.2			59.4			29.2	
Approach LOS		C			C			E			C	

Intersection Summary

HCM Average Control Delay	23.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	88.3	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91	1.00	1.00	0.91	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		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583		1832	1583		1778	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.90	1.00		0.71	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583		1679	1583		1331	1583
Volume (vph)	80	2440	10	10	880	40	10	20	10	190	10	100
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	80	2440	10	10	880	40	10	20	10	190	10	100
RTOR Reduction (vph)	0	0	4	0	0	18	0	0	8	0	0	65
Lane Group Flow (vph)	80	2440	6	10	880	22	0	30	2	0	200	35
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		6
Actuated Green, G (s)	5.3	47.5	47.5	0.7	42.9	42.9		16.3	16.3		16.3	16.3
Effective Green, g (s)	5.3	47.5	47.5	0.7	42.9	42.9		16.3	16.3		16.3	16.3
Actuated g/C Ratio	0.07	0.62	0.62	0.01	0.56	0.56		0.21	0.21		0.21	0.21
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)	123	3157	983	16	2852	888		358	337		284	337
v/s Ratio Prot	c0.05	c0.48		0.01	0.17							
v/s Ratio Perm			0.00			0.01		0.02	0.00		c0.15	0.02
v/c Ratio	0.65	0.77	0.01	0.62	0.31	0.03		0.08	0.01		0.70	0.11
Uniform Delay, d1	34.7	10.6	5.5	37.8	8.9	7.5		24.1	23.7		27.9	24.2
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	11.7	1.2	0.0	57.6	0.1	0.0		0.1	0.0		7.7	0.1
Delay (s)	46.4	11.8	5.5	95.4	9.0	7.5		24.2	23.7		35.6	24.4
Level of Service	D	B	A	F	A	A		C	C		D	C
Approach Delay (s)		12.9			9.8			24.1			31.8	
Approach LOS		B			A			C			C	

Intersection Summary

HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	76.5	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.95	0.95		0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1681	1703		1681	1723	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1681	1703		1681	1723	1583
Volume (vph)	90	2520	40	30	850	60	10	30	10	160	50	110
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	90	2520	40	30	850	60	10	30	10	160	50	110
RTOR Reduction (vph)	0	0	15	0	0	27	0	9	0	0	0	97
Lane Group Flow (vph)	90	2520	25	30	850	33	10	31	0	102	108	13
Turn Type	Prot		Perm	Prot		Perm	Split			Split		Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	7.7	55.7	55.7	2.5	50.5	50.5	7.7	7.7		10.9	10.9	10.9
Effective Green, g (s)	7.7	55.7	55.7	2.5	50.5	50.5	7.7	7.7		10.9	10.9	10.9
Actuated g/C Ratio	0.08	0.60	0.60	0.03	0.54	0.54	0.08	0.08		0.12	0.12	0.12
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	147	3052	950	48	2767	861	139	141		197	202	186
v/s Ratio Prot	c0.05	c0.50		0.02	0.17		0.01	c0.02		0.06	c0.06	
v/s Ratio Perm			0.02			0.02						0.01
v/c Ratio	0.61	0.83	0.03	0.62	0.31	0.04	0.07	0.22		0.52	0.53	0.07
Uniform Delay, d1	41.1	14.7	7.5	44.7	11.6	9.8	39.3	39.7		38.5	38.6	36.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.3	1.9	0.0	22.7	0.1	0.0	0.2	0.8		2.3	2.7	0.2
Delay (s)	48.5	16.6	7.5	67.4	11.6	9.9	39.5	40.5		40.8	41.3	36.6
Level of Service	D	B	A	E	B	A	D	D		D	D	D
Approach Delay (s)		17.6			13.3			40.3			39.5	
Approach LOS		B			B			D			D	

Intersection Summary

HCM Average Control Delay	18.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	92.8	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1723		3433	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	1723		3433	1863	1583
Volume (vph)	240	2290	10	10	840	270	10	10	10	510	10	100
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	240	2290	10	10	840	270	10	10	10	510	10	100
RTOR Reduction (vph)	0	0	5	0	0	117	0	9	0	0	0	80
Lane Group Flow (vph)	240	2290	5	10	840	153	10	11	0	510	10	20
Turn Type	Prot		Perm	Prot		pm+ov	Split			Split		Perm
Protected Phases	7	4		3	8	6	2	2		6	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	16.6	49.5	49.5	0.6	33.5	51.5	6.5	6.5		18.0	18.0	18.0
Effective Green, g (s)	16.6	49.5	49.5	0.6	33.5	51.5	6.5	6.5		18.0	18.0	18.0
Actuated g/C Ratio	0.18	0.55	0.55	0.01	0.37	0.57	0.07	0.07		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		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	3.0
Lane Grp Cap (vph)	324	2778	865	12	1880	900	127	124		682	370	315
v/s Ratio Prot	c0.14	c0.45		0.01	0.17	0.03	0.01	c0.01		c0.15	0.01	
v/s Ratio Perm			0.00			0.06						0.01
v/c Ratio	0.74	0.82	0.01	0.83	0.45	0.17	0.08	0.09		0.75	0.03	0.06
Uniform Delay, d1	35.0	17.0	9.4	45.0	21.6	9.3	39.3	39.3		34.2	29.2	29.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	8.8	2.1	0.0	168.3	0.2	0.1	0.3	0.3		4.5	0.0	0.1
Delay (s)	43.8	19.1	9.4	213.3	21.7	9.4	39.5	39.6		38.7	29.3	29.5
Level of Service	D	B	A	F	C	A	D	D		D	C	C
Approach Delay (s)		21.4			20.5			39.6			37.0	
Approach LOS		C			C			D			D	

Intersection Summary

HCM Average Control Delay	23.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	90.6	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
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	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)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Volume (vph)	350	210	240	610	930	200
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	350	210	240	610	930	200
RTOR Reduction (vph)	0	0	0	387	0	139
Lane Group Flow (vph)	350	210	240	223	930	61
Turn Type	Prot			Perm		Perm
Protected Phases	1	6	2		8	
Permitted Phases				2		8
Actuated Green, G (s)	27.3	75.2	43.9	43.9	36.8	36.8
Effective Green, g (s)	27.3	75.2	43.9	43.9	36.8	36.8
Actuated g/C Ratio	0.23	0.63	0.37	0.37	0.31	0.31
Clearance Time (s)	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
Lane Grp Cap (vph)	403	2218	1295	579	1053	485
v/s Ratio Prot	c0.20	0.06	0.07		c0.27	
v/s Ratio Perm				c0.14		0.04
v/c Ratio	0.87	0.09	0.19	0.39	0.88	0.13
Uniform Delay, d1	44.6	8.9	25.9	28.1	39.6	30.0
Progression Factor	1.00	1.00	0.72	0.49	1.00	1.00
Incremental Delay, d2	17.6	0.1	0.3	1.7	8.9	0.1
Delay (s)	62.3	9.0	19.0	15.5	48.5	30.1
Level of Service	E	A	B	B	D	C
Approach Delay (s)		42.3	16.5		45.2	
Approach LOS		D	B		D	

Intersection Summary

HCM Average Control Delay	35.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Volume (vph)	160	960	0	2740	2090	820
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	160	960	0	2740	2090	820
RTOR Reduction (vph)	0	6	0	0	0	0
Lane Group Flow (vph)	160	954	0	2740	2090	820
Turn Type		Perm				Free
Protected Phases	4			2	6	
Permitted Phases		4				Free
Actuated Green, G (s)	44.3	44.3		67.7	67.7	120.0
Effective Green, g (s)	44.3	44.3		67.7	67.7	120.0
Actuated g/C Ratio	0.37	0.37		0.56	0.56	1.00
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)	1267	1029		3615	3615	1583
v/s Ratio Prot	0.05			c0.43	0.33	
v/s Ratio Perm		c0.34				0.52
v/c Ratio	0.13	0.93		0.76	0.58	0.52
Uniform Delay, d1	25.0	36.3		19.9	16.9	0.0
Progression Factor	0.55	0.81		0.55	1.20	1.00
Incremental Delay, d2	0.0	9.8		0.4	0.5	1.0
Delay (s)	13.8	39.4		11.3	20.9	1.0
Level of Service	B	D		B	C	A
Approach Delay (s)	35.8			11.3	15.3	
Approach LOS	D			B	B	

Intersection Summary

HCM Average Control Delay	17.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0	4.0
Lane Util. Factor	0.97	*0.95	1.00	1.00	0.95	1.00	0.97	*0.70	1.00	*1.00	0.86	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5309	1583	1770	3539	1583	3433	3912	1583	3539	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5309	1583	1770	3539	1583	3433	3912	1583	3539	6408	2787
Volume (vph)	350	710	290	200	580	270	550	2290	560	360	2340	680
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	350	710	290	200	580	270	550	2290	560	360	2340	680
RTOR Reduction (vph)	0	0	249	0	0	138	0	0	170	0	0	282
Lane Group Flow (vph)	350	710	41	200	580	132	550	2290	390	360	2340	398
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	12.0	17.0	17.0	13.0	18.0	18.0	22.0	62.0	62.0	12.0	52.0	52.0
Effective Green, g (s)	12.0	17.0	17.0	13.0	18.0	18.0	22.0	62.0	62.0	12.0	52.0	52.0
Actuated g/C Ratio	0.10	0.14	0.14	0.11	0.15	0.15	0.18	0.52	0.52	0.10	0.43	0.43
Clearance Time (s)	4.0	4.0	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	3.0	3.0
Lane Grp Cap (vph)	343	752	224	192	531	237	629	2021	818	354	2777	1208
v/s Ratio Prot	0.10	c0.13		0.11	c0.16		0.16	c0.59		c0.10	0.37	
v/s Ratio Perm			0.03			0.08			0.25			0.14
v/c Ratio	1.02	0.94	0.18	1.04	1.09	0.56	0.87	1.13	0.48	1.02	0.84	0.33
Uniform Delay, d1	54.0	51.0	45.4	53.5	51.0	47.3	47.7	29.0	18.6	54.0	30.3	22.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.58	0.31	0.02	1.12	0.82	1.01
Incremental Delay, d2	53.9	20.3	0.4	76.3	66.6	2.8	9.9	65.1	1.5	46.7	2.6	0.6
Delay (s)	107.9	71.3	45.8	129.8	117.6	50.2	37.7	74.1	1.9	107.4	27.4	23.3
Level of Service	F	E	D	F	F	D	D	E	A	F	C	C
Approach Delay (s)		75.3			102.6			56.3			35.1	
Approach LOS		E			F			E			D	

Intersection Summary

HCM Average Control Delay	56.6	HCM Level of Service	E
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	1.00	1.00	1.00	0.86		1.00	0.86	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	1863	1583	1770	6393		1770	6334	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	1863	1583	1770	6393		1770	6334	
Volume (vph)	170	300	170	50	230	110	190	2570	40	150	2530	210
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	170	300	170	50	230	110	190	2570	40	150	2530	210
RTOR Reduction (vph)	0	0	134	0	0	94	0	2	0	0	10	0
Lane Group Flow (vph)	170	300	36	50	230	16	190	2608	0	150	2730	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	14.4	25.3	25.3	6.3	17.2	17.2	14.7	59.7		12.7	57.7	
Effective Green, g (s)	14.4	25.3	25.3	6.3	17.2	17.2	14.7	59.7		12.7	57.7	
Actuated g/C Ratio	0.12	0.21	0.21	0.05	0.14	0.14	0.12	0.50		0.11	0.48	
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)	212	746	334	93	267	227	217	3181		187	3046	
v/s Ratio Prot	c0.10	0.08		0.03	c0.12		c0.11	0.41		0.08	c0.43	
v/s Ratio Perm			0.02			0.01						
v/c Ratio	0.80	0.40	0.11	0.54	0.86	0.07	0.88	0.82		0.80	0.90	
Uniform Delay, d1	51.4	40.8	38.2	55.4	50.2	44.5	51.8	25.6		52.4	28.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.81	0.14		0.82	0.16	
Incremental Delay, d2	19.2	0.4	0.1	5.9	23.6	0.1	14.0	1.0		12.8	2.7	
Delay (s)	70.6	41.2	38.4	61.3	73.8	44.6	55.7	4.6		55.7	7.2	
Level of Service	E	D	D	E	E	D	E	A		E	A	
Approach Delay (s)		48.3			64.0			8.1			9.7	
Approach LOS		D			E			A			A	

Intersection Summary

HCM Average Control Delay	15.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
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	0.97	0.95		1.00	0.95	1.00	1.00	1.00		0.97	1.00	0.88
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3535		1770	3539	1583	1770	1793		3433	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3535		1770	3539	1583	1770	1793		3433	1863	2787
Volume (vph)	650	1200	10	10	1390	390	10	60	20	300	40	580
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	650	1200	10	10	1390	390	10	60	20	300	40	580
RTOR Reduction (vph)	0	0	0	0	0	107	0	11	0	0	0	459
Lane Group Flow (vph)	650	1210	0	10	1390	283	10	69	0	300	40	121
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	23.4	73.0		0.7	50.3	50.3	0.7	12.8		11.7	23.8	23.8
Effective Green, g (s)	23.4	73.0		0.7	50.3	50.3	0.7	12.8		11.7	23.8	23.8
Actuated g/C Ratio	0.20	0.64		0.01	0.44	0.44	0.01	0.11		0.10	0.21	0.21
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)	703	2260		11	1559	697	11	201		352	388	581
v/s Ratio Prot	c0.19	0.34		0.01	c0.39		0.01	c0.04		c0.09	0.02	
v/s Ratio Perm						0.18						0.04
v/c Ratio	0.92	0.54		0.91	0.89	0.41	0.91	0.35		0.85	0.10	0.21
Uniform Delay, d1	44.5	11.3		56.7	29.4	21.8	56.7	46.8		50.4	36.6	37.4
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	17.9	0.2		217.6	6.9	0.4	217.6	1.0		17.7	0.1	0.2
Delay (s)	62.5	11.5		274.3	36.3	22.2	274.3	47.9		68.1	36.7	37.6
Level of Service	E	B		F	D	C	F	D		E	D	D
Approach Delay (s)		29.3			34.5			73.0			47.5	
Approach LOS		C			C			E			D	

Intersection Summary

HCM Average Control Delay	35.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	114.2	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.86		0.97	0.86	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	6311		3433	6408	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	6311		3433	6408	1583
Volume (vph)	430	1000	250	290	1100	200	350	2330	260	270	2050	470
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	430	1000	250	290	1100	200	350	2330	260	270	2050	470
RTOR Reduction (vph)	0	0	180	0	0	119	0	16	0	0	0	204
Lane Group Flow (vph)	430	1000	70	290	1100	81	350	2574	0	270	2050	267
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	16.0	30.0	30.0	13.0	27.0	27.0	15.0	51.0		10.0	46.0	46.0
Effective Green, g (s)	16.0	30.0	30.0	13.0	27.0	27.0	15.0	51.0		10.0	46.0	46.0
Actuated g/C Ratio	0.13	0.25	0.25	0.11	0.22	0.22	0.12	0.42		0.08	0.38	0.38
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Grp Cap (vph)	458	1271	396	372	1144	356	429	2682		286	2456	607
v/s Ratio Prot	c0.13	0.20		0.08	c0.22		0.10	c0.41		0.08	c0.32	
v/s Ratio Perm			0.04			0.05						0.17
v/c Ratio	0.94	0.79	0.18	0.78	0.96	0.23	0.82	0.96		0.94	0.83	0.44
Uniform Delay, d1	51.5	42.0	35.3	52.1	46.0	38.0	51.2	33.5		54.7	33.6	27.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.63	0.41	0.14
Incremental Delay, d2	29.3	5.0	1.0	14.9	18.8	1.5	15.6	10.2		27.0	1.9	1.2
Delay (s)	80.8	47.0	36.3	67.0	64.8	39.5	66.8	43.7		61.2	15.8	4.9
Level of Service	F	D	D	E	E	D	E	D		E	B	A
Approach Delay (s)		54.0			62.0			46.5			18.4	
Approach LOS		D			E			D			B	

Intersection Summary

HCM Average Control Delay	41.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.86		1.00	0.86	
Frt	1.00	0.97		1.00	0.97		1.00	0.99		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	3416		1770	3424		1770	6363		1770	6327	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3416		1770	3424		1770	6363		1770	6327	
Volume (vph)	210	630	190	100	610	170	210	2060	100	170	1860	170
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	210	630	190	100	610	170	210	2060	100	170	1860	170
RTOR Reduction (vph)	0	24	0	0	21	0	0	6	0	0	12	0
Lane Group Flow (vph)	210	796	0	100	759	0	210	2154	0	170	2018	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	16.4	35.9		8.8	28.3		16.4	45.7		13.6	42.9	
Effective Green, g (s)	16.4	35.9		8.8	28.3		16.4	45.7		13.6	42.9	
Actuated g/C Ratio	0.14	0.30		0.07	0.24		0.14	0.38		0.11	0.36	
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)	242	1022		130	807		242	2423		201	2262	
v/s Ratio Prot	c0.12	0.23		0.06	c0.22		c0.12	c0.34		0.10	0.32	
v/s Ratio Perm												
v/c Ratio	0.87	0.78		0.77	0.94		0.87	0.89		0.85	0.89	
Uniform Delay, d1	50.7	38.4		54.6	45.0		50.7	34.8		52.2	36.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	26.3	3.8		23.5	18.7		26.3	5.4		26.5	5.9	
Delay (s)	77.0	42.2		78.1	63.7		77.0	40.2		78.6	42.3	
Level of Service	E	D		E	E		E	D		E	D	
Approach Delay (s)		49.3			65.3			43.4			45.1	
Approach LOS		D			E			D			D	

Intersection Summary

HCM Average Control Delay	47.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95		1.00	0.86		1.00	0.86	
Frt	1.00	1.00	0.85	1.00	0.94		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3326		1770	6295		1770	6364	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3326		1770	6295		1770	6364	
Volume (vph)	170	540	120	260	520	350	200	2100	280	310	2110	100
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	170	540	120	260	520	350	200	2100	280	310	2110	100
RTOR Reduction (vph)	0	0	100	0	97	0	0	20	0	0	5	0
Lane Group Flow (vph)	170	540	20	260	773	0	200	2360	0	310	2205	0
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	11.0	20.0	20.0	18.0	27.0		16.1	45.0		21.0	49.9	
Effective Green, g (s)	11.0	20.0	20.0	18.0	27.0		16.1	45.0		21.0	49.9	
Actuated g/C Ratio	0.09	0.17	0.17	0.15	0.22		0.13	0.38		0.18	0.42	
Clearance Time (s)	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	
Lane Grp Cap (vph)	162	590	264	266	748		237	2361		310	2646	
v/s Ratio Prot	0.10	0.15		c0.15	c0.23		0.11	c0.37		c0.18	0.35	
v/s Ratio Perm			0.01									
v/c Ratio	1.05	0.92	0.08	0.98	1.03		0.84	1.00		1.00	0.83	
Uniform Delay, d1	54.5	49.2	42.2	50.8	46.5		50.7	37.5		49.5	31.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	84.4	18.9	0.1	48.4	41.9		23.0	18.4		51.1	3.3	
Delay (s)	138.9	68.0	42.3	99.2	88.4		73.7	55.9		100.6	34.6	
Level of Service	F	E	D	F	F		E	E		F	C	
Approach Delay (s)		78.8			90.9			57.3			42.7	
Approach LOS		E			F			E			D	

Intersection Summary

HCM Average Control Delay	60.0	HCM Level of Service	E
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Lane Configurations												
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	4.0
Lane Util. Factor	1.00	0.97	1.00	0.97	0.86		0.97	0.91	1.00	0.97	0.88	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.85	0.85
Flt Protected	0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3433	1583	3433	6327		3433	5085	1583	3433	2787	1583
Flt Permitted	0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3433	1583	3433	6327		3433	5085	1583	3433	2787	1583
Volume (vph)	130	460	170	180	1630	150	240	1450	540	410	350	50
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	130	460	170	180	1630	150	240	1450	540	410	350	50
RTOR Reduction (vph)	0	0	141	0	12	0	0	0	27	0	0	40
Lane Group Flow (vph)	130	460	29	180	1768	0	240	1450	513	410	350	10
Turn Type	Split		Perm	Prot			Prot		pm+ov	Split		Perm
Protected Phases	4	4		1	6		1	6	8 9	8 9	8 9	
Permitted Phases			4						6			8 9
Actuated Green, G (s)	20.3	20.3	20.3	12.2	47.5		12.2	47.5	71.5	24.0	24.0	24.0
Effective Green, g (s)	20.3	20.3	20.3	12.2	47.5		12.2	47.5	71.5	24.0	24.0	24.0
Actuated g/C Ratio	0.17	0.17	0.17	0.10	0.40		0.10	0.40	0.60	0.20	0.20	0.20
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)	299	581	268	349	2504		349	2013	996	687	557	317
v/s Ratio Prot	0.07	c0.13		0.05	0.28		c0.07	c0.29	c0.10	0.12	c0.13	
v/s Ratio Perm			0.02						0.22			0.01
v/c Ratio	0.43	0.79	0.11	0.52	0.71		0.69	0.72	0.51	0.60	0.63	0.03
Uniform Delay, d1	44.7	47.8	42.2	51.1	30.4		52.1	30.6	14.1	43.6	43.9	38.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	0.99	0.99	1.38
Incremental Delay, d2	1.0	7.3	0.2	1.3	1.7		5.5	2.3	0.5	1.4	2.2	0.0
Delay (s)	45.7	55.1	42.4	52.4	32.1		57.6	32.9	14.6	44.7	45.7	53.5
Level of Service	D	E	D	D	C		E	C	B	D	D	D
Approach Delay (s)		50.6			34.0			31.1		45.7		
Approach LOS		D			C			C		D		

Intersection Summary

HCM Average Control Delay	36.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5034		1770	5011	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	5034		1770	5011	
Volume (vph)	200	500	140	170	500	160	260	1680	120	220	1580	170
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	200	500	140	170	500	160	260	1680	120	220	1580	170
RTOR Reduction (vph)	0	0	117	0	0	135	0	6	0	0	11	0
Lane Group Flow (vph)	200	500	23	170	500	25	260	1794	0	220	1739	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	15.5	20.1	20.1	14.2	18.8	18.8	20.0	52.0		17.7	49.7	
Effective Green, g (s)	15.5	20.1	20.1	14.2	18.8	18.8	20.0	52.0		17.7	49.7	
Actuated g/C Ratio	0.13	0.17	0.17	0.12	0.16	0.16	0.17	0.43		0.15	0.41	
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)	229	593	265	209	554	248	295	2181		261	2075	
v/s Ratio Prot	c0.11	c0.14		0.10	0.14		c0.15	c0.36		0.12	0.35	
v/s Ratio Perm			0.01			0.02						
v/c Ratio	0.87	0.84	0.09	0.81	0.90	0.10	0.88	0.82		0.84	0.84	
Uniform Delay, d1	51.3	48.4	42.2	51.6	49.7	43.4	48.8	29.9		49.8	31.5	
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	28.6	10.6	0.1	20.9	17.9	0.2	25.0	3.7		21.2	4.2	
Delay (s)	79.9	59.0	42.4	72.5	67.6	43.5	73.8	33.6		71.0	35.8	
Level of Service	E	E	D	E	E	D	E	C		E	D	
Approach Delay (s)		61.2			64.0			38.7			39.7	
Approach LOS		E			E			D			D	

Intersection Summary

HCM Average Control Delay	46.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3384		1770	5007		1770	5006	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3384		1770	5007		1770	5006	
Volume (vph)	190	460	90	140	340	140	240	1760	200	190	1380	160
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	190	460	90	140	340	140	240	1760	200	190	1380	160
RTOR Reduction (vph)	0	0	74	0	37	0	0	11	0	0	11	0
Lane Group Flow (vph)	190	460	16	140	443	0	240	1949	0	190	1529	0
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	15.3	21.3	21.3	12.3	18.3		18.8	55.1		15.3	51.6	
Effective Green, g (s)	15.3	21.3	21.3	12.3	18.3		18.8	55.1		15.3	51.6	
Actuated g/C Ratio	0.13	0.18	0.18	0.10	0.15		0.16	0.46		0.13	0.43	
Clearance Time (s)	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	
Lane Grp Cap (vph)	226	628	281	181	516		277	2299		226	2153	
v/s Ratio Prot	c0.11	c0.13		0.08	c0.13		c0.14	c0.39		0.11	0.31	
v/s Ratio Perm			0.01									
v/c Ratio	0.84	0.73	0.06	0.77	0.86		0.87	0.85		0.84	0.71	
Uniform Delay, d1	51.2	46.7	41.0	52.5	49.6		49.4	28.7		51.2	28.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	23.5	4.4	0.1	18.4	13.3		23.5	4.1		23.5	2.0	
Delay (s)	74.7	51.1	41.1	70.9	62.8		72.9	32.8		74.7	30.1	
Level of Service	E	D	D	E	E		E	C		E	C	
Approach Delay (s)		55.9			64.7			37.2			35.0	
Approach LOS		E			E			D			C	

Intersection Summary

HCM Average Control Delay	42.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91		1.00	0.95	1.00	1.00	0.91		0.97	0.91	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5008		1770	3539	1583	1770	5010		3433	4993	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5008		1770	3539	1583	1770	5010		3433	4993	
Volume (vph)	140	530	60	190	930	370	140	1090	120	360	1160	160
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	140	530	60	190	930	370	140	1090	120	360	1160	160
RTOR Reduction (vph)	0	11	0	0	0	204	0	11	0	0	14	0
Lane Group Flow (vph)	140	579	0	190	930	166	140	1199	0	360	1306	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	12.8	31.1		17.2	35.5	35.5	12.8	40.2		15.5	42.9	
Effective Green, g (s)	12.8	31.1		17.2	35.5	35.5	12.8	40.2		15.5	42.9	
Actuated g/C Ratio	0.11	0.26		0.14	0.30	0.30	0.11	0.34		0.13	0.36	
Clearance Time (s)	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	
Lane Grp Cap (vph)	189	1298		254	1047	468	189	1678		443	1785	
v/s Ratio Prot	0.08	0.12		c0.11	c0.26		0.08	0.24		c0.10	c0.26	
v/s Ratio Perm						0.11						
v/c Ratio	0.74	0.45		0.75	0.89	0.36	0.74	0.71		0.81	0.73	
Uniform Delay, d1	52.0	37.2		49.3	40.4	33.3	52.0	34.9		50.8	33.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	14.4	0.2		11.4	9.3	0.5	14.4	2.6		10.9	2.7	
Delay (s)	66.4	37.5		60.7	49.7	33.7	66.4	37.5		61.7	36.2	
Level of Service	E	D		E	D	C	E	D		E	D	
Approach Delay (s)		43.0			47.1			40.5			41.7	
Approach LOS		D			D			D			D	

Intersection Summary

HCM Average Control Delay	43.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00		1.00	1.00	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1807		1770	1863	1583	1770	5070		1770	5022	
Flt Permitted	0.46	1.00		0.58	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	860	1807		1075	1863	1583	1770	5070		1770	5022	
Volume (vph)	80	80	20	20	130	140	20	1010	20	200	890	80
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	80	80	20	20	130	140	20	1010	20	200	890	80
RTOR Reduction (vph)	0	9	0	0	0	124	0	1	0	0	4	0
Lane Group Flow (vph)	80	91	0	20	130	16	20	1029	0	200	966	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8						
Actuated Green, G (s)	13.6	13.6		13.6	13.6	13.6	3.2	76.5		17.9	91.2	
Effective Green, g (s)	13.6	13.6		13.6	13.6	13.6	3.2	76.5		17.9	91.2	
Actuated g/C Ratio	0.11	0.11		0.11	0.11	0.11	0.03	0.64		0.15	0.76	
Clearance Time (s)	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	
Lane Grp Cap (vph)	97	205		122	211	179	47	3232		264	3817	
v/s Ratio Prot		0.05			0.07		0.01	c0.20		c0.11	0.19	
v/s Ratio Perm	c0.09			0.02		0.01						
v/c Ratio	0.82	0.44		0.16	0.62	0.09	0.43	0.32		0.76	0.25	
Uniform Delay, d1	52.0	49.7		48.1	50.7	47.6	57.5	9.9		49.0	4.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	40.9	1.5		0.6	5.3	0.2	6.1	0.3		11.7	0.2	
Delay (s)	93.0	51.2		48.7	56.0	47.9	63.6	10.2		60.7	4.4	
Level of Service	F	D		D	E	D	E	B		E	A	
Approach Delay (s)		69.8			51.6			11.2			14.1	
Approach LOS		E			D			B			B	

Intersection Summary

HCM Average Control Delay	20.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5015		1770	4938	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	5015		1770	4938	
Volume (vph)	100	300	30	40	460	260	80	890	90	370	500	120
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	105	316	32	42	484	274	84	937	95	389	526	126
RTOR Reduction (vph)	0	0	24	0	0	220	0	10	0	0	34	0
Lane Group Flow (vph)	105	316	8	42	484	54	84	1022	0	389	618	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	8.0	22.9	22.9	3.4	18.3	18.3	7.3	26.3		24.4	43.4	
Effective Green, g (s)	8.0	22.9	22.9	3.4	18.3	18.3	7.3	26.3		24.4	43.4	
Actuated g/C Ratio	0.09	0.25	0.25	0.04	0.20	0.20	0.08	0.28		0.26	0.47	
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)	152	871	390	65	696	311	139	1418		464	2304	
v/s Ratio Prot	c0.06	0.09		0.02	c0.14		0.05	c0.20		c0.22	0.13	
v/s Ratio Perm			0.00			0.03						
v/c Ratio	0.69	0.36	0.02	0.65	0.70	0.17	0.60	0.72		0.84	0.27	
Uniform Delay, d1	41.3	29.0	26.6	44.2	34.8	31.1	41.5	30.0		32.4	15.1	
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	12.7	0.3	0.0	20.0	3.0	0.3	7.2	1.8		12.5	0.1	
Delay (s)	54.0	29.3	26.6	64.2	37.8	31.3	48.7	31.9		44.9	15.2	
Level of Service	D	C	C	E	D	C	D	C		D	B	
Approach Delay (s)		34.8			37.0			33.1			26.3	
Approach LOS		C			D			C			C	

Intersection Summary

HCM Average Control Delay	32.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	93.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3513		3433	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3513		3433	1583
Volume (vph)	220	1370	1560	80	20	110
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	220	1370	1560	80	20	110
RTOR Reduction (vph)	0	0	3	0	0	19
Lane Group Flow (vph)	220	1370	1637	0	20	91
Turn Type	Prot					pm+ov
Protected Phases	7	4	8		6	7
Permitted Phases						6
Actuated Green, G (s)	11.5	57.2	41.7		7.1	18.6
Effective Green, g (s)	11.5	57.2	41.7		7.1	18.6
Actuated g/C Ratio	0.16	0.79	0.58		0.10	0.26
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)	282	2800	2026		337	495
v/s Ratio Prot	c0.12	0.39	c0.47		0.01	c0.03
v/s Ratio Perm						0.03
v/c Ratio	0.78	0.49	0.81		0.06	0.18
Uniform Delay, d1	29.2	2.6	12.1		29.6	20.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	13.0	0.1	2.5		0.1	0.2
Delay (s)	42.2	2.7	14.6		29.6	21.1
Level of Service	D	A	B		C	C
Approach Delay (s)		8.2	14.6		22.4	
Approach LOS		A	B		C	

Intersection Summary

HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	72.3	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
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	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)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Volume (vph)	540	1660	1530	280	300	260
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	540	1660	1530	280	300	260
RTOR Reduction (vph)	0	0	0	113	0	227
Lane Group Flow (vph)	540	1660	1530	167	300	33
Turn Type	Prot			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	36.6	92.6	52.0	52.0	14.6	14.6
Effective Green, g (s)	36.6	92.6	52.0	52.0	14.6	14.6
Actuated g/C Ratio	0.32	0.80	0.45	0.45	0.13	0.13
Clearance Time (s)	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
Lane Grp Cap (vph)	562	2845	1597	715	435	201
v/s Ratio Prot	c0.31	0.47	c0.43		c0.09	
v/s Ratio Perm				0.11		0.02
v/c Ratio	0.96	0.58	0.96	0.23	0.69	0.16
Uniform Delay, d1	38.6	4.2	30.5	19.4	48.1	44.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	28.3	0.3	13.7	0.2	4.5	0.4
Delay (s)	66.9	4.5	44.3	19.5	52.7	45.2
Level of Service	E	A	D	B	D	D
Approach Delay (s)		19.8	40.4		49.2	
Approach LOS		B	D		D	

Intersection Summary

HCM Average Control Delay	31.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	115.2	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
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	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)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	1770	1583
Volume (vph)	110	1230	1660	50	40	110
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	110	1230	1660	50	40	110
RTOR Reduction (vph)	0	0	0	19	0	97
Lane Group Flow (vph)	110	1230	1660	31	40	13
Turn Type	Prot			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	7.9	52.2	40.3	40.3	8.1	8.1
Effective Green, g (s)	7.9	52.2	40.3	40.3	8.1	8.1
Actuated g/C Ratio	0.12	0.76	0.59	0.59	0.12	0.12
Clearance Time (s)	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
Lane Grp Cap (vph)	205	2705	2088	934	210	188
v/s Ratio Prot	0.06	c0.35	c0.47		c0.02	
v/s Ratio Perm				0.02		0.01
v/c Ratio	0.54	0.45	0.80	0.03	0.19	0.07
Uniform Delay, d1	28.5	2.9	10.8	5.9	27.1	26.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.7	0.1	2.2	0.0	0.4	0.2
Delay (s)	31.2	3.0	13.0	5.9	27.6	26.9
Level of Service	C	A	B	A	C	C
Approach Delay (s)		5.3	12.8		27.1	
Approach LOS		A	B		C	

Intersection Summary

HCM Average Control Delay	10.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	68.3	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91		1.00	0.91			1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00			0.95		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00			0.98		0.95	1.00	
Satd. Flow (prot)	1770	5071		1770	5066			1750		1770	1623	
Flt Permitted	0.95	1.00		0.95	1.00			0.88		0.91	1.00	
Satd. Flow (perm)	1770	5071		1770	5066			1570		1692	1623	
Volume (vph)	60	1050	20	20	1960	50	20	20	20	20	10	60
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	60	1050	20	20	1960	50	20	20	20	20	10	60
RTOR Reduction (vph)	0	1	0	0	2	0	0	16	0	0	52	0
Lane Group Flow (vph)	60	1069	0	20	2008	0	0	44	0	20	18	0
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	4.3	38.5		1.1	35.3			8.0		8.0	8.0	
Effective Green, g (s)	4.3	38.5		1.1	35.3			8.0		8.0	8.0	
Actuated g/C Ratio	0.07	0.65		0.02	0.59			0.13		0.13	0.13	
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)	128	3276		33	3001			211		227	218	
v/s Ratio Prot	c0.03	c0.21		0.01	c0.40						0.01	
v/s Ratio Perm								c0.03		0.01		
v/c Ratio	0.47	0.33		0.61	0.67			0.21		0.09	0.08	
Uniform Delay, d1	26.6	4.7		29.0	8.2			23.0		22.6	22.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	2.7	0.1		27.6	0.6			0.5		0.2	0.2	
Delay (s)	29.3	4.8		56.6	8.8			23.5		22.8	22.8	
Level of Service	C	A		E	A			C		C	C	
Approach Delay (s)		6.1			9.3			23.5			22.8	
Approach LOS		A			A			C			C	

Intersection Summary

HCM Average Control Delay	8.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	59.6	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Ideal Flow (vphpl)	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	0.91	1.00	0.91	1.00	1.00	1.00
Frt	1.00	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	1770	5085	1583	1770	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	1770	5085	1583	1770	1583
Volume (vph)	90	1140	40	1600	120	100	80
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	90	1140	40	1600	120	100	80
RTOR Reduction (vph)	0	0	0	0	22	0	67
Lane Group Flow (vph)	90	1140	40	1600	98	100	13
Turn Type	Prot		Prot		Perm		Perm
Protected Phases	7	4	3	8		6	
Permitted Phases					8		6
Actuated Green, G (s)	4.9	24.9	2.7	22.7	22.7	8.0	8.0
Effective Green, g (s)	4.9	24.9	2.7	22.7	22.7	8.0	8.0
Actuated g/C Ratio	0.10	0.52	0.06	0.48	0.48	0.17	0.17
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)	182	2660	100	2425	755	297	266
v/s Ratio Prot	c0.05	0.22	0.02	c0.31		c0.06	
v/s Ratio Perm					0.06		0.01
v/c Ratio	0.49	0.43	0.40	0.66	0.13	0.34	0.05
Uniform Delay, d1	20.2	7.0	21.7	9.5	6.9	17.5	16.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	0.1	2.6	0.7	0.1	0.7	0.1
Delay (s)	22.3	7.1	24.3	10.2	7.0	18.1	16.7
Level of Service	C	A	C	B	A	B	B
Approach Delay (s)		8.2		10.3		17.5	
Approach LOS		A		B		B	

Intersection Summary

HCM Average Control Delay	9.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	47.6	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91		1.00	0.91		0.95	0.95	1.00	0.95	0.95	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	0.97	1.00
Satd. Flow (prot)	1770	5071		1770	5049		1681	1770	1583	1681	1712	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	0.97	1.00
Satd. Flow (perm)	1770	5071		1770	5049		1681	1770	1583	1681	1712	1583
Volume (vph)	160	1070	20	20	1580	80	10	10	20	100	20	50
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	160	1070	20	20	1580	80	10	10	20	100	20	50
RTOR Reduction (vph)	0	1	0	0	4	0	0	0	18	0	0	44
Lane Group Flow (vph)	160	1089	0	20	1656	0	10	10	2	58	62	6
Turn Type	Prot			Prot			Split		Perm	Split		Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases									2			6
Actuated Green, G (s)	10.0	42.7		1.9	34.6		6.7	6.7	6.7	8.7	8.7	8.7
Effective Green, g (s)	10.0	42.7		1.9	34.6		6.7	6.7	6.7	8.7	8.7	8.7
Actuated g/C Ratio	0.13	0.56		0.02	0.46		0.09	0.09	0.09	0.11	0.11	0.11
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	2849		44	2299		148	156	140	192	196	181
v/s Ratio Prot	c0.09	0.21		0.01	c0.33		c0.01	0.01		0.03	c0.04	
v/s Ratio Perm									0.00			0.00
v/c Ratio	0.69	0.38		0.45	0.72		0.07	0.06	0.01	0.30	0.32	0.03
Uniform Delay, d1	31.5	9.3		36.5	16.8		31.8	31.8	31.6	30.9	30.9	29.9
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	8.1	0.1		7.3	1.1		0.2	0.2	0.0	0.9	0.9	0.1
Delay (s)	39.6	9.4		43.8	17.9		32.0	31.9	31.7	31.8	31.8	30.0
Level of Service	D	A		D	B		C	C	C	C	C	C
Approach Delay (s)		13.2			18.2			31.8			31.3	
Approach LOS		B			B			C			C	

Intersection Summary

HCM Average Control Delay	17.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		0.95		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.95		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98		0.95	1.00	
Satd. Flow (prot)	1770	3539		1770	3539	1583		3307		1770	1583	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.98		0.95	1.00	
Satd. Flow (perm)	1770	3539		1770	3539	1583		3307		1770	1583	
Volume (vph)	40	1260	0	10	1910	60	10	10	10	10	0	20
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	40	1260	0	10	1910	60	10	10	10	10	0	20
RTOR Reduction (vph)	0	0	0	0	0	12	0	9	0	0	19	0
Lane Group Flow (vph)	40	1260	0	10	1910	48	0	21	0	10	1	0
Turn Type	Prot		Perm	Prot		Perm	Split			Split		
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4			8						
Actuated Green, G (s)	2.0	57.0		0.7	55.7	55.7		6.4		6.4	6.4	
Effective Green, g (s)	2.0	57.0		0.7	55.7	55.7		6.4		6.4	6.4	
Actuated g/C Ratio	0.02	0.66		0.01	0.64	0.64		0.07		0.07	0.07	
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)	41	2332		14	2279	1019		245		131	117	
v/s Ratio Prot	c0.02	0.36		0.01	c0.54			c0.01		c0.01	0.00	
v/s Ratio Perm						0.03						
v/c Ratio	0.98	0.54		0.71	0.84	0.05		0.08		0.08	0.01	
Uniform Delay, d1	42.2	7.8		42.8	11.9	5.7		37.3		37.3	37.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	130.1	0.3		100.1	2.9	0.0		0.1		0.2	0.0	
Delay (s)	172.3	8.1		142.9	14.8	5.7		37.5		37.5	37.2	
Level of Service	F	A		F	B	A		D		D	D	
Approach Delay (s)		13.1			15.1			37.5			37.3	
Approach LOS		B			B			D			D	

Intersection Summary

HCM Average Control Delay	14.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	86.5	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5078		1770	3539	1583	1770	3539	1583	3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5078		1770	3539	1583	1770	3539	1583	3433	1863	1583
Volume (vph)	230	1100	10	30	1690	770	10	50	20	300	40	200
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	242	1158	11	32	1779	811	11	53	21	316	42	211
RTOR Reduction (vph)	0	1	0	0	0	293	0	0	19	0	0	0
Lane Group Flow (vph)	242	1168	0	32	1779	518	11	53	2	316	42	211
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			Free
Actuated Green, G (s)	9.9	69.1		3.5	62.7	62.7	0.8	10.4	10.4	12.5	22.1	111.5
Effective Green, g (s)	9.9	69.1		3.5	62.7	62.7	0.8	10.4	10.4	12.5	22.1	111.5
Actuated g/C Ratio	0.09	0.62		0.03	0.56	0.56	0.01	0.09	0.09	0.11	0.20	1.00
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)	305	3147		56	1990	890	13	330	148	385	369	1583
v/s Ratio Prot	c0.07	0.23		0.02	c0.50		0.01	0.01		c0.09	0.02	
v/s Ratio Perm						0.33			0.00			c0.13
v/c Ratio	0.79	0.37		0.57	0.89	0.58	0.85	0.16	0.01	0.82	0.11	0.13
Uniform Delay, d1	49.8	10.5		53.3	21.5	15.9	55.3	46.5	45.9	48.4	36.7	0.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.2	0.1		13.3	5.6	1.0	166.4	0.2	0.0	13.1	0.1	0.2
Delay (s)	63.0	10.5		66.6	27.1	16.8	221.7	46.8	45.9	61.5	36.8	0.2
Level of Service	E	B		E	C	B	F	D	D	E	D	A
Approach Delay (s)		19.5			24.4			69.2			36.9	
Approach LOS		B			C			E			D	

Intersection Summary

HCM Average Control Delay	25.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	111.5	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91	1.00	1.00	0.91	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		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583		1817	1583		1770	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.87	1.00		0.74	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583		1619	1583		1386	1583
Volume (vph)	110	1290	10	10	2360	200	10	10	10	70	0	120
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	110	1290	10	10	2360	200	10	10	10	70	0	120
RTOR Reduction (vph)	0	0	3	0	0	73	0	0	9	0	0	105
Lane Group Flow (vph)	110	1290	7	10	2360	127	0	20	1	0	70	15
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		6
Actuated Green, G (s)	8.6	62.0	62.0	1.1	54.5	54.5		10.5	10.5		10.5	10.5
Effective Green, g (s)	8.6	62.0	62.0	1.1	54.5	54.5		10.5	10.5		10.5	10.5
Actuated g/C Ratio	0.10	0.72	0.72	0.01	0.64	0.64		0.12	0.12		0.12	0.12
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)	178	3683	1147	23	3238	1008		199	194		170	194
v/s Ratio Prot	c0.06	0.25		0.01	c0.46							
v/s Ratio Perm			0.00			0.08		0.01	0.00		c0.05	0.01
v/c Ratio	0.62	0.35	0.01	0.43	0.73	0.13		0.10	0.01		0.41	0.08
Uniform Delay, d1	36.9	4.4	3.3	41.9	10.5	6.1		33.4	33.0		34.7	33.3
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	6.3	0.1	0.0	12.6	0.8	0.1		0.2	0.0		1.6	0.2
Delay (s)	43.2	4.4	3.3	54.6	11.4	6.2		33.6	33.0		36.3	33.4
Level of Service	D	A	A	D	B	A		C	C		D	C
Approach Delay (s)		7.4			11.1			33.4			34.5	
Approach LOS		A			B			C			C	

Intersection Summary

HCM Average Control Delay	11.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	85.6	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.95	0.95		0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.98	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1681	1681		1681	1729	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.98	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1681	1681		1681	1729	1583
Volume (vph)	120	1240	10	20	2490	200	10	20	10	80	30	100
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	120	1240	10	20	2490	200	10	20	10	80	30	100
RTOR Reduction (vph)	0	0	3	0	0	77	0	9	0	0	0	92
Lane Group Flow (vph)	120	1240	7	20	2490	123	10	21	0	54	56	8
Turn Type	Prot		Perm	Prot		Perm	Split			Split		Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	9.6	68.5	68.5	1.9	60.8	60.8	6.9	6.9		8.6	8.6	8.6
Effective Green, g (s)	9.6	68.5	68.5	1.9	60.8	60.8	6.9	6.9		8.6	8.6	8.6
Actuated g/C Ratio	0.09	0.67	0.67	0.02	0.60	0.60	0.07	0.07		0.08	0.08	0.08
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	167	3418	1064	33	3034	945	114	114		142	146	134
v/s Ratio Prot	c0.07	0.24		0.01	c0.49		0.01	c0.01		0.03	c0.03	
v/s Ratio Perm			0.00			0.08						0.01
v/c Ratio	0.72	0.36	0.01	0.61	0.82	0.13	0.09	0.18		0.38	0.38	0.06
Uniform Delay, d1	44.8	7.2	5.5	49.6	16.2	9.0	44.5	44.8		44.1	44.1	42.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	13.8	0.1	0.0	27.6	1.9	0.1	0.3	0.8		1.7	1.7	0.2
Delay (s)	58.6	7.3	5.5	77.2	18.1	9.1	44.9	45.6		45.8	45.8	43.1
Level of Service	E	A	A	E	B	A	D	D		D	D	D
Approach Delay (s)		11.8			17.9			45.4			44.5	
Approach LOS		B			B			D			D	

Intersection Summary

HCM Average Control Delay	17.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	101.9	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1723		3433	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	1723		3433	1863	1583
Volume (vph)	160	1020	10	20	2740	730	10	10	10	250	20	170
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	160	1020	10	20	2740	730	10	10	10	250	20	170
RTOR Reduction (vph)	0	0	4	0	0	197	0	9	0	0	0	148
Lane Group Flow (vph)	160	1020	6	20	2740	533	10	11	0	250	20	22
Turn Type	Prot		Perm	Prot		pm+ov	Split			Split		Perm
Protected Phases	7	4		3	8	6	2	2		6	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	10.0	71.6	71.6	1.9	63.5	77.8	6.4	6.4		14.3	14.3	14.3
Effective Green, g (s)	10.0	71.6	71.6	1.9	63.5	77.8	6.4	6.4		14.3	14.3	14.3
Actuated g/C Ratio	0.09	0.65	0.65	0.02	0.58	0.71	0.06	0.06		0.13	0.13	0.13
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	161	3304	1029	31	2930	1118	103	100		445	242	205
v/s Ratio Prot	c0.09	0.20		0.01	c0.54	0.06	0.01	c0.01		c0.07	0.01	
v/s Ratio Perm			0.00			0.27						0.01
v/c Ratio	0.99	0.31	0.01	0.65	0.94	0.48	0.10	0.11		0.56	0.08	0.11
Uniform Delay, d1	50.1	8.5	6.8	53.8	21.5	7.2	49.2	49.2		45.0	42.2	42.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	68.8	0.1	0.0	37.9	6.4	0.3	0.4	0.5		1.6	0.1	0.2
Delay (s)	118.8	8.5	6.8	91.7	27.9	7.5	49.6	49.7		46.6	42.3	42.6
Level of Service	F	A	A	F	C	A	D	D		D	D	D
Approach Delay (s)		23.3			24.0			49.6			44.9	
Approach LOS		C			C			D			D	

Intersection Summary

HCM Average Control Delay	25.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	110.2	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

2030

Current Highway Plan with Committed Intersection Improvements

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
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	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)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Volume (vph)	50	80	160	370	900	130
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	80	160	370	900	130
RTOR Reduction (vph)	0	0	0	174	0	90
Lane Group Flow (vph)	50	80	160	196	900	40
Turn Type	Prot			Perm		Perm
Protected Phases	1	6	2		8	
Permitted Phases				2		8
Actuated Green, G (s)	7.5	75.2	63.7	63.7	36.8	36.8
Effective Green, g (s)	7.5	75.2	63.7	63.7	36.8	36.8
Actuated g/C Ratio	0.06	0.63	0.53	0.53	0.31	0.31
Clearance Time (s)	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
Lane Grp Cap (vph)	111	2218	1879	840	1053	485
v/s Ratio Prot	c0.03	0.02	0.05		c0.26	
v/s Ratio Perm				c0.12		0.03
v/c Ratio	0.45	0.04	0.09	0.23	0.85	0.08
Uniform Delay, d1	54.3	8.6	13.8	15.1	39.1	29.6
Progression Factor	1.00	1.00	0.70	0.23	1.00	1.00
Incremental Delay, d2	2.9	0.0	0.1	0.6	6.9	0.1
Delay (s)	57.2	8.6	9.8	4.2	46.0	29.7
Level of Service	E	A	A	A	D	C
Approach Delay (s)		27.3	5.9		43.9	
Approach LOS		C	A		D	

Intersection Summary

HCM Average Control Delay	30.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Volume (vph)	50	950	0	2530	2920	500
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	950	0	2530	2920	500
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	50	949	0	2530	2920	500
Turn Type		Perm				Free
Protected Phases	4			2	6	
Permitted Phases		4				Free
Actuated Green, G (s)	50.0	50.0		62.0	62.0	120.0
Effective Green, g (s)	50.0	50.0		62.0	62.0	120.0
Actuated g/C Ratio	0.42	0.42		0.52	0.52	1.00
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)	1430	1161		3311	3311	1583
v/s Ratio Prot	0.01			0.39	c0.46	
v/s Ratio Perm		c0.34				0.32
v/c Ratio	0.03	0.82		0.76	0.88	0.32
Uniform Delay, d1	20.7	31.0		23.2	25.7	0.0
Progression Factor	0.30	0.36		0.27	0.57	1.00
Incremental Delay, d2	0.0	2.9		0.5	2.7	0.4
Delay (s)	6.2	14.0		6.7	17.2	0.4
Level of Service	A	B		A	B	A
Approach Delay (s)	13.7			6.7	14.8	
Approach LOS	B			A	B	

Intersection Summary

HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0	4.0
Lane Util. Factor	0.97	*0.30	1.00	1.00	0.95	1.00	0.97	*0.70	1.00	*1.00	0.86	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	1676	1583	1770	3539	1583	3433	3912	1583	3539	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	1676	1583	1770	3539	1583	3433	3912	1583	3539	6408	2787
Volume (vph)	50	650	90	140	370	290	130	2030	410	760	2860	280
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	650	90	140	370	290	130	2030	410	760	2860	280
RTOR Reduction (vph)	0	0	34	0	0	199	0	0	89	0	0	111
Lane Group Flow (vph)	50	650	56	140	370	91	130	2030	321	760	2860	169
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	19.5	35.2	35.2	7.8	23.5	23.5	5.0	44.0	44.0	17.0	56.0	56.0
Effective Green, g (s)	19.5	35.2	35.2	7.8	23.5	23.5	5.0	44.0	44.0	17.0	56.0	56.0
Actuated g/C Ratio	0.16	0.29	0.29	0.06	0.20	0.20	0.04	0.37	0.37	0.14	0.47	0.47
Clearance Time (s)	4.0	4.0	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	3.0	3.0
Lane Grp Cap (vph)	558	492	464	115	693	310	143	1434	580	501	2990	1301
v/s Ratio Prot	0.01	c0.39		c0.08	0.10		0.04	c0.52		c0.21	0.45	
v/s Ratio Perm			0.04			0.06			0.20			0.06
v/c Ratio	0.09	1.32	0.12	1.22	0.53	0.29	0.91	1.42	0.55	1.52	0.96	0.13
Uniform Delay, d1	42.7	42.4	31.1	56.1	43.3	41.2	57.3	38.0	30.2	51.5	30.8	18.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.64	0.61	0.50	0.79	0.59	0.31
Incremental Delay, d2	0.1	158.3	0.5	153.6	0.8	0.5	38.0	190.0	2.6	239.0	6.2	0.1
Delay (s)	42.8	200.7	31.6	209.7	44.1	41.7	74.7	212.9	17.7	279.7	24.5	5.8
Level of Service	D	F	C	F	D	D	E	F	B	F	C	A
Approach Delay (s)		171.4			72.2			174.8			72.9	
Approach LOS		F			E			F			E	

Intersection Summary

HCM Average Control Delay	115.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.39		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	1.00	1.00	1.00	0.86		1.00	0.86	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	1863	1583	1770	6396		1770	6320	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	1863	1583	1770	6396		1770	6320	
Volume (vph)	120	610	240	60	320	90	180	2450	30	80	2680	270
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	120	610	240	60	320	90	180	2450	30	80	2680	270
RTOR Reduction (vph)	0	0	146	0	0	73	0	1	0	0	14	0
Lane Group Flow (vph)	120	610	94	60	320	17	180	2479	0	80	2936	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	9.0	26.8	26.8	4.8	22.6	22.6	13.7	63.6		8.8	58.7	
Effective Green, g (s)	9.0	26.8	26.8	4.8	22.6	22.6	13.7	63.6		8.8	58.7	
Actuated g/C Ratio	0.08	0.22	0.22	0.04	0.19	0.19	0.11	0.53		0.07	0.49	
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)	133	790	354	71	351	298	202	3390		130	3092	
v/s Ratio Prot	c0.07	0.17		0.03	c0.17		c0.10	0.39		0.05	c0.46	
v/s Ratio Perm			0.06			0.01						
v/c Ratio	0.90	0.77	0.27	0.85	0.91	0.06	0.89	0.73		0.62	0.95	
Uniform Delay, d1	55.1	43.7	38.5	57.2	47.7	40.0	52.4	21.6		54.0	29.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.45	0.36		1.24	0.32	
Incremental Delay, d2	49.4	4.7	0.4	56.7	27.0	0.1	30.3	1.2		2.8	3.1	
Delay (s)	104.5	48.4	38.9	114.0	74.7	40.0	106.2	8.9		69.5	12.5	
Level of Service	F	D	D	F	E	D	F	A		E	B	
Approach Delay (s)		53.0			73.1			15.5			14.0	
Approach LOS		D			E			B			B	

Intersection Summary

HCM Average Control Delay	23.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
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	0.97	0.95		1.00	0.95	1.00	1.00	1.00		0.97	1.00	0.88
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.92		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3530		1770	3539	1583	1770	1710		3433	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3530		1770	3539	1583	1770	1710		3433	1863	2787
Volume (vph)	280	2310	40	20	1760	300	20	50	60	350	60	300
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	280	2310	40	20	1760	300	20	50	60	350	60	300
RTOR Reduction (vph)	0	1	0	0	0	66	0	38	0	0	0	192
Lane Group Flow (vph)	280	2349	0	20	1760	234	20	72	0	350	60	108
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	10.0	73.9		1.5	65.4	65.4	1.9	12.4		12.1	22.6	22.6
Effective Green, g (s)	10.0	73.9		1.5	65.4	65.4	1.9	12.4		12.1	22.6	22.6
Actuated g/C Ratio	0.09	0.64		0.01	0.56	0.56	0.02	0.11		0.10	0.19	0.19
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)	296	2251		23	1997	893	29	183		358	363	543
v/s Ratio Prot	c0.08	c0.67		0.01	0.50		0.01	c0.04		c0.10	0.03	
v/s Ratio Perm						0.15						0.04
v/c Ratio	0.95	1.04		0.87	0.88	0.26	0.69	0.40		0.98	0.17	0.20
Uniform Delay, d1	52.7	21.0		57.1	21.9	12.9	56.7	48.3		51.8	38.8	39.1
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	37.7	31.5		127.6	4.9	0.2	51.3	1.4		41.1	0.2	0.2
Delay (s)	90.4	52.5		184.7	26.8	13.1	108.0	49.7		92.9	39.0	39.3
Level of Service	F	D		F	C	B	F	D		F	D	D
Approach Delay (s)		56.5			26.4			58.6			65.7	
Approach LOS		E			C			E			E	

Intersection Summary

HCM Average Control Delay	46.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	115.9	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.86		1.00	0.86	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	6293		1770	6408	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	6293		1770	6408	1583
Volume (vph)	300	1090	190	320	670	70	200	1540	210	300	1910	280
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	300	1090	190	320	670	70	200	1540	210	300	1910	280
RTOR Reduction (vph)	0	0	145	0	0	54	0	20	0	0	0	163
Lane Group Flow (vph)	300	1090	45	320	670	16	200	1730	0	300	1910	117
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	14.6	28.6	28.6	13.7	27.7	27.7	16.1	38.4		23.3	45.6	45.6
Effective Green, g (s)	14.6	28.6	28.6	13.7	27.7	27.7	16.1	38.4		23.3	45.6	45.6
Actuated g/C Ratio	0.12	0.24	0.24	0.11	0.23	0.23	0.13	0.32		0.19	0.38	0.38
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	418	1212	377	392	1174	365	237	2014		344	2435	602
v/s Ratio Prot	0.09	c0.21		c0.09	0.13		0.11	c0.27		c0.17	0.30	
v/s Ratio Perm			0.03			0.01						0.07
v/c Ratio	0.72	0.90	0.12	0.82	0.57	0.04	0.84	0.86		0.87	0.78	0.19
Uniform Delay, d1	50.7	44.3	35.8	51.9	40.9	35.9	50.7	38.3		46.9	32.9	24.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.99	1.53	4.68
Incremental Delay, d2	5.8	9.1	0.1	12.4	0.7	0.1	23.0	5.0		10.1	1.1	0.3
Delay (s)	56.5	53.4	36.0	64.3	41.6	35.9	73.7	43.3		56.5	51.5	116.9
Level of Service	E	D	D	E	D	D	E	D		E	D	F
Approach Delay (s)		51.9			48.0			46.4			59.5	
Approach LOS		D			D			D			E	

Intersection Summary

HCM Average Control Delay	52.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.86		1.00	0.86	
Frt	1.00	0.97		1.00	0.97		1.00	1.00		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	3435		1770	3447		1770	6379		1770	6313	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3435		1770	3447		1770	6379		1770	6313	
Volume (vph)	170	780	190	100	570	120	180	1630	50	200	2110	230
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	170	780	190	100	570	120	180	1630	50	200	2110	230
RTOR Reduction (vph)	0	18	0	0	15	0	0	3	0	0	15	0
Lane Group Flow (vph)	170	952	0	100	675	0	180	1677	0	200	2325	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	14.2	34.7		7.0	27.5		13.8	46.2		16.1	48.5	
Effective Green, g (s)	14.2	34.7		7.0	27.5		13.8	46.2		16.1	48.5	
Actuated g/C Ratio	0.12	0.29		0.06	0.23		0.12	0.39		0.13	0.40	
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)	209	993		103	790		204	2456		237	2552	
v/s Ratio Prot	c0.10	c0.28		0.06	0.20		0.10	0.26		c0.11	c0.37	
v/s Ratio Perm												
v/c Ratio	0.81	0.96		0.97	0.85		0.88	0.68		0.84	0.91	
Uniform Delay, d1	51.6	41.9		56.4	44.3		52.3	30.8		50.7	33.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	20.9	19.1		79.0	9.0		33.0	1.6		23.0	6.2	
Delay (s)	72.5	61.1		135.4	53.3		85.3	32.3		73.7	39.9	
Level of Service	E	E		F	D		F	C		E	D	
Approach Delay (s)		62.8			63.7			37.5			42.6	
Approach LOS		E			E			D			D	

Intersection Summary

HCM Average Control Delay	47.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95		1.00	0.86		1.00	0.86	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3389		1770	6307		1770	6316	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3389		1770	6307		1770	6316	
Volume (vph)	100	450	160	240	430	170	320	1530	180	310	1890	200
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	100	450	160	240	430	170	320	1530	180	310	1890	200
RTOR Reduction (vph)	0	0	137	0	35	0	0	17	0	0	14	0
Lane Group Flow (vph)	100	450	23	240	565	0	320	1693	0	310	2076	0
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	8.8	16.9	16.9	18.3	26.4		24.0	45.3		23.5	44.8	
Effective Green, g (s)	8.8	16.9	16.9	18.3	26.4		24.0	45.3		23.5	44.8	
Actuated g/C Ratio	0.07	0.14	0.14	0.15	0.22		0.20	0.38		0.20	0.37	
Clearance Time (s)	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	
Lane Grp Cap (vph)	130	498	223	270	746		354	2381		347	2358	
v/s Ratio Prot	0.06	c0.13		c0.14	0.17		c0.18	0.27		0.18	c0.33	
v/s Ratio Perm			0.01									
v/c Ratio	0.77	0.90	0.10	0.89	0.76		0.90	0.71		0.89	0.88	
Uniform Delay, d1	54.6	50.7	44.9	49.9	43.8		46.9	31.8		47.0	35.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	23.5	19.6	0.2	27.7	4.4		25.3	1.8		23.9	5.1	
Delay (s)	78.1	70.4	45.1	77.6	48.2		72.2	33.6		70.9	40.2	
Level of Service	E	E	D	E	D		E	C		E	D	
Approach Delay (s)		65.8			56.6			39.7			44.2	
Approach LOS		E			E			D			D	

Intersection Summary

HCM Average Control Delay	47.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Lane Configurations												
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	4.0
Lane Util. Factor	1.00	0.97	1.00	0.97	0.86		0.97	0.91	1.00	0.97	0.88	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.85	0.85
Flt Protected	0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3433	1583	3433	6331		3433	5085	1583	3433	2787	1583
Flt Permitted	0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3433	1583	3433	6331		3433	5085	1583	3433	2787	1583
Volume (vph)	110	420	120	80	1620	140	150	1330	360	340	730	90
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	110	420	120	80	1620	140	150	1330	360	340	730	90
RTOR Reduction (vph)	0	0	102	0	11	0	0	0	24	0	0	61
Lane Group Flow (vph)	110	420	18	80	1749	0	150	1330	336	340	730	29
Turn Type	Split		Perm	Prot			Prot		pm+ov	Split		Perm
Protected Phases	4	4		1	6		1	6	8 9	8 9	8 9	
Permitted Phases			4						6			8 9
Actuated Green, G (s)	17.9	17.9	17.9	7.4	39.6		7.4	39.6	78.7	39.1	39.1	39.1
Effective Green, g (s)	17.9	17.9	17.9	7.4	39.6		7.4	39.6	78.7	39.1	39.1	39.1
Actuated g/C Ratio	0.15	0.15	0.15	0.06	0.33		0.06	0.33	0.66	0.33	0.33	0.33
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)	264	512	236	212	2089		212	1678	1091	1119	908	516
v/s Ratio Prot	0.06	c0.12		0.02	c0.28		c0.04	0.26	0.10	0.10	c0.26	
v/s Ratio Perm			0.01						0.11			0.02
v/c Ratio	0.42	0.82	0.08	0.38	0.84		0.71	0.79	0.31	0.30	0.80	0.06
Uniform Delay, d1	46.3	49.5	43.9	54.1	37.2		55.2	36.5	8.9	30.3	36.9	27.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.11	1.10	2.00
Incremental Delay, d2	1.1	10.2	0.1	1.1	4.2		10.3	3.9	0.2	0.1	5.1	0.0
Delay (s)	47.4	59.6	44.1	55.2	41.4		65.5	40.4	9.1	33.8	45.7	55.7
Level of Service	D	E	D	E	D		E	D	A	C	D	E
Approach Delay (s)		54.7			42.0			36.3		43.0		
Approach LOS		D			D			D		D		

Intersection Summary

HCM Average Control Delay	41.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5037		1770	5026	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	5037		1770	5026	
Volume (vph)	210	630	240	60	510	170	170	1340	90	240	1190	100
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	210	630	240	60	510	170	170	1340	90	240	1190	100
RTOR Reduction (vph)	0	0	175	0	0	140	0	6	0	0	7	0
Lane Group Flow (vph)	210	630	65	60	510	30	170	1424	0	240	1283	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	17.8	32.3	32.3	7.0	21.5	21.5	15.9	45.0		19.7	48.8	
Effective Green, g (s)	17.8	32.3	32.3	7.0	21.5	21.5	15.9	45.0		19.7	48.8	
Actuated g/C Ratio	0.15	0.27	0.27	0.06	0.18	0.18	0.13	0.38		0.16	0.41	
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)	263	953	426	103	634	284	235	1889		291	2044	
v/s Ratio Prot	c0.12	0.18		0.03	c0.14		0.10	c0.28		c0.14	c0.26	
v/s Ratio Perm			0.04			0.02						
v/c Ratio	0.80	0.66	0.15	0.58	0.80	0.11	0.72	0.75		0.82	0.63	
Uniform Delay, d1	49.4	39.0	33.4	55.1	47.2	41.2	49.9	32.7		48.5	28.4	
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	15.4	1.7	0.2	8.1	7.3	0.2	10.5	2.8		17.0	1.5	
Delay (s)	64.8	40.7	33.6	63.2	54.6	41.4	60.4	35.5		65.5	29.8	
Level of Service	E	D	C	E	D	D	E	D		E	C	
Approach Delay (s)		43.8			52.2			38.2			35.4	
Approach LOS		D			D			D			D	

Intersection Summary

HCM Average Control Delay	40.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3420		1770	4991		1770	5015	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3420		1770	4991		1770	5015	
Volume (vph)	140	540	220	280	380	110	130	1200	170	100	1090	110
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	140	540	220	280	380	110	130	1200	170	100	1090	110
RTOR Reduction (vph)	0	0	179	0	23	0	0	14	0	0	9	0
Lane Group Flow (vph)	140	540	41	280	467	0	130	1356	0	100	1191	0
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	14.0	22.3	22.3	22.7	31.0		12.9	48.3		10.7	46.1	
Effective Green, g (s)	14.0	22.3	22.3	22.7	31.0		12.9	48.3		10.7	46.1	
Actuated g/C Ratio	0.12	0.19	0.19	0.19	0.26		0.11	0.40		0.09	0.38	
Clearance Time (s)	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	
Lane Grp Cap (vph)	207	658	294	335	884		190	2009		158	1927	
v/s Ratio Prot	0.08	c0.15		c0.16	0.14		c0.07	c0.27		0.06	0.24	
v/s Ratio Perm			0.03									
v/c Ratio	0.68	0.82	0.14	0.84	0.53		0.68	0.68		0.63	0.62	
Uniform Delay, d1	50.8	46.9	40.8	46.9	38.2		51.6	29.4		52.8	29.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.4	8.1	0.2	16.3	0.6		9.8	1.8		8.0	1.5	
Delay (s)	59.3	55.0	41.0	63.2	38.8		61.3	31.3		60.8	31.3	
Level of Service	E	E	D	E	D		E	C		E	C	
Approach Delay (s)		52.3			47.7			33.9			33.6	
Approach LOS		D			D			C			C	

Intersection Summary

HCM Average Control Delay	39.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91		1.00	0.95	1.00	1.00	0.91		0.97	0.91	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5058		1770	3539	1583	1770	4816		3433	5031	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5058		1770	3539	1583	1770	4816		3433	5031	
Volume (vph)	220	1070	40	80	490	330	60	790	430	280	910	70
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	220	1070	40	80	490	330	60	790	430	280	910	70
RTOR Reduction (vph)	0	4	0	0	0	216	0	74	0	0	7	0
Lane Group Flow (vph)	220	1106	0	80	490	114	60	1146	0	280	973	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	19.2	33.8		8.8	23.4	23.4	7.5	47.2		14.2	53.9	
Effective Green, g (s)	19.2	33.8		8.8	23.4	23.4	7.5	47.2		14.2	53.9	
Actuated g/C Ratio	0.16	0.28		0.07	0.19	0.19	0.06	0.39		0.12	0.45	
Clearance Time (s)	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	
Lane Grp Cap (vph)	283	1425		130	690	309	111	1894		406	2260	
v/s Ratio Prot	c0.12	c0.22		0.05	0.14		0.03	c0.24		c0.08	0.19	
v/s Ratio Perm						0.07						
v/c Ratio	0.78	0.78		0.62	0.71	0.37	0.54	0.61		0.69	0.43	
Uniform Delay, d1	48.3	39.6		54.0	45.1	41.9	54.6	29.0		50.8	22.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.6	2.7		8.4	3.4	0.7	5.3	1.4		4.8	0.6	
Delay (s)	60.9	42.4		62.3	48.6	42.7	59.9	30.4		55.6	23.2	
Level of Service	E	D		E	D	D	E	C		E	C	
Approach Delay (s)		45.4			47.6			31.8			30.4	
Approach LOS		D			D			C			C	

Intersection Summary

HCM Average Control Delay	38.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00		1.00	1.00	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1807		1770	1863	1583	1770	4960		1770	5050	
Flt Permitted	0.58	1.00		0.37	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1079	1807		694	1863	1583	1770	4960		1770	5050	
Volume (vph)	240	200	50	60	140	220	30	710	140	210	830	40
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	240	200	50	60	140	220	30	710	140	210	830	40
RTOR Reduction (vph)	0	9	0	0	0	168	0	17	0	0	3	0
Lane Group Flow (vph)	240	241	0	60	140	52	30	833	0	210	867	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8						
Actuated Green, G (s)	28.2	28.2		28.2	28.2	28.2	5.1	61.0		18.8	74.7	
Effective Green, g (s)	28.2	28.2		28.2	28.2	28.2	5.1	61.0		18.8	74.7	
Actuated g/C Ratio	0.23	0.23		0.23	0.23	0.23	0.04	0.51		0.16	0.62	
Clearance Time (s)	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	
Lane Grp Cap (vph)	254	425		163	438	372	75	2521		277	3144	
v/s Ratio Prot		0.13			0.08		0.02	c0.17		c0.12	0.17	
v/s Ratio Perm	c0.22			0.09		0.03						
v/c Ratio	0.94	0.57		0.37	0.32	0.14	0.40	0.33		0.76	0.28	
Uniform Delay, d1	45.1	40.5		38.4	38.0	36.3	56.0	17.4		48.4	10.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	41.2	1.7		1.4	0.4	0.2	3.5	0.4		11.3	0.2	
Delay (s)	86.4	42.2		39.8	38.4	36.5	59.4	17.8		59.7	10.5	
Level of Service	F	D		D	D	D	E	B		E	B	
Approach Delay (s)		63.9			37.6			19.2			20.1	
Approach LOS		E			D			B			C	

Intersection Summary

HCM Average Control Delay	29.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	4974		1770	4895	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	4974		1770	4895	
Volume (vph)	160	550	180	10	420	250	20	410	70	310	540	180
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	168	579	189	11	442	263	21	432	74	326	568	189
RTOR Reduction (vph)	0	0	124	0	0	203	0	19	0	0	49	0
Lane Group Flow (vph)	168	579	65	11	442	60	21	487	0	326	708	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	10.4	27.9	27.9	0.9	18.4	18.4	2.2	16.8		19.1	33.7	
Effective Green, g (s)	10.4	27.9	27.9	0.9	18.4	18.4	2.2	16.8		19.1	33.7	
Actuated g/C Ratio	0.13	0.35	0.35	0.01	0.23	0.23	0.03	0.21		0.24	0.42	
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)	228	1224	547	20	807	361	48	1035		419	2044	
v/s Ratio Prot	c0.09	0.16		0.01	c0.12		0.01	c0.10		c0.18	0.14	
v/s Ratio Perm			0.04			0.04						
v/c Ratio	0.74	0.47	0.12	0.55	0.55	0.17	0.44	0.47		0.78	0.35	
Uniform Delay, d1	33.8	20.6	18.0	39.7	27.5	25.0	38.6	28.0		28.8	16.0	
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	11.7	0.3	0.1	28.9	0.8	0.2	6.3	0.3		8.8	0.1	
Delay (s)	45.5	20.9	18.1	68.6	28.2	25.2	44.9	28.4		37.6	16.1	
Level of Service	D	C	B	E	C	C	D	C		D	B	
Approach Delay (s)		24.8			27.7			29.0			22.6	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	25.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	80.7	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3529		3433	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3529		3433	1583
Volume (vph)	280	2260	1530	30	100	380
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	280	2260	1530	30	100	380
RTOR Reduction (vph)	0	0	1	0	0	14
Lane Group Flow (vph)	280	2260	1559	0	100	366
Turn Type	Prot					pm+ov
Protected Phases	7	4	8		6	7
Permitted Phases						6
Actuated Green, G (s)	17.8	64.9	43.1		8.2	26.0
Effective Green, g (s)	17.8	64.9	43.1		8.2	26.0
Actuated g/C Ratio	0.22	0.80	0.53		0.10	0.32
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)	388	2832	1875		347	586
v/s Ratio Prot	0.16	c0.64	0.44		0.03	c0.14
v/s Ratio Perm						0.09
v/c Ratio	0.72	0.80	0.83		0.29	0.62
Uniform Delay, d1	29.4	4.5	16.0		33.7	23.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	6.5	1.6	3.3		0.5	2.1
Delay (s)	35.8	6.1	19.3		34.2	25.5
Level of Service	D	A	B		C	C
Approach Delay (s)		9.4	19.3		27.3	
Approach LOS		A	B		C	

Intersection Summary

HCM Average Control Delay	14.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	81.1	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
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	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)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Volume (vph)	310	2260	1860	480	730	160
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	310	2260	1860	480	730	160
RTOR Reduction (vph)	0	0	0	162	0	125
Lane Group Flow (vph)	310	2260	1860	318	730	35
Turn Type	Prot			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	21.0	86.0	61.0	61.0	26.0	26.0
Effective Green, g (s)	21.0	86.0	61.0	61.0	26.0	26.0
Actuated g/C Ratio	0.18	0.72	0.51	0.51	0.22	0.22
Clearance Time (s)	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
Lane Grp Cap (vph)	310	2536	1799	805	744	343
v/s Ratio Prot	c0.18	0.64	c0.53		c0.21	
v/s Ratio Perm				0.20		0.02
v/c Ratio	1.00	0.89	1.03	0.40	0.98	0.10
Uniform Delay, d1	49.5	13.3	29.5	18.2	46.8	37.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	51.1	4.4	30.5	0.3	28.2	0.1
Delay (s)	100.6	17.7	60.0	18.5	75.0	37.8
Level of Service	F	B	E	B	E	D
Approach Delay (s)		27.7	51.5		68.3	
Approach LOS		C	D		E	

Intersection Summary

HCM Average Control Delay	43.5	HCM Level of Service	D
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
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	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)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	1770	1583
Volume (vph)	220	2940	1870	90	100	260
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	220	2940	1870	90	100	260
RTOR Reduction (vph)	0	0	0	27	0	214
Lane Group Flow (vph)	220	2940	1870	63	100	46
Turn Type	Prot			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	17.4	96.1	74.7	74.7	11.6	11.6
Effective Green, g (s)	17.4	96.1	74.7	74.7	11.6	11.6
Actuated g/C Ratio	0.15	0.83	0.65	0.65	0.10	0.10
Clearance Time (s)	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
Lane Grp Cap (vph)	266	2939	2285	1022	177	159
v/s Ratio Prot	0.12	c0.83	0.53		c0.06	
v/s Ratio Perm				0.04		0.03
v/c Ratio	0.83	1.00	0.82	0.06	0.56	0.29
Uniform Delay, d1	47.7	9.8	15.4	7.6	49.6	48.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	18.6	16.7	2.4	0.0	4.1	1.0
Delay (s)	66.3	26.5	17.8	7.6	53.7	49.2
Level of Service	E	C	B	A	D	D
Approach Delay (s)		29.3	17.3		50.5	
Approach LOS		C	B		D	

Intersection Summary

HCM Average Control Delay	26.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	115.7	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91		1.00	0.91			1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99			0.95		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00			0.98		0.95	1.00	
Satd. Flow (prot)	1770	5083		1770	5055			1750		1770	1614	
Flt Permitted	0.95	1.00		0.95	1.00			0.90		0.74	1.00	
Satd. Flow (perm)	1770	5083		1770	5055			1606		1374	1614	
Volume (vph)	90	2840	10	30	1710	70	10	10	10	90	10	80
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	90	2840	10	30	1710	70	10	10	10	90	10	80
RTOR Reduction (vph)	0	0	0	0	3	0	0	9	0	0	70	0
Lane Group Flow (vph)	90	2850	0	30	1777	0	0	21	0	90	20	0
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	8.2	63.6		3.9	59.3			11.1		11.1	11.1	
Effective Green, g (s)	8.2	63.6		3.9	59.3			11.1		11.1	11.1	
Actuated g/C Ratio	0.09	0.70		0.04	0.65			0.12		0.12	0.12	
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)	160	3568		76	3309			197		168	198	
v/s Ratio Prot	c0.05	c0.56		0.02	0.35						0.01	
v/s Ratio Perm								0.01		c0.07		
v/c Ratio	0.56	0.80		0.39	0.54			0.11		0.54	0.10	
Uniform Delay, d1	39.5	9.2		42.2	8.3			35.3		37.3	35.3	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	4.5	1.3		3.4	0.2			0.2		3.3	0.2	
Delay (s)	44.0	10.5		45.6	8.5			35.6		40.6	35.5	
Level of Service	D	B		D	A			D		D	D	
Approach Delay (s)		11.5			9.1			35.6			38.1	
Approach LOS		B			A			D			D	

Intersection Summary

HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	90.6	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Ideal Flow (vphpl)	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	0.91	1.00	0.91	1.00	1.00	1.00
Frt	1.00	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	1770	5085	1583	1770	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	1770	5085	1583	1770	1583
Volume (vph)	100	2990	10	2210	50	110	70
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	100	2990	10	2210	50	110	70
RTOR Reduction (vph)	0	0	0	0	6	0	61
Lane Group Flow (vph)	100	2990	10	2210	44	110	9
Turn Type	Prot		Prot		Perm		Perm
Protected Phases	7	4	3	8		6	
Permitted Phases					8		6
Actuated Green, G (s)	7.7	46.8	1.0	40.1	40.1	9.3	9.3
Effective Green, g (s)	7.7	46.8	1.0	40.1	40.1	9.3	9.3
Actuated g/C Ratio	0.11	0.68	0.01	0.58	0.58	0.13	0.13
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)	197	3444	26	2951	919	238	213
v/s Ratio Prot	c0.06	c0.59	0.01	0.43		c0.06	
v/s Ratio Perm					0.03		0.01
v/c Ratio	0.51	0.87	0.38	0.75	0.05	0.46	0.04
Uniform Delay, d1	28.9	8.7	33.7	10.8	6.3	27.6	26.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	2.6	9.2	1.1	0.0	1.4	0.1
Delay (s)	31.0	11.3	43.0	11.8	6.3	29.0	26.1
Level of Service	C	B	D	B	A	C	C
Approach Delay (s)		11.9		11.9		27.9	
Approach LOS		B		B		C	

Intersection Summary

HCM Average Control Delay	12.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	69.1	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91		1.00	0.91		0.95		1.00	0.95	0.95	1.00
Frt	1.00	1.00		1.00	0.99		1.00		0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95		1.00	0.95	0.96	1.00
Satd. Flow (prot)	1770	5083		1770	5015		1681		1583	1681	1690	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95		1.00	0.95	0.96	1.00
Satd. Flow (perm)	1770	5083		1770	5015		1681		1583	1681	1690	1583
Volume (vph)	50	2990	10	10	1370	140	10	0	10	320	10	150
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	2990	10	10	1370	140	10	0	10	320	10	150
RTOR Reduction (vph)	0	0	0	0	9	0	0	0	9	0	0	130
Lane Group Flow (vph)	50	3000	0	10	1501	0	10	0	1	161	169	20
Turn Type	Prot			Prot			Split		Perm	Split		Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases									2			6
Actuated Green, G (s)	6.1	68.2		0.7	62.8		6.2		6.2	14.1	14.1	14.1
Effective Green, g (s)	6.1	68.2		0.7	62.8		6.2		6.2	14.1	14.1	14.1
Actuated g/C Ratio	0.06	0.65		0.01	0.60		0.06		0.06	0.13	0.13	0.13
Clearance Time (s)	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
Lane Grp Cap (vph)	103	3295		12	2994		99		93	225	227	212
v/s Ratio Prot	c0.03	c0.59		0.01	0.30		c0.01			0.10	c0.10	
v/s Ratio Perm									0.00			0.01
v/c Ratio	0.49	0.91		0.83	0.50		0.10		0.01	0.72	0.74	0.09
Uniform Delay, d1	48.0	15.9		52.2	12.2		46.9		46.6	43.6	43.8	40.0
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	4.3		168.3	0.1		0.4		0.0	10.3	12.4	0.2
Delay (s)	51.6	20.2		220.5	12.3		47.3		46.6	53.9	56.2	40.1
Level of Service	D	C		F	B		D		D	D	E	D
Approach Delay (s)		20.7			13.7			47.0			50.4	
Approach LOS		C			B			D			D	

Intersection Summary

HCM Average Control Delay	21.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	105.2	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95	1.00		0.95		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.95		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.98		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583		3307		1770	1583	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.98		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583		3307		1770	1583	
Volume (vph)	50	3190	10	10	1570	40	10	10	10	60	0	50
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	3190	10	10	1570	40	10	10	10	60	0	50
RTOR Reduction (vph)	0	0	2	0	0	9	0	9	0	0	46	0
Lane Group Flow (vph)	50	3190	8	10	1570	31	0	21	0	60	4	0
Turn Type	Prot		Perm	Prot		Perm	Split			Split		
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4			8						
Actuated Green, G (s)	4.7	68.2	68.2	0.7	64.2	64.2		6.2		8.6	8.6	
Effective Green, g (s)	4.7	68.2	68.2	0.7	64.2	64.2		6.2		8.6	8.6	
Actuated g/C Ratio	0.05	0.68	0.68	0.01	0.64	0.64		0.06		0.09	0.09	
Clearance Time (s)	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	
Lane Grp Cap (vph)	83	2421	1083	12	2279	1019		206		153	137	
v/s Ratio Prot	c0.03	c0.90		0.01	0.44			c0.01		c0.03	0.00	
v/s Ratio Perm			0.01			0.02						
v/c Ratio	0.60	1.32	0.01	0.83	0.69	0.03		0.10		0.39	0.03	
Uniform Delay, d1	46.6	15.8	5.0	49.4	11.4	6.4		44.1		43.1	41.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	11.7	146.0	0.0	168.3	0.9	0.0		0.2		1.7	0.1	
Delay (s)	58.3	161.7	5.0	217.7	12.2	6.5		44.3		44.7	41.8	
Level of Service	E	F	A	F	B	A		D		D	D	
Approach Delay (s)		159.6			13.4			44.3			43.4	
Approach LOS		F			B			D			D	

Intersection Summary

HCM Average Control Delay	109.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	99.7	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5082		1770	3539	1583	1770	3539	1583	3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5082		1770	3539	1583	1770	3539	1583	3433	1863	1583
Volume (vph)	460	2530	10	20	950	270	20	20	10	370	40	610
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	484	2663	11	21	1000	284	21	21	11	389	42	642
RTOR Reduction (vph)	0	0	0	0	0	160	0	0	10	0	0	0
Lane Group Flow (vph)	484	2674	0	21	1000	124	21	21	1	389	42	642
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			Free
Actuated Green, G (s)	18.2	61.3		1.4	44.5	44.5	1.8	9.0	9.0	14.5	21.7	102.2
Effective Green, g (s)	18.2	61.3		1.4	44.5	44.5	1.8	9.0	9.0	14.5	21.7	102.2
Actuated g/C Ratio	0.18	0.60		0.01	0.44	0.44	0.02	0.09	0.09	0.14	0.21	1.00
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)	611	3048		24	1541	689	31	312	139	487	396	1583
v/s Ratio Prot	c0.14	c0.53		0.01	0.28		0.01	0.01		c0.11	0.02	
v/s Ratio Perm						0.08			0.00			c0.41
v/c Ratio	0.79	0.88		0.88	0.65	0.18	0.68	0.07	0.01	0.80	0.11	0.41
Uniform Delay, d1	40.2	17.3		50.3	22.7	17.7	49.9	42.7	42.5	42.4	32.4	0.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.0	3.2		127.4	1.0	0.1	45.6	0.1	0.0	8.9	0.1	0.8
Delay (s)	47.1	20.4		177.7	23.7	17.8	95.6	42.8	42.5	51.3	32.6	0.8
Level of Service	D	C		F	C	B	F	D	D	D	C	A
Approach Delay (s)		24.5			24.9			63.7			20.3	
Approach LOS		C			C			E			C	

Intersection Summary

HCM Average Control Delay	24.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	102.2	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91	1.00	1.00	0.91	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		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583		1832	1583		1778	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.90	1.00		0.71	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583		1673	1583		1330	1583
Volume (vph)	30	2830	10	10	1110	50	10	20	10	210	10	10
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	30	2830	10	10	1110	50	10	20	10	210	10	10
RTOR Reduction (vph)	0	0	3	0	0	18	0	0	8	0	0	6
Lane Group Flow (vph)	30	2830	7	10	1110	32	0	30	2	0	220	4
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		6
Actuated Green, G (s)	3.0	63.4	63.4	0.6	61.0	61.0		19.4	19.4		19.4	19.4
Effective Green, g (s)	3.0	63.4	63.4	0.6	61.0	61.0		19.4	19.4		19.4	19.4
Actuated g/C Ratio	0.03	0.66	0.66	0.01	0.64	0.64		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		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	3379	1052	11	3251	1012		340	322		270	322
v/s Ratio Prot	c0.02	c0.56		0.01	0.22							
v/s Ratio Perm			0.00			0.02		0.02	0.00		c0.17	0.00
v/c Ratio	0.54	0.84	0.01	0.91	0.34	0.03		0.09	0.01		0.81	0.01
Uniform Delay, d1	45.5	12.1	5.4	47.4	7.9	6.3		30.8	30.3		36.3	30.4
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	9.5	1.9	0.0	217.6	0.1	0.0		0.1	0.0		17.0	0.0
Delay (s)	55.0	14.1	5.4	264.9	8.0	6.3		30.9	30.3		53.2	30.4
Level of Service	E	B	A	F	A	A		C	C		D	C
Approach Delay (s)		14.4			10.1			30.8			52.3	
Approach LOS		B			B			C			D	

Intersection Summary

HCM Average Control Delay	15.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	95.4	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.95	0.95		0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.98	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1681	1703		1681	1730	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.98	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1681	1703		1681	1730	1583
Volume (vph)	140	2880	40	30	1010	70	10	30	10	130	50	200
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	140	2880	40	30	1010	70	10	30	10	130	50	200
RTOR Reduction (vph)	0	0	12	0	0	32	0	9	0	0	0	179
Lane Group Flow (vph)	140	2880	28	30	1010	38	10	31	0	88	92	21
Turn Type	Prot		Perm	Prot		Perm	Split			Split		Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	12.7	67.6	67.6	2.2	57.1	57.1	7.5	7.5		10.7	10.7	10.7
Effective Green, g (s)	12.7	67.6	67.6	2.2	57.1	57.1	7.5	7.5		10.7	10.7	10.7
Actuated g/C Ratio	0.12	0.65	0.65	0.02	0.55	0.55	0.07	0.07		0.10	0.10	0.10
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	216	3305	1029	37	2792	869	121	123		173	178	163
v/s Ratio Prot	c0.08	c0.57		0.02	0.20		0.01	c0.02		0.05	c0.05	
v/s Ratio Perm			0.02			0.02						0.01
v/c Ratio	0.65	0.87	0.03	0.81	0.36	0.04	0.08	0.25		0.51	0.52	0.13
Uniform Delay, d1	43.5	14.7	6.5	50.7	13.2	10.8	45.0	45.6		44.2	44.2	42.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.5	2.8	0.0	76.5	0.1	0.0	0.3	1.1		2.3	2.5	0.4
Delay (s)	50.1	17.5	6.5	127.1	13.3	10.9	45.3	46.7		46.5	46.7	42.8
Level of Service	D	B	A	F	B	B	D	D		D	D	D
Approach Delay (s)		18.8			16.2			46.4			44.6	
Approach LOS		B			B			D			D	

Intersection Summary

HCM Average Control Delay	20.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	104.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1723		3433	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	1723		3433	1863	1583
Volume (vph)	600	2230	10	10	900	240	10	10	10	490	10	230
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	600	2230	10	10	900	240	10	10	10	490	10	230
RTOR Reduction (vph)	0	0	4	0	0	141	0	9	0	0	0	190
Lane Group Flow (vph)	600	2230	6	10	900	99	10	11	0	490	10	40
Turn Type	Prot		Perm	Prot		pm+ov	Split			Split		Perm
Protected Phases	7	4		3	8	6	2	2		6	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	38.2	62.3	62.3	0.7	24.8	42.6	6.5	6.5		17.8	17.8	17.8
Effective Green, g (s)	38.2	62.3	62.3	0.7	24.8	42.6	6.5	6.5		17.8	17.8	17.8
Actuated g/C Ratio	0.37	0.60	0.60	0.01	0.24	0.41	0.06	0.06		0.17	0.17	0.17
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	655	3067	955	12	1221	653	111	108		592	321	273
v/s Ratio Prot	c0.34	c0.44		0.01	0.18	0.03	0.01	c0.01		c0.14	0.01	
v/s Ratio Perm			0.00			0.04						0.03
v/c Ratio	0.92	0.73	0.01	0.83	0.74	0.15	0.09	0.10		0.83	0.03	0.15
Uniform Delay, d1	31.0	14.5	8.2	51.2	36.2	19.0	45.6	45.6		41.3	35.6	36.3
Progression Factor	1.00	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	0.9	0.0	168.3	2.4	0.1	0.4	0.4		9.3	0.0	0.2
Delay (s)	48.6	15.4	8.2	219.5	38.6	19.1	46.0	46.0		50.6	35.6	36.5
Level of Service	D	B	A	F	D	B	D	D		D	D	D
Approach Delay (s)		22.4			36.1			46.0			45.9	
Approach LOS		C			D			D			D	

Intersection Summary

HCM Average Control Delay	29.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	103.3	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
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	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)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Volume (vph)	290	120	140	670	980	250
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	290	120	140	670	980	250
RTOR Reduction (vph)	0	0	0	417	0	169
Lane Group Flow (vph)	290	120	140	253	980	81
Turn Type	Prot			Perm		Perm
Protected Phases	1	6	2		8	
Permitted Phases				2		8
Actuated Green, G (s)	23.6	73.0	45.4	45.4	39.0	39.0
Effective Green, g (s)	23.6	73.0	45.4	45.4	39.0	39.0
Actuated g/C Ratio	0.20	0.61	0.38	0.38	0.32	0.32
Clearance Time (s)	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
Lane Grp Cap (vph)	348	2153	1339	599	1116	514
v/s Ratio Prot	c0.16	0.03	0.04		c0.29	
v/s Ratio Perm				c0.16		0.05
v/c Ratio	0.83	0.06	0.10	0.42	0.88	0.16
Uniform Delay, d1	46.3	9.5	24.1	27.6	38.3	28.8
Progression Factor	1.00	1.00	0.70	0.54	1.00	1.00
Incremental Delay, d2	15.6	0.0	0.1	1.9	8.0	0.1
Delay (s)	61.9	9.6	17.1	16.8	46.3	29.0
Level of Service	E	A	B	B	D	C
Approach Delay (s)		46.6	16.8		42.8	
Approach LOS		D	B		D	

Intersection Summary

HCM Average Control Delay	34.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Volume (vph)	50	990	0	2920	2100	820
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	990	0	2920	2100	820
RTOR Reduction (vph)	0	4	0	0	0	0
Lane Group Flow (vph)	50	986	0	2920	2100	820
Turn Type		Perm				Free
Protected Phases	4			2	6	
Permitted Phases		4				Free
Actuated Green, G (s)	46.2	46.2		65.8	65.8	120.0
Effective Green, g (s)	46.2	46.2		65.8	65.8	120.0
Actuated g/C Ratio	0.39	0.39		0.55	0.55	1.00
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)	1322	1073		3514	3514	1583
v/s Ratio Prot	0.01			c0.46	0.33	
v/s Ratio Perm		c0.35				0.52
v/c Ratio	0.04	0.92		0.83	0.60	0.52
Uniform Delay, d1	23.0	35.1		22.5	18.2	0.0
Progression Factor	0.36	0.71		0.66	1.11	1.00
Incremental Delay, d2	0.0	7.9		0.2	0.6	1.0
Delay (s)	8.2	32.9		15.0	20.8	1.0
Level of Service	A	C		B	C	A
Approach Delay (s)	31.7			15.0	15.2	
Approach LOS	C			B	B	

Intersection Summary

HCM Average Control Delay	17.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0	4.0
Lane Util. Factor	0.97	*0.95	1.00	1.00	0.95	1.00	0.97	*0.70	1.00	*1.00	0.86	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5309	1583	1770	3539	1583	3433	3912	1583	3539	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5309	1583	1770	3539	1583	3433	3912	1583	3539	6408	2787
Volume (vph)	200	710	230	230	570	280	480	2780	630	350	2570	450
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	200	710	230	230	570	280	480	2780	630	350	2570	450
RTOR Reduction (vph)	0	0	199	0	0	104	0	0	157	0	0	199
Lane Group Flow (vph)	200	710	31	230	570	176	480	2780	473	350	2570	251
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	8.0	16.0	16.0	12.0	20.0	20.0	20.0	67.0	67.0	9.0	56.0	56.0
Effective Green, g (s)	8.0	16.0	16.0	12.0	20.0	20.0	20.0	67.0	67.0	9.0	56.0	56.0
Actuated g/C Ratio	0.07	0.13	0.13	0.10	0.17	0.17	0.17	0.56	0.56	0.08	0.47	0.47
Clearance Time (s)	4.0	4.0	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	3.0	3.0
Lane Grp Cap (vph)	229	708	211	177	590	264	572	2184	884	265	2990	1301
v/s Ratio Prot	0.06	c0.13		c0.13	0.16		0.14	c0.71		c0.10	0.40	
v/s Ratio Perm			0.02			0.11			0.30			0.09
v/c Ratio	0.87	1.00	0.15	1.30	0.97	0.67	0.84	1.27	0.53	1.32	0.86	0.19
Uniform Delay, d1	55.5	52.0	46.0	54.0	49.7	46.9	48.4	26.5	16.7	55.5	28.5	18.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.66	0.39	0.02	1.12	0.63	0.61
Incremental Delay, d2	28.6	34.5	0.3	169.8	28.4	6.2	7.2	125.3	1.5	163.2	2.7	0.3
Delay (s)	84.1	86.5	46.3	223.8	78.1	53.1	39.3	135.6	1.9	225.4	20.7	11.7
Level of Service	F	F	D	F	E	D	D	F	A	F	C	B
Approach Delay (s)		78.0			102.6			102.1			40.8	
Approach LOS		E			F			F			D	

Intersection Summary

HCM Average Control Delay	77.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	1.00	1.00	1.00	0.86		1.00	0.86	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	1863	1583	1770	6380		1770	6320	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	1863	1583	1770	6380		1770	6320	
Volume (vph)	220	410	180	60	400	120	180	2700	80	150	2570	260
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	220	410	180	60	400	120	180	2700	80	150	2570	260
RTOR Reduction (vph)	0	0	129	0	0	95	0	3	0	0	14	0
Lane Group Flow (vph)	220	410	51	60	400	25	180	2777	0	150	2816	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	15.8	33.8	33.8	7.0	25.0	25.0	12.0	53.2		10.0	51.2	
Effective Green, g (s)	15.8	33.8	33.8	7.0	25.0	25.0	12.0	53.2		10.0	51.2	
Actuated g/C Ratio	0.13	0.28	0.28	0.06	0.21	0.21	0.10	0.44		0.08	0.43	
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	997	446	103	388	330	177	2828		148	2697	
v/s Ratio Prot	c0.12	0.12		0.03	c0.21		c0.10	0.44		0.08	c0.45	
v/s Ratio Perm			0.03			0.02						
v/c Ratio	0.94	0.41	0.11	0.58	1.03	0.08	1.02	0.98		1.01	1.04	
Uniform Delay, d1	51.7	35.0	32.0	55.1	47.5	38.2	54.0	32.9		55.0	34.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.69	0.38		0.60	0.46	
Incremental Delay, d2	43.3	0.3	0.1	8.1	53.9	0.1	46.3	7.1		53.9	25.6	
Delay (s)	95.0	35.3	32.1	63.2	101.4	38.3	83.6	19.5		86.8	41.4	
Level of Service	F	D	C	E	F	D	F	B		F	D	
Approach Delay (s)		50.8			84.4			23.4			43.6	
Approach LOS		D			F			C			D	

Intersection Summary

HCM Average Control Delay	39.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
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	0.97	0.95		1.00	0.95	1.00	1.00	1.00		0.97	1.00	0.88
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3536		1770	3539	1583	1770	1758		3433	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3536		1770	3539	1583	1770	1758		3433	1863	2787
Volume (vph)	160	1480	10	10	1990	300	10	50	30	290	40	250
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	160	1480	10	10	1990	300	10	50	30	290	40	250
RTOR Reduction (vph)	0	0	0	0	0	56	0	19	0	0	0	146
Lane Group Flow (vph)	160	1490	0	10	1990	244	10	61	0	290	40	104
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	6.0	75.5		0.8	70.3	70.3	0.8	12.5		11.0	22.7	22.7
Effective Green, g (s)	6.0	75.5		0.8	70.3	70.3	0.8	12.5		11.0	22.7	22.7
Actuated g/C Ratio	0.05	0.65		0.01	0.61	0.61	0.01	0.11		0.09	0.20	0.20
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)	178	2305		12	2148	961	12	190		326	365	546
v/s Ratio Prot	c0.05	0.42		0.01	c0.56		0.01	c0.03		c0.08	0.02	
v/s Ratio Perm						0.15						0.04
v/c Ratio	0.90	0.65		0.83	0.93	0.25	0.83	0.32		0.89	0.11	0.19
Uniform Delay, d1	54.6	12.1		57.4	20.4	10.6	57.4	47.7		51.8	38.2	38.9
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	39.6	0.6		168.3	7.5	0.1	168.3	1.0		24.2	0.1	0.2
Delay (s)	94.2	12.7		225.7	27.9	10.7	225.7	48.7		76.0	38.4	39.0
Level of Service	F	B		F	C	B	F	D		E	D	D
Approach Delay (s)		20.6			26.5			68.4			57.5	
Approach LOS		C			C			E			E	

Intersection Summary

HCM Average Control Delay	29.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	115.8	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.86		0.97	0.86	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	6329		3433	6408	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	6329		3433	6408	1583
Volume (vph)	390	1040	280	290	1080	300	380	2470	220	280	2110	430
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	390	1040	280	290	1080	300	380	2470	220	280	2110	430
RTOR Reduction (vph)	0	0	188	0	0	118	0	12	0	0	0	180
Lane Group Flow (vph)	390	1040	92	290	1080	183	380	2678	0	280	2110	250
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	14.0	29.0	29.0	11.0	26.0	26.0	15.6	54.0		10.0	48.4	48.4
Effective Green, g (s)	14.0	29.0	29.0	11.0	26.0	26.0	15.6	54.0		10.0	48.4	48.4
Actuated g/C Ratio	0.12	0.24	0.24	0.09	0.22	0.22	0.13	0.45		0.08	0.40	0.40
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	401	1229	383	315	1102	343	446	2848		286	2585	638
v/s Ratio Prot	0.11	c0.20		0.08	c0.21		0.11	c0.42		0.08	c0.33	
v/s Ratio Perm			0.06			0.12						0.16
v/c Ratio	0.97	0.85	0.24	0.92	0.98	0.53	0.85	0.94		0.98	0.82	0.39
Uniform Delay, d1	52.8	43.4	36.6	54.1	46.7	41.6	51.1	31.5		54.9	31.8	25.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.49	0.19	0.02
Incremental Delay, d2	37.5	5.6	0.3	31.0	22.3	1.6	14.5	7.7		23.2	0.9	0.5
Delay (s)	90.3	48.9	37.0	85.0	69.0	43.2	65.6	39.2		50.3	7.0	1.0
Level of Service	F	D	D	F	E	D	E	D		D	A	A
Approach Delay (s)		56.4			67.2			42.5			10.4	
Approach LOS		E			E			D			B	

Intersection Summary

HCM Average Control Delay	39.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.86		1.00	0.86	
Frt	1.00	0.96		1.00	0.96		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	3411		1770	3415		1770	6359		1770	6309	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3411		1770	3415		1770	6359		1770	6309	
Volume (vph)	210	690	220	190	590	180	220	2240	120	210	1840	210
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	210	690	220	190	590	180	220	2240	120	210	1840	210
RTOR Reduction (vph)	0	25	0	0	24	0	0	6	0	0	16	0
Lane Group Flow (vph)	210	885	0	190	746	0	220	2354	0	210	2034	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	15.0	31.0		13.0	29.0		15.0	46.0		14.0	45.0	
Effective Green, g (s)	15.0	31.0		13.0	29.0		15.0	46.0		14.0	45.0	
Actuated g/C Ratio	0.12	0.26		0.11	0.24		0.12	0.38		0.12	0.38	
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)	221	881		192	825		221	2438		207	2366	
v/s Ratio Prot	c0.12	c0.26		0.11	0.22		c0.12	c0.37		0.12	0.32	
v/s Ratio Perm												
v/c Ratio	0.95	1.00		0.99	0.90		1.00	0.97		1.01	0.86	
Uniform Delay, d1	52.1	44.5		53.4	44.1		52.5	36.2		53.0	34.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	46.5	31.4		61.3	13.2		58.9	11.8		66.4	4.4	
Delay (s)	98.6	75.9		114.7	57.4		111.4	48.0		119.4	38.9	
Level of Service	F	E		F	E		F	D		F	D	
Approach Delay (s)		80.1			68.7			53.4			46.4	
Approach LOS		F			E			D			D	

Intersection Summary

HCM Average Control Delay	57.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95		1.00	0.86		1.00	0.86	
Frt	1.00	1.00	0.85	1.00	0.93		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3294		1770	6279		1770	6336	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3294		1770	6279		1770	6336	
Volume (vph)	190	490	210	290	490	420	200	2200	340	310	2100	170
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	190	490	210	290	490	420	200	2200	340	310	2100	170
RTOR Reduction (vph)	0	0	179	0	128	0	0	23	0	0	11	0
Lane Group Flow (vph)	190	490	32	290	782	0	200	2517	0	310	2259	0
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	12.0	18.0	18.0	20.0	26.0		16.1	46.0		20.0	49.9	
Effective Green, g (s)	12.0	18.0	18.0	20.0	26.0		16.1	46.0		20.0	49.9	
Actuated g/C Ratio	0.10	0.15	0.15	0.17	0.22		0.13	0.38		0.17	0.42	
Clearance Time (s)	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	
Lane Grp Cap (vph)	177	531	237	295	714		237	2407		295	2635	
v/s Ratio Prot	0.11	0.14		c0.16	c0.24		0.11	c0.40		c0.18	c0.36	
v/s Ratio Perm			0.02									
v/c Ratio	1.07	0.92	0.13	0.98	1.09		0.84	1.05		1.05	0.86	
Uniform Delay, d1	54.0	50.3	44.2	49.8	47.0		50.7	37.0		50.0	31.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	88.5	21.7	0.3	47.4	62.4		23.0	31.6		66.4	3.9	
Delay (s)	142.5	72.0	44.5	97.3	109.4		73.7	68.6		116.4	35.7	
Level of Service	F	E	D	F	F		E	E		F	D	
Approach Delay (s)		80.6			106.5			69.0			45.4	
Approach LOS		F			F			E			D	

Intersection Summary

HCM Average Control Delay	68.2	HCM Level of Service	E
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Lane Configurations												
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	4.0
Lane Util. Factor	1.00	0.97	1.00	0.97	0.86		0.97	0.91	1.00	0.97	0.88	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.85	0.85
Flt Protected	0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3433	1583	3433	6322		3433	5085	1583	3433	2787	1583
Flt Permitted	0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3433	1583	3433	6322		3433	5085	1583	3433	2787	1583
Volume (vph)	150	500	270	190	1640	160	250	1460	630	480	370	40
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	150	500	270	190	1640	160	250	1460	630	480	370	40
RTOR Reduction (vph)	0	0	154	0	13	0	0	0	21	0	0	31
Lane Group Flow (vph)	150	500	116	190	1787	0	250	1460	609	480	370	9
Turn Type	Split		Perm	Prot			Prot		pm+ov	Split		Perm
Protected Phases	4	4		1	6		1	6	8 9	8 9	8 9	
Permitted Phases			4						6			8 9
Actuated Green, G (s)	21.4	21.4	21.4	11.8	44.8		11.8	44.8	70.8	26.0	26.0	26.0
Effective Green, g (s)	21.4	21.4	21.4	11.8	44.8		11.8	44.8	70.8	26.0	26.0	26.0
Actuated g/C Ratio	0.18	0.18	0.18	0.10	0.37		0.10	0.37	0.59	0.22	0.22	0.22
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)	316	612	282	338	2360		338	1898	987	744	604	343
v/s Ratio Prot	0.08	c0.15		0.06	0.28		c0.07	c0.29	c0.13	c0.14	0.13	
v/s Ratio Perm			0.07						0.25			0.01
v/c Ratio	0.47	0.82	0.41	0.56	0.76		0.74	0.77	0.62	0.65	0.61	0.03
Uniform Delay, d1	44.3	47.4	43.7	51.6	32.8		52.6	33.1	15.9	42.8	42.5	37.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	0.99	0.99	1.34
Incremental Delay, d2	1.1	8.3	1.0	2.1	2.3		8.2	3.1	1.2	1.9	1.8	0.0
Delay (s)	45.4	55.7	44.7	53.8	35.2		60.8	36.1	17.0	44.1	43.7	49.7
Level of Service	D	E	D	D	D		E	D	B	D	D	D
Approach Delay (s)		50.8			37.0			33.6		44.1		
Approach LOS		D			D			C		D		

Intersection Summary

HCM Average Control Delay	38.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5019		1770	5000	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	5019		1770	5000	
Volume (vph)	300	570	360	240	730	160	340	1690	160	300	1590	200
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	300	570	360	240	730	160	340	1690	160	300	1590	200
RTOR Reduction (vph)	0	0	234	0	0	129	0	9	0	0	13	0
Lane Group Flow (vph)	300	570	126	240	730	31	340	1841	0	300	1777	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	19.0	25.0	25.0	17.0	23.0	23.0	21.0	43.0		19.0	41.0	
Effective Green, g (s)	19.0	25.0	25.0	17.0	23.0	23.0	21.0	43.0		19.0	41.0	
Actuated g/C Ratio	0.16	0.21	0.21	0.14	0.19	0.19	0.18	0.36		0.16	0.34	
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)	280	737	330	251	678	303	310	1798		280	1708	
v/s Ratio Prot	c0.17	0.16		0.14	c0.21		c0.19	c0.37		0.17	0.36	
v/s Ratio Perm			0.08			0.02						
v/c Ratio	1.07	0.77	0.38	0.96	1.08	0.10	1.10	1.02		1.07	1.04	
Uniform Delay, d1	50.5	44.8	40.8	51.1	48.5	40.0	49.5	38.5		50.5	39.5	
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	74.0	5.1	0.7	44.3	57.1	0.1	79.6	27.5		74.0	33.1	
Delay (s)	124.5	49.9	41.6	95.5	105.6	40.1	129.1	66.0		124.5	72.6	
Level of Service	F	D	D	F	F	D	F	E		F	E	
Approach Delay (s)		65.7			94.1			75.8			80.0	
Approach LOS		E			F			E			F	

Intersection Summary

HCM Average Control Delay	78.4	HCM Level of Service	E
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3420		1770	4952		1770	5014	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3420		1770	4952		1770	5014	
Volume (vph)	180	540	90	140	550	160	240	1740	370	170	1550	160
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	180	540	90	140	550	160	240	1740	370	170	1550	160
RTOR Reduction (vph)	0	0	71	0	22	0	0	28	0	0	10	0
Lane Group Flow (vph)	180	540	19	140	688	0	240	2083	0	170	1700	0
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	13.0	25.7	25.7	12.3	25.0		17.0	54.0		12.0	49.0	
Effective Green, g (s)	13.0	25.7	25.7	12.3	25.0		17.0	54.0		12.0	49.0	
Actuated g/C Ratio	0.11	0.21	0.21	0.10	0.21		0.14	0.45		0.10	0.41	
Clearance Time (s)	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	
Lane Grp Cap (vph)	192	758	339	181	713		251	2228		177	2047	
v/s Ratio Prot	c0.10	0.15		0.08	c0.20		c0.14	c0.42		0.10	0.34	
v/s Ratio Perm			0.01									
v/c Ratio	0.94	0.71	0.06	0.77	0.96		0.96	0.93		0.96	0.83	
Uniform Delay, d1	53.1	43.7	37.5	52.5	47.1		51.1	31.3		53.8	31.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	46.8	3.2	0.1	18.4	25.1		44.3	8.9		55.9	4.1	
Delay (s)	99.9	46.9	37.6	70.9	72.1		95.5	40.2		109.6	35.9	
Level of Service	F	D	D	E	E		F	D		F	D	
Approach Delay (s)		57.7			71.9			45.8			42.5	
Approach LOS		E			E			D			D	

Intersection Summary

HCM Average Control Delay	50.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91		1.00	0.95	1.00	1.00	0.91		0.97	0.91	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5007		1770	3539	1583	1770	4984		3433	4973	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5007		1770	3539	1583	1770	4984		3433	4973	
Volume (vph)	130	700	80	330	940	410	250	1110	170	350	1160	200
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	130	700	80	330	940	410	250	1110	170	350	1160	200
RTOR Reduction (vph)	0	12	0	0	0	207	0	17	0	0	19	0
Lane Group Flow (vph)	130	768	0	330	940	203	250	1263	0	350	1341	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	10.9	20.5		24.7	34.3	34.3	19.2	44.1		14.7	39.6	
Effective Green, g (s)	10.9	20.5		24.7	34.3	34.3	19.2	44.1		14.7	39.6	
Actuated g/C Ratio	0.09	0.17		0.21	0.29	0.29	0.16	0.37		0.12	0.33	
Clearance Time (s)	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	
Lane Grp Cap (vph)	161	855		364	1012	452	283	1832		421	1641	
v/s Ratio Prot	0.07	0.15		c0.19	c0.27		c0.14	0.25		0.10	c0.27	
v/s Ratio Perm						0.13						
v/c Ratio	0.81	0.90		0.91	0.93	0.45	0.88	0.69		0.83	0.82	
Uniform Delay, d1	53.5	48.7		46.5	41.7	35.1	49.3	32.1		51.4	36.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	24.8	12.2		25.2	14.1	0.7	26.0	2.1		13.1	4.6	
Delay (s)	78.3	60.9		71.7	55.7	35.8	75.3	34.3		64.5	41.5	
Level of Service	E	E		E	E	D	E	C		E	D	
Approach Delay (s)		63.4			54.0			41.0			46.2	
Approach LOS		E			D			D			D	

Intersection Summary

HCM Average Control Delay	49.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00		1.00	1.00	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1798		1770	1863	1583	1770	5058		1770	5021	
Flt Permitted	0.33	1.00		0.51	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	614	1798		956	1863	1583	1770	5058		1770	5021	
Volume (vph)	90	100	30	50	190	100	20	1070	40	190	980	90
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	90	100	30	50	190	100	20	1070	40	190	980	90
RTOR Reduction (vph)	0	10	0	0	0	86	0	2	0	0	5	0
Lane Group Flow (vph)	90	120	0	50	190	14	20	1108	0	190	1065	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8						
Actuated Green, G (s)	16.9	16.9		16.9	16.9	16.9	3.3	73.7		17.4	87.8	
Effective Green, g (s)	16.9	16.9		16.9	16.9	16.9	3.3	73.7		17.4	87.8	
Actuated g/C Ratio	0.14	0.14		0.14	0.14	0.14	0.03	0.61		0.14	0.73	
Clearance Time (s)	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	
Lane Grp Cap (vph)	86	253		135	262	223	49	3106		257	3674	
v/s Ratio Prot		0.07			0.10		0.01	c0.22		c0.11	0.21	
v/s Ratio Perm	c0.15			0.05		0.01						
v/c Ratio	1.05	0.47		0.37	0.73	0.06	0.41	0.36		0.74	0.29	
Uniform Delay, d1	51.5	47.5		46.7	49.3	44.7	57.4	11.4		49.1	5.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	110.3	1.4		1.7	9.6	0.1	5.5	0.3		10.6	0.2	
Delay (s)	161.8	48.8		48.4	58.9	44.8	62.9	11.8		59.7	5.7	
Level of Service	F	D		D	E	D	E	B		E	A	
Approach Delay (s)		95.1			53.2			12.7			13.8	
Approach LOS		F			D			B			B	

Intersection Summary

HCM Average Control Delay	24.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5030		1770	4876	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	5030		1770	4876	
Volume (vph)	210	420	100	20	620	280	90	900	70	450	450	170
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	221	442	105	21	653	295	95	947	74	474	474	179
RTOR Reduction (vph)	0	0	70	0	0	231	0	8	0	0	56	0
Lane Group Flow (vph)	221	442	35	21	653	64	95	1013	0	474	597	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	16.1	39.6	39.6	1.9	25.4	25.4	9.0	27.3		32.5	50.8	
Effective Green, g (s)	16.1	39.6	39.6	1.9	25.4	25.4	9.0	27.3		32.5	50.8	
Actuated g/C Ratio	0.14	0.34	0.34	0.02	0.22	0.22	0.08	0.23		0.28	0.43	
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)	243	1195	534	29	766	343	136	1171		490	2112	
v/s Ratio Prot	c0.12	0.12		0.01	c0.18		0.05	c0.20		c0.27	0.12	
v/s Ratio Perm			0.02			0.04						
v/c Ratio	0.91	0.37	0.07	0.72	0.85	0.19	0.70	0.87		0.97	0.28	
Uniform Delay, d1	49.9	29.4	26.3	57.4	44.1	37.5	52.8	43.2		41.9	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	34.0	0.2	0.1	61.8	9.1	0.3	14.5	6.9		32.0	0.1	
Delay (s)	83.9	29.6	26.4	119.2	53.2	37.8	67.3	50.1		73.9	21.6	
Level of Service	F	C	C	F	D	D	E	D		E	C	
Approach Delay (s)		44.8			50.0			51.6			43.6	
Approach LOS		D			D			D			D	

Intersection Summary

HCM Average Control Delay	47.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	117.3	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3513		3433	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3513		3433	1583
Volume (vph)	330	1590	1950	100	30	280
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	330	1590	1950	100	30	280
RTOR Reduction (vph)	0	0	3	0	0	7
Lane Group Flow (vph)	330	1590	2047	0	30	273
Turn Type	Prot					pm+ov
Protected Phases	7	4	8		6	7
Permitted Phases						6
Actuated Green, G (s)	22.0	95.0	69.0		6.5	28.5
Effective Green, g (s)	22.0	95.0	69.0		6.5	28.5
Actuated g/C Ratio	0.20	0.87	0.63		0.06	0.26
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)	356	3070	2214		204	470
v/s Ratio Prot	c0.19	0.45	c0.58		0.01	c0.12
v/s Ratio Perm						0.06
v/c Ratio	0.93	0.52	0.92		0.15	0.58
Uniform Delay, d1	43.0	1.7	17.9		48.9	35.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	29.5	0.1	7.2		0.3	1.8
Delay (s)	72.5	1.9	25.1		49.2	37.1
Level of Service	E	A	C		D	D
Approach Delay (s)		14.0	25.1		38.3	
Approach LOS		B	C		D	

Intersection Summary

HCM Average Control Delay	21.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	109.5	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
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	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)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Volume (vph)	390	2380	2170	690	730	260
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	390	2380	2170	690	730	260
RTOR Reduction (vph)	0	0	0	200	0	208
Lane Group Flow (vph)	390	2380	2170	490	730	52
Turn Type	Prot			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	22.0	88.0	62.0	62.0	24.0	24.0
Effective Green, g (s)	22.0	88.0	62.0	62.0	24.0	24.0
Actuated g/C Ratio	0.18	0.73	0.52	0.52	0.20	0.20
Clearance Time (s)	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
Lane Grp Cap (vph)	325	2595	1828	818	687	317
v/s Ratio Prot	c0.22	0.67	c0.61		c0.21	
v/s Ratio Perm				0.31		0.03
v/c Ratio	1.20	0.92	1.19	0.60	1.06	0.16
Uniform Delay, d1	49.0	13.0	29.0	20.3	48.0	39.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	115.8	5.7	90.0	1.2	52.2	0.2
Delay (s)	164.8	18.7	119.0	21.5	100.2	39.9
Level of Service	F	B	F	C	F	D
Approach Delay (s)		39.3	95.5		84.4	
Approach LOS		D	F		F	

Intersection Summary

HCM Average Control Delay	70.3	HCM Level of Service	E
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
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	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)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	1770	1583
Volume (vph)	350	2070	2670	70	60	250
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	350	2070	2670	70	60	250
RTOR Reduction (vph)	0	0	0	15	0	209
Lane Group Flow (vph)	350	2070	2670	55	60	41
Turn Type	Prot			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	19.0	95.1	72.1	72.1	9.9	9.9
Effective Green, g (s)	19.0	95.1	72.1	72.1	9.9	9.9
Actuated g/C Ratio	0.17	0.84	0.64	0.64	0.09	0.09
Clearance Time (s)	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
Lane Grp Cap (vph)	298	2978	2258	1010	155	139
v/s Ratio Prot	c0.20	0.58	c0.75		c0.03	
v/s Ratio Perm				0.03		0.03
v/c Ratio	1.17	0.70	1.18	0.05	0.39	0.30
Uniform Delay, d1	47.0	3.4	20.5	7.7	48.7	48.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	108.1	0.7	87.0	0.0	1.6	1.2
Delay (s)	155.1	4.1	107.4	7.7	50.3	49.5
Level of Service	F	A	F	A	D	D
Approach Delay (s)		26.0	104.9		49.6	
Approach LOS		C	F		D	

Intersection Summary

HCM Average Control Delay	66.8	HCM Level of Service	E
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	113.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91		1.00	0.91			1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99			0.95		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00			0.98		0.95	1.00	
Satd. Flow (prot)	1770	5076		1770	5056			1750		1770	1609	
Flt Permitted	0.95	1.00		0.95	1.00			0.85		0.71	1.00	
Satd. Flow (perm)	1770	5076		1770	5056			1518		1317	1609	
Volume (vph)	390	1600	20	20	2960	120	20	20	20	90	10	100
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	390	1600	20	20	2960	120	20	20	20	90	10	100
RTOR Reduction (vph)	0	1	0	0	3	0	0	15	0	0	89	0
Lane Group Flow (vph)	390	1619	0	20	3077	0	0	45	0	90	21	0
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	24.0	91.6		1.9	69.5			12.6		12.6	12.6	
Effective Green, g (s)	24.0	91.6		1.9	69.5			12.6		12.6	12.6	
Actuated g/C Ratio	0.20	0.78		0.02	0.59			0.11		0.11	0.11	
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)	360	3937		28	2975			162		141	172	
v/s Ratio Prot	c0.22	0.32		0.01	c0.61						0.01	
v/s Ratio Perm								0.03		c0.07		
v/c Ratio	1.08	0.41		0.71	1.03			0.28		0.64	0.12	
Uniform Delay, d1	47.0	4.4		57.8	24.3			48.6		50.6	47.7	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	71.6	0.1		60.5	26.2			0.9		9.1	0.3	
Delay (s)	118.6	4.4		118.4	50.5			49.5		59.7	48.0	
Level of Service	F	A		F	D			D		E	D	
Approach Delay (s)		26.6			50.9			49.5			53.3	
Approach LOS		C			D			D			D	

Intersection Summary

HCM Average Control Delay	41.9	HCM Level of Service	D
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	118.1	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Ideal Flow (vphpl)	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	0.91	1.00	0.91	1.00	1.00	1.00
Frt	1.00	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	1770	5085	1583	1770	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	1770	5085	1583	1770	1583
Volume (vph)	120	1690	40	2530	230	230	80
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	120	1690	40	2530	230	230	80
RTOR Reduction (vph)	0	0	0	0	29	0	53
Lane Group Flow (vph)	120	1690	40	2530	201	230	27
Turn Type	Prot		Prot		Perm		Perm
Protected Phases	7	4	3	8		6	
Permitted Phases					8		6
Actuated Green, G (s)	8.2	37.8	3.8	33.4	33.4	13.5	13.5
Effective Green, g (s)	8.2	37.8	3.8	33.4	33.4	13.5	13.5
Actuated g/C Ratio	0.12	0.56	0.06	0.50	0.50	0.20	0.20
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)	216	2865	100	2531	788	356	318
v/s Ratio Prot	c0.07	0.33	0.02	c0.50		c0.13	
v/s Ratio Perm					0.13		0.02
v/c Ratio	0.56	0.59	0.40	1.00	0.26	0.65	0.09
Uniform Delay, d1	27.7	9.6	30.5	16.8	9.7	24.6	21.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.1	0.3	2.6	17.7	0.2	4.0	0.1
Delay (s)	30.8	9.9	33.2	34.5	9.9	28.6	21.9
Level of Service	C	A	C	C	A	C	C
Approach Delay (s)		11.3		32.5		26.9	
Approach LOS		B		C		C	

Intersection Summary

HCM Average Control Delay	24.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	67.1	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91		1.00	0.91		0.95	0.95	1.00	0.95	0.95	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	0.96	1.00
Satd. Flow (prot)	1770	5076		1770	5013		1681	1770	1583	1681	1701	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	0.96	1.00
Satd. Flow (perm)	1770	5076		1770	5013		1681	1770	1583	1681	1701	1583
Volume (vph)	200	1620	20	20	2390	250	10	10	20	180	20	200
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	200	1620	20	20	2390	250	10	10	20	180	20	200
RTOR Reduction (vph)	0	1	0	0	9	0	0	0	19	0	0	179
Lane Group Flow (vph)	200	1639	0	20	2631	0	10	10	1	97	103	21
Turn Type	Prot			Prot			Split		Perm	Split		Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases									2			6
Actuated Green, G (s)	13.0	72.6		1.9	61.5		6.3	6.3	6.3	11.5	11.5	11.5
Effective Green, g (s)	13.0	72.6		1.9	61.5		6.3	6.3	6.3	11.5	11.5	11.5
Actuated g/C Ratio	0.12	0.67		0.02	0.57		0.06	0.06	0.06	0.11	0.11	0.11
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)	212	3403		31	2847		98	103	92	178	181	168
v/s Ratio Prot	c0.11	0.32		0.01	c0.52		c0.01	0.01		0.06	c0.06	
v/s Ratio Perm									0.00			0.01
v/c Ratio	0.94	0.48		0.65	0.92		0.10	0.10	0.01	0.54	0.57	0.13
Uniform Delay, d1	47.3	8.7		52.9	21.3		48.3	48.3	48.1	45.9	46.0	43.8
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	45.8	0.1		37.9	5.7		0.5	0.4	0.1	3.4	4.1	0.3
Delay (s)	93.0	8.8		90.8	27.0		48.8	48.7	48.1	49.3	50.1	44.2
Level of Service	F	A		F	C		D	D	D	D	D	D
Approach Delay (s)		18.0			27.5			48.4			47.0	
Approach LOS		B			C			D			D	

Intersection Summary

HCM Average Control Delay	25.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	108.3	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		0.95		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.95		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98		0.95	1.00	
Satd. Flow (prot)	1770	3539		1770	3539	1583		3307		1770	1583	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.98		0.95	1.00	
Satd. Flow (perm)	1770	3539		1770	3539	1583		3307		1770	1583	
Volume (vph)	60	1940	0	10	2900	140	10	10	10	20	0	30
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	60	1940	0	10	2900	140	10	10	10	20	0	30
RTOR Reduction (vph)	0	0	0	0	0	16	0	9	0	0	28	0
Lane Group Flow (vph)	60	1940	0	10	2900	124	0	21	0	20	2	0
Turn Type	Prot		Perm	Prot		Perm	Split			Split		
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4			8						
Actuated Green, G (s)	4.0	74.5		0.8	71.3	71.3		6.2		6.7	6.7	
Effective Green, g (s)	4.0	74.5		0.8	71.3	71.3		6.2		6.7	6.7	
Actuated g/C Ratio	0.04	0.71		0.01	0.68	0.68		0.06		0.06	0.06	
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)	68	2530		14	2422	1083		197		114	102	
v/s Ratio Prot	c0.03	c0.55		0.01	c0.82			c0.01		c0.01	0.00	
v/s Ratio Perm						0.08						
v/c Ratio	0.88	0.77		0.71	1.20	0.11		0.10		0.18	0.02	
Uniform Delay, d1	49.9	9.4		51.6	16.5	5.6		46.4		46.1	45.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	69.4	1.4		100.1	93.1	0.0		0.2		0.7	0.1	
Delay (s)	119.3	10.8		151.7	109.6	5.7		46.6		46.9	45.7	
Level of Service	F	B		F	F	A		D		D	D	
Approach Delay (s)		14.1			104.9			46.6			46.2	
Approach LOS		B			F			D			D	

Intersection Summary

HCM Average Control Delay	68.6	HCM Level of Service	E
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	104.2	Sum of lost time (s)	20.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5079		1770	3539	1583	1770	3539	1583	3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5079		1770	3539	1583	1770	3539	1583	3433	1863	1583
Volume (vph)	650	1360	10	30	2190	640	10	50	20	250	40	720
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	684	1432	11	32	2305	674	11	53	21	263	42	758
RTOR Reduction (vph)	0	1	0	0	0	207	0	0	19	0	0	0
Lane Group Flow (vph)	684	1442	0	32	2305	467	11	53	2	263	42	758
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			Free
Actuated Green, G (s)	18.0	77.0		3.6	62.6	62.6	0.8	10.3	10.3	8.0	17.5	114.9
Effective Green, g (s)	18.0	77.0		3.6	62.6	62.6	0.8	10.3	10.3	8.0	17.5	114.9
Actuated g/C Ratio	0.16	0.67		0.03	0.54	0.54	0.01	0.09	0.09	0.07	0.15	1.00
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)	538	3404		55	1928	862	12	317	142	239	284	1583
v/s Ratio Prot	c0.20	0.28		0.02	c0.65		0.01	0.01		c0.08	0.02	
v/s Ratio Perm						0.30			0.00			c0.48
v/c Ratio	1.27	0.42		0.58	1.20	0.54	0.92	0.17	0.01	1.10	0.15	0.48
Uniform Delay, d1	48.5	8.7		54.9	26.2	16.9	57.0	48.3	47.7	53.5	42.2	0.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	136.2	0.1		14.7	93.4	0.7	212.2	0.3	0.0	87.7	0.2	1.0
Delay (s)	184.6	8.8		69.6	119.5	17.6	269.2	48.6	47.7	141.2	42.5	1.0
Level of Service	F	A		E	F	B	F	D	D	F	D	A
Approach Delay (s)		65.4			96.2			76.9			37.3	
Approach LOS		E			F			E			D	

Intersection Summary

HCM Average Control Delay	75.5	HCM Level of Service	E
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	114.9	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91	1.00	1.00	0.91	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		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583		1817	1583		1770	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.87	1.00		0.74	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583		1612	1583		1386	1583
Volume (vph)	10	1550	10	10	2820	150	10	10	10	80	0	10
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	1550	10	10	2820	150	10	10	10	80	0	10
RTOR Reduction (vph)	0	0	3	0	0	42	0	0	9	0	0	9
Lane Group Flow (vph)	10	1550	7	10	2820	108	0	20	1	0	80	1
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		6
Actuated Green, G (s)	1.0	59.9	59.9	1.0	59.9	59.9		10.4	10.4		10.4	10.4
Effective Green, g (s)	1.0	59.9	59.9	1.0	59.9	59.9		10.4	10.4		10.4	10.4
Actuated g/C Ratio	0.01	0.72	0.72	0.01	0.72	0.72		0.12	0.12		0.12	0.12
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)	21	3657	1138	21	3657	1138		201	198		173	198
v/s Ratio Prot	c0.01	0.30		0.01	c0.55							
v/s Ratio Perm			0.00			0.07		0.01	0.00		c0.06	0.00
v/c Ratio	0.48	0.42	0.01	0.48	0.77	0.09		0.10	0.01		0.46	0.01
Uniform Delay, d1	40.9	4.7	3.3	40.9	7.4	3.5		32.3	31.9		33.9	31.9
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	16.0	0.1	0.0	16.0	1.0	0.0		0.2	0.0		2.0	0.0
Delay (s)	56.9	4.8	3.3	56.9	8.4	3.6		32.5	31.9		35.8	31.9
Level of Service	E	A	A	E	A	A		C	C		D	C
Approach Delay (s)		5.1			8.3			32.3			35.4	
Approach LOS		A			A			C			D	

Intersection Summary

HCM Average Control Delay	7.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	83.3	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.95	0.95		0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1681	1681		1681	1715	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1681	1681		1681	1715	1583
Volume (vph)	100	1530	10	20	2960	190	10	20	10	130	30	90
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	100	1530	10	20	2960	190	10	20	10	130	30	90
RTOR Reduction (vph)	0	0	3	0	0	61	0	9	0	0	0	81
Lane Group Flow (vph)	100	1530	7	20	2960	129	10	21	0	78	82	9
Turn Type	Prot		Perm	Prot		Perm	Split			Split		Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	7.0	72.7	72.7	1.9	67.6	67.6	7.0	7.0		10.3	10.3	10.3
Effective Green, g (s)	7.0	72.7	72.7	1.9	67.6	67.6	7.0	7.0		10.3	10.3	10.3
Actuated g/C Ratio	0.06	0.67	0.67	0.02	0.63	0.63	0.06	0.06		0.10	0.10	0.10
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	115	3426	1067	31	3186	992	109	109		160	164	151
v/s Ratio Prot	c0.06	0.30		0.01	c0.58		0.01	c0.01		0.05	c0.05	
v/s Ratio Perm			0.00			0.08						0.01
v/c Ratio	0.87	0.45	0.01	0.65	0.93	0.13	0.09	0.19		0.49	0.50	0.06
Uniform Delay, d1	50.0	8.2	5.8	52.7	18.0	8.2	47.5	47.8		46.3	46.4	44.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	45.6	0.1	0.0	37.9	5.5	0.1	0.4	0.8		2.3	2.4	0.2
Delay (s)	95.6	8.3	5.8	90.6	23.5	8.3	47.8	48.6		48.6	48.7	44.5
Level of Service	F	A	A	F	C	A	D	D		D	D	D
Approach Delay (s)		13.6			23.0			48.4			47.2	
Approach LOS		B			C			D			D	

Intersection Summary

HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	107.9	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1723		3433	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	1723		3433	1863	1583
Volume (vph)	370	1160	10	20	2860	600	10	10	10	190	20	530
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	370	1160	10	20	2860	600	10	10	10	190	20	530
RTOR Reduction (vph)	0	0	4	0	0	162	0	9	0	0	0	341
Lane Group Flow (vph)	370	1160	6	20	2860	438	10	11	0	190	20	189
Turn Type	Prot		Perm	Prot		pm+ov	Split			Split		Perm
Protected Phases	7	4		3	8	6	2	2		6	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	19.0	71.5	71.5	2.0	54.5	70.1	6.4	6.4		15.6	15.6	15.6
Effective Green, g (s)	19.0	71.5	71.5	2.0	54.5	70.1	6.4	6.4		15.6	15.6	15.6
Actuated g/C Ratio	0.17	0.64	0.64	0.02	0.49	0.63	0.06	0.06		0.14	0.14	0.14
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	302	3261	1015	32	2485	995	102	99		480	261	221
v/s Ratio Prot	c0.21	0.23		0.01	c0.56	0.06	0.01	c0.01		0.06	0.01	
v/s Ratio Perm			0.00			0.22						c0.12
v/c Ratio	1.23	0.36	0.01	0.62	1.15	0.44	0.10	0.11		0.40	0.08	0.85
Uniform Delay, d1	46.2	9.3	7.2	54.4	28.5	10.6	49.8	49.8		43.7	41.7	46.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	127.2	0.1	0.0	32.4	73.0	0.3	0.4	0.5		0.5	0.1	25.8
Delay (s)	173.4	9.4	7.2	86.8	101.5	10.9	50.2	50.3		44.2	41.8	72.7
Level of Service	F	A	A	F	F	B	D	D		D	D	E
Approach Delay (s)		48.8			85.8			50.3			64.5	
Approach LOS		D			F			D			E	

Intersection Summary

HCM Average Control Delay	73.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	111.5	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

2030

Proposed Highway Plan with Committed Intersection Improvements

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
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	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)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Volume (vph)	70	110	320	510	890	160
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	70	110	320	510	890	160
RTOR Reduction (vph)	0	0	0	243	0	111
Lane Group Flow (vph)	70	110	320	267	890	49
Turn Type	Prot			Perm		Perm
Protected Phases	1	6	2		8	
Permitted Phases				2		8
Actuated Green, G (s)	8.7	75.5	62.8	62.8	36.5	36.5
Effective Green, g (s)	8.7	75.5	62.8	62.8	36.5	36.5
Actuated g/C Ratio	0.07	0.63	0.52	0.52	0.30	0.30
Clearance Time (s)	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
Lane Grp Cap (vph)	128	2227	1852	828	1044	481
v/s Ratio Prot	c0.04	0.03	0.09		c0.26	
v/s Ratio Perm				c0.17		0.03
v/c Ratio	0.55	0.05	0.17	0.32	0.85	0.10
Uniform Delay, d1	53.7	8.5	15.0	16.4	39.2	30.0
Progression Factor	1.00	1.00	0.68	0.15	1.00	1.00
Incremental Delay, d2	4.7	0.0	0.2	0.9	6.9	0.1
Delay (s)	58.5	8.6	10.4	3.4	46.1	30.1
Level of Service	E	A	B	A	D	C
Approach Delay (s)		28.0	6.1		43.6	
Approach LOS		C	A		D	

Intersection Summary

HCM Average Control Delay	27.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Volume (vph)	90	920	0	2780	3040	770
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	90	920	0	2780	3040	770
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	90	919	0	2780	3040	770
Turn Type		Perm				Free
Protected Phases	4			2	6	
Permitted Phases		4				Free
Actuated Green, G (s)	48.0	48.0		64.0	64.0	120.0
Effective Green, g (s)	48.0	48.0		64.0	64.0	120.0
Actuated g/C Ratio	0.40	0.40		0.53	0.53	1.00
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)	1373	1115		3418	3418	1583
v/s Ratio Prot	0.03			0.43	c0.47	
v/s Ratio Perm		c0.33				0.49
v/c Ratio	0.07	0.82		0.81	0.89	0.49
Uniform Delay, d1	22.2	32.2		23.1	24.9	0.0
Progression Factor	0.36	0.35		0.34	0.58	1.00
Incremental Delay, d2	0.0	3.3		0.8	3.1	0.8
Delay (s)	8.0	14.6		8.6	17.5	0.8
Level of Service	A	B		A	B	A
Approach Delay (s)	14.0			8.6	14.1	
Approach LOS	B			A	B	

Intersection Summary

HCM Average Control Delay	12.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0	4.0
Lane Util. Factor	0.97	*0.30	1.00	1.00	0.95	1.00	0.97	*0.70	1.00	*1.00	0.86	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	1676	1583	1770	3539	1583	3433	3912	1583	3539	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	1676	1583	1770	3539	1583	3433	3912	1583	3539	6408	2787
Volume (vph)	170	840	120	140	440	310	140	2130	400	650	2820	450
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	170	840	120	140	440	310	140	2130	400	650	2820	450
RTOR Reduction (vph)	0	0	34	0	0	151	0	0	112	0	0	181
Lane Group Flow (vph)	170	840	86	140	440	159	140	2130	288	650	2820	269
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	28.8	42.0	42.0	7.0	20.2	20.2	5.0	42.0	42.0	13.0	50.0	50.0
Effective Green, g (s)	28.8	42.0	42.0	7.0	20.2	20.2	5.0	42.0	42.0	13.0	50.0	50.0
Actuated g/C Ratio	0.24	0.35	0.35	0.06	0.17	0.17	0.04	0.35	0.35	0.11	0.42	0.42
Clearance Time (s)	4.0	4.0	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	3.0	3.0
Lane Grp Cap (vph)	824	587	554	103	596	266	143	1369	554	383	2670	1161
v/s Ratio Prot	0.05	c0.50		c0.08	0.12		0.04	c0.54		c0.18	0.44	
v/s Ratio Perm			0.05			0.10			0.18			0.10
v/c Ratio	0.21	1.43	0.15	1.36	0.74	0.60	0.98	1.56	0.52	1.70	1.06	0.23
Uniform Delay, d1	36.5	39.0	26.8	56.5	47.4	46.2	57.4	39.0	31.0	53.5	35.0	22.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.62	0.63	0.46	0.81	0.67	0.33
Incremental Delay, d2	0.1	203.6	0.6	212.1	4.8	3.6	51.8	252.3	2.1	320.6	31.5	0.3
Delay (s)	36.6	242.6	27.4	268.6	52.2	49.8	87.6	276.9	16.5	363.7	55.0	7.8
Level of Service	D	F	C	F	D	D	F	F	B	F	D	A
Approach Delay (s)		188.8			85.4			228.0			100.8	
Approach LOS		F			F			F			F	

Intersection Summary

HCM Average Control Delay	150.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	1.00	1.00	1.00	0.86		1.00	0.86	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	1863	1583	1770	6396		1770	6291	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	1863	1583	1770	6396		1770	6291	
Volume (vph)	180	630	260	60	350	90	160	2490	30	80	2600	360
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	180	630	260	60	350	90	160	2490	30	80	2600	360
RTOR Reduction (vph)	0	0	135	0	0	72	0	1	0	0	21	0
Lane Group Flow (vph)	180	630	125	60	350	18	160	2519	0	80	2939	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	13.0	32.0	32.0	4.8	23.8	23.8	11.0	58.4		8.8	56.2	
Effective Green, g (s)	13.0	32.0	32.0	4.8	23.8	23.8	11.0	58.4		8.8	56.2	
Actuated g/C Ratio	0.11	0.27	0.27	0.04	0.20	0.20	0.09	0.49		0.07	0.47	
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)	192	944	422	71	369	314	162	3113		130	2946	
v/s Ratio Prot	c0.10	0.18		0.03	c0.19		c0.09	0.39		0.05	c0.47	
v/s Ratio Perm			0.08			0.01						
v/c Ratio	0.94	0.67	0.30	0.85	0.95	0.06	0.99	0.81		0.62	1.00	
Uniform Delay, d1	53.1	39.3	35.0	57.2	47.5	39.0	54.4	26.1		54.0	31.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.43	0.37		1.20	0.62	
Incremental Delay, d2	46.8	1.8	0.4	56.7	33.3	0.1	59.0	1.9		0.8	4.4	
Delay (s)	99.9	41.1	35.4	114.0	80.8	39.1	136.7	11.5		65.8	24.1	
Level of Service	F	D	D	F	F	D	F	B		E	C	
Approach Delay (s)		49.6			77.3			19.0			25.2	
Approach LOS		D			E			B			C	

Intersection Summary

HCM Average Control Delay	30.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
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	0.97	0.95		1.00	0.95	1.00	1.00	1.00		0.97	1.00	0.88
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3529		1770	3539	1583	1770	1723		3433	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3529		1770	3539	1583	1770	1723		3433	1863	2787
Volume (vph)	730	2130	40	20	1570	330	20	50	50	370	60	950
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	730	2130	40	20	1570	330	20	50	50	370	60	950
RTOR Reduction (vph)	0	1	0	0	0	80	0	31	0	0	0	455
Lane Group Flow (vph)	730	2169	0	20	1570	250	20	69	0	370	60	495
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	24.1	75.1		1.5	52.5	52.5	1.5	14.1		12.0	24.6	24.6
Effective Green, g (s)	24.1	75.1		1.5	52.5	52.5	1.5	14.1		12.0	24.6	24.6
Actuated g/C Ratio	0.20	0.63		0.01	0.44	0.44	0.01	0.12		0.10	0.21	0.21
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)	697	2233		22	1565	700	22	205		347	386	578
v/s Ratio Prot	c0.21	c0.61		0.01	0.44		0.01	0.04		c0.11	0.03	
v/s Ratio Perm						0.16						c0.18
v/c Ratio	1.05	0.97		0.91	1.00	0.36	0.91	0.34		1.07	0.16	0.86
Uniform Delay, d1	47.3	20.8		58.5	33.1	21.9	58.5	48.0		53.4	38.5	45.3
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	47.1	13.0		148.5	23.5	0.3	148.5	1.0		67.0	0.2	11.9
Delay (s)	94.4	33.7		207.0	56.6	22.2	207.0	49.0		120.3	38.7	57.3
Level of Service	F	C		F	E	C	F	D		F	D	E
Approach Delay (s)		49.0			52.3			75.3			73.4	
Approach LOS		D			D			E			E	

Intersection Summary

HCM Average Control Delay	55.8	HCM Level of Service	E
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	118.7	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.86		1.00	0.86	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	6278		1770	6408	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	6278		1770	6408	1583
Volume (vph)	350	1210	190	370	760	70	200	1530	240	300	1840	310
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	350	1210	190	370	760	70	200	1530	240	300	1840	310
RTOR Reduction (vph)	0	0	142	0	0	54	0	23	0	0	0	189
Lane Group Flow (vph)	350	1210	48	370	760	16	200	1747	0	300	1840	121
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	16.6	30.0	30.0	14.0	27.4	27.4	16.1	37.7		22.3	43.9	43.9
Effective Green, g (s)	16.6	30.0	30.0	14.0	27.4	27.4	16.1	37.7		22.3	43.9	43.9
Actuated g/C Ratio	0.14	0.25	0.25	0.12	0.23	0.23	0.13	0.31		0.19	0.37	0.37
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	475	1271	396	401	1161	361	237	1972		329	2344	579
v/s Ratio Prot	0.10	c0.24		c0.11	0.15		0.11	c0.28		c0.17	0.29	
v/s Ratio Perm			0.03			0.01						0.08
v/c Ratio	0.74	0.95	0.12	0.92	0.65	0.04	0.84	0.89		0.91	0.78	0.21
Uniform Delay, d1	49.6	44.3	34.8	52.5	42.0	36.1	50.7	39.1		47.9	33.9	26.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.05	1.39	4.46
Incremental Delay, d2	5.9	15.2	0.1	26.5	1.3	0.1	23.0	6.3		13.1	1.0	0.3
Delay (s)	55.5	59.5	34.9	79.0	43.3	36.1	73.7	45.4		63.3	48.0	116.7
Level of Service	E	E	C	E	D	D	E	D		E	D	F
Approach Delay (s)		56.0			53.9			48.3			58.5	
Approach LOS		E			D			D			E	

Intersection Summary

HCM Average Control Delay	54.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.86		1.00	0.86	
Frt	1.00	0.97		1.00	0.98		1.00	0.99		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	3427		1770	3457		1770	6374		1770	6316	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3427		1770	3457		1770	6374		1770	6316	
Volume (vph)	180	780	210	110	600	110	190	1640	60	200	2090	220
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	180	780	210	110	600	110	190	1640	60	200	2090	220
RTOR Reduction (vph)	0	20	0	0	12	0	0	4	0	0	15	0
Lane Group Flow (vph)	180	970	0	110	698	0	190	1696	0	200	2295	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	15.0	35.5		8.0	28.5		14.1	44.4		16.1	46.4	
Effective Green, g (s)	15.0	35.5		8.0	28.5		14.1	44.4		16.1	46.4	
Actuated g/C Ratio	0.12	0.30		0.07	0.24		0.12	0.37		0.13	0.39	
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)	221	1014		118	821		208	2358		237	2442	
v/s Ratio Prot	c0.10	c0.28		0.06	0.20		0.11	0.27		c0.11	c0.36	
v/s Ratio Perm												
v/c Ratio	0.81	0.96		0.93	0.85		0.91	0.72		0.84	0.94	
Uniform Delay, d1	51.1	41.5		55.7	43.7		52.3	32.5		50.7	35.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	20.1	18.4		61.7	8.2		39.0	1.9		23.0	8.7	
Delay (s)	71.2	59.9		117.4	51.9		91.4	34.4		73.7	44.2	
Level of Service	E	E		F	D		F	C		E	D	
Approach Delay (s)		61.6			60.7			40.1			46.5	
Approach LOS		E			E			D			D	

Intersection Summary

HCM Average Control Delay	49.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95		1.00	0.86		1.00	0.86	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3396		1770	6314		1770	6308	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3396		1770	6314		1770	6308	
Volume (vph)	100	500	170	260	460	170	320	1580	170	290	1890	220
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	100	500	170	260	460	170	320	1580	170	290	1890	220
RTOR Reduction (vph)	0	0	144	0	31	0	0	14	0	0	17	0
Lane Group Flow (vph)	100	500	26	260	599	0	320	1736	0	290	2093	0
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	8.8	18.1	18.1	18.9	28.2		22.9	44.7		22.3	44.1	
Effective Green, g (s)	8.8	18.1	18.1	18.9	28.2		22.9	44.7		22.3	44.1	
Actuated g/C Ratio	0.07	0.15	0.15	0.16	0.23		0.19	0.37		0.19	0.37	
Clearance Time (s)	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	
Lane Grp Cap (vph)	130	534	239	279	798		338	2352		329	2318	
v/s Ratio Prot	0.06	c0.14		c0.15	0.18		c0.18	0.27		0.16	c0.33	
v/s Ratio Perm			0.02									
v/c Ratio	0.77	0.94	0.11	0.93	0.75		0.95	0.74		0.88	0.90	
Uniform Delay, d1	54.6	50.4	44.0	49.9	42.6		47.9	32.6		47.6	35.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	23.5	24.0	0.2	36.0	4.0		34.9	2.1		23.0	6.3	
Delay (s)	78.1	74.3	44.2	85.9	46.6		82.8	34.7		70.5	42.2	
Level of Service	E	E	D	F	D		F	C		E	D	
Approach Delay (s)		68.2			58.1			42.1			45.7	
Approach LOS		E			E			D			D	

Intersection Summary

HCM Average Control Delay	49.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Lane Configurations												
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	4.0
Lane Util. Factor	1.00	0.97	1.00	0.97	0.86		0.97	0.91	1.00	0.97	0.88	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.85	0.85
Flt Protected	0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3433	1583	3433	6337		3433	5085	1583	3433	2787	1583
Flt Permitted	0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3433	1583	3433	6337		3433	5085	1583	3433	2787	1583
Volume (vph)	120	440	140	110	1640	130	160	1360	360	360	750	90
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	120	440	140	110	1640	130	160	1360	360	360	750	90
RTOR Reduction (vph)	0	0	119	0	10	0	0	0	18	0	0	61
Lane Group Flow (vph)	120	440	21	110	1760	0	160	1360	342	360	750	29
Turn Type	Split		Perm	Prot			Prot		pm+ov	Split		Perm
Protected Phases	4	4		1	6		1	6	8 9	8 9	8 9	
Permitted Phases			4						6			8 9
Actuated Green, G (s)	17.6	17.6	17.6	8.0	39.4		8.0	39.4	78.4	39.0	39.0	39.0
Effective Green, g (s)	17.6	17.6	17.6	8.0	39.4		8.0	39.4	78.4	39.0	39.0	39.0
Actuated g/C Ratio	0.15	0.15	0.15	0.07	0.33		0.07	0.33	0.65	0.32	0.32	0.32
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)	260	504	232	229	2081		229	1670	1087	1116	906	514
v/s Ratio Prot	0.07	c0.13		0.03	c0.28		c0.05	0.27	0.10	0.10	c0.27	
v/s Ratio Perm			0.01						0.11			0.02
v/c Ratio	0.46	0.87	0.09	0.48	0.85		0.70	0.81	0.31	0.32	0.83	0.06
Uniform Delay, d1	46.9	50.1	44.3	54.0	37.5		54.8	36.9	9.1	30.5	37.4	27.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.16	1.15	2.18
Incremental Delay, d2	1.3	15.3	0.2	1.6	4.5		9.0	4.5	0.2	0.2	6.1	0.0
Delay (s)	48.2	65.4	44.4	55.6	41.9		63.8	41.4	9.2	35.6	49.1	60.8
Level of Service	D	E	D	E	D		E	D	A	D	D	E
Approach Delay (s)		58.3			42.7			37.2		45.9		
Approach LOS		E			D			D		D		

Intersection Summary

HCM Average Control Delay	43.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5040		1770	5022	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	5040		1770	5022	
Volume (vph)	200	590	250	130	420	150	160	1410	90	250	1220	110
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	200	590	250	130	420	150	160	1410	90	250	1220	110
RTOR Reduction (vph)	0	0	201	0	0	127	0	5	0	0	8	0
Lane Group Flow (vph)	200	590	49	130	420	23	160	1495	0	250	1322	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	17.1	23.6	23.6	12.0	18.5	18.5	15.3	48.0		20.4	53.1	
Effective Green, g (s)	17.1	23.6	23.6	12.0	18.5	18.5	15.3	48.0		20.4	53.1	
Actuated g/C Ratio	0.14	0.20	0.20	0.10	0.15	0.15	0.13	0.40		0.17	0.44	
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)	252	696	311	177	546	244	226	2016		301	2222	
v/s Ratio Prot	c0.11	c0.17		0.07	0.12		0.09	c0.30		c0.14	0.26	
v/s Ratio Perm			0.03			0.01						
v/c Ratio	0.79	0.85	0.16	0.73	0.77	0.09	0.71	0.74		0.83	0.60	
Uniform Delay, d1	49.7	46.5	40.0	52.5	48.7	43.6	50.2	30.7		48.1	25.3	
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	15.7	9.4	0.2	14.6	6.5	0.2	9.7	2.5		17.4	1.2	
Delay (s)	65.4	55.9	40.2	67.0	55.2	43.7	59.9	33.2		65.5	26.5	
Level of Service	E	E	D	E	E	D	E	C		E	C	
Approach Delay (s)		53.9			54.9			35.8			32.7	
Approach LOS		D			D			D			C	

Intersection Summary

HCM Average Control Delay	41.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3404		1770	4987		1770	5021	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3404		1770	4987		1770	5021	
Volume (vph)	180	510	250	220	440	150	130	1210	180	100	1200	110
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	180	510	250	220	440	150	130	1210	180	100	1200	110
RTOR Reduction (vph)	0	0	203	0	29	0	0	14	0	0	8	0
Lane Group Flow (vph)	180	510	47	220	561	0	130	1376	0	100	1302	0
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	16.7	22.4	22.4	19.2	24.9		13.3	51.3		11.1	49.1	
Effective Green, g (s)	16.7	22.4	22.4	19.2	24.9		13.3	51.3		11.1	49.1	
Actuated g/C Ratio	0.14	0.19	0.19	0.16	0.21		0.11	0.43		0.09	0.41	
Clearance Time (s)	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	
Lane Grp Cap (vph)	246	661	295	283	706		196	2132		164	2054	
v/s Ratio Prot	0.10	0.14		c0.12	c0.16		c0.07	c0.28		0.06	0.26	
v/s Ratio Perm			0.03									
v/c Ratio	0.73	0.77	0.16	0.78	0.80		0.66	0.65		0.61	0.63	
Uniform Delay, d1	49.5	46.4	40.9	48.3	45.1		51.2	27.2		52.4	28.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.7	5.6	0.3	12.6	6.2		8.2	1.5		6.3	1.5	
Delay (s)	60.2	51.9	41.2	60.9	51.3		59.4	28.7		58.7	29.8	
Level of Service	E	D	D	E	D		E	C		E	C	
Approach Delay (s)		50.6			53.9			31.3			31.8	
Approach LOS		D			D			C			C	

Intersection Summary

HCM Average Control Delay	39.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91		1.00	0.95	1.00	1.00	0.91		0.97	0.91	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5054		1770	3539	1583	1770	4807		3433	5034	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5054		1770	3539	1583	1770	4807		3433	5034	
Volume (vph)	230	1170	50	80	570	350	90	800	460	290	980	70
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	230	1170	50	80	570	350	90	800	460	290	980	70
RTOR Reduction (vph)	0	4	0	0	0	217	0	80	0	0	6	0
Lane Group Flow (vph)	230	1216	0	80	570	133	90	1180	0	290	1044	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	19.7	36.4		8.7	25.4	25.4	10.4	44.9		14.0	48.5	
Effective Green, g (s)	19.7	36.4		8.7	25.4	25.4	10.4	44.9		14.0	48.5	
Actuated g/C Ratio	0.16	0.30		0.07	0.21	0.21	0.09	0.37		0.12	0.40	
Clearance Time (s)	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	
Lane Grp Cap (vph)	291	1533		128	749	335	153	1799		401	2035	
v/s Ratio Prot	c0.13	c0.24		0.05	0.16		0.05	c0.25		c0.08	c0.21	
v/s Ratio Perm						0.08						
v/c Ratio	0.79	0.79		0.62	0.76	0.40	0.59	0.66		0.72	0.51	
Uniform Delay, d1	48.2	38.3		54.1	44.4	40.7	52.7	31.1		51.1	26.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.6	2.9		9.2	4.6	0.8	5.7	1.9		6.3	0.9	
Delay (s)	61.7	41.3		63.2	49.0	41.5	58.4	33.0		57.5	27.8	
Level of Service	E	D		E	D	D	E	C		E	C	
Approach Delay (s)		44.5			47.5			34.7			34.2	
Approach LOS		D			D			C			C	

Intersection Summary

HCM Average Control Delay	39.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00		1.00	1.00	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1831		1770	1863	1583	1770	4954		1770	5053	
Flt Permitted	0.52	1.00		0.35	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	966	1831		651	1863	1583	1770	4954		1770	5053	
Volume (vph)	220	230	30	60	170	230	30	770	160	230	900	40
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	220	230	30	60	170	230	30	770	160	230	900	40
RTOR Reduction (vph)	0	5	0	0	0	177	0	18	0	0	3	0
Lane Group Flow (vph)	220	255	0	60	170	53	30	912	0	230	937	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8						
Actuated Green, G (s)	27.8	27.8		27.8	27.8	27.8	5.1	60.1		20.1	75.1	
Effective Green, g (s)	27.8	27.8		27.8	27.8	27.8	5.1	60.1		20.1	75.1	
Actuated g/C Ratio	0.23	0.23		0.23	0.23	0.23	0.04	0.50		0.17	0.63	
Clearance Time (s)	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	
Lane Grp Cap (vph)	224	424		151	432	367	75	2481		296	3162	
v/s Ratio Prot		0.14			0.09		0.02	c0.18		c0.13	0.19	
v/s Ratio Perm	c0.23			0.09		0.03						
v/c Ratio	0.98	0.60		0.40	0.39	0.15	0.40	0.37		0.78	0.30	
Uniform Delay, d1	45.9	41.2		39.0	39.0	36.7	56.0	18.3		47.8	10.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	54.8	2.4		1.7	0.6	0.2	3.5	0.4		12.1	0.2	
Delay (s)	100.6	43.6		40.7	39.6	36.8	59.4	18.7		59.9	10.6	
Level of Service	F	D		D	D	D	E	B		E	B	
Approach Delay (s)		69.7			38.4			20.0			20.2	
Approach LOS		E			D			C			C	

Intersection Summary

HCM Average Control Delay	30.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	4994		1770	4919	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	4994		1770	4919	
Volume (vph)	180	750	90	60	500	290	20	440	60	300	610	170
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	189	789	95	63	526	305	21	463	63	316	642	179
RTOR Reduction (vph)	0	0	65	0	0	233	0	13	0	0	40	0
Lane Group Flow (vph)	189	789	30	63	526	72	21	513	0	316	781	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	11.3	26.4	26.4	4.8	19.9	19.9	2.1	17.4		19.5	34.8	
Effective Green, g (s)	11.3	26.4	26.4	4.8	19.9	19.9	2.1	17.4		19.5	34.8	
Actuated g/C Ratio	0.13	0.31	0.31	0.06	0.24	0.24	0.02	0.21		0.23	0.41	
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)	238	1111	497	101	837	375	44	1033		410	2035	
v/s Ratio Prot	c0.11	c0.22		0.04	0.15		0.01	c0.10		c0.18	0.16	
v/s Ratio Perm			0.02			0.05						
v/c Ratio	0.79	0.71	0.06	0.62	0.63	0.19	0.48	0.50		0.77	0.38	
Uniform Delay, d1	35.3	25.5	20.2	38.8	28.8	25.7	40.5	29.5		30.2	17.2	
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	16.5	2.2	0.1	11.4	1.5	0.3	7.9	0.4		8.7	0.1	
Delay (s)	51.8	27.6	20.2	50.2	30.3	25.9	48.4	29.9		38.9	17.3	
Level of Service	D	C	C	D	C	C	D	C		D	B	
Approach Delay (s)		31.2			30.2			30.6			23.3	
Approach LOS		C			C			C			C	

Intersection Summary

HCM Average Control Delay	28.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	84.1	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	1.00		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3528		3433	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3528		3433	1583
Volume (vph)	220	2170	1350	30	90	440
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	220	2170	1350	30	90	440
RTOR Reduction (vph)	0	0	2	0	0	17
Lane Group Flow (vph)	220	2170	1378	0	90	423
Turn Type	Prot					pm+ov
Protected Phases	7	4	8		6	7
Permitted Phases						6
Actuated Green, G (s)	16.9	57.2	36.3		8.0	24.9
Effective Green, g (s)	16.9	57.2	36.3		8.0	24.9
Actuated g/C Ratio	0.23	0.78	0.50		0.11	0.34
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)	409	2765	1750		375	625
v/s Ratio Prot	0.12	c0.61	0.39		0.03	c0.16
v/s Ratio Perm						0.11
v/c Ratio	0.54	0.78	0.79		0.24	0.68
Uniform Delay, d1	24.7	4.5	15.3		29.8	20.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.4	1.5	2.4		0.3	2.9
Delay (s)	26.1	6.0	17.7		30.2	23.6
Level of Service	C	A	B		C	C
Approach Delay (s)		7.9	17.7		24.7	
Approach LOS		A	B		C	

Intersection Summary

HCM Average Control Delay	13.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	73.2	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
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	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)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Volume (vph)	480	1970	1490	260	330	430
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	480	1970	1490	260	330	430
RTOR Reduction (vph)	0	0	0	107	0	369
Lane Group Flow (vph)	480	1970	1490	153	330	61
Turn Type	Prot			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	32.3	85.8	49.5	49.5	15.6	15.6
Effective Green, g (s)	32.3	85.8	49.5	49.5	15.6	15.6
Actuated g/C Ratio	0.30	0.78	0.45	0.45	0.14	0.14
Clearance Time (s)	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
Lane Grp Cap (vph)	523	2776	1601	716	490	226
v/s Ratio Prot	c0.27	0.56	c0.42		c0.10	
v/s Ratio Perm				0.10		0.04
v/c Ratio	0.92	0.71	0.93	0.21	0.67	0.27
Uniform Delay, d1	37.3	5.7	28.3	18.1	44.5	41.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	21.0	0.9	10.1	0.1	3.6	0.7
Delay (s)	58.3	6.6	38.4	18.3	48.1	42.5
Level of Service	E	A	D	B	D	D
Approach Delay (s)		16.7	35.5		44.9	
Approach LOS		B	D		D	

Intersection Summary

HCM Average Control Delay	27.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	109.4	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
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	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)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	1770	1583
Volume (vph)	160	2350	1430	70	140	140
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	160	2350	1430	70	140	140
RTOR Reduction (vph)	0	0	0	28	0	120
Lane Group Flow (vph)	160	2350	1430	42	140	20
Turn Type	Prot			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	10.4	65.0	50.6	50.6	11.9	11.9
Effective Green, g (s)	10.4	65.0	50.6	50.6	11.9	11.9
Actuated g/C Ratio	0.12	0.77	0.60	0.60	0.14	0.14
Clearance Time (s)	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
Lane Grp Cap (vph)	217	2709	2109	943	248	222
v/s Ratio Prot	0.09	c0.66	0.40		c0.08	
v/s Ratio Perm				0.03		0.01
v/c Ratio	0.74	0.87	0.68	0.04	0.56	0.09
Uniform Delay, d1	35.9	6.9	11.6	7.1	34.1	31.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.3	3.2	0.9	0.0	2.9	0.2
Delay (s)	48.2	10.1	12.5	7.1	37.0	32.0
Level of Service	D	B	B	A	D	C
Approach Delay (s)		12.6	12.3		34.5	
Approach LOS		B	B		C	

Intersection Summary

HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	84.9	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91		1.00	0.91			1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99			0.95		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00			0.98		0.95	1.00	
Satd. Flow (prot)	1770	5082		1770	5052			1750		1770	1618	
Flt Permitted	0.95	1.00		0.95	1.00			0.91		0.74	1.00	
Satd. Flow (perm)	1770	5082		1770	5052			1612		1374	1618	
Volume (vph)	70	2270	10	30	1300	60	10	10	10	80	10	70
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	70	2270	10	30	1300	60	10	10	10	80	10	70
RTOR Reduction (vph)	0	0	0	0	4	0	0	8	0	0	59	0
Lane Group Flow (vph)	70	2280	0	30	1356	0	0	22	0	80	21	0
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	5.0	41.6		2.3	38.9			9.9		9.9	9.9	
Effective Green, g (s)	5.0	41.6		2.3	38.9			9.9		9.9	9.9	
Actuated g/C Ratio	0.08	0.63		0.03	0.59			0.15		0.15	0.15	
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)	134	3213		62	2987			243		207	243	
v/s Ratio Prot	c0.04	c0.45		0.02	0.27						0.01	
v/s Ratio Perm								0.01		c0.06		
v/c Ratio	0.52	0.71		0.48	0.45			0.09		0.39	0.08	
Uniform Delay, d1	29.3	8.1		31.2	7.5			24.1		25.2	24.1	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	3.6	0.7		5.8	0.1			0.2		1.2	0.2	
Delay (s)	32.9	8.8		37.0	7.6			24.2		26.4	24.2	
Level of Service	C	A		D	A			C		C	C	
Approach Delay (s)		9.5			8.3			24.2			25.3	
Approach LOS		A			A			C			C	

Intersection Summary

HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	65.8	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Ideal Flow (vphpl)	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	0.91	1.00	0.91	1.00	1.00	1.00
Frt	1.00	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	1770	5085	1583	1770	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	1770	5085	1583	1770	1583
Volume (vph)	50	2500	10	1810	50	100	70
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	50	2500	10	1810	50	100	70
RTOR Reduction (vph)	0	0	0	0	7	0	60
Lane Group Flow (vph)	50	2500	10	1810	43	100	10
Turn Type	Prot		Prot		Perm		Perm
Protected Phases	7	4	3	8		6	
Permitted Phases					8		6
Actuated Green, G (s)	4.6	39.4	1.2	36.0	36.0	8.6	8.6
Effective Green, g (s)	4.6	39.4	1.2	36.0	36.0	8.6	8.6
Actuated g/C Ratio	0.08	0.64	0.02	0.59	0.59	0.14	0.14
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)	133	3274	35	2991	931	249	222
v/s Ratio Prot	c0.03	c0.49	0.01	0.36		c0.06	
v/s Ratio Perm					0.03		0.01
v/c Ratio	0.38	0.76	0.29	0.61	0.05	0.40	0.04
Uniform Delay, d1	26.9	7.6	29.6	8.1	5.3	24.0	22.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	1.1	4.5	0.3	0.0	1.1	0.1
Delay (s)	28.7	8.7	34.0	8.4	5.4	25.0	22.8
Level of Service	C	A	C	A	A	C	C
Approach Delay (s)		9.1		8.5		24.1	
Approach LOS		A		A		C	

Intersection Summary

HCM Average Control Delay	9.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	61.2	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91		1.00	0.91		0.95		1.00	0.95	0.95	1.00
Frt	1.00	1.00		1.00	0.98		1.00		0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95		1.00	0.95	0.96	1.00
Satd. Flow (prot)	1770	5082		1770	5009		1681		1583	1681	1692	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95		1.00	0.95	0.96	1.00
Satd. Flow (perm)	1770	5082		1770	5009		1681		1583	1681	1692	1583
Volume (vph)	100	2490	10	10	990	110	10	0	10	220	10	200
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	100	2490	10	10	990	110	10	0	10	220	10	200
RTOR Reduction (vph)	0	0	0	0	10	0	0	0	9	0	0	175
Lane Group Flow (vph)	100	2500	0	10	1090	0	10	0	1	112	118	25
Turn Type	Prot			Prot			Split		Perm	Split		Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases									2			6
Actuated Green, G (s)	8.0	52.6		0.6	45.2		6.4		6.4	10.8	10.8	10.8
Effective Green, g (s)	8.0	52.6		0.6	45.2		6.4		6.4	10.8	10.8	10.8
Actuated g/C Ratio	0.09	0.61		0.01	0.52		0.07		0.07	0.12	0.12	0.12
Clearance Time (s)	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
Lane Grp Cap (vph)	164	3094		12	2620		125		117	210	212	198
v/s Ratio Prot	c0.06	c0.49		0.01	0.22		c0.01			0.07	c0.07	
v/s Ratio Perm									0.00			0.02
v/c Ratio	0.61	0.81		0.83	0.42		0.08		0.01	0.53	0.56	0.13
Uniform Delay, d1	37.7	13.0		42.9	12.6		37.3		37.1	35.4	35.5	33.6
Progression Factor	1.00	1.00		1.00	1.00		1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	6.3	1.6		168.3	0.1		0.3		0.0	2.6	3.1	0.3
Delay (s)	44.0	14.6		211.2	12.7		37.5		37.1	38.0	38.7	33.9
Level of Service	D	B		F	B		D		D	D	D	C
Approach Delay (s)		15.8			14.5			37.3			36.3	
Approach LOS		B			B			D			D	

Intersection Summary

HCM Average Control Delay	17.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	86.4	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95	1.00		0.95		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.95		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.98		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583		3307		1770	1583	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.98		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583		3307		1770	1583	
Volume (vph)	10	2630	10	10	1150	50	10	10	10	70	0	50
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	2630	10	10	1150	50	10	10	10	70	0	50
RTOR Reduction (vph)	0	0	2	0	0	15	0	9	0	0	45	0
Lane Group Flow (vph)	10	2630	8	10	1150	35	0	21	0	70	5	0
Turn Type	Prot		Perm	Prot		Perm	Split			Split		
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4			8						
Actuated Green, G (s)	0.7	68.3	68.3	0.7	68.3	68.3		6.2		9.1	9.1	
Effective Green, g (s)	0.7	68.3	68.3	0.7	68.3	68.3		6.2		9.1	9.1	
Actuated g/C Ratio	0.01	0.68	0.68	0.01	0.68	0.68		0.06		0.09	0.09	
Clearance Time (s)	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	
Lane Grp Cap (vph)	12	2410	1078	12	2410	1078		204		161	144	
v/s Ratio Prot	c0.01	c0.74		0.01	0.32			c0.01		c0.04	0.00	
v/s Ratio Perm			0.01			0.02						
v/c Ratio	0.83	1.09	0.01	0.83	0.48	0.03		0.10		0.43	0.03	
Uniform Delay, d1	49.7	16.0	5.1	49.7	7.6	5.2		44.4		43.2	41.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	168.3	48.6	0.0	168.3	0.1	0.0		0.2		1.9	0.1	
Delay (s)	218.0	64.6	5.1	218.0	7.7	5.2		44.6		45.0	41.7	
Level of Service	F	E	A	F	A	A		D		D	D	
Approach Delay (s)		65.0			9.3			44.6			43.6	
Approach LOS		E			A			D			D	

Intersection Summary

HCM Average Control Delay	47.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	100.3	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5082		1770	3539	1583	1770	3539	1583	3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5082		1770	3539	1583	1770	3539	1583	3433	1863	1583
Volume (vph)	100	2340	10	20	980	340	20	20	10	540	40	180
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	105	2463	11	21	1032	358	21	21	11	568	42	189
RTOR Reduction (vph)	0	0	0	0	0	177	0	0	10	0	0	0
Lane Group Flow (vph)	105	2474	0	21	1032	181	21	21	1	568	42	189
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			Free
Actuated Green, G (s)	5.9	56.7		1.4	52.2	52.2	1.8	8.9	8.9	20.0	27.1	103.0
Effective Green, g (s)	5.9	56.7		1.4	52.2	52.2	1.8	8.9	8.9	20.0	27.1	103.0
Actuated g/C Ratio	0.06	0.55		0.01	0.51	0.51	0.02	0.09	0.09	0.19	0.26	1.00
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)	197	2798		24	1794	802	31	306	137	667	490	1583
v/s Ratio Prot	c0.03	c0.49		0.01	0.29		0.01	0.01		c0.17	0.02	
v/s Ratio Perm						0.11			0.00			c0.12
v/c Ratio	0.53	0.88		0.88	0.58	0.23	0.68	0.07	0.01	0.85	0.09	0.12
Uniform Delay, d1	47.2	20.3		50.7	17.7	14.1	50.3	43.2	43.0	40.1	28.6	0.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.8	3.7		127.4	0.5	0.1	45.6	0.1	0.0	10.2	0.1	0.2
Delay (s)	50.0	24.0		178.1	18.1	14.3	96.0	43.3	43.0	50.3	28.7	0.2
Level of Service	D	C		F	B	B	F	D	D	D	C	A
Approach Delay (s)		25.0			19.5			64.1			37.3	
Approach LOS		C			B			E			D	

Intersection Summary

HCM Average Control Delay	25.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	103.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91	1.00	1.00	0.91	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		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583		1832	1583		1777	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.90	1.00		0.71	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583		1667	1583		1326	1583
Volume (vph)	150	2680	10	10	1160	40	10	20	10	260	10	130
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	150	2680	10	10	1160	40	10	20	10	260	10	130
RTOR Reduction (vph)	0	0	4	0	0	19	0	0	8	0	0	62
Lane Group Flow (vph)	150	2680	6	10	1160	21	0	30	2	0	270	68
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		6
Actuated Green, G (s)	10.5	59.4	59.4	0.6	49.5	49.5		22.7	22.7		22.7	22.7
Effective Green, g (s)	10.5	59.4	59.4	0.6	49.5	49.5		22.7	22.7		22.7	22.7
Actuated g/C Ratio	0.11	0.63	0.63	0.01	0.52	0.52		0.24	0.24		0.24	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)	196	3190	993	11	2658	827		400	379		318	379
v/s Ratio Prot	c0.08	c0.53		0.01	0.23							
v/s Ratio Perm			0.00			0.01		0.02	0.00		c0.20	0.04
v/c Ratio	0.77	0.84	0.01	0.91	0.44	0.03		0.07	0.01		0.85	0.18
Uniform Delay, d1	40.9	13.9	6.6	47.0	14.0	10.9		27.9	27.4		34.4	28.6
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	16.2	2.1	0.0	217.6	0.1	0.0		0.1	0.0		18.6	0.2
Delay (s)	57.1	16.1	6.6	264.6	14.1	10.9		28.0	27.4		53.0	28.8
Level of Service	E	B	A	F	B	B		C	C		D	C
Approach Delay (s)		18.2			16.1			27.8			45.1	
Approach LOS		B			B			C			D	

Intersection Summary

HCM Average Control Delay	20.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	94.7	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.95	0.95		0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1681	1703		1681	1723	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1681	1703		1681	1723	1583
Volume (vph)	120	2800	40	30	1010	90	10	30	10	160	50	240
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	120	2800	40	30	1010	90	10	30	10	160	50	240
RTOR Reduction (vph)	0	0	13	0	0	40	0	9	0	0	0	213
Lane Group Flow (vph)	120	2800	27	30	1010	50	10	31	0	102	108	27
Turn Type	Prot		Perm	Prot		Perm	Split			Split		Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	9.7	64.2	64.2	2.2	56.7	56.7	7.5	7.5		11.2	11.2	11.2
Effective Green, g (s)	9.7	64.2	64.2	2.2	56.7	56.7	7.5	7.5		11.2	11.2	11.2
Actuated g/C Ratio	0.10	0.64	0.64	0.02	0.56	0.56	0.07	0.07		0.11	0.11	0.11
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	170	3229	1005	39	2852	888	125	126		186	191	175
v/s Ratio Prot	c0.07	c0.55		0.02	0.20		0.01	c0.02		0.06	c0.06	
v/s Ratio Perm			0.02			0.03						0.02
v/c Ratio	0.71	0.87	0.03	0.77	0.35	0.06	0.08	0.24		0.55	0.57	0.15
Uniform Delay, d1	44.3	15.0	6.9	49.2	12.2	10.1	43.6	44.1		42.6	42.6	40.7
Progression Factor	1.00	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	2.7	0.0	60.6	0.1	0.0	0.3	1.0		3.3	3.8	0.4
Delay (s)	56.9	17.7	6.9	109.8	12.2	10.1	43.9	45.1		45.8	46.4	41.1
Level of Service	E	B	A	F	B	B	D	D		D	D	D
Approach Delay (s)		19.1			14.7			44.9			43.4	
Approach LOS		B			B			D			D	

Intersection Summary

HCM Average Control Delay	20.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	101.1	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1723		3433	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	1723		3433	1863	1583
Volume (vph)	600	2230	10	10	900	240	10	10	10	490	10	230
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	600	2230	10	10	900	240	10	10	10	490	10	230
RTOR Reduction (vph)	0	0	4	0	0	141	0	9	0	0	0	190
Lane Group Flow (vph)	600	2230	6	10	900	99	10	11	0	490	10	40
Turn Type	Prot		Perm	Prot		pm+ov	Split			Split		Perm
Protected Phases	7	4		3	8	6	2	2		6	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	38.2	62.3	62.3	0.7	24.8	42.6	6.5	6.5		17.8	17.8	17.8
Effective Green, g (s)	38.2	62.3	62.3	0.7	24.8	42.6	6.5	6.5		17.8	17.8	17.8
Actuated g/C Ratio	0.37	0.60	0.60	0.01	0.24	0.41	0.06	0.06		0.17	0.17	0.17
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	655	3067	955	12	1221	653	111	108		592	321	273
v/s Ratio Prot	c0.34	c0.44		0.01	0.18	0.03	0.01	c0.01		c0.14	0.01	
v/s Ratio Perm			0.00			0.04						0.03
v/c Ratio	0.92	0.73	0.01	0.83	0.74	0.15	0.09	0.10		0.83	0.03	0.15
Uniform Delay, d1	31.0	14.5	8.2	51.2	36.2	19.0	45.6	45.6		41.3	35.6	36.3
Progression Factor	1.00	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	0.9	0.0	168.3	2.4	0.1	0.4	0.4		9.3	0.0	0.2
Delay (s)	48.6	15.4	8.2	219.5	38.6	19.1	46.0	46.0		50.6	35.6	36.5
Level of Service	D	B	A	F	D	B	D	D		D	D	D
Approach Delay (s)		22.4			36.1			46.0			45.9	
Approach LOS		C			D			D			D	

Intersection Summary

HCM Average Control Delay	29.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	103.3	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
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	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)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Volume (vph)	450	210	290	710	990	240
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	450	210	290	710	990	240
RTOR Reduction (vph)	0	0	0	443	0	157
Lane Group Flow (vph)	450	210	290	267	990	83
Turn Type	Prot			Perm		Perm
Protected Phases	1	6	2		8	
Permitted Phases				2		8
Actuated Green, G (s)	33.1	74.1	37.0	37.0	37.9	37.9
Effective Green, g (s)	33.1	74.1	37.0	37.0	37.9	37.9
Actuated g/C Ratio	0.28	0.62	0.31	0.31	0.32	0.32
Clearance Time (s)	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
Lane Grp Cap (vph)	488	2185	1091	488	1084	500
v/s Ratio Prot	c0.25	0.06	0.08		c0.29	
v/s Ratio Perm				c0.17		0.05
v/c Ratio	0.92	0.10	0.27	0.55	0.91	0.17
Uniform Delay, d1	42.2	9.3	31.3	34.5	39.5	29.6
Progression Factor	1.00	1.00	0.84	0.80	1.00	1.00
Incremental Delay, d2	23.0	0.1	0.5	3.5	11.6	0.2
Delay (s)	65.2	9.4	26.9	31.1	51.0	29.8
Level of Service	E	A	C	C	D	C
Approach Delay (s)		47.4	29.9		46.9	
Approach LOS		D	C		D	

Intersection Summary

HCM Average Control Delay	41.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.88		0.86	0.86	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3433	2787		6408	6408	1583
Flt Permitted	0.95	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3433	2787		6408	6408	1583
Volume (vph)	160	960	0	3160	2590	970
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	160	960	0	3160	2590	970
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	160	959	0	3160	2590	970
Turn Type		Perm				Free
Protected Phases	4			2	6	
Permitted Phases		4				Free
Actuated Green, G (s)	44.4	44.4		67.6	67.6	120.0
Effective Green, g (s)	44.4	44.4		67.6	67.6	120.0
Actuated g/C Ratio	0.37	0.37		0.56	0.56	1.00
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)	1270	1031		3610	3610	1583
v/s Ratio Prot	0.05			c0.49	0.40	
v/s Ratio Perm		c0.34				0.61
v/c Ratio	0.13	0.93		0.88	0.72	0.61
Uniform Delay, d1	25.0	36.3		22.6	19.2	0.0
Progression Factor	0.59	0.85		0.61	1.24	1.00
Incremental Delay, d2	0.0	9.5		0.3	1.0	1.4
Delay (s)	14.7	40.3		14.0	24.9	1.4
Level of Service	B	D		B	C	A
Approach Delay (s)	36.6			14.0	18.5	
Approach LOS	D			B	B	

Intersection Summary

HCM Average Control Delay	19.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0	4.0
Lane Util. Factor	0.97	*0.95	1.00	1.00	0.95	1.00	0.97	*0.70	1.00	*1.00	0.86	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5309	1583	1770	3539	1583	3433	3912	1583	3539	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5309	1583	1770	3539	1583	3433	3912	1583	3539	6408	2787
Volume (vph)	400	800	310	270	690	280	600	2700	710	400	2580	940
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	400	800	310	270	690	280	600	2700	710	400	2580	940
RTOR Reduction (vph)	0	0	255	0	0	114	0	0	182	0	0	233
Lane Group Flow (vph)	400	800	55	270	690	166	600	2700	528	400	2580	707
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	10.0	16.0	16.0	14.0	20.0	20.0	22.0	64.0	64.0	10.0	52.0	52.0
Effective Green, g (s)	10.0	16.0	16.0	14.0	20.0	20.0	22.0	64.0	64.0	10.0	52.0	52.0
Actuated g/C Ratio	0.08	0.13	0.13	0.12	0.17	0.17	0.18	0.53	0.53	0.08	0.43	0.43
Clearance Time (s)	4.0	4.0	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	3.0	3.0
Lane Grp Cap (vph)	286	708	211	207	590	264	629	2086	844	295	2777	1208
v/s Ratio Prot	c0.12	c0.15		0.15	c0.19		0.17	c0.69		c0.11	0.40	
v/s Ratio Perm			0.03			0.10			0.33			0.25
v/c Ratio	1.40	1.13	0.26	1.30	1.17	0.63	0.95	1.29	0.63	1.36	0.93	0.58
Uniform Delay, d1	55.0	52.0	46.7	53.0	50.0	46.5	48.5	28.0	19.6	55.0	32.3	25.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.64	0.38	0.05	1.10	0.91	1.00
Incremental Delay, d2	199.3	75.6	0.7	167.4	93.5	4.6	17.7	134.7	2.1	175.8	5.4	1.5
Delay (s)	254.3	127.6	47.4	220.4	143.5	51.2	48.6	145.4	3.0	236.5	34.7	27.4
Level of Service	F	F	D	F	F	D	D	F	A	F	C	C
Approach Delay (s)		144.7			139.4			105.7			53.5	
Approach LOS		F			F			F			D	

Intersection Summary

HCM Average Control Delay	96.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	1.00	1.00	1.00	0.86		1.00	0.86	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	1863	1583	1770	6394		1770	6303	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	1863	1583	1770	6394		1770	6303	
Volume (vph)	320	470	180	60	420	120	220	2720	40	160	2610	320
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	320	470	180	60	420	120	220	2720	40	160	2610	320
RTOR Reduction (vph)	0	0	126	0	0	94	0	2	0	0	18	0
Lane Group Flow (vph)	320	470	54	60	420	26	220	2758	0	160	2912	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	18.8	35.8	35.8	7.0	24.0	24.0	13.0	51.2		10.0	48.2	
Effective Green, g (s)	18.8	35.8	35.8	7.0	24.0	24.0	13.0	51.2		10.0	48.2	
Actuated g/C Ratio	0.16	0.30	0.30	0.06	0.20	0.20	0.11	0.43		0.08	0.40	
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)	277	1056	472	103	373	317	192	2728		148	2532	
v/s Ratio Prot	c0.18	0.13		0.03	c0.23		c0.12	0.43		0.09	c0.46	
v/s Ratio Perm			0.03			0.02						
v/c Ratio	1.16	0.45	0.11	0.58	1.13	0.08	1.15	1.01		1.08	1.15	
Uniform Delay, d1	50.6	34.1	30.6	55.1	48.0	39.0	53.5	34.4		55.0	35.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.40		0.62	0.47	
Incremental Delay, d2	102.7	0.3	0.1	8.1	85.4	0.1	82.9	12.2		67.3	69.4	
Delay (s)	153.3	34.4	30.7	63.2	133.4	39.1	118.9	25.9		101.5	86.4	
Level of Service	F	C	C	E	F	D	F	C		F	F	
Approach Delay (s)		72.9			107.5			32.8			87.2	
Approach LOS		E			F			C			F	

Intersection Summary

HCM Average Control Delay	65.8	HCM Level of Service	E
HCM Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
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	0.97	0.95		1.00	0.95	1.00	1.00	1.00		0.97	1.00	0.88
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3535		1770	3539	1583	1770	1793		3433	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3535		1770	3539	1583	1770	1793		3433	1863	2787
Volume (vph)	880	1300	10	10	1780	410	10	60	20	340	40	870
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	880	1300	10	10	1780	410	10	60	20	340	40	870
RTOR Reduction (vph)	0	0	0	0	0	87	0	11	0	0	0	487
Lane Group Flow (vph)	880	1310	0	10	1780	323	10	69	0	340	40	383
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	25.0	78.6		0.7	54.3	54.3	0.7	13.6		10.0	22.9	22.9
Effective Green, g (s)	25.0	78.6		0.7	54.3	54.3	0.7	13.6		10.0	22.9	22.9
Actuated g/C Ratio	0.21	0.66		0.01	0.46	0.46	0.01	0.11		0.08	0.19	0.19
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)	722	2337		10	1616	723	10	205		289	359	537
v/s Ratio Prot	c0.26	0.37		0.01	c0.50		0.01	0.04		c0.10	0.02	
v/s Ratio Perm						0.20						c0.14
v/c Ratio	1.22	0.56		1.00	1.10	0.45	1.00	0.34		1.18	0.11	0.71
Uniform Delay, d1	47.0	10.8		59.1	32.3	22.0	59.1	48.5		54.5	39.6	44.9
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	110.8	0.3		284.6	55.6	0.4	284.6	1.0		109.5	0.1	4.5
Delay (s)	157.8	11.2		343.7	87.9	22.5	343.7	49.5		164.0	39.7	49.4
Level of Service	F	B		F	F	C	F	D		F	D	D
Approach Delay (s)		70.1			76.9			82.2			80.3	
Approach LOS		E			E			F			F	

Intersection Summary

HCM Average Control Delay	75.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	118.9	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.86		0.97	0.86	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	6319		3433	6408	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	6319		3433	6408	1583
Volume (vph)	430	1160	290	320	1210	300	380	2450	250	290	2100	480
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	430	1160	290	320	1210	300	380	2450	250	290	2100	480
RTOR Reduction (vph)	0	0	190	0	0	118	0	14	0	0	0	189
Lane Group Flow (vph)	430	1160	100	320	1210	182	380	2686	0	290	2100	291
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	15.0	31.0	31.0	12.0	28.0	28.0	15.6	51.0		10.0	45.4	45.4
Effective Green, g (s)	15.0	31.0	31.0	12.0	28.0	28.0	15.6	51.0		10.0	45.4	45.4
Actuated g/C Ratio	0.12	0.26	0.26	0.10	0.23	0.23	0.13	0.42		0.08	0.38	0.38
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	429	1314	409	343	1187	369	446	2686		286	2424	599
v/s Ratio Prot	0.13	c0.23		0.09	c0.24		0.11	c0.43		0.08	c0.33	
v/s Ratio Perm			0.06			0.11						0.18
v/c Ratio	1.00	0.88	0.24	0.93	1.02	0.49	0.85	1.00		1.01	0.87	0.49
Uniform Delay, d1	52.5	42.8	35.2	53.6	46.0	39.9	51.1	34.5		55.0	34.5	28.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.48	0.21	0.02
Incremental Delay, d2	44.0	7.3	0.3	31.6	31.1	1.0	14.5	17.4		19.5	0.4	0.3
Delay (s)	96.5	50.1	35.5	85.2	77.1	40.9	65.6	51.9		45.7	7.8	0.9
Level of Service	F	D	D	F	E	D	E	D		D	A	A
Approach Delay (s)		58.5			72.6			53.6			10.5	
Approach LOS		E			E			D			B	

Intersection Summary

HCM Average Control Delay	45.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.86		1.00	0.86	
Frt	1.00	0.97		1.00	0.97		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	3421		1770	3425		1770	6355		1770	6311	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3421		1770	3425		1770	6355		1770	6311	
Volume (vph)	230	730	210	190	620	170	230	2220	130	210	1870	210
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	230	730	210	190	620	170	230	2220	130	210	1870	210
RTOR Reduction (vph)	0	22	0	0	20	0	0	7	0	0	16	0
Lane Group Flow (vph)	230	918	0	190	770	0	230	2343	0	210	2064	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	16.0	32.0		13.0	29.0		16.0	45.0		14.0	43.0	
Effective Green, g (s)	16.0	32.0		13.0	29.0		16.0	45.0		14.0	43.0	
Actuated g/C Ratio	0.13	0.27		0.11	0.24		0.13	0.38		0.12	0.36	
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)	236	912		192	828		236	2383		207	2261	
v/s Ratio Prot	c0.13	c0.27		0.11	0.22		c0.13	c0.37		0.12	0.33	
v/s Ratio Perm												
v/c Ratio	0.97	1.01		0.99	0.93		0.97	0.98		1.01	0.91	
Uniform Delay, d1	51.8	44.0		53.4	44.5		51.8	37.1		53.0	36.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	51.0	31.4		61.3	16.4		51.0	14.9		66.4	7.1	
Delay (s)	102.8	75.4		114.7	60.9		102.8	52.0		119.4	43.8	
Level of Service	F	E		F	E		F	D		F	D	
Approach Delay (s)		80.8			71.4			56.6			50.7	
Approach LOS		F			E			E			D	

Intersection Summary

HCM Average Control Delay	60.8	HCM Level of Service	E
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95		1.00	0.86		1.00	0.86	
Frt	1.00	1.00	0.85	1.00	0.93		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3308		1770	6280		1770	6340	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3308		1770	6280		1770	6340	
Volume (vph)	220	530	220	300	530	410	220	2160	330	330	2110	160
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	220	530	220	300	530	410	220	2160	330	330	2110	160
RTOR Reduction (vph)	0	0	185	0	116	0	0	23	0	0	9	0
Lane Group Flow (vph)	220	530	35	300	824	0	220	2467	0	330	2261	0
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	13.0	19.0	19.0	20.0	26.0		15.0	45.0		20.0	50.0	
Effective Green, g (s)	13.0	19.0	19.0	20.0	26.0		15.0	45.0		20.0	50.0	
Actuated g/C Ratio	0.11	0.16	0.16	0.17	0.22		0.12	0.38		0.17	0.42	
Clearance Time (s)	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	
Lane Grp Cap (vph)	192	560	251	295	717		221	2355		295	2642	
v/s Ratio Prot	c0.12	0.15		c0.17	c0.25		0.12	c0.39		c0.19	0.36	
v/s Ratio Perm			0.02									
v/c Ratio	1.15	0.95	0.14	1.02	1.15		1.00	1.05		1.12	0.86	
Uniform Delay, d1	53.5	50.0	43.5	50.0	47.0		52.5	37.5		50.0	31.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	109.7	25.1	0.3	56.8	82.9		58.9	32.5		88.2	3.8	
Delay (s)	163.2	75.1	43.7	106.8	129.9		111.4	70.0		138.2	35.5	
Level of Service	F	E	D	F	F		F	E		F	D	
Approach Delay (s)		88.0			124.3			73.3			48.6	
Approach LOS		F			F			E			D	

Intersection Summary

HCM Average Control Delay	75.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Lane Configurations												
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	4.0
Lane Util. Factor	1.00	0.97	1.00	0.97	0.86		0.97	0.91	1.00	0.97	0.88	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.85	0.85
Flt Protected	0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3433	1583	3433	6323		3433	5085	1583	3433	2787	1583
Flt Permitted	0.95	0.95	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3433	1583	3433	6323		3433	5085	1583	3433	2787	1583
Volume (vph)	160	580	250	190	1660	160	250	1460	640	460	420	50
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	160	580	250	190	1660	160	250	1460	640	460	420	50
RTOR Reduction (vph)	0	0	156	0	13	0	0	0	19	0	0	39
Lane Group Flow (vph)	160	580	94	190	1807	0	250	1460	621	460	420	11
Turn Type	Split		Perm	Prot			Prot		pm+ov	Split		Perm
Protected Phases	4	4		1	6		1	6	8 9	8 9	8 9	
Permitted Phases			4						6			8 9
Actuated Green, G (s)	23.8	23.8	23.8	11.8	42.4		11.8	42.4	68.4	26.0	26.0	26.0
Effective Green, g (s)	23.8	23.8	23.8	11.8	42.4		11.8	42.4	68.4	26.0	26.0	26.0
Actuated g/C Ratio	0.20	0.20	0.20	0.10	0.35		0.10	0.35	0.57	0.22	0.22	0.22
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)	351	681	314	338	2234		338	1797	955	744	604	343
v/s Ratio Prot	0.09	c0.17		0.06	0.29		c0.07	c0.29	c0.14	0.13	c0.15	
v/s Ratio Perm			0.06						0.25			0.01
v/c Ratio	0.46	0.85	0.30	0.56	0.81		0.74	0.81	0.65	0.62	0.70	0.03
Uniform Delay, d1	42.4	46.4	41.0	51.6	35.1		52.6	35.2	17.6	42.5	43.3	37.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	0.98	0.98	1.36
Incremental Delay, d2	0.9	10.0	0.5	2.1	3.3		8.2	4.1	1.5	1.5	3.4	0.0
Delay (s)	43.3	56.4	41.5	53.8	38.4		60.8	39.3	19.2	43.3	45.9	50.6
Level of Service	D	E	D	D	D		E	D	B	D	D	D
Approach Delay (s)		50.6			39.9			36.1		44.8		
Approach LOS		D			D			D		D		

Intersection Summary

HCM Average Control Delay	40.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5001		1770	4997	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	5001		1770	4997	
Volume (vph)	310	520	360	260	620	190	350	1680	210	320	1610	210
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	310	520	360	260	620	190	350	1680	210	320	1610	210
RTOR Reduction (vph)	0	0	243	0	0	158	0	13	0	0	14	0
Lane Group Flow (vph)	310	520	117	260	620	32	350	1877	0	320	1806	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	20.0	22.0	22.0	18.0	20.0	20.0	22.0	44.0		20.0	42.0	
Effective Green, g (s)	20.0	22.0	22.0	18.0	20.0	20.0	22.0	44.0		20.0	42.0	
Actuated g/C Ratio	0.17	0.18	0.18	0.15	0.17	0.17	0.18	0.37		0.17	0.35	
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)	295	649	290	266	590	264	325	1834		295	1749	
v/s Ratio Prot	c0.18	0.15		0.15	c0.18		c0.20	c0.38		0.18	0.36	
v/s Ratio Perm			0.07			0.02						
v/c Ratio	1.05	0.80	0.40	0.98	1.05	0.12	1.08	1.02		1.08	1.03	
Uniform Delay, d1	50.0	46.9	43.2	50.8	50.0	42.5	49.0	38.0		50.0	39.0	
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	66.4	7.0	0.9	48.4	51.1	0.2	71.9	27.1		76.9	30.5	
Delay (s)	116.4	54.0	44.1	99.2	101.1	42.7	120.9	65.1		126.9	69.5	
Level of Service	F	D	D	F	F	D	F	E		F	E	
Approach Delay (s)		67.2			90.3			73.9			78.0	
Approach LOS		E			F			E			E	

Intersection Summary

HCM Average Control Delay	76.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3429		1770	4970		1770	5006	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3429		1770	4970		1770	5006	
Volume (vph)	200	580	110	130	570	150	260	1800	320	210	1550	180
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	200	580	110	130	570	150	260	1800	320	210	1550	180
RTOR Reduction (vph)	0	0	87	0	20	0	0	21	0	0	12	0
Lane Group Flow (vph)	200	580	23	130	700	0	260	2099	0	210	1718	0
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	13.0	25.6	25.6	11.4	24.0		18.0	53.0		14.0	49.0	
Effective Green, g (s)	13.0	25.6	25.6	11.4	24.0		18.0	53.0		14.0	49.0	
Actuated g/C Ratio	0.11	0.21	0.21	0.10	0.20		0.15	0.44		0.12	0.41	
Clearance Time (s)	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	
Lane Grp Cap (vph)	192	755	338	168	686		266	2195		207	2044	
v/s Ratio Prot	c0.11	0.16		0.07	c0.20		c0.15	c0.42		0.12	0.34	
v/s Ratio Perm			0.01									
v/c Ratio	1.04	0.77	0.07	0.77	1.02		0.98	0.96		1.01	0.84	
Uniform Delay, d1	53.5	44.4	37.7	53.0	48.0		50.8	32.4		53.0	32.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	76.3	4.7	0.1	19.6	39.6		48.4	11.4		66.4	4.4	
Delay (s)	129.8	49.1	37.8	72.6	87.6		99.2	43.7		119.4	36.4	
Level of Service	F	D	D	E	F		F	D		F	D	
Approach Delay (s)		65.9			85.3			49.8			45.3	
Approach LOS		E			F			D			D	

Intersection Summary

HCM Average Control Delay	55.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91		1.00	0.95	1.00	1.00	0.91		0.97	0.91	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5020		1770	3539	1583	1770	4968		3433	4986	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	5020		1770	3539	1583	1770	4968		3433	4986	
Volume (vph)	140	750	70	340	1000	470	290	1100	200	360	1200	180
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	140	750	70	340	1000	470	290	1100	200	360	1200	180
RTOR Reduction (vph)	0	9	0	0	0	203	0	21	0	0	16	0
Lane Group Flow (vph)	140	811	0	340	1000	267	290	1279	0	360	1364	0
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	11.0	21.8		25.1	35.9	35.9	21.3	42.4		14.7	35.8	
Effective Green, g (s)	11.0	21.8		25.1	35.9	35.9	21.3	42.4		14.7	35.8	
Actuated g/C Ratio	0.09	0.18		0.21	0.30	0.30	0.18	0.35		0.12	0.30	
Clearance Time (s)	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	
Lane Grp Cap (vph)	162	912		370	1059	474	314	1755		421	1487	
v/s Ratio Prot	0.08	0.16		c0.19	c0.28		c0.16	0.26		0.10	c0.27	
v/s Ratio Perm						0.17						
v/c Ratio	0.86	0.89		0.92	0.94	0.56	0.92	0.73		0.86	0.92	
Uniform Delay, d1	53.8	47.9		46.5	41.1	35.4	48.5	33.8		51.6	40.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	34.9	10.6		27.1	15.9	1.5	31.5	2.7		15.5	10.5	
Delay (s)	88.7	58.5		73.5	57.0	37.0	80.1	36.5		67.1	51.1	
Level of Service	F	E		E	E	D	F	D		E	D	
Approach Delay (s)		62.9			54.9			44.4			54.4	
Approach LOS		E			D			D			D	

Intersection Summary

HCM Average Control Delay	53.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00		1.00	1.00	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1807		1770	1863	1583	1770	5039		1770	5024	
Flt Permitted	0.27	1.00		0.48	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	507	1807		903	1863	1583	1770	5039		1770	5024	
Volume (vph)	90	120	30	60	230	160	20	1080	70	210	1030	90
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	90	120	30	60	230	160	20	1080	70	210	1030	90
RTOR Reduction (vph)	0	8	0	0	0	134	0	4	0	0	5	0
Lane Group Flow (vph)	90	142	0	60	230	26	20	1146	0	210	1115	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8						
Actuated Green, G (s)	19.3	19.3		19.3	19.3	19.3	3.3	70.0		18.7	85.4	
Effective Green, g (s)	19.3	19.3		19.3	19.3	19.3	3.3	70.0		18.7	85.4	
Actuated g/C Ratio	0.16	0.16		0.16	0.16	0.16	0.03	0.58		0.16	0.71	
Clearance Time (s)	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	
Lane Grp Cap (vph)	82	291		145	300	255	49	2939		276	3575	
v/s Ratio Prot		0.08			0.12		0.01	c0.23		c0.12	0.22	
v/s Ratio Perm	c0.18			0.07		0.02						
v/c Ratio	1.10	0.49		0.41	0.77	0.10	0.41	0.39		0.76	0.31	
Uniform Delay, d1	50.4	45.8		45.3	48.2	42.9	57.4	13.5		48.5	6.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	128.4	1.3		1.9	11.1	0.2	5.5	0.4		11.7	0.2	
Delay (s)	178.7	47.1		47.2	59.3	43.1	62.9	13.9		60.2	6.6	
Level of Service	F	D		D	E	D	E	B		E	A	
Approach Delay (s)		96.5			51.9			14.7			15.1	
Approach LOS		F			D			B			B	

Intersection Summary

HCM Average Control Delay	26.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5027		1770	4892	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	5027		1770	4892	
Volume (vph)	220	560	40	40	790	270	100	960	80	460	500	170
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	232	589	42	42	832	284	105	1011	84	484	526	179
RTOR Reduction (vph)	0	0	29	0	0	212	0	8	0	0	50	0
Lane Group Flow (vph)	232	589	13	42	832	72	105	1087	0	484	655	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	15.0	38.2	38.2	5.6	28.8	28.8	11.6	28.5		32.0	48.9	
Effective Green, g (s)	15.0	38.2	38.2	5.6	28.8	28.8	11.6	28.5		32.0	48.9	
Actuated g/C Ratio	0.12	0.32	0.32	0.05	0.24	0.24	0.10	0.24		0.27	0.41	
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)	221	1124	503	82	847	379	171	1191		471	1989	
v/s Ratio Prot	c0.13	0.17		0.02	c0.24		0.06	c0.22		c0.27	0.13	
v/s Ratio Perm			0.01			0.05						
v/c Ratio	1.05	0.52	0.03	0.51	0.98	0.19	0.61	0.91		1.03	0.33	
Uniform Delay, d1	52.6	33.6	28.3	56.0	45.5	36.5	52.2	44.7		44.1	24.5	
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	74.2	0.4	0.0	5.3	26.4	0.2	6.4	10.7		48.7	0.1	
Delay (s)	126.9	34.1	28.3	61.3	71.9	36.7	58.6	55.4		92.9	24.6	
Level of Service	F	C	C	E	E	D	E	E		F	C	
Approach Delay (s)		58.7			62.9			55.6			52.4	
Approach LOS		E			E			E			D	

Intersection Summary

HCM Average Control Delay	57.3	HCM Level of Service	E
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.3	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3514		3433	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3514		3433	1583
Volume (vph)	380	1390	1780	90	30	270
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	380	1390	1780	90	30	270
RTOR Reduction (vph)	0	0	3	0	0	8
Lane Group Flow (vph)	380	1390	1867	0	30	262
Turn Type	Prot					pm+ov
Protected Phases	7	4	8		6	7
Permitted Phases						6
Actuated Green, G (s)	25.8	92.1	62.3		6.5	32.3
Effective Green, g (s)	25.8	92.1	62.3		6.5	32.3
Actuated g/C Ratio	0.24	0.86	0.58		0.06	0.30
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)	428	3058	2054		209	539
v/s Ratio Prot	c0.21	0.39	c0.53		0.01	c0.12
v/s Ratio Perm						0.05
v/c Ratio	0.89	0.45	0.91		0.14	0.49
Uniform Delay, d1	39.0	1.6	19.6		47.4	30.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	19.4	0.1	6.4		0.3	0.7
Delay (s)	58.4	1.7	26.0		47.7	31.0
Level of Service	E	A	C		D	C
Approach Delay (s)		13.9	26.0		32.7	
Approach LOS		B	C		C	

Intersection Summary

HCM Average Control Delay	21.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	106.6	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
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	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)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Volume (vph)	760	2040	1760	320	330	590
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	760	2040	1760	320	330	590
RTOR Reduction (vph)	0	0	0	113	0	429
Lane Group Flow (vph)	760	2040	1760	207	330	161
Turn Type	Prot			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	41.0	94.0	49.0	49.0	16.3	16.3
Effective Green, g (s)	41.0	94.0	49.0	49.0	16.3	16.3
Actuated g/C Ratio	0.35	0.79	0.41	0.41	0.14	0.14
Clearance Time (s)	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
Lane Grp Cap (vph)	613	2812	1466	656	473	218
v/s Ratio Prot	c0.43	0.58	c0.50		0.10	
v/s Ratio Perm				0.13		c0.10
v/c Ratio	1.24	0.73	1.20	0.32	0.70	0.74
Uniform Delay, d1	38.6	5.9	34.6	23.3	48.6	48.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	121.4	1.0	97.1	0.3	4.5	12.2
Delay (s)	160.1	6.8	131.7	23.6	53.1	61.1
Level of Service	F	A	F	C	D	E
Approach Delay (s)		48.4	115.1		58.3	
Approach LOS		D	F		E	

Intersection Summary

HCM Average Control Delay	73.9	HCM Level of Service	E
HCM Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	118.3	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
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	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)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	1770	1583
Volume (vph)	320	1430	1990	50	120	120
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	320	1430	1990	50	120	120
RTOR Reduction (vph)	0	0	0	15	0	107
Lane Group Flow (vph)	320	1430	1990	35	120	13
Turn Type	Prot			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases				8		6
Actuated Green, G (s)	22.1	93.2	67.1	67.1	12.7	12.7
Effective Green, g (s)	22.1	93.2	67.1	67.1	12.7	12.7
Actuated g/C Ratio	0.19	0.82	0.59	0.59	0.11	0.11
Clearance Time (s)	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
Lane Grp Cap (vph)	343	2896	2085	933	197	177
v/s Ratio Prot	c0.18	0.40	c0.56		c0.07	
v/s Ratio Perm				0.02		0.01
v/c Ratio	0.93	0.49	0.95	0.04	0.61	0.08
Uniform Delay, d1	45.2	3.2	22.0	9.8	48.2	45.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	31.6	0.1	10.9	0.0	5.3	0.2
Delay (s)	76.8	3.3	32.8	9.8	53.5	45.5
Level of Service	E	A	C	A	D	D
Approach Delay (s)		16.7	32.3		49.5	
Approach LOS		B	C		D	

Intersection Summary

HCM Average Control Delay	26.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	113.9	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91		1.00	0.91			1.00		1.00	1.00	
Frt	1.00	1.00		1.00	0.99			0.95		1.00	0.87	
Flt Protected	0.95	1.00		0.95	1.00			0.98		0.95	1.00	
Satd. Flow (prot)	1770	5072		1770	5053			1750		1770	1618	
Flt Permitted	0.95	1.00		0.95	1.00			0.89		0.76	1.00	
Satd. Flow (perm)	1770	5072		1770	5053			1575		1409	1618	
Volume (vph)	240	1170	20	20	2260	100	20	20	20	80	10	70
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	240	1170	20	20	2260	100	20	20	20	80	10	70
RTOR Reduction (vph)	0	1	0	0	4	0	0	15	0	0	62	0
Lane Group Flow (vph)	240	1189	0	20	2356	0	0	45	0	80	18	0
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	17.3	72.2		1.6	56.5			11.0		11.0	11.0	
Effective Green, g (s)	17.3	72.2		1.6	56.5			11.0		11.0	11.0	
Actuated g/C Ratio	0.18	0.75		0.02	0.58			0.11		0.11	0.11	
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)	316	3783		29	2949			179		160	184	
v/s Ratio Prot	c0.14	0.23		0.01	c0.47						0.01	
v/s Ratio Perm								0.03		c0.06		
v/c Ratio	0.76	0.31		0.69	0.80			0.25		0.50	0.10	
Uniform Delay, d1	37.8	4.1		47.4	15.7			39.1		40.3	38.5	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	10.0	0.0		51.3	1.6			0.7		2.4	0.2	
Delay (s)	47.8	4.1		98.6	17.3			39.9		42.8	38.7	
Level of Service	D	A		F	B			D		D	D	
Approach Delay (s)		11.5			18.0			39.9			40.7	
Approach LOS		B			B			D			D	

Intersection Summary

HCM Average Control Delay	16.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	96.8	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Ideal Flow (vphpl)	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	0.91	1.00	0.91	1.00	1.00	1.00
Frt	1.00	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	1770	5085	1583	1770	1583
Flt Permitted	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	1770	5085	1583	1770	1583
Volume (vph)	90	1280	40	2000	230	220	80
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	90	1280	40	2000	230	220	80
RTOR Reduction (vph)	0	0	0	0	35	0	57
Lane Group Flow (vph)	90	1280	40	2000	195	220	23
Turn Type	Prot		Prot		Perm		Perm
Protected Phases	7	4	3	8		6	
Permitted Phases					8		6
Actuated Green, G (s)	5.2	29.0	2.8	26.6	26.6	11.7	11.7
Effective Green, g (s)	5.2	29.0	2.8	26.6	26.6	11.7	11.7
Actuated g/C Ratio	0.09	0.52	0.05	0.48	0.48	0.21	0.21
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)	166	2657	89	2437	759	373	334
v/s Ratio Prot	c0.05	0.25	0.02	c0.39		c0.12	
v/s Ratio Perm					0.12		0.01
v/c Ratio	0.54	0.48	0.45	0.82	0.26	0.59	0.07
Uniform Delay, d1	24.0	8.5	25.6	12.4	8.6	19.7	17.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.6	0.1	3.6	2.3	0.2	2.4	0.1
Delay (s)	27.6	8.6	29.2	14.7	8.8	22.1	17.6
Level of Service	C	A	C	B	A	C	B
Approach Delay (s)		9.8		14.4		20.9	
Approach LOS		A		B		C	

Intersection Summary

HCM Average Control Delay	13.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	55.5	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91		1.00	0.91		0.95	0.95	1.00	0.95	0.95	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	0.97	1.00
Satd. Flow (prot)	1770	5073		1770	5019		1681	1770	1583	1681	1710	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	0.97	1.00
Satd. Flow (perm)	1770	5073		1770	5019		1681	1770	1583	1681	1710	1583
Volume (vph)	240	1220	20	20	1890	180	10	10	20	110	20	200
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	240	1220	20	20	1890	180	10	10	20	110	20	200
RTOR Reduction (vph)	0	1	0	0	8	0	0	0	19	0	0	181
Lane Group Flow (vph)	240	1239	0	20	2062	0	10	10	1	63	67	19
Turn Type	Prot			Prot			Split		Perm	Split		Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases									2			6
Actuated Green, G (s)	16.9	65.0		1.8	49.9		6.3	6.3	6.3	9.2	9.2	9.2
Effective Green, g (s)	16.9	65.0		1.8	49.9		6.3	6.3	6.3	9.2	9.2	9.2
Actuated g/C Ratio	0.17	0.66		0.02	0.51		0.06	0.06	0.06	0.09	0.09	0.09
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)	304	3354		32	2548		108	113	101	157	160	148
v/s Ratio Prot	c0.14	0.24		0.01	c0.41		c0.01	0.01		0.04	c0.04	
v/s Ratio Perm									0.00			0.01
v/c Ratio	0.79	0.37		0.62	0.81		0.09	0.09	0.01	0.40	0.42	0.13
Uniform Delay, d1	39.0	7.5		47.9	20.2		43.3	43.3	43.1	42.0	42.0	40.9
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	12.8	0.1		32.4	2.0		0.4	0.3	0.1	1.7	1.8	0.4
Delay (s)	51.8	7.5		80.3	22.2		43.7	43.6	43.1	43.6	43.8	41.3
Level of Service	D	A		F	C		D	D	D	D	D	D
Approach Delay (s)		14.7			22.8			43.4			42.2	
Approach LOS		B			C			D			D	

Intersection Summary

HCM Average Control Delay	21.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	98.3	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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		0.95		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.95		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98		0.95	1.00	
Satd. Flow (prot)	1770	3539		1770	3539	1583		3307		1770	1583	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.98		0.95	1.00	
Satd. Flow (perm)	1770	3539		1770	3539	1583		3307		1770	1583	
Volume (vph)	40	1500	0	10	2310	60	10	10	10	30	0	30
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	40	1500	0	10	2310	60	10	10	10	30	0	30
RTOR Reduction (vph)	0	0	0	0	0	9	0	9	0	0	28	0
Lane Group Flow (vph)	40	1500	0	10	2310	51	0	21	0	30	2	0
Turn Type	Prot		Perm	Prot		Perm	Split			Split		
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4			8						
Actuated Green, G (s)	3.1	72.9		0.8	70.6	70.6		6.2		7.2	7.2	
Effective Green, g (s)	3.1	72.9		0.8	70.6	70.6		6.2		7.2	7.2	
Actuated g/C Ratio	0.03	0.71		0.01	0.68	0.68		0.06		0.07	0.07	
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)	53	2502		14	2423	1084		199		124	111	
v/s Ratio Prot	c0.02	0.42		0.01	c0.65			c0.01		c0.02	0.00	
v/s Ratio Perm						0.03						
v/c Ratio	0.75	0.60		0.71	0.95	0.05		0.10		0.24	0.02	
Uniform Delay, d1	49.6	7.7		51.0	14.8	5.3		45.8		45.4	44.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	45.2	0.4		100.1	9.6	0.0		0.2		1.0	0.1	
Delay (s)	94.8	8.1		151.2	24.3	5.3		46.1		46.4	44.7	
Level of Service	F	A		F	C	A		D		D	D	
Approach Delay (s)		10.3			24.4			46.1			45.6	
Approach LOS		B			C			D			D	

Intersection Summary

HCM Average Control Delay	19.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	103.1	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	0.97	0.91		1.00	0.95	1.00	1.00	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5080		1770	3539	1583	1770	3539	1583	3433	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5080		1770	3539	1583	1770	3539	1583	3433	1863	1583
Volume (vph)	230	1380	10	30	1960	970	10	50	20	320	40	210
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	242	1453	11	32	2063	1021	11	53	21	337	42	221
RTOR Reduction (vph)	0	1	0	0	0	263	0	0	19	0	0	0
Lane Group Flow (vph)	242	1463	0	32	2063	758	11	53	2	337	42	221
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			Free
Actuated Green, G (s)	9.0	74.0		3.6	68.6	68.6	0.8	10.3	10.3	12.0	21.5	115.9
Effective Green, g (s)	9.0	74.0		3.6	68.6	68.6	0.8	10.3	10.3	12.0	21.5	115.9
Actuated g/C Ratio	0.08	0.64		0.03	0.59	0.59	0.01	0.09	0.09	0.10	0.19	1.00
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)	267	3243		55	2095	937	12	315	141	355	346	1583
v/s Ratio Prot	c0.07	0.29		0.02	c0.58		0.01	0.01		c0.10	0.02	
v/s Ratio Perm						0.48			0.00			c0.14
v/c Ratio	0.91	0.45		0.58	0.98	0.81	0.92	0.17	0.01	0.95	0.12	0.14
Uniform Delay, d1	53.0	10.6		55.4	23.1	18.5	57.5	48.8	48.2	51.6	39.3	0.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	31.4	0.1		14.7	16.1	5.2	212.2	0.3	0.0	34.3	0.2	0.2
Delay (s)	84.4	10.7		70.1	39.2	23.7	269.7	49.1	48.2	85.9	39.5	0.2
Level of Service	F	B		E	D	C	F	D	D	F	D	A
Approach Delay (s)		21.2			34.5			77.4			51.1	
Approach LOS		C			C			E			D	

Intersection Summary

HCM Average Control Delay	32.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	115.9	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	0.91	1.00	1.00	0.91	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		0.98	1.00		0.95	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583		1817	1583		1770	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.87	1.00		0.74	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583		1614	1583		1386	1583
Volume (vph)	130	1580	10	10	2800	220	10	10	10	80	0	150
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	130	1580	10	10	2800	220	10	10	10	80	0	150
RTOR Reduction (vph)	0	0	2	0	0	72	0	0	9	0	0	124
Lane Group Flow (vph)	130	1580	8	10	2800	148	0	20	1	0	80	26
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		6
Actuated Green, G (s)	9.5	77.2	77.2	0.7	68.4	68.4		11.5	11.5		11.5	11.5
Effective Green, g (s)	9.5	77.2	77.2	0.7	68.4	68.4		11.5	11.5		11.5	11.5
Actuated g/C Ratio	0.09	0.76	0.76	0.01	0.67	0.67		0.11	0.11		0.11	0.11
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)	166	3871	1205	12	3430	1068		183	180		157	180
v/s Ratio Prot	c0.07	0.31		0.01	c0.55							
v/s Ratio Perm			0.00			0.09		0.01	0.00		c0.06	0.02
v/c Ratio	0.78	0.41	0.01	0.83	0.82	0.14		0.11	0.01		0.51	0.14
Uniform Delay, d1	44.9	4.2	2.9	50.3	12.0	5.9		40.4	39.9		42.3	40.5
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	21.0	0.1	0.0	168.3	1.6	0.1		0.3	0.0		2.6	0.4
Delay (s)	66.0	4.3	2.9	218.6	13.5	6.0		40.6	39.9		44.9	40.9
Level of Service	E	A	A	F	B	A		D	D		D	D
Approach Delay (s)		8.9			13.7			40.4			42.3	
Approach LOS		A			B			D			D	

Intersection Summary

HCM Average Control Delay	13.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	101.4	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.95	0.95		0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1681	1681		1681	1713	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	0.97	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1681	1681		1681	1713	1583
Volume (vph)	120	1540	10	20	2930	180	10	20	10	140	30	120
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	120	1540	10	20	2930	180	10	20	10	140	30	120
RTOR Reduction (vph)	0	0	3	0	0	59	0	9	0	0	0	108
Lane Group Flow (vph)	120	1540	7	20	2930	121	10	21	0	83	87	12
Turn Type	Prot		Perm	Prot		Perm	Split			Split		Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	8.0	72.7	72.7	1.9	66.6	66.6	7.0	7.0		10.6	10.6	10.6
Effective Green, g (s)	8.0	72.7	72.7	1.9	66.6	66.6	7.0	7.0		10.6	10.6	10.6
Actuated g/C Ratio	0.07	0.67	0.67	0.02	0.62	0.62	0.06	0.06		0.10	0.10	0.10
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	131	3417	1064	31	3130	974	109	109		165	168	155
v/s Ratio Prot	c0.07	0.30		0.01	c0.58		0.01	c0.01		0.05	c0.05	
v/s Ratio Perm			0.00			0.08						0.01
v/c Ratio	0.92	0.45	0.01	0.65	0.94	0.12	0.09	0.19		0.50	0.52	0.08
Uniform Delay, d1	49.8	8.4	5.8	52.8	18.9	8.7	47.6	47.9		46.3	46.4	44.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	53.3	0.1	0.0	37.9	6.2	0.1	0.4	0.8		2.4	2.7	0.2
Delay (s)	103.0	8.4	5.9	90.7	25.0	8.7	48.0	48.8		48.7	49.1	44.6
Level of Service	F	A	A	F	C	A	D	D		D	D	D
Approach Delay (s)		15.2			24.5			48.6			47.1	
Approach LOS		B			C			D			D	

Intersection Summary

HCM Average Control Delay	23.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	108.2	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1723		3433	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583	1770	1723		3433	1863	1583
Volume (vph)	470	1080	10	20	2740	720	10	10	10	220	20	610
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	470	1080	10	20	2740	720	10	10	10	220	20	610
RTOR Reduction (vph)	0	0	4	0	0	200	0	9	0	0	0	385
Lane Group Flow (vph)	470	1080	6	20	2740	520	10	11	0	220	20	225
Turn Type	Prot		Perm	Prot		pm+ov	Split			Split		Perm
Protected Phases	7	4		3	8	6	2	2		6	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	23.0	71.4	71.4	2.0	50.4	66.4	6.4	6.4		16.0	16.0	16.0
Effective Green, g (s)	23.0	71.4	71.4	2.0	50.4	66.4	6.4	6.4		16.0	16.0	16.0
Actuated g/C Ratio	0.21	0.64	0.64	0.02	0.45	0.59	0.06	0.06		0.14	0.14	0.14
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	364	3247	1011	32	2292	940	101	99		491	267	227
v/s Ratio Prot	c0.27	0.21		0.01	c0.54	0.08	0.01	c0.01		0.06	0.01	
v/s Ratio Perm			0.00			0.25						c0.14
v/c Ratio	1.29	0.33	0.01	0.62	1.20	0.55	0.10	0.11		0.45	0.07	0.99
Uniform Delay, d1	44.4	9.3	7.3	54.5	30.7	13.7	50.0	50.0		43.9	41.5	47.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	150.2	0.1	0.0	32.4	92.5	0.7	0.4	0.5		0.7	0.1	57.3
Delay (s)	194.6	9.3	7.3	86.9	123.2	14.4	50.4	50.5		44.5	41.6	105.2
Level of Service	F	A	A	F	F	B	D	D		D	D	F
Approach Delay (s)		65.1			100.5			50.4			88.0	
Approach LOS		E			F			D			F	

Intersection Summary

HCM Average Control Delay	89.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	111.8	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

2030

Proposed Highway Plan with Recommended Intersection Improvements

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0	4.0
Lane Util. Factor	0.97	*0.91	1.00	1.00	0.91	1.00	0.97	*0.86	1.00	*0.97	0.86	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	1770	5085	1583	3433	6408	1583	3433	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	1770	5085	1583	3433	6408	1583	3433	6408	2787
Volume (vph)	170	840	120	140	440	310	140	2130	400	650	2820	450
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	170	840	120	140	440	310	140	2130	400	650	2820	450
RTOR Reduction (vph)	0	0	95	0	0	268	0	0	141	0	0	180
Lane Group Flow (vph)	170	840	25	140	440	42	140	2130	259	650	2820	270
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	20.5	25.0	25.0	11.6	16.1	16.1	7.0	42.4	42.4	25.0	60.4	60.4
Effective Green, g (s)	20.5	25.0	25.0	11.6	16.1	16.1	7.0	42.4	42.4	25.0	60.4	60.4
Actuated g/C Ratio	0.17	0.21	0.21	0.10	0.13	0.13	0.06	0.35	0.35	0.21	0.50	0.50
Clearance Time (s)	4.0	4.0	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	3.0	3.0
Lane Grp Cap (vph)	586	1059	330	171	682	212	200	2264	559	715	3225	1403
v/s Ratio Prot	0.05	c0.17		c0.08	0.09		0.04	c0.33		c0.19	c0.44	
v/s Ratio Perm			0.02			0.03			0.16			0.10
v/c Ratio	0.29	0.79	0.08	0.82	0.65	0.20	0.70	0.94	0.46	0.91	0.87	0.19
Uniform Delay, d1	43.4	45.0	38.2	53.2	49.2	46.2	55.5	37.6	30.0	46.4	26.4	16.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.60	0.91	1.19	0.77	0.61	0.41
Incremental Delay, d2	0.3	6.1	0.4	25.3	2.1	0.5	6.1	6.0	1.6	10.4	2.3	0.2
Delay (s)	43.7	51.2	38.7	78.4	51.3	46.7	39.4	40.1	37.3	46.1	18.5	7.0
Level of Service	D	D	D	E	D	D	D	D	D	D	B	A
Approach Delay (s)		48.7			54.0			39.7			21.7	
Approach LOS		D			D			D			C	

Intersection Summary

HCM Average Control Delay	34.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	1.00	1.00	0.97	0.86		1.00	0.86	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	1863	1583	3433	6396		1770	6291	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	1863	1583	3433	6396		1770	6291	
Volume (vph)	180	630	260	60	350	90	160	2490	30	80	2600	360
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	180	630	260	60	350	90	160	2490	30	80	2600	360
RTOR Reduction (vph)	0	0	102	0	0	72	0	1	0	0	21	0
Lane Group Flow (vph)	180	630	158	60	350	18	160	2519	0	80	2939	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	13.8	31.4	31.4	7.0	24.6	24.6	6.5	57.8		7.8	59.1	
Effective Green, g (s)	13.8	31.4	31.4	7.0	24.6	24.6	6.5	57.8		7.8	59.1	
Actuated g/C Ratio	0.12	0.26	0.26	0.06	0.21	0.21	0.05	0.48		0.06	0.49	
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)	204	926	414	103	382	325	186	3081		115	3098	
v/s Ratio Prot	c0.10	0.18		0.03	c0.19		c0.05	0.39		0.05	c0.47	
v/s Ratio Perm			0.10			0.01						
v/c Ratio	0.88	0.68	0.38	0.58	0.92	0.06	0.86	0.82		0.70	0.95	
Uniform Delay, d1	52.3	39.8	36.3	55.1	46.7	38.4	56.3	26.6		54.9	29.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.39	0.39		1.16	0.80	
Incremental Delay, d2	33.0	2.1	0.6	8.1	26.1	0.1	26.0	2.0		1.7	0.9	
Delay (s)	85.3	41.9	36.9	63.2	72.8	38.4	104.5	12.5		65.5	24.0	
Level of Service	F	D	D	E	E	D	F	B		E	C	
Approach Delay (s)		48.0			65.4			18.0			25.1	
Approach LOS		D			E			B			C	

Intersection Summary

HCM Average Control Delay	28.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.86		1.00	0.86	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	1863	1583	1770	6396		1770	6408	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	1863	1583	1770	6396		1770	6408	1583
Volume (vph)	180	630	260	60	350	90	160	2490	30	80	2600	360
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	180	630	260	60	350	90	160	2490	30	80	2600	360
RTOR Reduction (vph)	0	0	129	0	0	71	0	1	0	0	0	157
Lane Group Flow (vph)	180	630	131	60	350	19	160	2519	0	80	2600	203
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	13.8	31.8	31.8	7.0	25.0	25.0	12.1	57.4		7.8	53.1	53.1
Effective Green, g (s)	13.8	31.8	31.8	7.0	25.0	25.0	12.1	57.4		7.8	53.1	53.1
Actuated g/C Ratio	0.12	0.27	0.27	0.06	0.21	0.21	0.10	0.48		0.06	0.44	0.44
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	204	938	419	103	388	330	178	3059		115	2836	700
v/s Ratio Prot	c0.10	0.18		0.03	c0.19		c0.09	0.39		0.05	c0.41	
v/s Ratio Perm			0.08			0.01						0.13
v/c Ratio	0.88	0.67	0.31	0.58	0.90	0.06	0.90	0.82		0.70	0.92	0.29
Uniform Delay, d1	52.3	39.4	35.4	55.1	46.3	38.1	53.3	26.9		54.9	31.4	21.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.48	0.35		1.14	0.69	1.07
Incremental Delay, d2	33.0	1.9	0.4	8.1	23.4	0.1	34.9	2.2		1.7	0.6	0.1
Delay (s)	85.3	41.3	35.8	63.2	69.7	38.1	113.7	11.6		64.1	22.3	23.1
Level of Service	F	D	D	E	E	D	F	B		E	C	C
Approach Delay (s)		47.4			63.3			17.7			23.5	
Approach LOS		D			E			B			C	

Intersection Summary

HCM Average Control Delay	27.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
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	0.97	0.95		1.00	0.91	1.00	1.00	1.00		0.97	1.00	0.88
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3529		1770	5085	1583	1770	1723		3433	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3529		1770	5085	1583	1770	1723		3433	1863	2787
Volume (vph)	730	2130	40	20	1570	330	20	50	50	370	60	950
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	730	2130	40	20	1570	330	20	50	50	370	60	950
RTOR Reduction (vph)	0	1	0	0	0	115	0	31	0	0	0	544
Lane Group Flow (vph)	730	2169	0	20	1570	215	20	69	0	370	60	406
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	26.5	72.9		1.5	47.9	47.9	1.5	13.2		13.1	24.8	24.8
Effective Green, g (s)	26.5	72.9		1.5	47.9	47.9	1.5	13.2		13.1	24.8	24.8
Actuated g/C Ratio	0.23	0.62		0.01	0.41	0.41	0.01	0.11		0.11	0.21	0.21
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)	780	2204		23	2087	650	23	195		385	396	592
v/s Ratio Prot	c0.21	c0.61		0.01	0.31		0.01	0.04		c0.11	0.03	
v/s Ratio Perm						0.14						c0.15
v/c Ratio	0.94	0.98		0.87	0.75	0.33	0.87	0.35		0.96	0.15	0.69
Uniform Delay, d1	44.3	21.3		57.5	29.3	23.5	57.5	47.8		51.5	37.4	42.4
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	18.3	15.5		127.6	1.6	0.3	127.6	1.1		35.6	0.2	3.3
Delay (s)	62.6	36.8		185.1	30.9	23.8	185.1	48.9		87.2	37.6	45.6
Level of Service	E	D		F	C	C	F	D		F	D	D
Approach Delay (s)		43.3			31.3			71.6			56.4	
Approach LOS		D			C			E			E	

Intersection Summary

HCM Average Control Delay	43.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	116.7	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.86		1.00	0.86	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	6278		1770	6408	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	6278		1770	6408	1583
Volume (vph)	350	1210	190	370	760	70	200	1530	240	300	1840	310
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	350	1210	190	370	760	70	200	1530	240	300	1840	310
RTOR Reduction (vph)	0	0	142	0	0	54	0	23	0	0	0	189
Lane Group Flow (vph)	350	1210	48	370	760	16	200	1747	0	300	1840	121
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	16.6	30.0	30.0	14.0	27.4	27.4	16.1	37.7		22.3	43.9	43.9
Effective Green, g (s)	16.6	30.0	30.0	14.0	27.4	27.4	16.1	37.7		22.3	43.9	43.9
Actuated g/C Ratio	0.14	0.25	0.25	0.12	0.23	0.23	0.13	0.31		0.19	0.37	0.37
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	475	1271	396	401	1161	361	237	1972		329	2344	579
v/s Ratio Prot	0.10	c0.24		c0.11	0.15		0.11	c0.28		c0.17	0.29	
v/s Ratio Perm			0.03			0.01						0.08
v/c Ratio	0.74	0.95	0.12	0.92	0.65	0.04	0.84	0.89		0.91	0.78	0.21
Uniform Delay, d1	49.6	44.3	34.8	52.5	42.0	36.1	50.7	39.1		47.9	33.9	26.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.04	1.32	3.87
Incremental Delay, d2	5.9	15.2	0.1	26.5	1.3	0.1	23.0	6.3		16.9	1.4	0.4
Delay (s)	55.5	59.5	34.9	79.0	43.3	36.1	73.7	45.4		66.6	46.0	101.4
Level of Service	E	E	C	E	D	D	E	D		E	D	F
Approach Delay (s)		56.0			53.9			48.3			55.6	
Approach LOS		E			D			D			E	

Intersection Summary

HCM Average Control Delay	53.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.86	1.00	1.00	0.86	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	6408	1583	1770	6408	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	1770	6408	1583	1770	6408	1583
Volume (vph)	350	1210	190	370	760	70	200	1530	240	300	1840	310
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	350	1210	190	370	760	70	200	1530	240	300	1840	310
RTOR Reduction (vph)	0	0	141	0	0	53	0	0	170	0	0	189
Lane Group Flow (vph)	350	1210	49	370	760	17	200	1530	70	300	1840	122
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	16.6	31.0	31.0	14.9	29.3	29.3	16.1	35.2	35.2	22.9	42.0	42.0
Effective Green, g (s)	16.6	31.0	31.0	14.9	29.3	29.3	16.1	35.2	35.2	22.9	42.0	42.0
Actuated g/C Ratio	0.14	0.26	0.26	0.12	0.24	0.24	0.13	0.29	0.29	0.19	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	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	3.0	3.0
Lane Grp Cap (vph)	475	1314	409	426	1242	387	237	1880	464	338	2243	554
v/s Ratio Prot	0.10	c0.24		c0.11	0.15		0.11	0.24		c0.17	c0.29	
v/s Ratio Perm			0.03			0.01			0.04			0.08
v/c Ratio	0.74	0.92	0.12	0.87	0.61	0.04	0.84	0.81	0.15	0.89	0.82	0.22
Uniform Delay, d1	49.6	43.3	34.1	51.6	40.3	34.7	50.7	39.4	31.4	47.3	35.6	27.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.40	4.29
Incremental Delay, d2	5.9	10.7	0.1	16.9	0.9	0.0	23.0	4.0	0.7	15.2	2.1	0.5
Delay (s)	55.5	54.0	34.2	68.4	41.2	34.7	73.7	43.4	32.1	64.9	51.9	118.4
Level of Service	E	D	C	E	D	C	E	D	C	E	D	F
Approach Delay (s)		52.1			49.2			45.1			61.9	
Approach LOS		D			D			D			E	

Intersection Summary

HCM Average Control Delay	53.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95		1.00	0.86		1.00	0.86	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3457		1770	6374		1770	6316	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3457		1770	6374		1770	6316	
Volume (vph)	180	780	210	110	600	110	190	1640	60	200	2090	220
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	180	780	210	110	600	110	190	1640	60	200	2090	220
RTOR Reduction (vph)	0	0	156	0	12	0	0	4	0	0	14	0
Lane Group Flow (vph)	180	780	54	110	698	0	190	1696	0	200	2296	0
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	14.4	31.0	31.0	9.7	26.3		14.6	47.2		16.1	48.7	
Effective Green, g (s)	14.4	31.0	31.0	9.7	26.3		14.6	47.2		16.1	48.7	
Actuated g/C Ratio	0.12	0.26	0.26	0.08	0.22		0.12	0.39		0.13	0.41	
Clearance Time (s)	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	
Lane Grp Cap (vph)	212	914	409	143	758		215	2507		237	2563	
v/s Ratio Prot	c0.10	c0.22		0.06	0.20		0.11	0.27		c0.11	c0.36	
v/s Ratio Perm			0.03									
v/c Ratio	0.85	0.85	0.13	0.77	0.92		0.88	0.68		0.84	0.90	
Uniform Delay, d1	51.7	42.3	34.2	54.1	45.8		51.9	30.1		50.7	33.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	25.8	7.8	0.1	21.7	16.4		31.9	1.5		23.0	5.4	
Delay (s)	77.5	50.1	34.3	75.7	62.2		83.8	31.6		73.7	38.7	
Level of Service	E	D	C	E	E		F	C		E	D	
Approach Delay (s)		51.5			64.0			36.8			41.5	
Approach LOS		D			E			D			D	

Intersection Summary

HCM Average Control Delay	44.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.86	1.00	1.00	0.86	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	6408	1583	1770	6308	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1770	6408	1583	1770	6308	
Volume (vph)	100	500	170	260	460	170	320	1580	170	290	1890	220
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	100	500	170	260	460	170	320	1580	170	290	1890	220
RTOR Reduction (vph)	0	0	142	0	0	136	0	0	101	0	16	0
Lane Group Flow (vph)	100	500	28	260	460	34	320	1580	69	290	2094	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	6.9	19.5	19.5	11.7	24.3	24.3	24.6	49.0	49.0	23.8	48.2	
Effective Green, g (s)	6.9	19.5	19.5	11.7	24.3	24.3	24.6	49.0	49.0	23.8	48.2	
Actuated g/C Ratio	0.06	0.16	0.16	0.10	0.20	0.20	0.21	0.41	0.41	0.20	0.40	
Clearance Time (s)	4.0	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	3.0	
Lane Grp Cap (vph)	197	575	257	335	717	321	363	2617	646	351	2534	
v/s Ratio Prot	0.03	c0.14		c0.08	0.13		c0.18	0.25		0.16	c0.33	
v/s Ratio Perm			0.02			0.02			0.04			
v/c Ratio	0.51	0.87	0.11	0.78	0.64	0.11	0.88	0.60	0.11	0.83	0.83	
Uniform Delay, d1	54.9	49.0	42.8	52.9	43.9	39.0	46.3	27.9	22.0	46.1	32.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.1	13.2	0.2	10.7	2.0	0.1	21.3	1.0	0.3	14.6	3.2	
Delay (s)	57.0	62.2	43.0	63.6	45.8	39.2	67.6	28.9	22.3	60.7	35.4	
Level of Service	E	E	D	E	D	D	E	C	C	E	D	
Approach Delay (s)		57.3			49.7			34.4			38.5	
Approach LOS		E			D			C			D	

Intersection Summary

HCM Average Control Delay	41.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95	1.00	0.97	0.91		0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	5040		3433	5022	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	5040		3433	5022	
Volume (vph)	200	590	250	130	420	150	160	1410	90	250	1220	110
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	200	590	250	130	420	150	160	1410	90	250	1220	110
RTOR Reduction (vph)	0	0	185	0	0	125	0	6	0	0	8	0
Lane Group Flow (vph)	200	590	65	130	420	25	160	1494	0	250	1322	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	18.0	24.9	24.9	13.3	20.2	20.2	9.7	52.9		12.9	56.1	
Effective Green, g (s)	18.0	24.9	24.9	13.3	20.2	20.2	9.7	52.9		12.9	56.1	
Actuated g/C Ratio	0.15	0.21	0.21	0.11	0.17	0.17	0.08	0.44		0.11	0.47	
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)	266	734	328	196	596	266	278	2222		369	2348	
v/s Ratio Prot	c0.11	c0.17		0.07	0.12		0.05	c0.30		c0.07	c0.26	
v/s Ratio Perm			0.04			0.02						
v/c Ratio	0.75	0.80	0.20	0.66	0.70	0.09	0.58	0.67		0.68	0.56	
Uniform Delay, d1	48.9	45.2	39.3	51.2	47.1	42.2	53.2	26.7		51.5	23.1	
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	11.4	6.4	0.3	8.2	3.8	0.2	2.9	1.6		4.9	1.0	
Delay (s)	60.2	51.6	39.6	59.4	50.9	42.3	56.0	28.3		56.4	24.1	
Level of Service	E	D	D	E	D	D	E	C		E	C	
Approach Delay (s)		50.4			50.6			31.0			29.2	
Approach LOS		D			D			C			C	

Intersection Summary

HCM Average Control Delay	37.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	5085	1583
Volume (vph)	200	590	250	130	420	150	160	1410	90	250	1220	110
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	200	590	250	130	420	150	160	1410	90	250	1220	110
RTOR Reduction (vph)	0	0	201	0	0	127	0	0	53	0	0	62
Lane Group Flow (vph)	200	590	49	130	420	23	160	1410	37	250	1220	48
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	17.3	23.5	23.5	12.5	18.7	18.7	15.3	47.4	47.4	20.6	52.7	52.7
Effective Green, g (s)	17.3	23.5	23.5	12.5	18.7	18.7	15.3	47.4	47.4	20.6	52.7	52.7
Actuated g/C Ratio	0.14	0.20	0.20	0.10	0.16	0.16	0.13	0.39	0.39	0.17	0.44	0.44
Clearance Time (s)	4.0	4.0	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	3.0	3.0
Lane Grp Cap (vph)	255	693	310	184	551	247	226	2009	625	304	2233	695
v/s Ratio Prot	c0.11	c0.17		0.07	0.12		0.09	c0.28		c0.14	0.24	
v/s Ratio Perm			0.03			0.01			0.02			0.03
v/c Ratio	0.78	0.85	0.16	0.71	0.76	0.09	0.71	0.70	0.06	0.82	0.55	0.07
Uniform Delay, d1	49.5	46.6	40.0	52.0	48.5	43.4	50.2	30.4	22.5	47.9	24.8	19.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.6	9.9	0.2	11.7	6.2	0.2	9.7	2.1	0.2	16.2	1.0	0.2
Delay (s)	64.1	56.4	40.3	63.7	54.7	43.6	59.9	32.5	22.7	64.2	25.8	19.7
Level of Service	E	E	D	E	D	D	E	C	C	E	C	B
Approach Delay (s)		54.0			54.0			34.6			31.4	
Approach LOS		D			D			C			C	

Intersection Summary

HCM Average Control Delay	40.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	4987		1770	5021	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	4987		1770	5021	
Volume (vph)	180	510	250	220	440	150	130	1210	180	100	1200	110
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	180	510	250	220	440	150	130	1210	180	100	1200	110
RTOR Reduction (vph)	0	0	203	0	0	119	0	14	0	0	8	0
Lane Group Flow (vph)	180	510	47	220	440	31	130	1376	0	100	1302	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	16.7	22.4	22.4	19.2	24.9	24.9	13.3	51.3		11.1	49.1	
Effective Green, g (s)	16.7	22.4	22.4	19.2	24.9	24.9	13.3	51.3		11.1	49.1	
Actuated g/C Ratio	0.14	0.19	0.19	0.16	0.21	0.21	0.11	0.43		0.09	0.41	
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)	246	661	295	283	734	328	196	2132		164	2054	
v/s Ratio Prot	0.10	c0.14		c0.12	0.12		c0.07	c0.28		0.06	0.26	
v/s Ratio Perm			0.03			0.02						
v/c Ratio	0.73	0.77	0.16	0.78	0.60	0.09	0.66	0.65		0.61	0.63	
Uniform Delay, d1	49.5	46.4	40.9	48.3	43.0	38.4	51.2	27.2		52.4	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	10.7	5.6	0.3	12.6	1.3	0.1	8.2	1.5		6.3	1.5	
Delay (s)	60.2	51.9	41.2	60.9	44.4	38.6	59.4	28.7		58.7	29.8	
Level of Service	E	D	D	E	D	D	E	C		E	C	
Approach Delay (s)		50.6			47.8			31.3			31.8	
Approach LOS		D			D			C			C	

Intersection Summary

HCM Average Control Delay	38.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
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	0.97	0.95	0.95	1.00	0.97	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)	3433	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	3433	1583
Volume (vph)	480	1970	1490	260	330	430
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	480	1970	1490	260	330	430
RTOR Reduction (vph)	0	0	0	113	0	15
Lane Group Flow (vph)	480	1970	1490	147	330	415
Turn Type	Prot			Perm		pm+ov
Protected Phases	7	4	8		6	7
Permitted Phases				8		6
Actuated Green, G (s)	18.8	68.6	45.8	45.8	13.7	32.5
Effective Green, g (s)	18.8	68.6	45.8	45.8	13.7	32.5
Actuated g/C Ratio	0.21	0.76	0.51	0.51	0.15	0.36
Clearance Time (s)	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
Lane Grp Cap (vph)	715	2689	1795	803	521	640
v/s Ratio Prot	0.14	c0.56	c0.42		0.10	c0.14
v/s Ratio Perm				0.09		0.13
v/c Ratio	0.67	0.73	0.83	0.18	0.63	0.65
Uniform Delay, d1	32.9	5.9	18.9	12.1	35.9	24.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.5	1.1	3.4	0.1	2.5	2.3
Delay (s)	35.4	6.9	22.4	12.2	38.5	26.4
Level of Service	D	A	C	B	D	C
Approach Delay (s)		12.5	20.8		31.6	
Approach LOS		B	C		C	

Intersection Summary

HCM Average Control Delay	18.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	90.3	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0	4.0
Lane Util. Factor	0.97	*0.91	1.00	1.00	0.91	1.00	0.97	*0.86	1.00	*0.97	0.86	0.88
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	1770	5085	1583	3433	6408	1583	3433	6408	2787
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	1770	5085	1583	3433	6408	1583	3433	6408	2787
Volume (vph)	400	800	310	270	690	280	600	2700	710	400	2580	940
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	400	800	310	270	690	280	600	2700	710	400	2580	940
RTOR Reduction (vph)	0	0	245	0	0	173	0	0	222	0	0	360
Lane Group Flow (vph)	400	800	65	270	690	107	600	2700	488	400	2580	580
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	16.5	18.0	18.0	18.0	19.5	19.5	20.0	53.0	53.0	15.0	48.0	48.0
Effective Green, g (s)	16.5	18.0	18.0	18.0	19.5	19.5	20.0	53.0	53.0	15.0	48.0	48.0
Actuated g/C Ratio	0.14	0.15	0.15	0.15	0.16	0.16	0.17	0.44	0.44	0.12	0.40	0.40
Clearance Time (s)	4.0	4.0	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	3.0	3.0
Lane Grp Cap (vph)	472	763	237	266	826	257	572	2830	699	429	2563	1115
v/s Ratio Prot	0.12	c0.16		c0.15	0.14		0.17	c0.42		0.12	c0.40	
v/s Ratio Perm			0.04			0.07			0.31			0.21
v/c Ratio	0.85	1.05	0.28	1.02	0.84	0.41	1.05	0.95	0.70	0.93	1.01	0.52
Uniform Delay, d1	50.5	51.0	45.2	51.0	48.7	45.1	50.0	32.3	27.1	52.0	36.0	27.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.56	0.33	0.09	1.11	1.08	1.52
Incremental Delay, d2	13.2	46.0	0.6	59.1	7.3	1.1	41.8	5.7	3.2	22.0	16.9	1.3
Delay (s)	63.7	97.0	45.8	110.1	56.0	46.2	69.6	16.3	5.8	79.7	55.8	42.6
Level of Service	E	F	D	F	E	D	E	B	A	E	E	D
Approach Delay (s)		77.7			65.6			22.4			55.1	
Approach LOS		E			E			C			E	

Intersection Summary

HCM Average Control Delay	47.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	1.00	1.00	0.97	0.86		1.00	0.86	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	1863	1583	3433	6394		1770	6303	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	1863	1583	3433	6394		1770	6303	
Volume (vph)	320	470	180	60	420	120	220	2720	40	160	2610	320
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	320	470	180	60	420	120	220	2720	40	160	2610	320
RTOR Reduction (vph)	0	0	114	0	0	94	0	2	0	0	18	0
Lane Group Flow (vph)	320	470	66	60	420	26	220	2758	0	160	2912	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	20.8	38.8	38.8	7.0	25.0	25.0	7.0	49.2		9.0	51.2	
Effective Green, g (s)	20.8	38.8	38.8	7.0	25.0	25.0	7.0	49.2		9.0	51.2	
Actuated g/C Ratio	0.17	0.32	0.32	0.06	0.21	0.21	0.06	0.41		0.08	0.43	
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)	307	1144	512	103	388	330	200	2622		133	2689	
v/s Ratio Prot	c0.18	0.13		0.03	c0.23		0.06	0.43		c0.09	c0.46	
v/s Ratio Perm			0.04			0.02						
v/c Ratio	1.04	0.41	0.13	0.58	1.08	0.08	1.10	1.05		1.20	1.08	
Uniform Delay, d1	49.6	31.7	28.7	55.1	47.5	38.2	56.5	35.4		55.5	34.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.64	0.46		0.68	0.18	
Incremental Delay, d2	62.8	0.2	0.1	8.1	69.6	0.1	65.2	26.9		110.1	39.6	
Delay (s)	112.4	31.9	28.8	63.2	117.1	38.3	101.4	43.2		148.0	45.7	
Level of Service	F	C	C	E	F	D	F	D		F	D	
Approach Delay (s)		57.9			95.9			47.5			51.0	
Approach LOS		E			F			D			D	

Intersection Summary

HCM Average Control Delay	54.0	HCM Level of Service	D
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.86		1.00	0.86	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	1863	1583	1770	6394		1770	6408	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	1770	1863	1583	1770	6394		1770	6408	1583
Volume (vph)	320	470	180	60	420	120	220	2720	40	160	2610	320
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	320	470	180	60	420	120	220	2720	40	160	2610	320
RTOR Reduction (vph)	0	0	122	0	0	94	0	2	0	0	0	141
Lane Group Flow (vph)	320	470	58	60	420	26	220	2758	0	160	2610	179
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	20.8	38.8	38.8	7.0	25.0	25.0	11.0	48.2		10.0	47.2	47.2
Effective Green, g (s)	20.8	38.8	38.8	7.0	25.0	25.0	11.0	48.2		10.0	47.2	47.2
Actuated g/C Ratio	0.17	0.32	0.32	0.06	0.21	0.21	0.09	0.40		0.08	0.39	0.39
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	307	1144	512	103	388	330	162	2568		148	2520	623
v/s Ratio Prot	c0.18	0.13		0.03	c0.23		c0.12	c0.43		0.09	0.41	
v/s Ratio Perm			0.04			0.02						0.11
v/c Ratio	1.04	0.41	0.11	0.58	1.08	0.08	1.36	1.07		1.08	1.04	0.29
Uniform Delay, d1	49.6	31.7	28.5	55.1	47.5	38.2	54.5	35.9		55.0	36.4	24.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.62	0.41		0.62	0.43	0.17
Incremental Delay, d2	62.8	0.2	0.1	8.1	69.6	0.1	175.8	36.8		71.2	22.3	0.5
Delay (s)	112.4	31.9	28.6	63.2	117.1	38.3	209.6	51.4		105.2	38.1	4.7
Level of Service	F	C	C	E	F	D	F	D		F	D	A
Approach Delay (s)		57.9			95.9			63.1			38.1	
Approach LOS		E			F			E			D	

Intersection Summary

HCM Average Control Delay	54.9	HCM Level of Service	D
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
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	0.97	0.95		1.00	0.91	1.00	1.00	1.00		0.97	1.00	0.88
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3535		1770	5085	1583	1770	1793		3433	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3535		1770	5085	1583	1770	1793		3433	1863	2787
Volume (vph)	880	1300	10	10	1780	410	10	60	20	340	40	870
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	880	1300	10	10	1780	410	10	60	20	340	40	870
RTOR Reduction (vph)	0	0	0	0	0	126	0	11	0	0	0	611
Lane Group Flow (vph)	880	1310	0	10	1780	284	10	69	0	340	40	259
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8						6
Actuated Green, G (s)	31.0	76.6		0.8	46.4	46.4	0.8	13.6		12.0	24.8	24.8
Effective Green, g (s)	31.0	76.6		0.8	46.4	46.4	0.8	13.6		12.0	24.8	24.8
Actuated g/C Ratio	0.26	0.64		0.01	0.39	0.39	0.01	0.11		0.10	0.21	0.21
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)	894	2275		12	1983	617	12	205		346	388	581
v/s Ratio Prot	c0.26	0.37		0.01	c0.35		0.01	0.04		c0.10	0.02	
v/s Ratio Perm						0.18						c0.09
v/c Ratio	0.98	0.58		0.83	0.90	0.46	0.83	0.34		0.98	0.10	0.45
Uniform Delay, d1	43.8	12.0		59.0	34.1	27.0	59.0	48.6		53.4	38.1	41.1
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	26.1	0.4		168.3	5.8	0.5	168.3	1.0		43.4	0.1	0.5
Delay (s)	69.8	12.4		227.3	39.9	27.5	227.3	49.5		96.8	38.2	41.6
Level of Service	E	B		F	D	C	F	D		F	D	D
Approach Delay (s)		35.4			38.4			69.3			56.6	
Approach LOS		D			D			E			E	

Intersection Summary

HCM Average Control Delay	41.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	119.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.86		0.97	0.86	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	6319		3433	6408	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	6319		3433	6408	1583
Volume (vph)	430	1160	290	320	1210	300	380	2450	250	290	2100	480
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	430	1160	290	320	1210	300	380	2450	250	290	2100	480
RTOR Reduction (vph)	0	0	190	0	0	118	0	14	0	0	0	189
Lane Group Flow (vph)	430	1160	100	320	1210	182	380	2686	0	290	2100	291
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	15.0	31.0	31.0	12.0	28.0	28.0	15.6	51.0		10.0	45.4	45.4
Effective Green, g (s)	15.0	31.0	31.0	12.0	28.0	28.0	15.6	51.0		10.0	45.4	45.4
Actuated g/C Ratio	0.12	0.26	0.26	0.10	0.23	0.23	0.13	0.42		0.08	0.38	0.38
Clearance Time (s)	4.0	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	3.0
Lane Grp Cap (vph)	429	1314	409	343	1187	369	446	2686		286	2424	599
v/s Ratio Prot	0.13	c0.23		0.09	c0.24		0.11	c0.43		0.08	c0.33	
v/s Ratio Perm			0.06			0.11						0.18
v/c Ratio	1.00	0.88	0.24	0.93	1.02	0.49	0.85	1.00		1.01	0.87	0.49
Uniform Delay, d1	52.5	42.8	35.2	53.6	46.0	39.9	51.1	34.5		55.0	34.5	28.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.66	0.48	0.19
Incremental Delay, d2	44.0	7.3	0.3	31.6	31.1	1.0	14.5	17.4		36.7	1.8	1.1
Delay (s)	96.5	50.1	35.5	85.2	77.1	40.9	65.6	51.9		72.7	18.2	6.4
Level of Service	F	D	D	F	E	D	E	D		E	B	A
Approach Delay (s)		58.5			72.6			53.6			21.8	
Approach LOS		E			E			D			C	

Intersection Summary

HCM Average Control Delay	48.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.86	1.00	0.97	0.86	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	6408	1583	3433	6408	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	6408	1583	3433	6408	1583
Volume (vph)	430	1160	290	320	1210	300	380	2450	250	290	2100	480
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	430	1160	290	320	1210	300	380	2450	250	290	2100	480
RTOR Reduction (vph)	0	0	168	0	0	130	0	0	116	0	0	201
Lane Group Flow (vph)	430	1160	122	320	1210	170	380	2450	134	290	2100	279
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	16.0	31.3	31.3	13.7	29.0	29.0	14.0	48.0	48.0	11.0	45.0	45.0
Effective Green, g (s)	16.0	31.3	31.3	13.7	29.0	29.0	14.0	48.0	48.0	11.0	45.0	45.0
Actuated g/C Ratio	0.13	0.26	0.26	0.11	0.24	0.24	0.12	0.40	0.40	0.09	0.38	0.38
Clearance Time (s)	4.0	4.0	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	3.0	3.0
Lane Grp Cap (vph)	458	1326	413	392	1229	383	401	2563	633	315	2403	594
v/s Ratio Prot	0.13	c0.23		0.09	c0.24		0.11	c0.38		0.08	c0.33	
v/s Ratio Perm			0.08			0.11			0.08			0.18
v/c Ratio	0.94	0.87	0.30	0.82	0.98	0.44	0.95	0.96	0.21	0.92	0.87	0.47
Uniform Delay, d1	51.5	42.5	35.5	51.9	45.3	38.6	52.6	35.0	23.6	54.1	34.9	28.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.51	0.27	0.04
Incremental Delay, d2	27.0	6.7	0.4	12.4	21.8	0.8	31.5	10.1	0.8	16.3	2.1	1.1
Delay (s)	78.5	49.2	35.9	64.3	67.1	39.5	84.1	45.1	24.4	43.9	11.3	2.2
Level of Service	E	D	D	E	E	D	F	D	C	D	B	A
Approach Delay (s)		53.9			62.1			48.2			13.1	
Approach LOS		D			E			D			B	

Intersection Summary

HCM Average Control Delay	41.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95		1.00	0.86		1.00	0.86	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3425		1770	6355		1770	6311	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3425		1770	6355		1770	6311	
Volume (vph)	230	730	210	190	620	170	230	2220	130	210	1870	210
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	230	730	210	190	620	170	230	2220	130	210	1870	210
RTOR Reduction (vph)	0	0	158	0	21	0	0	7	0	0	16	0
Lane Group Flow (vph)	230	730	53	190	769	0	230	2343	0	210	2064	0
Turn Type	Prot		Perm	Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4									
Actuated Green, G (s)	15.0	30.0	30.0	13.0	28.0		16.0	46.0		15.0	45.0	
Effective Green, g (s)	15.0	30.0	30.0	13.0	28.0		16.0	46.0		15.0	45.0	
Actuated g/C Ratio	0.12	0.25	0.25	0.11	0.23		0.13	0.38		0.12	0.38	
Clearance Time (s)	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	
Lane Grp Cap (vph)	221	885	396	192	799		236	2436		221	2367	
v/s Ratio Prot	c0.13	0.21		0.11	c0.22		c0.13	c0.37		0.12	0.33	
v/s Ratio Perm			0.03									
v/c Ratio	1.04	0.82	0.13	0.99	0.96		0.97	0.96		0.95	0.87	
Uniform Delay, d1	52.5	42.5	34.9	53.4	45.5		51.8	36.1		52.1	34.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	71.6	6.3	0.2	61.3	23.0		51.0	11.3		46.5	4.8	
Delay (s)	124.1	48.8	35.1	114.7	68.5		102.8	47.4		98.6	39.6	
Level of Service	F	D	D	F	E		F	D		F	D	
Approach Delay (s)		61.2			77.4			52.3			45.0	
Approach LOS		E			E			D			D	

Intersection Summary

HCM Average Control Delay	54.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.86	1.00	1.00	0.86	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	1770	6408	1583	1770	6340	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	1770	6408	1583	1770	6340	
Volume (vph)	220	530	220	300	530	410	220	2160	330	330	2110	160
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	220	530	220	300	530	410	220	2160	330	330	2110	160
RTOR Reduction (vph)	0	0	184	0	0	255	0	0	168	0	9	0
Lane Group Flow (vph)	220	530	36	300	530	155	220	2160	162	330	2261	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	9.9	19.7	19.7	12.0	21.8	21.8	17.7	47.6	47.6	24.7	54.6	
Effective Green, g (s)	9.9	19.7	19.7	12.0	21.8	21.8	17.7	47.6	47.6	24.7	54.6	
Actuated g/C Ratio	0.08	0.16	0.16	0.10	0.18	0.18	0.15	0.40	0.40	0.21	0.46	
Clearance Time (s)	4.0	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	3.0	
Lane Grp Cap (vph)	283	581	260	343	643	288	261	2542	628	364	2885	
v/s Ratio Prot	0.06	c0.15		c0.09	0.15		0.12	c0.34		c0.19	0.36	
v/s Ratio Perm			0.02			0.10			0.10			
v/c Ratio	0.78	0.91	0.14	0.87	0.82	0.54	0.84	0.85	0.26	0.91	0.78	
Uniform Delay, d1	54.0	49.3	42.9	53.3	47.3	44.5	49.8	32.9	24.3	46.5	27.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	12.6	18.7	0.2	21.1	8.4	1.9	21.2	3.8	1.0	25.2	2.2	
Delay (s)	66.6	68.0	43.1	74.4	55.7	46.4	71.0	36.7	25.3	71.7	29.9	
Level of Service	E	E	D	E	E	D	E	D	C	E	C	
Approach Delay (s)		62.0			57.2			38.1			35.2	
Approach LOS		E			E			D			D	

Intersection Summary

HCM Average Control Delay	43.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95	1.00	0.97	0.91		0.97	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	3433	5001		3433	4997	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	3433	5001		3433	4997	
Volume (vph)	310	520	360	260	620	190	350	1680	210	320	1610	210
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	310	520	360	260	620	190	350	1680	210	320	1610	210
RTOR Reduction (vph)	0	0	169	0	0	155	0	13	0	0	14	0
Lane Group Flow (vph)	310	520	191	260	620	35	350	1877	0	320	1806	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	22.0	23.7	23.7	20.4	22.1	22.1	13.0	47.9		12.0	46.9	
Effective Green, g (s)	22.0	23.7	23.7	20.4	22.1	22.1	13.0	47.9		12.0	46.9	
Actuated g/C Ratio	0.18	0.20	0.20	0.17	0.18	0.18	0.11	0.40		0.10	0.39	
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)	325	699	313	301	652	292	372	1996		343	1953	
v/s Ratio Prot	c0.18	0.15		0.15	c0.18		c0.10	c0.38		0.09	0.36	
v/s Ratio Perm			0.12			0.02						
v/c Ratio	0.95	0.74	0.61	0.86	0.95	0.12	0.94	0.94		0.93	0.92	
Uniform Delay, d1	48.5	45.3	44.0	48.4	48.4	40.8	53.1	34.7		53.6	34.9	
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	37.5	4.3	3.5	21.7	23.7	0.2	31.7	10.3		31.6	9.0	
Delay (s)	86.0	49.6	47.5	70.2	72.1	41.0	84.9	44.9		85.2	43.8	
Level of Service	F	D	D	E	E	D	F	D		F	D	
Approach Delay (s)		58.4			66.1			51.2			50.0	
Approach LOS		E			E			D			D	

Intersection Summary

HCM Average Control Delay	54.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	4997	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	5085	1583	1770	4997	
Volume (vph)	310	520	360	260	620	190	350	1680	210	320	1610	210
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	310	520	360	260	620	190	350	1680	210	320	1610	210
RTOR Reduction (vph)	0	0	260	0	0	158	0	0	112	0	14	0
Lane Group Flow (vph)	310	520	100	260	620	32	350	1680	98	320	1806	0
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	20.0	22.0	22.0	18.0	20.0	20.0	22.0	42.0	42.0	22.0	42.0	
Effective Green, g (s)	20.0	22.0	22.0	18.0	20.0	20.0	22.0	42.0	42.0	22.0	42.0	
Actuated g/C Ratio	0.17	0.18	0.18	0.15	0.17	0.17	0.18	0.35	0.35	0.18	0.35	
Clearance Time (s)	4.0	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	3.0	
Lane Grp Cap (vph)	295	649	290	266	590	264	325	1780	554	325	1749	
v/s Ratio Prot	c0.18	0.15		0.15	c0.18		c0.20	0.33		0.18	c0.36	
v/s Ratio Perm			0.06			0.02			0.06			
v/c Ratio	1.05	0.80	0.35	0.98	1.05	0.12	1.08	0.94	0.18	0.98	1.03	
Uniform Delay, d1	50.0	46.9	42.7	50.8	50.0	42.5	49.0	37.9	27.0	48.8	39.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	66.4	7.0	0.7	48.4	51.1	0.2	71.9	11.6	0.7	45.4	30.5	
Delay (s)	116.4	54.0	43.4	99.2	101.1	42.7	120.9	49.5	27.7	94.2	69.5	
Level of Service	F	D	D	F	F	D	F	D	C	F	E	
Approach Delay (s)		67.0			90.3			58.6			73.2	
Approach LOS		E			F			E			E	

Intersection Summary

HCM Average Control Delay	69.9	HCM Level of Service	E
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
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	1.00	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	4970		1770	5006	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	4970		1770	5006	
Volume (vph)	200	580	110	130	570	150	260	1800	320	210	1550	180
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	200	580	110	130	570	150	260	1800	320	210	1550	180
RTOR Reduction (vph)	0	0	87	0	0	125	0	21	0	0	12	0
Lane Group Flow (vph)	200	580	23	130	570	25	260	2099	0	210	1718	0
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8						
Actuated Green, G (s)	14.4	25.0	25.0	9.4	20.0	20.0	20.4	54.6		15.0	49.2	
Effective Green, g (s)	14.4	25.0	25.0	9.4	20.0	20.0	20.4	54.6		15.0	49.2	
Actuated g/C Ratio	0.12	0.21	0.21	0.08	0.17	0.17	0.17	0.46		0.12	0.41	
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)	212	737	330	139	590	264	301	2261		221	2052	
v/s Ratio Prot	c0.11	0.16		0.07	c0.16		c0.15	c0.42		0.12	0.34	
v/s Ratio Perm			0.01			0.02						
v/c Ratio	0.94	0.79	0.07	0.94	0.97	0.09	0.86	0.93		0.95	0.84	
Uniform Delay, d1	52.4	45.0	38.2	55.0	49.7	42.3	48.4	30.9		52.1	31.8	
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	45.8	5.6	0.1	56.5	28.4	0.2	21.7	8.2		46.5	4.3	
Delay (s)	98.1	50.5	38.2	111.5	78.1	42.5	70.2	39.1		98.6	36.1	
Level of Service	F	D	D	F	E	D	E	D		F	D	
Approach Delay (s)		59.7			76.9			42.5			42.8	
Approach LOS		E			E			D			D	

Intersection Summary

HCM Average Control Delay	50.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
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	0.97	0.95	0.95	1.00	0.97	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)	3433	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	3539	3539	1583	3433	1583
Volume (vph)	760	2040	1760	320	330	590
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	760	2040	1760	320	330	590
RTOR Reduction (vph)	0	0	0	114	0	7
Lane Group Flow (vph)	760	2040	1760	206	330	583
Turn Type	Prot			Perm		pm+ov
Protected Phases	7	4	8		6	7
Permitted Phases				8		6
Actuated Green, G (s)	27.5	91.9	60.4	60.4	15.1	42.6
Effective Green, g (s)	27.5	91.9	60.4	60.4	15.1	42.6
Actuated g/C Ratio	0.24	0.80	0.53	0.53	0.13	0.37
Clearance Time (s)	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
Lane Grp Cap (vph)	821	2828	1859	831	451	641
v/s Ratio Prot	0.22	0.58	c0.50		0.10	c0.22
v/s Ratio Perm				0.13		0.15
v/c Ratio	0.93	0.72	0.95	0.25	0.73	0.91
Uniform Delay, d1	42.8	5.5	25.8	14.9	48.0	34.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.1	0.9	10.7	0.2	6.0	16.8
Delay (s)	58.8	6.4	36.5	15.1	54.0	51.2
Level of Service	E	A	D	B	D	D
Approach Delay (s)		20.6	33.2		52.2	
Approach LOS		C	C		D	

Intersection Summary

HCM Average Control Delay	30.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	8.0
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX E

SUMMER TRAFFIC VOLUMES

1. Main St & PCH (Aug 2005)

Summer - Saturday (Aug. 2005)

	LANES	CAPACITY	NOON PK HOUR VOL	V/C
NBL	0	0	0	
NBT	0	0	0	
NBR	0	0	0	
SBL	1	1700	120	.07*
SBT	0	0	0	
SBR	1	1700	90	.05
EBL	1	1700	140	.08*
EBT	3	5100	1230	.24
EBR	0	0	0	
WBL	1	1700	50	.03
WBT	3	5100	1050	.21*
WBR	1	1700	180	.11
Clearance Interval				.05*

TOTAL CAPACITY UTILIZATION	**.41**
Pedestrian Cycle Length	.27
Total ICU	.68

2. Main St & PCH (March 2006)

Non-Summer - Weekday (March 2006)

	LANES	CAPACITY	AM PK HOUR VOL	V/C	PM PK HOUR VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1700	50	.03*	100	.06*
SBT	0	0	0		0	
SBR	1	1700	60	.04	80	.05
EBL	1	1700	50	.03	90	.05*
EBT	3	5100	2260	.44*	1140	.22
EBR	0	0	0		0	
WBL	1	1700	10	.01*	40	.02
WBT	3	5100	1460	.29	1600	.31*
WBR	1	1700	40	.02	120	.07
Clearance Interval				.05*		.05*

TOTAL CAPACITY UTILIZATION	**.53**	**.47**
Pedestrian Cycle Length	.27	.27
Total ICU	.80	.74

TRAFFIC DATA SERVICES, INC
SUMMARY OF VEHICULAR TURNING MOVEMENTS

N/S ST : MAIN ST
E/W ST: PACIFIC COAST HWY
CITY: HUNTINGTON BEACH

FILENAME: 0850501N
DATE: 8/13/05
DAY: SATURDAY

PERIOD BEGINS	NORTHBOUND NL	NT	NR	SOUTHBOUND SL	ST	SR	EASTBOUND EL	ET	ER	WESTBOUND WL	WT	WR	Total
LANES:				1		1	1	3		1	3	1	
10:00 AM													
15 AM													
30 AM													
45 AM													
11:00 AM				22		17	33	242		12	232	40	598
15 AM				20		26	22	258		6	262	52	646
30 AM				30		22	39	244		14	230	39	618
45 AM				32		28	21	270		8	211	48	618
12:00 PM				20		17	40	260		13	262	32	644
15 PM				31		23	38	308		16	249	41	706
30 PM				22		23	30	284		10	264	43	676
45 PM				35		23	33	305		13	249	45	703
1:00 PM				33		24	35	332		9	285	49	767
15 PM				36		22	28	302		8	233	33	662
30 PM				36		36	28	293		11	248	34	686
45 PM				32		30	17	265		25	274	28	671
2:00 PM													
15 PM													
30 PM													
45 PM													

PEAK HOUR BEGINS AT: PHF: 0.93
1215 PM

VOLUMES =	0	0	0	121	0	93	136	1229	0	48	1047	178	2852

COMMENTS: WL = U-TURN

TRAFFIC DATA SERVICES, INC. LOCATION CODE 08505.C01

LOCATION - PACIFIC COAST HWY-S/O WARNER VOLUMES FOR - FRIDAY 8/12/05

AM TIME	NB		SB		TOTAL		PM TIME	NB		SB		TOTAL	
12:00 - 12:15	-		-		-		12:00 - 12:15	-		-		-	
12:15 - 12:30	-		-		-		12:15 - 12:30	-		-		-	
12:30 - 12:45	-		-		-		12:30 - 12:45	-		-		-	
12:45 - 1:00	-	-	-	-	-	-	12:45 - 1:00	-	-	-	-	-	-
1:00 - 1:15	-		-		-		1:00 - 1:15	-		-		-	
1:15 - 1:30	-		-		-		1:15 - 1:30	-		-		-	
1:30 - 1:45	-		-		-		1:30 - 1:45	-		-		-	
1:45 - 2:00	-	-	-	-	-	-	1:45 - 2:00	-	-	-	-	-	-
2:00 - 2:15	-		-		-		2:00 - 2:15	-		-		-	
2:15 - 2:30	-		-		-		2:15 - 2:30	-		-		-	
2:30 - 2:45	-		-		-		2:30 - 2:45	-		-		-	
2:45 - 3:00	-	-	-	-	-	-	2:45 - 3:00	-	-	-	-	-	-
3:00 - 3:15	-		-		-		3:00 - 3:15	309		343		652	
3:15 - 3:30	-		-		-		3:15 - 3:30	322		356		678	
3:30 - 3:45	-		-		-		3:30 - 3:45	394		338		732	
3:45 - 4:00	-	-	-	-	-	-	3:45 - 4:00	360	1385	372	1409	732	2794
4:00 - 4:15	-		-		-		4:00 - 4:15	380		363		743	
4:15 - 4:30	-		-		-		4:15 - 4:30	430		396		826	
4:30 - 4:45	-		-		-		4:30 - 4:45	381		384		765	
4:45 - 5:00	-	-	-	-	-	-	4:45 - 5:00	408	1599	452	1595	860	3194
5:00 - 5:15	-		-		-		5:00 - 5:15	380		424		804	
5:15 - 5:30	-		-		-		5:15 - 5:30	402		442		844	
5:30 - 5:45	-		-		-		5:30 - 5:45	396		464		860	
5:45 - 6:00	-	-	-	-	-	-	5:45 - 6:00	425	1603	414	1744	839	3347
6:00 - 6:15	-		-		-		6:00 - 6:15	447		389		836	
6:15 - 6:30	-		-		-		6:15 - 6:30	438		337		775	
6:30 - 6:45	-		-		-		6:30 - 6:45	479		333		812	
6:45 - 7:00	-	-	-	-	-	-	6:45 - 7:00	388	1752	306	1365	694	3117
7:00 - 7:15	-		-		-		7:00 - 7:15	388		302		690	
7:15 - 7:30	-		-		-		7:15 - 7:30	335		270		605	
7:30 - 7:45	-		-		-		7:30 - 7:45	302		251		553	
7:45 - 8:00	-	-	-	-	-	-	7:45 - 8:00	248	1273	229	1052	477	2325
8:00 - 8:15	-		-		-		8:00 - 8:15	296		224		520	
8:15 - 8:30	-		-		-		8:15 - 8:30	220		218		438	
8:30 - 8:45	-		-		-		8:30 - 8:45	184		206		390	
8:45 - 9:00	-	-	-	-	-	-	8:45 - 9:00	200	900	187	835	387	1735
9:00 - 9:15	-		-		-		9:00 - 9:15	191		201		392	
9:15 - 9:30	-		-		-		9:15 - 9:30	230		142		372	
9:30 - 9:45	-		-		-		9:30 - 9:45	211		156		367	
9:45 - 10:00	-	-	-	-	-	-	9:45 - 10:00	229	861	154	653	383	1514
10:00 - 10:15	-		-		-		10:00 - 10:15	237		152		389	
10:15 - 10:30	-		-		-		10:15 - 10:30	251		152		403	
10:30 - 10:45	-		-		-		10:30 - 10:45	262		144		406	
10:45 - 11:00	-	-	-	-	-	-	10:45 - 11:00	180	930	148	596	328	1526
11:00 - 11:15	-		-		-		11:00 - 11:15	140		116		256	
11:15 - 11:30	-		-		-		11:15 - 11:30	145		100		245	
11:30 - 11:45	-		-		-		11:30 - 11:45	116		96		212	
11:45 - 12:00	-	-	-	-	-	-	11:45 - 12:00	100	501	86	398	186	899
TOTALS		-		-		-		10,804		9,647		20,451	
ADT'S								10,804		9,647		20,451	

TRAFFIC DATA SERVICES, INC. LOCATION CODE 08505.C01

LOCATION - PACIFIC COAST HWY-S/O WARNER VOLUMES FOR - FRIDAY 8/19/05

AM TIME	NB		SB		TOTAL		PM TIME	NB		SB		TOTAL	
12:00 - 12:15	43		42		85		12:00 - 12:15	262		304		566	
12:15 - 12:30	49		44		93		12:15 - 12:30	248		280		528	
12:30 - 12:45	36		24		60		12:30 - 12:45	288		295		583	
12:45 - 1:00	28	156	28	138	56	294	12:45 - 1:00	249	1047	295	1174	544	2221
1:00 - 1:15	30		26		56		1:00 - 1:15	242		276		518	
1:15 - 1:30	19		28		47		1:15 - 1:30	260		271		531	
1:30 - 1:45	48		22		70		1:30 - 1:45	283		290		573	
1:45 - 2:00	34	131	12	88	46	219	1:45 - 2:00	286	1071	298	1135	584	2206
2:00 - 2:15	29		14		43		2:00 - 2:15	266		278		544	
2:15 - 2:30	28		22		50		2:15 - 2:30	282		300		582	
2:30 - 2:45	12		20		32		2:30 - 2:45	308		296		604	
2:45 - 3:00	16	85	7	63	23	148	2:45 - 3:00	302	1158	276	1150	578	2308
3:00 - 3:15	13		13		26		3:00 - 3:15	-		-		-	
3:15 - 3:30	6		13		19		3:15 - 3:30	-		-		-	
3:30 - 3:45	4		14		18		3:30 - 3:45	-		-		-	
3:45 - 4:00	10	33	9	49	19	82	3:45 - 4:00	-	-	-	-	-	-
4:00 - 4:15	17		10		27		4:00 - 4:15	-		-		-	
4:15 - 4:30	17		14		31		4:15 - 4:30	-		-		-	
4:30 - 4:45	22		8		30		4:30 - 4:45	-		-		-	
4:45 - 5:00	17	73	18	50	35	123	4:45 - 5:00	-	-	-	-	-	-
5:00 - 5:15	43		18		61		5:00 - 5:15	-		-		-	
5:15 - 5:30	66		37		103		5:15 - 5:30	-		-		-	
5:30 - 5:45	89		59		148		5:30 - 5:45	-		-		-	
5:45 - 6:00	96	294	94	208	190	502	5:45 - 6:00	-	-	-	-	-	-
6:00 - 6:15	110		128		238		6:00 - 6:15	-		-		-	
6:15 - 6:30	168		168		336		6:15 - 6:30	-		-		-	
6:30 - 6:45	240		254		494		6:30 - 6:45	-		-		-	
6:45 - 7:00	268	786	290	840	558	1626	6:45 - 7:00	-	-	-	-	-	-
7:00 - 7:15	290		312		602		7:00 - 7:15	-		-		-	
7:15 - 7:30	320		410		730		7:15 - 7:30	-		-		-	
7:30 - 7:45	350		466		816		7:30 - 7:45	-		-		-	
7:45 - 8:00	368	1328	468	1656	836	2984	7:45 - 8:00	-	-	-	-	-	-
8:00 - 8:15	344		434		778		8:00 - 8:15	-		-		-	
8:15 - 8:30	352		424		776		8:15 - 8:30	-		-		-	
8:30 - 8:45	338		400		738		8:30 - 8:45	-		-		-	
8:45 - 9:00	322	1356	376	1634	698	2990	8:45 - 9:00	-	-	-	-	-	-
9:00 - 9:15	270		281		551		9:00 - 9:15	-		-		-	
9:15 - 9:30	248		237		485		9:15 - 9:30	-		-		-	
9:30 - 9:45	246		274		520		9:30 - 9:45	-		-		-	
9:45 - 10:00	238	1002	240	1032	478	2034	9:45 - 10:00	-	-	-	-	-	-
10:00 - 10:15	216		238		454		10:00 - 10:15	-		-		-	
10:15 - 10:30	181		263		444		10:15 - 10:30	-		-		-	
10:30 - 10:45	221		242		463		10:30 - 10:45	-		-		-	
10:45 - 11:00	240	858	258	1001	498	1859	10:45 - 11:00	-	-	-	-	-	-
11:00 - 11:15	228		271		499		11:00 - 11:15	-		-		-	
11:15 - 11:30	238		225		463		11:15 - 11:30	-		-		-	
11:30 - 11:45	253		316		569		11:30 - 11:45	-		-		-	
11:45 - 12:00	226	945	283	1095	509	2040	11:45 - 12:00	-	-	-	-	-	-
TOTALS		7,047		7,854		14,901			3,276		3,459		6,735
ADT'S									10,323		11,313		21,636

TRAFFIC DATA SERVICES, INC. LOCATION CODE 08505.C01

LOCATION - PACIFIC COAST HWY-S/O WARNER VOLUMES FOR - SATURDAY 8/13/05

AM TIME	NB		SB		TOTAL		PM TIME	NB		SB		TOTAL	
12:00 - 12:15	113		74		187		12:00 - 12:15	260		347		607	
12:15 - 12:30	73		62		135		12:15 - 12:30	268		338		606	
12:30 - 12:45	97		74		171		12:30 - 12:45	279		356		635	
12:45 - 1:00	69	352	66	276	135	628	12:45 - 1:00	248	1055	443	1484	691	2539
1:00 - 1:15	45		52		97		1:00 - 1:15	282		436		718	
1:15 - 1:30	60		42		102		1:15 - 1:30	272		412		684	
1:30 - 1:45	58		41		99		1:30 - 1:45	268		451		719	
1:45 - 2:00	44	207	36	171	80	378	1:45 - 2:00	271	1093	404	1703	675	2796
2:00 - 2:15	54		34		88		2:00 - 2:15	262		440		702	
2:15 - 2:30	49		36		85		2:15 - 2:30	302		396		698	
2:30 - 2:45	32		36		68		2:30 - 2:45	288		400		688	
2:45 - 3:00	32	167	22	128	54	295	2:45 - 3:00	288	1140	360	1596	648	2736
3:00 - 3:15	28		22		50		3:00 - 3:15	282		390		672	
3:15 - 3:30	20		21		41		3:15 - 3:30	308		376		684	
3:30 - 3:45	18		19		37		3:30 - 3:45	342		402		744	
3:45 - 4:00	16	82	17	79	33	161	3:45 - 4:00	320	1252	372	1540	692	2792
4:00 - 4:15	8		13		21		4:00 - 4:15	344		353		697	
4:15 - 4:30	13		11		24		4:15 - 4:30	323		342		665	
4:30 - 4:45	8		16		24		4:30 - 4:45	330		404		734	
4:45 - 5:00	10	39	21	61	31	100	4:45 - 5:00	344	1341	394	1493	738	2834
5:00 - 5:15	17		23		40		5:00 - 5:15	306		374		680	
5:15 - 5:30	32		24		56		5:15 - 5:30	358		370		728	
5:30 - 5:45	40		41		81		5:30 - 5:45	350		360		710	
5:45 - 6:00	30	119	75	163	105	282	5:45 - 6:00	316	1330	324	1428	640	2758
6:00 - 6:15	39		112		151		6:00 - 6:15	344		296		640	
6:15 - 6:30	49		126		175		6:15 - 6:30	336		294		630	
6:30 - 6:45	58		138		196		6:30 - 6:45	313		340		653	
6:45 - 7:00	80	226	126	502	206	728	6:45 - 7:00	340	1333	296	1226	636	2559
7:00 - 7:15	62		173		235		7:00 - 7:15	314		266		580	
7:15 - 7:30	82		186		268		7:15 - 7:30	284		298		582	
7:30 - 7:45	100		217		317		7:30 - 7:45	326		225		551	
7:45 - 8:00	107	351	220	796	327	1147	7:45 - 8:00	262	1186	254	1043	516	2229
8:00 - 8:15	160		212		372		8:00 - 8:15	347		240		587	
8:15 - 8:30	174		268		442		8:15 - 8:30	332		197		529	
8:30 - 8:45	159		236		395		8:30 - 8:45	304		184		488	
8:45 - 9:00	220	713	256	972	476	1685	8:45 - 9:00	260	1243	202	823	462	2066
9:00 - 9:15	203		260		463		9:00 - 9:15	294		183		477	
9:15 - 9:30	228		288		516		9:15 - 9:30	270		180		450	
9:30 - 9:45	236		268		504		9:30 - 9:45	277		206		483	
9:45 - 10:00	256	923	298	1114	554	2037	9:45 - 10:00	295	1136	179	748	474	1884
10:00 - 10:15	272		303		575		10:00 - 10:15	347		146		493	
10:15 - 10:30	264		272		536		10:15 - 10:30	346		169		515	
10:30 - 10:45	263		314		577		10:30 - 10:45	296		144		440	
10:45 - 11:00	252	1051	328	1217	580	2268	10:45 - 11:00	218	1207	153	612	371	1819
11:00 - 11:15	271		317		588		11:00 - 11:15	178		128		306	
11:15 - 11:30	241		353		594		11:15 - 11:30	168		124		292	
11:30 - 11:45	280		324		604		11:30 - 11:45	134		110		244	
11:45 - 12:00	275	1067	314	1308	589	2375	11:45 - 12:00	136	616	104	466	240	1082
TOTALS		5,297		6,787		12,084			13,932		14,162		28,094
ADT'S									19,229		20,949		40,178

TRAFFIC DATA SERVICES, INC. LOCATION CODE 08505.C01

LOCATION - PACIFIC COAST HWY-S/O WARNER VOLUMES FOR - SUNDAY 8/14/05

AM							PM						
TIME	NB		SB		TOTAL		TIME	NB		SB		TOTAL	
12:00 - 12:15	104		90		194		12:00 - 12:15	294		331		625	
12:15 - 12:30	106		76		182		12:15 - 12:30	310		337		647	
12:30 - 12:45	97		70		167		12:30 - 12:45	298		305		603	
12:45 - 1:00	72	379	60	296	132	675	12:45 - 1:00	282	1184	341	1314	623	2498
1:00 - 1:15	60		46		106		1:00 - 1:15	270		334		604	
1:15 - 1:30	70		40		110		1:15 - 1:30	257		281		538	
1:30 - 1:45	75		38		113		1:30 - 1:45	258		352		610	
1:45 - 2:00	68	273	32	156	100	429	1:45 - 2:00	292	1077	317	1284	609	2361
2:00 - 2:15	49		39		88		2:00 - 2:15	282		308		590	
2:15 - 2:30	52		36		88		2:15 - 2:30	294		296		590	
2:30 - 2:45	42		23		65		2:30 - 2:45	332		301		633	
2:45 - 3:00	27	170	19	117	46	287	2:45 - 3:00	366	1274	324	1229	690	2503
3:00 - 3:15	28		26		54		3:00 - 3:15	353		322		675	
3:15 - 3:30	20		10		30		3:15 - 3:30	337		320		657	
3:30 - 3:45	19		17		36		3:30 - 3:45	358		332		690	
3:45 - 4:00	17	84	14	67	31	151	3:45 - 4:00	316	1364	296	1270	612	2634
4:00 - 4:15	21		16		37		4:00 - 4:15	296		304		600	
4:15 - 4:30	20		7		27		4:15 - 4:30	314		300		614	
4:30 - 4:45	10		18		28		4:30 - 4:45	348		302		650	
4:45 - 5:00	20	71	18	59	38	130	4:45 - 5:00	294	1252	273	1179	567	2431
5:00 - 5:15	10		20		30		5:00 - 5:15	320		298		618	
5:15 - 5:30	24		19		43		5:15 - 5:30	296		278		574	
5:30 - 5:45	18		38		56		5:30 - 5:45	294		298		592	
5:45 - 6:00	25	77	59	136	84	213	5:45 - 6:00	302	1212	258	1132	560	2344
6:00 - 6:15	27		82		109		6:00 - 6:15	300		232		532	
6:15 - 6:30	52		90		142		6:15 - 6:30	286		222		508	
6:30 - 6:45	47		114		161		6:30 - 6:45	298		258		556	
6:45 - 7:00	42	168	127	413	169	581	6:45 - 7:00	252	1136	234	946	486	2082
7:00 - 7:15	53		92		145		7:00 - 7:15	244		238		482	
7:15 - 7:30	82		122		204		7:15 - 7:30	262		229		491	
7:30 - 7:45	74		148		222		7:30 - 7:45	267		206		473	
7:45 - 8:00	86	295	195	557	281	852	7:45 - 8:00	210	983	209	882	419	1865
8:00 - 8:15	120		206		326		8:00 - 8:15	210		199		409	
8:15 - 8:30	149		186		335		8:15 - 8:30	232		201		433	
8:30 - 8:45	134		202		336		8:30 - 8:45	190		177		367	
8:45 - 9:00	148	551	214	808	362	1359	8:45 - 9:00	190	822	132	709	322	1531
9:00 - 9:15	164		240		404		9:00 - 9:15	172		132		304	
9:15 - 9:30	190		220		410		9:15 - 9:30	197		122		319	
9:30 - 9:45	212		208		420		9:30 - 9:45	166		120		286	
9:45 - 10:00	196	762	238	906	434	1668	9:45 - 10:00	172	707	108	482	280	1189
10:00 - 10:15	217		230		447		10:00 - 10:15	170		100		270	
10:15 - 10:30	206		266		472		10:15 - 10:30	138		90		228	
10:30 - 10:45	258		300		558		10:30 - 10:45	110		72		182	
10:45 - 11:00	248	929	308	1104	556	2033	10:45 - 11:00	99	517	67	329	166	846
11:00 - 11:15	243		250		493		11:00 - 11:15	96		52		148	
11:15 - 11:30	285		314		599		11:15 - 11:30	90		52		142	
11:30 - 11:45	274		326		600		11:30 - 11:45	69		52		121	
11:45 - 12:00	288	1090	297	1187	585	2277	11:45 - 12:00	53	308	38	194	91	502
TOTALS		4,849		5,806		10,655			11,836		10,950		22,786
ADT'S									16,685		16,756		33,441

TRAFFIC DATA SERVICES, INC. LOCATION CODE 08505.C02

LOCATION - PACIFIC COAST HWY-N/O 17TH VOLUMES FOR - FRIDAY 8/12/05

AM TIME	NB		SB		TOTAL		PM TIME	NB		SB		TOTAL	
12:00 - 12:15	-		-		-		12:00 - 12:15	-		-		-	
12:15 - 12:30	-		-		-		12:15 - 12:30	-		-		-	
12:30 - 12:45	-		-		-		12:30 - 12:45	-		-		-	
12:45 - 1:00	-	-	-	-	-	-	12:45 - 1:00	-	-	-	-	-	-
1:00 - 1:15	-		-		-		1:00 - 1:15	-		-		-	
1:15 - 1:30	-		-		-		1:15 - 1:30	-		-		-	
1:30 - 1:45	-		-		-		1:30 - 1:45	-		-		-	
1:45 - 2:00	-	-	-	-	-	-	1:45 - 2:00	-	-	-	-	-	-
2:00 - 2:15	-		-		-		2:00 - 2:15	-		-		-	
2:15 - 2:30	-		-		-		2:15 - 2:30	-		-		-	
2:30 - 2:45	-		-		-		2:30 - 2:45	-		-		-	
2:45 - 3:00	-	-	-	-	-	-	2:45 - 3:00	-	-	-	-	-	-
3:00 - 3:15	-		-		-		3:00 - 3:15	-		-		-	
3:15 - 3:30	-		-		-		3:15 - 3:30	-		-		-	
3:30 - 3:45	-		-		-		3:30 - 3:45	-		-		-	
3:45 - 4:00	-	-	-	-	-	-	3:45 - 4:00	-	-	-	-	-	-
4:00 - 4:15	-		-		-		4:00 - 4:15	390		348		738	
4:15 - 4:30	-		-		-		4:15 - 4:30	406		356		762	
4:30 - 4:45	-		-		-		4:30 - 4:45	363		342		705	
4:45 - 5:00	-	-	-	-	-	-	4:45 - 5:00	416	1575	370	1416	786	2991
5:00 - 5:15	-		-		-		5:00 - 5:15	406		382		788	
5:15 - 5:30	-		-		-		5:15 - 5:30	444		384		828	
5:30 - 5:45	-		-		-		5:30 - 5:45	440		386		826	
5:45 - 6:00	-	-	-	-	-	-	5:45 - 6:00	428	1718	377	1529	805	3247
6:00 - 6:15	-		-		-		6:00 - 6:15	438		316		754	
6:15 - 6:30	-		-		-		6:15 - 6:30	383		300		683	
6:30 - 6:45	-		-		-		6:30 - 6:45	383		286		669	
6:45 - 7:00	-	-	-	-	-	-	6:45 - 7:00	366	1570	296	1198	662	2768
7:00 - 7:15	-		-		-		7:00 - 7:15	325		272		597	
7:15 - 7:30	-		-		-		7:15 - 7:30	350		256		606	
7:30 - 7:45	-		-		-		7:30 - 7:45	327		292		619	
7:45 - 8:00	-	-	-	-	-	-	7:45 - 8:00	299	1301	233	1053	532	2354
8:00 - 8:15	-		-		-		8:00 - 8:15	261		224		485	
8:15 - 8:30	-		-		-		8:15 - 8:30	240		208		448	
8:30 - 8:45	-		-		-		8:30 - 8:45	232		212		444	
8:45 - 9:00	-	-	-	-	-	-	8:45 - 9:00	213	946	226	870	439	1816
9:00 - 9:15	-		-		-		9:00 - 9:15	234		178		412	
9:15 - 9:30	-		-		-		9:15 - 9:30	211		198		409	
9:30 - 9:45	-		-		-		9:30 - 9:45	224		174		398	
9:45 - 10:00	-	-	-	-	-	-	9:45 - 10:00	203	872	176	726	379	1598
10:00 - 10:15	-		-		-		10:00 - 10:15	196		184		380	
10:15 - 10:30	-		-		-		10:15 - 10:30	228		166		394	
10:30 - 10:45	-		-		-		10:30 - 10:45	272		167		439	
10:45 - 11:00	-	-	-	-	-	-	10:45 - 11:00	190	886	152	669	342	1555
11:00 - 11:15	-		-		-		11:00 - 11:15	171		139		310	
11:15 - 11:30	-		-		-		11:15 - 11:30	172		106		278	
11:30 - 11:45	-		-		-		11:30 - 11:45	148		110		258	
11:45 - 12:00	-	-	-	-	-	-	11:45 - 12:00	126	617	71	426	197	1043
TOTALS	-		-		-			9,485		7,887		17,372	
ADT'S								9,485		7,887		17,372	

TRAFFIC DATA SERVICES, INC. LOCATION CODE 08505.C02

LOCATION - PACIFIC COAST HWY-N/O 17TH VOLUMES FOR - FRIDAY 8/19/05

AM TIME	NB		SB		TOTAL		PM TIME	NB		SB		TOTAL	
12:00 - 12:15	53		57		110		12:00 - 12:15	248		294		542	
12:15 - 12:30	71		46		117		12:15 - 12:30	278		308		586	
12:30 - 12:45	35		34		69		12:30 - 12:45	262		275		537	
12:45 - 1:00	44	203	24	161	68	364	12:45 - 1:00	263	1051	330	1207	593	2258
1:00 - 1:15	38		26		64		1:00 - 1:15	276		299		575	
1:15 - 1:30	30		23		53		1:15 - 1:30	284		304		588	
1:30 - 1:45	50		30		80		1:30 - 1:45	272		316		588	
1:45 - 2:00	37	155	19	98	56	253	1:45 - 2:00	290	1122	328	1247	618	2369
2:00 - 2:15	36		14		50		2:00 - 2:15	286		306		592	
2:15 - 2:30	26		21		47		2:15 - 2:30	318		316		634	
2:30 - 2:45	20		21		41		2:30 - 2:45	334		296		630	
2:45 - 3:00	21	103	16	72	37	175	2:45 - 3:00	355	1293	312	1230	667	2523
3:00 - 3:15	19		7		26		3:00 - 3:15	354		286		640	
3:15 - 3:30	6		12		18		3:15 - 3:30	360		353		713	
3:30 - 3:45	4		20		24		3:30 - 3:45	366		333		699	
3:45 - 4:00	6	35	6	45	12	80	3:45 - 4:00	402	1482	370	1342	772	2824
4:00 - 4:15	8		6		14		4:00 - 4:15	-		-		-	
4:15 - 4:30	12		11		23		4:15 - 4:30	-		-		-	
4:30 - 4:45	18		14		32		4:30 - 4:45	-		-		-	
4:45 - 5:00	20	58	18	49	38	107	4:45 - 5:00	-	-	-	-	-	-
5:00 - 5:15	32		18		50		5:00 - 5:15	-		-		-	
5:15 - 5:30	43		24		67		5:15 - 5:30	-		-		-	
5:30 - 5:45	77		48		125		5:30 - 5:45	-		-		-	
5:45 - 6:00	81	233	85	175	166	408	5:45 - 6:00	-	-	-	-	-	-
6:00 - 6:15	122		77		199		6:00 - 6:15	-		-		-	
6:15 - 6:30	168		156		324		6:15 - 6:30	-		-		-	
6:30 - 6:45	208		224		432		6:30 - 6:45	-		-		-	
6:45 - 7:00	228	726	289	746	517	1472	6:45 - 7:00	-	-	-	-	-	-
7:00 - 7:15	236		282		518		7:00 - 7:15	-		-		-	
7:15 - 7:30	269		418		687		7:15 - 7:30	-		-		-	
7:30 - 7:45	300		440		740		7:30 - 7:45	-		-		-	
7:45 - 8:00	286	1091	446	1586	732	2677	7:45 - 8:00	-	-	-	-	-	-
8:00 - 8:15	288		476		764		8:00 - 8:15	-		-		-	
8:15 - 8:30	299		396		695		8:15 - 8:30	-		-		-	
8:30 - 8:45	308		431		739		8:30 - 8:45	-		-		-	
8:45 - 9:00	282	1177	399	1702	681	2879	8:45 - 9:00	-	-	-	-	-	-
9:00 - 9:15	250		294		544		9:00 - 9:15	-		-		-	
9:15 - 9:30	230		250		480		9:15 - 9:30	-		-		-	
9:30 - 9:45	237		249		486		9:30 - 9:45	-		-		-	
9:45 - 10:00	244	961	234	1027	478	1988	9:45 - 10:00	-	-	-	-	-	-
10:00 - 10:15	223		261		484		10:00 - 10:15	-		-		-	
10:15 - 10:30	227		241		468		10:15 - 10:30	-		-		-	
10:30 - 10:45	213		243		456		10:30 - 10:45	-		-		-	
10:45 - 11:00	260	923	283	1028	543	1951	10:45 - 11:00	-	-	-	-	-	-
11:00 - 11:15	210		272		482		11:00 - 11:15	-		-		-	
11:15 - 11:30	222		268		490		11:15 - 11:30	-		-		-	
11:30 - 11:45	243		307		550		11:30 - 11:45	-		-		-	
11:45 - 12:00	237	912	298	1145	535	2057	11:45 - 12:00	-	-	-	-	-	-
TOTALS		6,577		7,834		14,411			4,948		5,026		9,974
ADT'S									11,525		12,860		24,385

TRAFFIC DATA SERVICES, INC. LOCATION CODE 08505.C02

LOCATION - PACIFIC COAST HWY-N/O 17TH VOLUMES FOR - SATURDAY 8/13/05

AM						PM					
TIME	NB		SB		TOTAL	TIME	NB		SB		TOTAL	
12:00 - 12:15	121		88		209	12:00 - 12:15	264		314		578	
12:15 - 12:30	97		68		165	12:15 - 12:30	257		338		595	
12:30 - 12:45	113		72		185	12:30 - 12:45	263		336		599	
12:45 - 1:00	94	425	82	310	176	735	12:45 - 1:00	280	1064	366	1354	646	2418
1:00 - 1:15	70		59		129	1:00 - 1:15	280		380		660	
1:15 - 1:30	83		50		133	1:15 - 1:30	292		347		639	
1:30 - 1:45	68		34		102	1:30 - 1:45	270		388		658	
1:45 - 2:00	50	271	47	190	97	461	1:45 - 2:00	290	1132	346	1461	636	2593
2:00 - 2:15	70		33		103	2:00 - 2:15	302		409		711	
2:15 - 2:30	76		48		124	2:15 - 2:30	307		404		711	
2:30 - 2:45	43		37		80	2:30 - 2:45	314		366		680	
2:45 - 3:00	42	231	24	142	66	373	2:45 - 3:00	321	1244	345	1524	666	2768
3:00 - 3:15	34		25		59	3:00 - 3:15	298		368		666	
3:15 - 3:30	26		21		47	3:15 - 3:30	334		337		671	
3:30 - 3:45	18		20		38	3:30 - 3:45	339		391		730	
3:45 - 4:00	18	96	20	86	38	182	3:45 - 4:00	323	1294	331	1427	654	2721
4:00 - 4:15	12		20		32	4:00 - 4:15	322		326		648	
4:15 - 4:30	12		12		24	4:15 - 4:30	335		333		668	
4:30 - 4:45	12		15		27	4:30 - 4:45	325		333		658	
4:45 - 5:00	10	46	17	64	27	110	4:45 - 5:00	344	1326	350	1342	694	2668
5:00 - 5:15	20		30		50	5:00 - 5:15	330		302		632	
5:15 - 5:30	31		23		54	5:15 - 5:30	350		350		700	
5:30 - 5:45	44		40		84	5:30 - 5:45	318		314		632	
5:45 - 6:00	48	143	56	149	104	292	5:45 - 6:00	362	1360	318	1284	680	2644
6:00 - 6:15	59		80		139	6:00 - 6:15	327		320		647	
6:15 - 6:30	76		93		169	6:15 - 6:30	346		302		648	
6:30 - 6:45	73		106		179	6:30 - 6:45	346		268		614	
6:45 - 7:00	107	315	144	423	251	738	6:45 - 7:00	301	1320	322	1212	623	2532
7:00 - 7:15	102		136		238	7:00 - 7:15	296		270		566	
7:15 - 7:30	124		191		315	7:15 - 7:30	340		280		620	
7:30 - 7:45	130		192		322	7:30 - 7:45	268		244		512	
7:45 - 8:00	168	524	204	723	372	1247	7:45 - 8:00	302	1206	306	1100	608	2306
8:00 - 8:15	198		220		418	8:00 - 8:15	282		250		532	
8:15 - 8:30	162		214		376	8:15 - 8:30	292		230		522	
8:30 - 8:45	207		242		449	8:30 - 8:45	286		238		524	
8:45 - 9:00	244	811	253	929	497	1740	8:45 - 9:00	255	1115	207	925	462	2040
9:00 - 9:15	246		248		494	9:00 - 9:15	224		192		416	
9:15 - 9:30	240		258		498	9:15 - 9:30	212		204		416	
9:30 - 9:45	247		264		511	9:30 - 9:45	256		214		470	
9:45 - 10:00	242	975	286	1056	528	2031	9:45 - 10:00	221	913	202	812	423	1725
10:00 - 10:15	260		301		561	10:00 - 10:15	260		200		460	
10:15 - 10:30	274		287		561	10:15 - 10:30	246		198		444	
10:30 - 10:45	297		288		585	10:30 - 10:45	268		186		454	
10:45 - 11:00	260	1091	325	1201	585	2292	10:45 - 11:00	216	990	181	765	397	1755
11:00 - 11:15	260		285		545	11:00 - 11:15	202		124		326	
11:15 - 11:30	258		302		560	11:15 - 11:30	195		142		337	
11:30 - 11:45	300		342		642	11:30 - 11:45	192		106		298	
11:45 - 12:00	261	1079	288	1217	549	2296	11:45 - 12:00	134	723	104	476	238	1199
TOTALS		6,007		6,490		12,497			13,687		13,682		27,369
ADT'S									19,694		20,172		39,866

TRAFFIC DATA SERVICES, INC. LOCATION CODE 08505.C02

LOCATION - PACIFIC COAST HWY-N/O 17TH VOLUMES FOR - SUNDAY 8/14/05

AM							PM						
TIME	NB		SB		TOTAL		TIME	NB		SB		TOTAL	
12:00 - 12:15	132		108		240		12:00 - 12:15	264		275		539	
12:15 - 12:30	118		68		186		12:15 - 12:30	288		375		663	
12:30 - 12:45	122		83		205		12:30 - 12:45	264		331		595	
12:45 - 1:00	94	466	60	319	154	785	12:45 - 1:00	294	1110	336	1317	630	2427
1:00 - 1:15	88		61		149		1:00 - 1:15	288		326		614	
1:15 - 1:30	96		50		146		1:15 - 1:30	286		352		638	
1:30 - 1:45	79		36		115		1:30 - 1:45	252		303		555	
1:45 - 2:00	77	340	43	190	120	530	1:45 - 2:00	309	1135	311	1292	620	2427
2:00 - 2:15	67		33		100		2:00 - 2:15	296		295		591	
2:15 - 2:30	63		40		103		2:15 - 2:30	328		316		644	
2:30 - 2:45	46		26		72		2:30 - 2:45	381		310		691	
2:45 - 3:00	29	205	23	122	52	327	2:45 - 3:00	347	1352	310	1231	657	2583
3:00 - 3:15	30		30		60		3:00 - 3:15	368		324		692	
3:15 - 3:30	28		9		37		3:15 - 3:30	332		295		627	
3:30 - 3:45	18		15		33		3:30 - 3:45	348		318		666	
3:45 - 4:00	21	97	12	66	33	163	3:45 - 4:00	331	1379	312	1249	643	2628
4:00 - 4:15	20		25		45		4:00 - 4:15	308		291		599	
4:15 - 4:30	20		5		25		4:15 - 4:30	340		328		668	
4:30 - 4:45	10		17		27		4:30 - 4:45	356		260		616	
4:45 - 5:00	20	70	14	61	34	131	4:45 - 5:00	311	1315	330	1209	641	2524
5:00 - 5:15	14		22		36		5:00 - 5:15	319		263		582	
5:15 - 5:30	23		18		41		5:15 - 5:30	274		274		548	
5:30 - 5:45	20		32		52		5:30 - 5:45	304		281		585	
5:45 - 6:00	42	99	34	106	76	205	5:45 - 6:00	316	1213	264	1082	580	2295
6:00 - 6:15	46		53		99		6:00 - 6:15	280		243		523	
6:15 - 6:30	70		46		116		6:15 - 6:30	284		243		527	
6:30 - 6:45	74		83		157		6:30 - 6:45	291		228		519	
6:45 - 7:00	70	260	106	288	176	548	6:45 - 7:00	264	1119	262	976	526	2095
7:00 - 7:15	80		102		182		7:00 - 7:15	260		252		512	
7:15 - 7:30	104		103		207		7:15 - 7:30	226		201		427	
7:30 - 7:45	110		119		229		7:30 - 7:45	259		204		463	
7:45 - 8:00	133	427	155	479	288	906	7:45 - 8:00	202	947	230	887	432	1834
8:00 - 8:15	160		184		344		8:00 - 8:15	241		229		470	
8:15 - 8:30	150		176		326		8:15 - 8:30	231		226		457	
8:30 - 8:45	161		202		363		8:30 - 8:45	180		184		364	
8:45 - 9:00	174	645	214	776	388	1421	8:45 - 9:00	205	857	136	775	341	1632
9:00 - 9:15	174		230		404		9:00 - 9:15	179		150		329	
9:15 - 9:30	214		228		442		9:15 - 9:30	194		136		330	
9:30 - 9:45	220		203		423		9:30 - 9:45	166		110		276	
9:45 - 10:00	226	834	236	897	462	1731	9:45 - 10:00	168	707	136	532	304	1239
10:00 - 10:15	226		248		474		10:00 - 10:15	146		112		258	
10:15 - 10:30	243		267		510		10:15 - 10:30	163		112		275	
10:30 - 10:45	256		259		515		10:30 - 10:45	122		93		215	
10:45 - 11:00	260	985	328	1102	588	2087	10:45 - 11:00	116	547	66	383	182	930
11:00 - 11:15	278		278		556		11:00 - 11:15	110		58		168	
11:15 - 11:30	296		314		610		11:15 - 11:30	102		61		163	
11:30 - 11:45	268		309		577		11:30 - 11:45	90		58		148	
11:45 - 12:00	302	1144	318	1219	620	2363	11:45 - 12:00	57	359	43	220	100	579
TOTALS		5,572		5,625		11,197			12,040		11,153		23,193
ADT'S									17,612		16,778		34,390

TRAFFIC DATA SERVICES, INC. LOCATION CODE 08505.005

LOCATION - BEACH-N/O PACIFIC VIEW VOLUMES FOR - FRIDAY 8/12/05

AM TIME	NB		SB		TOTAL		PM TIME	NB		SB		TOTAL	
12:00 - 12:15	-		-		-		12:00 - 12:15	-		-		-	
12:15 - 12:30	-		-		-		12:15 - 12:30	-		-		-	
12:30 - 12:45	-		-		-		12:30 - 12:45	-		-		-	
12:45 - 1:00	-	-	-	-	-	-	12:45 - 1:00	-	-	-	-	-	-
1:00 - 1:15	-		-		-		1:00 - 1:15	78		114		192	
1:15 - 1:30	-		-		-		1:15 - 1:30	140		168		308	
1:30 - 1:45	-		-		-		1:30 - 1:45	159		192		351	
1:45 - 2:00	-	-	-	-	-	-	1:45 - 2:00	162	539	179	653	341	1192
2:00 - 2:15	-		-		-		2:00 - 2:15	161		154		315	
2:15 - 2:30	-		-		-		2:15 - 2:30	182		180		362	
2:30 - 2:45	-		-		-		2:30 - 2:45	192		158		350	
2:45 - 3:00	-	-	-	-	-	-	2:45 - 3:00	172	707	174	666	346	1373
3:00 - 3:15	-		-		-		3:00 - 3:15	169		176		345	
3:15 - 3:30	-		-		-		3:15 - 3:30	236		172		408	
3:30 - 3:45	-		-		-		3:30 - 3:45	212		144		356	
3:45 - 4:00	-	-	-	-	-	-	3:45 - 4:00	254	871	165	657	419	1528
4:00 - 4:15	-		-		-		4:00 - 4:15	231		144		375	
4:15 - 4:30	-		-		-		4:15 - 4:30	222		166		388	
4:30 - 4:45	-		-		-		4:30 - 4:45	258		160		418	
4:45 - 5:00	-	-	-	-	-	-	4:45 - 5:00	262	973	164	634	426	1607
5:00 - 5:15	-		-		-		5:00 - 5:15	282		153		435	
5:15 - 5:30	-		-		-		5:15 - 5:30	292		174		466	
5:30 - 5:45	-		-		-		5:30 - 5:45	275		147		422	
5:45 - 6:00	-	-	-	-	-	-	5:45 - 6:00	294	1143	142	616	436	1759
6:00 - 6:15	-		-		-		6:00 - 6:15	264		166		430	
6:15 - 6:30	-		-		-		6:15 - 6:30	240		136		376	
6:30 - 6:45	-		-		-		6:30 - 6:45	248		141		389	
6:45 - 7:00	-	-	-	-	-	-	6:45 - 7:00	210	962	162	605	372	1567
7:00 - 7:15	-		-		-		7:00 - 7:15	184		152		336	
7:15 - 7:30	-		-		-		7:15 - 7:30	212		159		371	
7:30 - 7:45	-		-		-		7:30 - 7:45	187		152		339	
7:45 - 8:00	-	-	-	-	-	-	7:45 - 8:00	182	765	165	628	347	1393
8:00 - 8:15	-		-		-		8:00 - 8:15	168		166		334	
8:15 - 8:30	-		-		-		8:15 - 8:30	142		141		283	
8:30 - 8:45	-		-		-		8:30 - 8:45	182		122		304	
8:45 - 9:00	-	-	-	-	-	-	8:45 - 9:00	137	629	120	549	257	1178
9:00 - 9:15	-		-		-		9:00 - 9:15	158		116		274	
9:15 - 9:30	-		-		-		9:15 - 9:30	148		112		260	
9:30 - 9:45	-		-		-		9:30 - 9:45	176		110		286	
9:45 - 10:00	-	-	-	-	-	-	9:45 - 10:00	184	666	121	459	305	1125
10:00 - 10:15	-		-		-		10:00 - 10:15	222		98		320	
10:15 - 10:30	-		-		-		10:15 - 10:30	278		84		362	
10:30 - 10:45	-		-		-		10:30 - 10:45	237		76		313	
10:45 - 11:00	-	-	-	-	-	-	10:45 - 11:00	162	899	77	335	239	1234
11:00 - 11:15	-		-		-		11:00 - 11:15	116		64		180	
11:15 - 11:30	-		-		-		11:15 - 11:30	117		79		196	
11:30 - 11:45	-		-		-		11:30 - 11:45	118		66		184	
11:45 - 12:00	-	-	-	-	-	-	11:45 - 12:00	90	441	48	257	138	698
TOTALS	-		-		-			8,595		6,059		14,654	
ADT'S								8,595		6,059		14,654	

TRAFFIC DATA SERVICES, INC.

LOCATION CODE 08505.005

LOCATION - BEACH-N/O PACIFIC VIEW

VOLUMES FOR - FRIDAY 8/19/05

AM TIME	NB		SB		TOTAL		PM TIME	NB		SB		TOTAL	
12:00 - 12:15	33		26		59		12:00 - 12:15	137		146		283	
12:15 - 12:30	42		27		69		12:15 - 12:30	129		140		269	
12:30 - 12:45	42		12		54		12:30 - 12:45	134		118		252	
12:45 - 1:00	40	157	12	77	52	234	12:45 - 1:00	136	536	96	500	232	1036
1:00 - 1:15	26		10		36		1:00 - 1:15	-		-		-	
1:15 - 1:30	25		13		38		1:15 - 1:30	-		-		-	
1:30 - 1:45	24		8		32		1:30 - 1:45	-		-		-	
1:45 - 2:00	22	97	10	41	32	138	1:45 - 2:00	-	-	-	-	-	-
2:00 - 2:15	12		13		25		2:00 - 2:15	-		-		-	
2:15 - 2:30	9		13		22		2:15 - 2:30	-		-		-	
2:30 - 2:45	15		9		24		2:30 - 2:45	-		-		-	
2:45 - 3:00	17	53	5	40	22	93	2:45 - 3:00	-	-	-	-	-	-
3:00 - 3:15	12		20		32		3:00 - 3:15	-		-		-	
3:15 - 3:30	4		6		10		3:15 - 3:30	-		-		-	
3:30 - 3:45	6		6		12		3:30 - 3:45	-		-		-	
3:45 - 4:00	10	32	4	36	14	68	3:45 - 4:00	-	-	-	-	-	-
4:00 - 4:15	7		9		16		4:00 - 4:15	-		-		-	
4:15 - 4:30	8		5		13		4:15 - 4:30	-		-		-	
4:30 - 4:45	12		12		24		4:30 - 4:45	-		-		-	
4:45 - 5:00	6	33	21	47	27	80	4:45 - 5:00	-	-	-	-	-	-
5:00 - 5:15	13		16		29		5:00 - 5:15	-		-		-	
5:15 - 5:30	13		24		37		5:15 - 5:30	-		-		-	
5:30 - 5:45	24		29		53		5:30 - 5:45	-		-		-	
5:45 - 6:00	14	64	66	135	80	199	5:45 - 6:00	-	-	-	-	-	-
6:00 - 6:15	17		78		95		6:00 - 6:15	-		-		-	
6:15 - 6:30	24		76		100		6:15 - 6:30	-		-		-	
6:30 - 6:45	34		102		136		6:30 - 6:45	-		-		-	
6:45 - 7:00	48	123	139	395	187	518	6:45 - 7:00	-	-	-	-	-	-
7:00 - 7:15	46		112		158		7:00 - 7:15	-		-		-	
7:15 - 7:30	57		161		218		7:15 - 7:30	-		-		-	
7:30 - 7:45	70		178		248		7:30 - 7:45	-		-		-	
7:45 - 8:00	97	270	216	667	313	937	7:45 - 8:00	-	-	-	-	-	-
8:00 - 8:15	108		179		287		8:00 - 8:15	-		-		-	
8:15 - 8:30	101		168		269		8:15 - 8:30	-		-		-	
8:30 - 8:45	108		160		268		8:30 - 8:45	-		-		-	
8:45 - 9:00	116	433	170	677	286	1110	8:45 - 9:00	-	-	-	-	-	-
9:00 - 9:15	130		134		264		9:00 - 9:15	-		-		-	
9:15 - 9:30	114		156		270		9:15 - 9:30	-		-		-	
9:30 - 9:45	95		121		216		9:30 - 9:45	-		-		-	
9:45 - 10:00	106	445	118	529	224	974	9:45 - 10:00	-	-	-	-	-	-
10:00 - 10:15	116		127		243		10:00 - 10:15	-		-		-	
10:15 - 10:30	102		106		208		10:15 - 10:30	-		-		-	
10:30 - 10:45	100		144		244		10:30 - 10:45	-		-		-	
10:45 - 11:00	118	436	152	529	270	965	10:45 - 11:00	-	-	-	-	-	-
11:00 - 11:15	102		159		261		11:00 - 11:15	-		-		-	
11:15 - 11:30	96		168		264		11:15 - 11:30	-		-		-	
11:30 - 11:45	124		134		258		11:30 - 11:45	-		-		-	
11:45 - 12:00	116	438	198	659	314	1097	11:45 - 12:00	-	-	-	-	-	-
TOTALS	2,581		3,832		6,413			536		500		1,036	
ADT'S								3,117		4,332		7,449	

TRAFFIC DATA SERVICES, INC. LOCATION CODE 08505.005

LOCATION - BEACH-N/O PACIFIC VIEW VOLUMES FOR - SATURDAY 8/13/05

AM							PM						
TIME	NB		SB		TOTAL		TIME	NB		SB		TOTAL	
12:00 - 12:15	88		41		129		12:00 - 12:15	165		198		363	
12:15 - 12:30	57		37		94		12:15 - 12:30	142		182		324	
12:30 - 12:45	76		22		98		12:30 - 12:45	152		208		360	
12:45 - 1:00	66	287	22	122	88	409	12:45 - 1:00	137	596	220	808	357	1404
1:00 - 1:15	45		31		76		1:00 - 1:15	150		214		364	
1:15 - 1:30	46		28		74		1:15 - 1:30	152		251		403	
1:30 - 1:45	50		24		74		1:30 - 1:45	164		215		379	
1:45 - 2:00	38	179	19	102	57	281	1:45 - 2:00	152	618	235	915	387	1533
2:00 - 2:15	37		34		71		2:00 - 2:15	166		220		386	
2:15 - 2:30	48		16		64		2:15 - 2:30	159		205		364	
2:30 - 2:45	20		10		30		2:30 - 2:45	179		238		417	
2:45 - 3:00	17	122	16	76	33	198	2:45 - 3:00	199	703	223	886	422	1589
3:00 - 3:15	17		7		24		3:00 - 3:15	154		210		364	
3:15 - 3:30	15		9		24		3:15 - 3:30	224		226		450	
3:30 - 3:45	14		9		23		3:30 - 3:45	242		253		495	
3:45 - 4:00	8	54	10	35	18	89	3:45 - 4:00	210	830	274	963	484	1793
4:00 - 4:15	12		3		15		4:00 - 4:15	212		212		424	
4:15 - 4:30	11		10		21		4:15 - 4:30	210		251		461	
4:30 - 4:45	7		11		18		4:30 - 4:45	249		210		459	
4:45 - 5:00	8	38	10	34	18	72	4:45 - 5:00	249	920	231	904	480	1824
5:00 - 5:15	10		12		22		5:00 - 5:15	256		228		484	
5:15 - 5:30	10		16		26		5:15 - 5:30	222		228		450	
5:30 - 5:45	16		28		44		5:30 - 5:45	216		234		450	
5:45 - 6:00	19	55	43	99	62	154	5:45 - 6:00	234	928	206	896	440	1824
6:00 - 6:15	11		31		42		6:00 - 6:15	232		227		459	
6:15 - 6:30	14		44		58		6:15 - 6:30	242		196		438	
6:30 - 6:45	16		66		82		6:30 - 6:45	206		163		369	
6:45 - 7:00	27	68	90	231	117	299	6:45 - 7:00	232	912	206	792	438	1704
7:00 - 7:15	38		80		118		7:00 - 7:15	221		177		398	
7:15 - 7:30	42		75		117		7:15 - 7:30	227		179		406	
7:30 - 7:45	47		112		159		7:30 - 7:45	225		210		435	
7:45 - 8:00	64	191	120	387	184	578	7:45 - 8:00	226	899	148	714	374	1613
8:00 - 8:15	65		118		183		8:00 - 8:15	250		175		425	
8:15 - 8:30	62		108		170		8:15 - 8:30	208		170		378	
8:30 - 8:45	81		110		191		8:30 - 8:45	224		136		360	
8:45 - 9:00	64	272	142	478	206	750	8:45 - 9:00	212	894	149	630	361	1524
9:00 - 9:15	67		128		195		9:00 - 9:15	250		120		370	
9:15 - 9:30	92		113		205		9:15 - 9:30	196		138		334	
9:30 - 9:45	79		162		241		9:30 - 9:45	228		117		345	
9:45 - 10:00	88	326	162	565	250	891	9:45 - 10:00	238	912	123	498	361	1410
10:00 - 10:15	113		144		257		10:00 - 10:15	284		110		394	
10:15 - 10:30	128		180		308		10:15 - 10:30	354		102		456	
10:30 - 10:45	115		179		294		10:30 - 10:45	350		82		432	
10:45 - 11:00	106	462	212	715	318	1177	10:45 - 11:00	271	1259	80	374	351	1633
11:00 - 11:15	130		178		308		11:00 - 11:15	140		80		220	
11:15 - 11:30	119		206		325		11:15 - 11:30	122		62		184	
11:30 - 11:45	130		172		302		11:30 - 11:45	124		78		202	
11:45 - 12:00	122	501	194	750	316	1251	11:45 - 12:00	126	512	52	272	178	784
TOTALS		2,555		3,594		6,149			9,983		8,652		18,635
ADT'S									12,538		12,246		24,784

TRAFFIC DATA SERVICES, INC. LOCATION CODE 08505.005

LOCATION - BEACH-N/O PACIFIC VIEW VOLUMES FOR - SUNDAY 8/14/05

AM TIME	NB		SB		TOTAL		PM TIME	NB		SB		TOTAL	
12:00 - 12:15	98		53		151		12:00 - 12:15	130		216		346	
12:15 - 12:30	92		44		136		12:15 - 12:30	117		216		333	
12:30 - 12:45	99		36		135		12:30 - 12:45	148		221		369	
12:45 - 1:00	80	369	34	167	114	536	12:45 - 1:00	136	531	191	844	327	1375
1:00 - 1:15	62		28		90		1:00 - 1:15	121		198		319	
1:15 - 1:30	72		26		98		1:15 - 1:30	138		178		316	
1:30 - 1:45	60		30		90		1:30 - 1:45	162		208		370	
1:45 - 2:00	49	243	22	106	71	349	1:45 - 2:00	196	617	178	762	374	1379
2:00 - 2:15	60		19		79		2:00 - 2:15	161		192		353	
2:15 - 2:30	59		20		79		2:15 - 2:30	193		208		401	
2:30 - 2:45	32		19		51		2:30 - 2:45	210		182		392	
2:45 - 3:00	35	186	13	71	48	257	2:45 - 3:00	192	756	224	806	416	1562
3:00 - 3:15	20		14		34		3:00 - 3:15	204		218		422	
3:15 - 3:30	22		9		31		3:15 - 3:30	196		170		366	
3:30 - 3:45	14		13		27		3:30 - 3:45	203		207		410	
3:45 - 4:00	13	69	9	45	22	114	3:45 - 4:00	216	819	153	748	369	1567
4:00 - 4:15	10		14		24		4:00 - 4:15	219		164		383	
4:15 - 4:30	8		4		12		4:15 - 4:30	220		168		388	
4:30 - 4:45	7		8		15		4:30 - 4:45	193		180		373	
4:45 - 5:00	4	29	16	42	20	71	4:45 - 5:00	188	820	174	686	362	1506
5:00 - 5:15	7		12		19		5:00 - 5:15	193		174		367	
5:15 - 5:30	7		13		20		5:15 - 5:30	184		188		372	
5:30 - 5:45	13		21		34		5:30 - 5:45	198		158		356	
5:45 - 6:00	18	45	34	80	52	125	5:45 - 6:00	196	771	166	686	362	1457
6:00 - 6:15	12		32		44		6:00 - 6:15	204		122		326	
6:15 - 6:30	13		29		42		6:15 - 6:30	196		126		322	
6:30 - 6:45	12		49		61		6:30 - 6:45	180		134		314	
6:45 - 7:00	18	55	49	159	67	214	6:45 - 7:00	166	746	140	522	306	1268
7:00 - 7:15	26		53		79		7:00 - 7:15	177		126		303	
7:15 - 7:30	23		66		89		7:15 - 7:30	184		123		307	
7:30 - 7:45	36		60		96		7:30 - 7:45	142		120		262	
7:45 - 8:00	38	123	75	254	113	377	7:45 - 8:00	171	674	118	487	289	1161
8:00 - 8:15	55		78		133		8:00 - 8:15	180		122		302	
8:15 - 8:30	46		89		135		8:15 - 8:30	162		111		273	
8:30 - 8:45	62		113		175		8:30 - 8:45	176		94		270	
8:45 - 9:00	52	215	114	394	166	609	8:45 - 9:00	142	660	104	431	246	1091
9:00 - 9:15	78		90		168		9:00 - 9:15	146		84		230	
9:15 - 9:30	76		92		168		9:15 - 9:30	145		74		219	
9:30 - 9:45	74		111		185		9:30 - 9:45	141		74		215	
9:45 - 10:00	84	312	124	417	208	729	9:45 - 10:00	134	566	80	312	214	878
10:00 - 10:15	72		108		180		10:00 - 10:15	172		70		242	
10:15 - 10:30	114		140		254		10:15 - 10:30	166		68		234	
10:30 - 10:45	94		152		246		10:30 - 10:45	126		58		184	
10:45 - 11:00	96	376	170	570	266	946	10:45 - 11:00	95	559	60	256	155	815
11:00 - 11:15	112		182		294		11:00 - 11:15	77		42		119	
11:15 - 11:30	96		164		260		11:15 - 11:30	97		32		129	
11:30 - 11:45	112		182		294		11:30 - 11:45	69		31		100	
11:45 - 12:00	118	438	188	716	306	1154	11:45 - 12:00	44	287	34	139	78	426
TOTALS		2,460		3,021		5,481			7,806		6,679		14,485
ADT'S									10,266		9,700		19,966

TRAFFIC DATA SERVICES, INC.

LOCATION CODE 08505.004

LOCATION - PACIFIC COAST HWY-S/O 1ST

VOLUMES FOR - FRIDAY 8/12/05

AM TIME	NB		SB		TOTAL		PM TIME	NB		SB		TOTAL	
12:00 - 12:15	-		-		-		12:00 - 12:15	-		-		-	
12:15 - 12:30	-		-		-		12:15 - 12:30	-		-		-	
12:30 - 12:45	-		-		-		12:30 - 12:45	-		-		-	
12:45 - 1:00	-	-	-	-	-	-	12:45 - 1:00	-	-	-	-	-	-
1:00 - 1:15	-		-		-		1:00 - 1:15	-		-		-	
1:15 - 1:30	-		-		-		1:15 - 1:30	-		-		-	
1:30 - 1:45	-		-		-		1:30 - 1:45	-		-		-	
1:45 - 2:00	-	-	-	-	-	-	1:45 - 2:00	-	-	-	-	-	-
2:00 - 2:15	-		-		-		2:00 - 2:15	338		270		608	
2:15 - 2:30	-		-		-		2:15 - 2:30	327		252		579	
2:30 - 2:45	-		-		-		2:30 - 2:45	323		279		602	
2:45 - 3:00	-	-	-	-	-	-	2:45 - 3:00	370	1358	264	1065	634	2423
3:00 - 3:15	-		-		-		3:00 - 3:15	336		288		624	
3:15 - 3:30	-		-		-		3:15 - 3:30	349		323		672	
3:30 - 3:45	-		-		-		3:30 - 3:45	366		327		693	
3:45 - 4:00	-	-	-	-	-	-	3:45 - 4:00	376	1427	340	1278	716	2705
4:00 - 4:15	-		-		-		4:00 - 4:15	376		321		697	
4:15 - 4:30	-		-		-		4:15 - 4:30	414		344		758	
4:30 - 4:45	-		-		-		4:30 - 4:45	414		350		764	
4:45 - 5:00	-	-	-	-	-	-	4:45 - 5:00	398	1602	341	1356	739	2958
5:00 - 5:15	-		-		-		5:00 - 5:15	428		330		758	
5:15 - 5:30	-		-		-		5:15 - 5:30	423		396		819	
5:30 - 5:45	-		-		-		5:30 - 5:45	459		370		829	
5:45 - 6:00	-	-	-	-	-	-	5:45 - 6:00	452	1762	366	1462	818	3224
6:00 - 6:15	-		-		-		6:00 - 6:15	466		352		818	
6:15 - 6:30	-		-		-		6:15 - 6:30	414		319		733	
6:30 - 6:45	-		-		-		6:30 - 6:45	399		304		703	
6:45 - 7:00	-	-	-	-	-	-	6:45 - 7:00	350	1629	264	1239	614	2868
7:00 - 7:15	-		-		-		7:00 - 7:15	360		269		629	
7:15 - 7:30	-		-		-		7:15 - 7:30	340		294		634	
7:30 - 7:45	-		-		-		7:30 - 7:45	290		295		585	
7:45 - 8:00	-	-	-	-	-	-	7:45 - 8:00	354	1344	262	1120	616	2464
8:00 - 8:15	-		-		-		8:00 - 8:15	280		276		556	
8:15 - 8:30	-		-		-		8:15 - 8:30	247		248		495	
8:30 - 8:45	-		-		-		8:30 - 8:45	240		246		486	
8:45 - 9:00	-	-	-	-	-	-	8:45 - 9:00	239	1006	248	1018	487	2024
9:00 - 9:15	-		-		-		9:00 - 9:15	246		220		466	
9:15 - 9:30	-		-		-		9:15 - 9:30	245		234		479	
9:30 - 9:45	-		-		-		9:30 - 9:45	247		211		458	
9:45 - 10:00	-	-	-	-	-	-	9:45 - 10:00	236	974	207	872	443	1846
10:00 - 10:15	-		-		-		10:00 - 10:15	252		236		488	
10:15 - 10:30	-		-		-		10:15 - 10:30	278		218		496	
10:30 - 10:45	-		-		-		10:30 - 10:45	248		232		480	
10:45 - 11:00	-	-	-	-	-	-	10:45 - 11:00	222	1000	228	914	450	1914
11:00 - 11:15	-		-		-		11:00 - 11:15	164		177		341	
11:15 - 11:30	-		-		-		11:15 - 11:30	206		182		388	
11:30 - 11:45	-		-		-		11:30 - 11:45	168		164		332	
11:45 - 12:00	-	-	-	-	-	-	11:45 - 12:00	128	666	136	659	264	1325
TOTALS			-		-				12,768		10,983		23,751
ADT'S									12,768		10,983		23,751

TRAFFIC DATA SERVICES, INC. LOCATION CODE 08505.004

LOCATION - PACIFIC COAST HWY-S/O 1ST VOLUMES FOR - FRIDAY 8/19/05

AM							PM						
TIME	NB		SB		TOTAL		TIME	NB		SB		TOTAL	
12:00 - 12:15	62		78		140		12:00 - 12:15	340		214		554	
12:15 - 12:30	61		60		121		12:15 - 12:30	293		296		589	
12:30 - 12:45	32		52		84		12:30 - 12:45	334		210		544	
12:45 - 1:00	45	200	34	224	79	424	12:45 - 1:00	275	1242	249	969	524	2211
1:00 - 1:15	34		33		67		1:00 - 1:15	324		246		570	
1:15 - 1:30	35		32		67		1:15 - 1:30	298		270		568	
1:30 - 1:45	30		40		70		1:30 - 1:45	282		276		558	
1:45 - 2:00	19	118	20	125	39	243	1:45 - 2:00	278	1182	295	1087	573	2269
2:00 - 2:15	26		18		44		2:00 - 2:15	-		-		-	
2:15 - 2:30	22		11		33		2:15 - 2:30	-		-		-	
2:30 - 2:45	21		22		43		2:30 - 2:45	-		-		-	
2:45 - 3:00	21	90	20	71	41	161	2:45 - 3:00	-	-	-	-	-	-
3:00 - 3:15	15		8		23		3:00 - 3:15	-		-		-	
3:15 - 3:30	7		12		19		3:15 - 3:30	-		-		-	
3:30 - 3:45	10		19		29		3:30 - 3:45	-		-		-	
3:45 - 4:00	4	36	14	53	18	89	3:45 - 4:00	-	-	-	-	-	-
4:00 - 4:15	7		9		16		4:00 - 4:15	-		-		-	
4:15 - 4:30	12		8		20		4:15 - 4:30	-		-		-	
4:30 - 4:45	16		16		32		4:30 - 4:45	-		-		-	
4:45 - 5:00	16	51	20	53	36	104	4:45 - 5:00	-	-	-	-	-	-
5:00 - 5:15	22		23		45		5:00 - 5:15	-		-		-	
5:15 - 5:30	27		31		58		5:15 - 5:30	-		-		-	
5:30 - 5:45	54		42		96		5:30 - 5:45	-		-		-	
5:45 - 6:00	56	159	70	166	126	325	5:45 - 6:00	-	-	-	-	-	-
6:00 - 6:15	83		76		159		6:00 - 6:15	-		-		-	
6:15 - 6:30	116		142		258		6:15 - 6:30	-		-		-	
6:30 - 6:45	140		188		328		6:30 - 6:45	-		-		-	
6:45 - 7:00	149	488	275	681	424	1169	6:45 - 7:00	-	-	-	-	-	-
7:00 - 7:15	154		324		478		7:00 - 7:15	-		-		-	
7:15 - 7:30	196		380		576		7:15 - 7:30	-		-		-	
7:30 - 7:45	202		465		667		7:30 - 7:45	-		-		-	
7:45 - 8:00	196	748	472	1641	668	2389	7:45 - 8:00	-	-	-	-	-	-
8:00 - 8:15	209		480		689		8:00 - 8:15	-		-		-	
8:15 - 8:30	235		440		675		8:15 - 8:30	-		-		-	
8:30 - 8:45	247		424		671		8:30 - 8:45	-		-		-	
8:45 - 9:00	202	893	427	1771	629	2664	8:45 - 9:00	-	-	-	-	-	-
9:00 - 9:15	195		308		503		9:00 - 9:15	-		-		-	
9:15 - 9:30	208		231		439		9:15 - 9:30	-		-		-	
9:30 - 9:45	213		260		473		9:30 - 9:45	-		-		-	
9:45 - 10:00	180	796	207	1006	387	1802	9:45 - 10:00	-	-	-	-	-	-
10:00 - 10:15	222		238		460		10:00 - 10:15	-		-		-	
10:15 - 10:30	216		251		467		10:15 - 10:30	-		-		-	
10:30 - 10:45	222		224		446		10:30 - 10:45	-		-		-	
10:45 - 11:00	230	890	199	912	429	1802	10:45 - 11:00	-	-	-	-	-	-
11:00 - 11:15	256		253		509		11:00 - 11:15	-		-		-	
11:15 - 11:30	244		220		464		11:15 - 11:30	-		-		-	
11:30 - 11:45	266		226		492		11:30 - 11:45	-		-		-	
11:45 - 12:00	258	1024	264	963	522	1987	11:45 - 12:00	-	-	-	-	-	-
TOTALS		5,493		7,666		13,159			2,424		2,056		4,480
ADT'S									7,917		9,722		17,639

TRAFFIC DATA SERVICES, INC. LOCATION CODE 08505.004

LOCATION - PACIFIC COAST HWY-S/O 1ST VOLUMES FOR - SATURDAY 8/13/05

AM TIME	NB		SB		TOTAL		PM TIME	NB		SB		TOTAL	
12:00 - 12:15	100		106		206		12:00 - 12:15	306		281		587	
12:15 - 12:30	96		94		190		12:15 - 12:30	317		284		601	
12:30 - 12:45	82		129		211		12:30 - 12:45	334		330		664	
12:45 - 1:00	74	352	94	423	168	775	12:45 - 1:00	287	1244	304	1199	591	2443
1:00 - 1:15	66		100		166		1:00 - 1:15	334		338		672	
1:15 - 1:30	68		88		156		1:15 - 1:30	323		337		660	
1:30 - 1:45	48		66		114		1:30 - 1:45	330		337		667	
1:45 - 2:00	52	234	84	338	136	572	1:45 - 2:00	330	1317	300	1312	630	2629
2:00 - 2:15	70		72		142		2:00 - 2:15	353		343		696	
2:15 - 2:30	54		80		134		2:15 - 2:30	324		364		688	
2:30 - 2:45	38		40		78		2:30 - 2:45	286		330		616	
2:45 - 3:00	31	193	27	219	58	412	2:45 - 3:00	331	1294	348	1385	679	2679
3:00 - 3:15	27		30		57		3:00 - 3:15	323		312		635	
3:15 - 3:30	24		22		46		3:15 - 3:30	346		416		762	
3:30 - 3:45	16		21		37		3:30 - 3:45	322		342		664	
3:45 - 4:00	17	84	25	98	42	182	3:45 - 4:00	314	1305	396	1466	710	2771
4:00 - 4:15	10		22		32		4:00 - 4:15	327		376		703	
4:15 - 4:30	13		15		28		4:15 - 4:30	361		334		695	
4:30 - 4:45	6		17		23		4:30 - 4:45	343		384		727	
4:45 - 5:00	14	43	20	74	34	117	4:45 - 5:00	334	1365	393	1487	727	2852
5:00 - 5:15	22		28		50		5:00 - 5:15	341		344		685	
5:15 - 5:30	26		23		49		5:15 - 5:30	314		382		696	
5:30 - 5:45	39		28		67		5:30 - 5:45	360		393		753	
5:45 - 6:00	48	135	42	121	90	256	5:45 - 6:00	315	1330	361	1480	676	2810
6:00 - 6:15	36		54		90		6:00 - 6:15	343		400		743	
6:15 - 6:30	72		72		144		6:15 - 6:30	328		356		684	
6:30 - 6:45	83		82		165		6:30 - 6:45	311		338		649	
6:45 - 7:00	128	319	120	328	248	647	6:45 - 7:00	334	1316	357	1451	691	2767
7:00 - 7:15	151		95		246		7:00 - 7:15	340		340		680	
7:15 - 7:30	137		137		274		7:15 - 7:30	318		296		614	
7:30 - 7:45	144		137		281		7:30 - 7:45	325		328		653	
7:45 - 8:00	218	650	164	533	382	1183	7:45 - 8:00	306	1289	332	1296	638	2585
8:00 - 8:15	198		158		356		8:00 - 8:15	334		317		651	
8:15 - 8:30	192		146		338		8:15 - 8:30	278		300		578	
8:30 - 8:45	198		218		416		8:30 - 8:45	280		262		542	
8:45 - 9:00	256	844	188	710	444	1554	8:45 - 9:00	306	1198	282	1161	588	2359
9:00 - 9:15	212		194		406		9:00 - 9:15	262		264		526	
9:15 - 9:30	241		196		437		9:15 - 9:30	248		236		484	
9:30 - 9:45	225		222		447		9:30 - 9:45	252		250		502	
9:45 - 10:00	255	933	214	826	469	1759	9:45 - 10:00	270	1032	247	997	517	2029
10:00 - 10:15	251		225		476		10:00 - 10:15	288		255		543	
10:15 - 10:30	295		244		539		10:15 - 10:30	305		228		533	
10:30 - 10:45	281		247		528		10:30 - 10:45	305		258		563	
10:45 - 11:00	289	1116	232	948	521	2064	10:45 - 11:00	244	1142	230	971	474	2113
11:00 - 11:15	292		243		535		11:00 - 11:15	206		186		392	
11:15 - 11:30	338		240		578		11:15 - 11:30	182		180		362	
11:30 - 11:45	325		258		583		11:30 - 11:45	184		155		339	
11:45 - 12:00	300	1255	268	1009	568	2264	11:45 - 12:00	156	728	166	687	322	1415
TOTALS		6,158		5,627		11,785			14,560		14,892		29,452
ADT'S									20,718		20,519		41,237

TRAFFIC DATA SERVICES, INC.

LOCATION CODE 08505.004

LOCATION - PACIFIC COAST HWY-S/O 1ST

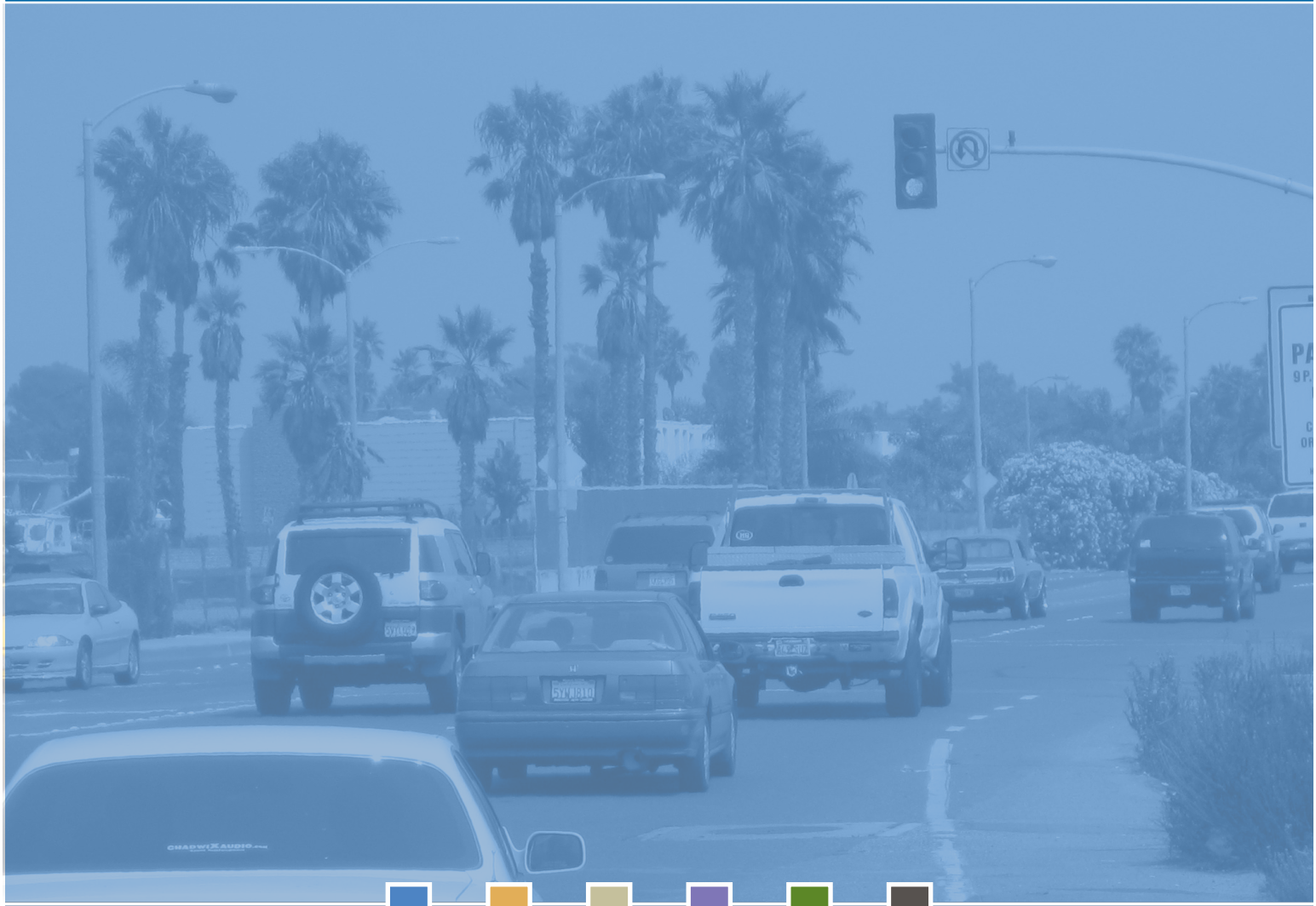
VOLUMES FOR - SUNDAY 8/14/05

AM TIME	NB		SB		TOTAL		PM TIME	NB		SB		TOTAL	
12:00 - 12:15	125		140		265		12:00 - 12:15	369		312		681	
12:15 - 12:30	134		110		244		12:15 - 12:30	350		287		637	
12:30 - 12:45	114		120		234		12:30 - 12:45	320		306		626	
12:45 - 1:00	92	465	102	472	194	937	12:45 - 1:00	349	1388	303	1208	652	2596
1:00 - 1:15	90		98		188		1:00 - 1:15	361		290		651	
1:15 - 1:30	74		80		154		1:15 - 1:30	291		314		605	
1:30 - 1:45	56		80		136		1:30 - 1:45	358		292		650	
1:45 - 2:00	54	274	70	328	124	602	1:45 - 2:00	366	1376	304	1200	670	2576
2:00 - 2:15	46		87		133		2:00 - 2:15	360		330		690	
2:15 - 2:30	48		70		118		2:15 - 2:30	332		397		729	
2:30 - 2:45	46		39		85		2:30 - 2:45	364		366		730	
2:45 - 3:00	28	168	33	229	61	397	2:45 - 3:00	382	1438	372	1465	754	2903
3:00 - 3:15	27		35		62		3:00 - 3:15	340		304		644	
3:15 - 3:30	32		22		54		3:15 - 3:30	312		346		658	
3:30 - 3:45	18		14		32		3:30 - 3:45	346		378		724	
3:45 - 4:00	23	100	15	86	38	186	3:45 - 4:00	349	1347	375	1403	724	2750
4:00 - 4:15	16		20		36		4:00 - 4:15	327		353		680	
4:15 - 4:30	14		10		24		4:15 - 4:30	313		328		641	
4:30 - 4:45	16		14		30		4:30 - 4:45	314		334		648	
4:45 - 5:00	22	68	14	58	36	126	4:45 - 5:00	312	1266	344	1359	656	2625
5:00 - 5:15	15		19		34		5:00 - 5:15	301		280		581	
5:15 - 5:30	22		15		37		5:15 - 5:30	278		362		640	
5:30 - 5:45	23		31		54		5:30 - 5:45	318		359		677	
5:45 - 6:00	32	92	28	93	60	185	5:45 - 6:00	252	1149	316	1317	568	2466
6:00 - 6:15	53		46		99		6:00 - 6:15	267		277		544	
6:15 - 6:30	60		33		93		6:15 - 6:30	300		288		588	
6:30 - 6:45	73		55		128		6:30 - 6:45	276		244		520	
6:45 - 7:00	72	258	86	220	158	478	6:45 - 7:00	258	1101	274	1083	532	2184
7:00 - 7:15	82		84		166		7:00 - 7:15	289		286		575	
7:15 - 7:30	122		70		192		7:15 - 7:30	262		250		512	
7:30 - 7:45	110		77		187		7:30 - 7:45	248		253		501	
7:45 - 8:00	136	450	98	329	234	779	7:45 - 8:00	229	1028	274	1063	503	2091
8:00 - 8:15	188		122		310		8:00 - 8:15	244		256		500	
8:15 - 8:30	194		101		295		8:15 - 8:30	233		267		500	
8:30 - 8:45	190		142		332		8:30 - 8:45	202		248		450	
8:45 - 9:00	197	769	154	519	351	1288	8:45 - 9:00	208	887	191	962	399	1849
9:00 - 9:15	194		170		364		9:00 - 9:15	178		194		372	
9:15 - 9:30	218		172		390		9:15 - 9:30	197		212		409	
9:30 - 9:45	210		187		397		9:30 - 9:45	160		160		320	
9:45 - 10:00	218	840	197	726	415	1566	9:45 - 10:00	174	709	164	730	338	1439
10:00 - 10:15	242		181		423		10:00 - 10:15	184		174		358	
10:15 - 10:30	226		208		434		10:15 - 10:30	150		142		292	
10:30 - 10:45	264		196		460		10:30 - 10:45	114		122		236	
10:45 - 11:00	273	1005	225	810	498	1815	10:45 - 11:00	124	572	80	518	204	1090
11:00 - 11:15	344		232		576		11:00 - 11:15	114		89		203	
11:15 - 11:30	340		218		558		11:15 - 11:30	91		96		187	
11:30 - 11:45	346		259		605		11:30 - 11:45	88		80		168	
11:45 - 12:00	346	1376	293	1002	639	2378	11:45 - 12:00	70	363	44	309	114	672
TOTALS		5,865		4,872		10,737			12,624		12,617		25,241
ADT'S									18,489		17,489		35,978

City of Huntington Beach

Circulation Element Update

Environmental Impact Report



prepared by

Hogle-Ireland

Planning & Development Consulting