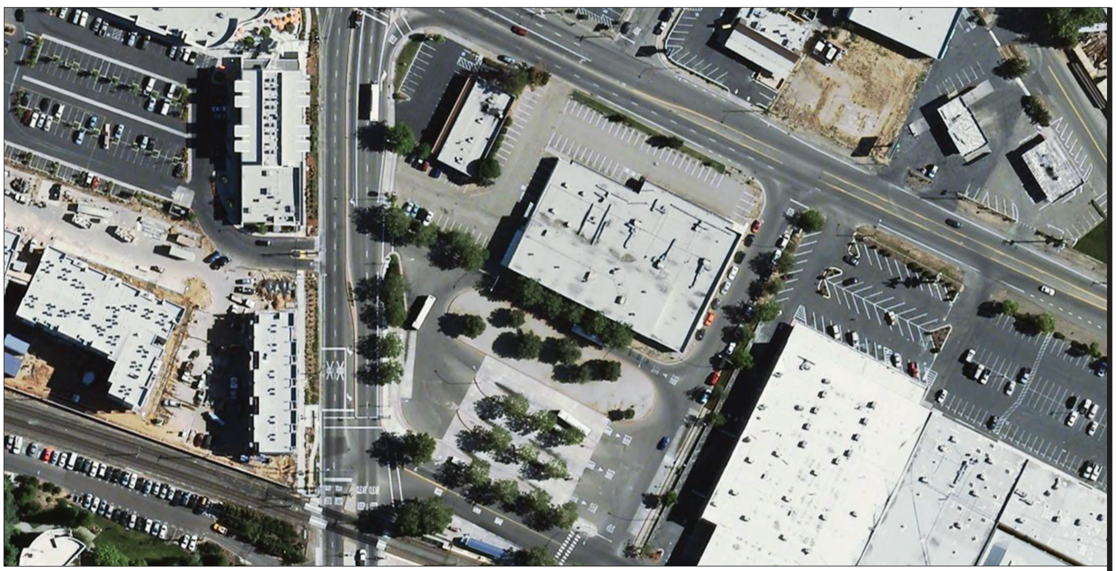
DRAFT
ENVIRONMENTAL IMPACT REPORT

STATION 65 PROJECT

SCH # 2008072067

APPENDICES



OCTOBER 2008

Lead Agency:

City of Sacramento
Environmental Planning Services
300 Richards Boulevard, 3rd Floor
Sacramento, CA 95811

Prepared By:

Analytical Environmental Services
1801 7th Street, Suite 100
Sacramento, CA 95811

APPENDICES

APPENDIX A

NOTICE OF PREPARATION (NOP)

DEVELOPMENT SERVICES
DEPARTMENT

CITY OF SACRAMENTO
CALIFORNIA

300 Richards Blvd., 3rd Floor
SACRAMENTO, CA 95811

DATE: July 18, 2008

TO: Interested Persons and Agencies

FROM: Scott Johnson, Associate Planner

SUBJECT: **NOTICE OF PREPARATION FOR A DRAFT ENVIRONMENTAL IMPACT REPORT (EIR) FOR THE STATION 65 PROJECT (P08-068)**

PUBLIC COMMENT PERIOD: July 18, 2008 through August 18, 2008

Introduction

The City of Sacramento, Development Services Department, will be the Lead Agency for the preparation of an Environmental Impact Report (EIR) for the Station 65 project (P08-068), the "proposed project." The California Environmental Quality Act (CEQA), Section 15082, provides that once a decision is made to prepare an EIR, the lead agency must prepare a Notice of Preparation (NOP) to inform all responsible agencies of that decision.

The purpose of the NOP is to provide responsible agencies and interested persons with sufficient information describing the proposed project and its potential environmental effects to enable them to make a meaningful response as to the scope and content of the information to be included in the EIR. The responses to this NOP will help the City of Sacramento determine the scope of the EIR and ensure an appropriate level of environmental review.

The EIR will evaluate the potential environmental impacts of the proposed project and recommend mitigation measures, as required. The EIR will provide a project-specific evaluation of the environmental effects of the proposed project, pursuant to Section 15161 of the State CEQA Guidelines.

Project Location

The proposed project is located on a ±4.29-acre site east of 65th Street, north of Q Street, west of Redding Avenue, and south of Folsom Boulevard in the University Transit Village Plan Area of the City of Sacramento, Sacramento County (see Figure 1). The General Plan land use designation of the project site is Mixed Use. The site is zoned General Commercial with a Transit Overlay (C-2 TO).

The project site consists of three parcels that are currently developed with two single-story structures of varying sizes that are of restaurant/retail use, an associated parking area, and a Regional Transit bus transfer center.

Commercial land uses surround the project site to the north, south, east, and west. Freeway transportation infrastructure is located to the south. California State University, Sacramento, is located approximately 0.5 miles north of the project site.

Project Description

The proposed project would consist of the development of up to 83,000 square feet (sf) of retail space, approximately 72,000 sf of office space, up to 100 residential units, an approximately 148-unit hotel, and an approximately 30,000 sf fitness center. A five- or six-story parking structure would accommodate up to 765 parking stalls. Existing on-site structures would be demolished. Offsite utility improvements may be required to mitigate impacts. The project includes redesign and reconstruction of traffic improvements on and off-site, including the installation of a four-way stop light at the intersection of Folsom Boulevard and 67th Street. The Regional Transit light rail/bus transfer facility located on the southern portion of the project site would be reconfigured and relocated to allow for continued transit services.

Permits and Approvals

Permits and approvals for the proposed project include the following (but are not limited to):

- Special Permit for Major Modification to exceed area limit of 40,000 sf;
- Special Permit for approval of the Applicant's street section that has been incorporated into the project's off-site plans;
- Variance to allow structural height increase; and
- Tentative map to subdivide three existing parcels with a revision of the existing transit overlay to a condominium map overlay.

Environmental Effects

The technical sections of the Draft EIR will describe the existing conditions in the project area and surrounding properties. Relevant federal, State, and local laws and regulations, including City of Sacramento General Plan policies, will be summarized. The methods and standards of significance used for impacts of the project will be described in each of the technical sections of the EIR, including any assumptions that are important to understand the conclusions of the analysis. The standards for determining impact significance will be based on the thresholds utilized by the City in environmental documents; existing State and federal rules, regulations, and laws; and City ordinances and policies where appropriate. The standards will be used both to determine the significance of impacts and the effectiveness of recommended mitigation. Any feasible mitigation measures will be identified for each significant impact. The description of each mitigation measure will identify the specific actions to be taken, the timing of the action, and the parties responsible for implementation of the measure.

At this time, it is anticipated that the following issue areas will be addressed in the EIR:

- Air Quality, including the demolition of the existing structures, construction, and operation of the proposed project;

- Traffic and Circulation, including construction and operational traffic;

- Public transit and transit facilities; and

- Noise, including construction and operational increases in noise.

During the scoping process, it may be determined that the proposed project would have a less-than-significant impact in one or more of the technical issue areas. Those technical discussions will be included in a separate chapter of the Draft EIR. At this time, it is anticipated that the following issue areas will have less-than-significant impacts:

- Aesthetics (height of proposed structures)
- Biological Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Public Services
- Water and Utilities

Alternatives

Pursuant to the requirements of CEQA, the EIR will examine a range of feasible alternatives to the proposed project.

Scoping Meeting

A scoping meeting will be held for the purpose of receiving comments regarding the issues that should be considered in the EIR, and the scope of the discussion of such issues. The scoping meeting will be held on the following date, at the location identified below, to obtain further comments on the scope of the Draft EIR.

Monday, August 11, 2008
7:00 p.m.

SMUD Customer Service Center
Rubicon Room
6301 S Street
Sacramento, California 95817

Submitting Comments

To ensure that the full range of project issues of interest to responsible government agencies and the public are addressed, comments and suggestions are invited from all interested parties. Written comments or questions concerning the scope of the EIR for the proposed project should be directed to the following address by **5:00 PM on August 18, 2008:**

City of Sacramento, Development Services Department
Attn: Scott Johnson, Associate Planner
Environmental Planning Services
300 Richards Boulevard, 3rd Floor
Sacramento, CA 95811
(916) 808-5842
SRJohnson@cityofsacramento.org

All written comments must include a full name and address in order for staff to respond appropriately.

Figure 1
Aerial Site and Vicinity

APPENDIX B

NOP COMMENT LETTERS

Station 65 Project
NOP Comment List

Letter #	Commenter	Date of Letter
1	Scott Morgan, State Clearinghouse	7/18/08
2	Kathleen Winkelman	7/25/2008
3	Roxanne Fuentez	7/25/2008
4	Elizabeth Obdon, Sacramento Regional County Sanitation District	7/29/2008
5	Moses Stites, California Public Utilities Commission	8/13/2008
6	Kim Schwab, California Regional Water Quality Control Board	8/13/2008
7	Alyssa Begley, CALTRANS	8/15/2008
8	King Tunson, City of Sacramento Fire Department	8/18/2008
9	Molly Wright, Sacramento Metropolitan Air Quality Management District	8/18/2008
10	Traci Canefield, Regional Transit	8/18/2008
11	Moses Stites, California Public Utilities Commission	9/4/2008

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

ARNOLD SCHWARZENEGGER
GOVERNOR

CYNTHIA BRYANT
DIRECTOR

Notice of Preparation

Letter 1

July 18, 2008

To: Reviewing Agencies

Re: Station 65
SCH# 2008072067

Attached for your review and comment is the Notice of Preparation (NOP) for the Station 65 draft Environmental Impact Report (EIR).

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

Please direct your comments to:

Scott Johnson
City of Sacramento
300 Richards Boulevard, 3rd Floor
Sacramento, CA 95811

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

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

Sincerely,

Scott Morgan
Project Analyst, State Clearinghouse

Attachments
cc: Lead Agency

Document Details Report
State Clearinghouse Data Base

SCH# **2008072067**
Project Title Station 65
Lead Agency Sacramento, City of

Type **NOP** Notice of Preparation

Description The proposed project would consist of the development of up to 83,000 square feet (sf) of retail space, approximately 72,000 sf of office space, up to 100 residential units, an approximately 148-unit hotel, and an approximately 30,000 sf fitness center. A five-or six-story parking structure would accommodate up to 765 parking stalls. Existing on-site structures would be demolished. Off-site utility improvements may be required to mitigate impacts. The project includes redesign and reconstruction of traffic improvements on and off-site, including the installation of a four-way stop light at the intersection of Folsom Boulevard and 67th Street. The Regional Transit light rail/bus transfer facility located on the southern portion of the project site would be reconfigured and relocated to allow for continued transit services.

Lead Agency Contact

Name Scott Johnson
Agency City of Sacramento
Phone (916) 808-5842 ***Fax***
email
Address 300 Richards Boulevard, 3rd Floor
City Sacramento ***State*** CA ***Zip*** 95811

Project Location

County Sacramento
City Sacramento
Region
Cross Streets Folsom Boulevard and 65th Streets
Lat / Long 38° 33' 13.7" N / 121° 25' 38.7" W
Parcel No. 015-0010-020,-003,-0021
Township 8N ***Range*** 5E ***Section*** 15 ***Base*** MDB&M

Proximity to:

Highways 50 (0.5 miles S)
Airports
Railways 0.1 mi S, 0.1 mi NE
Waterways American River (0.5 miles N)
Schools CSUS (0.5 miles N)
Land Use General Commercial with a Transit Overlay (C-2 TO).

Project Issues Air Quality; Noise; Traffic/Circulation

Reviewing Agencies Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; Department of Fish and Game, Region 2; Native American Heritage Commission; California Highway Patrol; Caltrans, District 3; Department of Toxic Substances Control; Regional Water Quality Control Bd., Region 5 (Sacramento); Resources Agency

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Date Received 07/18/2008 ***Start of Review*** 07/18/2008 ***End of Review*** 08/18/2008

Note: Blanks in data fields result from insufficient information provided by lead agency.

NOP Distribution List   County: Sacramento   SCH# 2008072067

Resources Agency

- ■ **Resources Agency** Nadell Gayou
- ☐ **Dept. of Boating & Waterways** David Johnson
- ☐ **California Coastal Commission** Elizabeth A. Fuchs
- ☐ **Colorado River Board** Gerald R. Zimmerman
- ☐ **Dept. of Conservation** Sharon Howell
- ☐ **California Energy Commission** Paul Richins
- ☐ **Cal Fire** Allen Robertson
- ■ **Office of Historic Preservation** Wayne Donaldson
- ■ **Dept of Parks & Recreation** Environmental Stewardship Section
- ☐ **Central Valley Flood Protection Board** Mark Herald
- ☐ **S.F. Bay Conservation & Dev't. Comm.** Steve McAdam
- ■ **Dept. of Water Resources** Resources Agency Nadell Gayou
- ☐ ____________ Conservancy

Fish and Game

- ☐ **Depart. of Fish & Game** Scott Flint Environmental Services Division
- ☐ **Fish & Game Region 1** Donald Koch
- ☐ **Fish & Game Region 1E** Laurie Harnsberger
- ■ **Fish & Game Region 2** Jeff Drongesen
- ☐ **Fish & Game Region 3** Robert Floerke
- ☐ **Fish & Game Region 4** Julie Vance
- ☐ **Fish & Game Region 5** Don Chadwick Habitat Conservation Program
- ☐ **Fish & Game Region 6** Gabrina Gatchel Habitat Conservation Program
- ☐ **Fish & Game Region 6 I/M** Gabrina Getchel Inyo/Mono, Habitat Conservation Program
- ☐ **Dept. of Fish & Game M** George Isaac Marine Region

Other Departments

- ☐ **Food & Agriculture** Steve Shaffer Dept. of Food and Agriculture
- ☐ **Depart. of General Services** Public School Construction
- ☐ **Dept. of General Services** Robert Sleppy Environmental Services Section
- ☐ **Dept. of Health Services** Veronica Malloy Dept. of Health/Drinking Water

Independent Commissions,Boards

- ☐ **Delta Protection Commission** Debby Eddy
- ☐ **Office of Emergency Services** Dennis Castrillo
- ☐ **Governor's Office of Planning & Research** State Clearinghouse
- ■ **Native American Heritage Comm.** Debbie Treadway
- ☐ **Public Utilities Commission** Ken Lewis
- ☐ **Santa Monica Bay Restoration** Guangyu Wang
- ☐ **State Lands Commission** Jean Sarino
- ☐ **Tahoe Regional Planning Agency (TRPA)** Cherry Jacques

Business, Trans & Housing

- ☐ **Caltrans - Division of Aeronautics** Sandy Hesnard
- ☐ **Caltrans - Planning** Terri Pencovic
- ■ **California Highway Patrol** Shirley Kelly Office of Special Projects
- ☐ **Housing & Community Development** Lisa Nichols Housing Policy Division

Dept. of Transportation

- ☐ **Caltrans, District 1** Rex Jackman
- ☐ **Caltrans, District 2** Marcelino Gonzalez
- ■ **Caltrans, District 3** Jeff Pulverman
- ☐ **Caltrans, District 4** Tim Sable
- ☐ **Caltrans, District 5** David Murray
- ☐ **Caltrans, District 6** Moses Stites
- ☐ **Caltrans, District 7** Vin Kumar
- ☐ **Caltrans, District 8** Dan Kopulsky
- ☐ **Caltrans, District 9** Gayle Rosander
- ☐ **Caltrans, District 10** Tom Dumas
- ☐ **Caltrans, District 11** Jacob Armstrong
- ☐ **Caltrans, District 12** Bob Joseph

Cal EPA

Air Resources Board

- ☐ Airport Projects Jim Lerner
- ☐ Transportation Projects Ravi Ramalingam
- ☐ Industrial Projects Mike Tollstrup
- ☐ **California Integrated Waste Management Board** Sue O'Leary
- ☐ **State Water Resources Control Board** Regional Programs Unit Division of Financial Assistance
- ☐ **State Water Resources Control Board** Student Intern, 401 Water Quality Certification Unit Division of Water Quality
- ☐ **State Water Resouces Control Board** Steven Herrera Division of Water Rights
- ■ **Dept. of Toxic Substances Control** CEQA Tracking Center
- ☐ **Department of Pesticide Regulation**

Regional Water Quality Control Board (RWQCB)

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

Last Updated on 02/21/08

Letter 2

From: Elise Gumm
To: Scott Johnson; Tom Buford
Date: 7/25/2008 12:06 PM
Subject: Fwd: Proposed Development Station 65

FYI

>>> Kathleen Winkelman <winkusa1@sbcglobal.net> 06/30/2008 7:01 PM >>>
I have read the Statement of Intent submitted by Mark Lucas, Lucas Enterprises and have several concerns regarding this development and the variances that he is requesting.

1. Special Permit: to exceed area of 40,000 square feet. This area already has several retail businesses and it would seem that this would be overload. Is the fact that Target will be locating in the area been of any concern to the planning of this complex? Traffic is going to be impacted with Target and can the area handle any more?

2. Special Permit: to accept drive-thru station for potential drug store tenant. With Longs and Rite Aid having pharmacies and no drive-thru, it does not seem needed; especially with the close proximity of on and off ramps to the freeway, it promote it as a potential place for burglaries.

3. Variance to allow height increase: exactly how high does this make it in comparison to the already three story apartments across 65th Street? And if it is the same or higher, does this not allow for the tunnel effect and lack of good air flow through this highly traveled area?

4. Tentative map to subdivide existing parcels into four different parcels plus condominuim map overlay. And then it is to be further divided? Exactly how many buildings/tenants are going in this 4.29 acres?

5. Adjacent On-street parking: the mere fact that the developer is requesting on street parking of any kind is of great concern. Parking on 65th Street Expressway and Folsom Boulevard would impede an already strained route of travel. 65th Street is now a traffic jam in the normal commute hours and the space does not allow for a row of third cars to be parked. Folsom goes from a two lane to a one lane and causes backups during the commute hours; and even during the non commute hours would shrink a rather busy travel route. Parking should be included in the development of this property and not affect travel on city streets.

6. Design Flexibility: the developer is requesting flexibility in the entitlement documents to allow for alternate design criteria; to adjust the mix and use without additional public hearing. This request is of great concern. Anytime you ask to do something without public hearing leaves the door open for future impacts on neighborhoods and the residents with no recourse and no voice, and then they must live with whatever is developed and built. Keep in mind, this is exactly what happened with the building of The Verge, and now the citizens of this neighborhood are impacted forever.

While it is the right of a developer to want to develope their property; it is the right of the citizens who live there to voice their concerns. My concern is that we already have enough retail, that traffic will become so intolerable that even a trip to the store will be unbearable; that there can be sprawl in the city and it can encroach on neighborhoods, strangling them of a good quality of life; that there are already new retail stores in this area that have not been filled and remain and do not project a vibrant healthy neighborhood. Where does the development stop and the preservation of neighborhoods start? This neighborhood has already seen a huge apartment complex, stores moving out of the area, condos being built but not filled. And soon it will see a department store and more retail and more business offices. And all this in less than 10 years.

This development is not a new small business moving into town; it is a development that will take over the area. And yet to be developed is the area between the light rail station and the freeway off ramp. So when does it stop? When does the city say enough for this neighborhood?

The quality of life in my neighborhood will be adversely be impacted.

Kathleen Winkelman
Neighborhood Resident - 40 years
Sacramento, CA
99-2012

Letter 3

From: Elise Gumm
To: Scott Johnson; Tom Buford
Date: 7/25/2008 12:03 PM
Subject: Fwd: Proposed Development at SE corner of 65th St. and Folsom Blvd

FYI

>>> Roxanne Fuentez <rmf323@yahoo.com> 07/21/2008 2:22 PM >>>
The proposed development at the southeast corner of 65th Street and Folsom Blvd, "Station 65" has too many stories too close to the street. My family and neighbors live on the adjacent 64th Street and do not want buildings higher than two stories this close to our residential block. You would be able to see the high rise from our windows and yards and it would encroach on our privacy and box in our neighborhood. This is not downtown Sacramento.

In comparison, the apartments for students behind Office Depot are set back away from the street and are no higher than four stories.

This new proposal is too imposing, too close to our neighborhood, and doesn't seem to provide enough parking for all the proposed tenants and customers. Our street is already overwhelmed with parking problems. Our quality of life is important to us and we do not want high rises close to our street. Thank you.

SRCSD

Wastewater Treatment

10545 Armstrong Avenue
Mather, CA 95655
Tele: [916] 876-6000
Fax: [916] 876-6160
Website: www.srcsd.com

Letter 4

Technology in balance with nature

July 29, 2008

Scott Johnson, Associate Planner
City of Sacramento, Development Services Department
Environmental Planning Services
300 Richards Boulevard, 3rd Floor
Sacramento, CA 95811

Dear Mr. Johnson:

Subject: **Notice of Preparation for a Draft Environmental Impact Report (EIR) for the Station 65 Project (P08-068)**

Sacramento Regional County Sanitation District (SRCSD) has reviewed the subject document and has the following comments:

The proposed project would consist of the development of up to 83,000 square feet (sf) of retail space, approximately 72,000 sf of office space, up to 100 residential units, an approximately 148-unit hotel, and an approximately 30,000 sf fitness center. The project includes resdesign and reconstruction of traffic improvements on and off-site. The proposed project is located east of 65th Street, north of Q Street, west of Redding Avenue, and south of Folsom Boulevard in the City of Sacramento.

Local sanitary sewer service for the proposed project site will be provided by the City of Sacramento's local sewer collection system. Ultimate conveyance to the Sacramento Regional Wastewater Treatment Plant (SRWTP) for treatment and disposal will be provided via the City Interceptor. Cumulative impacts of the proposed development will need to be quantified by the developer to ensure adequate wet weather and dry weather capcity within the City Interceptor.

In November 1980, the Operations and Maintenance Agreement between SRCSD and the City of Sacramento regarding the Combined Wastewater Control System (CWCS) was executed.

Section 3.F. Responsibilities of District in Operation of CWCS states:

1. *...The District agrees to accept flows via the City Interceptor from the following City service areas up to the maximum instantaneous flow rates indicated:*

Service Area	*Maximum Flow Rate*
Sump 2	*60 MGD*

The parties to this Agreement acknowledge and agree that the 60 MGD maximum flow rate supersedes the 70 MGD figure specified in Section 29 of the Master Interagency Agreement.

Sump 21, 55 and 119	*38 MGD*
Gravity intercepts to City Interceptor at or downstream of the North Meadowview Intercept Structure	*10.5 MGD*
Total to City Interceptor	*108.5 MGD*

2. *Up to the design flow capacity limit of the City Interceptor upstream of the North Meadowview Intercept Structure, estimated at 98 MGD, the Wastewater Treatment Superintendent (or a designated representative) may authorize flows from Sump 2 for stipulated time periods in excess of the 60 MGD limit above noted. It is the intent here to accommodate higher levels of treatment for combined wastewater flows during periods when SRWTP secondary treatment capacity is available due to lag in receipt of inflow from other District service areas or when the City Interceptor influent flows from Sumps 21, 55 and 119 are less than 38 MGD.*

As stated in the table above, the total amount of flow that can be discharged to the City Interceptor is 108.5 MGD. It is the City of Sacramento's responsibility to ensure that the additional flow from this project does not exceed the limits established for the three locations listed above.

If you have any questions regarding this letter, please feel free to contact me at (916) 876-5608, or by e-mail at obonel@sacsewer.com.

Sincerely,

Elizabeth Obon
Sacramento Regional County Sanitation District

EO: eo(eo)

Cc: SRCSD Development Services
SASD Development Services

STATE OF CALIFORNIA — Arnold Schwarzenegger, *Governor*

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

August 13, 2008

Letter 5

Scott Johnson
City of Sacramento
300 Richards Boulevard, 3rd Floor
Sacramento, CA 95811

Re: Notice of Preparation, Draft Environmental Impact Report (EIR)
Station 65
SCH# 2008072067

Dear Mr. Johnson:

As the state agency responsible for rail safety within California, the California Public Utilities Commission (CPUC or Commission) recommends that development projects proposed near rail corridors be planned with the safety of these corridors in mind. New developments and improvements to existing facilities may increase vehicular traffic volumes, not only on streets and at intersections, but also at at-grade highway-rail crossings. In addition, projects may increase pedestrian traffic at crossings, and elsewhere along rail corridor rights-of-way. Working with CPUC staff early in project planning will help project proponents, agency staff, and other reviewers to identify potential project impacts and appropriate mitigation measures, and thereby improve the safety of motorists, pedestrians, railroad personnel, and railroad passengers.

The Commission recommends that the City include consideration of potential project-related rail safety impacts and measures to reduce adverse impacts of the proposed project. The project's traffic impact study (TIS) is the mechanism by which to address these concerns since it will be the basis for the analysis within the Traffic/Circulation section of the DEIR.

In general, the major types of impacts to consider are collisions between trains and vehicles, and between trains and pedestrians. Changes in land use should not be allowed that would permit housing adjacent to existing rail yards. Similarly, where a need for grade-separated crossings is identified, new development should not be placed adjacent to at-grade highway rail crossings, within the footprint of land needed for future grade-separation structures.

General categories of measures to reduce potential adverse impacts on rail safety include:

- Installation of grade separations at crossings, i.e., physically separating roads and railroad track by constructing overpasses or underpasses
- Improvements to warning devices at existing highway-rail crossings
- Installation of additional warning signage
- Improvements to traffic signaling at intersections adjacent to crossings, e.g., traffic preemption

- Installation of median separation to prevent vehicles from driving around railroad crossing gates
- Where soundwalls, landscaping, buildings, etc. would be installed near crossings, maintaining the visibility of warning devices and approaching trains
- Prohibition of parking within 100 feet of crossings to improve the visibility of warning devices and approaching trains
- Installation of pedestrian-specific warning devices and channelization
- Installation of additional traffic lanes through or the crossing to accommodate additional traffic
- Construction of pull-out lanes for buses and vehicles transporting hazardous materials
- Installation of vandal-resistant fencing or walls to limit the access of pedestrians onto the railroad right-of-way
- Elimination of driveways near crossings
- Increased enforcement of traffic laws at crossings
- Rail safety awareness programs to educate the public about the hazards of highway-rail grade crossings

CPUC also encourages localities to set up mechanisms whereby new developments pay a fair share of their impact costs to fund the above measures if not already in an existing Fee program by the City or a Regional Fee program.

Commission approval is required to modify an existing highway-rail crossing or to construct a new crossing.

Please forward the TIS scope, so we may have an opportunity to review the proposed analysis which will make our review more efficient and expedient for the project proponent. Should you have a planned scoping meeting for the traffic study, we would like to be notified along with other agencies affected or impacted by the proposed project.

Thank you for your consideration of these comments and we look forward to working with the City on this project. If you have any questions in this matter, please call me at (415) 713-0092.

Sincerely,

Moses Stites

Moses Stites
Rail Corridor Safety Specialist
Consumer Protection and Safety Division
Rail Transit and crossings Branch
515 L Street, Suite 1119
Sacramento, CA 95814

California Regional Water Quality Control Board
Central Valley Region
Karl E. Longley, ScD, P.E., Chair

Linda S. Adams
Secretary for Environmental Protection

Sacramento Main Office
11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114
Phone (916) 464-3291 • FAX (916) 464-4645
http://www.waterboards.ca.gov/centralvalley

Arnold Schwarzenegger
Governor

Letter 6

13 August 2008

Scott Johnson
City of Sacramento Planning Divison
300 Richards Boulevard
Sacramento, CA 95811

NOTICE OF PREPARATION FOR THE STATION 65 ENVIRONMENTAL IMPACT REPORT (EIR), SCH#2008072067, SACRAMENTO COUNTY

As a Responsible Agency under CEQA, we have reviewed and commented on the Station 65 EIR, Sacramento County. The City of Sacramento is regulated by the Regional Water Board under *Waste Discharge Requirements Order No. R5-2002-0206, NPDES NO. CAS082597 for County of Sacramento and Cities of Citrus Heights, Elk Grove, Folsom, Galt, and Sacramento Storm Water Discharges from Municipal Separate Storm Sewer Systems (MS4)*, dated December 2002 (hereafter Sacramento MS4).

The project site is located on a +4.29-acre site east of 65th Street, north of Q Street, west of Redding Avenue, and south of Folsom Boulevard in the City of Sacramento. The proposed project would consist of the development of up to 83,000 square feet (sf) of retail space, approximately 72,000 sf of office space, up to 100 residential units, an approximately 148-unit hotel, and an approximately 30,000 sf fitness center. Existing on-site structures would be demolished.

The updated Sacramento MS4 will be considered for adoption by the Regional Water Board in late 2008. Based on this pending decision, we have based our comments on the proposed Tentative Order, which states:

> "**Provision D. 15. Water Quality Planning and Design Principles** - In order to reduce pollutants and runoff flows from new development and redevelopment to the MEP (maximum extent practicable), each Permittee shall address the following concepts:
>
> a. Each Permittee shall incorporate water quality and watershed protection principles into planning procedures and policies or requirements to direct land-use decisions and require implementation of consistent water quality protection measures for priority development projects. These principles and policies shall be designed to protect natural water bodies and shall consider, at a minimum, the following:

i. Minimize the amount of impervious surfaces and directly connected impervious surfaces in areas of new development and redevelopment to maximize on-site infiltration of runoff (low impact design practices).

ii. Implement pollution prevention methods supplemented by pollutant source controls and treatment. Use strategies that control the sources of pollutants or constituents (i.e., the point where water initially meets the ground) to minimize the transport of urban runoff and pollutants offsite and into MS4s.

iii. Preserve, create or restore areas that provide important water quality benefits, such as riparian corridors, wetlands, and buffer zones (e.g., levees).

iv. Limit disturbances of natural water bodies and natural drainage systems caused by development including roads, highways, and bridges.

v. Require incorporation of structural and non-structural BMPs to mitigate the projected increases in pollutant loads from future development.

vi. Identify and avoid development in areas that are particularly susceptible to erosion and sediment loss; or establish development guidance that protects areas from erosion and sediment loss.

vii. Coordinate with local traffic management programs to reduce pollutants associated with vehicles and increased traffic resulting from development.

viii. Implement source and/or treatment controls to protect downstream receiving water quality from increased pollutant loads in runoff flows from new development and significant redevelopment.

ix. Control the post-development peak storm water run-off discharge rates and velocities to prevent or reduce downstream erosion and to protect stream habitat (hydromodification concepts).

b. **Low Impact Development Strategies:** Priority new development and redevelopment projects shall integrate Low Impact Development (LID) principles as feasible early in the project planning and design process. LID is a storm water management and land development strategy that emphasizes conservation and the use of existing natural site features integrated with engineered, small-scale hydrologic controls to more closely reflect predevelopment hydrologic functions in residential, commercial, and industrial settings. When developing the LID Program the Permittees shall consider and incorporate all appropriate and applicable LID components and measures that have been successfully and effectively implemented in other municipal areas. Other programs include, but are not limited to, USEPA's

"Managing Wet Weather with Green Infrastructure, Action Strategy, 2008" and LID program elements specified in the permits or Storm Water Management Plans of other MS4s throughout the state.

The Stormwater Quality Design Manual for Sacramento and South Placer Regions (May 2007) currently promotes LID principles such as conservation and use of natural site features; site specific, lot scale source and treatment control measures that keep pollutants from contacting run-off and leaving the site; and run-off reduction control measures integrated into site design.

In order to reduce pollutants and runoff flows from new development and redevelopment to the MEP, the City of Sacramento is required to ensure that all feasible BMPs are considered. The MEP standard involves applying BMPs that are effective in reducing the discharge of pollutants in storm water runoff. In discussing the MEP standard, the State Water Board has said the following: "There must be a serious attempt to comply, and practical solutions may not be lightly rejected. If, from the list of BMPs, a permittee chooses only a few of the least expensive methods, it is likely that MEP has not been met. On the other hand, if a developer employs all applicable BMPs accept those where it can show that they are not technically feasible in the locality, or whose cost would exceed any benefit to be derived, it would have met the standard. MEP requires developers to choose effective BMPs, and to reject applicable BMPs only where other effective BMPs will serve the same purpose, the BMPs would not be technically feasible, or the cost would be prohibitive." (Order No. WQ 2000-11, at p.20.). MEP is the result of the cumulative effect of implementing, continuously evaluating, and making corresponding changes to a variety of technically and economically feasible BMPs that ensure the most appropriate controls are implemented in the most effective manner. This process of implementing, evaluating, revising, or adding new BMPs is commonly referred to as the iterative approach.

We encourage the City of Sacramento to follow this iterative process early in the planning stages (i.e., pre-application review meeting) of new development and redevelopment projects in their jurisdiction.

If you have any questions, please contact me at 916.464.4606 or email address kschwab@waterboards.ca.gov.

Kim A. Schwab

KIM A. SCHWAB, P.G.
Engineering Geologist
Storm Water Section

cc: State Clearing House
Sherill Huun, City of Sacramento Storm Water Coordinator, Sacramento

DEPARTMENT OF TRANSPORTATION
DISTRICT 3 – SACRAMENTO AREA OFFICE
VENTURE OAKS – MS 15
P.O. BOX 942874
SACRAMENTO, CA 94274-0001
PHONE (916) 274-0635
FAX (916) 274-0648
TTY (530) 741-4509

Flex your power!
Be energy efficient!

Letter 7

August 15, 2008

03-2008-SAC0130
03-SAC-50 PM 2.628
Station 65
Notice of Preparation

Mr. Scott Johnson
City of Sacramento
300 Richards Blvd., 3rd Floor
Sacramento, CA 95811

Dear Mr. Johnson:

Thank you for the opportunity to review and comment on the Station 65 project's Notice of Preparation. The 4.29 acre project near the 65th Street/Folsom Boulevard intersection in the University Transit Village Plan Area proposes up to 100 dwelling units, 83,000 sq. ft. of retail/commercial uses, 72,000 sq. ft. of office space, 30,000 sq. ft. of fitness center, 148 room hotel, and 765 parking spaces. Our comments are as follows:

- A Traffic Impact Study (TIS) should be completed and include an analysis of impacts to the State Highway System (SHS). The TIS should include the U.S. Highway 50 (US 50)/65th Street, US 50/59th Street, US 50/Stockton Boulevard, and State Route (SR) 51/US 50 interchanges. The TIS should consider all possible traffic impacts to all ramps, ramp intersections, and mainline segments. The "Guide for Preparation of Traffic Impact Studies" can be found on our website at: http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/. We would appreciate the opportunity to review the scope of the TIS before the Study begins.

- Mitigation measures should be identified where the project would have a significant impact. Caltrans considers the following to be significant impacts:

  - Off-ramps with vehicle queues that extend into the ramp's deceleration area or onto the freeway.
  - Vehicle queues at intersections that exceed existing lane storage.
  - Project traffic impacts that cause any ramp's merge/diverge Level of Service (LOS) to be worse than the freeway's LOS.
  - Project impacts that cause the freeway or intersection LOS to deteriorate beyond LOS "E" for freeway and LOS "D" for highway and intersections. If LOS is already "E" or "F", then a quantitative measure of increased queue lengths and delay should be used to determine appropriate mitigation measures.

- If the TIS identifies any significant traffic impacts, please coordinate with Caltrans to investigate feasible mitigation measures. These may include ramp intersection improvements, ramp metering, signalization modification, mainline improvements, and off-highway projects that reduce the impact to less-than-significant.

If you have any questions about these comments contact Gabriel Corley at (916) 274-0611.

Sincerely,

Alyssa Begley

ALYSSA BEGLEY, Chief
Office of Transportation Planning—South

Letter 8

FIRE DEPARTMENT
"An All-Risk Organization"

Ray Jones
FIRE CHIEF

CITY OF SACRAMENTO
CALIFORNIA

5770 FREEPORT BL
SUITE 200
SACRAMENTO, CA
95822-3516

PH 916-808-1300
FAX 916-808-1677

TRANSMITTAL

DATE: August 18, 2008

ATTN: Scott Johnson

FROM: King Tunson, 808-1358
Fire Department

SUBJECT: **NOP Draft EIR for Station 65 Project (P08-068)**

Impact to Public Services (Fire) needs to be addressed in the EIR.

SACRAMENTO METROPOLITAN
AIR QUALITY
MANAGEMENT DISTRICT

Larry Greene
AIR POLLUTION CONTROL OFFICER

Letter 9

August 18, 2008

City of Sacramento, Development Services Department
Attn: Scott Johnson, Associate Planner
Environmental Planning Services
300 Richards Boulevard, 3rd Floor
Sacramento, CA 95811

Subject: Notice of Preparation for a Draft Environmental Impact Report (EIR) for the Station 65 Project

Dear Mr. Johnson:

Thank you for the opportunity for the Sacramento Metropolitan Air Quality Management District (SMAQMD) to review and comment on the Station 65 project. Staff comments are as follows.

Construction-Related Impacts
A project of this size will likely generate construction-related air quality impacts that exceed adopted CEQA thresholds of significance. An air quality analysis should be done on the project to verify the significance of its construction-related air quality impacts. We recommend using the most current version of URBEMIS 2007, version 9.2.4, available at www.urbemis.com. If its impacts are found to be significant, we recommend that our standard construction mitigation measures be applied to the project. These measures include both on-site strategies and a possible off-site mitigation fee. They can be found on our website, www.airquality.org.

Operational Impacts
This project may have some potential to generate significant operational air quality impacts. If it is determined that the project is operationally significant, we recommend that City staff and the project proponent work with SMAQMD staff to develop an Air Quality Mitigation Plan for this project to be included in the draft EIR. Early consideration of operational mitigation will allow mitigation, related to design elements in particular, to be developed before design plans are finalized.

Because this project is located adjacent to a Sacramento Regional Transit light rail station and existing neighborhoods, pedestrian and bicycle connectivity are a crucial consideration for the Draft EIR. Excellent pedestrian and bicycle connectivity to the light rail station is crucial to minimizing the project's automobile traffic generation and associated air quality impacts. Strong pedestrian and bicycle connectivity between the project's residential and commercial uses, as well as to destinations in adjacent neighborhoods, is also crucial. Providing such a high degree of bicycle and pedestrian connectivity between destinations both within and near to the project will minimize its automobile traffic generation impacts on adjacent neighborhoods, as well as associated air quality impacts.

"Sac State Tram" Project
The Sacramento State Tram is a bus rapid transit system that will connect the 65th Street Light Rail Station to the CSUS campus. Once on campus, it will serve as a people mover to link classroom, event and residential uses. The project also delays or avoids the need for construction of a fourth CSUS parking garage. This project would improve local and regional air quality by significantly reducing the University's vehicle miles travelled. To help improve local and regional air quality, planning and construction of the Station 65 project must be consistent with the Sac State Tram project.

Greenhouse Gas and Climate Change Impacts
We recommend that the draft EIR include a discussion of climate change. The California Global Warming Solutions Act of 2006 requires the State to reduce its carbon emissions by approximately 25% by the year 2020. Currently there are no adopted thresholds of significance for project-related greenhouse gasses. However, the California Air Pollution Control Officers Association (CAPCOA) has issued a resource guide to addressing greenhouse gas emissions from projects subject to CEQA. This guide, *CAPCOA CEQA & Climate Change*, available at www.CAPCOA.org, provides guidance on the analysis and mitigation of greenhouse gas emissions for commercial and other projects. We recommend that the draft EIR follow this guidance.

Finally, all projects are subject to SMAQMD rules and regulations in effect at the time of construction. Please see the attached document describing SMAQMD rules which may apply to this project. Information regarding District rules can be obtained at www.airquality.org or by calling the Compliance Assistance Hotline at 916-874-4883.

We request that the City forward us the environmental document for the project once it is prepared. If you have questions, please contact me at 916-874-4886 or mwright@airquality.org.

Sincerely,

Molly Wright

Molly Wright
Associate Air Quality Planner / Analyst

C: Larry Robinson, Program Coordinator, SMAQMD

SMAQMD Rules & Regulations Statement (revised 1/07)

*The following statement is recommended as standard condition of approval or construction document language for **all** development projects within the Sacramento Metropolitan Air Quality Management District (SMAQMD):*

All projects are subject to SMAQMD rules and regulations in effect at the time of construction. A complete listing of current rules is available at www.airquality.org or by calling 916.874.4800. Specific rules that may relate to construction activities or building design may include, but are not limited to:

Rule 201: General Permit Requirements. Any project that includes the use of equipment capable of releasing emissions to the atmosphere may require permit(s) from SMAQMD prior to equipment operation. The applicant, developer, or operator of a project that includes an emergency generator, boiler, or heater should contact the District early to determine if a permit is required, and to begin the permit application process. Portable construction equipment (e.g. generators, compressors, pile drivers, lighting equipment, etc) with an internal combustion engine over 50 horsepower are required to have a SMAQMD permit or a California Air Resources Board portable equipment registration.

Other general types of uses that require a permit include dry cleaners, gasoline stations, spray booths, and operations that generate airborne particulate emissions.

Rule 403: Fugitive Dust. The developer or contractor is required to control dust emissions from earth moving activities or any other construction activity to prevent airborne dust from leaving the project site.

Rule 417: Wood Burning Appliances. Effective October 26, 2007, this rule prohibits the installation of any new, permanently installed, indoor or outdoor, uncontrolled fireplaces in new or existing developments.

Rule 442: Architectural Coatings. The developer or contractor is required to use coatings that comply with the volatile organic compound content limits specified in the rule.

Rule 902: Asbestos. The developer or contractor is required to notify SMAQMD of any regulated renovation or demolition activity. Rule 902 contains specific requirements for surveying, notification, removal, and disposal of asbestos containing material.

Regional Transit

Sacramento Regional Transit District
A Public Transit Agency and Equal Opportunity Employer

Mailing Address:
P.O. Box 2110
Sacramento, CA 95812-2110

Administrative Office:
1400 29th Street
Sacramento, CA 95816
(916) 321-2800
(29th St. Light Rail Station/ Bus 36,38,50,67,68)

Light Rail Office:
2700 Academy Way
Sacramento, CA 95815
(916) 648-8400

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Letter 10

August 18, 2008

Scott Johnson
Associate Planner
City of Sacramento, Environmental Planning Services
300 Richards Boulevard, 3rd Floor
Sacramento, CA 95811

NAME OF DEVELOPMENT: Station 65 Project
CONTROL NUMBER: P08-068
TYPE OF DOCUMENT: NOP for DEIR

The Station 65 project proposes to develop the existing property located on the southeast corner of 65th Street and Folsom Boulevard, just north of the University/65th Street Light Rail Station. The proposal includes a mix of non-residential uses (160,425 sq. ft.), 68 residential units, and 63,680 sq. ft of retail space. A five story, 210, 635 sq. ft parking garage is proposed that will accommodate 618 parking spaces for the development. Existing zoning on the site is General Commercial, with a Transit Overlay Zone.

This project will require the relocation of the existing Bus Transfer Center to an off-site location.

The existing Transit Center with services bus routes, 26, 34, 36, 38, 81, 82 and 87 provides excellent service for the area. Light rail service at the adjacent University/65th Street Station provides 15 minute service from 5 AM to 7:30 PM, and 30 minute service from 7:30 to 12:30 AM.

In addition to our previous comments for this project dated June 26, 2008, (attached) Regional Transit (RT) recommends that the environmental document for this project include a review of the pedestrian traffic flow throughout the project.

Thank you for the opportunity to comment. Please send any subsequent documents and hearing notices that pertain to this project as they become available. If you have further questions regarding these recommendations, please contact me at (916) 556-0513 or tcanfield@sacrt.com.

Sincerely,

Traci Canfield

Traci Canfield
Planner

c: RoseMary Covington, AGM Planning and Transit Service Development, RT
Paul Marx, Planning Director, RT
Fred Arnold, Director of Real Estate, RT
Don Smith, Senior Planner, RT

attachment

I:\PL\Development Review Projects\City of Sacramento projects\East Sacramento\Sta65 DEIR 081808.doc

Regional Transit

Sacramento Regional Transit District
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Mailing Address:
P.O. Box 2110
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Administrative Office:
1400 29th Street
Sacramento, CA 95816
(916) 321-2800
(29th St. Light Rail Station/ Bus 36,38,50,67,68)

Light Rail Office:
2700 Academy Way
Sacramento, CA 95815
(916) 648-8400

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June 26, 2008

Elise Gumm
City of Sacramento, MATRIX Team
300 Richards Boulevard, 3rd Floor
Sacramento, CA 95811

NAME OF DEVELOPMENT: Station 65

CONTROL NUMBER: P08-058

TYPE OF DOCUMENT: EIR, MMP, Special Permit

The Station 65 project proposes to develop the existing property located on the southeast corner of 65th Street and Folsom Boulevard, just north of the University/65th Street Light Rail Station. The proposal includes a mix of non-residential uses (160,425 sq. ft.), 68 residential units, and 63,680 sq. ft of retail space. A five story, 210,635 sq. ft parking garage is proposed that will accommodate 618 parking spaces for the development. Existing zoning on the site is General Commercial, with a Transit Overlay Zone.

This project will require the relocation of the existing Bus Transfer Center to an off-site location.

The existing Transit Center which services bus routes, 26, 34, 36, 38, 81, 82 and 87 provides excellent service for the area. Light rail service at the adjacent University/65th Street Station provides 15 minute service from 5 AM to 7:30 PM, and 30 minute service from 7:30 to 12:30 AM.

Regional Transit (RT) staff has reviewed the proposed project and recommend the following:

Conditions:

- A traffic study shall be required to evaluate the potential impacts of the proposed Q Street parking garage entrance on vehicle turning movements into and out of the garage, impacts on vehicle, pedestrian and bicycle traffic in the vicinity, especially along Q Street and at the intersections of Q and 65th Street, and Q and 67th Street.

- The traffic study shall evaluate the potential impacts of the loading areas on traffic and transit operations. Assumptions for the impacts on Transit Center operations shall be subject to the review and approval of Regional Transit prior to initiation of the traffic study.

- The project shall be subject to the review and approval of the City of Sacramento Design Review Board. The Q Street parking garage entrance shall be considered as part of that review in light of the project goal to transform the district into a mixed use urban village where transit patrons are brought together with others in the neighborhood. The impacts of the parking garage entrance and trash areas on the potential of providing a vibrant retail/pedestrian/transit oriented Q Street elevation shall be reviewed and alternatives considered.

- The applicant shall identify a location for the Sacramento State Tram. The location shall be convenient to the University/65th Street Station platform and provide safe access for patrons between the bus, light rail and tram service. Plans shall designate a space which shall be approved by Sacramento State Tram project manager and Regional Transit prior to issuance of any building permits.

- The applicant shall obtain approval of street cross sections for Q Street, 65th Street, 67th Street and Folsom Boulevard from Regional Transit staff prior to any new street work and approval of any building permits. Cross sections shall clearly identify bus parking locations and configuration, travel lanes and widths, bicycle lanes, pedestrian ways, transit platform and other details as considered appropriate by Regional Transit.

- Public art, all signage, bicycle locker details shall be reviewed and approved by Regional Transit staff prior to issuance of any building permits. Bicycle parking facilities shall be per City of Sacramento requirements and located near building entrances.

- The applicant shall join the Sacramento Transportation Management Association (TMA) and shall provide transit information for all employees, residents and hotel clientele. The transit information shall be displayed in a prominent locations in the residential sales/rental office, employee break rooms, hotel lobby and elsewhere as appropriate. Please contact Devra Selenis, Marketing Department at (916) 556-0112 for more information.

- Develop a program to offer transit passes to employees per the Sacramento TMA. A program to provide transit pass discounts of 50% or greater shall be developed for new residents. This program shall last for a minimum of six months. The residential transit pass program shall be reviewed and approved by RT prior to approval of any special permit for the project.

- Contact Robert Hendrix, RT Facilities (916) 649-2759 to determine the specifications for any bus shelter pads that may be required. If determined appropriate (by RT) provide a bus shelter pad as directed.

- Connectivity of pedestrian ways and amenities such as pavers, vertical curbs, tree shading, lighting and trellises shall be provided to the satisfaction of Regional Transit staff prior to approval of any building permits.

Thank you for the opportunity to comment. Please send any subsequent documents and hearing notices that pertain to this project as they become available. If you have further questions regarding these recommendations, please contact me at (916) 556-0507 or pmarx@sacrt.com.

Sincerely,

Paul Marx

Paul Marx
Planning Director

c: RoseMary Covington, AGM Planning and Transit Service Development, RT
Paul Marx, Planning Director, RT
Fred Arnold, Director of Real Estate, RT
Mark Lucas, Mark Lucas Enterprises.
Devra Selenis, RT Marketing.
Robert Hendrix, RT Facilities

STATE OF CALIFORNIA

Arnold Schwarzenegger, *Governor*

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

September 4, 2008

Scott Johnson
City of Sacramento
300 Richards Boulevard, 3rd Floor
Sacramento, CA 95811

Re: Traffic Impact Study Scope, Draft Environmental Impact Report (EIR)
Station 65
SCH# 2008072067

Dear Mr. Johnson:

Thank you for sending the requested traffic impact study scope and site plan for Station 65 project as proposed by the City of Sacramento. We have completed our review and offer the following comments:

1.) The three proposed scenarios (A, B&C) in the study need to evaluate the impacts on the at grade crossing on 65th Street between Q Street and the S Street/ westbound SR 50 ramps. This is critical if in scenarios B &C there is a reduction in the number of lanes, what will the effect (Queuing & LOS) be on the at grade crossing along with proposed mitigation measures to address the impacts. We concur with the road segment analysis for the 65th Street between Folsom boulevard and S Street. A raised median may be an appropriate mitigation measure between the segment of the intersection at S Street /westbound SR 50 up to the existing median at the crossing on Folsom Boulevard.

2.) The General Plan policy change in LOS E conditions in multi-modal districts and LOS D in other areas may need further analysis if *safety* becomes an issue as a result of this new policy at or near the at grade crossings around the proposed project.

3.) It is recommended that the consultant analyze the queue in the am/pm peak periods during an activated train crossing at the intersection of Q Street and Folsom since it is a 3 legged intersection. The Queue analysis should be based on actual field observation as traffic modeling usually does not work very well for crossings due to a number of variables. This should be done for all the proposed scenarios as listed on page 2 of the scope.

4.) The proposed widening of Folsom Boulevard in the roadway network needs to be described in the study to determine what impacts if any it will have at the at grade crossing and mitigation measures.

5.) Will the consultant be using a passenger car equivalent (PCE) for Buses and trucks, as this will affect the trip generation, distribution and capacity on to the local network.

6.) Under task 3.0 Baseline Conditions, second paragraph last sentence needs to include Rail Corridor and at grade intersection crossings.

7.) In task 4.0, Baseline Plus project Analysis, second paragraph needs to include at end of second last sentence- unless it results in a safety concern. Last paragraph needs to include Rail corridor and at grade intersection crossings. Similar additions in Task 5.0 and 6.0 regarding Rail Corridor and at grade intersection crossings.

8.) Request a copy of the project trip distribution to determine if any additional at grade crossings need to be analyzed in the study. The additional crossing of interest is on Redding Avenue just south of Q Street. We recommend adding to the list of intersections to be studied.

Please consider a revised scope with your traffic consultant based on our comments. We look forward to reviewing the DEIR with the above concerns included and addressed. If you have any questions concerning this review, please call me at (415) 713-0092 or email ms2@cpuc.ca.gov .

Sincerely,

Moses Stites
Rail Corridor Safety Specialist
Consumer Protection and Safety Division
Rail Transit and crossings Branch
515 L Street, Suite 1119
Sacramento, CA 95814

cc: SCH

APPENDIX C

LAND USE CONSISTENCY ANALYSIS

Appendix C
Station 65 Project Consistency with Applicable Plans

City of Sacramento General Plan		Project Consistency
Commerce and Industry Land Use Element		
Goal A, Policy 1	Actively support and encourage mixed use commercial, office, and residential development in identified areas of opportunity around light right stations by establishing minimum development standards, potential financial incentives, and priority processing or streamlined review.	Consistent: The proposed project would develop and promote mixed use commercial, office, and residential development adjacent to the existing light rail/bus transfer station located on Q Street. The proposed project would be developed in an area that is identified for reuse and therefore, would be consistent with this policy.
Neighborhood/Community Commercial and Office Areas		
Goal A, Policy 1	Maintain and strengthen viable shopping districts throughout the City.	Consistent: The proposed project would provide increased retail/shopping opportunities and would enhance the economic viability of the project area.
Goal A, Policy 2	Promote the rehabilitation and revitalization of existing commercial centers.	Consistent: The proposed project would revitalize a major component of the existing corridor that has yet to be improved.
Goal B, Policy 2	Promote the development of mixed use local commercial/office and high density residential projects.	Consistent: The proposed project would be consistent with this policy as the project components consist of commercial, office, retail, and high density residential.
Residential Land Use Element		
Goal A, Policy 5	Continue redevelopment and rehabilitation efforts in existing target areas and identify other areas experiencing blighted conditions. Explore methods to expand public or private rehabilitation efforts in potential improvement areas and in areas of opportunity or reuse identified in the General Plan (see exhibits provided in the General Plan).	Consistent: Map 6 and 7 from the SGP identify the project site as a target infill area and an area of opportunity for development or reuse.

Appendix C Station 65 Project Consistency with Applicable Plans		
Goal A, Policy 6	Prohibit the intrusion of incompatible uses into residential neighborhoods through adequate buffers, screening and zoning practices that do not preclude pedestrian access to arterials that my serve as transit corridors.	Consistent: The proposed project would develop high density residential in conjunction with residential uses in an area that is identified for redevelopment and diversification of uses.
Goal C, Policy 1	Identify areas where increased densities, land use changes or mixed uses would help support existing services, transportation facilities, transit, and light rail. Then proceed with necessary General Plan land use changes for property with service capabilities adequate to support more intensive residential development.	Consistent: The proposed project would be adjacent to Folsom Boulevard and 65th Streets which are major thoroughfares and the project site is immediately adjacent to an existing light rail/bus transfer station.
Goal C, Policy 2	Identify areas of potential change where density development would be appropriate along major thoroughfares, commercial strips near light rail stations, and modify plans to accommodate this change.	Consistent: The proposed project would be adjacent to 65th Street and Folsom Boulevard which are major thoroughfares and would be adjacent to an existing light rail/bus transfer station.
Goal C, Policy 6	Continue to support redevelopment and rehabilitation efforts that add new and reconditioned units to the housing stock while eliminating neighborhood blight and deterioration.	Consistent: The proposed project would be adjacent to Folsom Boulevard and 65th Streets which are major thoroughfares and the project site is immediately adjacent to an existing light rail/bus transfer station
Proposed Sacramento General Plan Update		**Project Consistency**
Goal LU 1.1, Policy LU 1.1.5	**Infill Development.** The City shall promote and provide incentives (e.g., focused infill planning, zoning/rezoning, revised regulations, provision of infrastructure) for infill development, redevelopment, mining reuse, and growth in existing urbanized areas to enhance community character, optimize City investments in infrastructure and community facilities, support increased transit use, promote pedestrian- and bicycle-friendly neighborhoods, increase housing diversity, ensure integrity of historic districts, and	Consistent: The proposed project is an infill project that would aid in the redevelopment of an area that is experiencing urban growth and would optimize existing infrastructure and community facilities, support increased transit use, and alternative modes of transportation.

	enhance retail viability.	
Goal LU 1.1, Policy LU 1.1.9	**LU 1.1.9 Balancing Infill and New Growth.** The City shall maintain a balanced growth management approach by encouraging infill development within the existing Policy Area where City services are in place, and by phasing city expansion into Special Study Areas where appropriate.	Consistent: The proposed project would be developed on a site with existing infrastructure and that has been identified by the City as an area of opportunity for development or reuse (General Plan 1988 and 65th Street/University Transit Village Plan).
Citywide Land Use and Urban Design		
Goal LU 2.1, Policy 2.1.2	**Protect Established Neighborhoods.** The City shall preserve, protect, and enhance established neighborhoods by providing sensitive transitions between these neighborhoods and adjoining areas, and requiring new development, both private and public, to respect and respond to those existing physical characteristics buildings, streetscapes, open spaces, and urban form that contribute to the overall character and livability of the neighborhood.	Consistent: The proposed project would be developed consistent with surrounding development and would be sensitive to the physical characteristics of surrounding urban development. The proposed project would enhance the overall livability of the project area as it is considered a transit-oriented development (TOD) and it would facilitate and encourage increased utilization of pedestrian and public transportation to the project site, which in turn, would benefit the character of the project are and increase community access.
Goal LU 2.1, Policy 2.1.4	**Neighborhood Centers.** The City shall promote the development of strategically located (e.g., accessible to surrounding neighborhoods) mixed-use neighborhood centers that accommodate local-serving commercial, employment, and entertainment uses; provide diverse housing opportunities; are within walking distance of surrounding residents; and are efficiently served by transit.	Consistent: The proposed project would be consistent with this policy as it would support and enhance existing mixed-use development. The proposed project would provide diverse housing opportunities and is within walking distance of public transit, educational facilities (CSUS), and commercial development.
Goal LU 2.1, Policy 2.1.5	**Neighborhood Enhancement.** The City shall promote infill development, redevelopment, rehabilitation, and reuse efforts that contribute positively (e.g., architectural design) to existing	Consistent: The proposed project would redevelop an area that has been identified by the City as an area

	neighborhoods and surrounding areas.	of opportunity of development or reuse. Further, the proposed project would be beneficial to the project area as it would provide jobs and housing opportunities near public transit and CSUS.
Goal LU 2.6, Policy 2.6.1	**Sustainable Development Patterns.** The City shall promote compact development patterns and higher development intensities that use land efficiently; reduce pollution and automobile dependence and the expenditure of energy and other resources; and facilitate walking, bicycling, and transit use.	Consistent: The proposed project would be a high density mixed-use transit oriented development that encourages the use of pedestrian connectivity and utilization of public transit and other alternative modes of transportation.
Goal LU 2.7, Policy 2.7.3	**Transitions in Scale.** The City shall require that the scale and massing of new development in higher-density centers and corridors provide appropriate transitions in building height and bulk that are sensitive to the physical and visual character of adjoining neighborhoods that have lower development intensities and building heights.	Consistent: The proposed project would be developed sensitive to existing land uses and would compliment new urban development in the project area.
Goal LU 2.7, Policy LU 2.7.4	**Public Safety and Community Design.** The City shall promote design of neighborhoods, centers, streets, and public spaces that enhances public safety and discourages crime by providing street-fronting uses ("eyes on the street"), adequate lighting and sight lines, and features that cultivate a sense of community ownership.	Consistent: The proposed project would be designed to front existing roads (65th Street and Folsom Boulevard) and would provide adequate lighting and security presence to facilitate a sense of safety and community ownership.
Goal LU 2.7, Policy LU 2.7.6	**Walkable Blocks.** The City shall require new development and redevelopment projects to create walkable, pedestrian scaled blocks, publicly accessible mid-block pedestrian routes where appropriate, and sidewalks appropriately scaled for the anticipated pedestrian use.	Consistent: The proposed project is designed to enhance pedestrian connectivity in the project area. Project site sidewalks would be adequately sized for pedestrian use.
Goal LU 2.7, Policy LU 2.7.7	**Buildings that Engage the Street.** The City shall require buildings to be oriented to and actively engage and complete the public realm through such features as building orientation, build-to and setback lines, façade articulation, ground-floor transparency, and	Consistent: The proposed project would be designed to attract patrons, residents, and employees to the project site. The proposed

	location of parking.	project would compliment new development in the project area.
Goal LU 2.7, Policy LU 2.7.8	**Screening of Off-street Parking.** The City shall reduce the visual prominence of parking within the public realm by requiring most off-street parking to be located behind or within structures or otherwise fully or partially screened from public view.	Consistent: The proposed parking structure would screen a majority of the parking demand estimated for the proposed project.
Goal LU 4.4, Policy LU 4.4.1	**Well-Defined Street Fronts.** The City shall require that new buildings in urban neighborhoods maintain a consistent setback from the public right-of-way in order to create a well-defined public sidewalk and street.	Consistent: The proposed project would be developed consistent with development in the project area and would maintain a consistent setback to create a well-defined public right-of-way.
Goal LU 4.4, Policy LU 4.4.4	**Ample Public Realm.** The City shall require that higher density urban neighborhoods include small public spaces and have broad tree-lined sidewalks furnished with appropriate pedestrian amenities that provide comfortable and attractive settings to accommodate high levels of pedestrian activity.	Consistent: The proposed project includes adequate landscaping and pedestrian amenities that would make the proposed project consistent with this policy.
Goal LU 4.4, Policy LU 4.4.6	**Mix of Uses.** The City shall encourage the vertical and horizontal integration of a complementary mix of commercial, service and other nonresidential uses that address the needs of families and other household types living in urban neighborhoods. Such uses may include daycare and school facilities, retail and services, and parks, plazas, and open spaces.	Consistent: The proposed project includes a horizontal and vertical mix of residential, non-residential, office, commercial, and retail uses.
Goal LU 5.1, Policy 5.1.1	**Diverse Centers.** The City shall encourage development of local, citywide, and regional mixed-use centers that address different community needs and market sectors, and complement and are well integrated with the surrounding neighborhoods.	Consistent: The proposed project would compliment new and existing commercial development in the project area. The proposed project is designed to enhance the existing community and existing transit facilities.
Goal LU 5.1, Policy 5.1.2	**Centers Served by Transit.** The City shall promote the development of commercial mixed-use centers that are located on existing or planned transit lines in order to facilitate and take advantage of transit	Consistent: The proposed project would be located within a quarter-mile of an existing light rail/bus transfer

	service, reduce vehicle trips, and enhance community access.	station which would enhance community access to the project site, facilitate the increase use of public transit and alternatives to automotive transportation in the project area.
Goal LU 5.1, Policy 5.1.4	**Major Retail and Office Development.** The City shall work with developers to develop major regional commercial and office projects in centers throughout the city that provide shopping and jobs for all city residents.	Consistent: The proposed project would include office and commercial, retail, and residential uses that would provide a variety of jobs for all city residents.
Goal LU 5.1, Policy 5.1.5	**Vertical and Horizontal Mixed-use.** The City shall encourage the vertical and horizontal integration of uses within commercial centers and mixed-use centers, particularly residential and office uses over ground floor retail.	Consistent: Retail and restaurant uses would be located along the periphery of the project site and office space, residences, the hotel, and the fitness center would be spread throughout the upper levels of the proposed building.
Goal LU 5.5, Policy 5.51	**Urban Centers.** The City shall promote the development of a series of urban centers, as designated in the Land Use & Urban Form Diagram, that create significant opportunities for employment, housing, and commercial activity in areas outside of the Central Business District (CBD).	Consistent: The project site is identified as Urban Center Low in the City approved Land Use & Urban Form Diagram. The proposed project would provide employment, housing, and commercial/retail activities in the project area.
Goal LU 5.5, Policy 5.5.2	**Transit-Oriented Development.** The City shall actively support and encourage mixed-use retail, employment, and residential development around existing and future transit stations.	Consistent: The proposed project would be considered a transit-oriented development (TOD) as it would develop a mixed-use retail, commercial, and residential uses adjacent to an existing light rail/bus transfer station.
65th Street/University Transit Village Plan		**Project Consistency**

Appendix C Station 65 Project Consistency with Applicable Plans		
Mixed Use Village		
Goal 1, Policy 1.1	Require active ground level uses within larger residential mixed use projects along 65th Street and Folsom Boulevard.	Consistent: The proposed project would develop ground level retail beneath commercial, office, and residential development. The proposed project would be consistent with this policy.
Goal 1, Policy 1.2	Discourage uses that might be detrimental to transit ridership such as those with low frequency, or automobile related uses, such as warehouses, self-storage, service stations, or car sales lots.	Consistent: The proposed project encourages transit ridership and would facilitate pedestrian access and activity within the project site and surrounding the project site.
Goal 1, Policy 1.3	Encourage uses that have daily or frequent patronage, such as offices, hotels, or high-density residential development.	Consistent: The proposed project would develop a hotel, office space, and high density residential units.
Goal 2, Policy 2.1	Given the existing employment base in the area, balance additional employment and retail uses with housing to support transit and reduce internal trips.	Consistent: The proposed project will include residential units that will allow future project employees the option to reside on the project site. Furthermore, the proposed project will provide employee transit incentives to encourage transit ridership.
Goal 2, Policy 2.2	Provide opportunities for low and moderate income housing, particularly in the Super Block and Station Block to serve the large employment population base created by SMUD and CSUS.	Consistent: The proposed residential development would include an affordable housing component.
Commercial Development		
Goal 6, Policy 6.1	Provide for a mixture of higher density commercial office and employment uses in closest proximity to the 65th Street Station.	Consistent: The proposed project would include high density commercial, office, and retail space.
Goal 6, Policy 6.2	Encourage neighborhood and community serving commercial uses that support the University and neighborhood.	Consistent: The proposed project would enhance commercial uses and

Appendix C Station 65 Project Consistency with Applicable Plans		
		would facilitate pedestrian access and flow in and around the project site. The proposed project would provide job opportunities for the existing labor pool.
Goal 6, Policy 6.3	Allow for multi-family residential development in commercial zones.	Consistent: The proposed project would develop multi-family residential units in conjunction with commercial, retail, and office space.
Residential Development		
Goal 8, Policy 8.1	Provide for townhouses, condominiums and flats and apartments to provide alternative home ownership and rental opportunities.	Consistent: The proposed project would provide up to 120 residential units as an alternative to the existing housing stock.
Goal 8, Policy 8.2	Reduce parking standards to accommodate both ground floor retail/office and adjacent residential and office development.	Consistent: The proposed project would provide sufficient parking to serve the proposed development while also encouraging the use of existing transit facilities to reduce traffic congestion surrounding the project site.
Goal 8, Policy 8.3	Vertical mixed use development is preferred over horizontal mixed use.	Consistent: The proposed project has requested a variance to allow for a structural height increase to increase density without increasing the project footprint.
Open Space and Community Facilities		
Goal 9, Policy 9.1	New residential and commercial development should include public open space components.	Consistent: The proposed project would include appropriate landscaping that would act as a public gathering space.

Appendix C Station 65 Project Consistency with Applicable Plans		
Goal 9, Policy 9.2	Public open space may include: mini parks, gathering spaces, and courtyards. The location and forms of these public and semi-public facilities shall be compatible in design and scale with the adjacent development.	Consistent: The proposed project would include outside areas that would be utilized as public gathering spaces.
Goal 10, Policy 10.1	A minimum of 10 percent of the site shall be landscaped and pervious surfaces. Landscaping that serves as a stormwater treatment element and/or pedestrian plazas may be used to satisfy this requirement.	Consistent: The proposed project includes sufficient landscaping to meet the minimum 10 percent requirement.

APPENDIX D

AIR QUALITY MODEL OUTPUT FILES

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\equinn\Application Data\Urbemis\Version9a\Projects\Station 65\Station 65 - Scenario A, Near-Term.urb924

Project Name: Station 65 - Scenario A - Near-Term

Project Location: Sacramento County AQMD

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009 TOTALS (lbs/day unmitigated)	20.25	26.51	36.98	0.03	59.60	1.45	60.94	12.45	1.33	13.68	4,380.61
2009 TOTALS (lbs/day mitigated)	6.29	22.54	36.98	0.03	13.57	0.64	13.67	2.84	0.59	2.93	4,380.61
2010 TOTALS (lbs/day unmitigated)	19.95	20.26	34.60	0.03	0.12	1.35	1.47	0.04	1.24	1.28	4,382.52
2010 TOTALS (lbs/day mitigated)	13.27	17.78	34.60	0.03	0.12	0.53	0.65	0.04	0.48	0.52	4,382.52
2011 TOTALS (lbs/day unmitigated)	22.28	34.55	43.54	0.03	0.13	2.63	2.76	0.05	2.41	2.46	5,933.02
2011 TOTALS (lbs/day mitigated)	10.45	29.92	43.54	0.03	0.13	0.62	0.75	0.05	0.56	0.61	5,933.02

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	5.79	3.19	11.58	0.00	0.04	0.04	3,746.33

TOTALS (lbs/day, mitigated)	5.79	3.19	11.58	0.00	0.04	0.04	3,746.33
Percent Reduction	0.00	0.00	0.00	NaN	0.00	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	50.93	52.24	598.62	0.51	81.63	15.73	51,330.12
TOTALS (lbs/day, mitigated)	44.65	44.92	514.76	0.44	70.23	13.54	44,145.83
Percent Reduction	12.33	14.01	14.01	13.73	13.97	13.92	14.00

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	56.72	55.43	610.20	0.51	81.67	15.77	55,076.45
TOTALS (lbs/day, mitigated)	50.44	48.11	526.34	0.44	70.27	13.58	47,892.16
Percent Reduction	11.07	13.21	13.74	13.73	13.96	13.89	13.04

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 6/1/2009-6/30/2009 Active Days: 22	1.38	9.98	6.57	0.00	1.90	0.71	2.62	0.40	0.66	1.06	1,063.48
Demolition 06/01/2009-06/30/2009	1.38	9.98	6.57	0.00	1.90	0.71	2.62	0.40	0.66	1.06	1,063.48
Fugitive Dust	0.00	0.00	0.00	0.00	1.89	0.00	1.89	0.39	0.00	0.39	0.00
Demo Off Road Diesel	1.23	8.15	4.78	0.00	0.00	0.64	0.64	0.00	0.59	0.59	700.30
Demo On Road Diesel	0.12	1.78	0.61	0.00	0.01	0.07	0.08	0.00	0.07	0.07	251.63
Demo Worker Trips	0.03	0.05	1.17	0.00	0.00	0.00	0.01	0.00	0.00	0.00	111.56

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Time Slice 7/1/2009-8/14/2009 Active Days: 33	3.22	26.51	14.15	0.00	59.60	1.34	60.94	12.45	1.23	13.68	2,358.88
Mass Grading 07/01/2009-08/15/2009	3.22	26.51	14.15	0.00	59.60	1.34	60.94	12.45	1.23	13.68	2,358.88
Mass Grading Dust	0.00	0.00	0.00	0.00	59.60	0.00	59.60	12.45	0.00	12.45	0.00
Mass Grading Off Road Diesel	3.18	26.46	12.98	0.00	0.00	1.33	1.33	0.00	1.23	1.23	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.05	1.17	0.00	0.00	0.00	0.01	0.00	0.00	0.00	111.56
Time Slice 8/17/2009-9/15/2009 Active Days: 22	3.22	26.51	14.15	0.00	59.60	1.34	60.94	12.45	1.23	13.68	2,358.88
Fine Grading 08/16/2009-09/15/2009	3.22	26.51	14.15	0.00	59.60	1.34	60.94	12.45	1.23	13.68	2,358.88
Fine Grading Dust	0.00	0.00	0.00	0.00	59.60	0.00	59.60	12.45	0.00	12.45	0.00
Fine Grading Off Road Diesel	3.18	26.46	12.98	0.00	0.00	1.33	1.33	0.00	1.23	1.23	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.05	1.17	0.00	0.00	0.00	0.01	0.00	0.00	0.00	111.56
Time Slice 9/16/2009-10/30/2009 Active Days: 33	4.77	21.43	36.77	0.03	0.12	1.45	1.56	0.04	1.33	1.37	4,360.46
Building 09/16/2009-03/15/2011	4.77	21.43	36.77	0.03	0.12	1.45	1.56	0.04	1.33	1.37	4,360.46
Building Off Road Diesel	3.87	17.35	11.50	0.00	0.00	1.28	1.28	0.00	1.17	1.17	1,621.20
Building Vendor Trips	0.25	3.09	2.96	0.01	0.02	0.13	0.15	0.01	0.12	0.12	620.26
Building Worker Trips	0.64	0.99	22.31	0.02	0.09	0.05	0.14	0.03	0.04	0.07	2,119.00

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Time Slice 11/2/2009-12/31/2009 Active Days: 44	20.25	21.44	36.98	0.03	0.12	1.45	1.57	0.04	1.33	1.37	4,380.61
Building 09/16/2009-03/15/2011	4.77	21.43	36.77	0.03	0.12	1.45	1.56	0.04	1.33	1.37	4,360.46
Building Off Road Diesel	3.87	17.35	11.50	0.00	0.00	1.28	1.28	0.00	1.17	1.17	1,621.20
Building Vendor Trips	0.25	3.09	2.96	0.01	0.02	0.13	0.15	0.01	0.12	0.12	620.26
Building Worker Trips	0.64	0.99	22.31	0.02	0.09	0.05	0.14	0.03	0.04	0.07	2,119.00
Coating 11/01/2009-05/31/2011	15.48	0.01	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.15
Architectural Coating	15.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.15
Time Slice 1/1/2010-12/31/2010 Active Days: 261	19.95	20.26	34.60	0.03	0.12	1.35	1.47	0.04	1.24	1.28	4,382.52
Building 09/16/2009-03/15/2011	4.47	20.25	34.41	0.03	0.12	1.35	1.47	0.04	1.24	1.28	4,362.35
Building Off Road Diesel	3.65	16.55	11.20	0.00	0.00	1.19	1.19	0.00	1.10	1.10	1,621.20
Building Vendor Trips	0.24	2.81	2.76	0.01	0.02	0.11	0.14	0.01	0.10	0.11	620.38
Building Worker Trips	0.58	0.89	20.45	0.02	0.09	0.05	0.14	0.03	0.04	0.07	2,120.77
Coating 11/01/2009-05/31/2011	15.48	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.16
Architectural Coating	15.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.16

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Time Slice 1/3/2011-2/28/2011 Active Days: 41	19.61	19.00	32.38	0.03	0.12	1.28	1.40	0.04	1.17	1.22	4,384.01
Building 09/16/2009-03/15/2011	4.13	19.00	32.20	0.03	0.12	1.28	1.40	0.04	1.17	1.22	4,363.83
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.22	2.52	2.58	0.01	0.02	0.10	0.12	0.01	0.09	0.10	620.46
Building Worker Trips	0.52	0.81	18.78	0.02	0.09	0.04	0.14	0.03	0.04	0.07	2,122.18
Coating 11/01/2009-05/31/2011	15.48	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.18
Architectural Coating	15.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.18
Time Slice 3/1/2011-3/15/2011 Active Days: 11	22.28	34.55	43.54	0.03	0.13	2.63	2.76	0.05	2.41	2.46	5,933.02
Asphalt 03/01/2011-05/31/2011	2.67	15.54	11.16	0.00	0.01	1.34	1.35	0.00	1.23	1.24	1,549.01
Paving Off-Gas	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.48	15.15	9.07	0.00	0.00	1.33	1.33	0.00	1.22	1.22	1,272.04
Paving On Road Diesel	0.02	0.31	0.11	0.00	0.00	0.01	0.01	0.00	0.01	0.01	53.52
Paving Worker Trips	0.06	0.09	1.98	0.00	0.01	0.00	0.01	0.00	0.00	0.01	223.45
Building 09/16/2009-03/15/2011	4.13	19.00	32.20	0.03	0.12	1.28	1.40	0.04	1.17	1.22	4,363.83
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.22	2.52	2.58	0.01	0.02	0.10	0.12	0.01	0.09	0.10	620.46
Building Worker Trips	0.52	0.81	18.78	0.02	0.09	0.04	0.14	0.03	0.04	0.07	2,122.18
Coating 11/01/2009-05/31/2011	15.48	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.18
Architectural Coating	15.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.18

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Time Slice 3/16/2011-5/31/2011 Active Days: 55	18.15	15.55	11.34	0.00	0.01	1.34	1.36	0.00	1.24	1.24	1,569.19
Asphalt 03/01/2011-05/31/2011	2.67	15.54	11.16	0.00	0.01	1.34	1.35	0.00	1.23	1.24	1,549.01
Paving Off-Gas	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.48	15.15	9.07	0.00	0.00	1.33	1.33	0.00	1.22	1.22	1,272.04
Paving On Road Diesel	0.02	0.31	0.11	0.00	0.00	0.01	0.01	0.00	0.01	0.01	53.52
Paving Worker Trips	0.06	0.09	1.98	0.00	0.01	0.00	0.01	0.00	0.00	0.01	223.45
Coating 11/01/2009-05/31/2011	15.48	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.18
Architectural Coating	15.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.18

Phase Assumptions

Phase: Demolition 6/1/2009 - 6/30/2009 - Type Your Description Here

Building Volume Total (cubic feet): 975000

Building Volume Daily (cubic feet): 4500

On Road Truck Travel (VMT): 62.5

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 8/16/2009 - 9/15/2009 - Default Fine Site Grading Description

Total Acres Disturbed: 4.29

Maximum Daily Acreage Disturbed: 2.98

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 7/1/2009 - 8/15/2009 - Type Your Description Here

Total Acres Disturbed: 4.29

Maximum Daily Acreage Disturbed: 2.98

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 3/1/2011 - 5/31/2011 - Default Paving Description

Acres to be Paved: 2.98

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 9/16/2009 - 3/15/2011 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

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1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 11/1/2009 - 5/31/2011 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 6/1/2009-6/30/2009 Active Days: 22	1.38	9.68	6.57	0.00	1.90	0.64	2.54	0.40	0.59	0.98	1,063.48
Demolition 06/01/2009-06/30/2009	1.38	9.68	6.57	0.00	1.90	0.64	2.54	0.40	0.59	0.98	1,063.48
Fugitive Dust	0.00	0.00	0.00	0.00	1.89	0.00	1.89	0.39	0.00	0.39	0.00
Demo Off Road Diesel	1.23	7.86	4.78	0.00	0.00	0.56	0.56	0.00	0.52	0.52	700.30
Demo On Road Diesel	0.12	1.78	0.61	0.00	0.01	0.07	0.08	0.00	0.07	0.07	251.63
Demo Worker Trips	0.03	0.05	1.17	0.00	0.00	0.00	0.01	0.00	0.00	0.00	111.56

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Time Slice 7/1/2009-8/14/2009 Active Days: 33	3.22	22.54	14.15	0.00	13.57	0.10	13.67	2.84	0.09	2.93	2,358.88
Mass Grading 07/01/2009-08/15/2009	3.22	22.54	14.15	0.00	13.57	0.10	13.67	2.84	0.09	2.93	2,358.88
Mass Grading Dust	0.00	0.00	0.00	0.00	13.57	0.00	13.57	2.83	0.00	2.83	0.00
Mass Grading Off Road Diesel	3.18	22.49	12.98	0.00	0.00	0.10	0.10	0.00	0.09	0.09	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.05	1.17	0.00	0.00	0.00	0.01	0.00	0.00	0.00	111.56
Time Slice 8/17/2009-9/15/2009 Active Days: 22	3.22	22.54	14.15	0.00	13.57	0.10	13.67	2.84	0.09	2.93	2,358.88
Fine Grading 08/16/2009-09/15/2009	3.22	22.54	14.15	0.00	13.57	0.10	13.67	2.84	0.09	2.93	2,358.88
Fine Grading Dust	0.00	0.00	0.00	0.00	13.57	0.00	13.57	2.83	0.00	2.83	0.00
Fine Grading Off Road Diesel	3.18	22.49	12.98	0.00	0.00	0.10	0.10	0.00	0.09	0.09	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.05	1.17	0.00	0.00	0.00	0.01	0.00	0.00	0.00	111.56
Time Slice 9/16/2009-10/30/2009 Active Days: 33	4.77	18.83	36.77	0.03	0.12	0.56	0.67	0.04	0.51	0.55	4,360.46
Building 09/16/2009-03/15/2011	4.77	18.83	36.77	0.03	0.12	0.56	0.67	0.04	0.51	0.55	4,360.46
Building Off Road Diesel	3.87	14.74	11.50	0.00	0.00	0.38	0.38	0.00	0.35	0.35	1,621.20
Building Vendor Trips	0.25	3.09	2.96	0.01	0.02	0.13	0.15	0.01	0.12	0.12	620.26
Building Worker Trips	0.64	0.99	22.31	0.02	0.09	0.05	0.14	0.03	0.04	0.07	2,119.00

Time Slice 11/2/2009-12/31/2009 Active Days: 44	6.29	18.84	36.98	0.03	0.12	0.56	0.67	0.04	0.51	0.55	4,380.61
Building 09/16/2009-03/15/2011	4.77	18.83	36.77	0.03	0.12	0.56	0.67	0.04	0.51	0.55	4,360.46
Building Off Road Diesel	3.87	14.74	11.50	0.00	0.00	0.38	0.38	0.00	0.35	0.35	1,621.20
Building Vendor Trips	0.25	3.09	2.96	0.01	0.02	0.13	0.15	0.01	0.12	0.12	620.26
Building Worker Trips	0.64	0.99	22.31	0.02	0.09	0.05	0.14	0.03	0.04	0.07	2,119.00
Coating 11/01/2009-05/31/2011	1.52	0.01	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.15
Architectural Coating	1.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.15
Time Slice 1/1/2010-12/31/2010 Active Days: 261	13.27	17.78	34.60	0.03	0.12	0.53	0.65	0.04	0.48	0.52	4,382.52
Building 09/16/2009-03/15/2011	4.47	17.77	34.41	0.03	0.12	0.53	0.64	0.04	0.48	0.52	4,362.35
Building Off Road Diesel	3.65	14.06	11.20	0.00	0.00	0.37	0.37	0.00	0.34	0.34	1,621.20
Building Vendor Trips	0.24	2.81	2.76	0.01	0.02	0.11	0.14	0.01	0.10	0.11	620.38
Building Worker Trips	0.58	0.89	20.45	0.02	0.09	0.05	0.14	0.03	0.04	0.07	2,120.77
Coating 11/01/2009-05/31/2011	8.81	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.16
Architectural Coating	8.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.16

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Time Slice 1/3/2011-2/28/2011 Active Days: 41	7.77	16.65	32.38	0.03	0.12	0.50	0.62	0.04	0.45	0.50	4,384.01
Building 09/16/2009-03/15/2011	4.13	16.65	32.20	0.03	0.12	0.50	0.62	0.04	0.45	0.50	4,363.83
Building Off Road Diesel	3.39	13.32	10.85	0.00	0.00	0.35	0.35	0.00	0.32	0.32	1,621.20
Building Vendor Trips	0.22	2.52	2.58	0.01	0.02	0.10	0.12	0.01	0.09	0.10	620.46
Building Worker Trips	0.52	0.81	18.78	0.02	0.09	0.04	0.14	0.03	0.04	0.07	2,122.18
Coating 11/01/2009-05/31/2011	3.65	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.18
Architectural Coating	3.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.18
Time Slice 3/1/2011-3/15/2011 Active Days: 11	10.45	29.92	43.54	0.03	0.13	0.62	0.75	0.05	0.56	0.61	5,933.02
Asphalt 03/01/2011-05/31/2011	2.67	13.27	11.16	0.00	0.01	0.12	0.13	0.00	0.11	0.11	1,549.01
Paving Off-Gas	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.48	12.88	9.07	0.00	0.00	0.10	0.10	0.00	0.09	0.09	1,272.04
Paving On Road Diesel	0.02	0.31	0.11	0.00	0.00	0.01	0.01	0.00	0.01	0.01	53.52
Paving Worker Trips	0.06	0.09	1.98	0.00	0.01	0.00	0.01	0.00	0.00	0.01	223.45
Building 09/16/2009-03/15/2011	4.13	16.65	32.20	0.03	0.12	0.50	0.62	0.04	0.45	0.50	4,363.83
Building Off Road Diesel	3.39	13.32	10.85	0.00	0.00	0.35	0.35	0.00	0.32	0.32	1,621.20
Building Vendor Trips	0.22	2.52	2.58	0.01	0.02	0.10	0.12	0.01	0.09	0.10	620.46
Building Worker Trips	0.52	0.81	18.78	0.02	0.09	0.04	0.14	0.03	0.04	0.07	2,122.18
Coating 11/01/2009-05/31/2011	3.65	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.18
Architectural Coating	3.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.18

Time Slice 3/16/2011-5/31/2011 Active Days: 55	6.32	13.28	11.34	0.00	0.01	0.12	0.13	0.00	0.11	0.11	1,569.19
Asphalt 03/01/2011-05/31/2011	2.67	13.27	11.16	0.00	0.01	0.12	0.13	0.00	0.11	0.11	1,549.01
Paving Off-Gas	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.48	12.88	9.07	0.00	0.00	0.10	0.10	0.00	0.09	0.09	1,272.04
Paving On Road Diesel	0.02	0.31	0.11	0.00	0.00	0.01	0.01	0.00	0.01	0.01	53.52
Paving Worker Trips	0.06	0.09	1.98	0.00	0.01	0.00	0.01	0.00	0.00	0.01	223.45
Coating 11/01/2009-05/31/2011	3.65	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.18
Architectural Coating	3.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.18

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Demolition 6/1/2009 - 6/30/2009 - Type Your Description Here

For Rubber Tired Dozers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Dozers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

The following mitigation measures apply to Phase: Fine Grading 8/16/2009 - 9/15/2009 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Rubber Tired Dozers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Dozers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Water Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Water Trucks, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

The following mitigation measures apply to Phase: Mass Grading 7/1/2009 - 8/15/2009 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Rubber Tired Dozers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Dozers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Water Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Water Trucks, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

The following mitigation measures apply to Phase: Paving 3/1/2011 - 5/31/2011 - Default Paving Description

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Paving Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Paving Equipment, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Rollers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rollers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Cement and Mortar Mixers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Cement and Mortar Mixers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

The following mitigation measures apply to Phase: Building Construction 9/16/2009 - 3/15/2011 - Default Building Construction Description

For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Cranes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Forklifts, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Generator Sets, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Generator Sets, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Welders, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

The following mitigation measures apply to Phase: Architectural Coating 11/1/2009 - 5/31/2011 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.23	3.07	2.31	0.00	0.01	0.01	3,729.48
Hearth - No Summer Emissions							
Landscape	0.74	0.12	9.27	0.00	0.03	0.03	16.85
Consumer Products	3.07						
Architectural Coatings	1.75						
TOTALS (lbs/day, unmitigated)	5.79	3.19	11.58	0.00	0.04	0.04	3,746.33

Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.23	3.07	2.31	0.00	0.01	0.01	3,729.48
Hearth - No Summer Emissions							
Landscape	0.74	0.12	9.27	0.00	0.03	0.03	16.85
Consumer Products	3.07						
Architectural Coatings	1.75						
TOTALS (lbs/day, mitigated)	5.79	3.19	11.58	0.00	0.04	0.04	3,746.33

Area Source Mitigation Measures Selected

Mitigation Description	Percent Reduction

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 35% to 0%

Percentage of residences with natural gas fireplaces changed from 65% to 0%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments mid rise	4.38	3.83	45.89	0.04	6.07	1.17	3,842.57
Racquetball/health	6.67	7.47	85.20	0.07	11.84	2.28	7,423.52
High turnover (sit-down) rest.	11.37	13.45	153.52	0.13	21.34	4.11	13,376.46
Hotel	9.05	7.12	80.65	0.07	10.72	2.07	6,762.48
Strip mall	12.98	13.71	155.16	0.13	21.06	4.06	13,244.14
General office building	6.48	6.66	78.20	0.07	10.60	2.04	6,680.95
TOTALS (lbs/day, unmitigated)	50.93	52.24	598.62	0.51	81.63	15.73	51,330.12

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments mid rise	3.75	3.09	37.02	0.03	4.90	0.95	3,100.23
Racquetball/health	5.84	6.45	73.64	0.06	10.24	1.97	6,416.48
High turnover (sit-down) rest.	9.86	11.63	132.69	0.12	18.44	3.55	11,561.87
Hotel	8.15	6.15	69.71	0.06	9.27	1.79	5,845.11
Strip mall	11.33	11.85	134.11	0.11	18.21	3.51	11,447.50

General office building	5.72	5.75	67.59	0.06	9.17	1.77	5,774.64
TOTALS (lbs/day, mitigated)	44.65	44.92	514.76	0.44	70.23	13.54	44,145.83

Operational Mitigation Options Selected

Residential Mitigation Measures

Residential Mix of Uses Mitigation

Percent Reduction in Trips is 8.38% (calculated as a % of 9.57 trips/day))

Note that the above percent is applied to a baseline of 9.57 and that product is subtracted from the Unmitigated Trips

Inputs Selected:

The number of housing units within a 1/2 mile radius of the project, plus the number of residential units included in the project are 68.

The employment for the study area (within a 1/2 mile radius of the project) is 92.

Residential Local-Serving Retail Mitigation

Percent Reduction in Trips is 2% (calculated as a % of 9.57 trips/day)))

Note that the above percent is applied to a baseline of 9.57 and that product is subtracted from the Unmitigated Trips

Inputs Selected:

The Presence of Local-Serving Retail checkbox was selected.

Residential Transit Service Mitigation

Operational Mitigation Options Selected

Residential Mitigation Measures

Percent Reduction in Trips is 0.26% (calculated as a % of 9.57 trips/day)

Note that the above percent is applied to a baseline of 9.57 and that product is

subtracted from the Unmitigated Trips

Inputs Selected:

The Number of Daily Weekday Buses Stopping Within 1/4 Mile of Site is 8

The Number of Daily Rail or Bus Rapid Transit Stops Within 1/2 Mile of Site is 8

The Number of Dedicated Daily Shuttle Trips is 0

Residential Pedestrian/Bicycle Friendliness Mitigation

Percent Reduction in Trips is 2.92% (calculated as a % of 9.57 trips/day)

Note that the above percent is applied to a baseline of 9.57 and that product is

subtracted from the Unmitigated Trips

Inputs Selected:

The Number of Intersections per Square Mile is 30

The Percent of Streets with Sidewalks on One Side is 90%

The Percent of Streets with Sidewalks on Both Sides is 50%

The Percent of Arterials/Collectors with Bike Lanes or where Suitable,

Direct Parallel Routes Exist is 0%

Nonresidential Mitigation Measures

Non-Residential Mix of Uses Mitigation

<u>Nonresidential Mitigation Measures</u>

Percent Reduction in Trips is 8.38%

Inputs Selected:

The number of housing units within a 1/2 mile radius of the project, plus the number of residential units included in the project are 68.

The employment for the study area (within a 1/2 mile radius of the project) is 92.

Non-Residential Local-Serving Retail Mitigation

Percent Reduction in Trips is 2%

Inputs Selected:

The Presence of Local-Serving Retail checkbox was selected.

Non-Residential Transit Service Mitigation

Percent Reduction in Trips is 0.26%

Inputs Selected:

The Number of Daily Weekday Buses Stopping Within 1/4 Mile of Site is 8

The Number of Daily Rail or Bus Rapid Transit Stops Within 1/2 Mile of Site is 8

The Number of Dedicated Daily Shuttle Trips is 0

Non-Residential Pedestrian/Bicycle Friendliness Mitigation

Percent Reduction in Trips is 2.92%

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Nonresidential Mitigation Measures

Inputs Selected:

The Number of Intersections per Square Mile is 30

The Percent of Streets with Sidewalks on One Side is 90%

The Percent of Streets with Sidewalks on Both Sides is 50%

The Percent of Arterials/Collectors with Bike Lanes or where Suitable,

Direct Parallel Routes Exist is 0%

Operational Settings:

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 Temperature (F): 95 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments mid rise	1.79	6.72	dwelling units	68.00	456.96	3,520.09
Racquetball/health		32.93	1000 sq ft	30.00	987.90	6,872.80
High turnover (sit-down) rest.		127.15	1000 sq ft	14.00	1,780.10	12,384.13
Hotel		8.17	rooms	148.00	1,209.16	6,218.47
Strip mall		42.94	1000 sq ft	50.00	2,147.00	12,220.40
General office building		15.49	1000 sq ft	52.29	809.97	6,153.06
					7,391.09	47,368.95

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.6	1.1	98.7	0.2
Light Truck < 3750 lbs	10.0	2.0	92.0	6.0
Light Truck 3751-5750 lbs	22.5	0.9	98.7	0.4
Med Truck 5751-8500 lbs	10.2	1.0	99.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	76.2	23.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.6	0.0	18.8	81.2
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	62.9	37.1	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
% of Trips - Commercial (by land use)						
Racquetball/health				5.0	2.5	92.5
High turnover (sit-down) rest.				5.0	2.5	92.5
Hotel				5.0	2.5	92.5
Strip mall				2.0	1.0	97.0
General office building				35.0	17.5	47.5

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\equinn\Application Data\Urbemis\Version9a\Projects\Station 65\Station 65 - Scenario A, Cumulative.urb924

Project Name: Station 65 - Scenario A - Cumulative

Project Location: Sacramento County AQMD

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	5.79	3.19	11.58	0.00	0.04	0.04	3,746.33
TOTALS (lbs/day, mitigated)	5.79	3.19	11.58	0.00	0.04	0.04	3,746.33
Percent Reduction	0.00	0.00	0.00	NaN	0.00	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	20.54	13.20	205.62	0.51	81.32	15.46	51,369.52
TOTALS (lbs/day, mitigated)	18.05	11.36	176.82	0.44	69.94	13.31	44,179.72
Percent Reduction	12.12	13.94	14.01	13.73	13.99	13.91	14.00

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	26.33	16.39	217.20	0.51	81.36	15.50	55,115.85
TOTALS (lbs/day, mitigated)	23.84	14.55	188.40	0.44	69.98	13.35	47,926.05
Percent Reduction	9.46	11.23	13.26	13.73	13.99	13.87	13.04

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.23	3.07	2.31	0.00	0.01	0.01	3,729.48
Hearth - No Summer Emissions							
Landscape	0.74	0.12	9.27	0.00	0.03	0.03	16.85
Consumer Products	3.07						
Architectural Coatings	1.75						
TOTALS (lbs/day, unmitigated)	5.79	3.19	11.58	0.00	0.04	0.04	3,746.33

Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.23	3.07	2.31	0.00	0.01	0.01	3,729.48
Hearth - No Summer Emissions							
Landscape	0.74	0.12	9.27	0.00	0.03	0.03	16.85
Consumer Products	3.07						
Architectural Coatings	1.75						
TOTALS (lbs/day, mitigated)	5.79	3.19	11.58	0.00	0.04	0.04	3,746.33

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 35% to 0%

Percentage of residences with natural gas fireplaces changed from 65% to 0%

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments mid rise	1.79	0.96	15.74	0.04	6.05	1.15	3,845.68
Racquetball/health	2.68	1.89	29.32	0.07	11.80	2.24	7,429.75
High turnover (sit-down) rest.	4.54	3.40	52.84	0.13	21.25	4.04	13,387.69
Hotel	3.72	1.80	27.61	0.07	10.68	2.03	6,766.48
Strip mall	5.20	3.47	53.24	0.13	20.98	3.99	13,253.26
General office building	2.61	1.68	26.87	0.07	10.56	2.01	6,686.66
TOTALS (lbs/day, unmitigated)	20.54	13.20	205.62	0.51	81.32	15.46	51,369.52

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments mid rise	1.54	0.78	12.70	0.03	4.88	0.93	3,102.74
Racquetball/health	2.35	1.63	25.34	0.06	10.20	1.94	6,421.87
High turnover (sit-down) rest.	3.94	2.94	45.67	0.12	18.37	3.49	11,571.58
Hotel	3.37	1.56	23.86	0.06	9.23	1.76	5,848.57
Strip mall	4.54	3.00	46.02	0.11	18.13	3.45	11,455.38
General office building	2.31	1.45	23.23	0.06	9.13	1.74	5,779.58
TOTALS (lbs/day, mitigated)	18.05	11.36	176.82	0.44	69.94	13.31	44,179.72

Operational Settings:

Includes correction for passby trips

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Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 95 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments mid rise	1.79	6.72	dwelling units	68.00	456.96	3,520.09
Racquetball/health		32.93	1000 sq ft	30.00	987.90	6,872.80
High turnover (sit-down) rest.		127.15	1000 sq ft	14.00	1,780.10	12,384.13
Hotel		8.17	rooms	148.00	1,209.16	6,218.47
Strip mall		42.94	1000 sq ft	50.00	2,147.00	12,220.40
General office building		15.49	1000 sq ft	52.29	809.97	6,153.06
					7,391.09	47,368.95

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.5	0.0	100.0	0.0
Light Truck < 3750 lbs	10.0	0.0	99.0	1.0
Light Truck 3751-5750 lbs	22.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.1	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	81.0	19.0
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.6	0.0	18.8	81.2
Heavy-Heavy Truck 33,001-60,000 lbs	0.4	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	34.3	65.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Racquetball/health				5.0	2.5	92.5
High turnover (sit-down) rest.				5.0	2.5	92.5
Hotel				5.0	2.5	92.5
Strip mall				2.0	1.0	97.0
General office building				35.0	17.5	47.5

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\equinn\Application Data\Urbemis\Version9a\Projects\Station 65\Station 65 - Scenario B, Near-Term.urb924

Project Name: Station 65 - Scenario B - Near-Term

Project Location: Sacramento County AQMD

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009 TOTALS (lbs/day unmitigated)	24.59	26.51	43.93	0.04	59.60	1.51	60.94	12.45	1.38	13.68	5,166.99
2009 TOTALS (lbs/day mitigated)	6.96	22.54	43.93	0.04	13.57	0.64	13.67	2.84	0.59	2.93	5,166.99
2010 TOTALS (lbs/day unmitigated)	24.27	21.54	40.99	0.04	0.15	1.41	1.56	0.05	1.29	1.34	5,169.40
2010 TOTALS (lbs/day mitigated)	15.84	19.06	40.99	0.04	0.15	0.58	0.73	0.05	0.53	0.58	5,169.40
2011 TOTALS (lbs/day unmitigated)	26.93	37.71	50.77	0.04	0.16	2.85	3.02	0.06	2.62	2.68	6,904.69
2011 TOTALS (lbs/day mitigated)	11.98	32.80	50.77	0.04	0.16	0.68	0.85	0.06	0.62	0.68	6,904.69

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	8.64	3.81	11.89	0.00	0.04	0.04	4,530.95

TOTALS (lbs/day, mitigated)	8.64	3.81	11.89	0.00	0.04	0.04	4,530.95
Percent Reduction	0.00	0.00	0.00	NaN	0.00	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	56.11	56.95	654.76	0.56	89.13	17.19	56,066.93
TOTALS (lbs/day, mitigated)	49.14	48.83	561.27	0.47	76.43	14.73	48,071.02
Percent Reduction	12.42	14.26	14.28	16.07	14.25	14.31	14.26

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	64.75	60.76	666.65	0.56	89.17	17.23	60,597.88
TOTALS (lbs/day, mitigated)	57.78	52.64	573.16	0.47	76.47	14.77	52,601.97
Percent Reduction	10.76	13.36	14.02	16.07	14.24	14.28	13.20

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 6/1/2009-6/30/2009 Active Days: 22	1.38	9.98	6.57	0.00	1.90	0.71	2.62	0.40	0.66	1.06	1,063.48
Demolition 06/01/2009-06/30/2009	1.38	9.98	6.57	0.00	1.90	0.71	2.62	0.40	0.66	1.06	1,063.48
Fugitive Dust	0.00	0.00	0.00	0.00	1.89	0.00	1.89	0.39	0.00	0.39	0.00
Demo Off Road Diesel	1.23	8.15	4.78	0.00	0.00	0.64	0.64	0.00	0.59	0.59	700.30
Demo On Road Diesel	0.12	1.78	0.61	0.00	0.01	0.07	0.08	0.00	0.07	0.07	251.63
Demo Worker Trips	0.03	0.05	1.17	0.00	0.00	0.00	0.01	0.00	0.00	0.00	111.56

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Time Slice 7/1/2009-8/14/2009 Active Days: 33	3.22	<u>26.51</u>	14.15	0.00	**<u>59.60</u>**	1.34	**<u>60.94</u>**	**<u>12.45</u>**	1.23	**<u>13.68</u>**	2,358.88
Mass Grading 07/01/2009-08/15/2009	3.22	26.51	14.15	0.00	59.60	1.34	60.94	12.45	1.23	13.68	2,358.88
Mass Grading Dust	0.00	0.00	0.00	0.00	59.60	0.00	59.60	12.45	0.00	12.45	0.00
Mass Grading Off Road Diesel	3.18	26.46	12.98	0.00	0.00	1.33	1.33	0.00	1.23	1.23	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.05	1.17	0.00	0.00	0.00	0.01	0.00	0.00	0.00	111.56
Time Slice 8/17/2009-9/15/2009 Active Days: 22	3.22	<u>26.51</u>	14.15	0.00	**<u>59.60</u>**	1.34	**<u>60.94</u>**	**<u>12.45</u>**	1.23	**<u>13.68</u>**	2,358.88
Fine Grading 08/16/2009-09/15/2009	3.22	26.51	14.15	0.00	59.60	1.34	60.94	12.45	1.23	13.68	2,358.88
Fine Grading Dust	0.00	0.00	0.00	0.00	59.60	0.00	59.60	12.45	0.00	12.45	0.00
Fine Grading Off Road Diesel	3.18	26.46	12.98	0.00	0.00	1.33	1.33	0.00	1.23	1.23	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.05	1.17	0.00	0.00	0.00	0.01	0.00	0.00	0.00	111.56
Time Slice 9/16/2009-10/30/2009 Active Days: 33	5.03	22.84	43.66	0.03	0.15	1.51	1.66	0.05	1.38	1.43	5,141.53
Building 09/16/2009-03/15/2011	5.03	22.84	43.66	0.03	0.15	1.51	1.66	0.05	1.38	1.43	5,141.53
Building Off Road Diesel	3.87	17.35	11.50	0.00	0.00	1.28	1.28	0.00	1.17	1.17	1,621.20
Building Vendor Trips	0.35	4.24	4.02	0.01	0.03	0.17	0.20	0.01	0.16	0.17	848.00
Building Worker Trips	0.81	1.25	28.14	0.03	0.12	0.06	0.18	0.04	0.05	0.09	2,672.33

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Time Slice 11/2/2009-12/31/2009 Active Days: 44	24.59	22.85	43.93	0.04	0.15	1.51	1.66	0.05	1.38	1.43	5,166.99
Building 09/16/2009-03/15/2011	5.03	22.84	43.66	0.03	0.15	1.51	1.66	0.05	1.38	1.43	5,141.53
Building Off Road Diesel	3.87	17.35	11.50	0.00	0.00	1.28	1.28	0.00	1.17	1.17	1,621.20
Building Vendor Trips	0.35	4.24	4.02	0.01	0.03	0.17	0.20	0.01	0.16	0.17	848.00
Building Worker Trips	0.81	1.25	28.14	0.03	0.12	0.06	0.18	0.04	0.05	0.09	2,672.33
Coating 11/01/2009-05/31/2011	19.56	0.01	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.46
Architectural Coating	19.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.46
Time Slice 1/1/2010-12/31/2010 Active Days: 261	24.27	21.54	40.99	0.04	0.15	1.41	1.56	0.05	1.29	1.34	5,169.40
Building 09/16/2009-03/15/2011	4.71	21.53	40.74	0.03	0.15	1.41	1.56	0.05	1.29	1.34	5,143.93
Building Off Road Diesel	3.65	16.55	11.20	0.00	0.00	1.19	1.19	0.00	1.10	1.10	1,621.20
Building Vendor Trips	0.32	3.86	3.75	0.01	0.03	0.16	0.19	0.01	0.14	0.15	848.16
Building Worker Trips	0.73	1.13	25.79	0.03	0.12	0.06	0.18	0.04	0.05	0.09	2,674.57
Coating 11/01/2009-05/31/2011	19.56	0.01	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.48
Architectural Coating	19.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.48

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Time Slice 1/3/2011-2/28/2011 Active Days: 41	23.90	20.16	38.26	0.04	0.15	1.33	1.48	0.05	1.22	1.27	5,171.29
Building 09/16/2009-03/15/2011	4.34	20.15	38.03	0.03	0.15	1.33	1.48	0.05	1.22	1.27	5,145.79
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.30	3.46	3.51	0.01	0.03	0.14	0.17	0.01	0.13	0.14	848.26
Building Worker Trips	0.66	1.02	23.68	0.03	0.12	0.06	0.18	0.04	0.04	0.09	2,676.33
Coating 11/01/2009-05/31/2011	19.56	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.50
Architectural Coating	19.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.50
Time Slice 3/1/2011-3/15/2011 Active Days: 11	26.93	37.71	50.77	0.04	0.16	2.85	3.02	0.06	2.62	2.68	6,904.69
Asphalt 03/01/2011-05/31/2011	3.03	17.56	12.51	0.00	0.01	1.52	1.53	0.00	1.40	1.40	1,733.40
Paving Off-Gas	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.80	17.10	10.16	0.00	0.00	1.50	1.50	0.00	1.38	1.38	1,418.44
Paving On Road Diesel	0.03	0.36	0.13	0.00	0.00	0.01	0.02	0.00	0.01	0.01	63.58
Paving Worker Trips	0.06	0.10	2.22	0.00	0.01	0.01	0.02	0.00	0.00	0.01	251.38
Building 09/16/2009-03/15/2011	4.34	20.15	38.03	0.03	0.15	1.33	1.48	0.05	1.22	1.27	5,145.79
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.30	3.46	3.51	0.01	0.03	0.14	0.17	0.01	0.13	0.14	848.26
Building Worker Trips	0.66	1.02	23.68	0.03	0.12	0.06	0.18	0.04	0.04	0.09	2,676.33
Coating 11/01/2009-05/31/2011	19.56	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.50
Architectural Coating	19.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.50

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Time Slice 3/16/2011-5/31/2011 Active Days: 55	22.59	17.57	12.74	0.00	0.01	1.52	1.54	0.01	1.40	1.40	1,758.90
Asphalt 03/01/2011-05/31/2011	3.03	17.56	12.51	0.00	0.01	1.52	1.53	0.00	1.40	1.40	1,733.40
Paving Off-Gas	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.80	17.10	10.16	0.00	0.00	1.50	1.50	0.00	1.38	1.38	1,418.44
Paving On Road Diesel	0.03	0.36	0.13	0.00	0.00	0.01	0.02	0.00	0.01	0.01	63.58
Paving Worker Trips	0.06	0.10	2.22	0.00	0.01	0.01	0.02	0.00	0.00	0.01	251.38
Coating 11/01/2009-05/31/2011	19.56	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.50
Architectural Coating	19.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.50

Phase Assumptions

Phase: Demolition 6/1/2009 - 6/30/2009 - Type Your Description Here

Building Volume Total (cubic feet): 975000

Building Volume Daily (cubic feet): 4500

On Road Truck Travel (VMT): 62.5

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 1 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

Phase: Fine Grading 8/16/2009 - 9/15/2009 - Default Fine Site Grading Description

Total Acres Disturbed: 4.29

Maximum Daily Acreage Disturbed: 2.98

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 7/1/2009 - 8/15/2009 - Type Your Description Here

Total Acres Disturbed: 4.29

Maximum Daily Acreage Disturbed: 2.98

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 3/1/2011 - 5/31/2011 - Default Paving Description

Acres to be Paved: 3.54

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 9/16/2009 - 3/15/2011 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

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1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 11/1/2009 - 5/31/2011 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 6/1/2009-6/30/2009 Active Days: 22	1.38	9.68	6.57	0.00	1.90	0.64	2.54	0.40	0.59	0.98	1,063.48
Demolition 06/01/2009-06/30/2009	1.38	9.68	6.57	0.00	1.90	0.64	2.54	0.40	0.59	0.98	1,063.48
Fugitive Dust	0.00	0.00	0.00	0.00	1.89	0.00	1.89	0.39	0.00	0.39	0.00
Demo Off Road Diesel	1.23	7.86	4.78	0.00	0.00	0.56	0.56	0.00	0.52	0.52	700.30
Demo On Road Diesel	0.12	1.78	0.61	0.00	0.01	0.07	0.08	0.00	0.07	0.07	251.63
Demo Worker Trips	0.03	0.05	1.17	0.00	0.00	0.00	0.01	0.00	0.00	0.00	111.56

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Time Slice 7/1/2009-8/14/2009 Active Days: 33	3.22	22.54	14.15	0.00	13.57	0.10	13.67	2.84	0.09	2.93	2,358.88
Mass Grading 07/01/2009-08/15/2009	3.22	22.54	14.15	0.00	13.57	0.10	13.67	2.84	0.09	2.93	2,358.88
Mass Grading Dust	0.00	0.00	0.00	0.00	13.57	0.00	13.57	2.83	0.00	2.83	0.00
Mass Grading Off Road Diesel	3.18	22.49	12.98	0.00	0.00	0.10	0.10	0.00	0.09	0.09	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.05	1.17	0.00	0.00	0.00	0.01	0.00	0.00	0.00	111.56
Time Slice 8/17/2009-9/15/2009 Active Days: 22	3.22	22.54	14.15	0.00	13.57	0.10	13.67	2.84	0.09	2.93	2,358.88
Fine Grading 08/16/2009-09/15/2009	3.22	22.54	14.15	0.00	13.57	0.10	13.67	2.84	0.09	2.93	2,358.88
Fine Grading Dust	0.00	0.00	0.00	0.00	13.57	0.00	13.57	2.83	0.00	2.83	0.00
Fine Grading Off Road Diesel	3.18	22.49	12.98	0.00	0.00	0.10	0.10	0.00	0.09	0.09	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.05	1.17	0.00	0.00	0.00	0.01	0.00	0.00	0.00	111.56
Time Slice 9/16/2009-10/30/2009 Active Days: 33	5.03	20.24	43.66	0.03	0.15	0.61	0.76	0.05	0.56	0.61	5,141.53
Building 09/16/2009-03/15/2011	5.03	20.24	43.66	0.03	0.15	0.61	0.76	0.05	0.56	0.61	5,141.53
Building Off Road Diesel	3.87	14.74	11.50	0.00	0.00	0.38	0.38	0.00	0.35	0.35	1,621.20
Building Vendor Trips	0.35	4.24	4.02	0.01	0.03	0.17	0.20	0.01	0.16	0.17	848.00
Building Worker Trips	0.81	1.25	28.14	0.03	0.12	0.06	0.18	0.04	0.05	0.09	2,672.33

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Time Slice 11/2/2009-12/31/2009 Active Days: 44	6.96	20.25	43.93	0.04	0.15	0.61	0.77	0.05	0.56	0.61	5,166.99
Building 09/16/2009-03/15/2011	5.03	20.24	43.66	0.03	0.15	0.61	0.76	0.05	0.56	0.61	5,141.53
Building Off Road Diesel	3.87	14.74	11.50	0.00	0.00	0.38	0.38	0.00	0.35	0.35	1,621.20
Building Vendor Trips	0.35	4.24	4.02	0.01	0.03	0.17	0.20	0.01	0.16	0.17	848.00
Building Worker Trips	0.81	1.25	28.14	0.03	0.12	0.06	0.18	0.04	0.05	0.09	2,672.33
Coating 11/01/2009-05/31/2011	1.93	0.01	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.46
Architectural Coating	1.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.46
Time Slice 1/1/2010-12/31/2010 Active Days: 261	15.84	19.06	40.99	0.04	0.15	0.58	0.73	0.05	0.53	0.58	5,169.40
Building 09/16/2009-03/15/2011	4.71	19.05	40.74	0.03	0.15	0.58	0.73	0.05	0.53	0.58	5,143.93
Building Off Road Diesel	3.65	14.06	11.20	0.00	0.00	0.37	0.37	0.00	0.34	0.34	1,621.20
Building Vendor Trips	0.32	3.86	3.75	0.01	0.03	0.16	0.19	0.01	0.14	0.15	848.16
Building Worker Trips	0.73	1.13	25.79	0.03	0.12	0.06	0.18	0.04	0.05	0.09	2,674.57
Coating 11/01/2009-05/31/2011	11.13	0.01	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.48
Architectural Coating	11.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.48

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Time Slice 1/3/2011-2/28/2011 Active Days: 41	8.95	17.80	38.26	0.04	0.15	0.55	0.70	0.05	0.50	0.55	5,171.29
Building 09/16/2009-03/15/2011	4.34	17.80	38.03	0.03	0.15	0.55	0.70	0.05	0.50	0.55	5,145.79
Building Off Road Diesel	3.39	13.32	10.85	0.00	0.00	0.35	0.35	0.00	0.32	0.32	1,621.20
Building Vendor Trips	0.30	3.46	3.51	0.01	0.03	0.14	0.17	0.01	0.13	0.14	848.26
Building Worker Trips	0.66	1.02	23.68	0.03	0.12	0.06	0.18	0.04	0.04	0.09	2,676.33
Coating 11/01/2009-05/31/2011	4.61	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.50
Architectural Coating	4.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.50
Time Slice 3/1/2011-3/15/2011 Active Days: 11	11.98	32.80	50.77	0.04	0.16	0.68	0.85	0.06	0.62	0.68	6,904.69
Asphalt 03/01/2011-05/31/2011	3.03	14.99	12.51	0.00	0.01	0.13	0.15	0.00	0.12	0.13	1,733.40
Paving Off-Gas	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.80	14.53	10.16	0.00	0.00	0.11	0.11	0.00	0.10	0.10	1,418.44
Paving On Road Diesel	0.03	0.36	0.13	0.00	0.00	0.01	0.02	0.00	0.01	0.01	63.58
Paving Worker Trips	0.06	0.10	2.22	0.00	0.01	0.01	0.02	0.00	0.00	0.01	251.38
Building 09/16/2009-03/15/2011	4.34	17.80	38.03	0.03	0.15	0.55	0.70	0.05	0.50	0.55	5,145.79
Building Off Road Diesel	3.39	13.32	10.85	0.00	0.00	0.35	0.35	0.00	0.32	0.32	1,621.20
Building Vendor Trips	0.30	3.46	3.51	0.01	0.03	0.14	0.17	0.01	0.13	0.14	848.26
Building Worker Trips	0.66	1.02	23.68	0.03	0.12	0.06	0.18	0.04	0.04	0.09	2,676.33
Coating 11/01/2009-05/31/2011	4.61	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.50
Architectural Coating	4.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.50

Time Slice 3/16/2011-5/31/2011 Active Days: 55	7.64	15.00	12.74	0.00	0.01	0.13	0.15	0.01	0.12	0.13	1,758.90
Asphalt 03/01/2011-05/31/2011	3.03	14.99	12.51	0.00	0.01	0.13	0.15	0.00	0.12	0.13	1,733.40
Paving Off-Gas	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.80	14.53	10.16	0.00	0.00	0.11	0.11	0.00	0.10	0.10	1,418.44
Paving On Road Diesel	0.03	0.36	0.13	0.00	0.00	0.01	0.02	0.00	0.01	0.01	63.58
Paving Worker Trips	0.06	0.10	2.22	0.00	0.01	0.01	0.02	0.00	0.00	0.01	251.38
Coating 11/01/2009-05/31/2011	4.61	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.50
Architectural Coating	4.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.50

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Demolition 6/1/2009 - 6/30/2009 - Type Your Description Here

For Rubber Tired Dozers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Dozers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

The following mitigation measures apply to Phase: Fine Grading 8/16/2009 - 9/15/2009 - Default Fine Site Grading Description

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Rubber Tired Dozers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Dozers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Water Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Water Trucks, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

The following mitigation measures apply to Phase: Mass Grading 7/1/2009 - 8/15/2009 - Type Your Description Here

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Rubber Tired Dozers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Dozers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Water Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Water Trucks, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

The following mitigation measures apply to Phase: Paving 3/1/2011 - 5/31/2011 - Default Paving Description

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Paving Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Paving Equipment, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Rollers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rollers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Cement and Mortar Mixers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Cement and Mortar Mixers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

The following mitigation measures apply to Phase: Building Construction 9/16/2009 - 3/15/2011 - Default Building Construction Description

For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Cranes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Forklifts, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Generator Sets, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Generator Sets, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Welders, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

The following mitigation measures apply to Phase: Architectural Coating 11/1/2009 - 5/31/2011 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.27	3.69	2.62	0.00	0.01	0.01	4,514.10
Hearth - No Summer Emissions							
Landscape	0.74	0.12	9.27	0.00	0.03	0.03	16.85
Consumer Products	5.42						
Architectural Coatings	2.21						
TOTALS (lbs/day, unmitigated)	8.64	3.81	11.89	0.00	0.04	0.04	4,530.95

Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.27	3.69	2.62	0.00	0.01	0.01	4,514.10
Hearth - No Summer Emissions							
Landscape	0.74	0.12	9.27	0.00	0.03	0.03	16.85
Consumer Products	5.42						
Architectural Coatings	2.21						
TOTALS (lbs/day, mitigated)	8.64	3.81	11.89	0.00	0.04	0.04	4,530.95

Area Source Mitigation Measures Selected

Mitigation Description	Percent Reduction

<u>Area Source Changes to Defaults</u>

Percentage of residences with wood stoves changed from 35% to 0%

Percentage of residences with natural gas fireplaces changed from 65% to 0%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments mid rise	7.74	6.75	80.98	0.07	10.71	2.07	6,781.00
Racquetball/health	6.67	7.47	85.20	0.07	11.84	2.28	7,423.52
High turnover (sit-down) rest.	11.37	13.45	153.52	0.13	21.34	4.11	13,376.46
Hotel	9.05	7.12	80.65	0.07	10.72	2.07	6,762.48
Strip mall	12.98	13.71	155.16	0.13	21.06	4.06	13,244.14
General office building	8.30	8.45	99.25	0.09	13.46	2.60	8,479.33
TOTALS (lbs/day, unmitigated)	56.11	56.95	654.76	0.56	89.13	17.19	56,066.93

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments mid rise	6.62	5.45	65.33	0.05	8.64	1.67	5,470.99
Racquetball/health	5.84	6.45	73.64	0.06	10.24	1.97	6,416.48
High turnover (sit-down) rest.	9.86	11.63	132.69	0.12	18.44	3.55	11,561.87
Hotel	8.15	6.15	69.71	0.06	9.27	1.79	5,845.11
Strip mall	11.33	11.85	134.11	0.11	18.21	3.51	11,447.50

General office building	7.34	7.30	85.79	0.07	11.63	2.24	7,329.07
TOTALS (lbs/day, mitigated)	49.14	48.83	561.27	0.47	76.43	14.73	48,071.02

Operational Mitigation Options Selected

Residential Mitigation Measures

Residential Mix of Uses Mitigation

Percent Reduction in Trips is 8.38% (calculated as a % of 9.57 trips/day))

Note that the above percent is applied to a baseline of 9.57 and that product is subtracted from the Unmitigated Trips

Inputs Selected:

The number of housing units within a 1/2 mile radius of the project, plus the number of residential units included in the project are 68.

The employment for the study area (within a 1/2 mile radius of the project) is 92.

Residential Local-Serving Retail Mitigation

Percent Reduction in Trips is 2% (calculated as a % of 9.57 trips/day)))

Note that the above percent is applied to a baseline of 9.57 and that product is subtracted from the Unmitigated Trips

Inputs Selected:

The Presence of Local-Serving Retail checkbox was selected.

Residential Transit Service Mitigation

Operational Mitigation Options Selected

Residential Mitigation Measures

Percent Reduction in Trips is 0.26% (calculated as a % of 9.57 trips/day)

Note that the above percent is applied to a baseline of 9.57 and that product is

subtracted from the Unmitigated Trips

Inputs Selected:

The Number of Daily Weekday Buses Stopping Within 1/4 Mile of Site is 8

The Number of Daily Rail or Bus Rapid Transit Stops Within 1/2 Mile of Site is 8

The Number of Dedicated Daily Shuttle Trips is 0

Residential Pedestrian/Bicycle Friendliness Mitigation

Percent Reduction in Trips is 2.92% (calculated as a % of 9.57 trips/day)

Note that the above percent is applied to a baseline of 9.57 and that product is

subtracted from the Unmitigated Trips

Inputs Selected:

The Number of Intersections per Square Mile is 30

The Percent of Streets with Sidewalks on One Side is 90%

The Percent of Streets with Sidewalks on Both Sides is 50%

The Percent of Arterials/Collectors with Bike Lanes or where Suitable,

Direct Parallel Routes Exist is 0%

Nonresidential Mitigation Measures

Non-Residential Mix of Uses Mitigation

Nonresidential Mitigation Measures

Percent Reduction in Trips is 8.38%

Inputs Selected:

The number of housing units within a 1/2 mile radius of the project, plus the number of residential units included in the project are 68.

The employment for the study area (within a 1/2 mile radius of the project) is 92.

Non-Residential Local-Serving Retail Mitigation

Percent Reduction in Trips is 2%

Inputs Selected:

The Presence of Local-Serving Retail checkbox was selected.

Non-Residential Transit Service Mitigation

Percent Reduction in Trips is 0.26%

Inputs Selected:

The Number of Daily Weekday Buses Stopping Within 1/4 Mile of Site is 8

The Number of Daily Rail or Bus Rapid Transit Stops Within 1/2 Mile of Site is 8

The Number of Dedicated Daily Shuttle Trips is 0

Non-Residential Pedestrian/Bicycle Friendliness Mitigation

Percent Reduction in Trips is 2.92%

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Nonresidential Mitigation Measures

Inputs Selected:

The Number of Intersections per Square Mile is 30

The Percent of Streets with Sidewalks on One Side is 90%

The Percent of Streets with Sidewalks on Both Sides is 50%

The Percent of Arterials/Collectors with Bike Lanes or where Suitable,

Direct Parallel Routes Exist is 0%

Operational Settings:

Includes correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 Temperature (F): 95 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments mid rise	3.16	6.72	dwelling units	120.00	806.40	6,211.92
Racquetball/health		32.93	1000 sq ft	30.00	987.90	6,872.80
High turnover (sit-down) rest.		127.15	1000 sq ft	14.00	1,780.10	12,384.13
Hotel		8.17	rooms	148.00	1,209.16	6,218.47
Strip mall		42.94	1000 sq ft	50.00	2,147.00	12,220.40
General office building		14.42	1000 sq ft	71.29	1,028.00	7,809.35
					7,958.56	51,717.07

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.6	1.1	98.7	0.2
Light Truck < 3750 lbs	10.0	2.0	92.0	6.0
Light Truck 3751-5750 lbs	22.5	0.9	98.7	0.4
Med Truck 5751-8500 lbs	10.2	1.0	99.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	76.2	23.8
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.6	0.0	18.8	81.2
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	62.9	37.1	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
% of Trips - Commercial (by land use)						
Racquetball/health				5.0	2.5	92.5
High turnover (sit-down) rest.				5.0	2.5	92.5
Hotel				5.0	2.5	92.5
Strip mall				2.0	1.0	97.0
General office building				35.0	17.5	47.5

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\equinn\Application Data\Urbemis\Version9a\Projects\Station 65\Station 65 - Scenario B, Cumulative.urb924

Project Name: Station 65 - Scenario B - Cumulative

Project Location: Sacramento County AQMD

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	8.64	3.81	11.89	0.00	0.04	0.04	4,530.95
TOTALS (lbs/day, mitigated)	8.64	3.81	11.89	0.00	0.04	0.04	4,530.95
Percent Reduction	0.00	0.00	0.00	NaN	0.00	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	22.65	14.39	224.88	0.55	88.79	16.88	56,110.27
TOTALS (lbs/day, mitigated)	19.90	12.34	192.78	0.47	76.13	14.48	48,108.16
Percent Reduction	12.14	14.25	14.27	14.55	14.26	14.22	14.26

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	31.29	18.20	236.77	0.55	88.83	16.92	60,641.22
TOTALS (lbs/day, mitigated)	28.54	16.15	204.67	0.47	76.17	14.52	52,639.11
Percent Reduction	8.79	11.26	13.56	14.55	14.25	14.18	13.20

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.27	3.69	2.62	0.00	0.01	0.01	4,514.10
Hearth - No Summer Emissions							
Landscape	0.74	0.12	9.27	0.00	0.03	0.03	16.85
Consumer Products	5.42						
Architectural Coatings	2.21						
TOTALS (lbs/day, unmitigated)	8.64	3.81	11.89	0.00	0.04	0.04	4,530.95

Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.27	3.69	2.62	0.00	0.01	0.01	4,514.10
Hearth - No Summer Emissions							
Landscape	0.74	0.12	9.27	0.00	0.03	0.03	16.85
Consumer Products	5.42						
Architectural Coatings	2.21						
TOTALS (lbs/day, mitigated)	8.64	3.81	11.89	0.00	0.04	0.04	4,530.95

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 35% to 0%

Percentage of residences with natural gas fireplaces changed from 65% to 0%

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\equinn\Application Data\Urbemis\Version9a\Projects\Station 65\Station 65 - Scenario B, Cumulative.urb924

Project Name: Station 65 - Scenario B - Cumulative

Project Location: Sacramento County AQMD

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	8.64	3.81	11.89	0.00	0.04	0.04	4,530.95
TOTALS (lbs/day, mitigated)	8.64	3.81	11.89	0.00	0.04	0.04	4,530.95
Percent Reduction	0.00	0.00	0.00	NaN	0.00	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	22.65	14.39	224.88	0.55	88.79	16.88	56,110.27
TOTALS (lbs/day, mitigated)	19.90	12.34	192.78	0.47	76.13	14.48	48,108.16
Percent Reduction	12.14	14.25	14.27	14.55	14.26	14.22	14.26

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	31.29	18.20	236.77	0.55	88.83	16.92	60,641.22
TOTALS (lbs/day, mitigated)	28.54	16.15	204.67	0.47	76.17	14.52	52,639.11
Percent Reduction	8.79	11.26	13.56	14.55	14.25	14.18	13.20

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.27	3.69	2.62	0.00	0.01	0.01	4,514.10
Hearth - No Summer Emissions							
Landscape	0.74	0.12	9.27	0.00	0.03	0.03	16.85
Consumer Products	5.42						
Architectural Coatings	2.21						
TOTALS (lbs/day, unmitigated)	8.64	3.81	11.89	0.00	0.04	0.04	4,530.95

Area Source Mitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.27	3.69	2.62	0.00	0.01	0.01	4,514.10
Hearth - No Summer Emissions							
Landscape	0.74	0.12	9.27	0.00	0.03	0.03	16.85
Consumer Products	5.42						
Architectural Coatings	2.21						
TOTALS (lbs/day, mitigated)	8.64	3.81	11.89	0.00	0.04	0.04	4,530.95

Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 35% to 0%

Percentage of residences with natural gas fireplaces changed from 65% to 0%

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments mid rise	3.16	1.70	27.77	0.07	10.67	2.03	6,786.50
Racquetball/health	2.68	1.89	29.32	0.07	11.80	2.24	7,429.75
High turnover (sit-down) rest.	4.54	3.40	52.84	0.13	21.25	4.04	13,387.69
Hotel	3.72	1.80	27.61	0.07	10.68	2.03	6,766.48
Strip mall	5.20	3.47	53.24	0.13	20.98	3.99	13,253.26
General office building	3.35	2.13	34.10	0.08	13.41	2.55	8,486.59
TOTALS (lbs/day, unmitigated)	22.65	14.39	224.88	0.55	88.79	16.88	56,110.27

Operational Mitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments mid rise	2.73	1.37	22.41	0.05	8.61	1.64	5,475.43
Racquetball/health	2.35	1.63	25.34	0.06	10.20	1.94	6,421.87
High turnover (sit-down) rest.	3.94	2.94	45.67	0.12	18.37	3.49	11,571.58
Hotel	3.37	1.56	23.86	0.06	9.23	1.76	5,848.57
Strip mall	4.54	3.00	46.02	0.11	18.13	3.45	11,455.38
General office building	2.97	1.84	29.48	0.07	11.59	2.20	7,335.33
TOTALS (lbs/day, mitigated)	19.90	12.34	192.78	0.47	76.13	14.48	48,108.16

Operational Settings:

Includes correction for passby trips

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Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 95 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments mid rise	3.16	6.72	dwelling units	120.00	806.40	6,211.92
Racquetball/health		32.93	1000 sq ft	30.00	987.90	6,872.80
High turnover (sit-down) rest.		127.15	1000 sq ft	14.00	1,780.10	12,384.13
Hotel		8.17	rooms	148.00	1,209.16	6,218.47
Strip mall		42.94	1000 sq ft	50.00	2,147.00	12,220.40
General office building		14.42	1000 sq ft	71.29	1,028.00	7,809.35
					7,958.56	51,717.07

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	47.5	0.0	100.0	0.0
Light Truck < 3750 lbs	10.0	0.0	99.0	1.0
Light Truck 3751-5750 lbs	22.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.1	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	81.0	19.0
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	55.6	44.4
Med-Heavy Truck 14,001-33,000 lbs	1.6	0.0	18.8	81.2
Heavy-Heavy Truck 33,001-60,000 lbs	0.4	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	3.5	34.3	65.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	10.8	7.3	7.3
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Racquetball/health				5.0	2.5	92.5
High turnover (sit-down) rest.				5.0	2.5	92.5
Hotel				5.0	2.5	92.5
Strip mall				2.0	1.0	97.0
General office building				35.0	17.5	47.5

Simplified Cline4 Carbon Monoxide Analysis
Project: Station 65

Background Information

Nearest Air Quality Monitoring Station Measureing CO :	3801 Airport Road
Background 1-hour CO Concentration (ppm):	6.0
Background 8-hour CO Concentration (ppm):	3.5
Persistence Factor:	0.59
Analysis Year:	2008

Roadway Data[1]: Q St./67th St.
Analysis Conditions: Baseline plus Scenario A

		Raod Type	No. or Lanes	Average Speed AM	Average Speed PM
North-South	67th St.	At Grade	1	5	5
East-West	Q St.	At Grade	2	5	5

AM Peak Hour Traffic Volumes

	39 <	56 >	
55	^	^	98
73	>	<	166

PM Peak Hour Traffic Volumes

	112 <	85 >	
53	^	^	68
95	>	<	126

Highest Traffic Volumes (Vehicles per Hour)

	AM		PM
N-S	95	N-S	197
E-W	392	E-W	342

[1] Data provided by the Traffic Impact Study provided as Appendix X

Roadway CO Contributions and Concentrations

Emissions = $(A_n \times B \times C)/100{,}000$[1]

Roadway	A_1 Reference (25 feet)	A_2 Reference (50 feet)	A_3 Reference (100 feet)	B Traffic Volume	C Emission Factors[2]	Estimated CO Concentrations 25 feet	50 feet	100 feet
AM Peak Traffic Hour								
N-S	2.7	2.2	1.7	95	10.47	0.03	0.02	0.02
E-W	8.6	5.7	4	392	10.47	0.35	0.23	0.16
PM Peak Traffic Hour								
N-S	2.7	2.2	1.7	197	10.47	0.06	0.05	0.04
E-W	8.6	5.7	4	342	10.47	0.31	0.20	0.14

(Columns A–B are Reference CO Concentrations.)

[1] Methodology form Bay Area Air Quality Management District CEQA Guidelines, 1999.
[2] Emission factors form EMFAC2007

Total Roadway CO Concentrations

Peak Hour Emissions = N-S Concentration + E-W Concentration + Background 1-hour Concentration.
((8-hour Emissions = Highest Peak Hour Concentration - Background 8-hour Concentration) x Persistence Factor) + Background 1-hour Concentration.

	AM Peak Hour	PM Peak Hour	8-Hour
25 Feet From Roadway Edge	**6.38**	**6.36**	**4.14**
50 Feet From Roadway Edge	**6.26**	**6.25**	**4.07**
100 Feet From Roadway Edge	**6.18**	**6.18**	**4.03**

Simplified Cline4 Carbon Monoxide Analysis

Project: Station 65

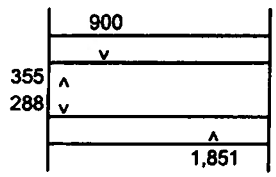
Background Information

Nearest Air Quality Monitoring Station Measureing CO :	3801 Airport Road
Background 1-hour CO Concentration (ppm):	6.0
Background 8-hour CO Concentration (ppm):	3.5
Persistence Factor:	0.59
Analysis Year:	2008

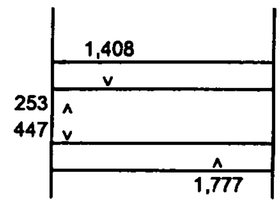
Roadway Data[1]: U.S. 50 Ramp/65th St.
Analysis Conditions: Baseline plus Scenario A

		Raod Type	No. or Lane	Average Speed AM	Average Speed PM
North-South	65th St.	At Grade	5	15	15
East-West	U.S. 50 Ramp	At Grade	2	5	5

AM Peak Hour Traffic Volumes



PM Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

	AM		PM
N-S	2,751	N-S	3,185
E-W	643	E-W	700

[1] Data provided by the Traffic Impact Study provided as Appendix X

Roadway CO Contributions and Concentrations

Emissions = $(A_n \times B \times C)/100{,}000$[1]

Roadway	Reference CO Concentrations A_1 Reference (25 feet)	A_2 Reference (50 feet)	A_3 Reference (100 feet)	B Traffic Volume	C Emission Factors[2]	Estimated CO Concentrations 25 feet	50 feet	100 feet
AM Peak Traffic Hour								
N-S	6.1	4.9	3.5	2,751	6.97	1.17	0.94	0.67
E-W	2.7	2.2	1.7	643	10.47	0.18	0.15	0.11
PM Peak Traffic Hour								
N-S	6.1	4.9	3.5	3,185	6.97	1.35	1.09	0.78
E-W	2.7	2.2	1.7	700	10.47	0.20	0.16	0.12

[1] Methodology form Bay Area Air Quality Management District CEQA Guidelines, 1999.
[2] Emission factors form EMFAC2007

Total Roadway CO Concentrations

Peak Hour Emissions = N-S Concentration + E-W Concentration + Background 1-hour Concentration.
((8-hour Emissions = Highest Peak Hour Concentration - Background 8-hour Concentration) x Persistence Factor) + Background 1-hour Concentration.

	AM Peak Hour	PM Peak Hour	8-Hour
25 Feet From Roadway Edge	**7.35**	**7.55**	**4.73**
50 Feet From Roadway Edge	**7.09**	**7.25**	**4.58**
100 Feet From Roadway Edge	**6.79**	**6.90**	**4.39**

Simplified Cline4 Carbon Monoxide Analysis

Project: Station 65

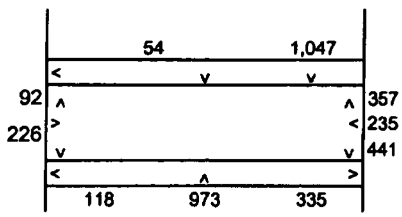
Background Information

Nearest Air Quality Monitoring Station Measureing CO :	3801 Airport Road
Background 1-hour CO Concentration (ppm):	6.0
Background 8-hour CO Concentration (ppm):	3.5
Persistence Factor:	0.59
Analysis Year:	2008

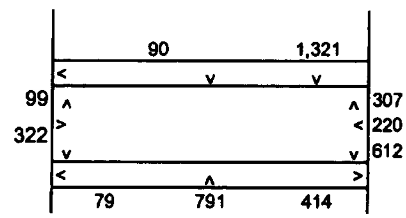
Roadway Data[1]: S St./65th St.
Analysis Conditions: Baseline plus Scenario A

		Raod Type	No. or Lane	Average Speed AM	Average Speed PM
North-South	65th St.	At Grade	7	15	15
East-West	S St.	At Grade	3	10	10

AM Peak Hour Traffic Volumes



PM Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

	AM		PM
N-S	2,527	N-S	2,695
E-W	1351	E-W	1560

[1] Data provided by the Traffic Impact Study provided as Appendix X

Roadway CO Contributions and Concentrations

Emissions = $(A_n \times B \times C)/100{,}000$[1]

Roadway	Reference CO Concentrations A_1 Reference (25 feet)	A_2 Reference (50 feet)	A_3 Reference (100 feet)	B Traffic Volume	C Emission Factors[2]	Estimated CO Concentrations 25 feet	50 feet	100 feet
AM Peak Traffic Hour								
N-S	5.7	4.6	3.4	2,527	6.97	1.00	0.81	0.60
E-W	2.3	2	1.7	1,351	8.38	0.26	0.23	0.19
PM Peak Traffic Hour								
N-S	5.7	4.6	3.4	2,695	6.97	1.07	0.86	0.64
E-W	2.3	2	1.7	1,560	8.38	0.30	0.26	0.22

[1] Methodology form Bay Area Air Quality Management District CEQA Guidelines, 1999.
[2] Emission factors form EMFAC2007

Total Roadway CO Concentrations

Peak Hour Emissions = N-S Concentration + E-W Concentration + Background 1-hour Concentration.
((8-hour Emissions = Highest Peak Hour Concentration - Background 8-hour Concentration) x Persistence Factor) + Background 1-hour Concentration.

	AM Peak Hour	PM Peak Hour	8-Hour
25 Feet From Roadway Edge	7.26	7.37	4.57
50 Feet From Roadway Edge	7.04	7.13	4.44
100 Feet From Roadway Edge	6.79	6.86	4.31

Simplified Cline4 Carbon Monoxide Analysis

Project: Station 65

Background Information

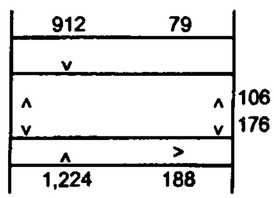
Nearest Air Quality Monitoring Station Measureing CO :	3801 Airport Road
Background 1-hour CO Concentration (ppm):	6.0
Background 8-hour CO Concentration (ppm):	3.5
Persistence Factor:	0.59
Analysis Year:	2008

Roadway Data[1]: Q St./65th Street

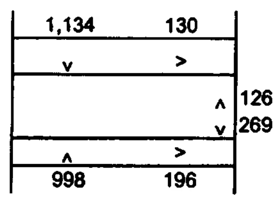
Analysis Conditions: Baseline plus Scenario A

		Raod Type	No. or Lane	Average Speed AM	Average Speed PM
North-South	65th St.	At Grade	5	15	15
East-West	Q St.	At Grade	2	5	5

AM Peak Hour Traffic Volumes



PM Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

	AM		PM
N-S	2,403	N-S	2,458
E-W	282	E-W	395

[1] Data provided by the Traffic Impact Study provided as Appendix X

Roadway CO Contributions and Concentrations

Emissions = (A_n x B x C)/100,000[1]

Roadway	Reference CO Concentrations A_1 Reference (25 feet)	A_2 Reference (50 feet)	A_3 Reference (100 feet)	B Traffic Volume	C Emission Factors[2]	Estimated CO Concentrations 25 feet	50 feet	100 feet
AM Peak Traffic Hour								
N-S	6.1	4.9	3.5	2403	6.97	1.02	0.82	0.59
E-W	2.7	2.2	1.7	282	10.47	0.08	0.06	0.05
PM Peak Traffic Hour								
N-S	6.1	4.9	3.5	2458	6.97	1.05	0.84	0.60
E-W	2.7	2.2	1.7	395	10.47	0.11	0.09	0.07

[1] Methodology form Bay Area Air Quality Management District CEQA Guidelines, 1999.

[2] Emission factors form EMFAC2007

Total Roadway CO Concentrations

Peak Hour Emissions = N-S Concentration + E-W Concentration + Background 1-hour Concentration.
((8-hour Emissions = Highest Peak Hour Concentration - Background 8-hour Concentration) x Persistence Factor) + Background 1-hour Concentration.

	AM Peak Hour	PM Peak Hour	8-Hour
25 Feet From Roadway Edge	7.10	7.16	4.55
50 Feet From Roadway Edge	6.89	6.93	4.43
100 Feet From Roadway Edge	6.64	6.67	4.29

Simplified Cline4 Carbon Monoxide Analysis

Project: Station 65

Background Information

Nearest Air Quality Monitoring Station Measureing CO :	3801 Airport Road
Background 1-hour CO Concentration (ppm):	6.0
Background 8-hour CO Concentration (ppm):	3.5
Persistence Factor:	0.59
Analysis Year:	2008

Roadway Data[1]: Folsom Blvd./CSUS Drive
Analysis Conditions: Baseline plus Scenario A

		Raod Type	No. or Lane	Average Speed AM	Average Speed PM
North-South	CSUS Drive	At Grade	3	10	10
East-West	Folsom Blvd.	At Grade	4	15	15

AM Peak Hour Traffic Volumes

	138 <	14 >	
463 ^			^ 93
637 >			< 783

PM Peak Hour Traffic Volumes

	436 <	83 >	
229 ^			^ 30
795 >			< 985

Highest Traffic Volumes (Vehicles per Hour)

	AM		PM
N-S	152	N-S	519
E-W	876	E-W	1015

[1] Data provided by the Traffic Impact Study provided as Appendix X

Roadway CO Contributions and Concentrations

Emissions = (A_n x B x C)/100,000[1]

Roadway	Reference CO Concentrations A_1 Reference (25 feet)	A_2 Reference (50 feet)	A_3 Reference (100 feet)	B Traffic Volume	C Emission Factors[2]	Estimated CO Concentrations 25 feet	50 feet	100 feet
AM Peak Traffic Hour								
N-S	2.7	2.2	1.7	152	8.38	0.03	0.03	0.02
E-W	7.0	5.4	3.8	876	6.97	0.43	0.33	0.23
PM Peak Traffic Hour								
N-S	2.6	2.2	1.7	519	8.38	0.11	0.10	0.07
E-W	7.0	5.4	3.8	1015	6.97	0.50	0.38	0.27

[1] Methodology form Bay Area Air Quality Management District CEQA Guidelines, 1999.
[2] Emission factors form EMFAC2007

Total Roadway CO Concentrations

Peak Hour Emissions = N-S Concentration + E-W Concentration + Background 1-hour Concentration.
((8-hour Emissions = Highest Peak Hour Concentration - Background 8-hour Concentration) x Persistence Factor) + Background 1-hour Concentration.

	AM Peak Hour	PM Peak Hour	8-Hour
25 Feet From Roadway Edge	**6.46**	**6.61**	**4.23**
50 Feet From Roadway Edge	**6.36**	**6.48**	**4.16**
100 Feet From Roadway Edge	**6.25**	**6.34**	**4.09**

Simplified Cline4 Carbon Monoxide Analysis

Project: Station 65

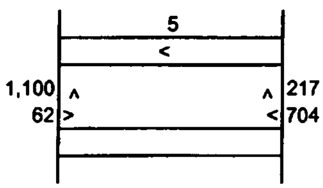
Background Information

Nearest Air Quality Monitoring Station Measureing CO :	3801 Airport Road
Background 1-hour CO Concentration (ppm):	6.0
Background 8-hour CO Concentration (ppm):	3.5
Persistence Factor:	0.59
Analysis Year:	2008

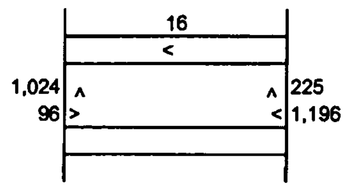
Roadway Data[1]: Folsom Blvd./ElvasSt.
Analysis Conditions: Baseline plus Scenario A

		Raod Type	No. or Lane	Average Speed AM	Average Speed PM
North-South	Elvas St.	At Grade	1	5	5
East-West	Folsom Blvd.	At Grade	2	10	10

AM Peak Hour Traffic Volumes



PM Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

	AM		PM
N-S	5	N-S	16
E-W	921	E-W	1421

[1] Data provided by the Traffic Impact Study provided as Appendix X

Roadway CO Contributions and Concentrations

Emissions = (A_n x B x C)/100,000[1]

Roadway	Reference CO Concentrations A_1 Reference (25 feet)	A_2 Reference (50 feet)	A_3 Reference (100 feet)	B Traffic Volume	C Emission Factors[2]	Estimated CO Concentrations 25 feet	50 feet	100 feet
AM Peak Traffic Hour								
N-S	2.7	2.2	1.7	5	10.57	0.001	0.0012	0.0009
E-W	7.6	5.7	4	921	8.38	0.59	0.44	0.31
PM Peak Traffic Hour								
N-S	2.7	2.2	1.7	16	10.57	0.005	0.0037	0.0029
E-W	7.6	5.7	4	1421	8.38	0.905	0.6788	0.4763

[1] Methodology form Bay Area Air Quality Management District CEQA Guidelines, 1999.
[2] Emission factors form EMFAC2007

Total Roadway CO Concentrations

Peak Hour Emissions = N-S Concentration + E-W Concentration + Background 1-hour Concentration.
((8-hour Emissions = Highest Peak Hour Concentration - Background 8-hour Concentration) x Persistence Factor) + Background 1-hour Concentration.

	AM Peak Hour	PM Peak Hour	8-Hour
25 Feet From Roadway Edge	**6.59**	**6.91**	**4.47**
50 Feet From Roadway Edge	**6.44**	**6.68**	**4.34**
100 Feet From Roadway Edge	**6.31**	**6.48**	**4.22**

Simplified Cline4 Carbon Monoxide Analysis

Project: Station 65

Background Information

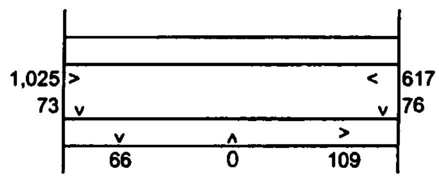
Nearest Air Quality Monitoring Station Measureing CO :	3801 Airport Road
Background 1-hour CO Concentration (ppm):	6.0
Background 8-hour CO Concentration (ppm):	3.5
Persistence Factor:	0.59
Analysis Year:	2008

Roadway Data[1]: Folsom Blvd./67th Street

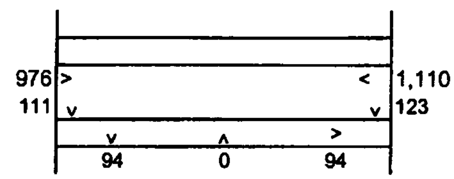
Analysis Conditions: Baseline plus Scenario A

		Raod Type	No. or Lane	Average Speed AM	Average Speed PM
North-South	67th St.	At Grade	1	5	5
East-West	Folsom Blvd.	At Grade	4	10	10

AM Peak Hour Traffic Volumes



PM Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

	AM		PM
N-S	175	N-S	188
E-W	1,791	E-W	2,320

[1] Data provided by the Traffic Impact Study provided as Appendix X

Roadway CO Contributions and Concentrations

Emissions = $(A_n \times B \times C)/100{,}000$[1]

Roadway	Reference CO Concentrations A_1 Reference (25 feet)	A_2 Reference (50 feet)	A_3 Reference (100 feet)	B Traffic Volume	C Emission Factors[2]	Estimated CO Concentrations 25 feet	50 feet	100 feet
AM Peak Traffic Hour								
N-S	2.7	2.2	1.7	175	10.57	0.05	0.04	0.03
E-W	7.0	5.4	3.8	1791	8.38	1.05	0.81	0.57
PM Peak Traffic Hour								
N-S	2.6	2.2	1.7	188	10.57	0.05	0.04	0.03
E-W	7.0	5.4	3.8	2320	8.38	1.36	1.05	0.74

[1] Methodology form Bay Area Air Quality Management District CEQA Guidelines, 1999.

[2] Emission factors form EMFAC2007

Total Roadway CO Concentrations

Peak Hour Emissions = N-S Concentration + E-W Concentration + Background 1-hour Concentration.
((8-hour Emissions = Highest Peak Hour Concentration - Background 8-hour Concentration) x Persistence Factor) + Background 1-hour Concentration.

	AM Peak Hour	PM Peak Hour	8-Hour
25 Feet From Roadway Edge	7.10	7.41	4.74
50 Feet From Roadway Edge	6.85	7.09	4.55
100 Feet From Roadway Edge	6.60	6.77	4.37

Simplified Cline4 Carbon Monoxide Analysis

Project: Station 65

Background Information

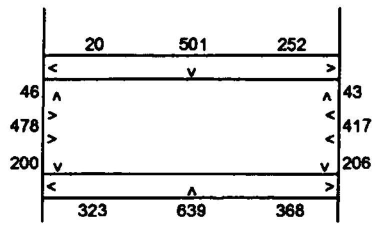
Nearest Air Quality Monitoring Station Measureing CO :	3801 Airport Road
Background 1-hour CO Concentration (ppm):	6.0
Background 8-hour CO Concentration (ppm):	3.5
Persistence Factor:	0.59
Analysis Year:	2008

Roadway Data[1]: Folsom Blvd./65th Street

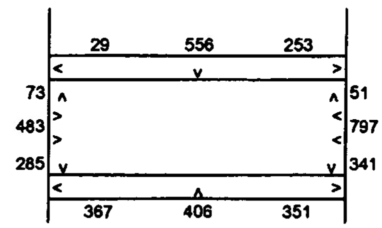
Analysis Conditions: Baseline plus Scenario A

		Rаod Type	No. or Lane	Average Speed AM	Average Speed PM
North-South	65th St.	At Grade	7	15	15
East-West	Folsom Blvd.	At Grade	8	15	15

AM Peak Hour Traffic Volumes



PM Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

	AM		PM
N-S	2103	N-S	1962
E-W	1390	E-W	2030

[1] Data provided by the Traffic Impact Study provided as Appendix X

Roadway CO Contributions and Concentrations

Emissions = (A_n x B x C)/100,000[1]

Roadway	Reference CO Concentrations A_1 Reference (25 feet)	A_2 Reference (50 feet)	A_3 Reference (100 feet)	B Traffic Volume	C Emission Factors[2]	Estimated CO Concentrations 25 feet	50 feet	100 feet
AM Peak Traffic Hour								
N-S	5.7	4.6	3.4	2103	6.97	0.84	0.67	0.50
E-W	2.2	1.9	1.6	1390	6.97	0.21	0.18	0.16
PM Peak Traffic Hour								
N-S	5.7	4.6	3.4	1962	6.97	0.78	0.63	0.46
E-W	2.2	1.9	1.6	2030	6.97	0.31	0.27	0.23

[1] Methodology form Bay Area Air Quality Management District CEQA Guidelines, 1999.

[2] Emission factors form EMFAC2007

Total Roadway CO Concentrations

Peak Hour Emissions = N-S Concentration + E-W Concentration + Background 1-hour Concentration.

8-hour Emissions = ((Highest Peak Hour Concentration - Background 8-hour Concentration) x Persistence Factor) + Background 1-hour Concentration.

	AM Peak Hour	PM Peak Hour	8-Hour
25 Feet From Roadway Edge	7.05	7.09	4.43
50 Feet From Roadway Edge	6.86	6.90	4.33
100 Feet From Roadway Edge	6.65	6.69	4.23

APPENDIX E

ENVIRONMENTAL NOISE ANALYSIS

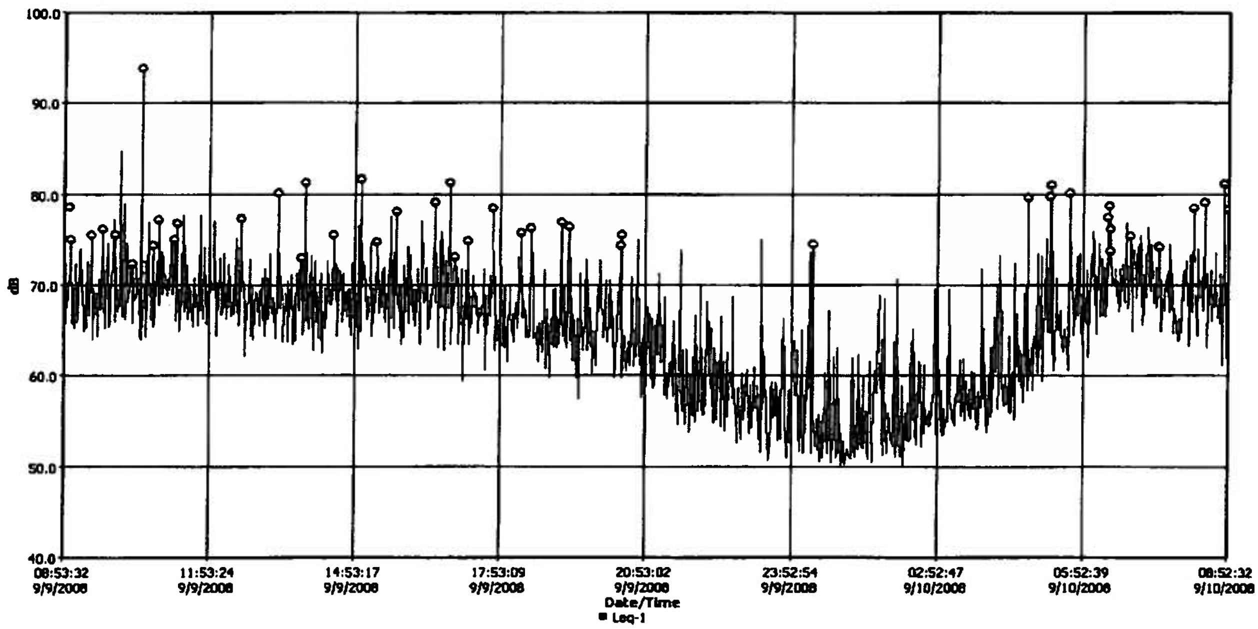
1 - Folsom Blvd. - 24 hour

9/10/2008

1 - Folsom Blvd.

Description	Meter/Sensor	Value	Description	Meter/Sensor	Value
Weighting	1	A	Response	1	IMPULSE
Int Threshold	1	100 dB	Lmax	1	106.1 dB
Leq	1	69.9 dB	CNEL	1	-214748364.8 dB
LDN	1	73.8 dB			

1 - Folsom Blvd.



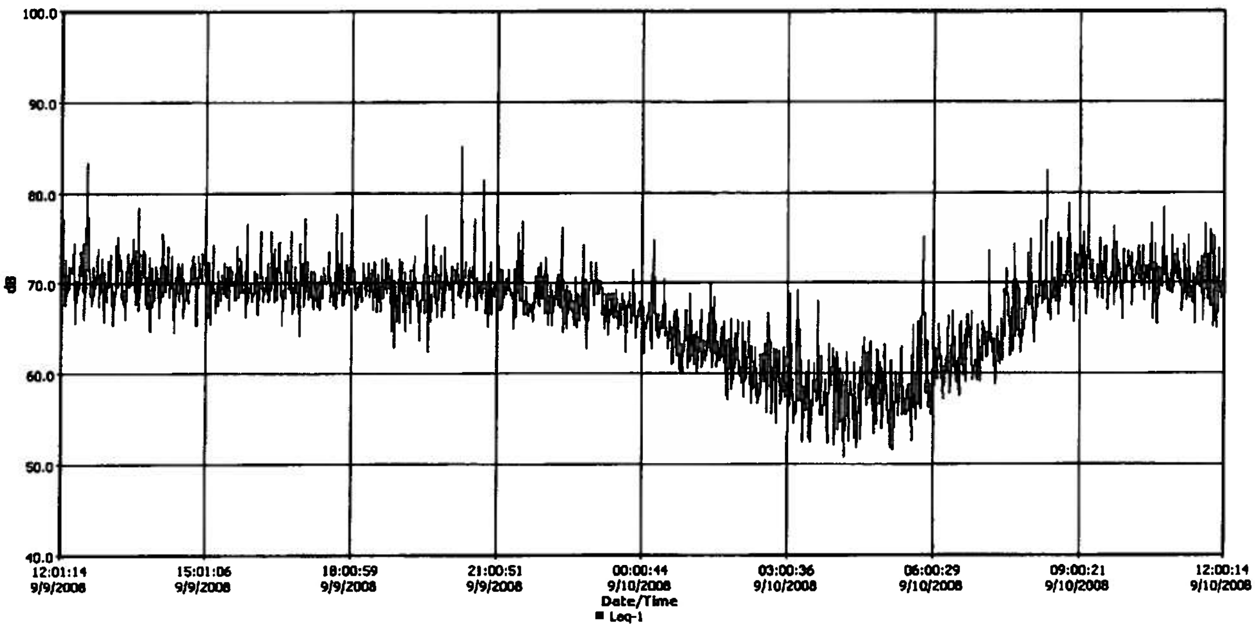
2- 65th Street - 24 hour

9/10/2008

2 - 65th Street

Description	Meter/Sensor	Value	Description	Meter/Sensor	Value
Weighting	1	A	Response	1	IMPULSE
Int Threshold	1	80 dB	Lmax	1	99.6 dB
Leq	1	69.6 dB	CNEL	1	73.5 dB
LDN	1	72.8 dB			

2 - 65th Street

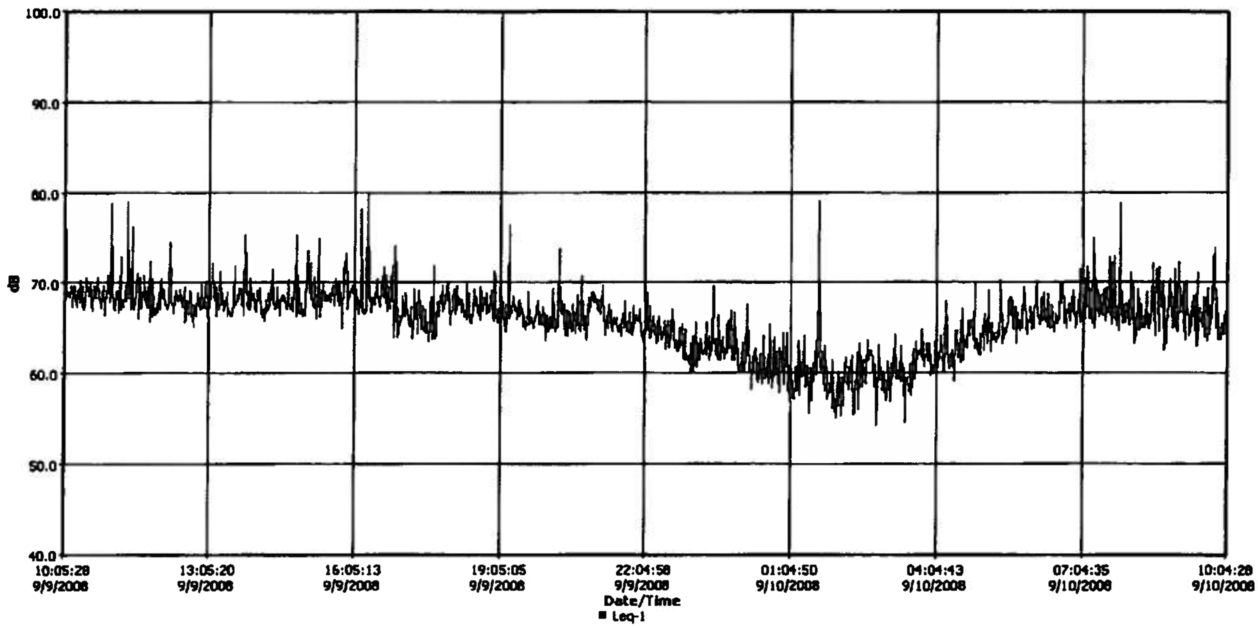


3 - Q Street - 24 hour
9/10/2008

3 - Q Street

Description	Meter/Sensor	Value	Description	Meter/Sensor	Value
Weighting	1	A	Response	1	IMPULSE
Int Threshold	1	100 dB	Lmax	1	95.9 dB
Leq	1	67.3 dB	CNEL	1	71.8 dB
LDN	1	71.4 dB			

3 - Q Street



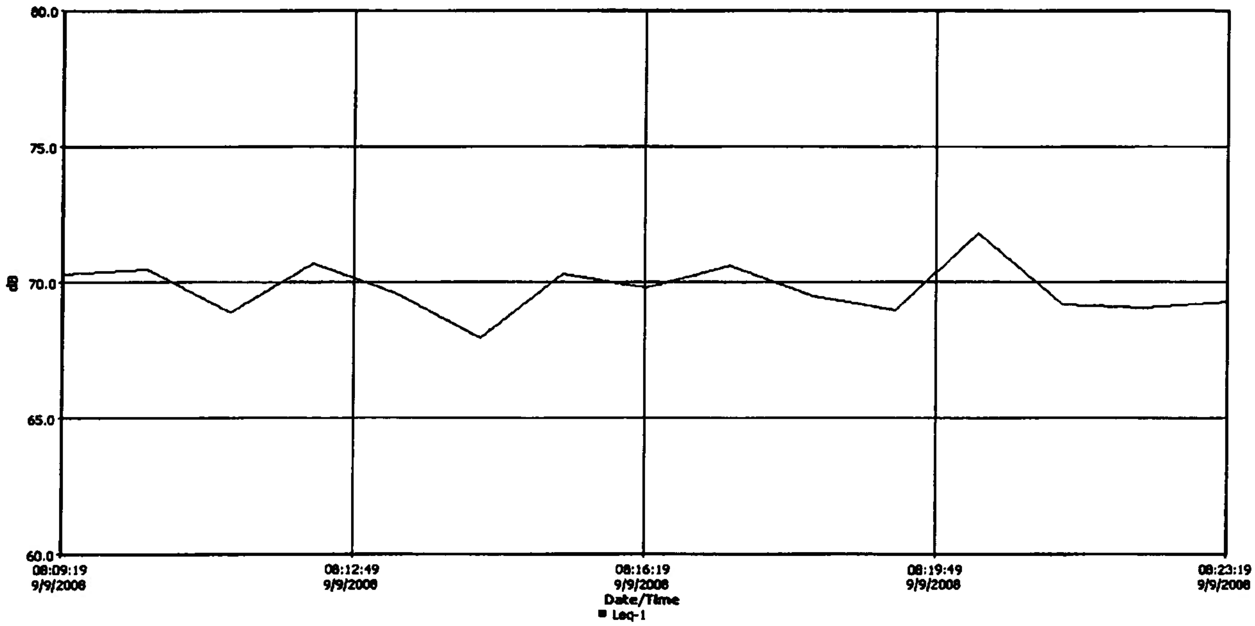
A - Folsom Blvd. - 15 min.

9/10/2008

A - Folsom Blvd.

Description	Meter/Sensor	Value	Description	Meter/Sensor	Value
Weighting	1	A	Response	1	FAST
Int Threshold	1	100 dB	Lmax	1	82.5 dB
Leq	1	69.8 dB	CNEL	1	-214748364.8 dB
LDN	1	69.8 dB			

A - Folsom Blvd.



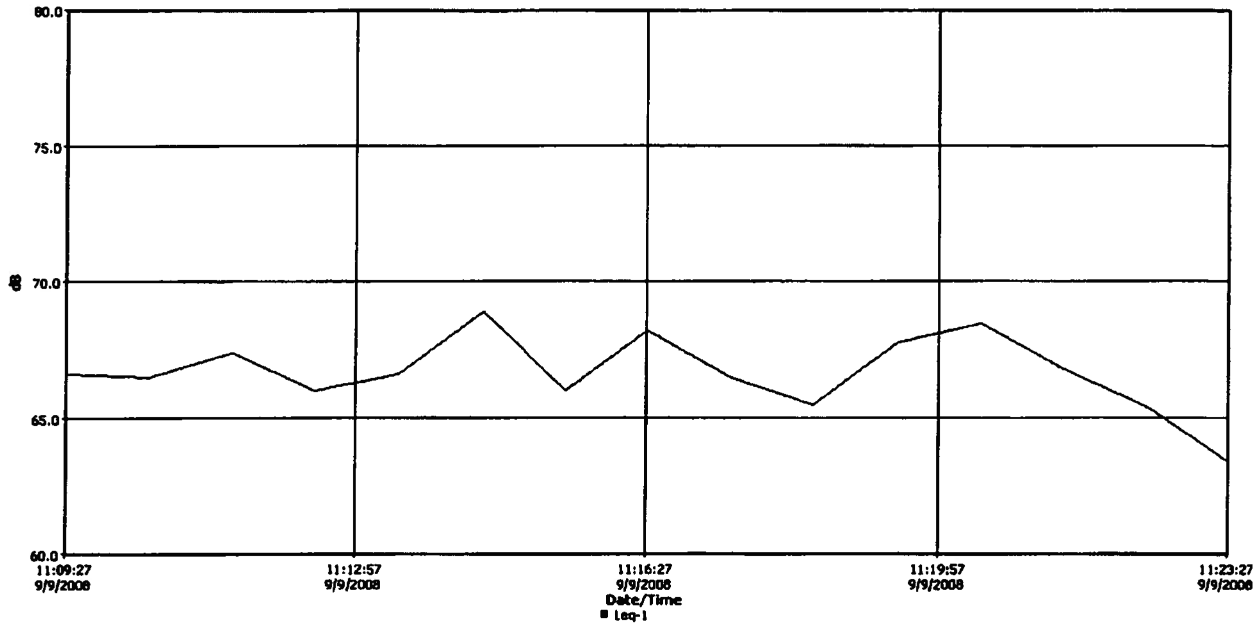
B - Corner of Q and 65th - 15 min.

9/10/2008

B - Corner of Q and 65th

Description	Meter/Sensor	Value	Description	Meter/Sensor	Value
Weighting	1	A	Response	1	FAST
Int Threshold	1	80 dB	Lmax	1	81.9 dB
Leq	1	66.8 dB	CNEL	1	66.8 dB
LDN	1	66.8 dB			

B - Corner of Q and 65th



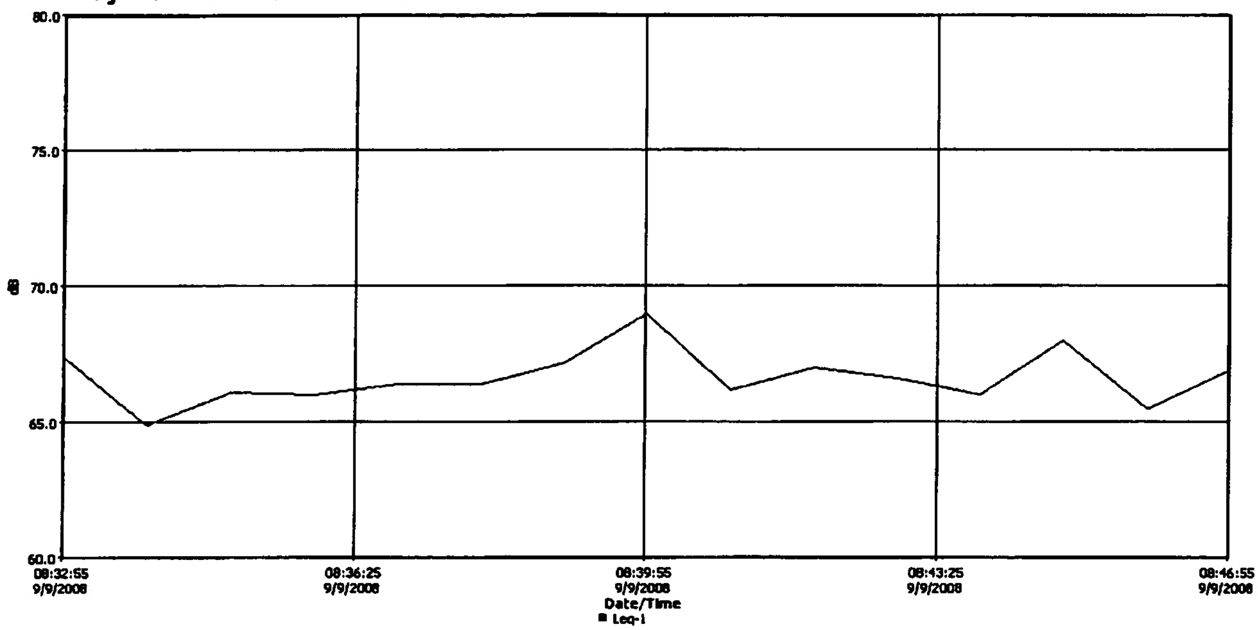
C - Alley between Q and Folsom - 15 min.

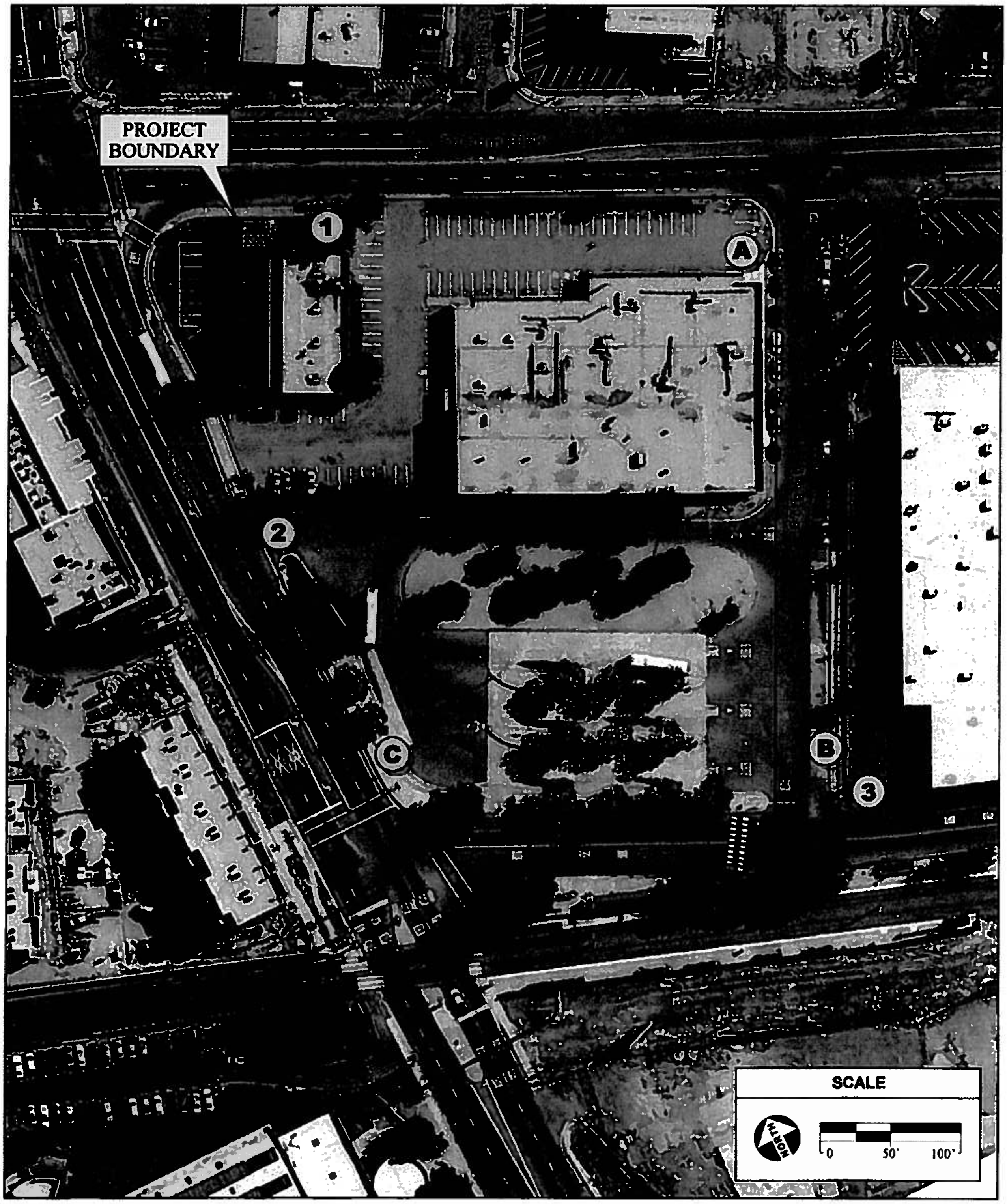
9/10/2008

C - Alley between Q and Folsom

Description	Meter/Sensor	Value	Description	Meter/Sensor	Value
Weighting	1	A	Response	1	FAST
Int Threshold	1	100 dB	Lmax	1	77.7 dB
Leq	1	66.7 dB	CNEL	1	-214748364.8 dB
LDN	1	66.7 dB			

C - Alley between Q and Folsom





SOURCE: DigitalGlobe Aerial Photograph, 2008; AES 2008

Figure 4-1
Noise Measurement Locations

SoundPro DS Calibration Log

SoundPro DS Number	Date/ Time	Project Number	Calibrator	Beginning Calibration	Ending Calibration	Initials
001	9/9/08	208523	NCAL-001	114 dB	114dB	[illegible]
002	9/9/08	208523	NCAL-001	114dB	113.9dB	[illegible]
003	9/9/08	208523	NCAL-001	114dB	113.7dB	[illegible]
001	9/9/08	208523	NCAL-001	114dB	113.6dB	[illegible]
002	9/9/08	208523	NCAL-001	114dB	114dB	[illegible]
003	9/9/08	208523	NCAL-001	114dB	113.6dB	[illegible]

APPENDIX F

TRANSPORTATION/CIRCULATION DOCUMENTS

INTERSECTIONS – LEVELS OF SERVICE (LOS)

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Existing **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	76	64	84	5	58.7	E	--
	T	136	128	94	14	24.3	C	--
	R	83	74	89	8	12.0	B	--
	Subtotal	**295**	**267**	**91**	**--**	**29.1**	**C**	**--**
SB	L	52	43	83	9	175.2	F	--
	T	120	125	104	11	63.1	E	--
	R	5	5	100	2	56.0	E	--
	Subtotal	**176**	**172**	**98**	**--**	**90.7**	**F**	**--**
EB	L	12	10	83	3	80.0	F	--
	T	108	105	97	5	74.3	E	--
	R	42	40	95	2	26.9	C	--
	Subtotal	**161**	**155**	**96**	**--**	**62.5**	**E**	**--**
WB	L	40	44	110	6	54.3	D	--
	T	105	113	108	11	31.1	C	--
	R	8	8	100	2	6.6	A	--
	Subtotal	**153**	**164**	**107**	**--**	**36.1**	**D**	**--**
	Total	**785**	**758**	**97**	**--**	**51.5**	**D**	**--**

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	7	7	100	2	47.9	E	--
	R	23	26	118	5	38.7	E	--
	Subtotal	**30**	**34**	**113**	**--**	**40.7**	**E**	**--**
SB	L	3	3	100	1	35.9	E	--
	R	3	3	150	1	10.6	B	--
	Subtotal	**5**	**5**	**100**	**--**	**22.8**	**C**	**--**
EB	L	3	3	150	1	13.2	B	--
	T	234	215	92	8	8.5	A	--
	R	7	7	100	2	6.9	A	--
	Subtotal	**243**	**224**	**92**	**--**	**8.5**	**A**	**--**
WB	L	9	9	100	3	16.1	C	--
	T	147	162	110	11	5.3	A	--
	R	3	3	150	1	4.1	A	--
	Subtotal	**159**	**174**	**109**	**--**	**5.8**	**A**	**--**
	Total	**437**	**438**	**100**	**--**	**10.1**	**B**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Existing **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	1	2	200	1	2.9	A	--
	Subtotal	**1**	**2**	**200**	--	**2.9**	**A**	--
EB	T	248	237	95	9	3.1	A	--
	R	17	15	88	6	1.9	A	--
	Subtotal	**266**	**252**	**95**	--	**3.0**	**A**	--
WB	T	162	178	110	11	12.2	B	--
	R	54	60	111	7	9.0	A	--
	Subtotal	**216**	**238**	**110**	--	**11.4**	**B**	--
	Total	**483**	**492**	**102**	--	**7.1**	**A**	--

Intersection: 4: Folsom Blvd. & State University **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	4	3	75	2	41.1	D	--
	R	33	39	118	2	14.9	B	--
	Subtotal	**37**	**42**	**114**	--	**16.9**	**B**	--
EB	L	115	109	95	9	40.8	D	--
	T	133	125	94	9	10.1	B	--
	Subtotal	**248**	**234**	**94**	--	**24.4**	**C**	--
WB	T	183	203	112	12	37.9	D	--
	R	23	25	109	5	33.0	C	--
	Subtotal	**206**	**229**	**111**	--	**37.4**	**D**	--
	Total	**491**	**504**	**103**	--	**29.7**	**C**	--

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: *Station 65* **HCM:** *2000*
Scenario: *Existing* **PHF:** *1*
TOD: *AM* **Analysis Period:** *15 Minutes* **# of Runs:** *10*

Intersection: *5: Q St. & 65th St.* **Type:** *Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	300	268	89	15	17.5	B	--
	R	15	15	100	6	16.7	B	--
	Subtotal	**315**	**282**	**90**	**--**	**17.5**	**B**	**--**
SB	L	8	8	100	3	64.6	E	--
	T	214	219	102	11	29.7	C	--
	Subtotal	**222**	**227**	**102**	**--**	**30.8**	**C**	**--**
WB	L	24	26	108	4	48.2	D	--
	R	18	20	111	6	9.3	A	--
	Subtotal	**42**	**45**	**107**	**--**	**31.4**	**C**	**--**
	Total	**579**	**554**	**96**	**--**	**24.1**	**C**	**--**

Intersection: *6: S St. & 65th St.* **Type:** *Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	30	25	83	6	83.6	F	--
	T	229	196	86	17	27.0	C	--
	R	85	71	84	8	8.4	A	--
	Subtotal	**344**	**293**	**85**	**--**	**27.4**	**C**	**--**
SB	T	225	233	103	8	27.2	C	--
	R	13	14	117	3	20.2	C	--
	Subtotal	**238**	**247**	**104**	**--**	**26.8**	**C**	**--**
EB	L	22	21	95	4	89.2	F	--
	R	57	54	96	8	52.1	D	--
	Subtotal	**78**	**75**	**95**	**--**	**62.4**	**E**	**--**
WB	L	107	109	103	13	46.9	D	--
	T	59	59	100	5	76.4	E	--
	R	65	64	98	10	67.5	E	--
	Subtotal	**230**	**232**	**101**	**--**	**60.1**	**E**	**--**
	Total	**889**	**846**	**95**	**--**	**39.3**	**D**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: *Station 65* **HCM:** *2000*
Scenario: *Existing* **PHF:** *1*
TOD: *AM* **Analysis Period:** *15 Minutes* **# of Runs:** *10*

Intersection: *7: US 50 EB Off & 65th St.* **Type:** *Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	473	365	77	11	15.3	B	--
	Subtotal	**473**	**365**	**77**	**--**	**15.3**	**B**	**--**
SB	T	202	202	100	18	8.2	A	--
	Subtotal	**202**	**202**	**100**	**--**	**8.2**	**A**	**--**
EB	L	62	71	115	10	25.2	C	--
	R	68	70	103	11	11.0	B	--
	Subtotal	**130**	**141**	**108**	**--**	**18.2**	**B**	**--**
	Total	**804**	**708**	**88**	**--**	**13.8**	**B**	**--**

Intersection: *8: Q St. & 67th St.* **Type:** *Un-Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	13	12	100	3	6.1	A	--
	R	4	4	100	3	3.8	A	--
	Subtotal	**16**	**16**	**100**	**--**	**5.5**	**A**	**--**
EB	L	7	7	117	3	3.6	A	--
	T	16	15	94	4	0.7	A	--
	Subtotal	**23**	**22**	**100**	**--**	**1.6**	**A**	**--**
WB	T	38	43	111	5	1.7	A	--
	R	23	26	113	5	0.9	A	--
	Subtotal	**62**	**69**	**111**	**--**	**1.4**	**A**	**--**
	Total	**100**	**107**	**107**	**--**	**2.1**	**A**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Existing **PHF:** 1
TOD: PM Peak Hou **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	0	Std Dev	Avg	LOS	Std Dev
NB	L	66	52	79	10	222.4	F	--
	T	112	113	101	9	48.7	D	--
	R	65	66	102	12	27.2	C	--
	Subtotal	**243**	**232**	**95**	--	**81.8**	**F**	--
SB	L	56	57	100	9	107.9	F	--
	T	131	148	113	13	59.0	E	--
	R	7	10	143	3	54.0	D	--
	Subtotal	**195**	**214**	**110**	--	**71.7**	**E**	--
EB	L	18	17	94	2	130.7	F	--
	T	135	122	90	6	135.9	F	--
	R	57	54	95	8	77.9	E	--
	Subtotal	**210**	**192**	**91**	--	**119.2**	**F**	--
WB	L	64	58	91	6	69.4	E	--
	T	205	183	90	11	39.8	D	--
	R	6	6	100	3	14.8	B	--
	Subtotal	**275**	**248**	**90**	--	**46.2**	**D**	--
	Total	**923**	**886**	**96**	--	**77.5**	**E**	--

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	0	Std Dev	Avg	LOS	Std Dev
NB	R	19	20	105	3	24.0	C	--
	Subtotal	**19**	**20**	**105**	--	**24.0**	**C**	--
EB	L	3	3	150	2	31.3	D	--
	T	243	239	98	5	10.1	B	--
	R	11	13	118	3	8.0	A	--
	Subtotal	**256**	**254**	**99**	--	**10.3**	**B**	--
WB	L	26	23	88	4	24.4	C	--
	T	279	270	97	13	6.8	A	--
	R	3	4	200	1	5.0	A	--
	Subtotal	**307**	**296**	**96**	--	**8.1**	**A**	--
	Total	**582**	**570**	**98**	--	**9.6**	**A**	--

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Existing **PHF:** 1
TOD: PM Peak Hou **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	0	Std Dev	Avg	LOS	Std Dev
SB	R	4	4	100	1	2.4	A	--
	Subtotal	**4**	**4**	**100**	**--**	**2.4**	**A**	**--**
EB	T	250	246	98	7	4.4	A	--
	R	24	24	100	3	2.6	A	--
	Subtotal	**274**	**271**	**99**	**--**	**4.2**	**A**	**--**
WB	T	298	288	97	16	15.7	C	--
	R	56	55	98	8	12.0	B	--
	Subtotal	**354**	**342**	**97**	**--**	**15.1**	**C**	**--**
	Total	**632**	**617**	**98**	**--**	**10.3**	**B**	**--**

Intersection: 4: Folsom Blvd. & State University **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	0	Std Dev	Avg	LOS	Std Dev
SB	L	21	19	86	7	55.6	E	--
	R	108	104	96	12	51.4	D	--
	Subtotal	**129**	**122**	**95**	**--**	**52.0**	**D**	**--**
EB	L	56	55	98	3	41.0	D	--
	T	195	184	95	8	8.2	A	--
	Subtotal	**250**	**239**	**96**	**--**	**15.7**	**B**	**--**
WB	T	246	240	98	9	39.5	D	--
	R	8	8	100	3	32.1	C	--
	Subtotal	**254**	**248**	**98**	**--**	**39.3**	**D**	**--**
	Total	**633**	**609**	**96**	**--**	**32.6**	**C**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: *Station 65* **HCM:** *2000*
Scenario: *Existing* **PHF:** *1*
TOD: *PM Peak Hou* **Analysis Period:** *15 Minutes* **# of Runs:** *10*

Intersection: *5: Q St. & 65th St.* **Type:** *Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	0	Std Dev	Avg	LOS	Std Dev
NB	T	207	201	97	17	30.5	C	--
	R	13	14	108	3	25.4	C	--
	Subtotal	**220**	**216**	**98**	--	**30.2**	**C**	--
SB	L	8	7	88	3	94.4	F	--
	T	266	266	100	17	42.7	D	--
	Subtotal	**273**	**273**	**100**	--	**44.0**	**D**	--
WB	L	37	35	97	6	49.3	D	--
	R	12	12	100	3	11.5	B	--
	Subtotal	**48**	**47**	**98**	--	**39.5**	**D**	--
	Total	**541**	**535**	**99**	--	**38.0**	**D**	--

Intersection: *6: S St. & 65th St.* **Type:** *Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	0	Std Dev	Avg	LOS	Std Dev
NB	L	20	19	95	5	87.2	F	--
	T	135	145	108	11	29.5	C	--
	R	82	81	99	7	8.1	A	--
	Subtotal	**236**	**245**	**104**	--	**26.9**	**C**	--
SB	T	281	292	104	15	27.4	C	--
	R	21	24	114	3	23.9	C	--
	Subtotal	**302**	**316**	**105**	--	**27.2**	**C**	--
EB	L	24	22	92	8	110.2	F	--
	R	81	81	100	7	55.8	E	--
	Subtotal	**104**	**102**	**98**	--	**67.2**	**E**	--
WB	L	145	114	79	12	245.2	F	--
	T	55	50	91	7	123.7	F	--
	R	62	52	84	9	95.2	F	--
	Subtotal	**262**	**215**	**82**	--	**181.0**	**F**	--
	Total	**904**	**878**	**97**	--	**69.5**	**E**	--

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Existing **PHF:** 1
TOD: PM Peak Hou **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	0	Std Dev	Avg	LOS	Std Dev
NB	T	355	360	101	19	15.9	B	--
	Subtotal	**355**	**360**	**101**	**--**	**15.9**	**B**	**--**
SB	T	325	309	95	16	12.5	B	--
	Subtotal	**325**	**309**	**95**	**--**	**12.5**	**B**	**--**
EB	L	44	44	100	6	23.0	C	--
	R	104	107	102	12	32.9	C	--
	Subtotal	**148**	**151**	**101**	**--**	**30.0**	**C**	**--**
	Total	**828**	**820**	**99**	**--**	**17.2**	**B**	**--**

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	0	Std Dev	Avg	LOS	Std Dev
SB	L	18	18	100	4	6.6	A	--
	R	18	15	83	4	4.1	A	--
	Subtotal	**36**	**33**	**92**	**--**	**5.5**	**A**	**--**
EB	L	6	7	100	3	3.9	A	--
	T	15	15	107	4	0.7	A	--
	Subtotal	**20**	**21**	**105**	**--**	**1.7**	**A**	**--**
WB	T	30	32	107	5	1.7	A	--
	R	13	14	108	3	0.8	A	--
	Subtotal	**44**	**46**	**105**	**--**	**1.5**	**A**	**--**
	Total	**100**	**101**	**101**	**--**	**2.8**	**A**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Base Plus Project **PHF:** 0.93
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	88	76	86	8	51.5	D	--
	T	175	152	87	12	24.2	C	--
	R	99	88	89	7	13.6	B	--
	Subtotal	**362**	**315**	**87**	**--**	**27.8**	**C**	**--**
SB	L	70	45	64	5	260.6	F	--
	T	133	116	87	13	112.0	F	--
	R	5	5	100	2	102.5	F	--
	Subtotal	**208**	**166**	**80**	**--**	**151.9**	**F**	**--**
EB	L	12	10	83	4	80.0	F	--
	T	130	117	90	5	83.0	F	--
	R	52	50	96	8	34.7	C	--
	Subtotal	**195**	**177**	**91**	**--**	**69.1**	**E**	**--**
WB	L	55	52	95	5	85.5	F	--
	T	110	94	85	11	36.8	D	--
	R	9	9	89	3	14.0	B	--
	Subtotal	**174**	**154**	**89**	**--**	**51.8**	**D**	**--**
	Total	**939**	**813**	**87**	**--**	**66.7**	**E**	**--**

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	13	10	77	5	136.9	F	--
	R	29	27	90	9	99.8	F	--
	Subtotal	**42**	**36**	**86**	**--**	**109.9**	**F**	**--**
EB	T	276	231	83	8	9.5	A	--
	R	23	20	87	4	7.4	A	--
	Subtotal	**299**	**251**	**84**	**--**	**9.3**	**A**	**--**
WB	L	20	20	100	3	24.0	C	--
	T	166	156	94	12	7.8	A	--
	Subtotal	**186**	**176**	**95**	**--**	**9.6**	**A**	**--**
	Total	**527**	**464**	**88**	**--**	**17.3**	**C**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Base Plus Project **PHF:** 0.93
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	1	1	100	1	2.8	A	--
	Subtotal	**1**	**1**	**100**	**--**	**2.8**	**A**	**--**
EB	T	296	251	85	15	3.6	A	--
	R	17	14	82	5	2.3	A	--
	Subtotal	**312**	**264**	**85**	**--**	**3.5**	**A**	**--**
WB	T	189	181	96	16	14.7	B	--
	R	58	55	95	8	11.7	B	--
	Subtotal	**248**	**236**	**95**	**--**	**14.0**	**B**	**--**
	Total	**561**	**502**	**89**	**--**	**8.5**	**A**	**--**

Intersection: 4: Folsom Blvd. & State University East **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	4	3	75	1	49.8	D	--
	R	37	37	100	5	22.5	C	--
	Subtotal	**41**	**40**	**98**	**--**	**24.4**	**C**	**--**
EB	L	124	103	82	9	40.2	D	--
	T	171	143	84	11	9.2	A	--
	Subtotal	**296**	**246**	**83**	**--**	**22.2**	**C**	**--**
WB	T	210	205	98	19	37.5	D	--
	R	25	23	92	5	34.1	C	--
	Subtotal	**235**	**228**	**97**	**--**	**37.1**	**D**	**--**
	Total	**572**	**513**	**90**	**--**	**29.0**	**C**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Base Plus Project **PHF:** 0.93
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	329	284	86	20	19.1	B	--
	R	51	44	86	5	16.4	B	--
	Subtotal	**380**	**329**	**87**	**--**	**18.7**	**B**	**--**
SB	L	18	15	83	3	109.7	F	--
	T	245	231	94	9	36.8	D	--
	Subtotal	**263**	**246**	**94**	**--**	**41.3**	**D**	**--**
WB	L	47	47	100	4	59.8	E	--
	R	33	32	97	6	33.8	C	--
	Subtotal	**80**	**78**	**98**	**--**	**49.3**	**D**	**--**
	Total	**723**	**653**	**90**	**--**	**30.9**	**C**	**--**

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	32	28	88	5	99.9	F	--
	T	260	245	94	20	35.3	D	--
	R	90	87	97	11	16.3	B	--
	Subtotal	**382**	**360**	**94**	**--**	**35.7**	**D**	**--**
SB	T	278	272	98	11	30.2	C	--
	R	14	15	107	4	25.6	C	--
	Subtotal	**292**	**286**	**98**	**--**	**30.0**	**C**	**--**
EB	L	25	16	64	6	400.8	F	--
	R	61	42	69	19	334.4	F	--
	Subtotal	**85**	**58**	**68**	**--**	**352.7**	**F**	**--**
WB	L	119	88	74	14	215.2	F	--
	T	63	47	75	8	395.8	F	--
	R	95	70	74	11	388.0	F	--
	Subtotal	**277**	**205**	**74**	**--**	**315.5**	**F**	**--**
	Total	**1036**	**910**	**88**	**--**	**117.2**	**F**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Base Plus Project **PHF:** 0.93
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	498	463	93	22	14.3	B	--
	Subtotal	**498**	**463**	**93**	**--**	**14.3**	**B**	**--**
SB	T	248	209	84	16	9.3	A	--
	Subtotal	**248**	**209**	**84**	**--**	**9.3**	**A**	**--**
EB	L	94	93	99	12	43.0	D	--
	R	77	78	101	8	10.5	B	--
	Subtotal	**171**	**172**	**101**	**--**	**28.2**	**C**	**--**
	Total	**916**	**844**	**92**	**--**	**15.9**	**B**	**--**

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	15	14	93	4	14.2	B	--
	R	10	10	100	2	17.8	C	--
	Subtotal	**26**	**24**	**92**	**--**	**15.7**	**C**	**--**
EB	L	15	14	93	4	4.9	A	--
	T	20	20	100	5	1.5	A	--
	Subtotal	**34**	**34**	**100**	**--**	**2.9**	**A**	**--**
WB	T	45	47	104	4	13.0	B	--
	R	26	27	100	6	6.6	A	--
	Subtotal	**71**	**73**	**103**	**--**	**10.7**	**B**	**--**
	Total	**131**	**131**	**100**	**--**	**9.6**	**A**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Base Plus Project **PHF:** 0.93
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 9: Q St. & Driveway 1 **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	28	27	96	4	128.8	F	--
	Subtotal	**28**	**27**	**96**	--	**128.8**	**F**	--
EB	L	34	28	82	2	1.8	A	--
	T	34	33	97	5	0.2	A	--
	Subtotal	**68**	**61**	**90**	--	**0.9**	**A**	--
WB	T	52	54	104	4	24.1	C	--
	R	3	4	133	1	3.5	A	--
	Subtotal	**55**	**57**	**104**	--	**22.8**	**C**	--
	Total	**152**	**145**	**95**	--	**33.1**	**D**	--

Intersection: 10: Driveway 2 & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	9	8	89	3	37.7	E	--
	T	32	31	97	8	55.0	F	--
	Subtotal	**41**	**39**	**93**	--	**51.6**	**F**	--
SB	T	19	17	89	5	0.7	A	--
	R	24	23	96	4	0.4	A	--
	Subtotal	**44**	**40**	**91**	--	**0.5**	**A**	--
EB	L	10	10	100	2	155.0	F	--
	R	6	8	133	3	87.8	F	--
	Subtotal	**17**	**17**	**100**	--	**125.9**	**F**	--
	Total	**102**	**96**	**94**	--	**43.7**	**E**	--

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline Plus Project **PHF:** 0.94
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	101	65	64	18	175.2	F	--
	T	113	63	56	18	43.0	D	--
	R	93	39	42	14	20.9	C	--
	Subtotal	**307**	**167**	**54**	--	**89.6**	**F**	--
SB	L	69	72	104	28	115.7	F	--
	T	146	141	96	50	88.9	F	--
	R	8	8	100	4	68.0	E	--
	Subtotal	**223**	**221**	**99**	--	**96.9**	**F**	--
EB	L	19	17	89	7	95.5	F	--
	T	130	117	89	40	102.2	F	--
	R	74	74	100	21	61.7	E	--
	Subtotal	**224**	**207**	**92**	--	**87.2**	**F**	--
WB	L	91	58	64	23	138.5	F	--
	T	198	139	70	53	59.2	E	--
	R	9	5	56	3	30.1	C	--
	Subtotal	**297**	**202**	**68**	--	**81.0**	**F**	--
	Total	**1051**	**797**	**76**	--	**88.8**	**F**	--

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	17	1	6	2	3041.6	F	--
	R	25	3	12	4	1604.0	F	--
	Subtotal	**42**	**5**	**12**	--	**2039.4**	**F**	--
EB	T	270	219	81	65	8.6	A	--
	R	22	20	91	9	6.2	A	--
	Subtotal	**293**	**239**	**81**	--	**8.4**	**A**	--
WB	L	44	34	77	15	42.5	E	--
	T	284	215	76	83	29.0	D	--
	Subtotal	**328**	**250**	**76**	--	**30.9**	**D**	--
	Total	**662**	**493**	**74**	--	**38.8**	**E**	--

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project:	Station 65	**HCM:**	2000
Scenario:	Baseline Plus Project	**PHF:**	0.94
TOD:	PM **Analysis Period:** 15 Minutes	**# of Runs:**	10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	4	5	125	1	2.3	A	--
	Subtotal	**4**	**5**	**125**	**--**	**2.3**	**A**	**--**
EB	T	283	212	75	58	4.1	A	--
	R	26	20	77	8	2.5	A	--
	Subtotal	**309**	**232**	**75**	**--**	**4.0**	**A**	**--**
WB	T	318	254	80	100	57.5	F	--
	R	60	50	83	19	57.7	F	--
	Subtotal	**378**	**304**	**80**	**--**	**57.6**	**F**	**--**
	Total	**691**	**540**	**78**	**--**	**34.1**	**D**	**--**

Intersection: 4: Folsom Blvd. & State University **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	22	19	86	8	88.4	F	--
	R	116	96	83	38	102.9	F	--
	Subtotal	**138**	**115**	**83**	**--**	**100.4**	**F**	**--**
EB	L	61	48	79	14	37.1	D	--
	T	222	163	73	48	8.0	A	--
	Subtotal	**283**	**211**	**75**	**--**	**14.6**	**B**	**--**
WB	T	262	240	92	82	69.5	E	--
	R	8	8	100	5	60.0	E	--
	Subtotal	**270**	**248**	**92**	**--**	**69.2**	**E**	**--**
	Total	**691**	**575**	**83**	**--**	**55.4**	**E**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline Plus Project **PHF:** 0.94
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	265	115	43	41	98.9	F	--
	R	52	21	40	10	118.6	F	--
	Subtotal	**318**	**136**	**43**	--	**101.9**	**F**	--
SB	L	31	15	48	9	319.3	F	--
	T	302	252	83	85	73.0	E	--
	Subtotal	**333**	**267**	**80**	--	**86.8**	**F**	--
WB	L	72	49	68	12	86.4	F	--
	R	42	28	67	11	52.0	D	--
	Subtotal	**113**	**78**	**69**	--	**73.9**	**E**	--
	Total	**764**	**481**	**63**	--	**89.0**	**F**	--

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	21	11	52	5	221.3	F	--
	T	210	115	55	47	201.0	F	--
	R	110	81	74	25	115.5	F	--
	Subtotal	**341**	**207**	**61**	--	**168.8**	**F**	--
SB	T	349	303	87	97	23.3	C	--
	R	24	21	88	9	15.8	B	--
	Subtotal	**373**	**324**	**87**	--	**22.8**	**C**	--
EB	L	26	3	12	2	1096.6	F	--
	R	86	16	19	11	754.5	F	--
	Subtotal	**112**	**19**	**17**	--	**812.4**	**F**	--
WB	L	163	70	43	20	620.0	F	--
	T	59	15	25	9	830.8	F	--
	R	81	21	26	11	905.6	F	--
	Subtotal	**302**	**107**	**35**	--	**706.9**	**F**	--
	Total	**1129**	**657**	**58**	--	**202.8**	**F**	--

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project:	Station 65	**HCM:**	2000
Scenario:	Baseline Plus Project	**PHF:**	0.94
TOD:	PM **Analysis Period:** 15 Minutes	**# of Runs:**	10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	474	361	76	104	31.5	C	--
	Subtotal	**474**	**361**	**76**	**--**	**31.5**	**C**	**--**
SB	T	374	241	64	67	12.3	B	--
	Subtotal	**374**	**241**	**64**	**--**	**12.3**	**B**	**--**
EB	L	66	53	80	18	96.2	F	--
	R	119	119	99	31	39.7	D	--
	Subtotal	**185**	**171**	**92**	**--**	**57.0**	**E**	**--**
	Total	**1033**	**772**	**75**	**--**	**31.2**	**C**	**--**

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	23	15	65	6	20.2	C	--
	R	30	20	67	8	19.0	C	--
	Subtotal	**52**	**35**	**67**	**--**	**19.5**	**C**	**--**
EB	L	14	3	21	2	474.5	F	--
	T	26	9	35	7	179.7	F	--
	Subtotal	**40**	**11**	**28**	**--**	**247.5**	**F**	**--**
WB	T	34	12	35	11	370.4	F	--
	R	18	6	33	5	425.6	F	--
	Subtotal	**52**	**18**	**35**	**--**	**390.0**	**F**	**--**
	Total	**144**	**64**	**44**	**--**	**164.0**	**F**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline No Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	89	58	65	10	230.4	F	--
	T	113	102	90	10	52.3	D	--
	R	80	69	86	8	30.7	C	--
	Subtotal	**282**	**229**	**81**	**--**	**91.1**	**F**	**--**
SB	L	59	62	105	5	113.0	F	--
	T	141	146	104	12	63.8	E	--
	R	7	8	114	3	51.5	D	--
	Subtotal	**207**	**216**	**104**	**--**	**77.4**	**E**	**--**
EB	L	18	17	89	4	110.9	F	--
	T	123	110	89	9	124.8	F	--
	R	69	69	100	8	67.2	E	--
	Subtotal	**210**	**196**	**93**	**--**	**103.2**	**F**	**--**
WB	L	77	63	83	11	77.7	E	--
	T	191	167	88	20	46.0	D	--
	R	8	7	88	2	18.0	B	--
	Subtotal	**275**	**237**	**86**	**--**	**53.5**	**D**	**--**
	Total	**975**	**879**	**90**	**--**	**80.3**	**F**	**--**

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	R	19	19	100	4	24.6	C	--
	Subtotal	**19**	**19**	**100**	**--**	**24.6**	**C**	**--**
EB	L	3	2	100	1	21.3	C	--
	T	249	237	95	9	9.8	A	--
	R	11	9	82	3	7.8	A	--
	Subtotal	**262**	**248**	**95**	**--**	**9.9**	**A**	**--**
WB	L	26	24	92	5	27.1	D	--
	T	279	256	92	27	12.4	B	--
	R	3	3	150	1	8.3	A	--
	Subtotal	**307**	**283**	**92**	**--**	**13.6**	**B**	**--**
	Total	**588**	**550**	**94**	**--**	**12.3**	**B**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline No Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	4	4	100	2	2.3	A	--
	Subtotal	**4**	**4**	**100**	**--**	**2.3**	**A**	**--**
EB	T	256	242	95	14	4.2	A	--
	R	24	22	92	3	2.5	A	--
	Subtotal	**280**	**264**	**94**	**--**	**4.0**	**A**	**--**
WB	T	298	280	94	22	28.0	D	--
	R	56	51	91	8	24.3	C	--
	Subtotal	**354**	**331**	**93**	**--**	**27.5**	**D**	**--**
	Total	**638**	**599**	**94**	**--**	**16.9**	**C**	**--**

Intersection: 4: Folsom Blvd. & State University **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	21	20	95	4	61.9	E	--
	R	108	100	93	11	66.0	E	--
	Subtotal	**129**	**120**	**94**	**--**	**65.3**	**E**	**--**
EB	L	56	49	88	7	38.7	D	--
	T	201	188	94	10	8.8	A	--
	Subtotal	**256**	**238**	**93**	**--**	**15.0**	**B**	**--**
WB	T	246	241	98	13	42.8	D	--
	R	8	7	88	2	34.3	C	--
	Subtotal	**254**	**248**	**98**	**--**	**42.5**	**D**	**--**
	Total	**639**	**606**	**95**	**--**	**36.3**	**D**	**--**

FEHR & PEERS
TRANSPORTATION CONSULTANTS

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline No Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	242	199	82	15	47.6	D	--
	R	13	11	85	2	41.6	D	--
	Subtotal	**255**	**210**	**83**	**--**	**47.3**	**D**	**--**
SB	L	21	18	90	4	89.4	F	--
	T	287	272	95	12	34.4	C	--
	Subtotal	**307**	**290**	**94**	**--**	**37.8**	**D**	**--**
WB	L	37	38	106	4	52.8	D	--
	R	17	17	106	4	21.5	C	--
	Subtotal	**53**	**56**	**106**	**--**	**43.0**	**D**	**--**
	Total	**615**	**556**	**90**	**--**	**41.9**	**D**	**--**

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	20	15	75	5	152.4	F	--
	T	165	153	93	15	74.8	E	--
	R	104	103	99	6	36.6	D	--
	Subtotal	**288**	**271**	**94**	**--**	**64.5**	**E**	**--**
SB	T	302	313	104	18	26.5	C	--
	R	21	18	86	4	16.5	B	--
	Subtotal	**323**	**332**	**103**	**--**	**25.9**	**C**	**--**
EB	L	24	10	42	4	606.4	F	--
	R	81	51	64	12	325.1	F	--
	Subtotal	**104**	**61**	**59**	**--**	**372.5**	**F**	**--**
WB	L	153	109	71	8	312.6	F	--
	T	55	41	75	8	281.6	F	--
	R	67	51	77	8	258.4	F	--
	Subtotal	**275**	**201**	**73**	**--**	**292.5**	**F**	**--**
	Total	**990**	**864**	**87**	**--**	**124.5**	**F**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline No Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	427	426	100	22	14.4	B	--
	Subtotal	**427**	**426**	**100**	**--**	**14.4**	**B**	**--**
SB	T	354	305	86	15	13.4	B	--
	Subtotal	**354**	**305**	**86**	**--**	**13.4**	**B**	**--**
EB	L	48	46	96	5	28.0	C	--
	R	112	117	104	8	60.8	E	--
	Subtotal	**160**	**164**	**103**	**--**	**51.5**	**D**	**--**
	Total	**940**	**895**	**95**	**--**	**20.8**	**C**	**--**

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	18	17	94	4	8.8	A	--
	R	18	17	94	5	5.8	A	--
	Subtotal	**36**	**34**	**94**	**--**	**7.3**	**A**	**--**
EB	L	6	5	67	2	3.2	A	--
	T	28	24	86	3	0.9	A	--
	Subtotal	**33**	**29**	**88**	**--**	**1.2**	**A**	**--**
WB	T	35	37	106	7	2.7	A	--
	R	13	14	108	4	1.1	A	--
	Subtotal	**48**	**51**	**106**	**--**	**2.3**	**A**	**--**
	Total	**118**	**114**	**97**	**--**	**3.5**	**A**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline No Project **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	79	76	96	11	54.0	D	--
	T	154	151	98	10	25.3	C	--
	R	86	82	95	8	14.5	B	--
	Subtotal	**318**	**309**	**97**	--	**29.5**	**C**	--
SB	L	60	47	78	10	228.7	F	--
	T	122	112	92	16	99.1	F	--
	R	5	4	80	2	82.7	F	--
	Subtotal	**187**	**163**	**87**	--	**136.4**	**F**	--
EB	L	12	10	83	3	69.7	E	--
	T	97	102	105	12	69.3	E	--
	R	48	48	100	7	20.3	C	--
	Subtotal	**156**	**159**	**102**	--	**54.5**	**D**	--
WB	L	46	47	102	5	59.3	E	--
	T	96	96	100	10	29.4	C	--
	R	8	8	100	2	8.5	A	--
	Subtotal	**150**	**151**	**101**	--	**37.6**	**D**	--
	Total	**812**	**782**	**96**	--	**58.4**	**E**	--

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	7	6	86	3	45.9	E	--
	R	23	25	114	8	34.8	D	--
	Subtotal	**30**	**32**	**107**	--	**37.0**	**E**	--
EB	L	3	3	150	2	12.2	B	--
	T	234	223	95	11	9.8	A	--
	R	7	6	86	2	7.4	A	--
	Subtotal	**243**	**231**	**95**	--	**9.8**	**A**	--
WB	L	9	10	111	3	17.8	C	--
	T	147	152	103	12	3.7	A	--
	R	3	3	150	2	2.6	A	--
	Subtotal	**159**	**165**	**104**	--	**4.6**	**A**	--
	Total	**432**	**429**	**99**	--	**9.8**	**A**	--

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline No Project **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	1	2	200	1	2.6	A	--
	Subtotal	**1**	**2**	**200**	--	**2.6**	**A**	--
EB	T	246	237	96	20	5.1	A	--
	R	17	18	106	5	3.5	A	--
	Subtotal	**263**	**255**	**97**	--	**5.0**	**A**	--
WB	T	162	169	104	11	11.9	B	--
	R	54	54	100	5	8.0	A	--
	Subtotal	**216**	**223**	**103**	--	**10.9**	**B**	--
	Total	**480**	**479**	**100**	--	**7.7**	**A**	--

Intersection: 4: Folsom Blvd. & State University East **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	4	3	75	2	66.9	E	--
	R	33	32	97	7	16.5	B	--
	Subtotal	**37**	**35**	**95**	--	**20.6**	**C**	--
EB	L	115	104	90	9	57.0	E	--
	T	131	121	92	17	20.6	C	--
	Subtotal	**246**	**225**	**91**	--	**37.5**	**D**	--
WB	T	183	194	107	15	33.1	C	--
	R	23	21	91	6	36.7	D	--
	Subtotal	**206**	**215**	**104**	--	**33.4**	**C**	--
	Total	**488**	**475**	**97**	--	**34.4**	**C**	--

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline No Project **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	323	317	98	15	18.7	B	--
	R	15	16	107	5	16.3	B	--
	Subtotal	**338**	**333**	**99**	**--**	**18.6**	**B**	**--**
SB	L	12	10	83	2	66.4	E	--
	T	225	224	100	17	27.3	C	--
	Subtotal	**237**	**234**	**99**	**--**	**29.0**	**C**	**--**
WB	L	24	23	96	4	42.9	D	--
	R	20	20	100	5	11.4	B	--
	Subtotal	**43**	**43**	**100**	**--**	**28.5**	**C**	**--**
	Total	**618**	**610**	**99**	**--**	**23.3**	**C**	**--**

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	30	25	83	4	85.8	F	--
	T	237	245	103	16	31.9	C	--
	R	89	92	103	7	11.9	B	--
	Subtotal	**355**	**362**	**102**	**--**	**30.5**	**C**	**--**
SB	T	236	242	103	15	29.5	C	--
	R	13	13	108	3	21.6	C	--
	Subtotal	**248**	**255**	**102**	**--**	**29.1**	**C**	**--**
EB	L	22	15	68	4	197.2	F	--
	R	57	49	86	14	138.4	F	--
	Subtotal	**78**	**63**	**81**	**--**	**152.0**	**F**	**--**
WB	L	110	109	99	11	108.8	F	--
	T	59	52	88	9	206.8	F	--
	R	79	71	90	9	199.9	F	--
	Subtotal	**248**	**233**	**94**	**--**	**158.6**	**F**	**--**
	Total	**930**	**912**	**98**	**--**	**71.2**	**E**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline No Project **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	477	463	97	20	12.8	B	--
	Subtotal	**477**	**463**	**97**	**--**	**12.8**	**B**	**--**
SB	T	217	207	95	15	8.7	A	--
	Subtotal	**217**	**207**	**95**	**--**	**8.7**	**A**	**--**
EB	L	73	79	108	8	26.2	C	--
	R	72	78	108	11	10.3	B	--
	Subtotal	**145**	**157**	**108**	**--**	**18.3**	**B**	**--**
	Total	**839**	**827**	**98**	**--**	**12.8**	**B**	**--**

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	13	13	108	2	7.6	A	--
	R	4	3	50	1	5.0	A	--
	Subtotal	**16**	**16**	**100**	**--**	**7.2**	**A**	**--**
EB	L	7	6	100	2	3.5	A	--
	T	21	21	105	4	0.7	A	--
	Subtotal	**27**	**27**	**96**	**--**	**1.3**	**A**	**--**
WB	T	40	42	105	6	1.6	A	--
	R	23	27	117	6	0.8	A	--
	Subtotal	**63**	**69**	**110**	**--**	**1.3**	**A**	**--**
	Total	**106**	**111**	**105**	**--**	**2.1**	**A**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Base Plus High Density Project **PHF:** 0.93
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	89	84	94	26	56.5	E	--
	T	174	166	95	39	24.6	C	--
	R	100	95	95	28	15.2	B	--
	Subtotal	**363**	**345**	**95**	**--**	**29.7**	**C**	**--**
SB	L	72	52	72	14	240.4	F	--
	T	133	125	94	48	99.6	F	--
	R	5	5	100	3	92.0	F	--
	Subtotal	**210**	**182**	**87**	**--**	**139.6**	**F**	**--**
EB	L	12	13	108	5	73.9	E	--
	T	130	131	101	35	69.2	E	--
	R	52	51	98	14	24.1	C	--
	Subtotal	**195**	**195**	**100**	**--**	**57.7**	**E**	**--**
WB	L	56	51	91	21	76.5	E	--
	T	113	103	91	41	33.3	C	--
	R	9	8	89	3	9.6	A	--
	Subtotal	**178**	**162**	**91**	**--**	**45.7**	**D**	**--**
	Total	**946**	**884**	**93**	**--**	**61.5**	**E**	**--**

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	14	13	93	2	127.2	F	--
	R	30	30	100	6	97.5	F	--
	Subtotal	**44**	**43**	**98**	**--**	**106.3**	**F**	**--**
EB	T	277	259	94	69	9.9	A	--
	R	25	22	88	7	7.7	A	--
	Subtotal	**302**	**281**	**93**	**--**	**9.7**	**A**	**--**
WB	L	22	19	86	9	26.5	D	--
	T	169	154	91	74	11.3	B	--
	Subtotal	**190**	**173**	**91**	**--**	**13.0**	**B**	**--**
	Total	**537**	**497**	**93**	**--**	**19.2**	**C**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Base Plus High Density Project **PHF:** 0.93
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	1	2	200	1	2.6	A	--
	Subtotal	**1**	**2**	**200**	**--**	**2.6**	**A**	**--**
EB	T	295	277	94	71	4.4	A	--
	R	19	18	95	6	3.1	A	--
	Subtotal	**313**	**295**	**94**	**--**	**4.3**	**A**	**--**
WB	T	193	176	91	84	31.9	D	--
	R	58	56	97	26	22.9	C	--
	Subtotal	**252**	**232**	**92**	**--**	**29.7**	**D**	**--**
	Total	**566**	**529**	**93**	**--**	**15.4**	**C**	**--**

Intersection: 4: Folsom Blvd. & State University East **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	4	5	125	3	50.2	D	--
	R	37	37	100	16	34.9	C	--
	Subtotal	**41**	**42**	**102**	**--**	**36.7**	**D**	**--**
EB	L	125	110	88	24	53.0	D	--
	T	170	156	92	41	16.4	B	--
	Subtotal	**295**	**265**	**90**	**--**	**31.5**	**C**	**--**
WB	T	215	213	99	88	63.3	E	--
	R	25	27	108	12	61.2	E	--
	Subtotal	**240**	**240**	**100**	**--**	**63.0**	**E**	**--**
	Total	**575**	**547**	**95**	**--**	**45.7**	**D**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Base Plus High Density Project **PHF:** 0.93
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	328	311	95	84	23.5	C	--
	R	54	49	91	10	21.6	C	--
	Subtotal	**382**	**360**	**94**	**--**	**23.3**	**C**	**--**
SB	L	18	15	83	5	113.1	F	--
	T	246	241	98	74	39.8	D	--
	Subtotal	**264**	**255**	**97**	**--**	**43.9**	**D**	**--**
WB	L	50	48	96	18	59.3	E	--
	R	35	34	97	11	33.2	C	--
	Subtotal	**85**	**82**	**96**	**--**	**48.4**	**D**	**--**
	Total	**731**	**697**	**95**	**--**	**33.8**	**C**	**--**

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	32	29	91	10	119.8	F	--
	T	262	286	109	80	51.3	D	--
	R	90	88	98	20	28.4	C	--
	Subtotal	**383**	**403**	**105**	**--**	**51.2**	**D**	**--**
SB	T	281	276	98	82	28.1	C	--
	R	15	17	113	11	18.4	B	--
	Subtotal	**296**	**293**	**99**	**--**	**27.5**	**C**	**--**
EB	L	25	10	40	8	956.3	F	--
	R	61	24	39	20	742.0	F	--
	Subtotal	**85**	**35**	**40**	**--**	**806.6**	**F**	**--**
WB	L	119	88	74	16	354.5	F	--
	T	63	45	70	12	466.8	F	--
	R	96	65	68	16	475.2	F	--
	Subtotal	**278**	**197**	**71**	**--**	**419.8**	**F**	**--**
	Total	**1042**	**928**	**89**	**--**	**150.2**	**F**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Base Plus High Density Project **PHF:** 0.93
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	498	505	101	152	15.4	B	--
	Subtotal	**498**	**505**	**101**	--	**15.4**	**B**	--
SB	T	242	198	82	52	9.1	A	--
	Subtotal	**242**	**198**	**82**	--	**9.1**	**A**	--
EB	L	95	103	108	18	43.4	D	--
	R	77	83	108	29	9.1	A	--
	Subtotal	**173**	**187**	**108**	--	**28.1**	**C**	--
	Total	**912**	**890**	**98**	--	**16.7**	**B**	--

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	15	13	87	7	10.6	B	--
	R	11	10	91	6	11.7	B	--
	Subtotal	**27**	**23**	**85**	--	**11.1**	**B**	--
EB	L	16	16	100	4	11.8	B	--
	T	20	22	110	7	5.9	A	--
	Subtotal	**35**	**37**	**106**	--	**8.4**	**A**	--
WB	T	45	47	104	15	16.7	C	--
	R	26	28	108	7	10.5	B	--
	Subtotal	**71**	**75**	**106**	--	**14.4**	**B**	--
	Total	**133**	**135**	**102**	--	**12.2**	**B**	--

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: *Station 65* **HCM:** *2000*
Scenario: *Base Plus High Density Project* **PHF:** *0.93*
TOD: *AM* **Analysis Period:** *15 Minutes* **# of Runs:** *10*

Intersection: *9: Q St. & Driveway 1* **Type:** *Un-Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	33	28	85	9	161.0	F	--
	Subtotal	**33**	**28**	**85**	**--**	**161.0**	**F**	**--**
EB	L	37	30	81	5	1.2	A	--
	T	35	35	100	9	1.8	A	--
	Subtotal	**72**	**65**	**90**	**--**	**1.5**	**A**	**--**
WB	T	52	55	106	18	23.9	C	--
	R	3	3	100	2	1.5	A	--
	Subtotal	**56**	**58**	**104**	**--**	**22.9**	**C**	**--**
	Total	**161**	**151**	**94**	**--**	**39.4**	**E**	**--**

Intersection: *10: Driveway 2 & 67th St.* **Type:** *Un-Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	10	8	80	3	51.8	F	--
	T	32	36	113	7	56.2	F	--
	Subtotal	**42**	**43**	**102**	**--**	**55.4**	**F**	**--**
SB	T	19	16	84	8	0.6	A	--
	R	27	25	93	8	0.4	A	--
	Subtotal	**46**	**41**	**89**	**--**	**0.5**	**A**	**--**
EB	L	12	11	92	4	119.2	F	--
	R	7	6	86	4	69.6	F	--
	Subtotal	**19**	**16**	**84**	**--**	**102.0**	**F**	**--**
	Total	**108**	**101**	**94**	**--**	**40.6**	**E**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Base Plus High Density Project **PHF:** 0.94
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	101	49	49	10	217.5	F	--
	T	112	37	33	13	49.0	D	--
	R	94	22	23	10	24.3	C	--
	Subtotal	**307**	**109**	**36**	**--**	**120.3**	**F**	**--**
SB	L	70	56	80	12	161.0	F	--
	T	146	96	66	38	150.9	F	--
	R	8	6	75	3	132.3	F	--
	Subtotal	**223**	**158**	**71**	**--**	**153.7**	**F**	**--**
EB	L	19	11	58	4	228.0	F	--
	T	151	98	65	30	213.4	F	--
	R	74	47	64	15	161.4	F	--
	Subtotal	**245**	**156**	**64**	**--**	**198.7**	**F**	**--**
WB	L	91	43	47	13	146.1	F	--
	T	223	125	56	34	72.4	E	--
	R	9	5	56	2	39.5	D	--
	Subtotal	**323**	**173**	**54**	**--**	**90.0**	**F**	**--**
	Total	**1098**	**595**	**54**	**--**	**140.9**	**F**	**--**

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	17	2	12	1	3029.2	F	--
	R	37	4	11	4	2327.9	F	--
	Subtotal	**54**	**5**	**9**	**--**	**2522.7**	**F**	**--**
EB	T	281	167	59	45	8.8	A	--
	R	34	22	65	4	6.4	A	--
	Subtotal	**315**	**188**	**60**	**--**	**8.5**	**A**	**--**
WB	L	44	27	61	8	40.4	E	--
	T	310	192	62	49	31.1	D	--
	Subtotal	**354**	**219**	**62**	**--**	**32.2**	**D**	**--**
	Total	**723**	**413**	**57**	**--**	**54.0**	**F**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: *Station 65* **HCM:** *2000*
Scenario: *Base Plus High Density Project* **PHF:** *0.94*
TOD: *PM* **Analysis Period:** *15 Minutes* **# of Runs:** *10*

Intersection: *3: Folsom Blvd. & Elvas Ave.* **Type:** *Un-Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	4	3	75	1	2.2	A	--
	Subtotal	**4**	**3**	**75**	**--**	**2.2**	**A**	**--**
EB	T	305	169	55	42	4.5	A	--
	R	26	13	50	6	2.7	A	--
	Subtotal	**331**	**183**	**55**	**--**	**4.3**	**A**	**--**
WB	T	344	223	65	52	67.1	F	--
	R	60	40	67	13	65.4	F	--
	Subtotal	**404**	**262**	**65**	**--**	**66.8**	**F**	**--**
	Total	**739**	**448**	**61**	**--**	**40.9**	**E**	**--**

Intersection: *4: Folsom Blvd. & State University* **Type:** *Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	22	14	64	3	114.1	F	--
	R	116	73	63	15	137.4	F	--
	Subtotal	**138**	**87**	**63**	**--**	**133.6**	**F**	**--**
EB	L	61	35	57	10	45.5	D	--
	T	244	138	57	32	7.3	A	--
	Subtotal	**305**	**172**	**56**	**--**	**15.0**	**B**	**--**
WB	T	288	222	77	44	81.6	F	--
	R	8	6	75	3	74.2	E	--
	Subtotal	**295**	**228**	**77**	**--**	**81.4**	**F**	**--**
	Total	**739**	**488**	**66**	**--**	**67.3**	**E**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Base Plus High Density Project **PHF:** 0.94
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	264	69	26	32	164.9	F	--
	R	55	11	20	8	217.0	F	--
	Subtotal	**318**	**79**	**25**	**--**	**171.9**	**F**	**--**
SB	L	31	6	19	6	680.1	F	--
	T	301	179	59	63	88.4	F	--
	Subtotal	**333**	**185**	**56**	**--**	**107.3**	**F**	**--**
WB	L	74	44	59	4	76.6	E	--
	R	43	23	53	5	39.3	D	--
	Subtotal	**117**	**67**	**57**	**--**	**64.0**	**E**	**--**
	Total	**768**	**331**	**43**	**--**	**114.0**	**F**	**--**

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	21	7	33	3	337.5	F	--
	T	210	64	30	37	383.6	F	--
	R	110	55	50	15	222.6	F	--
	Subtotal	**341**	**125**	**37**	**--**	**310.8**	**F**	**--**
SB	T	351	223	64	56	21.9	C	--
	R	24	16	67	6	14.4	B	--
	Subtotal	**375**	**239**	**64**	**--**	**21.4**	**C**	**--**
EB	L	26	1	4	2	1734.4	F	--
	R	86	7	8	7	1172.5	F	--
	Subtotal	**112**	**9**	**8**	**--**	**1256.5**	**F**	**--**
WB	L	163	44	27	21	902.2	F	--
	T	59	10	17	5	1248.4	F	--
	R	82	14	17	7	1209.7	F	--
	Subtotal	**303**	**68**	**22**	**--**	**1016.2**	**F**	**--**
	Total	**1132**	**441**	**39**	**--**	**281.4**	**F**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Base Plus High Density Project **PHF:** 0.94
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	473	233	49	60	56.4	E	--
	Subtotal	**473**	**233**	**49**	**--**	**56.4**	**E**	**--**
SB	T	374	172	46	37	12.8	B	--
	Subtotal	**374**	**172**	**46**	**--**	**12.8**	**B**	**--**
EB	L	67	36	54	14	210.1	F	--
	R	119	96	81	22	65.8	E	--
	Subtotal	**186**	**132**	**71**	**--**	**105.2**	**F**	**--**
	Total	**1033**	**537**	**52**	**--**	**54.4**	**D**	**--**

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	34	18	53	6	12.1	B	--
	R	30	16	53	5	12.1	B	--
	Subtotal	**64**	**34**	**53**	**--**	**12.1**	**B**	**--**
EB	L	15	2	13	2	1020.4	F	--
	T	26	3	12	4	549.6	F	--
	Subtotal	**40**	**5**	**13**	**--**	**725.0**	**F**	**--**
WB	T	34	8	24	10	660.2	F	--
	R	29	5	17	5	787.4	F	--
	Subtotal	**63**	**13**	**21**	**--**	**712.2**	**F**	**--**
	Total	**167**	**52**	**31**	**--**	**260.2**	**F**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project:	Station 65			**HCM:**	2000
Scenario:	Base Plus High Density Project			**PHF:**	0.94
TOD:	PM	**Analysis Period:**	15 Minutes	**# of Runs:**	10

Intersection: 9: Q St. & Driveway 1 **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	57	43	75	9	449.2	F	--
	Subtotal	**57**	**43**	**75**	**--**	**449.2**	**F**	**--**
EB	L	46	10	22	7	1.1	A	--
	T	40	6	15	6	230.8	F	--
	Subtotal	**86**	**16**	**19**	**--**	**84.0**	**F**	**--**
WB	T	60	24	40	11	31.9	D	--
	R	3	1	33	1	6.2	A	--
	Subtotal	**64**	**25**	**39**	**--**	**30.5**	**D**	**--**
	Total	**206**	**83**	**40**	**--**	**255.4**	**F**	**--**

Intersection: 10: Driveway 2 & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	10	1	10	2	1671.1	F	--
	T	34	5	15	5	1838.0	F	--
	Subtotal	**44**	**6**	**14**	**--**	**1803.5**	**F**	**--**
SB	T	52	32	62	9	0.7	A	--
	R	27	16	59	6	0.3	A	--
	Subtotal	**78**	**49**	**62**	**--**	**0.6**	**A**	**--**
EB	L	20	1	5	2	14804.9	F	--
	R	13	1	0	1	26925.0	F	--
	Subtotal	**33**	**2**	**6**	**--**	**18844.9**	**F**	**--**
	Total	**155**	**56**	**36**	**--**	**697.0**	**F**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project:	Station 65	**HCM:**	2000
Scenario:	Cumulative Current GP No Project	**PHF:**	1
TOD:	PM **Analysis Period:** 15 Minutes	**# of Runs:**	10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	73	70	97	6	46.9	D	--
	T	120	108	90	10	77.2	E	--
	R	43	40	95	4	35.8	D	--
	Subtotal	**235**	**218**	**93**	**--**	**59.9**	**E**	**--**
SB	L	110	106	96	7	132.1	F	--
	T	110	109	99	13	98.6	F	--
	R	8	6	75	2	97.1	F	--
	Subtotal	**228**	**221**	**96**	**--**	**114.7**	**F**	**--**
EB	L	15	12	80	4	170.5	F	--
	T	248	192	77	3	131.8	F	--
	R	65	53	82	5	107.3	F	--
	Subtotal	**328**	**257**	**78**	**--**	**128.6**	**F**	**--**
WB	L	100	80	80	5	102.9	F	--
	T	320	247	77	10	64.1	E	--
	R	40	34	85	6	36.8	D	--
	Subtotal	**460**	**361**	**78**	**--**	**70.2**	**E**	**--**
	Total	**1250**	**1057**	**84**	**--**	**91.5**	**F**	**--**

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	15	12	80	4	29.3	C	--
	R	30	20	67	4	10.4	B	--
	Subtotal	**45**	**32**	**71**	**--**	**17.3**	**B**	**--**
EB	T	383	324	85	7	11.5	B	--
	R	18	16	89	3	9.7	A	--
	Subtotal	**400**	**340**	**85**	**--**	**11.4**	**B**	**--**
WB	L	10	8	80	3	63.6	E	--
	T	423	377	89	17	44.3	D	--
	Subtotal	**433**	**385**	**89**	**--**	**44.7**	**D**	**--**
	Total	**878**	**757**	**86**	**--**	**28.6**	**C**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP No Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	5	5	100	2	14.8	B	--
	Subtotal	**5**	**5**	**100**	--	**14.8**	**B**	--
EB	T	355	289	81	8	4.3	A	--
	R	48	35	73	5	3.4	A	--
	Subtotal	**403**	**325**	**81**	--	**4.2**	**A**	--
WB	T	425	373	88	14	46.0	E	--
	R	73	66	92	9	40.5	E	--
	Subtotal	**498**	**439**	**88**	--	**45.2**	**E**	--
	Total	**905**	**769**	**85**	--	**27.7**	**D**	--

Intersection: 4: Folsom Blvd. & State University **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	3	3	150	2	52.5	D	--
	R	58	60	103	9	20.7	C	--
	Subtotal	**60**	**63**	**105**	--	**22.2**	**C**	--
EB	L	50	41	82	5	35.8	D	--
	T	340	278	82	14	4.4	A	--
	Subtotal	**390**	**319**	**82**	--	**8.4**	**A**	--
WB	T	378	348	92	14	20.4	C	--
	R	8	8	100	3	14.9	B	--
	Subtotal	**385**	**356**	**92**	--	**20.3**	**C**	--
	Total	**835**	**738**	**88**	--	**15.4**	**B**	--

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP No Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	223	203	91	14	14.5	B	--
	R	63	58	94	10	11.9	B	--
	Subtotal	**285**	**262**	**92**	**--**	**13.9**	**B**	**--**
SB	L	13	10	83	2	70.3	E	--
	T	288	264	92	18	20.8	C	--
	Subtotal	**300**	**274**	**91**	**--**	**22.6**	**C**	**--**
WB	L	98	63	64	3	69.4	E	--
	R	13	7	58	3	42.9	D	--
	Subtotal	**110**	**70**	**64**	**--**	**66.6**	**E**	**--**
	Total	**695**	**606**	**87**	**--**	**24.0**	**C**	**--**

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	28	22	79	3	122.7	F	--
	T	168	150	89	11	32.8	C	--
	R	125	109	87	6	12.7	B	--
	Subtotal	**320**	**281**	**88**	**--**	**32.2**	**C**	**--**
SB	T	363	323	89	15	23.6	C	--
	R	23	18	82	3	17.2	B	--
	Subtotal	**385**	**340**	**88**	**--**	**23.3**	**C**	**--**
EB	L	33	32	100	5	59.2	E	--
	R	80	82	103	10	29.2	C	--
	Subtotal	**113**	**114**	**102**	**--**	**37.5**	**D**	**--**
WB	L	153	136	89	8	100.4	F	--
	T	65	59	89	8	103.3	F	--
	R	83	78	95	9	93.9	F	--
	Subtotal	**300**	**272**	**91**	**--**	**99.2**	**F**	**--**
	Total	**1118**	**1008**	**90**	**--**	**47.9**	**D**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP No Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	455	388	85	24	26.3	C	--
	Subtotal	**455**	**388**	**85**	--	**26.3**	**C**	--
SB	T	328	281	86	10	34.9	C	--
	Subtotal	**328**	**281**	**86**	--	**34.9**	**C**	--
EB	L	48	48	100	9	14.7	B	--
	R	138	138	100	10	35.7	D	--
	Subtotal	**185**	**186**	**101**	--	**30.3**	**C**	--
	Total	**968**	**855**	**88**	--	**30.0**	**C**	--

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	8	6	75	2	35.9	E	--
	R	20	20	100	4	57.3	F	--
	Subtotal	**28**	**26**	**93**	--	**52.0**	**F**	--
EB	L	15	14	93	4	6.1	A	--
	T	60	57	95	10	6.6	A	--
	Subtotal	**75**	**71**	**95**	--	**6.5**	**A**	--
WB	T	90	47	52	4	169.7	F	--
	R	33	18	56	5	149.1	F	--
	Subtotal	**123**	**65**	**53**	--	**164.0**	**F**	--
	Total	**225**	**162**	**72**	--	**77.1**	**F**	--

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP No Project **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	80	68	85	6	52.7	D	--
	T	118	96	81	11	41.7	D	--
	R	100	86	86	11	14.7	B	--
	Subtotal	**298**	**250**	**84**	**--**	**35.4**	**D**	**--**
SB	L	98	98	100	10	74.5	E	--
	T	123	128	105	7	50.7	D	--
	R	3	2	100	1	46.1	D	--
	Subtotal	**223**	**228**	**103**	**--**	**60.9**	**E**	**--**
EB	L	8	10	125	3	76.3	E	--
	T	193	182	95	7	56.6	E	--
	R	50	47	94	7	37.2	D	--
	Subtotal	**250**	**238**	**95**	**--**	**53.6**	**D**	**--**
WB	L	45	40	89	7	51.9	D	--
	T	225	194	86	14	20.5	C	--
	R	30	26	87	5	5.6	A	--
	Subtotal	**300**	**260**	**87**	**--**	**23.9**	**C**	**--**
	Total	**1070**	**977**	**91**	**--**	**42.7**	**D**	**--**

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	25	22	88	7	36.1	D	--
	R	20	19	95	3	15.2	B	--
	Subtotal	**45**	**41**	**91**	**--**	**26.5**	**C**	**--**
EB	T	383	359	94	15	10.6	B	--
	R	8	7	88	4	8.8	A	--
	Subtotal	**390**	**366**	**94**	**--**	**10.6**	**B**	**--**
WB	L	5	4	80	2	59.4	E	--
	T	268	232	87	17	5.3	A	--
	Subtotal	**273**	**236**	**87**	**--**	**6.2**	**A**	**--**
	Total	**708**	**642**	**91**	**--**	**10.0**	**A**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP No Project **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	3	3	150	1	1.9	A	--
	Subtotal	**3**	**3**	**150**	--	**1.9**	**A**	--
EB	L	3	2	100	1	23.9	C	--
	T	360	338	94	13	4.5	A	--
	R	48	45	94	8	2.9	A	--
	Subtotal	**410**	**384**	**94**	--	**4.4**	**A**	--
WB	T	280	242	86	19	4.1	A	--
	R	80	73	90	7	3.9	A	--
	Subtotal	**360**	**315**	**88**	--	**4.1**	**A**	--
	Total	**773**	**702**	**91**	--	**4.3**	**A**	--

Intersection: 4: Folsom Blvd. & State University **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	3	2	100	1	48.7	D	--
	R	20	17	85	5	6.1	A	--
	Subtotal	**23**	**20**	**91**	--	**10.7**	**B**	--
EB	L	93	83	90	8	20.7	C	--
	T	290	274	94	20	8.1	A	--
	Subtotal	**383**	**357**	**93**	--	**11.1**	**B**	--
WB	T	305	263	86	11	14.2	B	--
	R	23	19	86	2	9.7	A	--
	Subtotal	**328**	**281**	**86**	--	**13.9**	**B**	--
	Total	**733**	**657**	**90**	--	**12.3**	**B**	--

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP No Project **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	273	225	83	17	15.7	B	--
	R	50	42	84	7	13.3	B	--
	Subtotal	**323**	**267**	**83**	**--**	**15.3**	**B**	**--**
SB	L	10	9	90	4	51.3	D	--
	T	233	227	98	15	22.6	C	--
	Subtotal	**243**	**237**	**98**	**--**	**23.7**	**C**	**--**
WB	L	30	29	97	6	51.5	D	--
	R	23	19	86	3	22.1	C	--
	Subtotal	**53**	**48**	**92**	**--**	**39.8**	**D**	**--**
	Total	**618**	**552**	**89**	**--**	**21.1**	**C**	**--**

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	43	35	83	5	52.9	D	--
	T	248	199	80	15	37.2	D	--
	R	150	128	85	12	14.9	B	--
	Subtotal	**440**	**362**	**82**	**--**	**30.8**	**C**	**--**
SB	T	248	238	96	16	27.7	C	--
	R	15	16	107	4	24.5	C	--
	Subtotal	**263**	**254**	**97**	**--**	**27.5**	**C**	**--**
EB	L	23	22	100	5	87.7	F	--
	R	60	55	92	9	29.1	C	--
	Subtotal	**83**	**77**	**94**	**--**	**45.7**	**D**	**--**
WB	L	118	115	97	11	78.9	E	--
	T	55	50	91	7	91.7	F	--
	R	80	74	93	13	86.3	F	--
	Subtotal	**253**	**239**	**95**	**--**	**83.9**	**F**	**--**
	Total	**1038**	**932**	**90**	**--**	**44.8**	**D**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP No Project **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	598	470	79	13	20.1	C	--
	Subtotal	**598**	**470**	**79**	**--**	**20.1**	**C**	**--**
SB	T	190	186	98	15	12.8	B	--
	Subtotal	**190**	**186**	**98**	**--**	**12.8**	**B**	**--**
EB	L	93	91	99	11	41.8	D	--
	R	88	90	102	10	7.7	A	--
	Subtotal	**180**	**182**	**101**	**--**	**24.8**	**C**	**--**
	Total	**968**	**839**	**87**	**--**	**19.5**	**B**	**--**

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	8	6	75	2	5.6	A	--
	R	5	5	100	2	13.4	B	--
	Subtotal	**13**	**11**	**92**	**--**	**9.1**	**A**	**--**
EB	L	5	5	100	2	5.1	A	--
	T	55	48	87	6	6.2	A	--
	Subtotal	**60**	**53**	**88**	**--**	**6.0**	**A**	**--**
WB	T	48	46	96	6	19.2	C	--
	R	40	36	90	7	17.5	C	--
	Subtotal	**88**	**83**	**93**	**--**	**18.4**	**C**	**--**
	Total	**160**	**146**	**91**	**--**	**13.3**	**B**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP Scenario A **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	83	68	82	8	51.1	D	--
	T	118	93	79	7	36.0	D	--
	R	109	90	83	10	12.0	B	--
	Subtotal	**310**	**250**	**81**	**--**	**31.5**	**C**	**--**
SB	L	104	98	94	7	70.6	E	--
	T	124	131	105	11	49.2	D	--
	R	3	3	150	2	43.2	D	--
	Subtotal	**230**	**232**	**101**	**--**	**58.2**	**E**	**--**
EB	L	8	8	100	3	82.4	F	--
	T	194	183	94	6	71.7	E	--
	R	51	46	90	7	47.2	D	--
	Subtotal	**253**	**237**	**94**	**--**	**67.3**	**E**	**--**
WB	L	50	45	90	8	63.4	E	--
	T	225	202	90	11	25.0	C	--
	R	30	28	93	5	6.5	A	--
	Subtotal	**305**	**275**	**90**	**--**	**29.4**	**C**	**--**
	Total	**1098**	**994**	**91**	**--**	**45.7**	**D**	**--**

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	29	23	79	8	40.4	D	--
	R	26	24	92	5	18.6	B	--
	Subtotal	**55**	**47**	**85**	**--**	**29.2**	**C**	**--**
EB	T	384	355	92	17	11.6	B	--
	R	23	18	82	4	10.0	A	--
	Subtotal	**407**	**374**	**92**	**--**	**11.5**	**B**	**--**
WB	L	17	16	94	4	46.6	D	--
	T	266	248	93	12	5.5	A	--
	Subtotal	**283**	**264**	**93**	**--**	**8.0**	**A**	**--**
	Total	**744**	**685**	**92**	**--**	**11.4**	**B**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP Scenario A **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	3	2	100	1	2.0	A	--
	Subtotal	**3**	**2**	**100**	--	**2.0**	**A**	--
EB	T	367	340	93	16	3.5	A	--
	R	50	45	90	7	2.4	A	--
	Subtotal	**417**	**385**	**92**	--	**3.4**	**A**	--
WB	T	285	267	94	14	4.1	A	--
	R	80	74	93	7	3.7	A	--
	Subtotal	**365**	**341**	**93**	--	**4.0**	**A**	--
	Total	**785**	**727**	**93**	--	**3.7**	**A**	--

Intersection: 4: Folsom Blvd. & State University **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	3	3	150	2	43.3	D	--
	R	21	21	100	4	6.3	A	--
	Subtotal	**24**	**24**	**100**	--	**11.4**	**B**	--
EB	L	93	79	85	13	18.9	B	--
	T	279	261	94	17	8.4	A	--
	Subtotal	**372**	**341**	**91**	--	**10.8**	**B**	--
WB	T	282	253	90	7	14.5	B	--
	R	23	19	86	2	9.6	A	--
	Subtotal	**304**	**272**	**89**	--	**14.1**	**B**	--
	Total	**700**	**637**	**91**	--	**12.3**	**B**	--

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: *Station 65* **HCM:** *2000*
Scenario: *Cumulative Current GP Scenario A* **PHF:** *1*
TOD: *AM* **Analysis Period:** *15 Minutes* **# of Runs:** *10*

Intersection: *5: Q St. & 65th St.* **Type:** *Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	277	220	79	21	17.9	B	--
	R	81	62	77	9	14.2	B	--
	Subtotal	**358**	**281**	**78**	**--**	**17.1**	**B**	**--**
SB	L	14	15	107	3	65.4	E	--
	T	237	229	97	18	24.0	C	--
	Subtotal	**250**	**244**	**98**	**--**	**26.6**	**C**	**--**
WB	L	50	40	80	7	89.0	F	--
	R	33	27	84	6	56.8	E	--
	Subtotal	**82**	**67**	**80**	**--**	**76.2**	**E**	**--**
	Total	**690**	**592**	**86**	**--**	**27.6**	**C**	**--**

Intersection: *6: S St. & 65th St.* **Type:** *Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	43	32	76	7	59.6	E	--
	T	273	204	75	19	48.1	D	--
	R	150	115	77	12	19.6	B	--
	Subtotal	**465**	**351**	**75**	**--**	**39.8**	**D**	**--**
SB	T	271	256	95	11	29.6	C	--
	R	16	15	88	4	21.9	C	--
	Subtotal	**286**	**271**	**94**	**--**	**29.2**	**C**	**--**
EB	L	24	23	92	2	94.3	F	--
	R	60	56	93	6	24.3	C	--
	Subtotal	**84**	**79**	**94**	**--**	**44.2**	**D**	**--**
WB	L	120	112	93	12	95.5	F	--
	T	55	50	91	7	104.1	F	--
	R	89	85	94	5	111.5	F	--
	Subtotal	**264**	**247**	**94**	**--**	**102.7**	**F**	**--**
	Total	**1099**	**947**	**86**	**--**	**53.5**	**D**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP Scenario A **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	606	450	74	8	23.9	C	--
	Subtotal	**606**	**450**	**74**	**--**	**23.9**	**C**	**--**
SB	T	203	188	93	12	13.1	B	--
	Subtotal	**203**	**188**	**93**	**--**	**13.1**	**B**	**--**
EB	L	107	106	100	9	37.1	D	--
	R	88	87	99	12	9.8	A	--
	Subtotal	**194**	**193**	**99**	**--**	**24.8**	**C**	**--**
	Total	**1003**	**831**	**83**	**--**	**21.7**	**C**	**--**

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	12	10	83	2	17.6	C	--
	R	11	8	73	2	31.5	D	--
	Subtotal	**23**	**18**	**78**	**--**	**24.1**	**C**	**--**
EB	L	12	10	83	3	5.6	A	--
	T	55	46	84	8	6.0	A	--
	Subtotal	**67**	**56**	**84**	**--**	**6.0**	**A**	**--**
WB	T	49	41	84	5	77.6	F	--
	R	41	35	85	10	58.6	F	--
	Subtotal	**90**	**76**	**84**	**--**	**68.8**	**F**	**--**
	Total	**180**	**151**	**84**	**--**	**40.0**	**E**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP Scenario A **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 9: Q St. & Driveway 1 **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	25	18	72	5	446.5	F	--
	Subtotal	**25**	**18**	**72**	**--**	**446.5**	**F**	**--**
EB	L	27	22	81	5	1.2	A	--
	T	67	56	84	8	0.3	A	--
	Subtotal	**94**	**78**	**83**	**--**	**0.6**	**A**	**--**
WB	T	57	48	84	8	47.3	E	--
	R	3	3	100	2	2.7	A	--
	Subtotal	**60**	**51**	**85**	**--**	**44.8**	**E**	**--**
	Total	**179**	**147**	**82**	**--**	**71.1**	**F**	**--**

Intersection: 10: Driveway 2 & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	9	7	88	2	6.7	A	--
	T	45	39	87	10	5.7	A	--
	Subtotal	**54**	**46**	**85**	**--**	**5.8**	**A**	**--**
SB	T	17	14	82	4	0.9	A	--
	R	23	21	95	4	0.4	A	--
	Subtotal	**39**	**35**	**90**	**--**	**0.6**	**A**	**--**
EB	L	10	10	100	3	13.1	B	--
	R	6	6	100	3	5.3	A	--
	Subtotal	**16**	**16**	**100**	**--**	**10.3**	**B**	**--**
	Total	**109**	**97**	**89**	**--**	**4.7**	**A**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Staiton 65 **HCM:** 2000
Scenario: Cumulative A Plus Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	79	61	78	11	75.2	E	--
	T	132	113	86	10	79.0	E	--
	R	48	40	83	6	40.2	D	--
	Subtotal	**258**	**214**	**83**	**--**	**70.6**	**E**	**--**
SB	L	119	93	78	5	158.1	F	--
	T	109	95	87	7	95.0	F	--
	R	8	7	88	2	90.7	F	--
	Subtotal	**236**	**195**	**83**	**--**	**124.9**	**F**	**--**
EB	L	15	13	87	3	151.6	F	--
	T	249	201	81	7	133.7	F	--
	R	66	54	82	7	110.6	F	--
	Subtotal	**330**	**268**	**81**	**--**	**129.8**	**F**	**--**
WB	L	109	102	94	6	103.1	F	--
	T	320	273	85	16	59.6	E	--
	R	35	30	86	4	34.4	C	--
	Subtotal	**464**	**405**	**87**	**--**	**68.7**	**E**	**--**
	Total	**1288**	**1083**	**84**	**--**	**94.4**	**F**	**--**

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	20	16	80	5	56.4	E	--
	R	43	35	83	4	14.0	B	--
	Subtotal	**63**	**51**	**81**	**--**	**27.2**	**C**	**--**
EB	T	383	300	79	11	14.8	B	--
	R	33	24	73	5	12.7	B	--
	Subtotal	**416**	**324**	**78**	**--**	**14.6**	**B**	**--**
WB	L	17	14	82	3	58.6	E	--
	T	421	369	87	19	42.2	D	--
	Subtotal	**438**	**383**	**87**	**--**	**42.8**	**D**	**--**
	Total	**917**	**758**	**83**	**--**	**29.7**	**C**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Staiton 65 **HCM:** 2000
Scenario: Cumulative A Plus Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	5	5	100	2	1.9	A	--
	Subtotal	**5**	**5**	**100**	--	**1.9**	**A**	--
EB	T	365	281	77	16	3.9	A	--
	R	50	39	78	4	3.1	A	--
	Subtotal	**415**	**320**	**77**	--	**3.8**	**A**	--
WB	T	431	381	88	24	37.7	E	--
	R	75	65	87	10	34.6	D	--
	Subtotal	**506**	**446**	**88**	--	**37.2**	**E**	--
	Total	**926**	**771**	**83**	--	**23.1**	**C**	--

Intersection: 4: Folsom Blvd. & State University **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	3	3	150	2	61.1	E	--
	R	54	51	94	7	23.3	C	--
	Subtotal	**56**	**54**	**96**	--	**25.2**	**C**	--
EB	L	52	43	81	8	35.8	D	--
	T	346	279	81	16	3.8	A	--
	Subtotal	**398**	**322**	**81**	--	**8.0**	**A**	--
WB	T	390	359	92	18	17.3	B	--
	R	8	6	75	3	13.0	B	--
	Subtotal	**397**	**366**	**92**	--	**17.2**	**B**	--
	Total	**851**	**742**	**87**	--	**13.8**	**B**	--

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project:	Staiton 65	**HCM:**	2000
Scenario:	Cumulative A Plus Project	**PHF:**	1
TOD:	PM **Analysis Period:** 15 Minutes	**# of Runs:**	10

Intersection: 5: Q St. & 65th St.   **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	225	210	93	15	13.7	B	--
	R	92	83	90	9	11.0	B	--
	Subtotal	**317**	**293**	**93**	**--**	**12.9**	**B**	**--**
SB	L	19	14	74	3	90.0	F	--
	T	288	260	90	9	13.2	B	--
	Subtotal	**307**	**274**	**90**	**--**	**17.0**	**B**	**--**
WB	L	120	57	47	4	80.3	F	--
	R	33	15	45	3	49.2	D	--
	Subtotal	**154**	**71**	**46**	**--**	**73.9**	**E**	**--**
	Total	**777**	**637**	**82**	**--**	**21.5**	**C**	**--**

Intersection: 6: S St. & 65th St.   **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	28	19	68	3	158.6	F	--
	T	189	163	87	11	43.9	D	--
	R	125	108	86	9	15.1	B	--
	Subtotal	**341**	**291**	**85**	**--**	**40.8**	**D**	**--**
SB	T	384	306	80	11	27.4	C	--
	R	24	21	88	5	30.3	C	--
	Subtotal	**408**	**328**	**80**	**--**	**27.6**	**C**	**--**
EB	L	34	35	103	7	66.6	E	--
	R	78	75	96	9	34.3	C	--
	Subtotal	**111**	**110**	**99**	**--**	**44.6**	**D**	**--**
WB	L	153	138	91	10	90.3	F	--
	T	68	61	90	4	92.9	F	--
	R	92	93	101	9	88.9	F	--
	Subtotal	**312**	**292**	**94**	**--**	**90.4**	**F**	**--**
	Total	**1172**	**1020**	**87**	**--**	**51.2**	**D**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Staiton 65 **HCM:** 2000
Scenario: Cumulative A Plus Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	467	389	83	10	27.4	C	--
	Subtotal	**467**	**389**	**83**	**--**	**27.4**	**C**	**--**
SB	T	328	273	83	9	26.4	C	--
	Subtotal	**328**	**273**	**83**	**--**	**26.4**	**C**	**--**
EB	L	57	58	102	6	13.8	B	--
	R	138	133	96	13	41.6	D	--
	Subtotal	**195**	**190**	**98**	**--**	**33.2**	**C**	**--**
	Total	**989**	**852**	**86**	**--**	**28.3**	**C**	**--**

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	8	7	88	3	64.7	F	--
	R	30	26	87	6	87.2	F	--
	Subtotal	**38**	**32**	**84**	**--**	**82.4**	**F**	**--**
EB	L	28	25	89	4	5.6	A	--
	T	55	50	91	6	6.5	A	--
	Subtotal	**83**	**75**	**91**	**--**	**6.2**	**A**	**--**
WB	T	81	37	46	4	209.4	F	--
	R	29	14	48	5	186.2	F	--
	Subtotal	**110**	**51**	**46**	**--**	**203.3**	**F**	**--**
	Total	**231**	**158**	**69**	**--**	**85.1**	**F**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project:	Staiton 65			**HCM:**	2000
Scenario:	Cumulative A Plus Project			**PHF:**	1
TOD:	PM	**Analysis Period:**	15 Minutes	**# of Runs:**	10

Intersection: 9: Q St. & Driveway 1 **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	45	7	16	3	5880.4	F	--
	Subtotal	**45**	**7**	**16**	**--**	**5880.4**	**F**	**--**
EB	L	28	24	86	5	1.6	A	--
	T	83	74	90	6	0.3	A	--
	Subtotal	**111**	**98**	**89**	**--**	**0.6**	**A**	**--**
WB	T	108	63	58	3	43.5	E	--
	R	3	3	67	1	5.7	A	--
	Subtotal	**111**	**66**	**59**	**--**	**42.1**	**E**	**--**
	Total	**267**	**171**	**64**	**--**	**270.9**	**F**	**--**

Intersection: 10: Driveway 2 & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	11	7	64	2	4.5	A	--
	T	45	32	71	5	3.7	A	--
	Subtotal	**56**	**38**	**68**	**--**	**3.8**	**A**	**--**
SB	T	27	22	81	6	0.8	A	--
	R	24	17	71	4	0.4	A	--
	Subtotal	**51**	**39**	**78**	**--**	**0.6**	**A**	**--**
EB	L	18	21	117	5	5.6	A	--
	R	11	11	100	3	3.2	A	--
	Subtotal	**29**	**33**	**114**	**--**	**4.8**	**A**	**--**
	Total	**136**	**110**	**81**	**--**	**3.0**	**A**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP Scenario B **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	84	67	80	11	51.5	D	--
	T	119	98	83	4	37.0	D	--
	R	110	87	78	10	12.6	B	--
	Subtotal	**312**	**252**	**81**	**--**	**32.5**	**C**	**--**
SB	L	105	101	97	10	83.6	F	--
	T	124	123	99	16	52.6	D	--
	R	3	3	150	1	49.8	D	--
	Subtotal	**231**	**227**	**98**	**--**	**66.4**	**E**	**--**
EB	L	8	7	75	2	79.0	E	--
	T	194	180	93	7	80.0	E	--
	R	51	46	90	10	53.3	D	--
	Subtotal	**253**	**233**	**92**	**--**	**74.6**	**E**	**--**
WB	L	51	47	92	4	59.0	E	--
	T	225	209	93	14	24.8	C	--
	R	30	27	90	5	6.1	A	--
	Subtotal	**306**	**282**	**92**	**--**	**28.7**	**C**	**--**
	Total	**1102**	**993**	**90**	**--**	**49.0**	**D**	**--**

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	30	24	80	4	45.1	D	--
	R	27	25	96	4	20.8	C	--
	Subtotal	**56**	**49**	**88**	**--**	**32.5**	**C**	**--**
EB	T	384	349	91	12	11.8	B	--
	R	24	22	92	6	9.5	A	--
	Subtotal	**408**	**371**	**91**	**--**	**11.7**	**B**	**--**
WB	L	18	15	83	3	45.9	D	--
	T	266	246	92	12	5.0	A	--
	Subtotal	**284**	**261**	**92**	**--**	**7.4**	**A**	**--**
	Total	**749**	**681**	**91**	**--**	**11.5**	**B**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: *Station 65* **HCM:** *2000*
Scenario: *Cumulative Current GP Scenario B* **PHF:** *1*
TOD: *AM* **Analysis Period:** *15 Minutes* **# of Runs:** *10*

Intersection: *3: Folsom Blvd. & Elvas Ave.* **Type:** *Un-Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	3	2	100	1	1.9	A	--
	Subtotal	**3**	**2**	**100**	**--**	**1.9**	**A**	**--**
EB	T	368	336	91	16	3.6	A	--
	R	50	46	92	9	2.7	A	--
	Subtotal	**418**	**383**	**92**	**--**	**3.5**	**A**	**--**
WB	T	287	262	92	13	4.1	A	--
	R	80	78	98	7	4.1	A	--
	Subtotal	**367**	**340**	**93**	**--**	**4.1**	**A**	**--**
	Total	**787**	**725**	**92**	**--**	**3.8**	**A**	**--**

Intersection: *4: Folsom Blvd. & State University* **Type:** *Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	3	3	150	1	32.9	C	--
	R	21	22	105	5	4.4	A	--
	Subtotal	**24**	**24**	**100**	**--**	**7.5**	**A**	**--**
EB	L	94	83	87	10	19.2	B	--
	T	280	257	92	17	8.1	A	--
	Subtotal	**373**	**339**	**91**	**--**	**10.8**	**B**	**--**
WB	T	283	258	91	9	14.0	B	--
	R	23	19	86	4	9.6	A	--
	Subtotal	**305**	**277**	**91**	**--**	**13.7**	**B**	**--**
	Total	**702**	**640**	**91**	**--**	**11.9**	**B**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 | **HCM:** 2000
Scenario: Cumulative Current GP Scenario B | **PHF:** 1
TOD: AM | **Analysis Period:** 15 Minutes | **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	278	224	81	17	16.1	B	--
	R	84	68	81	8	13.4	B	--
	Subtotal	**362**	**292**	**81**	**--**	**15.5**	**B**	**--**
SB	L	14	14	100	5	58.6	E	--
	T	237	229	96	20	22.6	C	--
	Subtotal	**251**	**243**	**97**	**--**	**24.8**	**C**	**--**
WB	L	52	40	77	5	88.2	F	--
	R	34	28	82	8	57.0	E	--
	Subtotal	**86**	**68**	**79**	**--**	**75.2**	**E**	**--**
	Total	**699**	**603**	**86**	**--**	**26.0**	**C**	**--**

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	43	35	83	8	63.5	E	--
	T	275	213	77	15	50.5	D	--
	R	150	120	80	9	23.4	C	--
	Subtotal	**468**	**367**	**78**	**--**	**42.9**	**D**	**--**
SB	T	274	255	93	18	25.9	C	--
	R	16	14	88	3	22.8	C	--
	Subtotal	**290**	**268**	**92**	**--**	**25.7**	**C**	**--**
EB	L	24	21	88	4	113.2	F	--
	R	60	61	102	8	26.5	C	--
	Subtotal	**84**	**82**	**98**	**--**	**48.7**	**D**	**--**
WB	L	120	113	94	14	106.5	F	--
	T	55	54	98	6	117.7	F	--
	R	90	85	94	7	127.7	F	--
	Subtotal	**265**	**252**	**95**	**--**	**116.1**	**F**	**--**
	Total	**1106**	**969**	**88**	**--**	**57.6**	**E**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP Scenario B **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	607	449	74	30	23.6	C	--
	Subtotal	**607**	**449**	**74**	**--**	**23.6**	**C**	**--**
SB	T	203	194	96	17	15.3	B	--
	Subtotal	**203**	**194**	**96**	**--**	**15.3**	**B**	**--**
EB	L	108	106	98	9	31.8	C	--
	R	88	93	106	13	8.3	A	--
	Subtotal	**196**	**199**	**102**	**--**	**20.8**	**C**	**--**
	Total	**1006**	**842**	**84**	**--**	**21.0**	**C**	**--**

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	12	11	92	3	53.8	F	--
	R	12	10	83	3	70.2	F	--
	Subtotal	**24**	**21**	**88**	**--**	**61.9**	**F**	**--**
EB	L	13	12	92	4	5.8	A	--
	T	55	51	91	7	6.3	A	--
	Subtotal	**68**	**62**	**91**	**--**	**6.2**	**A**	**--**
WB	T	49	42	86	11	88.2	F	--
	R	41	37	90	10	82.7	F	--
	Subtotal	**90**	**79**	**88**	**--**	**85.6**	**F**	**--**
	Total	**182**	**162**	**89**	**--**	**52.1**	**F**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP Scenario B **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 9: Q St. & Driveway 1 **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	29	19	68	6	594.2	F	--
	Subtotal	**29**	**19**	**68**	**--**	**594.2**	**F**	**--**
EB	L	30	22	73	3	0.9	A	--
	T	68	61	90	6	0.4	A	--
	Subtotal	**98**	**84**	**86**	**--**	**0.5**	**A**	**--**
WB	T	58	50	86	10	48.7	E	--
	R	3	4	133	2	8.3	A	--
	Subtotal	**61**	**54**	**89**	**--**	**45.9**	**E**	**--**
	Total	**188**	**156**	**83**	**--**	**87.2**	**F**	**--**

Intersection: 10: Driveway 2 & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	9	8	89	4	6.3	A	--
	T	45	42	93	8	7.2	A	--
	Subtotal	**54**	**50**	**93**	**--**	**7.1**	**A**	**--**
SB	T	17	14	82	5	2.6	A	--
	R	25	24	96	5	0.8	A	--
	Subtotal	**42**	**38**	**90**	**--**	**1.5**	**A**	**--**
EB	L	11	10	91	4	9.5	A	--
	R	7	7	100	2	6.5	A	--
	Subtotal	**18**	**17**	**94**	**--**	**8.2**	**A**	**--**
	Total	**115**	**105**	**92**	**--**	**5.2**	**A**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cuulative Current GP Scenario B **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	79	61	77	7	69.9	E	--
	T	133	98	74	9	84.1	F	--
	R	48	39	79	5	41.0	D	--
	Subtotal	**260**	**197**	**76**	**--**	**71.3**	**E**	**--**
SB	L	120	105	88	10	122.2	F	--
	T	109	101	93	12	78.5	E	--
	R	8	6	75	2	69.2	E	--
	Subtotal	**236**	**212**	**90**	**--**	**99.8**	**F**	**--**
EB	L	15	12	80	3	164.5	F	--
	T	249	196	79	6	141.4	F	--
	R	66	49	74	6	117.7	F	--
	Subtotal	**330**	**257**	**78**	**--**	**138.0**	**F**	**--**
WB	L	109	96	88	7	99.4	F	--
	T	320	268	84	9	63.9	E	--
	R	35	29	83	5	35.1	D	--
	Subtotal	**464**	**393**	**85**	**--**	**70.5**	**E**	**--**
	Total	**1290**	**1060**	**82**	**--**	**92.9**	**F**	**--**

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	21	14	67	4	63.2	E	--
	R	43	32	74	4	17.2	B	--
	Subtotal	**64**	**47**	**73**	**--**	**31.3**	**C**	**--**
EB	T	383	307	80	9	14.2	B	--
	R	34	24	71	5	10.8	B	--
	Subtotal	**417**	**331**	**79**	**--**	**13.9**	**B**	**--**
WB	L	18	16	89	3	65.5	E	--
	T	421	364	86	10	45.8	D	--
	Subtotal	**439**	**380**	**87**	**--**	**46.6**	**D**	**--**
	Total	**920**	**758**	**82**	**--**	**31.4**	**C**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cuulative Current GP Scenario B **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	5	4	80	2	4.9	A	--
	Subtotal	**5**	**4**	**80**	**--**	**4.9**	**A**	**--**
EB	T	366	287	78	12	3.9	A	--
	R	50	36	72	6	3.2	A	--
	Subtotal	**416**	**323**	**78**	**--**	**3.8**	**A**	**--**
WB	T	432	376	87	10	49.5	E	--
	R	75	69	92	8	42.0	E	--
	Subtotal	**507**	**445**	**88**	**--**	**48.3**	**E**	**--**
	Total	**928**	**772**	**83**	**--**	**29.5**	**D**	**--**

Intersection: 4: Folsom Blvd. & State University **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	3	2	100	1	55.4	E	--
	R	54	54	100	5	25.0	C	--
	Subtotal	**56**	**56**	**100**	**--**	**26.3**	**C**	**--**
EB	L	52	44	85	6	30.6	C	--
	T	347	278	80	14	4.1	A	--
	Subtotal	**398**	**321**	**81**	**--**	**7.7**	**A**	**--**
WB	T	390	355	91	10	23.0	C	--
	R	8	7	88	2	17.9	B	--
	Subtotal	**398**	**362**	**91**	**--**	**22.9**	**C**	**--**
	Total	**852**	**739**	**87**	**--**	**16.5**	**B**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cuulative Current GP Scenario B **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	225	198	88	17	15.8	B	--
	R	94	84	89	8	13.0	B	--
	Subtotal	**319**	**282**	**88**	**--**	**14.9**	**B**	**--**
SB	L	19	14	74	4	64.6	E	--
	T	288	255	88	11	14.4	B	--
	Subtotal	**307**	**269**	**88**	**--**	**17.1**	**B**	**--**
WB	L	123	57	46	3	81.7	F	--
	R	35	15	44	3	50.5	D	--
	Subtotal	**157**	**73**	**46**	**--**	**75.0**	**E**	**--**
	Total	**784**	**623**	**79**	**--**	**22.8**	**C**	**--**

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	28	21	71	5	110.9	F	--
	T	190	166	87	18	37.8	D	--
	R	125	112	90	9	13.3	B	--
	Subtotal	**343**	**298**	**87**	**--**	**33.6**	**C**	**--**
SB	T	387	307	79	10	25.3	C	--
	R	24	20	83	5	23.3	C	--
	Subtotal	**411**	**327**	**80**	**--**	**25.1**	**C**	**--**
EB	L	34	34	100	5	65.7	E	--
	R	78	75	96	9	27.3	C	--
	Subtotal	**111**	**109**	**97**	**--**	**39.2**	**D**	**--**
WB	L	153	141	93	17	117.2	F	--
	T	68	58	85	8	131.4	F	--
	R	93	88	95	9	123.7	F	--
	Subtotal	**313**	**287**	**91**	**--**	**122.1**	**F**	**--**
	Total	**1178**	**1020**	**87**	**--**	**56.3**	**E**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cuulative Current GP Scenario B **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	467	394	84	16	24.9	C	--
	Subtotal	**467**	**394**	**84**	**--**	**24.9**	**C**	**--**
SB	T	329	279	85	10	22.7	C	--
	Subtotal	**329**	**279**	**85**	**--**	**22.7**	**C**	**--**
EB	L	58	56	97	6	15.2	B	--
	R	138	133	96	16	35.3	D	--
	Subtotal	**196**	**189**	**96**	**--**	**29.4**	**C**	**--**
	Total	**992**	**863**	**87**	**--**	**25.2**	**C**	**--**

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	8	6	75	2	77.0	F	--
	R	31	25	80	3	96.0	F	--
	Subtotal	**39**	**31**	**79**	**--**	**92.2**	**F**	**--**
EB	L	28	25	89	2	5.9	A	--
	T	55	49	89	6	6.8	A	--
	Subtotal	**83**	**75**	**90**	**--**	**6.5**	**A**	**--**
WB	T	81	36	44	5	225.0	F	--
	R	29	12	41	2	195.5	F	--
	Subtotal	**110**	**48**	**44**	**--**	**217.4**	**F**	**--**
	Total	**232**	**154**	**66**	**--**	**89.9**	**F**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cuulative Current GP Scenario B **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 9: Q St. & Driveway 1 **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	49	9	19	3	5228.0	F	--
	Subtotal	**49**	**9**	**19**	**--**	**5228.0**	**F**	**--**
EB	L	30	26	87	5	1.4	A	--
	T	83	74	89	6	0.3	A	--
	Subtotal	**113**	**100**	**88**	**--**	**0.6**	**A**	**--**
WB	T	109	62	57	6	45.6	E	--
	R	3	1	33	1	3.1	A	--
	Subtotal	**112**	**63**	**56**	**--**	**44.6**	**E**	**--**
	Total	**274**	**173**	**63**	**--**	**298.3**	**F**	**--**

Intersection: 10: Driveway 2 & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	12	8	67	3	8.0	A	--
	T	45	31	69	3	5.5	A	--
	Subtotal	**57**	**39**	**68**	**--**	**6.0**	**A**	**--**
SB	T	27	20	74	3	1.6	A	--
	R	25	19	76	4	0.4	A	--
	Subtotal	**52**	**39**	**75**	**--**	**1.0**	**A**	**--**
EB	L	19	17	89	5	4.6	A	--
	R	12	11	92	3	3.0	A	--
	Subtotal	**31**	**29**	**94**	**--**	**4.0**	**A**	**--**
	Total	**140**	**107**	**76**	**--**	**3.6**	**A**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP No Project **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	73	55	76	8	96.0	F	--
	T	118	91	77	11	65.1	E	--
	R	85	59	69	9	55.5	E	--
	Subtotal	**275**	**204**	**74**	**--**	**70.6**	**E**	**--**
SB	L	10	8	80	3	122.6	F	--
	T	108	86	80	13	64.4	E	--
	R	3	3	100	2	50.3	D	--
	Subtotal	**120**	**96**	**80**	**--**	**68.8**	**E**	**--**
EB	L	15	10	67	3	170.6	F	--
	T	203	141	70	12	92.3	F	--
	R	55	38	69	5	29.7	C	--
	Subtotal	**273**	**189**	**69**	**--**	**84.0**	**F**	**--**
WB	L	43	35	83	7	148.9	F	--
	T	200	175	88	9	46.2	D	--
	R	50	40	80	6	39.3	D	--
	Subtotal	**293**	**251**	**86**	**--**	**59.6**	**E**	**--**
	Total	**960**	**739**	**77**	**--**	**70.1**	**E**	**--**

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	5	3	60	2	53.2	D	--
	T	5	4	80	1	49.2	D	--
	R	5	4	80	2	24.0	C	--
	Subtotal	**15**	**11**	**73**	**--**	**41.1**	**D**	**--**
SB	L	15	12	80	3	75.3	E	--
	T	3	2	100	1	90.3	F	--
	R	3	2	100	1	11.5	B	--
	Subtotal	**20**	**15**	**75**	**--**	**68.9**	**E**	**--**
EB	L	5	3	60	2	62.8	E	--
	T	265	189	71	12	41.2	D	--
	R	28	19	68	3	37.2	D	--
	Subtotal	**298**	**211**	**71**	**--**	**41.2**	**D**	**--**
WB	L	60	51	85	4	78.0	E	--
	T	290	263	91	14	11.2	B	--
	R	15	15	100	3	4.1	A	--
	Subtotal	**365**	**329**	**90**	**--**	**21.3**	**C**	**--**
	Total	**698**	**566**	**81**	**--**	**30.3**	**C**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP No Project **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	45	42	93	7	118.4	F	--
	T	18	15	83	2	129.7	F	--
	R	45	39	84	5	119.9	F	--
	Subtotal	**108**	**96**	**89**	**--**	**120.8**	**F**	**--**
SB	L	48	28	58	7	309.8	F	--
	T	30	18	60	4	356.4	F	--
	R	3	2	100	1	360.5	F	--
	Subtotal	**80**	**47**	**59**	**--**	**329.3**	**F**	**--**
EB	T	260	184	71	11	27.0	C	--
	R	23	14	64	5	23.7	C	--
	Subtotal	**283**	**198**	**70**	**--**	**26.8**	**C**	**--**
WB	T	318	291	92	12	39.1	D	--
	R	25	23	92	5	33.7	C	--
	Subtotal	**343**	**315**	**92**	**--**	**38.7**	**D**	**--**
	Total	**813**	**656**	**81**	**--**	**68.1**	**E**	**--**

Intersection: 4: Folsom Blvd. & State University Dr **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	3	3	150	1	55.0	E	--
	R	18	17	94	4	15.7	B	--
	Subtotal	**20**	**20**	**100**	**--**	**21.7**	**C**	**--**
EB	L	80	55	69	9	50.7	D	--
	T	283	205	73	12	5.6	A	--
	Subtotal	**363**	**260**	**72**	**--**	**15.1**	**B**	**--**
WB	T	288	271	94	20	84.9	F	--
	R	23	17	77	4	62.9	E	--
	Subtotal	**310**	**288**	**93**	**--**	**83.6**	**F**	**--**
	Total	**693**	**568**	**82**	**--**	**50.1**	**D**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP No Project **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	258	187	72	22	33.4	C	--
	R	53	42	81	11	29.8	C	--
	Subtotal	**310**	**229**	**74**	**--**	**32.7**	**C**	**--**
SB	L	5	3	60	2	129.8	F	--
	T	255	201	79	9	100.9	F	--
	Subtotal	**260**	**204**	**78**	**--**	**101.4**	**F**	**--**
WB	L	35	27	77	5	30.0	C	--
	R	18	17	94	3	9.2	A	--
	Subtotal	**53**	**44**	**85**	**--**	**22.1**	**C**	**--**
	Total	**623**	**478**	**77**	**--**	**61.1**	**E**	**--**

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	48	28	58	10	245.3	F	--
	T	280	182	65	32	124.5	F	--
	R	163	117	72	18	91.9	F	--
	Subtotal	**490**	**327**	**67**	**--**	**123.3**	**F**	**--**
SB	T	278	209	75	7	50.2	D	--
	R	13	10	83	4	45.8	D	--
	Subtotal	**290**	**219**	**76**	**--**	**50.0**	**D**	**--**
EB	L	23	20	91	7	181.7	F	--
	R	73	64	89	9	61.2	E	--
	Subtotal	**95**	**84**	**88**	**--**	**90.0**	**F**	**--**
WB	L	135	129	96	18	93.9	F	--
	T	48	47	96	12	95.3	F	--
	R	70	67	94	8	96.6	F	--
	Subtotal	**253**	**242**	**96**	**--**	**94.9**	**F**	**--**
	Total	**1128**	**872**	**77**	**--**	**93.8**	**F**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP No Project **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served Avg	Volume Served %	Volume Served Std Dev	Delay/Veh (sec) Avg	Delay/Veh (sec) LOS	Delay/Veh (sec) Std Dev
NB	T	593	359	61	64	36.4	D	--
	Subtotal	**593**	**359**	**61**	**--**	**36.4**	**D**	**--**
SB	T	225	181	80	16	12.0	B	--
	Subtotal	**225**	**181**	**80**	**--**	**12.0**	**B**	**--**
EB	L	105	107	101	10	60.6	E	--
	R	78	73	94	8	14.8	B	--
	Subtotal	**183**	**180**	**99**	**--**	**41.9**	**D**	**--**
	Total	**1000**	**720**	**72**	**--**	**31.7**	**C**	**--**

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served Avg	Volume Served %	Volume Served Std Dev	Delay/Veh (sec) Avg	Delay/Veh (sec) LOS	Delay/Veh (sec) Std Dev
SB	L	60	49	80	8	16.3	C	--
	R	30	25	83	5	14.0	B	--
	Subtotal	**90**	**74**	**82**	**--**	**15.5**	**C**	**--**
EB	L	10	8	80	2	2.6	A	--
	T	48	38	79	11	1.4	A	--
	Subtotal	**58**	**46**	**79**	**--**	**1.6**	**A**	**--**
WB	T	23	19	82	5	2.1	A	--
	R	5	3	60	1	1.1	A	--
	Subtotal	**28**	**22**	**79**	**--**	**2.0**	**A**	**--**
	Total	**175**	**142**	**81**	**--**	**8.9**	**A**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: *Station 65* **HCM:** *2000*
Scenario: *Cumulative Draft GP No Project* **PHF:** *1*
TOD: *AM* **Analysis Period:** *15 Minutes* **# of Runs:** *10*

Intersection: *9: Q St. & Driveway 1* **Type:** *Un-Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
EB	T	58	46	79	13	0.3	A	--
	Subtotal	**58**	**46**	**79**	**--**	**0.3**	**A**	**--**
WB	T	53	46	88	5	4.6	A	--
	Subtotal	**53**	**46**	**88**	**--**	**4.6**	**A**	**--**
	Total	**110**	**92**	**84**	**--**	**2.5**	**A**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP No Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	78	54	69	11	102.3	F	--
	T	108	79	73	12	61.1	E	--
	R	48	39	81	9	23.2	C	--
	Subtotal	**233**	**171**	**74**	**--**	**65.4**	**E**	**--**
SB	L	23	15	68	6	155.0	F	--
	T	55	43	78	14	47.1	D	--
	R	8	5	50	3	28.8	C	--
	Subtotal	**85**	**62**	**73**	**--**	**71.7**	**E**	**--**
EB	L	33	15	47	3	140.9	F	--
	T	220	110	50	18	134.0	F	--
	R	55	28	51	6	40.4	D	--
	Subtotal	**308**	**153**	**50**	**--**	**117.5**	**F**	**--**
WB	L	93	50	54	9	126.5	F	--
	T	298	175	59	33	83.1	F	--
	R	30	21	70	5	67.7	E	--
	Subtotal	**420**	**246**	**59**	**--**	**90.5**	**F**	**--**
	Total	**1045**	**633**	**60**	**--**	**88.4**	**F**	**--**

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	18	14	78	3	84.7	F	--
	T	3	2	100	2	73.0	E	--
	R	8	7	88	3	28.3	C	--
	Subtotal	**28**	**23**	**82**	**--**	**67.0**	**E**	**--**
SB	L	20	13	65	6	91.9	F	--
	T	8	10	125	3	60.5	E	--
	R	3	2	100	1	53.1	D	--
	Subtotal	**30**	**25**	**83**	**--**	**76.4**	**E**	**--**
EB	L	5	3	60	2	64.9	E	--
	T	265	150	57	23	33.8	C	--
	R	20	10	50	3	31.8	C	--
	Subtotal	**290**	**163**	**56**	**--**	**34.4**	**C**	**--**
WB	L	63	35	56	6	83.8	F	--
	T	380	226	59	39	33.2	C	--
	R	18	10	56	2	17.4	B	--
	Subtotal	**460**	**271**	**59**	**--**	**39.2**	**D**	**--**
	Total	**808**	**481**	**60**	**--**	**40.8**	**D**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP No Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	38	34	89	5	126.2	F	--
	T	5	5	100	2	130.5	F	--
	R	40	40	100	8	113.0	F	--
	Subtotal	**83**	**80**	**98**	--	**119.9**	**F**	--
SB	L	60	37	62	7	240.7	F	--
	T	40	23	55	5	298.9	F	--
	R	5	3	60	2	319.1	F	--
	Subtotal	**105**	**62**	**59**	--	**265.4**	**F**	--
EB	T	283	169	60	21	23.3	C	--
	R	20	10	50	4	19.6	B	--
	Subtotal	**303**	**180**	**60**	--	**23.0**	**C**	--
WB	T	418	246	59	31	51.3	D	--
	R	63	35	55	9	47.6	D	--
	Subtotal	**480**	**281**	**59**	--	**50.9**	**D**	--
	Total	**970**	**602**	**62**	--	**73.9**	**E**	--

Intersection: 4: Folsom Blvd. & State University Dr **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	3	2	100	2	192.6	F	--
	R	60	53	88	10	61.9	E	--
	Subtotal	**63**	**55**	**89**	--	**67.6**	**E**	--
EB	L	35	23	66	5	66.7	E	--
	T	358	241	67	13	7.4	A	--
	Subtotal	**393**	**265**	**67**	--	**12.7**	**B**	--
WB	T	368	172	47	26	509.8	F	--
	R	8	4	50	3	450.4	F	--
	Subtotal	**375**	**176**	**47**	--	**508.5**	**F**	--
	Total	**830**	**496**	**60**	--	**194.8**	**F**	--

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: *Station 65* **HCM:** *2000*
Scenario: *Cumulative Draft GP No Project* **PHF:** *1*
TOD: *PM* **Analysis Period:** *15 Minutes* **# of Runs:** *10*

Intersection: *5: Q St. & 65th St.* **Type:** *Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	230	174	76	28	53.0	D	--
	R	45	36	80	8	47.9	D	--
	Subtotal	**275**	**210**	**76**	**--**	**52.2**	**D**	**--**
SB	L	8	5	63	3	81.1	F	--
	T	258	178	69	18	50.2	D	--
	Subtotal	**265**	**183**	**69**	**--**	**51.1**	**D**	**--**
WB	L	58	40	69	9	68.2	E	--
	R	3	3	150	1	32.7	C	--
	Subtotal	**60**	**43**	**72**	**--**	**66.0**	**E**	**--**
	Total	**600**	**435**	**73**	**--**	**53.1**	**D**	**--**

Intersection: *6: S St. & 65th St.* **Type:** *Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	33	24	75	6	144.4	F	--
	T	190	164	86	23	101.0	F	--
	R	125	107	86	12	57.3	E	--
	Subtotal	**348**	**295**	**85**	**--**	**88.7**	**F**	**--**
SB	T	300	205	68	18	41.6	D	--
	R	15	10	67	3	37.0	D	--
	Subtotal	**315**	**215**	**68**	**--**	**41.4**	**D**	**--**
EB	L	28	23	82	6	227.9	F	--
	R	93	79	86	14	74.5	E	--
	Subtotal	**120**	**102**	**85**	**--**	**108.8**	**F**	**--**
WB	L	155	83	54	20	527.1	F	--
	T	73	37	51	9	599.8	F	--
	R	70	36	51	8	552.1	F	--
	Subtotal	**298**	**156**	**52**	**--**	**550.0**	**F**	**--**
	Total	**1080**	**768**	**71**	**--**	**171.8**	**F**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP No Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	463	372	81	35	35.0	D	--
	Subtotal	**463**	**372**	**81**	**--**	**35.0**	**D**	**--**
SB	T	323	215	67	17	50.6	D	--
	Subtotal	**323**	**215**	**67**	**--**	**50.6**	**D**	**--**
EB	L	53	51	98	10	25.3	C	--
	R	140	130	93	18	52.9	D	--
	Subtotal	**193**	**181**	**94**	**--**	**45.2**	**D**	**--**
	Total	**978**	**769**	**79**	**--**	**41.8**	**D**	**--**

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	68	36	53	7	58.8	F	--
	R	23	12	55	5	78.1	F	--
	Subtotal	**90**	**48**	**53**	**--**	**63.7**	**F**	**--**
EB	L	25	20	80	2	2.7	A	--
	T	28	22	79	8	1.6	A	--
	Subtotal	**53**	**42**	**81**	**--**	**2.1**	**A**	**--**
WB	T	38	39	103	7	17.3	C	--
	R	3	3	150	1	11.7	B	--
	Subtotal	**40**	**42**	**105**	**--**	**17.0**	**C**	**--**
	Total	**183**	**132**	**73**	**--**	**29.1**	**D**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario A **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	73	60	82	7	106.8	F	--
	T	120	99	83	9	77.5	E	--
	R	91	68	75	10	90.0	F	--
	Subtotal	**285**	**227**	**80**	**--**	**89.0**	**F**	**--**
SB	L	14	15	107	4	166.2	F	--
	T	112	104	93	17	45.2	D	--
	R	3	2	100	1	28.5	C	--
	Subtotal	**128**	**122**	**95**	**--**	**59.8**	**E**	**--**
EB	L	15	9	60	3	127.6	F	--
	T	204	111	54	12	119.1	F	--
	R	54	31	57	10	32.9	C	--
	Subtotal	**273**	**151**	**56**	**--**	**101.9**	**F**	**--**
WB	L	45	26	58	6	253.0	F	--
	T	200	148	74	28	47.9	D	--
	R	55	41	75	10	40.2	D	--
	Subtotal	**300**	**215**	**72**	**--**	**71.6**	**E**	**--**
	Total	**985**	**714**	**72**	**--**	**81.5**	**F**	**--**

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	9	8	89	2	99.2	F	--
	T	3	2	100	1	40.6	D	--
	R	11	10	100	3	20.4	C	--
	Subtotal	**22**	**20**	**91**	**--**	**53.9**	**D**	**--**
SB	L	15	12	80	3	65.4	E	--
	T	3	2	100	1	49.5	D	--
	R	3	3	150	2	25.0	C	--
	Subtotal	**20**	**17**	**85**	**--**	**57.2**	**E**	**--**
EB	L	5	3	60	2	97.2	F	--
	T	264	162	61	20	63.9	E	--
	R	40	25	63	5	60.4	E	--
	Subtotal	**309**	**190**	**61**	**--**	**64.0**	**E**	**--**
WB	L	54	46	85	10	72.7	E	--
	T	294	225	77	47	32.7	C	--
	R	15	12	80	3	11.2	B	--
	Subtotal	**363**	**284**	**78**	**--**	**38.3**	**D**	**--**
	Total	**714**	**510**	**71**	**--**	**49.1**	**D**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario A **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	45	34	76	8	168.1	F	--
	T	15	13	87	3	174.4	F	--
	R	45	35	78	5	158.2	F	--
	Subtotal	**105**	**82**	**78**	**--**	**165.0**	**F**	**--**
SB	L	45	35	78	7	251.4	F	--
	T	28	22	79	8	242.4	F	--
	R	3	3	150	1	265.6	F	--
	Subtotal	**75**	**60**	**80**	**--**	**248.8**	**F**	**--**
EB	T	265	171	64	15	25.7	C	--
	R	23	16	73	2	22.4	C	--
	Subtotal	**287**	**187**	**65**	**--**	**25.4**	**C**	**--**
WB	T	315	250	79	50	48.6	D	--
	R	23	14	64	5	41.8	D	--
	Subtotal	**338**	**264**	**78**	**--**	**48.3**	**D**	**--**
	Total	**805**	**593**	**74**	**--**	**77.5**	**E**	**--**

Intersection: 4: Folsom Blvd. & State University Dr **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	3	2	100	1	85.6	F	--
	R	19	18	95	6	29.7	C	--
	Subtotal	**21**	**20**	**95**	**--**	**35.1**	**D**	**--**
EB	L	81	57	70	8	55.3	E	--
	T	284	194	68	8	5.0	A	--
	Subtotal	**365**	**251**	**69**	**--**	**16.4**	**B**	**--**
WB	T	284	223	79	53	126.1	F	--
	R	23	17	77	7	88.6	F	--
	Subtotal	**307**	**239**	**78**	**--**	**123.5**	**F**	**--**
	Total	**693**	**510**	**74**	**--**	**67.4**	**E**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario A **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	257	192	75	20	40.5	D	--
	R	78	58	74	14	36.3	D	--
	Subtotal	**336**	**249**	**74**	**--**	**39.5**	**D**	**--**
SB	L	9	5	63	2	138.1	F	--
	T	257	179	70	13	103.3	F	--
	Subtotal	**265**	**184**	**69**	**--**	**104.3**	**F**	**--**
WB	L	52	41	79	7	65.9	E	--
	R	28	24	86	5	47.2	D	--
	Subtotal	**80**	**65**	**81**	**--**	**59.1**	**E**	**--**
	Total	**680**	**498**	**73**	**--**	**65.9**	**E**	**--**

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	48	36	75	6	177.4	F	--
	T	295	210	71	21	114.1	F	--
	R	163	117	72	15	75.0	E	--
	Subtotal	**505**	**363**	**72**	**--**	**107.8**	**F**	**--**
SB	T	296	214	72	11	52.3	D	--
	R	13	10	77	3	39.9	D	--
	Subtotal	**309**	**224**	**72**	**--**	**51.7**	**D**	**--**
EB	L	24	17	71	6	140.0	F	--
	R	70	62	89	10	36.6	D	--
	Subtotal	**94**	**78**	**83**	**--**	**58.6**	**E**	**--**
WB	L	135	124	92	13	124.5	F	--
	T	45	43	96	9	139.4	F	--
	R	79	62	78	10	152.5	F	--
	Subtotal	**259**	**229**	**88**	**--**	**134.9**	**F**	**--**
	Total	**1167**	**894**	**77**	**--**	**96.4**	**F**	**--**

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SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario A **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	596	398	67	26	24.7	C	--
	Subtotal	**596**	**398**	**67**	**--**	**24.7**	**C**	**--**
SB	T	233	184	79	16	9.1	A	--
	Subtotal	**233**	**184**	**79**	**--**	**9.1**	**A**	**--**
EB	L	117	120	103	12	52.5	D	--
	R	78	82	105	7	9.1	A	--
	Subtotal	**194**	**202**	**104**	**--**	**34.8**	**C**	**--**
	Total	**1023**	**784**	**77**	**--**	**23.6**	**C**	**--**

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	44	33	75	4	36.8	E	--
	R	36	28	78	5	39.2	E	--
	Subtotal	**80**	**61**	**76**	**--**	**37.9**	**E**	**--**
EB	L	17	12	71	4	2.6	A	--
	T	43	32	76	4	2.7	A	--
	Subtotal	**60**	**44**	**73**	**--**	**2.6**	**A**	**--**
WB	T	21	17	81	6	11.7	B	--
	R	4	3	75	1	3.3	A	--
	Subtotal	**25**	**20**	**80**	**--**	**10.4**	**B**	**--**
	Total	**165**	**125**	**76**	**--**	**21.1**	**C**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: *Station 65* ***HCM:*** *2000*
Scenario: *Cumulative Draft GP with Scenario A* ***PHF:*** *1*
TOD: *AM* ***Analysis Period:*** *15 Minutes* ***# of Runs:*** *10*

Intersection: *9: Q St. & Driveway 1* ***Type:*** *Un-Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	25	22	88	7	89.2	F	--
	Subtotal	**25**	**22**	**88**	**--**	**89.2**	**F**	**--**
EB	L	27	19	70	6	1.6	A	--
	T	60	43	72	8	0.8	A	--
	Subtotal	**87**	**62**	**71**	**--**	**1.1**	**A**	**--**
WB	T	55	43	80	5	24.0	C	--
	R	3	2	67	1	5.7	A	--
	Subtotal	**58**	**45**	**78**	**--**	**23.3**	**C**	**--**
	Total	**169**	**130**	**77**	**--**	**24.0**	**C**	**--**

Intersection: *10: Driveway 2 & 67th St.* ***Type:*** *Un-Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	9	5	63	2	4.3	A	--
	T	13	12	100	3	1.7	A	--
	Subtotal	**21**	**17**	**76**	**--**	**2.5**	**A**	**--**
SB	T	74	57	77	7	4.5	A	--
	R	23	16	73	5	1.4	A	--
	Subtotal	**97**	**73**	**75**	**--**	**3.8**	**A**	**--**
EB	L	10	8	80	3	11.1	B	--
	R	6	6	100	2	12.8	B	--
	Subtotal	**16**	**14**	**88**	**--**	**11.8**	**B**	**--**
	Total	**134**	**103**	**77**	**--**	**4.7**	**A**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario A Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	84	59	70	8	124.5	F	--
	T	117	86	74	19	81.6	F	--
	R	53	33	63	6	74.7	E	--
	Subtotal	**253**	**178**	**70**	--	**94.6**	**F**	--
SB	L	24	15	63	4	368.9	F	--
	T	62	41	66	11	76.0	E	--
	R	8	5	63	3	39.2	D	--
	Subtotal	**93**	**61**	**66**	--	**146.4**	**F**	--
EB	L	33	12	38	7	166.5	F	--
	T	222	87	39	34	178.7	F	--
	R	56	24	43	12	51.4	D	--
	Subtotal	**310**	**123**	**40**	--	**153.0**	**F**	--
WB	L	104	55	53	14	129.7	F	--
	T	298	154	52	27	54.4	D	--
	R	30	16	53	5	45.5	D	--
	Subtotal	**431**	**226**	**52**	--	**72.1**	**E**	--
	Total	**1088**	**588**	**54**	--	**103.6**	**F**	--

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	23	16	70	7	230.0	F	--
	T	5	6	120	3	55.6	E	--
	R	18	13	67	3	107.0	F	--
	Subtotal	**45**	**34**	**76**	--	**155.2**	**F**	--
SB	L	20	12	60	4	67.1	E	--
	T	8	8	100	4	89.0	F	--
	R	3	1	50	1	52.7	D	--
	Subtotal	**30**	**21**	**70**	--	**74.4**	**E**	--
EB	L	5	2	40	1	105.7	F	--
	T	258	116	45	36	92.2	F	--
	R	36	17	47	6	96.8	F	--
	Subtotal	**298**	**135**	**45**	--	**93.0**	**F**	--
WB	L	62	26	42	12	181.4	F	--
	T	386	192	50	57	37.9	D	--
	R	18	8	44	3	13.4	B	--
	Subtotal	**466**	**225**	**48**	--	**53.4**	**D**	--
	Total	**839**	**415**	**49**	--	**75.7**	**E**	--

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario A Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	40	29	70	14	185.1	F	--
	T	5	4	80	3	124.0	F	--
	R	40	33	83	12	114.7	F	--
	Subtotal	**85**	**66**	**78**	**--**	**146.0**	**F**	**--**
SB	L	58	35	60	8	253.8	F	--
	T	43	28	67	5	258.8	F	--
	R	5	2	40	1	249.7	F	--
	Subtotal	**105**	**65**	**62**	**--**	**255.8**	**F**	**--**
EB	T	293	151	52	33	23.2	C	--
	R	13	8	67	2	18.0	B	--
	Subtotal	**305**	**158**	**52**	**--**	**22.9**	**C**	**--**
WB	T	421	197	47	59	79.5	E	--
	R	60	27	45	10	62.9	E	--
	Subtotal	**481**	**225**	**47**	**--**	**77.5**	**E**	**--**
	Total	**976**	**513**	**53**	**--**	**91.9**	**F**	**--**

Intersection: 4: Folsom Blvd. & State University Dr **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	3	3	150	1	97.6	F	--
	R	61	55	90	17	78.8	E	--
	Subtotal	**64**	**58**	**91**	**--**	**79.7**	**E**	**--**
EB	L	37	23	64	5	47.4	D	--
	T	349	207	59	32	6.4	A	--
	Subtotal	**385**	**231**	**60**	**--**	**10.6**	**B**	**--**
WB	T	370	133	36	45	669.2	F	--
	R	8	2	25	1	566.1	F	--
	Subtotal	**377**	**135**	**36**	**--**	**667.8**	**F**	**--**
	Total	**826**	**423**	**51**	**--**	**229.4**	**F**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario A Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	232	172	74	23	39.8	D	--
	R	77	59	77	12	36.8	D	--
	Subtotal	**309**	**231**	**75**	**--**	**39.0**	**D**	**--**
SB	L	19	12	63	3	103.7	F	--
	T	265	171	65	16	34.0	C	--
	Subtotal	**284**	**183**	**64**	**--**	**38.4**	**D**	**--**
WB	L	93	34	37	10	151.3	F	--
	R	21	8	38	3	99.1	F	--
	Subtotal	**114**	**41**	**36**	**--**	**141.8**	**F**	**--**
	Total	**707**	**455**	**64**	**--**	**48.1**	**D**	**--**

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	33	25	78	6	174.2	F	--
	T	214	159	74	23	96.7	F	--
	R	125	101	80	13	51.9	D	--
	Subtotal	**371**	**284**	**77**	**--**	**87.6**	**F**	**--**
SB	T	342	200	58	14	49.6	D	--
	R	17	10	63	3	44.7	D	--
	Subtotal	**358**	**210**	**59**	**--**	**49.3**	**D**	**--**
EB	L	29	26	90	5	100.3	F	--
	R	90	83	92	11	47.3	D	--
	Subtotal	**119**	**109**	**92**	**--**	**59.8**	**E**	**--**
WB	L	155	121	78	19	206.9	F	--
	T	70	61	87	11	201.0	F	--
	R	77	61	79	11	205.5	F	--
	Subtotal	**302**	**243**	**80**	**--**	**205.1**	**F**	**--**
	Total	**1150**	**846**	**74**	**--**	**108.3**	**F**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario A Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	474	374	79	46	29.4	C	--
	Subtotal	**474**	**374**	**79**	**--**	**29.4**	**C**	**--**
SB	T	341	229	67	18	54.8	D	--
	Subtotal	**341**	**229**	**67**	**--**	**54.8**	**D**	**--**
EB	L	65	67	105	8	23.6	C	--
	R	140	137	98	16	20.6	C	--
	Subtotal	**205**	**204**	**100**	**--**	**21.6**	**C**	**--**
	Total	**1019**	**807**	**79**	**--**	**34.7**	**C**	**--**

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	51	19	38	12	275.0	F	--
	R	43	16	38	6	314.0	F	--
	Subtotal	**93**	**35**	**38**	**--**	**292.8**	**F**	**--**
EB	L	33	24	75	7	24.0	C	--
	T	35	28	80	7	25.0	D	--
	Subtotal	**68**	**51**	**75**	**--**	**24.5**	**C**	**--**
WB	T	29	25	83	5	217.8	F	--
	R	4	3	75	1	294.3	F	--
	Subtotal	**33**	**27**	**84**	**--**	**225.7**	**F**	**--**
	Total	**193**	**114**	**59**	**--**	**155.4**	**F**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project:	Station 65	**HCM:**	2000
Scenario:	Cumulative Draft GP with Scenario A Project	**PHF:**	1
TOD:	PM — **Analysis Period:** 15 Minutes	**# of Runs:**	10

Intersection: 9: Q St. & Driveway 1 — **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	45	9	18	5	4943.2	F	--
	Subtotal	**45**	**9**	**18**	**--**	**4943.2**	**F**	**--**
EB	L	28	21	75	5	1.4	A	--
	T	68	51	75	10	6.4	A	--
	Subtotal	**96**	**71**	**74**	**--**	**4.9**	**A**	**--**
WB	T	68	33	49	8	81.9	F	--
	R	3	3	100	1	2.3	A	--
	Subtotal	**71**	**37**	**52**	**--**	**74.7**	**F**	**--**
	Total	**212**	**116**	**55**	**--**	**387.3**	**F**	**--**

Intersection: 10: Driveway 2 & 67th St. — **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	9	6	67	3	70.4	F	--
	T	28	23	82	7	79.8	F	--
	Subtotal	**36**	**29**	**81**	**--**	**77.9**	**F**	**--**
SB	T	82	35	43	12	46.9	E	--
	R	24	12	50	6	29.0	D	--
	Subtotal	**106**	**47**	**44**	**--**	**42.3**	**E**	**--**
EB	L	18	10	56	7	542.8	F	--
	R	11	5	36	4	507.1	F	--
	Subtotal	**29**	**14**	**48**	**--**	**531.5**	**F**	**--**
	Total	**171**	**90**	**53**	**--**	**130.8**	**F**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative C PHDP **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 8

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	74	57	77	7	105.1	F	--
	T	121	88	73	13	58.0	E	--
	R	92	73	79	8	63.9	E	--
	Subtotal	**287**	**218**	**76**	**--**	**72.4**	**E**	**--**
SB	L	15	12	86	5	155.4	F	--
	T	112	102	91	6	49.7	D	--
	R	3	3	150	2	35.3	D	--
	Subtotal	**129**	**117**	**91**	**--**	**60.5**	**E**	**--**
EB	L	15	9	60	5	131.5	F	--
	T	204	115	56	33	112.6	F	--
	R	54	31	57	12	34.8	C	--
	Subtotal	**273**	**155**	**57**	**--**	**98.3**	**F**	**--**
WB	L	46	28	61	9	252.6	F	--
	T	200	159	79	23	53.2	D	--
	R	55	43	78	12	47.5	D	--
	Subtotal	**301**	**229**	**76**	**--**	**76.3**	**E**	**--**
	Total	**989**	**720**	**73**	**--**	**77.3**	**E**	**--**

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	10	7	70	2	122.5	F	--
	T	3	4	200	3	22.2	C	--
	R	12	10	83	4	28.4	C	--
	Subtotal	**24**	**21**	**88**	**--**	**59.3**	**E**	**--**
SB	L	15	13	87	3	59.8	E	--
	T	3	2	100	1	47.7	D	--
	R	3	2	100	1	15.1	B	--
	Subtotal	**20**	**17**	**85**	**--**	**53.2**	**D**	**--**
EB	L	5	3	40	2	65.7	E	--
	T	264	175	66	32	51.6	D	--
	R	42	28	67	6	45.8	D	--
	Subtotal	**311**	**206**	**66**	**--**	**51.0**	**D**	**--**
WB	L	55	40	73	8	53.9	D	--
	T	294	225	77	36	25.8	C	--
	R	15	10	67	3	6.7	A	--
	Subtotal	**364**	**276**	**76**	**--**	**29.2**	**C**	**--**
	Total	**719**	**520**	**72**	**--**	**39.8**	**D**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative C PHDP **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 8

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	45	33	73	12	201.5	F	--
	T	15	9	60	6	210.6	F	--
	R	45	31	69	8	188.5	F	--
	Subtotal	**105**	**73**	**70**	**--**	**197.2**	**F**	**--**
SB	L	45	31	69	11	230.4	F	--
	T	28	19	68	4	267.9	F	--
	R	3	2	100	1	345.5	F	--
	Subtotal	**75**	**51**	**68**	**--**	**247.9**	**F**	**--**
EB	T	266	183	69	26	19.6	B	--
	R	23	18	82	5	15.4	B	--
	Subtotal	**288**	**201**	**70**	**--**	**19.2**	**B**	**--**
WB	T	317	249	79	42	52.8	D	--
	R	23	17	77	6	51.9	D	--
	Subtotal	**339**	**265**	**78**	**--**	**52.7**	**D**	**--**
	Total	**807**	**591**	**73**	**--**	**76.1**	**E**	**--**

Intersection: 4: Folsom Blvd. & State University Dr **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	3	2	100	2	117.9	F	--
	R	19	18	95	4	25.4	C	--
	Subtotal	**21**	**21**	**100**	**--**	**36.2**	**D**	**--**
EB	L	81	55	68	7	59.5	E	--
	T	285	204	72	19	4.4	A	--
	Subtotal	**366**	**259**	**71**	**--**	**16.1**	**B**	**--**
WB	T	285	229	80	46	171.0	F	--
	R	23	21	95	6	141.4	F	--
	Subtotal	**308**	**251**	**81**	**--**	**168.5**	**F**	**--**
	Total	**695**	**530**	**76**	**--**	**88.9**	**F**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative C PHDP **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 8

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	258	204	79	23	30.7	C	--
	R	82	60	73	10	27.1	C	--
	Subtotal	**339**	**264**	**78**	**--**	**29.9**	**C**	**--**
SB	L	9	6	67	2	157.8	F	--
	T	257	191	74	14	114.2	F	--
	Subtotal	**266**	**197**	**74**	**--**	**115.5**	**F**	**--**
WB	L	55	44	80	6	73.9	E	--
	R	29	22	76	2	42.9	D	--
	Subtotal	**84**	**66**	**79**	**--**	**63.4**	**E**	**--**
	Total	**689**	**527**	**76**	**--**	**66.1**	**E**	**--**

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	48	30	63	9	187.8	F	--
	T	298	222	74	31	111.5	F	--
	R	163	111	69	16	78.9	E	--
	Subtotal	**508**	**363**	**71**	**--**	**107.7**	**F**	**--**
SB	T	299	226	76	17	54.1	D	--
	R	14	11	79	3	43.7	D	--
	Subtotal	**312**	**237**	**76**	**--**	**53.7**	**D**	**--**
EB	L	24	22	92	8	88.5	F	--
	R	70	63	90	19	54.4	D	--
	Subtotal	**94**	**85**	**90**	**--**	**63.3**	**E**	**--**
WB	L	135	113	84	20	77.6	E	--
	T	45	39	87	5	89.5	F	--
	R	80	73	91	9	65.6	E	--
	Subtotal	**260**	**226**	**87**	**--**	**75.8**	**E**	**--**
	Total	**1174**	**911**	**78**	**--**	**81.6**	**F**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative C PHDP **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 8

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	597	365	61	56	27.4	C	--
	Subtotal	**597**	**365**	**61**	**--**	**27.4**	**C**	**--**
SB	T	233	187	80	12	8.8	A	--
	Subtotal	**233**	**187**	**80**	**--**	**8.8**	**A**	**--**
EB	L	118	115	97	11	61.0	E	--
	R	78	72	92	11	8.9	A	--
	Subtotal	**196**	**187**	**95**	**--**	**40.8**	**D**	**--**
	Total	**1026**	**739**	**72**	**--**	**26.1**	**C**	**--**

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	44	34	77	5	34.6	D	--
	R	37	27	73	5	40.4	E	--
	Subtotal	**82**	**60**	**73**	**--**	**37.2**	**E**	**--**
EB	L	18	12	67	4	2.2	A	--
	T	43	29	69	6	1.1	A	--
	Subtotal	**61**	**41**	**68**	**--**	**1.4**	**A**	**--**
WB	T	21	15	71	4	16.5	C	--
	R	4	4	100	2	12.4	B	--
	Subtotal	**25**	**19**	**72**	**--**	**15.7**	**C**	**--**
	Total	**167**	**120**	**72**	**--**	**21.6**	**C**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: *Station 65* **HCM:** *2000*
Scenario: *Cumulative Draft GP with Scenario B* **PHF:** *1*
TOD: *PM* **Analysis Period:** *15 Minutes* **# of Runs:** *10*

Intersection: *1: Folsom Blvd. & 65th St.* **Type:** *Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	84	60	71	11	110.4	F	--
	T	118	89	75	16	78.2	E	--
	R	53	33	62	11	78.5	E	--
	Subtotal	**255**	**182**	**71**	**--**	**88.9**	**F**	**--**
SB	L	25	9	38	4	321.2	F	--
	T	62	34	55	9	75.5	E	--
	R	8	4	50	2	40.0	D	--
	Subtotal	**94**	**47**	**50**	**--**	**121.0**	**F**	**--**
EB	L	33	10	31	6	217.9	F	--
	T	222	73	33	34	222.2	F	--
	R	56	18	32	10	66.1	E	--
	Subtotal	**310**	**101**	**33**	**--**	**193.5**	**F**	**--**
WB	L	104	50	48	16	125.9	F	--
	T	298	152	51	32	47.1	D	--
	R	30	14	47	4	41.7	D	--
	Subtotal	**432**	**216**	**50**	**--**	**64.8**	**E**	**--**
	Total	**1091**	**547**	**50**	**--**	**101.5**	**F**	**--**

Intersection: *2: Folsom Blvd. & 67th St.* **Type:** *Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	23	14	61	5	296.2	F	--
	T	5	4	80	3	67.0	E	--
	R	18	12	67	5	140.2	F	--
	Subtotal	**47**	**30**	**65**	**--**	**202.6**	**F**	**--**
SB	L	20	11	55	7	75.6	E	--
	T	8	5	63	2	128.3	F	--
	R	3	2	100	1	139.5	F	--
	Subtotal	**30**	**18**	**60**	**--**	**96.2**	**F**	**--**
EB	L	5	3	60	2	98.9	F	--
	T	258	96	37	35	118.4	F	--
	R	37	12	32	4	136.2	F	--
	Subtotal	**300**	**110**	**37**	**--**	**119.9**	**F**	**--**
WB	L	63	23	37	11	256.9	F	--
	T	386	171	44	58	39.5	D	--
	R	18	8	44	3	8.3	A	--
	Subtotal	**467**	**202**	**43**	**--**	**63.4**	**E**	**--**
	Total	**843**	**361**	**43**	**--**	**93.9**	**F**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario B **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	40	24	60	12	250.5	F	--
	T	5	4	80	3	148.7	F	--
	R	40	26	65	11	137.0	F	--
	Subtotal	**85**	**54**	**64**	**--**	**187.6**	**F**	**--**
SB	L	58	34	59	11	255.5	F	--
	T	43	23	55	9	282.0	F	--
	R	5	2	40	2	236.6	F	--
	Subtotal	**105**	**60**	**57**	**--**	**265.0**	**F**	**--**
EB	T	294	131	45	38	19.2	B	--
	R	13	6	50	3	14.7	B	--
	Subtotal	**306**	**137**	**45**	**--**	**19.0**	**B**	**--**
WB	T	422	176	42	63	100.1	F	--
	R	60	25	42	10	84.1	F	--
	Subtotal	**482**	**202**	**42**	**--**	**98.0**	**F**	**--**
	Total	**978**	**452**	**46**	**--**	**106.9**	**F**	**--**

Intersection: 4: Folsom Blvd. & State University Dr **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	3	2	100	1	235.1	F	--
	R	61	56	92	11	90.7	F	--
	Subtotal	**64**	**57**	**89**	**--**	**94.9**	**F**	**--**
EB	L	37	18	50	4	49.0	D	--
	T	350	190	54	53	6.1	A	--
	Subtotal	**386**	**208**	**54**	**--**	**9.7**	**A**	**--**
WB	T	370	116	31	58	759.1	F	--
	R	8	3	25	2	679.7	F	--
	Subtotal	**378**	**119**	**31**	**--**	**757.5**	**F**	**--**
	Total	**827**	**384**	**46**	**--**	**254.1**	**F**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario B **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	233	175	75	21	37.9	D	--
	R	79	60	76	7	35.4	D	--
	Subtotal	**312**	**235**	**75**	**--**	**37.3**	**D**	**--**
SB	L	19	10	53	4	115.3	F	--
	T	266	156	59	28	38.3	D	--
	Subtotal	**285**	**166**	**58**	**--**	**42.9**	**D**	**--**
WB	L	95	34	36	10	156.3	F	--
	R	22	7	27	3	104.3	F	--
	Subtotal	**117**	**41**	**35**	**--**	**148.0**	**F**	**--**
	Total	**714**	**442**	**62**	**--**	**49.6**	**D**	**--**

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	33	27	84	4	191.1	F	--
	T	215	161	75	19	105.4	F	--
	R	125	101	81	13	62.4	E	--
	Subtotal	**373**	**290**	**78**	**--**	**98.3**	**F**	**--**
SB	T	344	185	54	22	52.4	D	--
	R	17	11	69	2	37.9	D	--
	Subtotal	**361**	**196**	**54**	**--**	**51.6**	**D**	**--**
EB	L	29	22	76	3	104.4	F	--
	R	90	85	94	8	64.6	E	--
	Subtotal	**119**	**108**	**91**	**--**	**72.8**	**E**	**--**
WB	L	155	129	83	18	281.6	F	--
	T	70	54	77	10	273.1	F	--
	R	78	57	73	12	266.4	F	--
	Subtotal	**303**	**240**	**79**	**--**	**276.1**	**F**	**--**
	Total	**1155**	**833**	**72**	**--**	**135.2**	**F**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario B **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	475	374	79	32	28.7	C	--
	Subtotal	**475**	**374**	**79**	**--**	**28.7**	**C**	**--**
SB	T	342	235	68	12	62.9	E	--
	Subtotal	**342**	**235**	**68**	**--**	**62.9**	**E**	**--**
EB	L	66	66	100	7	23.5	C	--
	R	140	142	101	9	22.3	C	--
	Subtotal	**206**	**208**	**101**	**--**	**22.7**	**C**	**--**
	Total	**1022**	**817**	**80**	**--**	**37.0**	**D**	**--**

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	51	16	31	9	336.9	F	--
	R	43	15	35	6	420.6	F	--
	Subtotal	**94**	**31**	**33**	**--**	**377.6**	**F**	**--**
EB	L	33	24	73	5	36.1	E	--
	T	35	26	74	7	23.9	C	--
	Subtotal	**68**	**50**	**74**	**--**	**29.8**	**D**	**--**
WB	T	29	22	76	4	211.1	F	--
	R	4	3	50	2	173.4	F	--
	Subtotal	**33**	**24**	**75**	**--**	**207.2**	**F**	**--**
	Total	**194**	**105**	**54**	**--**	**173.5**	**F**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario B **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 9: Q St. & Driveway 1 **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	49	9	19	5	5057.4	F	--
	Subtotal	**49**	**9**	**19**	**--**	**5057.4**	**F**	**--**
EB	L	30	22	73	5	1.2	A	--
	T	68	49	72	5	9.0	A	--
	Subtotal	**98**	**71**	**72**	**--**	**6.6**	**A**	**--**
WB	T	69	32	46	9	86.0	F	--
	R	3	3	67	1	3.6	A	--
	Subtotal	**72**	**35**	**49**	**--**	**80.1**	**F**	**--**
	Total	**219**	**115**	**53**	**--**	**420.0**	**F**	**--**

Intersection: 10: Driveway 2 & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	9	7	78	3	98.8	F	--
	T	28	22	79	6	117.6	F	--
	Subtotal	**37**	**29**	**78**	**--**	**113.3**	**F**	**--**
SB	T	82	29	35	12	68.0	F	--
	R	25	9	36	5	59.5	F	--
	Subtotal	**107**	**38**	**36**	**--**	**65.9**	**F**	**--**
EB	L	19	8	42	5	752.4	F	--
	R	12	4	33	3	931.8	F	--
	Subtotal	**31**	**12**	**39**	**--**	**810.2**	**F**	**--**
	Total	**175**	**79**	**45**	**--**	**196.6**	**F**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project:	Station 65	**HCM:**	2000
Scenario:	Baseline with Scenario A MIT	**PHF:**	0.94
TOD:	PM **Analysis Period:** 15 Minutes	**# of Runs:**	10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	101	80	79	8	49.4	D	--
	T	113	89	79	7	34.5	C	--
	R	93	74	80	13	17.2	B	--
	Subtotal	**307**	**243**	**79**	**--**	**34.2**	**C**	**--**
SB	L	69	52	75	11	179.1	F	--
	T	146	129	88	12	114.2	F	--
	R	8	8	100	2	108.7	F	--
	Subtotal	**223**	**189**	**85**	**--**	**131.9**	**F**	**--**
EB	L	19	17	89	3	120.5	F	--
	T	130	119	92	11	113.3	F	--
	R	74	70	95	10	55.3	E	--
	Subtotal	**224**	**205**	**92**	**--**	**94.2**	**F**	**--**
WB	L	91	74	81	10	78.3	E	--
	T	198	167	84	17	40.6	D	--
	R	9	9	100	2	15.5	B	--
	Subtotal	**297**	**250**	**84**	**--**	**50.9**	**D**	**--**
	Total	**1051**	**887**	**84**	**--**	**73.6**	**E**	**--**

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	17	16	94	5	44.2	D	--
	R	25	26	104	7	29.1	C	--
	Subtotal	**42**	**42**	**100**	**--**	**34.8**	**C**	**--**
EB	T	270	226	84	7	25.9	C	--
	R	22	18	82	5	14.4	B	--
	Subtotal	**293**	**244**	**83**	**--**	**25.1**	**C**	**--**
WB	L	44	38	86	6	61.9	E	--
	T	284	239	84	14	17.9	B	--
	Subtotal	**328**	**277**	**84**	**--**	**24.0**	**C**	**--**
	Total	**662**	**563**	**85**	**--**	**25.3**	**C**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline with Scenario A MIT **PHF:** 0.94
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	4	4	100	2	2.4	A	--
	Subtotal	**4**	**4**	**100**	**--**	**2.4**	**A**	**--**
EB	T	283	240	85	11	6.7	A	--
	R	26	25	96	5	4.6	A	--
	Subtotal	**309**	**265**	**86**	**--**	**6.5**	**A**	**--**
WB	T	318	269	85	15	29.4	D	--
	R	60	50	83	8	25.0	D	--
	Subtotal	**378**	**319**	**84**	**--**	**28.7**	**D**	**--**
	Total	**691**	**588**	**85**	**--**	**18.5**	**C**	**--**

Intersection: 4: Folsom Blvd. & State University **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	22	16	73	8	69.0	E	--
	R	116	100	86	10	59.8	E	--
	Subtotal	**138**	**116**	**84**	**--**	**61.1**	**E**	**--**
EB	L	61	50	82	5	41.6	D	--
	T	222	185	83	11	7.5	A	--
	Subtotal	**283**	**235**	**83**	**--**	**14.7**	**B**	**--**
WB	T	262	228	87	7	25.6	C	--
	R	8	7	75	3	21.7	C	--
	Subtotal	**270**	**235**	**87**	**--**	**25.4**	**C**	**--**
	Total	**691**	**586**	**85**	**--**	**28.2**	**C**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline with Scenario A MIT **PHF:** 0.94
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	265	225	85	15	24.9	C	--
	R	52	51	98	8	21.9	C	--
	Subtotal	**318**	**276**	**87**	**--**	**24.3**	**C**	**--**
SB	L	31	22	71	4	111.0	F	--
	T	302	252	83	24	50.0	D	--
	Subtotal	**333**	**274**	**82**	**--**	**55.0**	**D**	**--**
WB	L	72	43	60	6	92.9	F	--
	R	42	26	62	6	52.1	D	--
	Subtotal	**113**	**69**	**61**	**--**	**77.7**	**E**	**--**
	Total	**764**	**618**	**81**	**--**	**43.8**	**D**	**--**

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	21	19	86	5	92.0	F	--
	T	210	180	86	17	38.3	D	--
	R	110	104	95	10	12.3	B	--
	Subtotal	**341**	**302**	**89**	**--**	**32.6**	**C**	**--**
SB	T	349	278	80	18	34.8	C	--
	R	24	18	75	4	30.7	C	--
	Subtotal	**373**	**296**	**79**	**--**	**34.6**	**C**	**--**
EB	L	26	22	85	6	193.0	F	--
	R	86	70	81	11	175.4	F	--
	Subtotal	**112**	**93**	**82**	**--**	**179.6**	**F**	**--**
WB	L	163	151	93	10	84.1	F	--
	T	59	55	93	6	103.7	F	--
	R	81	77	95	9	98.3	F	--
	Subtotal	**302**	**282**	**93**	**--**	**91.7**	**F**	**--**
	Total	**1129**	**973**	**86**	**--**	**64.4**	**E**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline with Scenario A MIT **PHF:** 0.94
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	23	17	74	5	63.6	F	--
	R	30	24	80	4	81.0	F	--
	Subtotal	**52**	**41**	**79**	**--**	**73.6**	**F**	**--**
EB	L	14	14	100	2	2.6	A	--
	T	26	25	92	5	0.7	A	--
	Subtotal	**40**	**38**	**95**	**--**	**1.4**	**A**	**--**
WB	T	34	29	85	4	29.9	D	--
	R	18	18	100	5	17.0	C	--
	Subtotal	**52**	**47**	**90**	**--**	**24.9**	**C**	**--**
	Total	**144**	**127**	**88**	**--**	**33.6**	**D**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline Scenario A MIT **PHF:** 0.93
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	88	78	89	10	58.1	E	--
	T	175	156	89	12	35.7	D	--
	R	99	86	87	8	19.9	B	--
	Subtotal	**362**	**320**	**88**	**--**	**36.9**	**D**	**--**
SB	L	70	67	96	7	77.6	E	--
	T	133	130	98	13	52.1	D	--
	R	5	6	120	2	40.4	D	--
	Subtotal	**208**	**203**	**98**	**--**	**60.2**	**E**	**--**
EB	L	12	10	83	2	75.6	E	--
	T	130	120	92	13	71.9	E	--
	R	52	44	85	7	24.6	C	--
	Subtotal	**195**	**175**	**90**	**--**	**60.1**	**E**	**--**
WB	L	55	53	96	8	62.0	E	--
	T	110	118	107	16	31.9	C	--
	R	9	9	100	2	7.7	A	--
	Subtotal	**174**	**179**	**103**	**--**	**39.6**	**D**	**--**
	Total	**939**	**876**	**93**	**--**	**47.5**	**D**	**--**

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	13	14	108	4	49.4	D	--
	R	29	27	93	8	37.3	D	--
	Subtotal	**42**	**40**	**95**	**--**	**41.3**	**D**	**--**
EB	T	276	250	91	15	20.2	C	--
	R	23	21	91	5	9.2	A	--
	Subtotal	**299**	**271**	**91**	**--**	**19.3**	**B**	**--**
WB	L	20	16	80	3	61.7	E	--
	T	166	163	98	15	8.9	A	--
	Subtotal	**186**	**179**	**96**	**--**	**13.6**	**B**	**--**
	Total	**527**	**490**	**93**	**--**	**19.1**	**B**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: *Station 65* ***HCM:*** *2000*
Scenario: *Baseline Scenario A MIT* ***PHF:*** *0.93*
TOD: *AM* ***Analysis Period:*** *15 Minutes* ***# of Runs:*** *10*

Intersection: *6: S St. & 65th St.* ***Type:*** *Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	32	29	91	5	97.4	F	--
	T	260	237	91	18	45.1	D	--
	R	90	88	98	10	21.1	C	--
	Subtotal	**382**	**354**	**93**	**--**	**43.5**	**D**	**--**
SB	T	278	246	88	12	37.0	D	--
	R	14	14	100	4	30.1	C	--
	Subtotal	**292**	**260**	**89**	**--**	**36.6**	**D**	**--**
EB	L	25	20	80	5	83.0	F	--
	R	61	50	82	7	46.0	D	--
	Subtotal	**85**	**70**	**82**	**--**	**56.7**	**E**	**--**
WB	L	119	121	102	15	56.6	E	--
	T	63	56	89	12	116.0	F	--
	R	95	87	92	12	111.3	F	--
	Subtotal	**277**	**264**	**95**	**--**	**87.2**	**F**	**--**
	Total	**1036**	**948**	**92**	**--**	**54.7**	**D**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline With Scenario B MIT **PHF:** 0.93
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	89	81	91	8	60.1	E	--
	T	174	152	87	10	35.5	D	--
	R	100	88	88	7	17.3	B	--
	Subtotal	**363**	**321**	**88**	**--**	**36.7**	**D**	**--**
SB	L	72	68	94	9	88.8	F	--
	T	133	127	95	11	65.7	E	--
	R	5	5	100	3	55.3	E	--
	Subtotal	**210**	**199**	**95**	**--**	**73.3**	**E**	**--**
EB	L	12	12	100	3	81.8	F	--
	T	130	121	92	10	69.1	E	--
	R	52	45	87	8	23.1	C	--
	Subtotal	**195**	**177**	**91**	**--**	**58.2**	**E**	**--**
WB	L	56	56	100	8	71.4	E	--
	T	113	111	98	8	32.7	C	--
	R	9	8	89	4	7.9	A	--
	Subtotal	**178**	**175**	**98**	**--**	**44.0**	**D**	**--**
	Total	**946**	**873**	**92**	**--**	**50.9**	**D**	**--**

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	14	12	86	4	47.8	D	--
	R	30	27	90	4	32.7	C	--
	Subtotal	**44**	**39**	**86**	**--**	**37.2**	**D**	**--**
EB	T	277	256	92	16	20.2	C	--
	R	25	22	88	4	9.2	A	--
	Subtotal	**302**	**278**	**92**	**--**	**19.4**	**B**	**--**
WB	L	22	20	91	5	57.9	E	--
	T	169	164	97	12	8.6	A	--
	Subtotal	**190**	**184**	**97**	**--**	**13.9**	**B**	**--**
	Total	**537**	**500**	**93**	**--**	**18.7**	**B**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline With Scenario B MIT **PHF:** 0.93
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	1	2	200	1	2.1	A	--
	Subtotal	**1**	**2**	**200**	**--**	**2.1**	**A**	**--**
EB	T	295	266	90	12	6.2	A	--
	R	19	19	100	3	4.2	A	--
	Subtotal	**313**	**286**	**91**	**--**	**6.1**	**A**	**--**
WB	T	193	187	97	9	11.6	B	--
	R	58	52	90	7	8.0	A	--
	Subtotal	**252**	**239**	**95**	**--**	**10.9**	**B**	**--**
	Total	**566**	**527**	**93**	**--**	**8.2**	**A**	**--**

Intersection: 4: Folsom Blvd. & State University East **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	4	3	75	3	39.8	D	--
	R	37	35	95	7	22.2	C	--
	Subtotal	**41**	**38**	**93**	**--**	**23.8**	**C**	**--**
EB	L	125	111	89	7	35.1	D	--
	T	170	155	91	9	8.1	A	--
	Subtotal	**295**	**266**	**90**	**--**	**19.4**	**B**	**--**
WB	T	215	209	97	11	48.2	D	--
	R	25	22	88	4	42.2	D	--
	Subtotal	**240**	**231**	**96**	**--**	**47.7**	**D**	**--**
	Total	**575**	**535**	**93**	**--**	**31.9**	**C**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline With Scenario B MIT **PHF:** 0.93
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	328	293	89	13	20.6	C	--
	R	54	46	85	10	17.5	B	--
	Subtotal	**382**	**339**	**89**	**--**	**20.2**	**C**	**--**
SB	L	18	18	100	4	132.1	F	--
	T	246	216	88	16	53.7	D	--
	Subtotal	**264**	**234**	**89**	**--**	**59.5**	**E**	**--**
WB	L	50	47	94	7	58.3	E	--
	R	35	31	89	4	36.8	D	--
	Subtotal	**85**	**78**	**92**	**--**	**49.7**	**D**	**--**
	Total	**731**	**650**	**89**	**--**	**37.9**	**D**	**--**

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	32	31	97	7	107.7	F	--
	T	262	236	90	19	51.6	D	--
	R	90	80	89	8	26.0	C	--
	Subtotal	**383**	**347**	**91**	**--**	**50.7**	**D**	**--**
SB	T	281	239	85	15	36.1	D	--
	R	15	13	87	3	30.7	C	--
	Subtotal	**296**	**252**	**85**	**--**	**35.9**	**D**	**--**
EB	L	25	24	96	6	73.4	E	--
	R	61	59	97	9	39.1	D	--
	Subtotal	**85**	**83**	**98**	**--**	**49.1**	**D**	**--**
WB	L	119	117	98	10	54.5	D	--
	T	63	56	89	8	127.3	F	--
	R	96	82	85	10	128.7	F	--
	Subtotal	**278**	**255**	**92**	**--**	**94.3**	**F**	**--**
	Total	**1042**	**937**	**90**	**--**	**58.4**	**E**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline With Scenario B MIT **PHF:** 0.93
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	498	469	94	19	14.1	B	--
	Subtotal	**498**	**469**	**94**	**--**	**14.1**	**B**	**--**
SB	T	242	224	93	18	10.9	B	--
	Subtotal	**242**	**224**	**93**	**--**	**10.9**	**B**	**--**
EB	L	95	84	88	11	33.7	C	--
	R	77	75	97	7	10.4	B	--
	Subtotal	**173**	**159**	**92**	**--**	**22.7**	**C**	**--**
	Total	**912**	**852**	**93**	**--**	**14.9**	**B**	**--**

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	15	12	80	5	14.1	B	--
	R	11	13	118	4	21.0	C	--
	Subtotal	**27**	**25**	**93**	**--**	**17.6**	**C**	**--**
EB	L	16	12	75	5	4.0	A	--
	T	20	22	110	5	0.7	A	--
	Subtotal	**35**	**34**	**97**	**--**	**1.9**	**A**	**--**
WB	T	45	43	96	6	13.3	B	--
	R	26	23	88	6	6.5	A	--
	Subtotal	**71**	**66**	**93**	**--**	**11.0**	**B**	**--**
	Total	**133**	**125**	**94**	**--**	**9.8**	**A**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline With Scenario B MIT **PHF:** 0.93
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 9: Q St. & Driveway 1 **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	33	27	82	6	187.4	F	--
	Subtotal	**33**	**27**	**82**	**--**	**187.4**	**F**	**--**
EB	L	37	31	84	6	1.1	A	--
	T	35	33	94	6	0.3	A	--
	Subtotal	**72**	**64**	**89**	**--**	**0.7**	**A**	**--**
WB	T	52	54	104	6	25.0	D	--
	R	3	3	100	2	1.3	A	--
	Subtotal	**56**	**57**	**102**	**--**	**23.7**	**C**	**--**
	Total	**161**	**148**	**92**	**--**	**43.8**	**E**	**--**

Intersection: 10: Driveway 2 & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	10	8	80	3	5.7	A	--
	T	32	29	91	6	8.6	A	--
	Subtotal	**42**	**37**	**88**	**--**	**7.9**	**A**	**--**
SB	T	19	18	95	6	0.9	A	--
	R	27	25	93	5	0.5	A	--
	Subtotal	**46**	**43**	**93**	**--**	**0.6**	**A**	**--**
EB	L	12	11	92	3	29.2	D	--
	R	7	7	100	4	13.5	B	--
	Subtotal	**19**	**18**	**95**	**--**	**23.0**	**C**	**--**
	Total	**108**	**98**	**91**	**--**	**7.5**	**A**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline with Scenario B MIT **PHF:** 0.94
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	101	85	84	12	56.5	E	--
	T	113	96	85	12	38.2	D	--
	R	93	78	84	7	16.8	B	--
	Subtotal	**307**	**259**	**84**	**--**	**37.7**	**D**	**--**
SB	L	69	54	78	5	189.3	F	--
	T	146	121	83	10	115.7	F	--
	R	8	7	88	3	108.0	F	--
	Subtotal	**223**	**181**	**81**	**--**	**137.1**	**F**	**--**
EB	L	19	16	84	5	160.7	F	--
	T	130	130	100	11	145.5	F	--
	R	74	65	88	10	89.1	F	--
	Subtotal	**224**	**211**	**94**	**--**	**129.2**	**F**	**--**
WB	L	91	69	76	12	67.0	E	--
	T	198	180	91	14	43.0	D	--
	R	9	6	67	2	14.8	B	--
	Subtotal	**297**	**256**	**86**	**--**	**48.7**	**D**	**--**
	Total	**1051**	**906**	**86**	**--**	**82.0**	**F**	**--**

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	17	17	100	4	54.7	D	--
	R	25	34	136	7	39.8	D	--
	Subtotal	**42**	**52**	**124**	**--**	**44.8**	**D**	**--**
EB	T	270	231	86	8	27.4	C	--
	R	22	27	118	5	21.8	C	--
	Subtotal	**293**	**258**	**88**	**--**	**26.9**	**C**	**--**
WB	L	44	34	77	9	66.9	E	--
	T	284	240	85	23	20.5	C	--
	Subtotal	**328**	**274**	**84**	**--**	**26.2**	**C**	**--**
	Total	**662**	**583**	**88**	**--**	**28.1**	**C**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline with Scenario B MIT **PHF:** 0.94
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	4	5	100	2	2.4	A	--
	Subtotal	**4**	**5**	**100**	**--**	**2.4**	**A**	**--**
EB	T	283	253	89	10	6.1	A	--
	R	26	23	88	4	4.2	A	--
	Subtotal	**309**	**276**	**89**	**--**	**6.0**	**A**	**--**
WB	T	318	266	84	28	35.2	E	--
	R	60	48	80	8	30.5	D	--
	Subtotal	**378**	**314**	**83**	**--**	**34.5**	**D**	**--**
	Total	**691**	**595**	**86**	**--**	**21.0**	**C**	**--**

Intersection: 4: Folsom Blvd. & State University **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	22	20	91	5	78.8	E	--
	R	116	101	87	9	57.4	E	--
	Subtotal	**138**	**121**	**88**	**--**	**60.9**	**E**	**--**
EB	L	61	46	75	3	41.0	D	--
	T	222	207	93	6	8.0	A	--
	Subtotal	**283**	**253**	**89**	**--**	**14.0**	**B**	**--**
WB	T	262	225	86	18	28.9	C	--
	R	8	6	75	3	21.6	C	--
	Subtotal	**270**	**231**	**86**	**--**	**28.7**	**C**	**--**
	Total	**691**	**605**	**88**	**--**	**29.0**	**C**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline with Scenario B MIT **PHF:** 0.94
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	265	231	87	13	26.7	C	--
	R	52	48	92	5	23.3	C	--
	Subtotal	**318**	**279**	**88**	**--**	**26.1**	**C**	**--**
SB	L	31	22	71	4	130.7	F	--
	T	302	254	84	19	48.8	D	--
	Subtotal	**333**	**276**	**83**	**--**	**55.4**	**E**	**--**
WB	L	72	46	64	6	82.7	F	--
	R	42	29	69	9	52.8	D	--
	Subtotal	**113**	**75**	**66**	**--**	**71.1**	**E**	**--**
	Total	**764**	**630**	**82**	**--**	**44.3**	**D**	**--**

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	21	19	90	5	99.0	F	--
	T	210	189	90	9	41.9	D	--
	R	110	99	90	8	14.6	B	--
	Subtotal	**341**	**306**	**90**	**--**	**36.6**	**D**	**--**
SB	T	349	279	80	19	32.2	C	--
	R	24	20	83	3	29.1	C	--
	Subtotal	**373**	**299**	**80**	**--**	**32.0**	**C**	**--**
EB	L	26	21	81	6	241.9	F	--
	R	86	65	76	14	226.1	F	--
	Subtotal	**112**	**86**	**77**	**--**	**230.0**	**F**	**--**
WB	L	163	153	94	11	94.5	F	--
	T	59	54	92	8	107.6	F	--
	R	81	71	88	7	96.7	F	--
	Subtotal	**302**	**278**	**92**	**--**	**97.6**	**F**	**--**
	Total	**1129**	**969**	**86**	**--**	**69.8**	**E**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline with Scenario B MIT **PHF:** 0.94
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	474	419	88	14	16.4	B	--
	Subtotal	**474**	**419**	**88**	--	**16.4**	**B**	--
SB	T	374	312	83	28	14.2	B	--
	Subtotal	**374**	**312**	**83**	--	**14.2**	**B**	--
EB	L	66	63	95	12	13.9	B	--
	R	119	117	98	12	20.2	C	--
	Subtotal	**185**	**180**	**97**	--	**18.0**	**B**	--
	Total	**1033**	**911**	**88**	--	**15.9**	**B**	--

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	23	24	104	6	73.8	F	--
	R	30	22	73	5	82.1	F	--
	Subtotal	**52**	**46**	**88**	--	**77.8**	**F**	--
EB	L	14	14	100	3	3.1	A	--
	T	26	23	88	5	0.9	A	--
	Subtotal	**40**	**37**	**93**	--	**1.7**	**A**	--
WB	T	34	32	94	3	35.2	E	--
	R	18	29	161	6	23.5	C	--
	Subtotal	**52**	**60**	**115**	--	**29.6**	**D**	--
	Total	**144**	**143**	**99**	--	**37.9**	**E**	--

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline with Scenario B MIT **PHF:** 0.94
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 9: Q St. & Driveway 1 **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	R	53	26	49	9	1092.6	F	--
	Subtotal	**53**	**26**	**49**	--	**1092.6**	**F**	--
EB	L	44	36	82	5	1.5	A	--
	T	40	34	85	7	0.3	A	--
	Subtotal	**83**	**70**	**84**	--	**0.9**	**A**	--
WB	T	60	51	83	8	39.7	E	--
	R	3	4	133	2	43.5	E	--
	Subtotal	**63**	**54**	**86**	--	**40.0**	**E**	--
	Total	**200**	**150**	**75**	--	**201.5**	**F**	--

Intersection: 10: Driveway 2 & 67th St. **Type:** Un-Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	9	7	78	2	12.2	B	--
	T	23	37	161	6	16.6	C	--
	Subtotal	**32**	**44**	**138**	--	**15.9**	**C**	--
SB	T	41	39	95	5	4.6	A	--
	R	25	21	84	5	2.7	A	--
	Subtotal	**66**	**60**	**91**	--	**4.0**	**A**	--
EB	L	19	17	89	5	103.9	F	--
	R	12	10	83	3	85.5	F	--
	Subtotal	**31**	**27**	**87**	--	**97.3**	**F**	--
	Total	**129**	**131**	**102**	--	**27.3**	**D**	--

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline with Scenario B Project with No Q St Left **PHF:** 0.93
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	89	80	90	12	64.1	E	--
	T	181	158	87	10	40.8	D	--
	R	100	87	86	7	20.6	C	--
	Subtotal	**370**	**325**	**88**	**--**	**41.2**	**D**	**--**
SB	L	74	71	96	9	75.2	E	--
	T	131	125	95	13	56.2	E	--
	R	5	5	100	2	46.0	D	--
	Subtotal	**210**	**201**	**96**	**--**	**62.6**	**E**	**--**
EB	L	12	10	83	5	91.4	F	--
	T	131	123	93	9	98.5	F	--
	R	51	49	96	7	45.3	D	--
	Subtotal	**195**	**181**	**93**	**--**	**83.7**	**F**	**--**
WB	L	55	53	96	5	64.9	E	--
	T	113	112	99	11	30.4	C	--
	R	9	10	111	2	8.0	A	--
	Subtotal	**177**	**175**	**99**	**--**	**39.5**	**D**	**--**
	Total	**952**	**883**	**93**	**--**	**54.5**	**D**	**--**

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	13	11	85	2	56.3	E	--
	R	31	30	97	9	37.6	D	--
	Subtotal	**44**	**41**	**93**	**--**	**42.5**	**D**	**--**
EB	T	277	255	92	8	17.7	B	--
	R	28	27	96	5	7.9	A	--
	Subtotal	**305**	**282**	**92**	**--**	**16.8**	**B**	**--**
WB	L	22	21	91	4	57.4	E	--
	T	168	167	99	7	8.8	A	--
	Subtotal	**190**	**187**	**98**	**--**	**14.1**	**B**	**--**
	Total	**539**	**510**	**95**	**--**	**17.9**	**B**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline with Scenario B Project with No Q St Left **PHF:** 0.93
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	336	297	88	17	18.9	B	--
	R	53	44	83	7	15.8	B	--
	Subtotal	**389**	**342**	**88**	--	**18.5**	**B**	--
SB	L	13	14	108	5	88.6	F	--
	T	247	225	91	15	46.8	D	--
	Subtotal	**260**	**239**	**92**	--	**49.2**	**D**	--
WB	L	49	46	94	4	65.6	E	--
	R	34	30	88	5	35.4	D	--
	Subtotal	**83**	**76**	**92**	--	**53.8**	**D**	--
	Total	**731**	**656**	**90**	--	**33.8**	**C**	--

Intersection: 8: Q St. & 67th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	15	15	100	4	26.5	C	--
	R	13	14	108	2	13.2	B	--
	Subtotal	**28**	**29**	**104**	--	**20.1**	**C**	--
EB	L	44	39	86	9	12.6	B	--
	T	22	25	114	4	8.1	A	--
	Subtotal	**66**	**64**	**97**	--	**10.8**	**B**	--
WB	T	44	40	91	6	40.2	D	--
	R	26	23	88	5	26.7	C	--
	Subtotal	**70**	**63**	**90**	--	**35.3**	**D**	--
	Total	**165**	**156**	**95**	--	**22.5**	**C**	--

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline with Scenario B Project with No Q St Left **PHF:** 0.94
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	101	83	82	7	64.3	E	--
	T	114	93	82	8	39.9	D	--
	R	94	80	85	7	15.9	B	--
	Subtotal	**309**	**256**	**83**	--	**40.3**	**D**	--
SB	L	72	61	85	4	120.4	F	--
	T	144	123	85	11	82.1	F	--
	R	8	8	100	4	77.5	E	--
	Subtotal	**223**	**192**	**86**	--	**94.2**	**F**	--
EB	L	19	16	84	2	158.5	F	--
	T	152	130	86	10	165.8	F	--
	R	73	64	88	9	109.1	F	--
	Subtotal	**245**	**210**	**86**	--	**148.0**	**F**	--
WB	L	90	72	80	8	66.8	E	--
	T	223	192	86	10	41.6	D	--
	R	9	7	78	1	15.5	B	--
	Subtotal	**321**	**270**	**84**	--	**47.6**	**D**	--
	Total	**1098**	**927**	**84**	--	**77.9**	**E**	--

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	11	12	109	2	44.3	D	--
	R	32	26	81	5	26.6	C	--
	Subtotal	**43**	**38**	**88**	--	**32.1**	**C**	--
EB	T	286	242	85	11	22.4	C	--
	R	32	28	88	4	11.6	B	--
	Subtotal	**318**	**269**	**85**	--	**21.3**	**C**	--
WB	L	40	30	75	6	57.2	E	--
	T	314	258	82	6	15.3	B	--
	Subtotal	**353**	**288**	**82**	--	**19.6**	**B**	--
	Total	**714**	**595**	**83**	--	**21.2**	**C**	--

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Baseline with Scenario B Project with No Q St Left **PHF:** 0.94
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	271	233	86	8	24.9	C	--
	R	50	42	84	4	21.9	C	--
	Subtotal	**320**	**275**	**86**	**--**	**24.5**	**C**	**--**
SB	L	22	20	91	6	106.6	F	--
	T	314	262	83	17	50.4	D	--
	Subtotal	**336**	**281**	**84**	**--**	**54.3**	**D**	**--**
WB	L	79	50	63	11	101.9	F	--
	R	38	30	79	7	57.7	E	--
	Subtotal	**117**	**80**	**68**	**--**	**85.6**	**F**	**--**
	Total	**773**	**636**	**82**	**--**	**45.4**	**D**	**--**

Intersection: 8: Q St. & 67th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	23	18	78	5	60.8	E	--
	R	32	25	78	8	67.8	E	--
	Subtotal	**55**	**43**	**78**	**--**	**64.9**	**E**	**--**
EB	L	42	40	95	3	16.2	B	--
	T	29	32	110	3	9.7	A	--
	Subtotal	**72**	**71**	**99**	**--**	**13.3**	**B**	**--**
WB	T	39	34	87	5	136.2	F	--
	R	18	14	78	5	116.4	F	--
	Subtotal	**57**	**48**	**84**	**--**	**130.6**	**F**	**--**
	Total	**183**	**162**	**89**	**--**	**61.6**	**E**	**--**

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative with Scenario A Project w/o Q St Left **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	84	72	86	7	53.4	D	--
	T	119	95	81	15	47.9	D	--
	R	110	93	85	9	16.5	B	--
	Subtotal	**312**	**261**	**84**	--	**38.2**	**D**	--
SB	L	106	105	99	9	56.9	E	--
	T	123	122	100	13	42.0	D	--
	R	3	3	150	2	41.8	D	--
	Subtotal	**231**	**230**	**100**	--	**48.8**	**D**	--
EB	L	8	6	75	1	81.4	F	--
	T	195	181	93	9	81.2	F	--
	R	50	46	92	5	55.9	E	--
	Subtotal	**253**	**233**	**92**	--	**76.2**	**E**	--
WB	L	50	44	88	7	77.7	E	--
	T	225	209	93	13	23.8	C	--
	R	30	30	100	5	6.7	A	--
	Subtotal	**305**	**282**	**92**	--	**30.4**	**C**	--
	Total	**1101**	**1006**	**91**	--	**47.2**	**D**	--

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	30	27	90	5	39.4	D	--
	R	27	23	85	6	17.0	B	--
	Subtotal	**56**	**49**	**88**	--	**29.1**	**C**	--
EB	T	384	359	93	16	14.7	B	--
	R	27	21	78	5	10.8	B	--
	Subtotal	**411**	**380**	**92**	--	**14.5**	**B**	--
WB	L	19	17	89	5	44.1	D	--
	T	265	250	94	9	5.4	A	--
	Subtotal	**284**	**266**	**94**	--	**7.8**	**A**	--
	Total	**751**	**695**	**93**	--	**13.0**	**B**	--

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: Station 65 **HCM:** 2000
Scenario: Cumulative with Scenario A Project w/o Q St Left **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	278	228	82	18	15.4	B	--
	R	84	67	79	13	13.1	B	--
	Subtotal	**362**	**294**	**81**	--	**14.9**	**B**	--
SB	L	10	11	110	4	57.3	E	--
	T	237	223	94	17	22.3	C	--
	Subtotal	**247**	**234**	**95**	--	**24.0**	**C**	--
WB	L	52	48	92	7	80.3	F	--
	R	34	31	91	7	41.4	D	--
	Subtotal	**86**	**79**	**92**	--	**65.1**	**E**	--
	Total	**695**	**607**	**87**	--	**24.9**	**C**	--

Intersection: 8: Q St. & 67th St. **Type:** Signalized

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	12	8	67	3	43.2	D	--
	R	15	13	87	4	44.6	D	--
	Subtotal	**27**	**21**	**81**	--	**44.1**	**D**	--
EB	L	39	33	85	6	13.4	B	--
	T	55	52	95	10	7.3	A	--
	Subtotal	**94**	**84**	**89**	--	**9.7**	**A**	--
WB	T	49	43	88	9	55.3	E	--
	R	41	35	85	11	46.4	D	--
	Subtotal	**90**	**79**	**87**	--	**51.3**	**D**	--
	Total	**211**	**184**	**88**	--	**31.4**	**C**	--

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: *Station 65* **HCM:** *2000*
Scenario: *Cumulative with Scenario B Project w/o Q St Left* **PHF:** *1*
TOD: *PM* **Analysis Period:** *15 Minutes* **# of Runs:** *10*

Intersection: *1: Folsom Blvd. & 65th St.* **Type:** *Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	79	63	80	10	66.3	E	--
	T	133	110	83	8	97.5	F	--
	R	48	40	83	6	50.6	D	--
	Subtotal	**260**	**213**	**82**	--	**79.4**	E	--
SB	L	121	107	88	8	117.6	F	--
	T	108	95	88	10	74.4	E	--
	R	8	6	75	2	75.9	E	--
	Subtotal	**236**	**208**	**88**	--	**96.6**	**F**	--
EB	L	15	11	73	4	165.8	F	--
	T	250	194	78	6	146.7	F	--
	R	65	48	74	7	119.9	F	--
	Subtotal	**330**	**253**	**77**	--	**142.4**	**F**	--
WB	L	108	93	86	7	102.7	F	--
	T	320	262	82	11	65.6	E	--
	R	35	29	83	5	35.4	D	--
	Subtotal	**463**	**384**	**83**	--	**72.3**	E	--
	Total	**1289**	**1059**	**82**	--	**95.3**	**F**	--

Intersection: *2: Folsom Blvd. & 67th St.* **Type:** *Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	L	21	15	71	4	52.8	D	--
	R	43	33	77	6	13.8	B	--
	Subtotal	**64**	**48**	**75**	--	**26.1**	**C**	--
EB	T	383	304	79	10	15.2	B	--
	R	37	28	76	6	12.2	B	--
	Subtotal	**420**	**332**	**79**	--	**15.0**	**B**	--
WB	L	19	16	84	4	68.3	E	--
	T	420	353	84	17	45.6	D	--
	Subtotal	**439**	**369**	**84**	--	**46.6**	**D**	--
	Total	**923**	**749**	**81**	--	**31.3**	**C**	--

SIMTRAFFIC LEVEL OF SERVICE REPORT
Including Upstream Delays

Project: *Station 65* **HCM:** *2000*
Scenario: *Cumulative with Scenario B Project w/o Q St Left* **PHF:** *1*
TOD: *PM* **Analysis Period:** *15 Minutes* **# of Runs:** *10*

Intersection: *5: Q St. & 65th St.* **Type:** *Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
NB	T	225	205	91	13	16.1	B	--
	R	94	85	90	13	13.4	B	--
	Subtotal	**319**	**290**	**91**	**--**	**15.3**	**B**	**--**
SB	L	15	12	80	2	61.7	E	--
	T	288	254	88	12	14.8	B	--
	Subtotal	**303**	**265**	**87**	**--**	**16.9**	**B**	**--**
WB	L	123	61	50	3	95.0	F	--
	R	35	18	53	5	57.7	E	--
	Subtotal	**157**	**79**	**50**	**--**	**86.4**	**F**	**--**
	Total	**780**	**634**	**81**	**--**	**24.8**	**C**	**--**

Intersection: *8: Q St. & 67th St.* **Type:** *Signalized*

Approach	Movement	Demand Volume	Volume Served			Delay/Veh (sec)		
			Avg	%	Std Dev	Avg	LOS	Std Dev
SB	L	8	7	88	3	50.0	D	--
	R	33	29	88	6	53.8	D	--
	Subtotal	**41**	**35**	**85**	**--**	**53.1**	**D**	**--**
EB	L	54	47	87	8	13.9	B	--
	T	55	53	96	8	8.6	A	--
	Subtotal	**109**	**100**	**92**	**--**	**11.1**	**B**	**--**
WB	T	81	32	40	5	246.2	F	--
	R	29	11	38	4	218.1	F	--
	Subtotal	**110**	**43**	**39**	**--**	**239.1**	**F**	**--**
	Total	**260**	**179**	**69**	**--**	**74.5**	**E**	**--**

INTERSECTIONS – QUEUES

Intersection: 1: Folsom Blvd. & 65th St.

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	102	291	248	54	45	36	22	7	263	270	271	100
Average Queue (ft)	31	198	148	40	15	14	8	1	194	117	130	43
95th Queue (ft)	100	304	275	65	47	40	25	7	284	275	270	123
Link Distance (ft)		348	348		194	194	194			286	286	
Upstream Blk Time (%)		0	0						1	2	1	
Queuing Penalty (veh)		1	0						0	11	8	
Storage Bay Dist (ft)	175			25				150	300			75
Storage Blk Time (%)		11	35	3					1	2	17	1
Queuing Penalty (veh)		5	61	8					3	5	60	1

Intersection: 1: Folsom Blvd. & 65th St.

Movement	SB	SB	SB
Directions Served	L	T	TR
Maximum Queue (ft)	150	278	254
Average Queue (ft)	142	220	180
95th Queue (ft)	170	340	289
Link Distance (ft)		259	259
Upstream Blk Time (%)		23	4
Queuing Penalty (veh)		89	13
Storage Bay Dist (ft)	125		
Storage Blk Time (%)	47	5	
Queuing Penalty (veh)	121	11	

Intersection: 2: Folsom Blvd. & 67th St.

Movement	EB	EB	WB	NB	SB
Directions Served	L	T	L	LR	LR
Maximum Queue (ft)	3	25	3	110	32
Average Queue (ft)	0	4	0	58	16
95th Queue (ft)	6	52	6	115	41
Link Distance (ft)		214		151	80
Upstream Blk Time (%)		0		0	
Queuing Penalty (veh)		2		0	
Storage Bay Dist (ft)	100		100		
Storage Blk Time (%)		0			
Queuing Penalty (veh)		0			

Intersection: 3: Folsom Blvd. & Elvas Ave.

Movement	EB	WB
Directions Served	TR	TR
Maximum Queue (ft)	40	1345
Average Queue (ft)	9	1345
95th Queue (ft)	62	1352
Link Distance (ft)	126	1345
Upstream Blk Time (%)	1	100
Queuing Penalty (veh)	11	928
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Folsom Blvd. & State University

Movement	EB	EB	WB	B150	SB	SB	SB
Directions Served	L	T	T	T	L	L	R
Maximum Queue (ft)	275	943	393	952	3	16	979
Average Queue (ft)	256	507	388	918	1	3	649
95th Queue (ft)	323	1225	398	1104	9	15	1132
Link Distance (ft)		1345	330	946			975
Upstream Blk Time (%)		1	99	86			24
Queuing Penalty (veh)		13	879	763			53
Storage Bay Dist (ft)	250				225	225	
Storage Blk Time (%)	24		100				83
Queuing Penalty (veh)	136		100				12

Intersection: 5: Q St. & 65th St.

Movement	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	R	T	TR	L	T	T
Maximum Queue (ft)	117	78	79	96	89	171	180
Average Queue (ft)	59	35	63	78	34	109	152
95th Queue (ft)	123	77	97	105	100	203	215
Link Distance (ft)	207	207	48	48		169	169
Upstream Blk Time (%)			16	29		5	15
Queuing Penalty (veh)			109	194		26	72
Storage Bay Dist (ft)					100		
Storage Blk Time (%)					3	13	
Queuing Penalty (veh)					16	4	

Intersection: 6: S St. & 65th St.

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	LR	R	L	L	TR	R	L	T	T	T	T
Maximum Queue (ft)	104	242	124	124	491	585	150	108	149	136	182	208
Average Queue (ft)	45	113	73	81	322	415	122	84	117	117	110	130
95th Queue (ft)	110	340	141	140	787	874	192	130	174	156	215	243
Link Distance (ft)		1262			1576	1576			117	117	164	164
Upstream Blk Time (%)								10	18	19	9	12
Queuing Penalty (veh)								0	90	95	45	62
Storage Bay Dist (ft)	175		125	100			125	150				
Storage Blk Time (%)		13	0	4	33	43	3	10	18			14
Queuing Penalty (veh)		23	1	10	76	60	12	48	23			53

Intersection: 6: S St. & 65th St.

Movement	SB
Directions Served	TR
Maximum Queue (ft)	125
Average Queue (ft)	97
95th Queue (ft)	160
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	100
Storage Blk Time (%)	16
Queuing Penalty (veh)	52

Intersection: 7: US 50 EB Off & 65th St.

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	T	T	T	T
Maximum Queue (ft)	186	141	287	256	112	119
Average Queue (ft)	119	81	249	229	68	69
95th Queue (ft)	194	139	329	276	121	125
Link Distance (ft)	1536	1536	199	199	205	205
Upstream Blk Time (%)			9	18		0
Queuing Penalty (veh)			93	182		0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 8: Q St. & 67th St.

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	37	3	66
Average Queue (ft)	6	0	30
95th Queue (ft)	33	7	70
Link Distance (ft)	207	301	224
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Elvas Ave. & 65th St.

Movement	EB	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	R	R	LT	TR	L	LTR	LTR
Maximum Queue (ft)	47	74	75	31	26	170	190	17
Average Queue (ft)	21	15	27	11	11	69	88	3
95th Queue (ft)	57	67	85	37	33	175	205	19
Link Distance (ft)		524	524	322		331	331	465
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	125				200			
Storage Blk Time (%)		0						
Queuing Penalty (veh)		0						

Intersection: 10: Folsom Blvd. & 63rd St.

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	23	28
Average Queue (ft)	5	11
95th Queue (ft)	27	35
Link Distance (ft)	241	482
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Folsom Blvd. & 59th St

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	TR	LT	TR	LT	R	LTR
Maximum Queue (ft)	144	175	134	111	333	125	22
Average Queue (ft)	88	119	85	54	183	89	6
95th Queue (ft)	153	191	142	114	362	154	26
Link Distance (ft)	905	905	630	630	593		247
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)						100	
Storage Blk Time (%)					15	2	
Queuing Penalty (veh)					51	6	

Intersection: 12: Q St. & 69th St.

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	28	60
Average Queue (ft)	17	20
95th Queue (ft)	29	62
Link Distance (ft)	348	90
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Folsom Blvd. & 64th St.

Movement	EB	EB	WB	NB	SB
Directions Served	T	TR	L	R	R
Maximum Queue (ft)	3	5	52	70	37
Average Queue (ft)	0	1	18	43	19
95th Queue (ft)	7	7	53	78	46
Link Distance (ft)	217	217		369	462
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			125		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 14: S St. & 59th St.

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	LT	TR	L	T	R	LT	R
Maximum Queue (ft)	1100	1010	148	124	287	174	600	66	465	150
Average Queue (ft)	930	368	66	104	137	166	399	35	270	110
95th Queue (ft)	1307	1055	167	147	325	192	664	67	524	182
Link Distance (ft)	1086	1086			1310		674	674	639	
Upstream Blk Time (%)	20	9					1		1	
Queuing Penalty (veh)	0	0					0		4	
Storage Bay Dist (ft)			125	100		150				125
Storage Blk Time (%)		11	0	25	5	35	9		28	3
Queuing Penalty (veh)		21	0	31	9	84	29		107	7

Intersection: 15: 4th Ave. & 65th St.

Movement	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LR	LT	R	R	L	T	TR	L	T	TR
Maximum Queue (ft)	28	68	85	99	36	561	566	110	152	172
Average Queue (ft)	9	28	51	60	9	550	551	60	41	51
95th Queue (ft)	33	70	90	100	40	564	568	116	144	156
Link Distance (ft)	220		400	400		531	531		199	199
Upstream Blk Time (%)						43	58		0	0
Queuing Penalty (veh)						0	0		1	1
Storage Bay Dist (ft)		75			50			100		
Storage Blk Time (%)		1	4		0	57		2	2	
Queuing Penalty (veh)		1	1		0	5		9	2	

Intersection: 16: 4th Ave. & Redding Ave.

Movement	EB	EB	NB
Directions Served	L	R	LT
Maximum Queue (ft)	57	55	54
Average Queue (ft)	33	35	16
95th Queue (ft)	65	60	55
Link Distance (ft)		845	409
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	75		
Storage Blk Time (%)	0	0	
Queuing Penalty (veh)	0	0	

Intersection: 18: Folsom Blvd. & 62nd St

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LR	LTR
Maximum Queue (ft)	63	10	35	7	45	47
Average Queue (ft)	19	1	8	2	22	29
95th Queue (ft)	62	20	36	22	50	53
Link Distance (ft)	726	726	241	241	410	213
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 19: Folsom Blvd. & Hornet Dr

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	LT	R
Maximum Queue (ft)	106	179	154	101	956	951	317	46	31	58	240
Average Queue (ft)	51	87	84	31	664	652	153	25	8	24	156
95th Queue (ft)	108	182	162	117	1232	1241	333	51	30	62	298
Link Distance (ft)		786			943	943	424	424		228	228
Upstream Blk Time (%)					51	46	3				49
Queuing Penalty (veh)					0	0	0				0
Storage Bay Dist (ft)	150		150	350					125		
Storage Blk Time (%)	0	2	2		63						
Queuing Penalty (veh)	0	5	5		39						

Intersection: 24: College Town Dr & State University Dr

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	R	LTR	L	LT	R
Maximum Queue (ft)	50	39	64	149	686	710	125	409	103	154	12
Average Queue (ft)	17	16	30	114	350	401	109	255	57	90	3
95th Queue (ft)	48	42	62	183	649	725	160	399	105	148	13
Link Distance (ft)		1846	1846		760	760		975		642	642
Upstream Blk Time (%)					1	4					
Queuing Penalty (veh)					0	0					
Storage Bay Dist (ft)	100			125			100		200		
Storage Blk Time (%)				29	19	28	1			1	
Queuing Penalty (veh)				123	27	98	7			1	

Intersection: 35: US 50 WB On & 65th St.

Movement	NB	NB	SB	SB
Directions Served	T	T	T	TR
Maximum Queue (ft)	191	180	22	22
Average Queue (ft)	71	77	3	4
95th Queue (ft)	195	190	46	27
Link Distance (ft)	416	416	117	117
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 51: US 50 EB On & 65th St.

Movement	NB	NB	SB
Directions Served	T	TR	T
Maximum Queue (ft)	22	56	4
Average Queue (ft)	3	8	1
95th Queue (ft)	29	48	10
Link Distance (ft)	205		416
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		250	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 53: 69th St. &

Movement	SB
Directions Served	LT
Maximum Queue (ft)	9
Average Queue (ft)	1
95th Queue (ft)	12
Link Distance (ft)	244
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 81: Folsom Blvd. &

Movement	EB	EB	WB	SB
Directions Served	LT	T	TR	LR
Maximum Queue (ft)	69	12	4	34
Average Queue (ft)	28	2	1	11
95th Queue (ft)	77	26	7	37
Link Distance (ft)	630	630	726	276
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 83: S St. &

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	202	302	76
Average Queue (ft)	79	47	36
95th Queue (ft)	197	423	82
Link Distance (ft)	1310	1262	282
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 85: 65th St. &

Movement	EB	WB	NB	NB	SB	SB
Directions Served	R	R	T	TR	T	TR
Maximum Queue (ft)	74	35	58	65	131	239
Average Queue (ft)	34	8	11	13	40	97
95th Queue (ft)	79	33	63	80	179	268
Link Distance (ft)	318	132	169	169	286	286
Upstream Blk Time (%)				0	0	1
Queuing Penalty (veh)				2	1	4
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 87: 65th St. &

Movement	WB	SB	SB
Directions Served	LR	LT	T
Maximum Queue (ft)	70	179	96
Average Queue (ft)	37	71	33
95th Queue (ft)	78	249	152
Link Distance (ft)	147	331	331
Upstream Blk Time (%)	1	2	
Queuing Penalty (veh)	0	6	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 89: Elvas Ave. &

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 91: Folsom Blvd. &

Movement	EB	EB	WB	WB	WB
Directions Served	T	T	T	T	TR
Maximum Queue (ft)	291	26	31	33	16
Average Queue (ft)	95	4	7	8	2
95th Queue (ft)	313	55	29	31	20
Link Distance (ft)	194	194		214	
Upstream Blk Time (%)	3				
Queuing Penalty (veh)	15				
Storage Bay Dist (ft)			1		50
Storage Blk Time (%)			0		0
Queuing Penalty (veh)			0		0

Intersection: 92: Elvas Ave. &

Movement	NE
Directions Served	LR
Maximum Queue (ft)	27
Average Queue (ft)	11
95th Queue (ft)	32
Link Distance (ft)	209
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 95: 67th St. &

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	3	3
Average Queue (ft)	0	0
95th Queue (ft)	7	7
Link Distance (ft)	128	224
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 97: Folsom Blvd. &

Movement	EB	WB	NB
Directions Served	TR	T	LR
Maximum Queue (ft)	53	129	94
Average Queue (ft)	10	129	66
95th Queue (ft)	74	134	152
Link Distance (ft)	217	126	134
Upstream Blk Time (%)	0	100	30
Queuing Penalty (veh)	4	700	0
Storage Bay Dist (ft)			
Storage Blk Time (%)		100	
Queuing Penalty (veh)		28	

Intersection: 99: Redding Ave. &

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	23	7	12
Average Queue (ft)	5	1	2
95th Queue (ft)	24	9	13
Link Distance (ft)	198	708	90
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 101: Light Rail & 65th St.

Movement	EB	WB	NB	NB	SB	SB
Directions Served	T	T	T	T	T	T
Maximum Queue (ft)	27	11	178	186	34	56
Average Queue (ft)	6	3	100	133	8	28
95th Queue (ft)	24	14	219	232	37	68
Link Distance (ft)	282	198	164	164	48	48
Upstream Blk Time (%)			5	13	2	13
Queuing Penalty (veh)			32	90	12	66
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 103: Redding Ave. &

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	12	16
Average Queue (ft)	2	2
95th Queue (ft)	14	16
Link Distance (ft)	191	443
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 105: 4th Ave. &

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	TR	LR	LR
Maximum Queue (ft)	12	10	5	34	18
Average Queue (ft)	2	2	1	11	2
95th Queue (ft)	16	14	12	35	20
Link Distance (ft)			845	263	214
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	200	200			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 135: Folsom Blvd. &

Movement	EB	WB	WB	SB
Directions Served	L	T	R	LR
Maximum Queue (ft)	42	798	718	94
Average Queue (ft)	10	660	553	40
95th Queue (ft)	40	1085	1133	114
Link Distance (ft)		786	786	197
Upstream Blk Time (%)		64	43	0
Queuing Penalty (veh)		350	235	0
Storage Bay Dist (ft)	100			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 139: Int

Movement	WB
Directions Served	LR
Maximum Queue (ft)	42
Average Queue (ft)	21
95th Queue (ft)	49
Link Distance (ft)	104
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 146: Q St. &

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	25	35
Average Queue (ft)	5	18
95th Queue (ft)	25	45
Link Distance (ft)	301	142
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 156: 59th St. &

Movement	EB	WB	NB	SB
Directions Served	LR	LR	LTR	LTR
Maximum Queue (ft)	94	73	184	77
Average Queue (ft)	48	38	58	14
95th Queue (ft)	91	75	171	67
Link Distance (ft)	316	282	639	593
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 6860

Intersection: 1: Folsom Blvd. & 65th St.

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	199	377	356	54	189	192	189	67	301	354	306	100
Average Queue (ft)	84	330	304	48	162	160	157	13	275	280	211	54
95th Queue (ft)	214	426	441	56	216	231	225	69	351	427	356	134
Link Distance (ft)		342	342		179	179	179			311	311	
Upstream Blk Time (%)		38	26		20	16	14	0	18	25	2	
Queuing Penalty (veh)		171	118		78	61	53	0	0	131	13	
Storage Bay Dist (ft)	175			25				150	300			75
Storage Blk Time (%)	1	64	57	8			20	0	34	24	34	1
Queuing Penalty (veh)	3	50	138	24			5	0	82	67	93	2

Intersection: 1: Folsom Blvd. & 65th St.

Movement	SB	SB	SB
Directions Served	L	T	TR
Maximum Queue (ft)	150	278	264
Average Queue (ft)	145	232	226
95th Queue (ft)	162	310	294
Link Distance (ft)		249	249
Upstream Blk Time (%)		18	10
Queuing Penalty (veh)		76	43
Storage Bay Dist (ft)	125		
Storage Blk Time (%)	40	14	
Queuing Penalty (veh)	113	32	

Intersection: 2: Folsom Blvd. & 67th St.

Movement	EB	EB	EB	WB	WB	NB
Directions Served	L	T	R	L	TR	LR
Maximum Queue (ft)	32	18	8	101	186	86
Average Queue (ft)	9	3	2	50	105	42
95th Queue (ft)	31	22	13	99	250	84
Link Distance (ft)		230	230		187	185
Upstream Blk Time (%)					9	
Queuing Penalty (veh)					116	
Storage Bay Dist (ft)	100			100		
Storage Blk Time (%)				2	12	
Queuing Penalty (veh)				18	13	

Intersection: 3: Folsom Blvd. & Elvas Ave.

Movement	WB
Directions Served	TR
Maximum Queue (ft)	881
Average Queue (ft)	386
95th Queue (ft)	1230
Link Distance (ft)	1399
Upstream Blk Time (%)	2
Queuing Penalty (veh)	25
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Folsom Blvd. & State University

Movement	EB	EB	WB	WB	B150	SB	SB	SB
Directions Served	L	T	T	R	T	L	L	R
Maximum Queue (ft)	217	256	393	38	401	118	247	506
Average Queue (ft)	143	81	324	9	120	59	49	328
95th Queue (ft)	241	260	484	40	408	123	211	573
Link Distance (ft)		1399	318		1241			956
Upstream Blk Time (%)			14		0			
Queuing Penalty (veh)			152		3			
Storage Bay Dist (ft)	250			75		225	225	
Storage Blk Time (%)	1	1	30	0			0	26
Queuing Penalty (veh)	5	1	10	0			0	23

Intersection: 5: Q St. & 65th St.

Movement	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	R	T	TR	L	T	T
Maximum Queue (ft)	171	63	50	51	96	158	160
Average Queue (ft)	102	25	32	33	46	146	151
95th Queue (ft)	182	62	51	47	111	169	161
Link Distance (ft)	209	209	13	13		144	144
Upstream Blk Time (%)	1		34	22		22	36
Queuing Penalty (veh)	1		157	102		125	212
Storage Bay Dist (ft)					100		
Storage Blk Time (%)					3	32	
Queuing Penalty (veh)					18	10	

Intersection: 6: S St. & 65th St.

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	LR	R	L	L	TR	R	L	T	T	T	T
Maximum Queue (ft)	90	148	108	149	712	436	145	107	143	130	234	250
Average Queue (ft)	43	75	66	126	451	255	97	66	104	101	219	225
95th Queue (ft)	94	131	115	181	828	448	186	122	165	149	279	289
Link Distance (ft)		1328			1548	1548			116	116	205	205
Upstream Blk Time (%)								6	9	8	26	25
Queuing Penalty (veh)								0	32	26	167	164
Storage Bay Dist (ft)	175		125	125			125	150				
Storage Blk Time (%)		3	0	16	48	32	1	6	9			22
Queuing Penalty (veh)		6	1	48	148	42	3	16	8			107

Intersection: 6: S St. & 65th St.

Movement	SB
Directions Served	TR
Maximum Queue (ft)	125
Average Queue (ft)	112
95th Queue (ft)	156
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	100
Storage Blk Time (%)	16
Queuing Penalty (veh)	64

Intersection: 7: US 50 EB Off & 65th St.

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	T	T	T	T
Maximum Queue (ft)	161	325	284	254	230	246
Average Queue (ft)	91	197	222	223	152	172
95th Queue (ft)	163	366	339	276	255	271
Link Distance (ft)	1564	1564	201	201	257	257
Upstream Blk Time (%)			6	15	1	1
Queuing Penalty (veh)			47	115	6	6
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 8: Q St. & 67th St.

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	19	6	76
Average Queue (ft)	2	1	45
95th Queue (ft)	18	10	80
Link Distance (ft)	209	315	192
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Elvas Ave. & 65th St

Movement	EB	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	R	R	LT	TR	L	LR	LTR
Maximum Queue (ft)	46	83	100	82	87	212	214	26
Average Queue (ft)	17	28	52	51	51	100	109	11
95th Queue (ft)	49	91	107	90	95	221	229	36
Link Distance (ft)		523	523	270		317	317	515
Upstream Blk Time (%)						0	0	
Queuing Penalty (veh)						0	0	
Storage Bay Dist (ft)	125				200			
Storage Blk Time (%)		0						
Queuing Penalty (veh)		0						

Intersection: 10: Folsom Blvd. & 63rd St.

Movement	EB	EB	WB	WB	SB
Directions Served	LT	T	T	TR	LR
Maximum Queue (ft)	162	130	5	8	35
Average Queue (ft)	80	48	1	1	13
95th Queue (ft)	227	197	11	17	39
Link Distance (ft)	240	240	219	219	481
Upstream Blk Time (%)	6	6			
Queuing Penalty (veh)	25	26			
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 11: Folsom Blvd. & 59th St

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	TR	LT	TR	LT	R	LTR
Maximum Queue (ft)	223	240	343	330	346	125	44
Average Queue (ft)	165	173	243	215	223	107	14
95th Queue (ft)	268	267	386	361	387	154	45
Link Distance (ft)	259	259	654	654	628		246
Upstream Blk Time (%)	1	1					
Queuing Penalty (veh)	7	6					
Storage Bay Dist (ft)						100	
Storage Blk Time (%)					23	4	
Queuing Penalty (veh)					54	11	

Intersection: 12: Q St. & 69th St.

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	43	31
Average Queue (ft)	23	7
95th Queue (ft)	40	30
Link Distance (ft)	335	80
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Folsom Blvd. & 64th St.

Movement	EB	EB	WB	NB	SB
Directions Served	T	TR	L	R	R
Maximum Queue (ft)	239	200	60	172	56
Average Queue (ft)	139	107	28	89	23
95th Queue (ft)	310	271	69	247	56
Link Distance (ft)	219	219		369	459
Upstream Blk Time (%)	19	12		1	
Queuing Penalty (veh)	85	55		0	
Storage Bay Dist (ft)			125		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 14: S St. & 59th St.

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	LT	TR	L	T	R	LT	R
Maximum Queue (ft)	683	291	150	125	681	152	352	55	617	150
Average Queue (ft)	490	122	113	114	462	79	206	33	579	112
95th Queue (ft)	792	279	185	148	852	172	354	58	728	196
Link Distance (ft)	2491	2491			1247		791	791	603	
Upstream Blk Time (%)									38	
Queuing Penalty (veh)									314	
Storage Bay Dist (ft)			125	100		150				125
Storage Blk Time (%)		3	11	44	42	1	19		64	4
Queuing Penalty (veh)		13	12	99	111	3	23		246	17

Intersection: 15: 4th Ave. & 65th St.

Movement	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	LR	LT	R	R	T	TR	L	T	TR
Maximum Queue (ft)	16	66	82	96	285	293	89	186	202
Average Queue (ft)	4	35	48	54	248	258	47	74	95
95th Queue (ft)	20	77	87	98	349	348	94	199	221
Link Distance (ft)	220		410	410	266	266		201	201
Upstream Blk Time (%)					18	33		1	2
Queuing Penalty (veh)					0	0		11	17
Storage Bay Dist (ft)		75					100		
Storage Blk Time (%)		2	3		44		0	4	
Queuing Penalty (veh)		2	1		0		4	4	

Intersection: 16: 4th Ave. & Redding Ave.

Movement	EB	EB	NB	SB
Directions Served	L	R	LT	TR
Maximum Queue (ft)	34	58	64	4
Average Queue (ft)	18	34	32	1
95th Queue (ft)	44	60	74	8
Link Distance (ft)		825	428	466
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	75			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection: 18: Folsom Blvd. &

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LR
Maximum Queue (ft)	152	101	37	26	125	88
Average Queue (ft)	48	25	8	7	56	41
95th Queue (ft)	167	144	64	67	114	115
Link Distance (ft)	703	703	240	240	410	480
Upstream Blk Time (%)			0	0		
Queuing Penalty (veh)			1	1		
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 19: Folsom Blvd. & Hornet Dr

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	LT	R
Maximum Queue (ft)	174	279	234	260	638	602	193	52	136	171	60
Average Queue (ft)	131	151	141	104	480	409	115	31	70	98	39
95th Queue (ft)	200	294	241	312	739	702	192	56	135	166	61
Link Distance (ft)		458	458		884	884	267	267		215	215
Upstream Blk Time (%)					0	0	0			0	
Queuing Penalty (veh)					0	0	0			0	
Storage Bay Dist (ft)	150			350					125		
Storage Blk Time (%)	13	2		0	28				1	5	
Queuing Penalty (veh)	58	6		0	17				1	5	

Intersection: 24: College Town Dr &

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	R	LTR	L	LT	R
Maximum Queue (ft)	79	369	400	142	270	319	123	321	224	782	552
Average Queue (ft)	29	271	298	99	128	150	82	204	206	745	120
95th Queue (ft)	82	390	424	162	292	328	148	368	251	893	559
Link Distance (ft)		1019	1019		758	758		956		758	758
Upstream Blk Time (%)										44	5
Queuing Penalty (veh)										0	0
Storage Bay Dist (ft)	100			125			100		200		
Storage Blk Time (%)	0	36		13	5	15	1		14	51	
Queuing Penalty (veh)	0	10		20	5	33	2		92	178	

Intersection: 35: US 50 WB On-ramp & 65th St.

Movement	NB	NB	SB	SB
Directions Served	T	T	T	TR
Maximum Queue (ft)	105	80	68	26
Average Queue (ft)	32	28	13	4
95th Queue (ft)	101	90	91	36
Link Distance (ft)	375	375	116	116
Upstream Blk Time (%)			0	0
Queuing Penalty (veh)			1	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 51: US 50 EB On & 65th St.

Movement	NB	SB	SB
Directions Served	TR	T	T
Maximum Queue (ft)	4	37	45
Average Queue (ft)	1	7	9
95th Queue (ft)	6	48	48
Link Distance (ft)		375	375
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	250		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 53: 69th St. &

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 59: Folsom Blvd. &

Movement	EB
Directions Served	T
Maximum Queue (ft)	122
Average Queue (ft)	26
95th Queue (ft)	155
Link Distance (ft)	384
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	1
Queuing Penalty (veh)	0

Intersection: 81: Folsom Blvd. &

Movement	EB	EB	SB
Directions Served	LT	T	LR
Maximum Queue (ft)	139	63	42
Average Queue (ft)	65	10	22
95th Queue (ft)	143	64	50
Link Distance (ft)	654	654	262
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 83: S St. &

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	30	124
Average Queue (ft)	3	66
95th Queue (ft)	27	120
Link Distance (ft)	1247	233
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 85: 65th St. &

Movement	EB	WB	NB	NB	SB	SB
Directions Served	R	R	T	TR	T	TR
Maximum Queue (ft)	205	102	140	89	254	350
Average Queue (ft)	130	64	70	34	142	217
95th Queue (ft)	248	116	184	121	300	399
Link Distance (ft)	233	93	144	144	311	311
Upstream Blk Time (%)	16	12	11	0	1	6
Queuing Penalty (veh)	0	0	52	1	6	32
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 87: 65th St. &

Movement	WB	SB	SB
Directions Served	LR	LT	T
Maximum Queue (ft)	109	173	128
Average Queue (ft)	62	76	44
95th Queue (ft)	122	229	150
Link Distance (ft)	137	317	317
Upstream Blk Time (%)	6	2	
Queuing Penalty (veh)	0	6	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 89: Elvas Ave. &

Movement	NB	NE
Directions Served	LT	LR
Maximum Queue (ft)	11	35
Average Queue (ft)	2	16
95th Queue (ft)	14	42
Link Distance (ft)	516	105
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 91: Folsom Blvd. &

Movement	EB	EB	WB	WB	WB	SB
Directions Served	T	T	T	T	TR	R
Maximum Queue (ft)	294	79	34	240	75	37
Average Queue (ft)	130	15	19	181	55	17
95th Queue (ft)	353	117	45	317	104	44
Link Distance (ft)	179	179		230		90
Upstream Blk Time (%)	2	0		13		
Queuing Penalty (veh)	12	0		150		
Storage Bay Dist (ft)			1		50	
Storage Blk Time (%)			15	11	6	
Queuing Penalty (veh)			122	87	42	

Intersection: 92: Elvas Ave. &

Movement	NE
Directions Served	LR
Maximum Queue (ft)	26
Average Queue (ft)	12
95th Queue (ft)	32
Link Distance (ft)	264
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 95: 67th St. &

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	34	20
Average Queue (ft)	23	3
95th Queue (ft)	47	19
Link Distance (ft)	135	192
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 97: Folsom Blvd. &

Movement	EB	WB	WB	NB
Directions Served	TR	L	T	LR
Maximum Queue (ft)	3	37	167	169
Average Queue (ft)	0	9	85	131
95th Queue (ft)	6	35	232	212
Link Distance (ft)	187		175	162
Upstream Blk Time (%)			7	50
Queuing Penalty (veh)			93	0
Storage Bay Dist (ft)		50		
Storage Blk Time (%)		1	10	
Queuing Penalty (veh)		8	1	

Intersection: 99: Redding Ave. &

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	35	9
Average Queue (ft)	16	2
95th Queue (ft)	43	15
Link Distance (ft)	246	80
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 101: Light Rail & 65th St.

Movement	EB	WB	NB	NB	SB	SB
Directions Served	T	T	T	T	T	T
Maximum Queue (ft)	10	20	195	210	40	36
Average Queue (ft)	3	4	107	124	25	29
95th Queue (ft)	15	18	237	232	44	41
Link Distance (ft)	202	129	205	205	13	13
Upstream Blk Time (%)			5	3	24	28
Queuing Penalty (veh)			26	15	156	181
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 103: Redding Ave. &

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	45	32
Average Queue (ft)	30	7
95th Queue (ft)	50	28
Link Distance (ft)	214	466
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 105: 4th Ave. &

Movement	EB	WB	NB	SB
Directions Served	L	L	LR	LR
Maximum Queue (ft)	19	10	29	35
Average Queue (ft)	4	1	18	19
95th Queue (ft)	22	12	44	45
Link Distance (ft)			203	133
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200	200		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 135: Folsom Blvd. &

Movement	EB	WB	SB
Directions Served	L	T	LR
Maximum Queue (ft)	26	375	258
Average Queue (ft)	7	48	256
95th Queue (ft)	28	307	259
Link Distance (ft)		458	239
Upstream Blk Time (%)		0	95
Queuing Penalty (veh)		2	0
Storage Bay Dist (ft)	100		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 139: Int

Movement	WB
Directions Served	LR
Maximum Queue (ft)	32
Average Queue (ft)	15
95th Queue (ft)	41
Link Distance (ft)	106
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 146: Q St. &

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	6	63
Average Queue (ft)	0	42
95th Queue (ft)	7	66
Link Distance (ft)	315	127
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 156: 59th St. &

Movement	EB	WB	NB	SB
Directions Served	LR	LR	LTR	LTR
Maximum Queue (ft)	230	202	255	425
Average Queue (ft)	173	174	84	214
95th Queue (ft)	280	241	252	454
Link Distance (ft)	205	183	603	628
Upstream Blk Time (%)	54	67		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 5919

Intersection: 1: Folsom Blvd. & 65th St.

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	94	248	217	53	36	30	29	4	277	322	281	89
Average Queue (ft)	30	163	126	42	15	9	8	1	196	147	163	43
95th Queue (ft)	94	252	232	65	41	30	29	5	290	326	314	122
Link Distance (ft)		348	348		194	194	194			286	286	
Upstream Blk Time (%)									2	3	2	
Queuing Penalty (veh)									0	17	11	
Storage Bay Dist (ft)	175			25				150	300			75
Storage Blk Time (%)	0	6	31	4					2	3	18	0
Queuing Penalty (veh)	0	3	64	7					7	9	66	1

Intersection: 1: Folsom Blvd. & 65th St.

Movement	SB	SB	SB
Directions Served	L	T	TR
Maximum Queue (ft)	150	273	257
Average Queue (ft)	144	208	171
95th Queue (ft)	163	332	275
Link Distance (ft)		259	259
Upstream Blk Time (%)		14	2
Queuing Penalty (veh)		55	8
Storage Bay Dist (ft)	125		
Storage Blk Time (%)	36	4	
Queuing Penalty (veh)	95	10	

Intersection: 2: Folsom Blvd. & 67th St.

Movement	EB	WB	NB
Directions Served	T	L	LR
Maximum Queue (ft)	24	7	135
Average Queue (ft)	4	1	72
95th Queue (ft)	52	14	142
Link Distance (ft)	214		151
Upstream Blk Time (%)	0		1
Queuing Penalty (veh)	0		1
Storage Bay Dist (ft)		100	
Storage Blk Time (%)	0		
Queuing Penalty (veh)	0		

Intersection: 3: Folsom Blvd. & Elvas Ave.

Movement	EB	WB
Directions Served	TR	TR
Maximum Queue (ft)	13	1345
Average Queue (ft)	6	1345
95th Queue (ft)	50	1345
Link Distance (ft)	126	1345
Upstream Blk Time (%)	1	100
Queuing Penalty (veh)	8	924
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Folsom Blvd. & State University East

Movement	EB	EB	WB	B150	SB	SB	SB
Directions Served	L	T	T	T	L	L	R
Maximum Queue (ft)	275	913	391	952	8	87	969
Average Queue (ft)	263	544	390	943	1	13	631
95th Queue (ft)	308	1176	395	1004	10	97	1063
Link Distance (ft)		1345	330	946			975
Upstream Blk Time (%)		1	100	95			13
Queuing Penalty (veh)		10	885	836			21
Storage Bay Dist (ft)	250				225	225	
Storage Blk Time (%)	28		100				89
Queuing Penalty (veh)	155		100				12

Intersection: 5: Q St. & 65th St.

Movement	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	R	T	TR	L	T	T
Maximum Queue (ft)	148	64	83	97	88	176	181
Average Queue (ft)	79	32	67	77	43	107	154
95th Queue (ft)	157	68	98	110	102	197	211
Link Distance (ft)	207	207	48	48		169	169
Upstream Blk Time (%)	1		24	36		4	15
Queuing Penalty (veh)	1		171	259		21	77
Storage Bay Dist (ft)					100		
Storage Blk Time (%)					4	12	
Queuing Penalty (veh)					21	6	

Intersection: 6: S St. & 65th St.

Movement	EB	EB	EB	WB	WB	WB	WB	B37	NB	NB	NB	SB
Directions Served	L	LR	R	L	L	TR	R	T	L	T	T	T
Maximum Queue (ft)	143	542	135	124	1185	1214	150	9	108	170	138	185
Average Queue (ft)	69	265	77	96	713	818	127	1	89	137	124	112
95th Queue (ft)	161	805	161	147	1489	1506	187	19	131	182	144	214
Link Distance (ft)		1262			1576	1576		73		117	117	164
Upstream Blk Time (%)		1			0	1		1	22	36	34	9
Queuing Penalty (veh)		5			0	0		0	0	185	175	46
Storage Bay Dist (ft)	175		125	100			125		150			
Storage Blk Time (%)	0	36	2	11	38	64	17		22	36		
Queuing Penalty (veh)	0	60	4	26	91	108	73		111	46		

Intersection: 6: S St. & 65th St.

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	204	125
Average Queue (ft)	143	102
95th Queue (ft)	244	159
Link Distance (ft)	164	
Upstream Blk Time (%)	12	
Queuing Penalty (veh)	67	
Storage Bay Dist (ft)		100
Storage Blk Time (%)	15	16
Queuing Penalty (veh)	60	54

Intersection: 7: US 50 EB Off & 65th St.

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	T	T	T	T	T
Maximum Queue (ft)	212	135	275	263	199	110	129
Average Queue (ft)	145	83	196	215	168	62	73
95th Queue (ft)	236	140	303	287	229	112	135
Link Distance (ft)	1536	1536	200	200	200	205	205
Upstream Blk Time (%)			3	6	1		
Queuing Penalty (veh)			19	38	8		
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 8: Q St. & 67th St.

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	51	65
Average Queue (ft)	14	31
95th Queue (ft)	50	71
Link Distance (ft)	207	224
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Elvas Ave. & 65th St.

Movement	EB	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	R	R	LT	TR	L	LTR	LTR
Maximum Queue (ft)	47	78	98	26	38	244	250	14
Average Queue (ft)	20	16	32	7	13	105	120	2
95th Queue (ft)	49	85	103	29	39	251	268	14
Link Distance (ft)		524	524	322		331	331	465
Upstream Blk Time (%)						0		
Queuing Penalty (veh)						0		
Storage Bay Dist (ft)	125				200			
Storage Blk Time (%)		0						
Queuing Penalty (veh)		0						

Intersection: 10: Folsom Blvd. & 63rd St.

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	15	32
Average Queue (ft)	3	12
95th Queue (ft)	18	37
Link Distance (ft)	241	482
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Folsom Blvd. & 59th St

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	TR	LT	TR	LT	R	LTR
Maximum Queue (ft)	138	182	180	111	401	125	29
Average Queue (ft)	82	113	107	53	195	92	8
95th Queue (ft)	147	199	192	119	401	151	30
Link Distance (ft)	905	905	630	630	593		247
Upstream Blk Time (%)					0		
Queuing Penalty (veh)					0		
Storage Bay Dist (ft)						100	
Storage Blk Time (%)					16	2	
Queuing Penalty (veh)					53	7	

Intersection: 12: Q St. & 69th St.

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	41	58	3
Average Queue (ft)	21	19	0
95th Queue (ft)	42	57	6
Link Distance (ft)	348	90	154
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 13: Folsom Blvd. & 64th St.

Movement	WB	NB	SB
Directions Served	L	R	R
Maximum Queue (ft)	48	67	40
Average Queue (ft)	18	39	17
95th Queue (ft)	50	73	46
Link Distance (ft)		369	462
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	125		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 14: S St. & 59th St.

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	LT	TR	L	T	R	LT	R
Maximum Queue (ft)	1096	911	130	124	305	174	526	66	527	150
Average Queue (ft)	957	433	40	91	101	161	293	37	342	103
95th Queue (ft)	1258	1179	124	146	381	198	537	65	631	184
Link Distance (ft)	1086	1086			1310		674	674	639	
Upstream Blk Time (%)	30	6							5	
Queuing Penalty (veh)	0	0							33	
Storage Bay Dist (ft)			125	100		150				125
Storage Blk Time (%)		8	0	16	3	23	10		35	5
Queuing Penalty (veh)		15	0	19	5	56	31		136	13

Intersection: 15: 4th Ave. & 65th St.

Movement	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LR	LT	R	R	L	T	TR	L	T	TR
Maximum Queue (ft)	34	55	99	60	36	561	563	94	124	145
Average Queue (ft)	10	23	53	35	8	506	519	49	33	43
95th Queue (ft)	35	60	100	63	36	685	662	92	123	138
Link Distance (ft)	220		388	388		531	531		200	200
Upstream Blk Time (%)						25	33		0	0
Queuing Penalty (veh)						0	0		2	3
Storage Bay Dist (ft)		75			50			100		
Storage Blk Time (%)		0	5		0	42		1	1	
Queuing Penalty (veh)		0	2		3	3		3	2	

Intersection: 16: 4th Ave. & Redding Ave.

Movement	EB	EB	NB
Directions Served	L	R	LT
Maximum Queue (ft)	57	58	50
Average Queue (ft)	34	36	21
95th Queue (ft)	65	58	57
Link Distance (ft)		845	409
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	75		
Storage Blk Time (%)	0	0	
Queuing Penalty (veh)	0	0	

Intersection: 18: Folsom Blvd. & 62nd St

Movement	EB	WB	NB	SB
Directions Served	LT	LT	LR	LTR
Maximum Queue (ft)	42	33	50	41
Average Queue (ft)	16	6	27	29
95th Queue (ft)	49	29	57	52
Link Distance (ft)	726	241	410	213
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 19: Folsom Blvd. & Hornet Dr

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	LT	R
Maximum Queue (ft)	102	158	140	77	951	959	323	39	32	67	236
Average Queue (ft)	44	75	74	20	763	755	162	22	14	34	169
95th Queue (ft)	104	157	149	72	1237	1264	359	46	55	92	294
Link Distance (ft)		786			943	943	424	424		228	228
Upstream Blk Time (%)					58	62	4				52
Queuing Penalty (veh)					0	0	0				0
Storage Bay Dist (ft)	150		150	350					125		
Storage Blk Time (%)		1	1		75				0	0	
Queuing Penalty (veh)		3	2		46				0	0	

Intersection: 24: College Town Dr & State University East

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	R	LTR	L	LT	R
Maximum Queue (ft)	39	36	61	121	581	625	125	546	110	140	10
Average Queue (ft)	15	14	30	73	332	406	111	394	64	99	3
95th Queue (ft)	41	40	64	142	601	678	156	656	115	155	13
Link Distance (ft)		1846	1846		760	760		975		642	642
Upstream Blk Time (%)					2	2					
Queuing Penalty (veh)					0	0					
Storage Bay Dist (ft)	100			125			100		200		
Storage Blk Time (%)		0		6	28	34	1				
Queuing Penalty (veh)		0		23	23	117	8				

Intersection: 35: US 50 WB On & 65th St.

Movement	NB	NB	SB	SB
Directions Served	T	T	T	TR
Maximum Queue (ft)	364	343	23	28
Average Queue (ft)	182	185	3	5
95th Queue (ft)	390	381	49	30
Link Distance (ft)	416	416	117	117
Upstream Blk Time (%)	2	1	0	
Queuing Penalty (veh)	8	3	0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 51: US 50 EB On & 65th St.

Movement	NB	NB	NB
Directions Served	T	T	R
Maximum Queue (ft)	42	99	95
Average Queue (ft)	9	20	14
95th Queue (ft)	59	123	106
Link Distance (ft)	205	205	205
Upstream Blk Time (%)		0	0
Queuing Penalty (veh)		1	1
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 53: 69th St. &

Movement	SB
Directions Served	LT
Maximum Queue (ft)	10
Average Queue (ft)	2
95th Queue (ft)	14
Link Distance (ft)	244
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 81: Folsom Blvd. &

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	62	2	33
Average Queue (ft)	26	0	10
95th Queue (ft)	66	5	32
Link Distance (ft)	630	726	276
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 83: S St. &

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	154	33	62
Average Queue (ft)	69	9	23
95th Queue (ft)	159	38	56
Link Distance (ft)	1310	1262	282
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 85: 65th St. &

Movement	EB	WB	NB	NB	SB	SB
Directions Served	R	R	T	TR	T	TR
Maximum Queue (ft)	78	36	90	124	95	246
Average Queue (ft)	35	10	18	25	18	85
95th Queue (ft)	80	37	103	113	113	233
Link Distance (ft)	318	132	169	169	286	286
Upstream Blk Time (%)			1	0		1
Queuing Penalty (veh)			5	2		4
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 87: 65th St. &

Movement	WB	SB	SB
Directions Served	LR	LT	T
Maximum Queue (ft)	61	179	64
Average Queue (ft)	30	65	16
95th Queue (ft)	68	235	111
Link Distance (ft)	147	331	331
Upstream Blk Time (%)	0	1	
Queuing Penalty (veh)	0	2	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 89: Elvas Ave. &

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 91: Folsom Blvd. &

Movement	EB
Directions Served	T
Maximum Queue (ft)	291
Average Queue (ft)	105
95th Queue (ft)	325
Link Distance (ft)	194
Upstream Blk Time (%)	1
Queuing Penalty (veh)	7
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 92: Elvas Ave. &

Movement	NE
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	12
95th Queue (ft)	36
Link Distance (ft)	209
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 95: 67th St. &

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	6	12
Average Queue (ft)	1	2
95th Queue (ft)	8	19
Link Distance (ft)	128	224
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 97: Folsom Blvd. &

Movement	EB	WB	NB
Directions Served	TR	T	LR
Maximum Queue (ft)	25	127	120
Average Queue (ft)	9	127	65
95th Queue (ft)	82	130	155
Link Distance (ft)	217	126	134
Upstream Blk Time (%)	0	100	29
Queuing Penalty (veh)	3	700	0
Storage Bay Dist (ft)			
Storage Blk Time (%)		100	
Queuing Penalty (veh)		28	

Intersection: 99: Redding Ave. &

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	25	14
Average Queue (ft)	4	2
95th Queue (ft)	23	14
Link Distance (ft)	198	90
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 101: Light Rail & 65th St.

Movement	EB	WB	NB	NB	SB	SB
Directions Served	T	T	T	T	T	T
Maximum Queue (ft)	28	10	194	190	40	60
Average Queue (ft)	6	2	140	160	9	31
95th Queue (ft)	26	12	235	221	38	72
Link Distance (ft)	282	198	164	164	48	48
Upstream Blk Time (%)			12	24	3	13
Queuing Penalty (veh)			90	172	15	70
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 103: Redding Ave. &

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	10	9	2
Average Queue (ft)	2	2	0
95th Queue (ft)	13	16	5
Link Distance (ft)	191	443	708
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 105: 4th Ave. &

Movement	EB	WB	NB	SB
Directions Served	L	L	LR	LR
Maximum Queue (ft)	9	6	32	13
Average Queue (ft)	2	1	9	3
95th Queue (ft)	13	9	32	15
Link Distance (ft)			263	214
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200	200		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 135: Folsom Blvd. &

Movement	EB	WB	WB	SB
Directions Served	L	T	R	LR
Maximum Queue (ft)	18	810	792	116
Average Queue (ft)	3	753	711	59
95th Queue (ft)	17	1008	1074	146
Link Distance (ft)		786	786	197
Upstream Blk Time (%)		83	64	6
Queuing Penalty (veh)		450	347	0
Storage Bay Dist (ft)	100			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 139: Int

Movement	WB
Directions Served	LR
Maximum Queue (ft)	37
Average Queue (ft)	18
95th Queue (ft)	46
Link Distance (ft)	104
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 146: Q St. &

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	27	37
Average Queue (ft)	5	20
95th Queue (ft)	27	47
Link Distance (ft)	301	142
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 156: 59th St. &

Movement	EB	WB	NB	SB
Directions Served	LR	LR	LTR	LTR
Maximum Queue (ft)	115	105	248	142
Average Queue (ft)	61	54	80	50
95th Queue (ft)	132	110	246	205
Link Distance (ft)	316	282	639	593
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 7553

Intersection: 1: Folsom Blvd. & 65th St.

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	199	354	360	57	193	185	185	48	303	374	317	100
Average Queue (ft)	72	320	310	48	178	121	124	10	301	347	193	50
95th Queue (ft)	195	416	443	59	213	223	221	57	308	413	358	131
Link Distance (ft)		342	342		179	179	179			311	311	
Upstream Blk Time (%)		38	29		42	11	10	0	37	66	3	
Queuing Penalty (veh)		172	131		165	45	40	0	0	395	21	
Storage Bay Dist (ft)	175			25				150	300			75
Storage Blk Time (%)	0	63	53	19			16	0	67	61	28	1
Queuing Penalty (veh)	1	49	156	48			5	0	161	229	95	2

Intersection: 1: Folsom Blvd. & 65th St.

Movement	SB	SB	SB
Directions Served	L	T	TR
Maximum Queue (ft)	150	282	272
Average Queue (ft)	148	255	241
95th Queue (ft)	156	287	304
Link Distance (ft)		249	249
Upstream Blk Time (%)		41	19
Queuing Penalty (veh)		180	84
Storage Bay Dist (ft)	125		
Storage Blk Time (%)	60	13	
Queuing Penalty (veh)	180	34	

Intersection: 2: Folsom Blvd. & 67th St.

Movement	EB	EB	EB	WB	WB	NB
Directions Served	L	T	R	L	TR	LR
Maximum Queue (ft)	32	18	2	90	201	62
Average Queue (ft)	8	3	0	45	174	33
95th Queue (ft)	32	20	4	98	263	68
Link Distance (ft)		230	230		187	185
Upstream Blk Time (%)					28	
Queuing Penalty (veh)					366	
Storage Bay Dist (ft)	100			100		
Storage Blk Time (%)				2	32	
Queuing Penalty (veh)				24	35	

Intersection: 3: Folsom Blvd. & Elvas Ave.

Movement	WB
Directions Served	TR
Maximum Queue (ft)	1409
Average Queue (ft)	931
95th Queue (ft)	1857
Link Distance (ft)	1399
Upstream Blk Time (%)	17
Queuing Penalty (veh)	253
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Folsom Blvd. & State University

Movement	EB	EB	WB	WB	B150	SB	SB	SB
Directions Served	L	T	T	R	T	L	L	R
Maximum Queue (ft)	196	216	398	48	1066	115	197	695
Average Queue (ft)	118	82	341	9	413	52	39	476
95th Queue (ft)	202	210	493	45	1168	117	186	941
Link Distance (ft)		1399	318		1241			956
Upstream Blk Time (%)			30		7			8
Queuing Penalty (veh)			328		79			42
Storage Bay Dist (ft)	250			75		225	225	
Storage Blk Time (%)	0	0	41	0			0	44
Queuing Penalty (veh)	3	1	13	0			0	39

Intersection: 5: Q St. & 65th St.

Movement	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	R	T	TR	L	T	T
Maximum Queue (ft)	193	64	57	59	117	167	162
Average Queue (ft)	101	29	38	40	70	150	152
95th Queue (ft)	197	64	59	60	133	171	165
Link Distance (ft)	209	209	13	13		144	144
Upstream Blk Time (%)	2		77	39	0	32	45
Queuing Penalty (veh)	2		419	210	0	210	296
Storage Bay Dist (ft)					100		
Storage Blk Time (%)					7	40	
Queuing Penalty (veh)					41	35	

Intersection: 6: S St. & 65th St.

Movement	EB	EB	EB	WB	WB	WB	WB	B37	NB	NB	NB	NB
Directions Served	L	LR	R	L	L	TR	R	T	L	T	T	R
Maximum Queue (ft)	146	930	148	149	1521	1466	150	56	107	144	136	15
Average Queue (ft)	89	412	86	135	1043	937	114	19	62	123	122	0
95th Queue (ft)	161	1129	183	182	1757	1707	191	74	132	152	148	0
Link Distance (ft)		1328			1548	1548		63		116	116	116
Upstream Blk Time (%)		5			14	4		12	6	54	30	0
Queuing Penalty (veh)		22			0	0		0	0	219	124	0
Storage Bay Dist (ft)	175		125	125			125		150			
Storage Blk Time (%)	5	50	2	32	66	74	7		6	54		
Queuing Penalty (veh)	18	110	5	103	214	105	25		20	45		

Intersection: 6: S St. & 65th St.

Movement	SB	SB	SB
Directions Served	T	T	TR
Maximum Queue (ft)	235	248	125
Average Queue (ft)	208	214	101
95th Queue (ft)	295	296	161
Link Distance (ft)	205	205	
Upstream Blk Time (%)	19	17	
Queuing Penalty (veh)	128	119	
Storage Bay Dist (ft)			100
Storage Blk Time (%)		16	12
Queuing Penalty (veh)		83	51

Intersection: 7: US 50 EB Off & 65th St.

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	T	T	T	T	T
Maximum Queue (ft)	175	405	269	245	197	252	266
Average Queue (ft)	95	265	162	188	153	151	167
95th Queue (ft)	194	476	295	289	233	262	280
Link Distance (ft)	1564	1564	202	202	202	257	257
Upstream Blk Time (%)			4	8	1	1	1
Queuing Penalty (veh)			23	46	8	5	9
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 8: Q St. & 67th St.

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	27	16	79
Average Queue (ft)	4	2	46
95th Queue (ft)	28	27	81
Link Distance (ft)	209	315	192
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Elvas Ave. & 65th St

Movement	EB	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	R	R	LT	TR	L	LR	LTR
Maximum Queue (ft)	56	112	113	76	78	208	234	24
Average Queue (ft)	25	49	56	43	42	103	125	6
95th Queue (ft)	61	169	144	84	80	216	242	29
Link Distance (ft)		523	523	270		317	317	515
Upstream Blk Time (%)						0	0	
Queuing Penalty (veh)						0	0	
Storage Bay Dist (ft)	125				200			
Storage Blk Time (%)		5						
Queuing Penalty (veh)		1						

Intersection: 10: Folsom Blvd. & 63rd St.

Movement	EB	EB	WB	WB	SB
Directions Served	LT	T	T	TR	LR
Maximum Queue (ft)	187	162	12	12	39
Average Queue (ft)	79	70	2	2	14
95th Queue (ft)	236	232	26	25	42
Link Distance (ft)	240	240	219	219	481
Upstream Blk Time (%)	6	6			
Queuing Penalty (veh)	27	25			
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 11: Folsom Blvd. & 59th St

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	TR	LT	TR	LT	R	LTR
Maximum Queue (ft)	194	200	258	248	368	124	37
Average Queue (ft)	129	143	170	142	217	93	11
95th Queue (ft)	202	217	312	293	383	153	36
Link Distance (ft)	259	259	654	654	628		246
Upstream Blk Time (%)	0						
Queuing Penalty (veh)	0						
Storage Bay Dist (ft)						100	
Storage Blk Time (%)					21	2	
Queuing Penalty (veh)					50	6	

Intersection: 12: Q St. & 69th St.

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	56	26
Average Queue (ft)	30	6
95th Queue (ft)	57	26
Link Distance (ft)	335	80
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Folsom Blvd. & 64th St.

Movement	EB	EB	WB	NB	SB
Directions Served	T	TR	L	R	R
Maximum Queue (ft)	194	178	51	173	44
Average Queue (ft)	139	121	21	88	24
95th Queue (ft)	298	289	53	244	54
Link Distance (ft)	219	219		369	459
Upstream Blk Time (%)	20	16		5	
Queuing Penalty (veh)	88	71		0	
Storage Bay Dist (ft)			125		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 14: S St. & 59th St.

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	LT	TR	L	T	R	LT	R
Maximum Queue (ft)	565	297	150	124	365	152	381	70	617	150
Average Queue (ft)	412	116	114	109	224	82	214	38	588	121
95th Queue (ft)	644	288	186	148	483	160	385	70	688	192
Link Distance (ft)	2491	2491			1247		791	791	603	
Upstream Blk Time (%)									31	
Queuing Penalty (veh)									253	
Storage Bay Dist (ft)			125	100		150				125
Storage Blk Time (%)		3	9	34	20	0	17		60	6
Queuing Penalty (veh)		11	11	76	54	1	21		229	29

Intersection: 15: 4th Ave. & 65th St.

Movement	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	LR	LT	R	R	T	TR	L	T	TR
Maximum Queue (ft)	16	71	89	56	287	288	86	156	175
Average Queue (ft)	2	39	41	32	241	246	49	63	87
95th Queue (ft)	15	78	87	58	348	345	96	168	198
Link Distance (ft)	220		399	399	266	266		202	202
Upstream Blk Time (%)					13	19		1	1
Queuing Penalty (veh)					0	0		5	10
Storage Bay Dist (ft)		75					100		
Storage Blk Time (%)		2	3		34		0	2	
Queuing Penalty (veh)		2	1		0		4	2	

Intersection: 16: 4th Ave. & Redding Ave.

Movement	EB	EB	NB	SB
Directions Served	L	R	LT	TR
Maximum Queue (ft)	39	52	71	13
Average Queue (ft)	23	29	33	2
95th Queue (ft)	50	56	73	14
Link Distance (ft)		825	428	466
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	75			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection: 18: Folsom Blvd. &

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LR
Maximum Queue (ft)	99	76	30	26	96	52
Average Queue (ft)	39	25	7	6	49	29
95th Queue (ft)	134	138	68	65	99	57
Link Distance (ft)	703	703	240	240	410	480
Upstream Blk Time (%)			0	0		
Queuing Penalty (veh)			2	2		
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 19: Folsom Blvd. & Hornet Dr

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	LT	R
Maximum Queue (ft)	174	280	238	316	734	669	179	67	128	164	79
Average Queue (ft)	145	169	147	114	527	475	108	34	70	99	39
95th Queue (ft)	201	315	256	334	838	794	188	66	137	165	88
Link Distance (ft)		458	458		884	884	267	267		215	215
Upstream Blk Time (%)					3	2				1	0
Queuing Penalty (veh)					0	0				0	0
Storage Bay Dist (ft)	150			350					125		
Storage Blk Time (%)	16	2		0	37				4	6	
Queuing Penalty (veh)	76	6		0	23				5	5	

Intersection: 24: College Town Dr &

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	R	LTR	L	LT	R
Maximum Queue (ft)	72	449	474	144	269	339	124	310	224	777	396
Average Queue (ft)	31	297	332	94	131	167	90	180	212	765	86
95th Queue (ft)	74	473	502	160	281	351	157	311	261	833	459
Link Distance (ft)		1019	1019		758	758		956		758	758
Upstream Blk Time (%)						1				47	2
Queuing Penalty (veh)						0				0	0
Storage Bay Dist (ft)	100			125			100		200		
Storage Blk Time (%)	0	37		14	3	17	1		17	55	
Queuing Penalty (veh)	0	10		22	4	39	2		109	191	

Intersection: 35: US 50 WB On-ramp & 65th St.

Movement	NB	NB	SB	SB
Directions Served	T	T	T	TR
Maximum Queue (ft)	347	306	44	17
Average Queue (ft)	198	158	9	2
95th Queue (ft)	407	340	81	20
Link Distance (ft)	375	375	116	116
Upstream Blk Time (%)	10	0	0	
Queuing Penalty (veh)	40	1	1	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 51: US 50 EB On & 65th St.

Movement	NB	NB	NB	SB	SB
Directions Served	T	T	R	T	T
Maximum Queue (ft)	98	118	106	49	59
Average Queue (ft)	22	31	24	10	14
95th Queue (ft)	120	163	142	50	59
Link Distance (ft)	257	257	257	375	375
Upstream Blk Time (%)	1	0	0		
Queuing Penalty (veh)	9	2	1		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 53: 69th St. &

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 59: Folsom Blvd. &

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 81: Folsom Blvd. &

Movement	EB	EB	WB	SB
Directions Served	LT	T	TR	LR
Maximum Queue (ft)	128	24	2	46
Average Queue (ft)	57	2	0	24
95th Queue (ft)	123	26	5	50
Link Distance (ft)	654	654	703	262
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 83: S St. &

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	101	134
Average Queue (ft)	20	72
95th Queue (ft)	153	153
Link Distance (ft)	1247	233
Upstream Blk Time (%)		3
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 85: 65th St. &

Movement	EB	WB	NB	NB	SB	SB
Directions Served	R	R	T	TR	T	TR
Maximum Queue (ft)	249	108	154	140	346	405
Average Queue (ft)	201	87	147	67	216	306
95th Queue (ft)	297	116	176	182	394	456
Link Distance (ft)	233	93	144	144	311	311
Upstream Blk Time (%)	57	82	34	3	8	16
Queuing Penalty (veh)	0	0	187	15	50	97
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 87: 65th St. &

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	LT	T
Maximum Queue (ft)	146	3	3	256	198
Average Queue (ft)	103	0	0	153	99
95th Queue (ft)	179	7	7	350	285
Link Distance (ft)	137	249	249	317	317
Upstream Blk Time (%)	37			8	3
Queuing Penalty (veh)	0			33	11
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 89: Elvas Ave. &

Movement	NB	NE
Directions Served	LT	LR
Maximum Queue (ft)	12	30
Average Queue (ft)	2	15
95th Queue (ft)	15	40
Link Distance (ft)	516	105
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 91: Folsom Blvd. &

Movement	EB	EB	WB	WB	WB	SB
Directions Served	T	T	T	T	TR	R
Maximum Queue (ft)	278	102	44	245	75	38
Average Queue (ft)	119	15	25	220	50	21
95th Queue (ft)	334	113	50	311	105	53
Link Distance (ft)	179	179		230		90
Upstream Blk Time (%)	2	0		33		0
Queuing Penalty (veh)	12	0		392		0
Storage Bay Dist (ft)			1		50	
Storage Blk Time (%)			37	8	5	
Queuing Penalty (veh)			298	66	38	

Intersection: 92: Elvas Ave. &

Movement	NB	NE
Directions Served	LT	LR
Maximum Queue (ft)	8	28
Average Queue (ft)	1	12
95th Queue (ft)	10	34
Link Distance (ft)	260	264
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 95: 67th St. &

Movement	EB
Directions Served	LR
Maximum Queue (ft)	32
Average Queue (ft)	20
95th Queue (ft)	45
Link Distance (ft)	135
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 97: Folsom Blvd. &

Movement	WB	WB	NB
Directions Served	L	T	LR
Maximum Queue (ft)	36	190	182
Average Queue (ft)	7	146	156
95th Queue (ft)	33	255	207
Link Distance (ft)		175	162
Upstream Blk Time (%)		26	85
Queuing Penalty (veh)		330	0
Storage Bay Dist (ft)	50		
Storage Blk Time (%)	0	30	
Queuing Penalty (veh)	3	3	

Intersection: 99: Redding Ave. &

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	35	12
Average Queue (ft)	19	2
95th Queue (ft)	45	13
Link Distance (ft)	246	80
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 101: Light Rail & 65th St.

Movement	EB	WB	NB	NB	SB	SB
Directions Served	T	T	T	T	T	T
Maximum Queue (ft)	27	25	224	223	36	42
Average Queue (ft)	7	6	211	202	23	29
95th Queue (ft)	25	23	232	262	41	50
Link Distance (ft)	202	129	205	205	13	13
Upstream Blk Time (%)			54	27	22	26
Queuing Penalty (veh)			293	144	154	180
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 103: Redding Ave. &

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	47	31
Average Queue (ft)	32	9
95th Queue (ft)	54	36
Link Distance (ft)	214	466
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 105: 4th Ave. &

Movement	EB	WB	NB	SB
Directions Served	L	L	LR	LR
Maximum Queue (ft)	22	10	34	30
Average Queue (ft)	5	1	18	17
95th Queue (ft)	23	10	44	40
Link Distance (ft)			203	133
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200	200		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 135: Folsom Blvd. &

Movement	EB	EB	WB	WB	SB
Directions Served	L	T	T	R	LR
Maximum Queue (ft)	20	2	420	50	272
Average Queue (ft)	4	0	106	14	259
95th Queue (ft)	21	4	439	150	275
Link Distance (ft)		1241	458	458	239
Upstream Blk Time (%)			4	1	95
Queuing Penalty (veh)			19	5	0
Storage Bay Dist (ft)	100				
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 139: Int

Movement	WB
Directions Served	LR
Maximum Queue (ft)	36
Average Queue (ft)	19
95th Queue (ft)	46
Link Distance (ft)	106
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 146: Q St. &

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	6	59
Average Queue (ft)	1	40
95th Queue (ft)	12	62
Link Distance (ft)	315	127
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 156: 59th St. &

Movement	EB	WB	NB	SB
Directions Served	LR	LR	LTR	LTR
Maximum Queue (ft)	219	208	208	323
Average Queue (ft)	163	184	67	156
95th Queue (ft)	275	240	215	382
Link Distance (ft)	205	183	603	628
Upstream Blk Time (%)	41	72		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 9925

Intersection: 1: Folsom Blvd. & 65th St.

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	120	276	258	56	38	31	33	17	272	325	294	100
Average Queue (ft)	40	205	153	46	14	11	13	3	190	162	180	53
95th Queue (ft)	129	304	275	62	43	34	37	17	296	342	339	133
Link Distance (ft)		348	348		194	194	194			286	286	
Upstream Blk Time (%)		0							1	3	3	
Queuing Penalty (veh)		1							0	23	20	
Storage Bay Dist (ft)	175			25				150	300			75
Storage Blk Time (%)	0	11	39	5					1	3	20	1
Queuing Penalty (veh)	0	5	82	12					3	11	80	3

Intersection: 1: Folsom Blvd. & 65th St.

Movement	SB	SB	SB
Directions Served	L	T	TR
Maximum Queue (ft)	150	278	246
Average Queue (ft)	144	225	162
95th Queue (ft)	169	334	275
Link Distance (ft)		259	259
Upstream Blk Time (%)		24	2
Queuing Penalty (veh)		98	10
Storage Bay Dist (ft)	125		
Storage Blk Time (%)	47	6	
Queuing Penalty (veh)	125	18	

Intersection: 2: Folsom Blvd. & 67th St.

Movement	EB	WB	NB
Directions Served	T	L	LR
Maximum Queue (ft)	42	3	83
Average Queue (ft)	14	0	65
95th Queue (ft)	100	7	96
Link Distance (ft)	209		74
Upstream Blk Time (%)	1		25
Queuing Penalty (veh)	4		43
Storage Bay Dist (ft)		100	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Folsom Blvd. & Elvas Ave.

Movement	EB	WB
Directions Served	TR	TR
Maximum Queue (ft)	28	1346
Average Queue (ft)	13	1341
95th Queue (ft)	75	1400
Link Distance (ft)	126	1345
Upstream Blk Time (%)	1	98
Queuing Penalty (veh)	16	967
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Folsom Blvd. & State University East

Movement	EB	EB	WB	B150	SB	SB	SB
Directions Served	L	T	T	T	L	L	R
Maximum Queue (ft)	275	901	390	953	3	10	923
Average Queue (ft)	255	546	389	924	0	2	614
95th Queue (ft)	322	1287	399	1126	6	11	1051
Link Distance (ft)		1345	330	946			975
Upstream Blk Time (%)		2	98	93			13
Queuing Penalty (veh)		19	924	873			21
Storage Bay Dist (ft)	250				225	225	
Storage Blk Time (%)	23		98				87
Queuing Penalty (veh)	160		98				12

Intersection: 5: Q St. & 65th St.

Movement	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	R	T	TR	L	T	T
Maximum Queue (ft)	68	71	59	80	103	179	179
Average Queue (ft)	56	36	53	63	70	118	159
95th Queue (ft)	73	74	67	82	133	205	207
Link Distance (ft)	51	51	38	38		169	169
Upstream Blk Time (%)	61	7	28	36		8	17
Queuing Penalty (veh)	99	12	214	275		41	92
Storage Bay Dist (ft)					100		
Storage Blk Time (%)					17	10	
Queuing Penalty (veh)					82	7	

Intersection: 6: S St. & 65th St.

Movement	EB	EB	EB	WB	WB	WB	WB	B37	NB	NB	NB	SB
Directions Served	L	LR	R	L	L	TR	R	T	L	T	T	T
Maximum Queue (ft)	160	780	145	124	1230	1262	150	36	108	170	139	186
Average Queue (ft)	84	488	89	90	896	995	133	16	93	141	126	134
95th Queue (ft)	186	1135	192	146	1756	1704	186	73	132	183	141	212
Link Distance (ft)		1262			1576	1576		73		117	117	164
Upstream Blk Time (%)		3			6	10		10	25	41	35	11
Queuing Penalty (veh)		12			0	0		0	0	206	180	65
Storage Bay Dist (ft)	175		125	100			125		150			
Storage Blk Time (%)	0	62	4	7	43	68	20		25	41		
Queuing Penalty (veh)	0	106	8	17	101	130	87		130	51		

Intersection: 6: S St. & 65th St.

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	202	125
Average Queue (ft)	153	110
95th Queue (ft)	247	156
Link Distance (ft)	164	
Upstream Blk Time (%)	20	
Queuing Penalty (veh)	115	
Storage Bay Dist (ft)		100
Storage Blk Time (%)	18	22
Queuing Penalty (veh)	78	83

Intersection: 7: US 50 EB Off & 65th St.

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	T	T	T	T	T
Maximum Queue (ft)	303	196	262	258	226	115	137
Average Queue (ft)	189	97	206	220	178	68	77
95th Queue (ft)	336	206	283	273	246	130	140
Link Distance (ft)	1536	1536	200	200	200	205	205
Upstream Blk Time (%)			6	10	3	0	
Queuing Penalty (veh)			37	68	17	0	
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 8: Q St. & 67th St.

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	57	171	81
Average Queue (ft)	15	78	47
95th Queue (ft)	57	218	135
Link Distance (ft)	100	301	313
Upstream Blk Time (%)	0	1	1
Queuing Penalty (veh)	0	2	1
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Q St. & Driveway 1

Movement	EB	WB	WB	SB
Directions Served	L	T	R	R
Maximum Queue (ft)	50	108	34	120
Average Queue (ft)	17	89	5	95
95th Queue (ft)	51	136	38	149
Link Distance (ft)	51	100		100
Upstream Blk Time (%)	1	29	0	53
Queuing Penalty (veh)	1	64	0	0
Storage Bay Dist (ft)			75	
Storage Blk Time (%)		37	0	
Queuing Penalty (veh)		5	0	

Intersection: 10: Driveway 2 & 67th St.

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	81	101	6
Average Queue (ft)	40	38	1
95th Queue (ft)	91	133	10
Link Distance (ft)	128	313	74
Upstream Blk Time (%)	5		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Folsom Blvd. & 59th St

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	TR	LT	TR	LT	R	LTR
Maximum Queue (ft)	182	231	149	131	366	125	32
Average Queue (ft)	109	144	95	60	203	90	9
95th Queue (ft)	183	243	156	129	413	156	33
Link Distance (ft)	905	905	630	630	593		247
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)						100	
Storage Blk Time (%)					16	3	
Queuing Penalty (veh)					54	11	

Intersection: 12: Q St. & 69th St.

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	37	44	3
Average Queue (ft)	20	16	0
95th Queue (ft)	39	52	7
Link Distance (ft)	348	90	154
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 13: Folsom Blvd. & 64th St.

Movement	EB	EB	WB	WB	NB	SB
Directions Served	T	TR	L	TR	R	R
Maximum Queue (ft)	12	5	48	3	77	40
Average Queue (ft)	3	0	19	0	45	21
95th Queue (ft)	32	0	53	7	82	48
Link Distance (ft)	217	217		348	369	462
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			125			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 14: S St. & 59th St.

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	LT	TR	L	T	R	LT	R
Maximum Queue (ft)	1033	966	126	123	251	174	506	76	490	150
Average Queue (ft)	853	637	45	87	119	160	352	39	286	114
95th Queue (ft)	1213	1359	137	148	307	209	617	77	525	184
Link Distance (ft)	1086	1086			1310		674	674	639	
Upstream Blk Time (%)	15	13					0			
Queuing Penalty (veh)	0	0					0			
Storage Bay Dist (ft)			125	100		150				125
Storage Blk Time (%)		13	0	19	6	29	10		30	2
Queuing Penalty (veh)		24	0	23	11	70	32		115	5

Intersection: 15: 4th Ave. & 65th St.

Movement	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LR	LT	R	R	L	T	TR	L	T	TR
Maximum Queue (ft)	34	53	69	58	26	557	553	103	108	144
Average Queue (ft)	16	22	41	37	8	460	464	53	34	51
95th Queue (ft)	42	52	72	62	32	693	691	107	108	149
Link Distance (ft)	220		388	388		531	531		200	200
Upstream Blk Time (%)						22	24			0
Queuing Penalty (veh)						0	0			1
Storage Bay Dist (ft)		75			50			100		
Storage Blk Time (%)		1	3		1	43		2	1	
Queuing Penalty (veh)		1	1		7	3		14	1	

Intersection: 16: 4th Ave. & Redding Ave.

Movement	EB	EB	NB	SB
Directions Served	L	R	LT	TR
Maximum Queue (ft)	67	72	45	2
Average Queue (ft)	35	38	14	0
95th Queue (ft)	72	72	46	5
Link Distance (ft)		845	409	443
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	75			
Storage Blk Time (%)	1	0		
Queuing Penalty (veh)	1	0		

Intersection: 18: Folsom Blvd. & 62nd St

Movement	EB	EB	WB	NB	SB
Directions Served	LT	TR	LT	LR	LTR
Maximum Queue (ft)	43	10	40	50	62
Average Queue (ft)	16	2	9	24	36
95th Queue (ft)	49	18	40	54	71
Link Distance (ft)	726	726	241	410	213
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 19: Folsom Blvd. & Hornet Dr

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	LT	R
Maximum Queue (ft)	93	174	150	97	956	942	315	48	29	58	237
Average Queue (ft)	41	85	79	23	745	731	155	22	8	23	160
95th Queue (ft)	99	181	158	108	1235	1231	308	50	32	64	295
Link Distance (ft)		786			943	943	424	424		228	228
Upstream Blk Time (%)					60	53	1				51
Queuing Penalty (veh)					0	0	0				0
Storage Bay Dist (ft)	150		150	350					125		
Storage Blk Time (%)	1	1	1		64						
Queuing Penalty (veh)	3	5	5		40						

Intersection: 24: College Town Dr & State University East

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	R	LTR	L	LT	R
Maximum Queue (ft)	40	39	80	131	541	654	125	523	126	157	10
Average Queue (ft)	12	13	34	71	299	381	109	370	63	97	2
95th Queue (ft)	37	34	74	149	521	666	158	584	124	161	12
Link Distance (ft)		1846	1846		760	760		975		642	642
Upstream Blk Time (%)						2					
Queuing Penalty (veh)						0					
Storage Bay Dist (ft)	100			125			100		200		
Storage Blk Time (%)		0		8	28	30	1				
Queuing Penalty (veh)		0		32	23	104	9				

Intersection: 25: Elvas Ave. & 65th St.

Movement	EB	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	R	R	LT	TR	L	LTR	LTR
Maximum Queue (ft)	67	121	120	40	29	243	266	8
Average Queue (ft)	24	45	43	13	13	112	131	1
95th Queue (ft)	77	225	165	42	36	256	285	11
Link Distance (ft)		524	524	322		331	331	465
Upstream Blk Time (%)		0				0	0	
Queuing Penalty (veh)		0				0	1	
Storage Bay Dist (ft)	125				200			
Storage Blk Time (%)		6						
Queuing Penalty (veh)		1						

Intersection: 35: US 50 WB On & 65th St.

Movement	NB	NB	NB	SB
Directions Served	T	T	T	TR
Maximum Queue (ft)	350	365	117	16
Average Queue (ft)	221	227	28	2
95th Queue (ft)	449	440	193	13
Link Distance (ft)	416	416	416	117
Upstream Blk Time (%)	5	3	1	
Queuing Penalty (veh)	26	13	4	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 51: US 50 EB On & 65th St.

Movement	NB	NB	NB	SB
Directions Served	T	T	R	T
Maximum Queue (ft)	81	188	221	2
Average Queue (ft)	26	72	81	0
95th Queue (ft)	134	245	252	5
Link Distance (ft)	205	205	205	416
Upstream Blk Time (%)	2	3	3	
Queuing Penalty (veh)	15	20	20	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 53: 69th St. &

Movement	SB
Directions Served	LT
Maximum Queue (ft)	3
Average Queue (ft)	0
95th Queue (ft)	7
Link Distance (ft)	244
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 81: Folsom Blvd. &

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	60	34
Average Queue (ft)	25	12
95th Queue (ft)	64	37
Link Distance (ft)	630	276
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 83: S St. &

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	206	426	71
Average Queue (ft)	76	63	25
95th Queue (ft)	202	521	73
Link Distance (ft)	1310	1262	282
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		1	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 85: 65th St. &

Movement	EB	NB	NB	SB	SB
Directions Served	R	T	T	T	TR
Maximum Queue (ft)	90	106	118	258	223
Average Queue (ft)	41	18	23	69	92
95th Queue (ft)	97	88	106	278	261
Link Distance (ft)	318	169	169	286	286
Upstream Blk Time (%)		0	0	1	2
Queuing Penalty (veh)		1	1	5	8
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 87: 65th St. &

Movement	WB	NB	SB	SB
Directions Served	LR	TR	LT	T
Maximum Queue (ft)	55	3	241	112
Average Queue (ft)	31	0	101	27
95th Queue (ft)	60	7	330	152
Link Distance (ft)	147	259	331	331
Upstream Blk Time (%)	0		8	0
Queuing Penalty (veh)	0		34	1
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 89: Elvas Ave. &

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 91: Folsom Blvd. &

Movement	EB	EB	WB	WB	WB
Directions Served	T	T	T	T	TR
Maximum Queue (ft)	186	17	25	26	24
Average Queue (ft)	51	2	9	9	4
95th Queue (ft)	211	22	33	35	31
Link Distance (ft)	194	194		209	
Upstream Blk Time (%)	1				
Queuing Penalty (veh)	4				
Storage Bay Dist (ft)			1		50
Storage Blk Time (%)					0
Queuing Penalty (veh)					0

Intersection: 92: Elvas Ave. &

Movement	NE
Directions Served	LR
Maximum Queue (ft)	26
Average Queue (ft)	15
95th Queue (ft)	36
Link Distance (ft)	209
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 95: Folsom Blvd. & 63rd St.

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	24	36
Average Queue (ft)	5	16
95th Queue (ft)	29	43
Link Distance (ft)	241	482
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 97: Folsom Blvd. &

Movement	EB	WB	NB
Directions Served	TR	T	LR
Maximum Queue (ft)	49	127	133
Average Queue (ft)	19	127	85
95th Queue (ft)	119	128	163
Link Distance (ft)	226	126	134
Upstream Blk Time (%)	1	100	35
Queuing Penalty (veh)	13	762	0
Storage Bay Dist (ft)			
Storage Blk Time (%)		100	
Queuing Penalty (veh)		28	

Intersection: 99: Redding Ave. &

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	26	21	21
Average Queue (ft)	5	3	3
95th Queue (ft)	24	26	19
Link Distance (ft)	198	708	90
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 101: Light Rail & 65th St.

Movement	EB	WB	NB	NB	SB	SB
Directions Served	T	T	T	T	T	T
Maximum Queue (ft)	9	19	208	189	45	56
Average Queue (ft)	1	4	162	170	11	33
95th Queue (ft)	10	18	240	202	41	68
Link Distance (ft)	282	198	164	164	38	38
Upstream Blk Time (%)			12	24	4	14
Queuing Penalty (veh)			92	185	25	80
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 103: Redding Ave. &

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	19	19
Average Queue (ft)	3	4
95th Queue (ft)	19	22
Link Distance (ft)	191	443
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 105: 4th Ave. &

Movement	EB	WB	NB	SB
Directions Served	L	L	LR	LR
Maximum Queue (ft)	9	3	37	14
Average Queue (ft)	1	0	11	2
95th Queue (ft)	12	6	37	15
Link Distance (ft)			263	214
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200	200		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 135: Folsom Blvd. &

Movement	EB	WB	WB	SB
Directions Served	L	T	R	LR
Maximum Queue (ft)	26	800	780	90
Average Queue (ft)	5	725	691	46
95th Queue (ft)	29	1044	1051	120
Link Distance (ft)		786	786	197
Upstream Blk Time (%)		80	61	0
Queuing Penalty (veh)		456	349	0
Storage Bay Dist (ft)	100			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 139: Int

Movement	WB
Directions Served	LR
Maximum Queue (ft)	35
Average Queue (ft)	24
95th Queue (ft)	48
Link Distance (ft)	104
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 146: Q St. &

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	25	8	37
Average Queue (ft)	6	2	16
95th Queue (ft)	27	18	44
Link Distance (ft)	301	348	142
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 156: 59th St. &

Movement	EB	WB	NB	SB
Directions Served	LR	LR	LTR	LTR
Maximum Queue (ft)	101	106	244	33
Average Queue (ft)	53	50	77	5
95th Queue (ft)	106	107	267	41
Link Distance (ft)	316	282	639	593
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			2	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 8764

Intersection: 1: Folsom Blvd. & 65th St.

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	188	359	349	58	189	187	190	46	302	363	299	89
Average Queue (ft)	79	280	260	48	177	129	132	8	271	273	154	33
95th Queue (ft)	199	397	411	65	208	229	225	55	372	476	324	110
Link Distance (ft)		342	342		180	180	180			311	311	
Upstream Blk Time (%)		17	14		45	11	9	0	26	36	2	
Queuing Penalty (veh)		76	63		178	43	37	0	0	221	9	
Storage Bay Dist (ft)	175			25				150	300			75
Storage Blk Time (%)	0	43	46	22			15	0	42	33	18	1
Queuing Penalty (veh)	0	34	138	56			5	0	95	132	68	1

Intersection: 1: Folsom Blvd. & 65th St.

Movement	SB	SB	SB
Directions Served	L	T	TR
Maximum Queue (ft)	150	275	268
Average Queue (ft)	147	255	232
95th Queue (ft)	160	283	303
Link Distance (ft)		249	249
Upstream Blk Time (%)		51	20
Queuing Penalty (veh)		225	88
Storage Bay Dist (ft)	125		
Storage Blk Time (%)	55	22	
Queuing Penalty (veh)	160	62	

Intersection: 2: Folsom Blvd. & 67th St.

Movement	EB	EB	WB	WB	NB
Directions Served	T	R	L	T	LR
Maximum Queue (ft)	16	12	121	208	73
Average Queue (ft)	4	3	76	170	70
95th Queue (ft)	32	15	135	273	75
Link Distance (ft)	226	226		195	69
Upstream Blk Time (%)				28	98
Queuing Penalty (veh)				366	163
Storage Bay Dist (ft)			100		
Storage Blk Time (%)			7	31	
Queuing Penalty (veh)			80	53	

Intersection: 3: Folsom Blvd. & Elvas Ave.

Movement	WB
Directions Served	TR
Maximum Queue (ft)	1270
Average Queue (ft)	810
95th Queue (ft)	1778
Link Distance (ft)	1399
Upstream Blk Time (%)	14
Queuing Penalty (veh)	217
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Folsom Blvd. & State University

Movement	EB	EB	WB	WB	B150	SB	SB	SB
Directions Served	L	T	T	R	T	L	L	R
Maximum Queue (ft)	172	188	394	50	828	94	174	873
Average Queue (ft)	108	59	328	7	319	48	45	507
95th Queue (ft)	188	183	500	43	1036	109	202	1045
Link Distance (ft)		1399	318		1241			956
Upstream Blk Time (%)			24		5			15
Queuing Penalty (veh)			261		50			82
Storage Bay Dist (ft)	250			75		225	225	
Storage Blk Time (%)	0	0	35	0			0	46
Queuing Penalty (veh)	1	1	11	0			0	41

Intersection: 5: Q St. & 65th St.

Movement	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	R	T	TR	L	T	T
Maximum Queue (ft)	71	60	60	56	124	198	165
Average Queue (ft)	63	29	35	35	101	163	149
95th Queue (ft)	77	64	65	59	151	204	173
Link Distance (ft)	55	55	4	4		144	144
Upstream Blk Time (%)	72	5	52	58	0	50	42
Queuing Penalty (veh)	163	11	332	368	0	335	281
Storage Bay Dist (ft)					100		
Storage Blk Time (%)					46	27	
Queuing Penalty (veh)					276	33	

Intersection: 6: S St. & 65th St.

Movement	EB	EB	EB	WB	WB	WB	WB	B37	NB	NB	NB	SB
Directions Served	L	LR	R	L	L	TR	R	T	L	T	T	T
Maximum Queue (ft)	161	1232	145	145	1617	1504	150	80	105	150	138	235
Average Queue (ft)	77	631	64	112	1295	1210	108	31	50	123	121	210
95th Queue (ft)	181	1390	172	188	1863	1776	193	92	118	157	144	282
Link Distance (ft)		1328			1548	1548		63		116	116	205
Upstream Blk Time (%)		13			26	13		29	2	58	53	21
Queuing Penalty (veh)		58			0	0		0	0	262	240	157
Storage Bay Dist (ft)	175		125	125			125		150			
Storage Blk Time (%)	6	72	4	16	53	80	23		2	58		
Queuing Penalty (veh)	23	161	12	51	173	129	90		9	48		

Intersection: 6: S St. & 65th St.

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	245	125
Average Queue (ft)	218	108
95th Queue (ft)	288	157
Link Distance (ft)	205	
Upstream Blk Time (%)	23	
Queuing Penalty (veh)	175	
Storage Bay Dist (ft)		100
Storage Blk Time (%)	23	18
Queuing Penalty (veh)	128	84

Intersection: 7: US 50 EB Off & 65th St.

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	T	T	T	T	T
Maximum Queue (ft)	324	336	251	263	216	236	230
Average Queue (ft)	148	205	189	195	169	136	143
95th Queue (ft)	288	373	296	291	255	253	255
Link Distance (ft)	1564	1564	202	202	202	257	257
Upstream Blk Time (%)			12	16	13	0	0
Queuing Penalty (veh)			73	102	82	3	3
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 8: Q St. & 67th St.

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	104	320	145
Average Queue (ft)	63	166	76
95th Queue (ft)	137	372	173
Link Distance (ft)	99	315	317
Upstream Blk Time (%)	44	28	
Queuing Penalty (veh)	71	57	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Q St. & Driveway 1

Movement	EB	EB	WB	WB	SB
Directions Served	L	T	T	R	R
Maximum Queue (ft)	38	56	106	36	155
Average Queue (ft)	11	26	74	6	130
95th Queue (ft)	41	71	132	43	162
Link Distance (ft)	55	55	99		117
Upstream Blk Time (%)	0	40	24	0	96
Queuing Penalty (veh)	0	66	61	0	0
Storage Bay Dist (ft)				75	
Storage Blk Time (%)			34	0	
Queuing Penalty (veh)			4	0	

Intersection: 10: Driveway 2 & 67th St.

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	138	324
Average Queue (ft)	130	276
95th Queue (ft)	148	397
Link Distance (ft)	133	317
Upstream Blk Time (%)	96	57
Queuing Penalty (veh)	0	74
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Folsom Blvd. & 59th St

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	TR	LT	TR	LT	R	LTR
Maximum Queue (ft)	184	186	263	230	378	125	34
Average Queue (ft)	127	137	159	130	208	93	11
95th Queue (ft)	190	200	273	240	424	157	37
Link Distance (ft)	259	259	654	654	628		246
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)						100	
Storage Blk Time (%)					19	1	
Queuing Penalty (veh)					45	5	

Intersection: 12: Q St. & 69th St.

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	40	29
Average Queue (ft)	21	10
95th Queue (ft)	44	33
Link Distance (ft)	335	80
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Folsom Blvd. & 64th St.

Movement	EB	EB	WB	NB	SB
Directions Served	T	TR	L	R	R
Maximum Queue (ft)	143	149	67	95	43
Average Queue (ft)	61	56	26	44	25
95th Queue (ft)	210	208	67	117	51
Link Distance (ft)	219	219		369	459
Upstream Blk Time (%)	3	4			
Queuing Penalty (veh)	14	19			
Storage Bay Dist (ft)			125		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 14: S St. & 59th St.

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	LT	TR	L	T	R	LT	R
Maximum Queue (ft)	540	362	149	124	403	169	315	57	617	150
Average Queue (ft)	392	184	109	101	197	86	203	35	589	109
95th Queue (ft)	733	638	186	157	467	179	327	60	689	191
Link Distance (ft)	2491	2491			1247		791	791	603	
Upstream Blk Time (%)									31	
Queuing Penalty (veh)									254	
Storage Bay Dist (ft)			125	100		150				125
Storage Blk Time (%)		3	11	24	20	2	17		64	3
Queuing Penalty (veh)		12	12	55	53	5	21		244	12

Intersection: 15: 4th Ave. & 65th St.

Movement	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	LR	LT	R	R	T	TR	L	T	TR
Maximum Queue (ft)	10	73	85	72	289	289	87	197	201
Average Queue (ft)	2	40	39	42	248	253	41	74	90
95th Queue (ft)	14	77	84	73	347	344	93	198	215
Link Distance (ft)	220		399	399	266	266		202	202
Upstream Blk Time (%)					30	32		2	3
Queuing Penalty (veh)					0	0		21	28
Storage Bay Dist (ft)		75					100		
Storage Blk Time (%)		5	6		44		1	4	
Queuing Penalty (veh)		4	3		0		9	4	

Intersection: 16: 4th Ave. & Redding Ave.

Movement	EB	EB	NB	SB
Directions Served	L	R	LT	TR
Maximum Queue (ft)	51	52	67	5
Average Queue (ft)	22	30	33	2
95th Queue (ft)	54	57	71	11
Link Distance (ft)		825	428	466
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	75			
Storage Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		

Intersection: 18: Folsom Blvd. &

Movement	EB	EB	WB	NB	SB
Directions Served	LT	TR	LT	LTR	LR
Maximum Queue (ft)	53	21	14	102	59
Average Queue (ft)	15	1	2	54	33
95th Queue (ft)	55	20	20	114	69
Link Distance (ft)	703	703	240	410	480
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 19: Folsom Blvd. & Hornet Dr

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	LT	R
Maximum Queue (ft)	174	265	253	195	571	476	188	62	139	172	75
Average Queue (ft)	139	148	145	84	381	335	112	31	80	110	41
95th Queue (ft)	203	296	272	232	653	577	213	63	146	189	73
Link Distance (ft)		458	458		884	884	267	267		215	215
Upstream Blk Time (%)							0			1	
Queuing Penalty (veh)							0			0	
Storage Bay Dist (ft)	150			350					125		
Storage Blk Time (%)	14	3		0	17				2	7	
Queuing Penalty (veh)	66	7		0	10				2	6	

Intersection: 24: College Town Dr &

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	R	LTR	L	LT	R
Maximum Queue (ft)	76	420	453	144	303	306	124	267	224	785	555
Average Queue (ft)	24	279	311	108	151	166	81	159	205	728	110
95th Queue (ft)	73	431	459	173	353	353	148	285	272	949	532
Link Distance (ft)		1019	1019		758	758		956		758	758
Upstream Blk Time (%)										45	5
Queuing Penalty (veh)										0	0
Storage Bay Dist (ft)	100			125			100		200		
Storage Blk Time (%)		37		29	3	14	0		11	54	
Queuing Penalty (veh)		10		44	3	31	2		72	189	

Intersection: 26: Elvas Ave. & 65th St.

Movement	EB	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	R	R	LT	TR	L	LR	LTR
Maximum Queue (ft)	66	164	151	78	71	201	217	28
Average Queue (ft)	22	72	58	48	42	86	100	6
95th Queue (ft)	69	211	165	86	82	197	212	25
Link Distance (ft)		523	523	270		317	317	515
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	125				200			
Storage Blk Time (%)		9						
Queuing Penalty (veh)		2						

Intersection: 35: US 50 WB On-ramp & 65th St.

Movement	NB	NB	NB	SB	SB
Directions Served	T	T	T	T	TR
Maximum Queue (ft)	376	384	183	72	45
Average Queue (ft)	236	249	41	13	7
95th Queue (ft)	454	446	232	96	44
Link Distance (ft)	375	375	375	116	116
Upstream Blk Time (%)	20	15	3	0	0
Queuing Penalty (veh)	93	66	15	1	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 51: US 50 EB On & 65th St.

Movement	NB	NB	NB	SB	SB
Directions Served	T	T	R	T	T
Maximum Queue (ft)	275	299	276	19	24
Average Queue (ft)	96	150	133	5	6
95th Queue (ft)	298	372	335	36	47
Link Distance (ft)	257	257	257	375	375
Upstream Blk Time (%)	9	17	13		
Queuing Penalty (veh)	62	123	93		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 53: 69th St. &

Movement	WB	SB
Directions Served	L	LT
Maximum Queue (ft)	1	10
Average Queue (ft)	0	1
95th Queue (ft)	2	12
Link Distance (ft)	297	234
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 59: Folsom Blvd. &

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 81: Folsom Blvd. &

Movement	EB	EB	SB
Directions Served	LT	T	LR
Maximum Queue (ft)	105	37	36
Average Queue (ft)	51	8	21
95th Queue (ft)	111	55	47
Link Distance (ft)	654	654	262
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 83: S St. &

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	280	145	178
Average Queue (ft)	50	21	83
95th Queue (ft)	308	304	177
Link Distance (ft)	1247	1328	233
Upstream Blk Time (%)		0	7
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 85: 65th St. &

Movement	EB	NB	NB	SB	SB
Directions Served	R	T	T	T	TR
Maximum Queue (ft)	248	144	122	356	423
Average Queue (ft)	185	99	43	238	304
95th Queue (ft)	296	207	142	401	477
Link Distance (ft)	233	144	144	311	311
Upstream Blk Time (%)	41	21	1	9	21
Queuing Penalty (veh)	0	127	4	57	132
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 87: 65th St. &

Movement	WB	NB	SB	SB
Directions Served	LR	TR	LT	T
Maximum Queue (ft)	138	2	341	256
Average Queue (ft)	100	0	217	108
95th Queue (ft)	174	5	442	311
Link Distance (ft)	137	249	317	317
Upstream Blk Time (%)	38		15	4
Queuing Penalty (veh)	0		61	16
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 89: Elvas Ave. &

Movement	NB	NE
Directions Served	LT	LR
Maximum Queue (ft)	3	30
Average Queue (ft)	0	14
95th Queue (ft)	7	38
Link Distance (ft)	516	105
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 91: Folsom Blvd. &

Movement	EB	EB	WB	WB	WB	SB
Directions Served	T	T	T	T	TR	R
Maximum Queue (ft)	203	30	47	242	75	33
Average Queue (ft)	53	8	34	214	43	16
95th Queue (ft)	213	65	47	307	99	41
Link Distance (ft)	180	180		226		90
Upstream Blk Time (%)	1	0		32		
Queuing Penalty (veh)	4	1		389		
Storage Bay Dist (ft)			1		50	
Storage Blk Time (%)			38	7	2	
Queuing Penalty (veh)			308	60	14	

Intersection: 92: Elvas Ave. &

Movement	NE
Directions Served	LR
Maximum Queue (ft)	25
Average Queue (ft)	11
95th Queue (ft)	31
Link Distance (ft)	264
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 95: Folsom Blvd. & 63rd St.

Movement	EB	EB	SB
Directions Served	LT	T	LR
Maximum Queue (ft)	95	48	33
Average Queue (ft)	25	12	13
95th Queue (ft)	98	77	39
Link Distance (ft)	240	240	481
Upstream Blk Time (%)	0	0	
Queuing Penalty (veh)	0	1	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 97: Folsom Blvd. &

Movement	WB	WB	NB
Directions Served	L	T	LR
Maximum Queue (ft)	22	192	188
Average Queue (ft)	4	127	161
95th Queue (ft)	20	260	216
Link Distance (ft)		175	162
Upstream Blk Time (%)		25	86
Queuing Penalty (veh)		321	0
Storage Bay Dist (ft)	50		
Storage Blk Time (%)	0	29	
Queuing Penalty (veh)	0	3	

Intersection: 99: Redding Ave. &

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	37	6
Average Queue (ft)	16	1
95th Queue (ft)	44	10
Link Distance (ft)	246	80
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 101: Light Rail & 65th St.

Movement	EB	WB	NB	NB	SB	SB
Directions Served	T	T	T	T	T	T
Maximum Queue (ft)	27	13	257	236	34	37
Average Queue (ft)	6	4	213	209	19	28
95th Queue (ft)	27	18	292	262	40	42
Link Distance (ft)	202	129	205	205	4	4
Upstream Blk Time (%)			41	49	20	30
Queuing Penalty (veh)			263	314	148	224
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 103: Redding Ave. &

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	49	31
Average Queue (ft)	31	7
95th Queue (ft)	56	33
Link Distance (ft)	214	466
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 105: 4th Ave. &

Movement	EB	WB	NB	SB
Directions Served	L	L	LR	LR
Maximum Queue (ft)	19	9	37	32
Average Queue (ft)	4	1	18	16
95th Queue (ft)	21	12	45	41
Link Distance (ft)			203	133
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200	200		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 135: Folsom Blvd. &

Movement	EB	WB	SB
Directions Served	L	T	LR
Maximum Queue (ft)	21	442	270
Average Queue (ft)	3	68	258
95th Queue (ft)	21	352	272
Link Distance (ft)		458	239
Upstream Blk Time (%)		1	94
Queuing Penalty (veh)		7	0
Storage Bay Dist (ft)	100		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 139: Int

Movement	WB
Directions Served	LR
Maximum Queue (ft)	34
Average Queue (ft)	16
95th Queue (ft)	42
Link Distance (ft)	106
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 146: Q St. &

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	6	185	129
Average Queue (ft)	1	38	58
95th Queue (ft)	10	160	123
Link Distance (ft)	315	335	127
Upstream Blk Time (%)		0	16
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 156: 59th St. &

Movement	EB	WB	NB	SB
Directions Served	LR	LR	LTR	LTR
Maximum Queue (ft)	217	208	283	303
Average Queue (ft)	166	193	87	150
95th Queue (ft)	270	232	255	326
Link Distance (ft)	205	183	603	628
Upstream Blk Time (%)	39	81		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 11389

Intersection: 1: Folsom Blvd. & 65th St.

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	129	298	266	54	47	33	40	19	276	319	302	100
Average Queue (ft)	36	213	170	44	19	12	14	3	202	172	189	57
95th Queue (ft)	126	330	298	64	51	40	43	14	297	347	351	136
Link Distance (ft)		348	348		194	194	194			286	286	
Upstream Blk Time (%)		1	0						1	3	5	
Queuing Penalty (veh)		5	0						0	22	36	
Storage Bay Dist (ft)	175			25				150	300			75
Storage Blk Time (%)	0	16	39	5					1	3	20	1
Queuing Penalty (veh)	0	8	82	14					3	11	79	2

Intersection: 1: Folsom Blvd. & 65th St.

Movement	SB	SB	SB
Directions Served	L	T	TR
Maximum Queue (ft)	150	277	257
Average Queue (ft)	143	229	161
95th Queue (ft)	173	341	268
Link Distance (ft)		259	259
Upstream Blk Time (%)		35	2
Queuing Penalty (veh)		144	8
Storage Bay Dist (ft)	125		
Storage Blk Time (%)	55	6	
Queuing Penalty (veh)	145	16	

Intersection: 2: Folsom Blvd. & 67th St.

Movement	EB	EB	WB	NB
Directions Served	T	R	L	LR
Maximum Queue (ft)	8	3	3	88
Average Queue (ft)	1	0	0	69
95th Queue (ft)	14	6	7	97
Link Distance (ft)	209	209		74
Upstream Blk Time (%)				24
Queuing Penalty (veh)				41
Storage Bay Dist (ft)			100	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Folsom Blvd. & Elvas Ave.

Movement	WB
Directions Served	TR
Maximum Queue (ft)	1346
Average Queue (ft)	1341
95th Queue (ft)	1401
Link Distance (ft)	1345
Upstream Blk Time (%)	98
Queuing Penalty (veh)	967
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Folsom Blvd. & State University East

Movement	EB	EB	WB	B150	SB	SB
Directions Served	L	T	T	T	L	R
Maximum Queue (ft)	275	759	392	949	5	984
Average Queue (ft)	251	374	391	927	1	673
95th Queue (ft)	321	902	403	1123	8	1107
Link Distance (ft)		1345	330	946		975
Upstream Blk Time (%)			98	95		20
Queuing Penalty (veh)			924	893		33
Storage Bay Dist (ft)	250				225	
Storage Blk Time (%)	17	0	98			92
Queuing Penalty (veh)	115	0	98			13

Intersection: 5: Q St. & 65th St.

Movement	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	R	T	TR	L	T	T
Maximum Queue (ft)	67	65	70	85	98	181	179
Average Queue (ft)	56	38	56	66	63	120	160
95th Queue (ft)	68	76	77	90	128	209	208
Link Distance (ft)	51	51	38	38		169	169
Upstream Blk Time (%)	59	6	28	35		7	18
Queuing Penalty (veh)	96	10	211	266		38	97
Storage Bay Dist (ft)					100		
Storage Blk Time (%)					11	11	
Queuing Penalty (veh)					52	8	

Intersection: 6: S St. & 65th St.

Movement	EB	EB	EB	WB	WB	WB	WB	B37	NB	NB	NB	SB
Directions Served	L	LR	R	L	L	TR	R	T	L	T	T	T
Maximum Queue (ft)	152	902	143	124	1299	1293	150	45	108	166	137	187
Average Queue (ft)	77	513	72	86	905	972	134	13	97	138	125	132
95th Queue (ft)	183	1191	176	142	1683	1635	190	64	126	178	139	217
Link Distance (ft)		1262			1576	1576		73		117	117	164
Upstream Blk Time (%)		5			7	7		8	21	36	39	11
Queuing Penalty (veh)		17			0	0		0	0	182	196	66
Storage Bay Dist (ft)	175		125	100			125		150			
Storage Blk Time (%)	5	61	3	8	39	70	23		21	36		
Queuing Penalty (veh)	15	104	6	18	93	132	102		108	45		

Intersection: 6: S St. & 65th St.

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	203	125
Average Queue (ft)	150	106
95th Queue (ft)	241	160
Link Distance (ft)	164	
Upstream Blk Time (%)	19	
Queuing Penalty (veh)	112	
Storage Bay Dist (ft)		100
Storage Blk Time (%)	20	20
Queuing Penalty (veh)	87	74

Intersection: 7: US 50 EB Off & 65th St.

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	T	T	T	T	T
Maximum Queue (ft)	281	138	256	254	246	110	123
Average Queue (ft)	187	78	192	209	175	63	72
95th Queue (ft)	316	139	288	278	261	122	130
Link Distance (ft)	1536	1536	200	200	200	205	205
Upstream Blk Time (%)			5	8	2	0	
Queuing Penalty (veh)			35	55	16	0	
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 8: Q St. & 67th St.

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	51	111	58
Average Queue (ft)	15	44	32
95th Queue (ft)	50	143	66
Link Distance (ft)	100	301	313
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Q St. & Driveway 1

Movement	EB	WB	WB	SB
Directions Served	L	T	R	R
Maximum Queue (ft)	43	106	32	122
Average Queue (ft)	16	82	5	97
95th Queue (ft)	48	135	35	148
Link Distance (ft)	51	100		100
Upstream Blk Time (%)	1	18		47
Queuing Penalty (veh)	1	39		0
Storage Bay Dist (ft)			75	
Storage Blk Time (%)		26	0	
Queuing Penalty (veh)		3	0	

Intersection: 10: Driveway 2 & 67th St.

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	71	110	3
Average Queue (ft)	37	40	0
95th Queue (ft)	72	118	6
Link Distance (ft)	128	313	74
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: Folsom Blvd. & 59th St

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	TR	LT	TR	LT	R	LTR
Maximum Queue (ft)	185	219	142	132	363	125	34
Average Queue (ft)	110	144	89	61	202	92	10
95th Queue (ft)	189	236	154	129	394	150	34
Link Distance (ft)	905	905	630	630	593		247
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)						100	
Storage Blk Time (%)					15	2	
Queuing Penalty (veh)					51	8	

Intersection: 12: Q St. & 69th St.

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	47	61
Average Queue (ft)	21	20
95th Queue (ft)	43	64
Link Distance (ft)	348	90
Upstream Blk Time (%)		0
Queuing Penalty (veh)		1
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Folsom Blvd. & 64th St.

Movement	EB	EB	WB	NB	SB
Directions Served	T	TR	L	R	R
Maximum Queue (ft)	13	3	45	68	29
Average Queue (ft)	3	0	17	43	15
95th Queue (ft)	36	7	50	72	41
Link Distance (ft)	217	217		369	462
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			125		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 14: S St. & 59th St.

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	LT	TR	L	T	R	LT	R
Maximum Queue (ft)	1049	1001	131	124	284	174	552	60	508	150
Average Queue (ft)	923	783	45	95	135	160	387	33	296	109
95th Queue (ft)	1288	1481	139	149	348	208	666	59	534	180
Link Distance (ft)	1086	1086			1310		674	674	639	
Upstream Blk Time (%)	23	21					0		0	
Queuing Penalty (veh)	0	0					0		0	
Storage Bay Dist (ft)			125	100		150				125
Storage Blk Time (%)		15	0	23	6	30	12		32	1
Queuing Penalty (veh)		27	1	29	10	72	38		124	4

Intersection: 15: 4th Ave. & 65th St.

Movement	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LR	LT	R	R	L	T	TR	L	T	TR
Maximum Queue (ft)	32	54	64	55	33	542	544	99	129	162
Average Queue (ft)	11	25	38	36	9	440	450	53	37	53
95th Queue (ft)	36	54	68	60	34	670	672	102	117	147
Link Distance (ft)	220		388	388		531	531		200	200
Upstream Blk Time (%)						17	19		0	1
Queuing Penalty (veh)						0	0		2	3
Storage Bay Dist (ft)		75			50			100		
Storage Blk Time (%)		1	1		0	41		2	1	
Queuing Penalty (veh)		1	0		0	3		9	1	

Intersection: 16: 4th Ave. & Redding Ave.

Movement	EB	EB	NB	SB
Directions Served	L	R	LT	TR
Maximum Queue (ft)	59	58	59	2
Average Queue (ft)	36	38	18	0
95th Queue (ft)	65	65	55	5
Link Distance (ft)		845	409	443
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	75			
Storage Blk Time (%)	1	0		
Queuing Penalty (veh)	1	0		

Intersection: 18: Folsom Blvd. & 62nd St

Movement	EB	EB	WB	NB	SB
Directions Served	LT	TR	LT	LR	LTR
Maximum Queue (ft)	54	10	33	38	56
Average Queue (ft)	16	1	7	20	36
95th Queue (ft)	55	18	29	47	66
Link Distance (ft)	726	726	241	410	213
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 19: Folsom Blvd. & Hornet Dr

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	LT	R
Maximum Queue (ft)	111	164	155	109	952	946	310	48	33	51	237
Average Queue (ft)	51	92	87	25	761	746	158	22	8	18	170
95th Queue (ft)	120	171	160	112	1242	1259	322	49	31	52	299
Link Distance (ft)		786			943	943	424	424		228	228
Upstream Blk Time (%)					56	55	4				57
Queuing Penalty (veh)					0	0	0				0
Storage Bay Dist (ft)	150		150	350					125		
Storage Blk Time (%)	1	1	1		75						
Queuing Penalty (veh)	4	5	5		47						

Intersection: 24: College Town Dr & State University East

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	R	LTR	L	LT	R
Maximum Queue (ft)	34	45	72	136	597	691	125	516	119	158	11
Average Queue (ft)	12	15	34	79	339	428	111	352	56	94	2
95th Queue (ft)	37	37	72	155	609	739	158	517	114	152	11
Link Distance (ft)		1846	1846		760	760		975		642	642
Upstream Blk Time (%)					0	2					
Queuing Penalty (veh)					0	0					
Storage Bay Dist (ft)	100			125			100		200		
Storage Blk Time (%)		0		11	28	31	1			1	
Queuing Penalty (veh)		0		48	23	105	8			1	

Intersection: 25: Elvas Ave. & 65th St.

Movement	EB	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	R	R	LT	TR	L	LTR	LTR
Maximum Queue (ft)	86	171	92	34	33	243	268	19
Average Queue (ft)	31	63	30	11	13	125	143	3
95th Queue (ft)	91	243	111	36	37	275	300	17
Link Distance (ft)		524	524	322		331	331	465
Upstream Blk Time (%)							0	
Queuing Penalty (veh)							0	
Storage Bay Dist (ft)	125				200			
Storage Blk Time (%)	0	7						
Queuing Penalty (veh)	0	2						

Intersection: 35: US 50 WB On & 65th St.

Movement	NB	NB	NB	SB
Directions Served	T	T	T	TR
Maximum Queue (ft)	354	361	111	22
Average Queue (ft)	221	236	27	4
95th Queue (ft)	447	440	190	22
Link Distance (ft)	416	416	416	117
Upstream Blk Time (%)	3	3	0	
Queuing Penalty (veh)	16	15	0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 51: US 50 EB On & 65th St.

Movement	NB	NB	NB
Directions Served	T	T	R
Maximum Queue (ft)	94	200	228
Average Queue (ft)	27	63	64
95th Queue (ft)	138	228	225
Link Distance (ft)	205	205	205
Upstream Blk Time (%)	1	2	2
Queuing Penalty (veh)	5	13	14
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 53: 69th St. &

Movement	SB
Directions Served	LT
Maximum Queue (ft)	12
Average Queue (ft)	2
95th Queue (ft)	16
Link Distance (ft)	244
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 81: Folsom Blvd. &

Movement	EB	EB	SB
Directions Served	LT	T	LR
Maximum Queue (ft)	79	6	31
Average Queue (ft)	29	0	10
95th Queue (ft)	78	0	33
Link Distance (ft)	630	630	276
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 83: S St. &

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	252	300	83
Average Queue (ft)	84	46	26
95th Queue (ft)	237	422	74
Link Distance (ft)	1310	1262	282
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		1	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 85: 65th St. &

Movement	EB	NB	NB	SB	SB
Directions Served	R	T	T	T	TR
Maximum Queue (ft)	120	104	125	276	276
Average Queue (ft)	45	18	31	64	100
95th Queue (ft)	110	92	122	251	271
Link Distance (ft)	318	169	169	286	286
Upstream Blk Time (%)		0	1	1	2
Queuing Penalty (veh)		3	6	3	8
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 87: 65th St. &

Movement	WB	SB	SB
Directions Served	LR	LT	T
Maximum Queue (ft)	57	330	205
Average Queue (ft)	30	157	47
95th Queue (ft)	66	434	206
Link Distance (ft)	147	331	331
Upstream Blk Time (%)	0	14	1
Queuing Penalty (veh)	0	57	3
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 89: Elvas Ave. &

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 91: Folsom Blvd. &

Movement	EB	EB	WB	WB	WB
Directions Served	T	T	T	T	TR
Maximum Queue (ft)	212	30	35	36	24
Average Queue (ft)	44	8	15	16	2
95th Queue (ft)	201	70	44	46	22
Link Distance (ft)	194	194		209	
Upstream Blk Time (%)	1	0			
Queuing Penalty (veh)	4	0			
Storage Bay Dist (ft)			1		50
Storage Blk Time (%)					0
Queuing Penalty (veh)					0

Intersection: 92: Elvas Ave. &

Movement	NE
Directions Served	LR
Maximum Queue (ft)	26
Average Queue (ft)	15
95th Queue (ft)	36
Link Distance (ft)	209
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 95: Folsom Blvd. & 63rd St.

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	29	33
Average Queue (ft)	5	15
95th Queue (ft)	31	40
Link Distance (ft)	241	482
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 97: Folsom Blvd. &

Movement	EB	WB	NB
Directions Served	TR	T	LR
Maximum Queue (ft)	8	128	130
Average Queue (ft)	1	128	99
95th Queue (ft)	10	132	168
Link Distance (ft)	226	126	134
Upstream Blk Time (%)		100	50
Queuing Penalty (veh)		762	0
Storage Bay Dist (ft)			
Storage Blk Time (%)		100	
Queuing Penalty (veh)		28	

Intersection: 99: Redding Ave. &

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	22	18	6
Average Queue (ft)	3	3	1
95th Queue (ft)	21	22	11
Link Distance (ft)	198	708	90
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 101: Light Rail & 65th St.

Movement	EB	WB	NB	NB	SB	SB
Directions Served	T	T	T	T	T	T
Maximum Queue (ft)	14	17	202	193	45	59
Average Queue (ft)	2	3	163	170	11	33
95th Queue (ft)	12	16	235	213	40	70
Link Distance (ft)	282	198	164	164	38	38
Upstream Blk Time (%)			15	26	5	15
Queuing Penalty (veh)			115	201	27	87
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 103: Redding Ave. &

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	14	16
Average Queue (ft)	2	3
95th Queue (ft)	16	17
Link Distance (ft)	191	443
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 105: 4th Ave. &

Movement	EB	WB	NB	SB
Directions Served	L	L	LR	LR
Maximum Queue (ft)	9	13	39	14
Average Queue (ft)	1	2	12	2
95th Queue (ft)	12	14	40	15
Link Distance (ft)			263	214
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200	200		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 135: Folsom Blvd. &

Movement	EB	WB	WB	SB
Directions Served	L	T	R	LR
Maximum Queue (ft)	36	800	774	124
Average Queue (ft)	6	745	709	61
95th Queue (ft)	36	1012	1039	129
Link Distance (ft)		786	786	197
Upstream Blk Time (%)		74	64	0
Queuing Penalty (veh)		424	369	0
Storage Bay Dist (ft)	100			
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Intersection: 139: Int

Movement	WB
Directions Served	LR
Maximum Queue (ft)	34
Average Queue (ft)	21
95th Queue (ft)	46
Link Distance (ft)	104
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 146: Q St. &

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	32	32
Average Queue (ft)	9	14
95th Queue (ft)	34	40
Link Distance (ft)	301	142
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 156: 59th St. &

Movement	EB	WB	NB	SB
Directions Served	LR	LR	LTR	LTR
Maximum Queue (ft)	89	89	215	73
Average Queue (ft)	48	46	72	15
95th Queue (ft)	89	89	246	80
Link Distance (ft)	316	282	639	593
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 8742

Intersection: 1: Folsom Blvd. & 65th St.

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	165	307	302	53	196	184	188	90	304	372	278	99
Average Queue (ft)	67	233	200	48	180	124	122	22	297	336	152	42
95th Queue (ft)	174	351	354	56	213	220	217	103	332	430	308	121
Link Distance (ft)		342	342		180	180	180			311	311	
Upstream Blk Time (%)		2	2		40	7	6	0	20	53	1	
Queuing Penalty (veh)		8	7		159	27	22	0	0	326	7	
Storage Bay Dist (ft)	175			25				150	300			75
Storage Blk Time (%)	0	25	41	12			11	0	65	48	22	0
Queuing Penalty (veh)	0	19	122	31			4	0	146	192	84	1

Intersection: 1: Folsom Blvd. & 65th St.

Movement	SB	SB	SB
Directions Served	L	T	TR
Maximum Queue (ft)	150	281	263
Average Queue (ft)	148	258	229
95th Queue (ft)	154	285	288
Link Distance (ft)		249	249
Upstream Blk Time (%)		47	11
Queuing Penalty (veh)		207	48
Storage Bay Dist (ft)	125		
Storage Blk Time (%)	61	17	
Queuing Penalty (veh)	179	46	

Intersection: 2: Folsom Blvd. & 67th St.

Movement	EB	EB	WB	WB	NB
Directions Served	T	R	L	T	LR
Maximum Queue (ft)	13	9	121	207	78
Average Queue (ft)	2	1	72	131	71
95th Queue (ft)	13	10	131	281	78
Link Distance (ft)	226	226		195	69
Upstream Blk Time (%)				17	96
Queuing Penalty (veh)				224	160
Storage Bay Dist (ft)			100		
Storage Blk Time (%)			7	19	
Queuing Penalty (veh)			81	33	

Intersection: 3: Folsom Blvd. & Elvas Ave.

Movement	WB
Directions Served	TR
Maximum Queue (ft)	1378
Average Queue (ft)	598
95th Queue (ft)	1570
Link Distance (ft)	1399
Upstream Blk Time (%)	6
Queuing Penalty (veh)	93
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 4: Folsom Blvd. & State University

Movement	EB	EB	WB	WB	B150	SB	SB	SB
Directions Served	L	T	T	R	T	L	L	R
Maximum Queue (ft)	193	212	393	51	538	91	138	490
Average Queue (ft)	122	79	313	10	209	52	24	268
95th Queue (ft)	205	238	488	49	672	94	139	507
Link Distance (ft)		1399	318		1241			956
Upstream Blk Time (%)			18		0			
Queuing Penalty (veh)			192		3			
Storage Bay Dist (ft)	250			75		225	225	
Storage Blk Time (%)		1	33	0				20
Queuing Penalty (veh)		2	11	1				18

Intersection: 5: Q St. & 65th St.

Movement	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	R	T	TR	L	T	T
Maximum Queue (ft)	67	57	54	49	126	200	170
Average Queue (ft)	62	34	37	34	97	165	157
95th Queue (ft)	75	65	61	55	156	204	173
Link Distance (ft)	55	55	4	4		144	144
Upstream Blk Time (%)	72	11	69	44	4	31	41
Queuing Penalty (veh)	164	26	437	278	0	208	272
Storage Bay Dist (ft)					100		
Storage Blk Time (%)					28	27	
Queuing Penalty (veh)					167	34	

Intersection: 6: S St. & 65th St.

Movement	EB	EB	EB	WB	WB	WB	WB	B37	NB	NB	NB	SB
Directions Served	L	LR	R	L	L	TR	R	T	L	T	T	T
Maximum Queue (ft)	149	797	148	150	1584	1545	150	73	108	139	143	228
Average Queue (ft)	94	313	85	130	1178	1118	120	24	65	126	127	215
95th Queue (ft)	193	842	179	186	1868	1759	190	84	134	149	147	242
Link Distance (ft)		1328			1548	1548		63		116	116	205
Upstream Blk Time (%)		2			20	10		19	1	57	40	22
Queuing Penalty (veh)		10			0	0		0	0	260	182	167
Storage Bay Dist (ft)	175		125	125			125		150			
Storage Blk Time (%)	4	42	3	17	54	79	11		1	57		
Queuing Penalty (veh)	14	94	8	54	177	127	44		6	48		

Intersection: 6: S St. & 65th St.

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	251	125
Average Queue (ft)	230	119
95th Queue (ft)	254	139
Link Distance (ft)	205	
Upstream Blk Time (%)	24	
Queuing Penalty (veh)	179	
Storage Bay Dist (ft)		100
Storage Blk Time (%)	24	19
Queuing Penalty (veh)	135	88

Intersection: 7: US 50 EB Off & 65th St.

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	T	T	T	T	T
Maximum Queue (ft)	321	406	248	254	207	232	244
Average Queue (ft)	136	252	149	177	142	151	162
95th Queue (ft)	309	499	274	279	231	257	263
Link Distance (ft)	1564	1564	202	202	202	257	257
Upstream Blk Time (%)			5	8	4	0	1
Queuing Penalty (veh)			32	50	28	3	7
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 8: Q St. & 67th St.

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	99	279	128
Average Queue (ft)	45	142	64
95th Queue (ft)	117	330	130
Link Distance (ft)	99	315	317
Upstream Blk Time (%)	25	19	
Queuing Penalty (veh)	39	39	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Q St. & Driveway 1

Movement	EB	EB	WB	WB	SB
Directions Served	L	T	T	R	R
Maximum Queue (ft)	48	48	106	30	143
Average Queue (ft)	15	16	75	6	131
95th Queue (ft)	49	58	134	41	147
Link Distance (ft)	55	55	99		117
Upstream Blk Time (%)	0	21	23	0	95
Queuing Penalty (veh)	0	34	58	0	0
Storage Bay Dist (ft)				75	
Storage Blk Time (%)			32	0	
Queuing Penalty (veh)			4	0	

Intersection: 10: Driveway 2 & 67th St.

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	136	328
Average Queue (ft)	125	267
95th Queue (ft)	155	405
Link Distance (ft)	133	317
Upstream Blk Time (%)	91	48
Queuing Penalty (veh)	0	61
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Folsom Blvd. & 59th St

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	TR	LT	TR	LT	R	LTR
Maximum Queue (ft)	182	210	258	252	320	125	40
Average Queue (ft)	116	136	166	147	173	88	17
95th Queue (ft)	179	214	268	258	329	152	47
Link Distance (ft)	259	259	654	654	628		246
Upstream Blk Time (%)	0	0					
Queuing Penalty (veh)	0	0					
Storage Bay Dist (ft)						100	
Storage Blk Time (%)					16	1	
Queuing Penalty (veh)					37	3	

Intersection: 12: Q St. & 69th St.

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	52	39	3
Average Queue (ft)	22	9	0
95th Queue (ft)	49	40	0
Link Distance (ft)	335	80	165
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 13: Folsom Blvd. & 64th St.

Movement	EB	EB	WB	NB	SB
Directions Served	T	TR	L	R	R
Maximum Queue (ft)	19	26	48	66	44
Average Queue (ft)	6	6	25	36	24
95th Queue (ft)	37	39	51	71	53
Link Distance (ft)	219	219		369	459
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			125		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 14: S St. & 59th St.

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	LT	TR	L	T	R	LT	R
Maximum Queue (ft)	545	263	143	124	294	155	310	53	618	150
Average Queue (ft)	372	80	84	101	163	85	191	30	591	121
95th Queue (ft)	636	261	160	147	328	165	320	59	673	193
Link Distance (ft)	2491	2491			1247		791	791	603	
Upstream Blk Time (%)									29	
Queuing Penalty (veh)									239	
Storage Bay Dist (ft)			125	100		150				125
Storage Blk Time (%)		1	5	15	18	0	20		62	3
Queuing Penalty (veh)		3	5	35	47	1	24		240	15

Intersection: 15: 4th Ave. & 65th St.

Movement	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	LR	LT	R	R	T	TR	L	T	TR
Maximum Queue (ft)	15	56	86	70	282	284	98	180	197
Average Queue (ft)	3	30	36	30	207	223	48	67	79
95th Queue (ft)	16	64	75	58	333	342	100	192	206
Link Distance (ft)	220		399	399	266	266		202	202
Upstream Blk Time (%)					11	14		2	3
Queuing Penalty (veh)					0	0		15	25
Storage Bay Dist (ft)		75					100		
Storage Blk Time (%)		1	3		32		1	4	
Queuing Penalty (veh)		1	1		0		5	4	

Intersection: 16: 4th Ave. & Redding Ave.

Movement	EB	EB	NB	SB
Directions Served	L	R	LT	TR
Maximum Queue (ft)	41	52	67	9
Average Queue (ft)	20	31	32	2
95th Queue (ft)	49	55	70	14
Link Distance (ft)		825	428	466
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	75			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 18: Folsom Blvd. &

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LR
Maximum Queue (ft)	75	8	39	24	105	52
Average Queue (ft)	23	1	8	5	60	29
95th Queue (ft)	71	16	50	44	159	53
Link Distance (ft)	703	703	240	240	410	480
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 19: Folsom Blvd. & Hornet Dr

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	LT	R
Maximum Queue (ft)	173	258	239	180	482	444	178	61	127	155	63
Average Queue (ft)	138	152	156	70	334	269	101	29	76	94	38
95th Queue (ft)	197	272	264	202	534	492	177	59	139	167	68
Link Distance (ft)		458	458		884	884	267	267		215	215
Upstream Blk Time (%)										1	
Queuing Penalty (veh)										0	
Storage Bay Dist (ft)	150			350					125		
Storage Blk Time (%)	15	3			9				3	4	
Queuing Penalty (veh)	75	7			5				3	4	

Intersection: 24: College Town Dr &

Movement	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	R	LTR	L	LT	R
Maximum Queue (ft)	74	344	384	133	207	264	125	253	225	782	389
Average Queue (ft)	29	261	294	94	110	131	77	162	217	766	92
95th Queue (ft)	76	381	415	166	214	255	148	262	249	839	470
Link Distance (ft)		1019	1019		758	758		956		758	758
Upstream Blk Time (%)										43	2
Queuing Penalty (veh)										0	0
Storage Bay Dist (ft)	100			125			100		200		
Storage Blk Time (%)	0	35		8	5	14	0		25	52	
Queuing Penalty (veh)	0	10		12	5	32	1		164	181	

Intersection: 26: Elvas Ave. & 65th St.

Movement	EB	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	R	R	LT	TR	L	LR	LTR
Maximum Queue (ft)	52	140	127	80	75	192	207	25
Average Queue (ft)	20	40	46	45	46	93	108	5
95th Queue (ft)	52	144	139	86	84	202	221	23
Link Distance (ft)		523	523	270		317	317	515
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	125				200			
Storage Blk Time (%)		2						
Queuing Penalty (veh)		0						

Intersection: 35: US 50 WB On-ramp & 65th St.

Movement	NB	NB	NB	SB	SB
Directions Served	T	T	T	T	TR
Maximum Queue (ft)	369	364	111	21	15
Average Queue (ft)	210	210	20	3	2
95th Queue (ft)	426	417	158	44	20
Link Distance (ft)	375	375	375	116	116
Upstream Blk Time (%)	15	11	1	0	
Queuing Penalty (veh)	68	48	4	1	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 51: US 50 EB On & 65th St.

Movement	NB	NB	NB	SB	SB
Directions Served	T	T	R	T	T
Maximum Queue (ft)	203	235	240	18	23
Average Queue (ft)	50	78	80	3	6
95th Queue (ft)	210	274	260	28	35
Link Distance (ft)	257	257	257	375	375
Upstream Blk Time (%)	6	7	6		
Queuing Penalty (veh)	44	50	43		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 53: 69th St. &

Movement	SB
Directions Served	LT
Maximum Queue (ft)	3
Average Queue (ft)	0
95th Queue (ft)	0
Link Distance (ft)	234
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 59: Folsom Blvd. &

Movement	EB
Directions Served	T
Maximum Queue (ft)	12
Average Queue (ft)	2
95th Queue (ft)	25
Link Distance (ft)	384
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 81: Folsom Blvd. &

Movement	EB	EB	WB	SB
Directions Served	LT	T	T	LR
Maximum Queue (ft)	108	49	2	39
Average Queue (ft)	56	8	0	21
95th Queue (ft)	116	53	5	47
Link Distance (ft)	654	654	703	262
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 83: S St. &

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	49	144	142
Average Queue (ft)	5	21	64
95th Queue (ft)	30	304	112
Link Distance (ft)	1247	1328	233
Upstream Blk Time (%)		0	0
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 85: 65th St. &

Movement	EB	NB	NB	SB	SB
Directions Served	R	T	T	T	TR
Maximum Queue (ft)	231	161	120	348	406
Average Queue (ft)	188	136	34	182	265
95th Queue (ft)	306	212	138	365	439
Link Distance (ft)	233	144	144	311	311
Upstream Blk Time (%)	41	34	1	2	10
Queuing Penalty (veh)	0	208	5	14	61
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 87: 65th St. &

Movement	WB	SB	SB
Directions Served	LR	LT	T
Maximum Queue (ft)	129	302	178
Average Queue (ft)	86	144	58
95th Queue (ft)	157	324	174
Link Distance (ft)	137	317	317
Upstream Blk Time (%)	24	4	
Queuing Penalty (veh)	0	17	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 89: Elvas Ave. &

Movement	NB	NE
Directions Served	LT	LR
Maximum Queue (ft)	13	28
Average Queue (ft)	2	10
95th Queue (ft)	17	32
Link Distance (ft)	516	105
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 91: Folsom Blvd. &

Movement	EB	EB	WB	WB	WB	SB
Directions Served	T	T	T	T	TR	R
Maximum Queue (ft)	270	26	46	235	75	35
Average Queue (ft)	79	4	32	186	49	12
95th Queue (ft)	279	49	45	305	103	40
Link Distance (ft)	180	180		226		90
Upstream Blk Time (%)	1	0		21		
Queuing Penalty (veh)	7	0		250		
Storage Bay Dist (ft)			1		50	
Storage Blk Time (%)			32	5	1	
Queuing Penalty (veh)			262	37	11	

Intersection: 92: Elvas Ave. &

Movement	NE
Directions Served	LR
Maximum Queue (ft)	26
Average Queue (ft)	11
95th Queue (ft)	30
Link Distance (ft)	264
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 95: Folsom Blvd. & 63rd St.

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	44	33
Average Queue (ft)	11	11
95th Queue (ft)	46	36
Link Distance (ft)	240	481
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 97: Folsom Blvd. &

Movement	EB	WB	WB	NB
Directions Served	TR	L	T	LR
Maximum Queue (ft)	2	25	190	181
Average Queue (ft)	0	7	104	144
95th Queue (ft)	0	27	251	219
Link Distance (ft)	195		175	162
Upstream Blk Time (%)			15	58
Queuing Penalty (veh)			195	0
Storage Bay Dist (ft)		50		
Storage Blk Time (%)		0	18	
Queuing Penalty (veh)		0	2	

Intersection: 99: Redding Ave. &

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	33	20
Average Queue (ft)	17	4
95th Queue (ft)	42	20
Link Distance (ft)	246	80
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 101: Light Rail & 65th St.

Movement	EB	WB	NB	NB	SB	SB
Directions Served	T	T	T	T	T	T
Maximum Queue (ft)	11	14	241	260	34	37
Average Queue (ft)	3	3	217	220	22	29
95th Queue (ft)	15	15	266	276	38	40
Link Distance (ft)	202	129	205	205	4	4
Upstream Blk Time (%)			49	35	21	28
Queuing Penalty (veh)			312	221	158	212
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 103: Redding Ave. &

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	47	25
Average Queue (ft)	31	6
95th Queue (ft)	51	26
Link Distance (ft)	214	466
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 105: 4th Ave. &

Movement	EB	NB	SB
Directions Served	L	LR	LR
Maximum Queue (ft)	11	33	31
Average Queue (ft)	2	15	16
95th Queue (ft)	16	41	40
Link Distance (ft)		203	133
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	200		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 135: Folsom Blvd. &

Movement	EB	WB	SB
Directions Served	L	T	LR
Maximum Queue (ft)	14	223	266
Average Queue (ft)	5	48	256
95th Queue (ft)	22	304	268
Link Distance (ft)		458	239
Upstream Blk Time (%)		0	95
Queuing Penalty (veh)		2	0
Storage Bay Dist (ft)	100		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 139: Int

Movement	WB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	16
95th Queue (ft)	40
Link Distance (ft)	106
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 146: Q St. &

Movement	WB	SB
Directions Served	TR	LR
Maximum Queue (ft)	146	108
Average Queue (ft)	28	50
95th Queue (ft)	147	105
Link Distance (ft)	335	127
Upstream Blk Time (%)	1	8
Queuing Penalty (veh)	1	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 156: 59th St. &

Movement	EB	WB	NB	SB
Directions Served	LR	LR	LTR	LTR
Maximum Queue (ft)	214	202	364	271
Average Queue (ft)	165	180	118	136
95th Queue (ft)	284	247	359	290
Link Distance (ft)	205	183	603	628
Upstream Blk Time (%)	44	74	0	
Queuing Penalty (veh)	0	0	0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 9419

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: *Station 65* **HCM:** *2000*
Scenario: *Cumulative Current GP No Project* **PHF:** *1*
TOD: *AM* **Analysis Period:** *15 Minutes* **# of Runs:** *10*

Intersection: *1: Folsom Blvd. & 65th St.* **Type:** *Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	300	336	Yes	--	332	Yes	--
	T	246	398	Yes	--	379	Yes	--
	R	75	221	Yes	--	218	Yes	--
SB	L	125	444	Yes	--	467	Yes	--
	T	252	584	Yes	--	634	Yes	--
	R	252	541	Yes	--	575	Yes	--
EB	L	175	231	Yes	--	172	--	--
	T	346	506	Yes	--	513	Yes	--
	R	25	185	Yes	--	152	Yes	--
WB	L	193	153	--	--	148	--	--
	T	193	274	Yes	--	277	Yes	--
	R	150	126	--	--	120	--	--

Intersection: *2: Folsom Blvd. & 67th St.* **Type:** *Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	102	151	Yes	--	151	Yes	--
	R	150	135	--	--	131	--	--
EB	T	209	464	Yes	--	392	Yes	--
	R	209	449	Yes	--	381	Yes	--
WB	L	100	80	--	--	72	--	--
	T	214	177	--	--	171	--	--

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SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project:	Station 65	**HCM:**	2000
Scenario:	Cumulative Current GP No Project	**PHF:**	1
TOD:	AM **Analysis Period:** 15 Minutes	**# of Runs:**	10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
EB	L	108	82	--	--	76	--	--
	T	108	222	Yes	--	181	Yes	--
	R	108	175	Yes	--	137	Yes	--

Intersection: 4: Folsom Blvd. & State University **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	343	20	--	--	17	--	--
	R	225	53	--	--	49	--	--
EB	L	200	223	Yes	--	229	Yes	--
	T	513	262	--	--	247	--	--
WB	T	316	188	--	--	188	--	--
	R	75	102	Yes	--	87	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: *Station 65* **HCM:** *2000*
Scenario: *Cumulative Current GP No Project* **PHF:** *1*
TOD: *AM* **Analysis Period:** *15 Minutes* **# of Runs:** *10*

Intersection: *5: Q St. & 65th St.* **Type:** *Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	0	208	Yes	--	242	Yes	--
	R	0	206	Yes	--	238	Yes	--
SB	L	100	158	Yes	--	141	Yes	--
	T	205	332	Yes	--	341	Yes	--
WB	L	50	167	Yes	--	189	Yes	--
	R	50	158	Yes	--	175	Yes	--

Intersection: *6: S St. & 65th St.* **Type:** *Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	118	746	Yes	--	773	Yes	--
	T	118	787	Yes	--	840	Yes	--
SB	T	69	193	Yes	--	214	Yes	--
	R	69	190	Yes	--	193	Yes	--
EB	L	175	275	Yes	--	264	Yes	--
	T	1263	274	--	--	264	--	--
	R	125	229	Yes	--	224	Yes	--
WB	L	100	648	Yes	--	654	Yes	--
	T	1535	647	--	--	656	--	--
	R	125	647	Yes	--	656	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP No Project **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	201	307	Yes	--	353	Yes	--
SB	T	202	324	Yes	--	288	Yes	--
EB	L	1567	301	--	--	308	--	--
	R	1567	156	--	--	142	--	--

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	285	79	--	--	72	--	--
	R	285	79	--	--	72	--	--
EB	L	103	83	--	--	83	--	--
	T	103	83	--	--	83	--	--
WB	T	301	177	--	--	177	--	--
	R	301	177	--	--	177	--	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project:	*Station 65*			***HCM:***	*2000*
Scenario:	*Cumulative Current GP No Project*			***PHF:***	*1*
TOD:	*PM*	***Analysis Period:***	*15 Minutes*	***# of Runs:***	*10*

Intersection: *1: Folsom Blvd. & 65th St.* ***Type:*** *Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	225	361	Yes	--	373	Yes	--
	T	260	444	Yes	--	448	Yes	--
	R	75	223	Yes	--	218	Yes	--
SB	L	125	568	Yes	--	609	Yes	--
	T	252	736	Yes	--	792	Yes	--
	R	252	722	Yes	--	782	Yes	--
EB	L	175	461	Yes	--	434	Yes	--
	T	346	715	Yes	--	734	Yes	--
	R	25	356	Yes	--	367	Yes	--
WB	L	192	510	Yes	--	519	Yes	--
	T	192	535	Yes	--	542	Yes	--
	R	150	433	Yes	--	439	Yes	--

Intersection: *2: Folsom Blvd. & 67th St.* ***Type:*** *Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	99	131	Yes	--	116	Yes	--
	R	150	131	--	--	117	--	--
EB	T	210	363	Yes	--	343	Yes	--
	R	210	349	Yes	--	330	Yes	--
WB	L	100	304	Yes	--	302	Yes	--
	T	214	485	Yes	--	483	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: *Station 65* **HCM:** *2000*
Scenario: *Cumulative Current GP No Project* **PHF:** *1*
TOD: *PM* **Analysis Period:** *15 Minutes* **# of Runs:** *10*

Intersection: *3: Folsom Blvd. & Elvas Ave.* **Type:** *Un-Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	R	442	160	--	--	144	--	--
WB	T	711	686	--	--	730	Yes	--
	R	711	686	--	--	727	Yes	--

Intersection: *4: Folsom Blvd. & State University* **Type:** *Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	343	22	--	--	20	--	--
	R	225	182	--	--	188	--	--
EB	L	200	195	--	--	182	--	--
	T	513	95	--	--	88	--	--
WB	T	316	1054	Yes	--	1052	Yes	--
	R	75	813	Yes	--	810	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP No Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	0	197	Yes	--	221	Yes	--
	R	0	196	Yes	--	218	Yes	--
SB	L	100	192	Yes	--	199	Yes	--
	T	187	354	Yes	--	382	Yes	--
WB	L	54	187	Yes	--	187	Yes	--
	R	54	163	Yes	--	160	Yes	--

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	118	577	Yes	--	623	Yes	--
	T	118	611	Yes	--	660	Yes	--
SB	T	69	195	Yes	--	207	Yes	--
	R	69	193	Yes	--	199	Yes	--
EB	L	175	319	Yes	--	286	Yes	--
	T	1263	319	--	--	286	--	--
	R	125	193	Yes	--	196	Yes	--
WB	L	100	869	Yes	--	850	Yes	--
	T	1535	848	--	--	850	--	--
	R	125	848	Yes	--	850	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP No Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	201	307	Yes	--	321	Yes	--
SB	T	201	486	Yes	--	475	Yes	--
EB	L	1574	236	--	--	218	--	--
	R	1574	445	--	--	464	--	--

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	288	167	--	--	163	--	--
	R	288	167	--	--	163	--	--
EB	L	101	118	Yes	--	111	Yes	--
	T	101	118	Yes	--	111	Yes	--
WB	T	301	317	Yes	--	319	Yes	--
	R	301	317	Yes	--	319	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP Scenario A **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	300	310	Yes	--	310	Yes	--
	T	248	364	Yes	--	356	Yes	--
	R	75	175	Yes	--	171	Yes	--
SB	L	125	443	Yes	--	455	Yes	--
	T	252	582	Yes	--	616	Yes	--
	R	252	547	Yes	--	575	Yes	--
EB	L	175	302	Yes	--	283	Yes	--
	T	346	574	Yes	--	613	Yes	--
	R	25	220	Yes	--	216	Yes	--
WB	L	192	201	Yes	--	187	--	--
	T	192	311	Yes	--	314	Yes	--
	R	150	180	Yes	--	155	Yes	--

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	98	225	Yes	--	217	Yes	--
	R	150	202	Yes	--	200	Yes	--
EB	T	210	226	Yes	--	220	Yes	--
	R	210	221	Yes	--	209	--	--
WB	L	100	125	Yes	--	116	Yes	--
	T	213	199	--	--	187	--	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP Scenario A **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev

Intersection: 4: Folsom Blvd. & State University **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	343	32	--	--	27	--	--
	R	225	60	--	--	56	--	--
EB	L	200	214	Yes	--	215	Yes	--
	T	513	180	--	--	173	--	--
WB	T	316	205	--	--	197	--	--
	R	75	75	--	--	76	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP Scenario A **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	0	208	Yes	--	240	Yes	--
	R	0	208	Yes	--	240	Yes	--
SB	L	100	189	Yes	--	177	Yes	--
	T	200	354	Yes	--	365	Yes	--
WB	L	50	177	Yes	--	179	Yes	--
	R	50	175	Yes	--	180	Yes	--

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	118	764	Yes	--	844	Yes	--
	T	118	805	Yes	--	901	Yes	--
SB	T	69	188	Yes	--	218	Yes	--
	R	69	187	Yes	--	195	Yes	--
EB	L	175	301	Yes	--	291	Yes	--
	T	1263	301	--	--	291	--	--
	R	125	244	Yes	--	240	Yes	--
WB	L	100	821	Yes	--	819	Yes	--
	T	1535	820	--	--	825	--	--
	R	125	820	Yes	--	825	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP Scenario A **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	201	304	Yes	--	339	Yes	--
SB	T	202	319	Yes	--	274	Yes	--
EB	L	1567	371	--	--	380	--	--
	R	1567	146	--	--	145	--	--

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	288	103	--	--	92	--	--
	R	288	103	--	--	92	--	--
EB	L	103	84	--	--	84	--	--
	T	103	84	--	--	84	--	--
WB	T	300	306	Yes	--	317	Yes	--
	R	300	306	Yes	--	317	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP Scenario A **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 9: Q St. & Driveway 1 **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	R	162	184	Yes	--	188	Yes	--
EB	L	50	36	--	--	37	--	--
WB	T	103	110	Yes	--	113	Yes	--
	R	75	41	--	--	30	--	--

Intersection: 10: Driveway 2 & 67th St. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	288	114	--	--	101	--	--
	T	288	114	--	--	101	--	--
EB	L	128	61	--	--	59	--	--
	R	128	61	--	--	59	--	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Staiton 65 **HCM:** 2000
Scenario: Cumulative A Plus Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	225	421	Yes	--	460	Yes	--
	T	260	505	Yes	--	559	Yes	--
	R	75	275	Yes	--	294	Yes	--
SB	L	125	576	Yes	--	574	Yes	--
	T	252	743	Yes	--	777	Yes	--
	R	252	718	Yes	--	766	Yes	--
EB	L	175	475	Yes	--	456	Yes	--
	T	346	707	Yes	--	709	Yes	--
	R	25	350	Yes	--	347	Yes	--
WB	L	192	530	Yes	--	547	Yes	--
	T	192	539	Yes	--	545	Yes	--
	R	150	444	Yes	--	440	Yes	--

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	102	178	Yes	--	159	Yes	--
	R	150	157	Yes	--	139	--	--
EB	T	209	337	Yes	--	348	Yes	--
	R	209	329	Yes	--	340	Yes	--
WB	L	100	325	Yes	--	354	Yes	--
	T	214	487	Yes	--	527	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Staiton 65 **HCM:** 2000
Scenario: Cumulative A Plus Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
WB	T	711	706	--	--	666	--	--
	R	711	674	--	--	645	--	--

Intersection: 4: Folsom Blvd. & State University **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	343	22	--	--	21	--	--
	R	225	156	--	--	157	--	--
EB	L	200	191	--	--	183	--	--
	T	513	88	--	--	82	--	--
WB	T	316	403	Yes	--	379	Yes	--
	R	75	156	Yes	--	108	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Staiton 65 **HCM:** 2000
Scenario: Cumulative A Plus Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	0	200	Yes	--	227	Yes	--
	R	0	198	Yes	--	223	Yes	--
SB	L	100	177	Yes	--	164	Yes	--
	T	187	277	Yes	--	279	Yes	--
WB	L	54	184	Yes	--	182	Yes	--
	R	54	157	Yes	--	152	Yes	--

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	118	689	Yes	--	718	Yes	--
	T	118	708	Yes	--	750	Yes	--
SB	T	69	193	Yes	--	201	Yes	--
	R	69	190	Yes	--	193	Yes	--
EB	L	175	403	Yes	--	352	Yes	--
	T	1263	396	--	--	347	--	--
	R	125	202	Yes	--	210	Yes	--
WB	L	100	853	Yes	--	855	Yes	--
	T	1535	851	--	--	847	--	--
	R	125	851	Yes	--	847	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: *Staiton 65* **HCM:** *2000*
Scenario: *Cumulative A Plus Project* **PHF:** *1*
TOD: *PM* **Analysis Period:** *15 Minutes* **# of Runs:** *10*

Intersection: *7: US 50 EB Off & 65th St.* **Type:** *Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	206	314	Yes	--	342	Yes	--
SB	T	201	371	Yes	--	361	Yes	--
EB	L	1574	172	--	--	162	--	--
	R	1574	463	--	--	480	--	--

Intersection: *8: Q St. & 67th St.* **Type:** *Un-Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	284	238	--	--	233	--	--
	R	284	238	--	--	233	--	--
EB	L	100	93	--	--	87	--	--
	T	100	93	--	--	87	--	--
WB	T	301	317	Yes	--	318	Yes	--
	R	301	317	Yes	--	318	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Staiton 65 **HCM:** 2000
Scenario: Cumulative A Plus Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 9: Q St. & Driveway 1 **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	R	162	185	Yes	--	189	Yes	--
EB	L	54	36	--	--	37	--	--
WB	T	100	111	Yes	--	109	Yes	--
	R	75	28	--	--	20	--	--

Intersection: 10: Driveway 2 & 67th St. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	284	65	--	--	43	--	--
	T	284	65	--	--	43	--	--
SB	T	102	24	--	--	19	--	--
	R	102	24	--	--	19	--	--
EB	L	128	75	--	--	67	--	--
	R	128	75	--	--	67	--	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP Scenario B **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	300	360	Yes	--	369	Yes	--
	T	248	435	Yes	--	441	Yes	--
	R	75	230	Yes	--	243	Yes	--
SB	L	125	503	Yes	--	537	Yes	--
	T	252	652	Yes	--	718	Yes	--
	R	252	593	Yes	--	645	Yes	--
EB	L	175	227	Yes	--	209	Yes	--
	T	346	578	Yes	--	621	Yes	--
	R	25	223	Yes	--	219	Yes	--
WB	L	192	172	--	--	168	--	--
	T	192	308	Yes	--	311	Yes	--
	R	150	196	Yes	--	159	Yes	--

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	102	236	Yes	--	238	Yes	--
	R	150	220	Yes	--	211	Yes	--
EB	T	210	196	--	--	202	--	--
	R	210	186	--	--	191	--	--
WB	L	100	115	Yes	--	113	Yes	--
	T	214	184	--	--	177	--	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: *Station 65* **HCM:** *2000*
Scenario: *Cumulative Current GP Scenario B* **PHF:** *1*
TOD: *AM* **Analysis Period:** *15 Minutes* **# of Runs:** *10*

Intersection: *3: Folsom Blvd. & Elvas Ave.* **Type:** *Un-Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
EB	T	108	250	Yes	--	180	Yes	--
	R	108	185	Yes	--	133	Yes	--

Intersection: *4: Folsom Blvd. & State University* **Type:** *Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	343	20	--	--	19	--	--
	R	225	48	--	--	45	--	--
EB	L	200	215	Yes	--	227	Yes	--
	T	513	139	--	--	142	--	--
WB	T	316	183	--	--	178	--	--
	R	75	91	Yes	--	83	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP Scenario B **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	0	213	Yes	--	243	Yes	--
	R	0	207	Yes	--	240	Yes	--
SB	L	100	211	Yes	--	198	Yes	--
	T	200	364	Yes	--	361	Yes	--
WB	L	50	178	Yes	--	175	Yes	--
	R	50	178	Yes	--	178	Yes	--

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	118	844	Yes	--	883	Yes	--
	T	118	878	Yes	--	925	Yes	--
SB	T	69	186	Yes	--	206	Yes	--
	R	69	181	Yes	--	192	Yes	--
EB	L	175	311	Yes	--	294	Yes	--
	T	1263	311	--	--	294	--	--
	R	125	249	Yes	--	246	Yes	--
WB	L	100	877	Yes	--	891	Yes	--
	T	1535	876	--	--	878	--	--
	R	125	876	Yes	--	878	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP Scenario B **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	201	306	Yes	--	324	Yes	--
SB	T	202	331	Yes	--	326	Yes	--
EB	L	1567	308	--	--	312	--	--
	R	1567	193	--	--	177	--	--

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	283	257	--	--	258	--	--
	R	283	257	--	--	258	--	--
EB	L	103	91	--	--	88	--	--
	T	103	91	--	--	88	--	--
WB	T	300	312	Yes	--	345	Yes	--
	R	300	312	Yes	--	345	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Current GP Scenario B **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 9: Q St. & Driveway 1 **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	R	162	181	Yes	--	186	Yes	--
EB	L	50	37	--	--	29	--	--
	T	50	7	--	--	6	--	--
WB	T	103	112	Yes	--	110	Yes	--
	R	75	29	--	--	21	--	--

Intersection: 10: Driveway 2 & 67th St. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	283	128	--	--	114	--	--
	T	283	128	--	--	114	--	--
SB	T	102	102	--	--	104	Yes	--
	R	102	102	--	--	104	Yes	--
EB	L	128	62	--	--	60	--	--
	R	128	62	--	--	60	--	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cuulative Current GP Scenario B **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	225	383	Yes	--	407	Yes	--
	T	260	470	Yes	--	517	Yes	--
	R	75	239	Yes	--	263	Yes	--
SB	L	125	569	Yes	--	570	Yes	--
	T	252	735	Yes	--	747	Yes	--
	R	252	707	Yes	--	728	Yes	--
EB	L	175	485	Yes	--	468	Yes	--
	T	346	718	Yes	--	721	Yes	--
	R	25	351	Yes	--	352	Yes	--
WB	L	192	522	Yes	--	542	Yes	--
	T	192	547	Yes	--	552	Yes	--
	R	150	443	Yes	--	438	Yes	--

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	105	208	Yes	--	208	Yes	--
	R	100	182	Yes	--	184	Yes	--
EB	T	209	344	Yes	--	361	Yes	--
	R	209	333	Yes	--	351	Yes	--
WB	L	100	324	Yes	--	342	Yes	--
	T	214	477	Yes	--	496	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cuulative Current GP Scenario B **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	R	442	109	--	--	78	--	--
EB	T	108	186	Yes	--	143	Yes	--
	R	108	186	Yes	--	143	Yes	--
WB	T	711	733	Yes	--	768	Yes	--
	R	711	695	--	--	755	Yes	--

Intersection: 4: Folsom Blvd. & State University **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	343	26	--	--	24	--	--
	R	225	159	--	--	165	--	--
EB	L	200	174	--	--	164	--	--
	T	513	117	--	--	108	--	--
WB	T	316	663	Yes	--	617	Yes	--
	R	75	385	Yes	--	327	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cuulative Current GP Scenario B **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	0	207	Yes	--	226	Yes	--
	R	0	202	Yes	--	220	Yes	--
SB	L	100	178	Yes	--	140	Yes	--
	T	187	295	Yes	--	275	Yes	--
WB	L	54	181	Yes	--	182	Yes	--
	R	54	155	Yes	--	150	Yes	--

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	118	617	Yes	--	649	Yes	--
	T	118	669	Yes	--	709	Yes	--
SB	T	69	190	Yes	--	198	Yes	--
	R	69	188	Yes	--	192	Yes	--
EB	L	175	275	Yes	--	254	Yes	--
	T	1263	275	--	--	254	--	--
	R	125	193	Yes	--	209	Yes	--
WB	L	100	925	Yes	--	970	Yes	--
	T	1535	934	--	--	962	--	--
	R	125	934	Yes	--	962	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cuulative Current GP Scenario B **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	202	310	Yes	--	338	Yes	--
SB	T	201	420	Yes	--	420	Yes	--
EB	L	1574	229	--	--	240	--	--
	R	1574	382	--	--	396	--	--

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	282	234	--	--	224	--	--
	R	282	234	--	--	224	--	--
EB	L	101	100	--	--	99	--	--
	T	101	100	--	--	99	--	--
WB	T	301	318	Yes	--	319	Yes	--
	R	301	318	Yes	--	319	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cuulative Current GP Scenario B **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 9: Q St. & Driveway 1 **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	R	162	178	Yes	--	187	Yes	--
EB	L	54	35	--	--	35	--	--
	T	54	7	--	--	5	--	--
WB	T	101	109	Yes	--	107	Yes	--
	R	75	11	--	--	8	--	--

Intersection: 10: Driveway 2 & 67th St. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	282	86	--	--	75	--	--
	T	282	86	--	--	75	--	--
SB	T	105	34	--	--	28	--	--
	R	105	34	--	--	28	--	--
EB	L	128	67	--	--	57	--	--
	R	128	67	--	--	57	--	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project:	Station 65			**HCM:**	2000
Scenario:	Cumulative Draft GP No Project			**PHF:**	1
TOD:	AM	**Analysis Period:**	15 Minutes	**# of Runs:**	10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	249	532	Yes	--	563	Yes	--
	T	249	580	Yes	--	654	Yes	--
	R	249	545	Yes	--	595	Yes	--
SB	L	175	168	--	--	150	--	--
	T	260	315	Yes	--	310	Yes	--
	R	260	289	Yes	--	293	Yes	--
EB	L	150	393	Yes	--	407	Yes	--
	T	359	694	Yes	--	725	Yes	--
	R	359	339	--	--	357	--	--
WB	L	163	502	Yes	--	525	Yes	--
	T	163	508	Yes	--	530	Yes	--
	R	163	506	Yes	--	528	Yes	--

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	125	44	--	--	43	--	--
	T	113	69	--	--	67	--	--
	R	113	69	--	--	67	--	--
SB	L	100	83	--	--	89	--	--
	T	268	30	--	--	29	--	--
	R	268	30	--	--	29	--	--
EB	L	125	126	Yes	--	107	--	--
	T	247	550	Yes	--	603	Yes	--
	R	247	550	Yes	--	603	Yes	--
WB	L	275	337	Yes	--	353	Yes	--
	T	234	414	Yes	--	441	Yes	--
	R	234	223	--	--	201	--	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP No Project **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	125	160	Yes	--	173	Yes	--
	T	422	430	Yes	--	450	Yes	--
	R	422	430	Yes	--	450	Yes	--
SB	L	502	515	Yes	--	536	Yes	--
	T	50	78	Yes	--	87	Yes	--
	R	50	78	Yes	--	87	Yes	--
EB	T	113	441	Yes	--	478	Yes	--
	R	113	441	Yes	--	478	Yes	--
WB	T	100	881	Yes	--	1004	Yes	--
	R	100	135	Yes	--	146	Yes	--

Intersection: 4: Folsom Blvd. & State University Dr **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	125	35	--	--	36	--	--
	R	390	69	--	--	67	--	--
EB	L	250	263	Yes	--	272	Yes	--
	T	385	144	--	--	143	--	--
WB	T	752	1053	Yes	--	1108	Yes	--
	R	752	1000	Yes	--	1067	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP No Project **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	3	389	Yes	--	431	Yes	--
	R	3	376	Yes	--	421	Yes	--
SB	L	125	372	Yes	--	384	Yes	--
	T	218	581	Yes	--	605	Yes	--
WB	L	64	155	Yes	--	156	Yes	--
	R	64	149	Yes	--	138	Yes	--

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	118	950	Yes	--	1104	Yes	--
	T	118	958	Yes	--	1147	Yes	--
SB	T	95	322	Yes	--	358	Yes	--
	R	95	321	Yes	--	350	Yes	--
EB	L	175	441	Yes	--	398	Yes	--
	T	1244	354	--	--	319	--	--
	R	125	238	Yes	--	246	Yes	--
WB	L	100	714	Yes	--	726	Yes	--
	T	1517	713	--	--	742	--	--
	R	125	162	Yes	--	177	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP No Project **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	196	302	Yes	--	331	Yes	--
SB	T	148	293	Yes	--	254	Yes	--
EB	L	100	472	Yes	--	467	Yes	--
	R	1515	199	--	--	182	--	--

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	286	295	Yes	--	243	--	--
	R	286	295	Yes	--	243	--	--
EB	L	90	51	--	--	40	--	--
	T	90	51	--	--	40	--	--
WB	T	413	33	--	--	24	--	--
	R	413	33	--	--	24	--	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP No Project **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 9: Q St. & Driveway 1 **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
WB	T	90	85	--	--	78	--	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP No Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	256	571	Yes	--	670	Yes	--
	T	256	611	Yes	--	747	Yes	--
	R	256	446	Yes	--	505	Yes	--
SB	L	175	247	Yes	--	228	Yes	--
	T	260	270	Yes	--	252	--	--
	R	260	231	--	--	188	--	--
EB	L	150	402	Yes	--	396	Yes	--
	T	359	689	Yes	--	694	Yes	--
	R	359	287	--	--	278	--	--
WB	L	175	451	Yes	--	489	Yes	--
	T	160	534	Yes	--	575	Yes	--
	R	160	533	Yes	--	572	Yes	--

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	125	130	Yes	--	138	Yes	--
	T	119	120	Yes	--	118	--	--
	R	119	152	Yes	--	144	Yes	--
SB	L	100	109	Yes	--	117	Yes	--
	T	268	106	--	--	106	--	--
	R	268	106	--	--	106	--	--
EB	L	125	103	--	--	101	--	--
	T	245	497	Yes	--	552	Yes	--
	R	245	497	Yes	--	552	Yes	--
WB	L	275	357	Yes	--	380	Yes	--
	T	240	444	Yes	--	496	Yes	--
	R	240	279	Yes	--	293	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP No Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	125	159	Yes	--	182	Yes	--
	T	423	381	--	--	407	--	--
	R	423	381	--	--	407	--	--
SB	L	502	517	Yes	--	518	Yes	--
	T	50	79	Yes	--	92	Yes	--
	R	50	79	Yes	--	92	Yes	--
EB	T	106	425	Yes	--	461	Yes	--
	R	106	425	Yes	--	461	Yes	--
WB	T	100	885	Yes	--	972	Yes	--
	R	100	131	Yes	--	156	Yes	--

Intersection: 4: Folsom Blvd. & State University Dr **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	125	67	--	--	58	--	--
	R	390	315	--	--	289	--	--
EB	L	250	156	--	--	158	--	--
	T	385	301	--	--	276	--	--
WB	T	752	1512	Yes	--	1506	Yes	--
	R	752	1506	Yes	--	1501	Yes	--

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SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP No Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	3	379	Yes	--	413	Yes	--
	R	3	373	Yes	--	410	Yes	--
SB	L	125	286	Yes	--	263	Yes	--
	T	207	462	Yes	--	481	Yes	--
WB	L	69	172	Yes	--	196	Yes	--
	R	69	131	Yes	--	139	Yes	--

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	118	831	Yes	--	941	Yes	--
	T	118	855	Yes	--	964	Yes	--
SB	T	95	331	Yes	--	370	Yes	--
	R	95	327	Yes	--	363	Yes	--
EB	L	175	736	Yes	--	744	Yes	--
	T	1244	667	--	--	685	--	--
	R	125	232	Yes	--	236	Yes	--
WB	L	100	1591	Yes	--	1665	Yes	--
	T	1517	1591	Yes	--	1657	Yes	--
	R	125	159	Yes	--	195	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project:	Station 65	**HCM:**	2000
Scenario:	Cumulative Draft GP No Project	**PHF:**	1
TOD:	PM **Analysis Period:** 15 Minutes	**# of Runs:**	10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	198	305	Yes	--	319	Yes	--
SB	T	148	844	Yes	--	896	Yes	--
EB	L	100	407	Yes	--	400	Yes	--
	R	1515	598	--	--	591	--	--

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	280	385	Yes	--	364	Yes	--
	R	280	385	Yes	--	364	Yes	--
EB	L	85	130	Yes	--	45	--	--
	T	85	130	Yes	--	45	--	--
WB	T	413	138	--	--	129	--	--
	R	413	138	--	--	129	--	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario A **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	249	546	Yes	--	592	Yes	--
	T	249	599	Yes	--	683	Yes	--
	R	249	593	Yes	--	676	Yes	--
SB	L	175	202	Yes	--	188	Yes	--
	T	260	287	Yes	--	260	Yes	--
	R	260	259	--	--	230	--	--
EB	L	150	393	Yes	--	387	Yes	--
	T	359	700	Yes	--	727	Yes	--
	R	359	318	--	--	318	--	--
WB	L	163	494	Yes	--	515	Yes	--
	T	163	507	Yes	--	555	Yes	--
	R	163	507	Yes	--	555	Yes	--

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	150	112	--	--	115	--	--
	T	116	71	--	--	74	--	--
	R	116	109	--	--	108	--	--
SB	L	100	101	Yes	--	102	Yes	--
	T	268	61	--	--	55	--	--
	R	268	61	--	--	55	--	--
EB	L	125	152	Yes	--	152	Yes	--
	T	247	592	Yes	--	623	Yes	--
	R	247	592	Yes	--	623	Yes	--
WB	L	275	339	Yes	--	365	Yes	--
	T	236	403	Yes	--	433	Yes	--
	R	236	242	Yes	--	262	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario A **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	125	156	Yes	--	178	Yes	--
	T	422	440	Yes	--	470	Yes	--
	R	422	440	Yes	--	470	Yes	--
SB	L	502	485	--	--	501	--	--
	T	50	83	Yes	--	95	Yes	--
	R	50	83	Yes	--	95	Yes	--
EB	T	112	449	Yes	--	559	Yes	--
	R	112	449	Yes	--	559	Yes	--
WB	T	100	883	Yes	--	953	Yes	--
	R	100	130	Yes	--	162	Yes	--

Intersection: 4: Folsom Blvd. & State University Dr **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	125	36	--	--	34	--	--
	R	390	107	--	--	104	--	--
EB	L	250	255	Yes	--	255	Yes	--
	T	385	158	--	--	128	--	--
WB	T	752	1204	Yes	--	1218	Yes	--
	R	752	1182	Yes	--	1179	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario A **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	3	387	Yes	--	402	Yes	--
	R	3	378	Yes	--	392	Yes	--
SB	L	125	388	Yes	--	397	Yes	--
	T	218	557	Yes	--	581	Yes	--
WB	L	64	178	Yes	--	201	Yes	--
	R	64	170	Yes	--	194	Yes	--

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	118	953	Yes	--	1103	Yes	--
	T	118	961	Yes	--	1110	Yes	--
SB	T	95	324	Yes	--	350	Yes	--
	R	95	324	Yes	--	345	Yes	--
EB	L	175	306	Yes	--	289	Yes	--
	T	1244	195	--	--	187	--	--
	R	125	248	Yes	--	250	Yes	--
WB	L	100	972	Yes	--	989	Yes	--
	T	1517	982	--	--	1009	--	--
	R	125	159	Yes	--	178	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario A **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	196	300	Yes	--	316	Yes	--
SB	T	148	187	Yes	--	175	Yes	--
EB	L	100	434	Yes	--	466	Yes	--
	R	1515	149	--	--	144	--	--

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	284	306	Yes	--	315	Yes	--
	R	284	306	Yes	--	315	Yes	--
EB	L	90	73	--	--	54	--	--
	T	90	73	--	--	54	--	--
WB	T	413	73	--	--	64	--	--
	R	413	73	--	--	64	--	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: *Station 65* **HCM:** *2000*
Scenario: *Cumulative Draft GP with Scenario A* **PHF:** *1*
TOD: *AM* **Analysis Period:** *15 Minutes* **# of Runs:** *10*

Intersection: *9: Q St. & Driveway 1* **Type:** *Un-Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	R	126	116	--	--	119	--	--
EB	L	64	43	--	--	41	--	--
	T	64	16	--	--	10	--	--
WB	T	90	102	Yes	--	125	Yes	--
	R	75	24	--	--	17	--	--

Intersection: *10: Driveway 2 & 67th St.* **Type:** *Un-Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	284	38	--	--	34	--	--
	T	284	38	--	--	34	--	--
SB	T	116	98	--	--	105	--	--
	R	116	98	--	--	105	--	--
EB	L	113	60	--	--	62	--	--
	R	113	60	--	--	62	--	--

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SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario A Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	256	544	Yes	--	615	Yes	--
	T	256	602	Yes	--	696	Yes	--
	R	256	516	Yes	--	565	Yes	--
SB	L	175	369	Yes	--	369	Yes	--
	T	260	389	Yes	--	398	Yes	--
	R	260	332	Yes	--	311	Yes	--
EB	L	150	394	Yes	--	407	Yes	--
	T	359	686	Yes	--	705	Yes	--
	R	359	271	--	--	279	--	--
WB	L	175	449	Yes	--	495	Yes	--
	T	160	532	Yes	--	604	Yes	--
	R	160	521	Yes	--	588	Yes	--

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	125	305	Yes	--	324	Yes	--
	T	106	137	Yes	--	157	Yes	--
	R	106	344	Yes	--	369	Yes	--
SB	L	100	114	Yes	--	111	Yes	--
	T	268	108	--	--	104	--	--
	R	268	108	--	--	104	--	--
EB	L	125	143	Yes	--	136	Yes	--
	T	244	572	Yes	--	602	Yes	--
	R	244	572	Yes	--	602	Yes	--
WB	L	275	359	Yes	--	415	Yes	--
	T	236	442	Yes	--	484	Yes	--
	R	236	257	Yes	--	264	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario A Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	125	152	Yes	--	171	Yes	--
	T	423	412	--	--	428	Yes	--
	R	423	412	--	--	428	Yes	--
SB	L	502	516	Yes	--	521	Yes	--
	T	50	88	Yes	--	100	Yes	--
	R	50	88	Yes	--	100	Yes	--
EB	T	111	408	Yes	--	443	Yes	--
	R	111	408	Yes	--	443	Yes	--
WB	T	100	889	Yes	--	939	Yes	--
	R	100	136	Yes	--	162	Yes	--

Intersection: 4: Folsom Blvd. & State University Dr **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	125	49	--	--	43	--	--
	R	390	406	Yes	--	410	Yes	--
EB	L	250	159	--	--	151	--	--
	T	385	198	--	--	198	--	--
WB	T	752	1518	Yes	--	1512	Yes	--
	R	752	1516	Yes	--	1510	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: *Station 65* **HCM:** *2000*
Scenario: *Cumulative Draft GP with Scenario A Project* **PHF:** *1*
TOD: *PM* **Analysis Period:** *15 Minutes* **# of Runs:** *10*

Intersection: *5: Q St. & 65th St.* **Type:** *Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	3	386	Yes	--	429	Yes	--
	R	3	380	Yes	--	422	Yes	--
SB	L	125	270	Yes	--	259	Yes	--
	T	207	408	Yes	--	424	Yes	--
WB	L	69	175	Yes	--	177	Yes	--
	R	69	153	Yes	--	150	Yes	--

Intersection: *6: S St. & 65th St.* **Type:** *Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	118	862	Yes	--	877	Yes	--
	T	118	881	Yes	--	906	Yes	--
SB	T	95	339	Yes	--	365	Yes	--
	R	95	338	Yes	--	362	Yes	--
EB	L	175	449	Yes	--	421	Yes	--
	T	1244	372	--	--	344	--	--
	R	125	238	Yes	--	235	Yes	--
WB	L	100	1294	Yes	--	1390	Yes	--
	T	1517	1276	--	--	1365	--	--
	R	125	156	Yes	--	168	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario A Project **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	198	304	Yes	--	325	Yes	--
SB	T	148	851	Yes	--	878	Yes	--
EB	L	100	126	Yes	--	129	Yes	--
	R	1515	386	--	--	385	--	--

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	292	430	Yes	--	470	Yes	--
	R	292	430	Yes	--	470	Yes	--
EB	L	85	152	Yes	--	154	Yes	--
	T	85	152	Yes	--	154	Yes	--
WB	T	413	309	--	--	330	--	--
	R	413	309	--	--	330	--	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: *Station 65* **HCM:** *2000*
Scenario: *Cumulative Draft GP with Scenario A Project* **PHF:** *1*
TOD: *PM* **Analysis Period:** *15 Minutes* **# of Runs:** *10*

Intersection: *9: Q St. & Driveway 1* **Type:** *Un-Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	126	149	Yes	--	151	Yes	--
	R	126	149	Yes	--	151	Yes	--
EB	L	69	33	--	--	30	--	--
	T	69	56	--	--	53	--	--
WB	T	85	102	Yes	--	105	Yes	--
	R	75	22	--	--	18	--	--

Intersection: *10: Driveway 2 & 67th St.* **Type:** *Un-Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	292	207	--	--	212	--	--
	T	292	207	--	--	212	--	--
SB	T	106	122	Yes	--	142	Yes	--
	R	106	122	Yes	--	142	Yes	--
EB	L	113	131	Yes	--	134	Yes	--
	R	113	131	Yes	--	134	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario B Project **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	249	541	Yes	--	572	Yes	--
	T	249	583	Yes	--	634	Yes	--
	R	249	577	Yes	--	624	Yes	--
SB	L	175	209	Yes	--	204	Yes	--
	T	260	319	Yes	--	306	Yes	--
	R	260	288	Yes	--	273	Yes	--
EB	L	150	421	Yes	--	411	Yes	--
	T	359	713	Yes	--	725	Yes	--
	R	359	347	--	--	335	--	--
WB	L	163	439	Yes	--	464	Yes	--
	T	163	449	Yes	--	488	Yes	--
	R	163	448	Yes	--	486	Yes	--

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	125	120	--	--	111	--	--
	T	116	85	--	--	83	--	--
	R	116	123	Yes	--	112	--	--
SB	L	100	96	--	--	98	--	--
	T	267	71	--	--	66	--	--
	R	267	71	--	--	66	--	--
EB	L	125	135	Yes	--	118	--	--
	T	247	593	Yes	--	628	Yes	--
	R	247	593	Yes	--	628	Yes	--
WB	L	228	390	Yes	--	335	Yes	--
	T	228	390	Yes	--	327	Yes	--
	R	228	203	--	--	184	--	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario B Project **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	125	155	Yes	--	167	Yes	--
	T	424	439	Yes	--	445	Yes	--
	R	424	439	Yes	--	445	Yes	--
SB	L	502	514	Yes	--	525	Yes	--
	T	50	87	Yes	--	97	Yes	--
	R	50	87	Yes	--	97	Yes	--
EB	T	120	444	Yes	--	527	Yes	--
	R	120	444	Yes	--	527	Yes	--
WB	T	100	890	Yes	--	1043	Yes	--
	R	100	130	Yes	--	151	Yes	--

Intersection: 4: Folsom Blvd. & State University Dr **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	125	42	--	--	40	--	--
	R	390	88	--	--	88	--	--
EB	L	250	307	Yes	--	310	Yes	--
	T	385	163	--	--	125	--	--
WB	T	752	1310	Yes	--	1406	Yes	--
	R	752	1293	Yes	--	1392	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario B Project **PHF:** 1
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	3	395	Yes	--	414	Yes	--
	R	3	387	Yes	--	407	Yes	--
SB	L	125	428	Yes	--	426	Yes	--
	T	218	576	Yes	--	605	Yes	--
WB	L	64	175	Yes	--	198	Yes	--
	R	64	168	Yes	--	181	Yes	--

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	118	921	Yes	--	983	Yes	--
	T	118	937	Yes	--	1002	Yes	--
SB	T	95	331	Yes	--	351	Yes	--
	R	95	330	Yes	--	349	Yes	--
EB	L	175	267	Yes	--	235	Yes	--
	T	1244	208	--	--	186	--	--
	R	125	203	Yes	--	204	Yes	--
WB	L	100	654	Yes	--	620	Yes	--
	T	1517	708	--	--	670	--	--
	R	125	163	Yes	--	182	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: *Station 65* **HCM:** *2000*
Scenario: *Cumulative Draft GP with Scenario B Project* **PHF:** *1*
TOD: *AM* **Analysis Period:** *15 Minutes* **# of Runs:** *10*

Intersection: *7: US 50 EB Off & 65th St.* **Type:** *Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	196	299	Yes	--	305	Yes	--
SB	T	148	239	Yes	--	226	Yes	--
EB	L	100	355	Yes	--	320	Yes	--
	R	1515	132	--	--	121	--	--

Intersection: *8: Q St. & 67th St.* **Type:** *Un-Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	283	313	Yes	--	331	Yes	--
	R	283	313	Yes	--	331	Yes	--
EB	L	90	61	--	--	51	--	--
	T	90	61	--	--	51	--	--
WB	T	413	56	--	--	51	--	--
	R	413	56	--	--	51	--	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: *Station 65* **HCM:** *2000*
Scenario: *Cumulative Draft GP with Scenario B Project* **PHF:** *1*
TOD: *AM* **Analysis Period:** *15 Minutes* **# of Runs:** *10*

Intersection: *9: Q St. & Driveway 1* **Type:** *Un-Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	R	126	151	Yes	--	161	Yes	--
EB	L	64	40	--	--	38	--	--
WB	T	90	103	Yes	--	121	Yes	--
	R	75	47	--	--	40	--	--

Intersection: *10: Driveway 2 & 67th St.* **Type:** *Un-Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	283	38	--	--	29	--	--
	T	283	38	--	--	29	--	--
SB	T	116	105	--	--	109	--	--
	R	116	105	--	--	109	--	--
EB	L	113	70	--	--	67	--	--
	R	113	70	--	--	67	--	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario B **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	256	504	Yes	--	535	Yes	--
	T	256	577	Yes	--	626	Yes	--
	R	256	528	Yes	--	537	Yes	--
SB	L	175	294	Yes	--	323	Yes	--
	T	260	331	Yes	--	365	Yes	--
	R	260	265	Yes	--	274	Yes	--
EB	L	150	387	Yes	--	383	Yes	--
	T	359	689	Yes	--	706	Yes	--
	R	359	392	Yes	--	364	Yes	--
WB	L	175	441	Yes	--	479	Yes	--
	T	160	524	Yes	--	575	Yes	--
	R	160	503	Yes	--	530	Yes	--

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	125	287	Yes	--	335	Yes	--
	T	106	134	Yes	--	139	Yes	--
	R	106	323	Yes	--	368	Yes	--
SB	L	100	97	--	--	93	--	--
	T	268	97	--	--	102	--	--
	R	268	97	--	--	102	--	--
EB	L	125	117	--	--	111	--	--
	T	244	571	Yes	--	602	Yes	--
	R	244	571	Yes	--	602	Yes	--
WB	L	275	373	Yes	--	405	Yes	--
	T	236	456	Yes	--	485	Yes	--
	R	236	240	Yes	--	246	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: *Station 65* **HCM:** *2000*
Scenario: *Cumulative Draft GP with Scenario B* **PHF:** *1*
TOD: *PM* **Analysis Period:** *15 Minutes* **# of Runs:** *10*

Intersection: *3: Folsom Blvd. & Elvas Ave.* **Type:** *Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	125	152	Yes	--	164	Yes	--
	T	423	421	--	--	479	Yes	--
	R	423	421	--	--	479	Yes	--
SB	L	502	515	Yes	--	534	Yes	--
	T	50	79	Yes	--	92	Yes	--
	R	50	79	Yes	--	92	Yes	--
EB	T	111	353	Yes	--	355	Yes	--
	R	111	353	Yes	--	355	Yes	--
WB	T	100	890	Yes	--	907	Yes	--
	R	100	137	Yes	--	162	Yes	--

Intersection: *4: Folsom Blvd. & State University Dr* **Type:** *Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	125	61	--	--	52	--	--
	R	390	395	Yes	--	400	Yes	--
EB	L	250	119	--	--	119	--	--
	T	385	208	--	--	196	--	--
WB	T	752	1494	Yes	--	1496	Yes	--
	R	752	1494	Yes	--	1496	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario B **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	3	382	Yes	--	423	Yes	--
	R	3	376	Yes	--	420	Yes	--
SB	L	125	318	Yes	--	303	Yes	--
	T	207	475	Yes	--	488	Yes	--
WB	L	69	172	Yes	--	173	Yes	--
	R	69	137	Yes	--	137	Yes	--

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	118	881	Yes	--	931	Yes	--
	T	118	897	Yes	--	958	Yes	--
SB	T	95	336	Yes	--	373	Yes	--
	R	95	333	Yes	--	368	Yes	--
EB	L	175	527	Yes	--	550	Yes	--
	T	1244	471	--	--	504	--	--
	R	125	218	Yes	--	222	Yes	--
WB	L	100	1528	Yes	--	1587	Yes	--
	T	1517	1526	Yes	--	1588	Yes	--
	R	125	153	Yes	--	189	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: *Station 65* **HCM:** *2000*
Scenario: *Cumulative Draft GP with Scenario B* **PHF:** *1*
TOD: *PM* **Analysis Period:** *15 Minutes* **# of Runs:** *10*

Intersection: *7: US 50 EB Off & 65th St.* **Type:** *Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	198	303	Yes	--	330	Yes	--
SB	T	148	933	Yes	--	1003	Yes	--
EB	L	100	156	Yes	--	145	Yes	--
	R	1515	356	--	--	360	--	--

Intersection: *8: Q St. & 67th St.* **Type:** *Un-Signalized*

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	292	437	Yes	--	456	Yes	--
	R	292	437	Yes	--	456	Yes	--
EB	L	85	163	Yes	--	161	Yes	--
	T	85	163	Yes	--	161	Yes	--
WB	T	413	309	--	--	308	--	--
	R	413	309	--	--	308	--	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Cumulative Draft GP with Scenario B **PHF:** 1
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 9: Q St. & Driveway 1 **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	126	145	Yes	--	147	Yes	--
	R	126	145	Yes	--	147	Yes	--
EB	L	69	24	--	--	18	--	--
	T	69	66	--	--	64	--	--
WB	T	85	101	Yes	--	102	Yes	--
	R	75	23	--	--	17	--	--

Intersection: 10: Driveway 2 & 67th St. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	292	190	--	--	230	--	--
	T	292	190	--	--	230	--	--
SB	T	106	124	Yes	--	131	Yes	--
	R	106	124	Yes	--	131	Yes	--
EB	L	113	133	Yes	--	143	Yes	--
	R	113	133	Yes	--	143	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Baseline Scenario A MIT **PHF:** 0.93
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	300	444	Yes	--	464	Yes	--
	T	281	529	Yes	--	590	Yes	--
	R	75	285	Yes	--	303	Yes	--
SB	L	125	382	Yes	--	365	Yes	--
	T	252	514	Yes	--	506	Yes	--
	R	252	477	Yes	--	468	Yes	--
EB	L	175	452	Yes	--	383	Yes	--
	T	344	608	Yes	--	581	Yes	--
	R	25	335	Yes	--	316	Yes	--
WB	L	195	191	--	--	184	--	--
	T	195	277	Yes	--	259	Yes	--
	R	150	70	--	--	63	--	--

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	74	210	Yes	--	206	Yes	--
	R	74	210	Yes	--	206	Yes	--
EB	T	209	555	Yes	--	573	Yes	--
	R	209	371	Yes	--	330	Yes	--
WB	L	250	183	--	--	161	--	--
	T	226	294	Yes	--	293	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Baseline Scenario A MIT **PHF:** 0.93
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	150	737	Yes	--	737	Yes	--
	T	117	811	Yes	--	810	Yes	--
SB	T	100	264	Yes	--	284	Yes	--
	R	100	186	Yes	--	203	Yes	--
EB	L	175	429	Yes	--	383	Yes	--
	R	125	429	Yes	--	384	Yes	--
WB	L	100	908	Yes	--	929	Yes	--
	T	1576	981	--	--	980	--	--
	R	125	981	Yes	--	980	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project:	Station 65		**HCM:**	2000
Scenario:	Baseline with Scenario A MIT		**PHF:**	0.94
TOD:	PM	**Analysis Period:** 15 Minutes	**# of Runs:**	10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	300	391	Yes	--	415	Yes	--
	T	306	452	Yes	--	458	Yes	--
	R	75	209	Yes	--	213	Yes	--
SB	L	125	509	Yes	--	545	Yes	--
	T	240	668	Yes	--	713	Yes	--
	R	240	626	Yes	--	679	Yes	--
EB	L	175	706	Yes	--	695	Yes	--
	T	336	893	Yes	--	883	Yes	--
	R	25	609	Yes	--	574	Yes	--
WB	L	179	447	Yes	--	424	Yes	--
	T	179	482	Yes	--	485	Yes	--
	R	150	335	Yes	--	297	Yes	--

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	69	184	Yes	--	173	Yes	--
	R	69	184	Yes	--	173	Yes	--
EB	T	226	586	Yes	--	666	Yes	--
	R	226	352	Yes	--	387	Yes	--
WB	L	195	409	Yes	--	451	Yes	--
	T	195	479	Yes	--	534	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Baseline with Scenario A MIT **PHF:** 0.94
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
WB	T	1398	982	--	--	918	--	--
	R	1398	982	--	--	918	--	--

Intersection: 4: Folsom Blvd. & State University **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	225	184	--	--	144	--	--
	R	956	542	--	--	531	--	--
EB	L	250	203	--	--	202	--	--
	T	1398	169	--	--	126	--	--
WB	T	318	1120	Yes	--	956	Yes	--
	R	75	788	Yes	--	594	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Baseline with Scenario A MIT **PHF:** 0.94
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	4	306	Yes	--	332	Yes	--
	R	4	303	Yes	--	332	Yes	--
SB	L	100	495	Yes	--	543	Yes	--
	T	144	586	Yes	--	655	Yes	--
WB	L	54	174	Yes	--	185	Yes	--
	R	54	162	Yes	--	171	Yes	--

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	150	547	Yes	--	488	Yes	--
	T	116	625	Yes	--	576	Yes	--
SB	T	100	329	Yes	--	335	Yes	--
	R	100	198	Yes	--	203	Yes	--
EB	L	175	1090	Yes	--	1031	Yes	--
	R	125	1090	Yes	--	1031	Yes	--
WB	L	125	919	Yes	--	916	Yes	--
	T	1548	718	--	--	727	--	--
	R	125	718	Yes	--	727	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Baseline with Scenario A MIT **PHF:** 0.94
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	202	306	Yes	--	330	Yes	--
SB	T	257	360	Yes	--	342	Yes	--
EB	L	1564	154	--	--	153	--	--
	R	1564	262	--	--	266	--	--

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	317	293	--	--	294	--	--
	R	317	293	--	--	294	--	--
EB	L	99	46	--	--	39	--	--
	T	99	46	--	--	39	--	--
WB	T	315	193	--	--	190	--	--
	R	315	193	--	--	190	--	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project:	Station 65	**HCM:**	2000
Scenario:	Baseline with Scenario A MIT	**PHF:**	0.94
TOD:	PM **Analysis Period:** 15 Minutes	**# of Runs:**	10

Intersection: 9: Q St. & Driveway 1   **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	R	116	138	Yes	--	148	Yes	--
EB	L	54	54	--	--	53	--	--
WB	T	99	104	Yes	--	110	Yes	--
	R	99	104	Yes	--	110	Yes	--

Intersection: 10: Driveway 2 & 67th St.   **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	317	107	--	--	93	--	--
	T	317	107	--	--	93	--	--
SB	T	69	67	--	--	64	--	--
	R	69	67	--	--	64	--	--
EB	L	133	106	--	--	113	--	--
	R	133	106	--	--	113	--	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Baseline With Scenario B MIT **PHF:** 0.93
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	300	417	Yes	--	413	Yes	--
	T	281	501	Yes	--	542	Yes	--
	R	75	256	Yes	--	260	Yes	--
SB	L	125	433	Yes	--	448	Yes	--
	T	252	577	Yes	--	612	Yes	--
	R	252	554	Yes	--	593	Yes	--
EB	L	175	392	Yes	--	359	Yes	--
	T	344	573	Yes	--	558	Yes	--
	R	25	323	Yes	--	304	Yes	--
WB	L	195	213	Yes	--	202	Yes	--
	T	195	236	Yes	--	215	Yes	--
	R	150	70	--	--	58	--	--

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	74	166	Yes	--	173	Yes	--
	R	74	166	Yes	--	173	Yes	--
EB	T	209	558	Yes	--	591	Yes	--
	R	209	318	Yes	--	318	Yes	--
WB	L	250	228	--	--	196	--	--
	T	226	314	Yes	--	282	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Baseline With Scenario B MIT **PHF:** 0.93
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
WB	T	1345	41	--	--	0	--	--
	R	1345	41	--	--	0	--	--

Intersection: 4: Folsom Blvd. & State University East **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	225	30	--	--	29	--	--
	R	975	142	--	--	145	--	--
EB	L	250	275	Yes	--	291	Yes	--
	T	1345	401	--	--	254	--	--
WB	T	330	986	Yes	--	888	Yes	--
	R	75	671	Yes	--	519	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Baseline With Scenario B MIT **PHF:** 0.93
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	38	290	Yes	--	309	Yes	--
	R	38	285	Yes	--	307	Yes	--
SB	L	100	472	Yes	--	453	Yes	--
	T	169	588	Yes	--	595	Yes	--
WB	L	50	173	Yes	--	190	Yes	--
	R	50	172	Yes	--	194	Yes	--

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	150	734	Yes	--	780	Yes	--
	T	117	807	Yes	--	853	Yes	--
SB	T	100	280	Yes	--	303	Yes	--
	R	100	198	Yes	--	212	Yes	--
EB	L	175	453	Yes	--	420	Yes	--
	R	125	453	Yes	--	420	Yes	--
WB	L	100	961	Yes	--	961	Yes	--
	T	1576	1010	--	--	1012	--	--
	R	125	1010	Yes	--	1012	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Baseline With Scenario B MIT **PHF:** 0.93
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	200	292	Yes	--	313	Yes	--
SB	T	205	301	Yes	--	263	Yes	--
EB	L	1536	261	--	--	264	--	--
	R	1536	155	--	--	148	--	--

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	313	136	--	--	119	--	--
	R	313	136	--	--	119	--	--
EB	L	100	67	--	--	61	--	--
	T	100	67	--	--	61	--	--
WB	T	301	194	--	--	182	--	--
	R	301	194	--	--	182	--	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Baseline With Scenario B MIT **PHF:** 0.93
TOD: AM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 9: Q St. & Driveway 1 **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	R	100	129	Yes	--	132	Yes	--
EB	L	50	40	--	--	40	--	--
WB	T	100	106	Yes	--	122	Yes	--
	R	75	15	--	--	11	--	--

Intersection: 10: Driveway 2 & 67th St. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	313	81	--	--	82	--	--
	T	313	81	--	--	82	--	--
SB	T	74	30	--	--	22	--	--
	R	74	30	--	--	22	--	--
EB	L	128	71	--	--	72	--	--
	R	128	71	--	--	72	--	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Baseline with Scenario B MIT **PHF:** 0.94
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 1: Folsom Blvd. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	300	401	Yes	--	411	Yes	--
	T	306	479	Yes	--	492	Yes	--
	R	75	221	Yes	--	238	Yes	--
SB	L	125	531	Yes	--	576	Yes	--
	T	240	695	Yes	--	744	Yes	--
	R	240	649	Yes	--	694	Yes	--
EB	L	175	824	Yes	--	825	Yes	--
	T	336	991	Yes	--	1001	Yes	--
	R	25	698	Yes	--	686	Yes	--
WB	L	179	433	Yes	--	453	Yes	--
	T	179	500	Yes	--	554	Yes	--
	R	150	280	Yes	--	289	Yes	--

Intersection: 2: Folsom Blvd. & 67th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	69	241	Yes	--	233	Yes	--
	R	69	241	Yes	--	233	Yes	--
EB	T	226	595	Yes	--	690	Yes	--
	R	226	378	Yes	--	420	Yes	--
WB	L	195	424	Yes	--	481	Yes	--
	T	195	485	Yes	--	553	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Baseline with Scenario B MIT **PHF:** 0.94
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 3: Folsom Blvd. & Elvas Ave. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
WB	T	1398	986	--	--	978	--	--
	R	1398	986	--	--	978	--	--

Intersection: 4: Folsom Blvd. & State University **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	225	203	--	--	175	--	--
	R	956	525	--	--	499	--	--
EB	L	250	184	--	--	185	--	--
	T	1398	226	--	--	209	--	--
WB	T	318	1201	Yes	--	1026	Yes	--
	R	75	849	Yes	--	623	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Baseline with Scenario B MIT **PHF:** 0.94
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 5: Q St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	4	319	Yes	--	329	Yes	--
	R	4	319	Yes	--	327	Yes	--
SB	L	100	491	Yes	--	524	Yes	--
	T	144	581	Yes	--	621	Yes	--
WB	L	54	177	Yes	--	184	Yes	--
	R	54	172	Yes	--	183	Yes	--

Intersection: 6: S St. & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	150	561	Yes	--	485	Yes	--
	T	116	638	Yes	--	569	Yes	--
SB	T	100	304	Yes	--	318	Yes	--
	R	100	186	Yes	--	191	Yes	--
EB	L	175	1241	Yes	--	1148	Yes	--
	R	125	1241	Yes	--	1148	Yes	--
WB	L	125	993	Yes	--	1004	Yes	--
	T	1548	828	--	--	796	--	--
	R	125	828	Yes	--	796	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Baseline with Scenario B MIT **PHF:** 0.94
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 7: US 50 EB Off & 65th St. **Type:** Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	T	202	299	Yes	--	335	Yes	--
SB	T	257	294	Yes	--	284	Yes	--
EB	L	1564	137	--	--	140	--	--
	R	1564	252	--	--	246	--	--

Intersection: 8: Q St. & 67th St. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	L	317	334	Yes	--	338	Yes	--
	R	317	334	Yes	--	338	Yes	--
EB	L	99	56	--	--	52	--	--
	T	99	56	--	--	52	--	--
WB	T	315	362	Yes	--	338	Yes	--
	R	315	362	Yes	--	338	Yes	--

SIMTRAFFIC QUEUING REPORT
Including Upstream Queues

Project: Station 65 **HCM:** 2000
Scenario: Baseline with Scenario B MIT **PHF:** 0.94
TOD: PM **Analysis Period:** 15 Minutes **# of Runs:** 10

Intersection: 9: Q St. & Driveway 1 **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
SB	R	116	145	Yes	--	150	Yes	--
EB	L	54	50	--	--	50	--	--
WB	T	99	107	Yes	--	111	Yes	--
	R	99	107	Yes	--	111	Yes	--

Intersection: 10: Driveway 2 & 67th St. **Type:** Un-Signalized

Approach	Movement	Storage Length	Maximum Queue (ft)			95th Queue (ft)		
			Avg	> Storage	Std Dev	Avg	> Storage	Std Dev
NB	L	317	151	--	--	143	--	--
	T	317	151	--	--	143	--	--
SB	T	69	61	--	--	53	--	--
	R	69	61	--	--	53	--	--
EB	L	133	134	Yes	--	141	Yes	--
	R	133	134	Yes	--	141	Yes	--

Freeway Levels of Service (LOS)

HCS+: Basic Freeway Segments Release 5.21

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/27/2008
Analysis Time Period:	AM
Freeway/Direction:	US 50 EB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Baseline + Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	8466	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2301	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2347	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2347	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	52.3	mi/h
Number of lanes, N	4	
Density, D	44.8	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS+: Basic Freeway Segments Release 5.21

Phone: Fax:
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Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/27/2008
Analysis Time Period:	AM
Freeway/Direction:	US 50 WB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Baseline + Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	8842	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2403	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2451	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2451	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/27/2008
Analysis Time Period:	PM
Freeway/Direction:	US 50 EB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Baseline + Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	8516	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2314	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2360	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2360	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/27/2008
Analysis Time Period:	AM
Freeway/Direction:	US 50 WB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Baseline + HD Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	8847	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2404	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2452	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2452	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/27/2008
Analysis Time Period:	AM
Freeway/Direction:	US 50 EB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Baseline + HD Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	8472	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2302	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2348	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2348	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	52.3	mi/h
Number of lanes, N	4	
Density, D	44.9	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/27/2008
Analysis Time Period:	PM
Freeway/Direction:	US 50 WB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Baseline + HD Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	8150	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2215	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2259	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2259	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	55.3	mi/h
Number of lanes, N	4	
Density, D	40.8	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

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Phone: Fax:
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Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/27/2008
Analysis Time Period:	PM
Freeway/Direction:	US 50 EB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Baseline + HD Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	8520	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2315	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2362	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2362	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/28/2008
Analysis Time Period:	AM
Freeway/Direction:	US 50 WB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Cumulative A No Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	9092	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2471	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2520	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2520	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/28/2008
Analysis Time Period:	AM
Freeway/Direction:	US 50 EB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Cumulative A No Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	7979	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2168	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2212	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2212	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	56.7	mi/h
Number of lanes, N	4	
Density, D	39.0	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS+: Basic Freeway Segments Release 5.21

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Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/28/2008
Analysis Time Period:	PM
Freeway/Direction:	US 50 WB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Cumulative A No Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	7794	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2118	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2160	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2160	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	58.1	mi/h
Number of lanes, N	4	
Density, D	37.2	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/25/2008
Analysis Time Period:	AM
Freeway/Direction:	US 50 WB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Existing

Description: 65th Street Station

Flow Inputs and Adjustments

Volume, V	8812	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2395	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2442	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2442	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/28/2008
Analysis Time Period:	PM
Freeway/Direction:	US 50 EB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Cumulative A No Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	8339	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2266	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2311	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2311	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	53.6	mi/h
Number of lanes, N	4	
Density, D	43.1	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/28/2008
Analysis Time Period:	AM
Freeway/Direction:	US 50 WB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Cumulative A + Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	9122	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2479	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2528	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2528	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS+: Basic Freeway Segments Release 5.21

Phone: Fax:
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Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/28/2008
Analysis Time Period:	AM
Freeway/Direction:	US 50 EB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Cumulative A + Project

Description: 65th Street Station

Flow Inputs and Adjustments

Volume, V	8039	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2185	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2228	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2228	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	56.3	mi/h
Number of lanes, N	4	
Density, D	39.6	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

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Phone: Fax:
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Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/28/2008
Analysis Time Period:	PM
Freeway/Direction:	US 50 WB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Cumulative A + Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	7844	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2132	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2174	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2174	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	57.7	mi/h
Number of lanes, N	4	
Density, D	37.6	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS+: Basic Freeway Segments Release 5.21

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/28/2008
Analysis Time Period:	PM
Freeway/Direction:	US 50 EB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Cumulative A + Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	8379	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2277	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2322	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2322	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	53.2	mi/h
Number of lanes, N	4	
Density, D	43.6	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/28/2008
Analysis Time Period:	AM
Freeway/Direction:	US 50 WB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Cumulative A + HD Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	9127	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2480	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2530	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2530	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

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Phone: Fax:
E-mail:

Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/28/2008
Analysis Time Period:	AM
Freeway/Direction:	US 50 EB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Cumulative A + HD Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	8045	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2186	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2230	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2230	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	56.2	mi/h
Number of lanes, N	4	
Density, D	39.7	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

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Phone: Fax:
E-mail:

Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/28/2008
Analysis Time Period:	PM
Freeway/Direction:	US 50 WB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Cumulative A + HD Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	7849	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2133	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2176	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2176	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	57.7	mi/h
Number of lanes, N	4	
Density, D	37.7	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

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Phone: Fax:
E-mail:

Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/28/2008
Analysis Time Period:	PM
Freeway/Direction:	US 50 EB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Cumulative A + HD Project
Description: 65th Street Station	

Flow Inputs and Adjustments

Volume, V	8383	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2278	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2324	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2324	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	53.2	mi/h
Number of lanes, N	4	
Density, D	43.7	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/28/2008
Analysis Time Period:	AM
Freeway/Direction:	US 50 WB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Cumulative C No Project

Description: 65th Street Station

Flow Inputs and Adjustments

Volume, V	9329	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2535	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2586	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2586	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

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E-mail:

Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/25/2008
Analysis Time Period:	AM
Freeway/Direction:	US 50 EB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Existing
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	8347	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2268	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2314	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2314	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	53.5	mi/h
Number of lanes, N	4	
Density, D	43.2	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

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Phone: Fax:
E-mail:

Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/28/2008
Analysis Time Period:	AM
Freeway/Direction:	US 50 EB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Cumulative C No Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	7952	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2161	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2204	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2204	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	56.9	mi/h
Number of lanes, N	4	
Density, D	38.7	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS+: Basic Freeway Segments Release 5.21

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/28/2008
Analysis Time Period:	PM
Freeway/Direction:	US 50 WB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Cumulative C No Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	7881	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2142	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2184	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2184	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	57.5	mi/h
Number of lanes, N	4	
Density, D	38.0	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

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Phone: Fax:
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Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/28/2008
Analysis Time Period:	PM
Freeway/Direction:	US 50 EB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Cumulative C No Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	8474	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2303	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2349	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2349	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	52.3	mi/h
Number of lanes, N	4	
Density, D	44.9	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

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Phone: Fax:
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Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/28/2008
Analysis Time Period:	AM
Freeway/Direction:	US 50 WB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Cumulative C + Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	9349	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2540	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2591	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2591	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS+: Basic Freeway Segments Release 5.21

Phone: Fax:
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Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/28/2008
Analysis Time Period:	AM
Freeway/Direction:	US 50 EB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Cumulative C + Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	8002	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2174	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2218	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2218	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	56.5	mi/h
Number of lanes, N	4	
Density, D	39.2	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS+: Basic Freeway Segments Release 5.21

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/28/2008
Analysis Time Period:	PM
Freeway/Direction:	US 50 WB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Cumulative C + Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	7951	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2161	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2204	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2204	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	56.9	mi/h
Number of lanes, N	4	
Density, D	38.7	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS+: Basic Freeway Segments Release 5.21

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/28/2008
Analysis Time Period:	PM
Freeway/Direction:	US 50 EB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Cumulative C + Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	8524	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2316	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2363	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2363	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS+: Basic Freeway Segments Release 5.21

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/28/2008
Analysis Time Period:	AM
Freeway/Direction:	US 50 WB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Cumulative C + HD Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	9354	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2542	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2593	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2593	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS+: Basic Freeway Segments Release 5.21

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/28/2008
Analysis Time Period:	AM
Freeway/Direction:	US 50 EB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Cumulative C + HD Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	8008	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2176	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2220	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2220	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	56.5	mi/h
Number of lanes, N	4	
Density, D	39.3	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS+: Basic Freeway Segments Release 5.21

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/28/2008
Analysis Time Period:	PM
Freeway/Direction:	US 50 WB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Cumulative C + HD Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	7956	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2162	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2205	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2205	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	56.9	mi/h
Number of lanes, N	4	
Density, D	38.7	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS+: Basic Freeway Segments Release 5.21

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	
Agency or Company:	
Date Performed:	8/25/2008
Analysis Time Period:	PM
Freeway/Direction:	US 50 WB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Existing
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	7991	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2171	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2215	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2215	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	56.6	mi/h
Number of lanes, N	4	
Density, D	39.1	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS+: Basic Freeway Segments Release 5.21

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/28/2008
Analysis Time Period:	PM
Freeway/Direction:	US 50 EB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Cumulative C + HD Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	8528	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2317	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2364	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2364	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS+: Basic Freeway Segments Release 5.21

Phone:	Fax:
E-mail:	

Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/25/2008
Analysis Time Period:	PM
Freeway/Direction:	US 50 EB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Existing
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	8412	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2286	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2332	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2332	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	52.9	mi/h
Number of lanes, N	4	
Density, D	44.1	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS+: Basic Freeway Segments Release 5.21

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/27/2008
Analysis Time Period:	AM
Freeway/Direction:	US 50 WB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Baseline
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	8824	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2398	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2446	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2446	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS+: Basic Freeway Segments Release 5.21

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Bill Penney
Agency or Company:
Date Performed: 8/27/2008
Analysis Time Period: AM
Freeway/Direction: US 50 EB
From/To: 59th Street/65th Street
Jurisdiction:
Analysis Year: Baseline
Description: 65th Street Station

Flow Inputs and Adjustments

Volume, V	8410	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2285	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2331	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2331	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	52.9	mi/h
Number of lanes, N	4	
Density, D	44.1	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS+: Basic Freeway Segments Release 5.21

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/27/2008
Analysis Time Period:	PM
Freeway/Direction:	US 50 WB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Baseline
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	8077	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2195	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2239	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2239	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	55.9	mi/h
Number of lanes, N	4	
Density, D	40.0	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS+: Basic Freeway Segments Release 5.21

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/27/2008
Analysis Time Period:	PM
Freeway/Direction:	US 50 EB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Baseline

Description: 65th Street Station

Flow Inputs and Adjustments

Volume, V	8458	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2298	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2344	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2344	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	52.4	mi/h
Number of lanes, N	4	
Density, D	44.7	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS+: Basic Freeway Segments Release 5.21

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	Bill Penney
Agency or Company:	
Date Performed:	8/27/2008
Analysis Time Period:	AM
Freeway/Direction:	US 50 WB
From/To:	59th Street/65th Street
Jurisdiction:	
Analysis Year:	Baseline + Project
Description:	65th Street Station

Flow Inputs and Adjustments

Volume, V	8842	veh/h
Peak-hour factor, PHF	0.92	
Peak 15-min volume, v15	2403	v
Trucks and buses	4	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	0.980	
Driver population factor, fp	1.00	
Flow rate, vp	2451	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2451	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Existing
Description:	65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7829	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	513	vph
Length of first accel/decel lane	430	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	765	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7829	513	765	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2127	139	208	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8680	563	840	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.284 Using Equation 4

$v_{12} = v_F (P_{FM}) =$ 2469 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9243	9000	Yes
v_3 or v_{av34}	3105 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 3280		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3280	4400	No

!

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 32.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, M_S = 0.473

Space mean speed in ramp influence area, S_R = 48.9 mph

Space mean speed in outer lanes, S_0 = 46.1 mph

Space mean speed for all vehicles, S = 47.2 mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Existing

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7820	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	498	vph
Length of first accel/decel lane	430	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	653	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	7820		498		653	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2125		135		177	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade		%		%		%
Length		mi		mi		mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	8670		547		717	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.286 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2483$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9217	9000	Yes
v_3 or v_{av34}	3093 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 3270		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3270	4400	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 32.3$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	$M_S = 0.468$	
Space mean speed in ramp influence area,	$S_R = 48.9$	mph
Space mean speed in outer lanes,	$S_0 = 46.1$	mph
Space mean speed for all vehicles,	$S = 47.2$	mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Existing

Description: 65th Street Station

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8347	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	518	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	513	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	8347		518		513	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2268		141		139	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	9254		569		563	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} = 4356$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	9254	9000	Yes
$v_{FO} = v_F - v_R$	8685	9000	No
v_R	569	2000	No
v_3 or v_{av34}	2449 pc/h	(Equation 25-15 or 25-16)	
Is v_3 or v_{av34} > 2700 pc/h?		No	
Is v_3 or v_{av34} > 1.5 v_{12}/2		No	
If yes, v_{12A} =		(Equation 25-18)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4356	4600	No

!

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 39.9$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $D_S = 0.479$

Space mean speed in ramp influence area, $S_R = 48.8$ mph

Space mean speed in outer lanes, $S_0 = 54.7$ mph

Space mean speed for all vehicles, $S = 51.7$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Existing
Description:	65th Street Station

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8412	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	592	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	498	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	8412		592		498	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2286		161		135	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	9326		650		547	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} = 4433$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	9326	9000	Yes
$v_{FO} = v_F - v_R$	8676	9000	No
v_R	650	2000	No
v_3 or v_{av34}	2446 pc/h	(Equation 25-15 or 25-16)	
Is v_3 or v_{av34} > 2700 pc/h?		No	
Is v_3 or v_{av34} > 1.5 v_{12}/2		No	
If yes, v_{12A} =		(Equation 25-18)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4433	4600	No

!

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 40.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $D_S = 0.486$

Space mean speed in ramp influence area, $S_R = 48.7$ mph

Space mean speed in outer lanes, $S_0 = 54.7$ mph

Space mean speed for all vehicles, $S = 51.7$ mph

```
Const wdPageBreak = 7

strComputer = "."
Set objWMIService = GetObject("winmgmts:\\" & strComputer & "\root\cimv2")

Set objWord = CreateObject("Word.Application")
objWord.Visible = True
Set objDoc = objWord.Documents.Add()
Set objSelection = objWord.Selection

Set FileList = objWMIService.ExecQuery _
    ("ASSOCIATORS OF
{Win32_Directory.Name='N:\2008Projects\2604_Station65ProjectTrafficStudy\Analysis\HCS\Exi
sting\Ramps\reports'} Where " _
        & "ResultClass = CIM_DataFile")

objSelection.Font.Name = "Courier New"

For Each objFile in FileList
    objSelection.InsertFile(objFile.Name)
    objSelection.InsertBreak(wdPageBreak)
Next
```

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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Existing
Description:	65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8239	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	341	vph
Length of first accel/decel lane	360	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	232	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	8239	341	232	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2239	93	63	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	9135	374	255	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.286 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2610$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9509	9000	Yes
v_3 or v_{av34}	3262 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 3735		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3735	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A = 35.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $M_S = 0.533$

Space mean speed in ramp influence area, $S_R = 48.1$ mph

Space mean speed in outer lanes, $S_0 = 46.1$ mph

Space mean speed for all vehicles, $S = 46.9$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Existing

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7434	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	328	vph
Length of first accel/decel lane	360	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	229	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7434	328	229	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2020	89	62	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8242	360	251	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.287 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2369$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8602	9000	No
v_3 or v_{av34}	2936 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 2842		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2842	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 28.0+ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M_S = 0.392	
Space mean speed in ramp influence area,	S_R = 49.9	mph
Space mean speed in outer lanes,	S_0 = 46.1	mph
Space mean speed for all vehicles,	S = 47.4	mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Existing
Description:	65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8580	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	232	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	341	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	8580	232	341	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2332	63	93	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	9513	255	374	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.329 Using Equation 4

$v_{12} = v_F (P_{FM}) = 3132$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9768	9000	Yes
v_3 or v_{av34}	3190 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 4113		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	4113	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A = 36.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $M_S = 0.597$

Space mean speed in ramp influence area, $S_R = 47.2$ mph

Space mean speed in outer lanes, $S_0 = 46.1$ mph

Space mean speed for all vehicles, $S = 46.6$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Existing
Description:	65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7762	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	229	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	328	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7762	229	328	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2109	62	89	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8606	251	360	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.330 Using Equation 4

$v_{12} = v_F (P_{FM}) =$ 2838 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8857	9000	No
v_3 or v_{av34}	2884 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 3206		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3206	4400	No

!

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 29.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, M_S = 0.413

Space mean speed in ramp influence area, S_R = 49.6 mph

Space mean speed in outer lanes, S_0 = 46.1 mph

Space mean speed for all vehicles, S = 47.4 mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst: Bill Penney
Agency/Co.: Fehr & Peers
Date performed: 8/25/2008
Analysis time period: AM
Freeway/Dir of Travel: US 50 EB
Junction: 65th Street
Jurisdiction:
Analysis Year: Baseline
Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7829	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	513	vph
Length of first accel/decel lane	430	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	780	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7829	513	780	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2127	139	212	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8680	563	856	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.284 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2469$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9243	9000	Yes
v_3 or v_{av34}	3105 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 3280		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3280	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 32.5$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $M_S = 0.473$

Space mean speed in ramp influence area, $S_R = 48.9$ mph

Space mean speed in outer lanes, $S_0 = 46.1$ mph

Space mean speed for all vehicles, $S = 47.2$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Baseline

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7820	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	498	vph
Length of first accel/decel lane	430	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	746	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7820	498	746	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2125	135	203	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8670	547	819	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.286 Using Equation 4

$v_{12} = v_F (P_{FM}) =$ 2483 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9217	9000	Yes
v_3 or v_{av34}	3093 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 3270		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3270	4400	No

!

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 32.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	M_S = 0.468
Space mean speed in ramp influence area,	S_R = 48.9 mph
Space mean speed in outer lanes,	S_0 = 46.1 mph
Space mean speed for all vehicles,	S = 47.2 mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Baseline

Description: 65th Street Station

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8410	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	581	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	513	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	8410		581		513	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2285		158		139	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	9324		638		563	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} = 4425$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	9324	9000	Yes
$v_{FO} = v_F - v_R$	8686	9000	No
v_R	638	2000	No
v_3 or v_{av34}	2449 pc/h	(Equation 25-15 or 25-16)	
Is v_3 or v_{av34} > 2700 pc/h?		No	
Is v_3 or v_{av34} > 1.5 v_{12}/2		No	
If yes, v_{12A} =		(Equation 25-18)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4425	4600	No

!

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 40.5$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $D_S = 0.485$

Space mean speed in ramp influence area, $S_R = 48.7$ mph

Space mean speed in outer lanes, $S_0 = 54.7$ mph

Space mean speed for all vehicles, $S = 51.7$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Baseline
Description:	65th Street Station

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8458	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	638	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	498	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	8458		638		498	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2298		173		135	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	9377		700		547	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} = 4483$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	9377	9000	Yes
$v_{FO} = v_F - v_R$	8677	9000	No
v_R	700	2000	No
v_3 or v_{av34}	2447 pc/h	(Equation 25-15 or 25-16)	
Is v_3 or v_{av34} > 2700 pc/h?		No	
Is v_3 or v_{av34} > $1.5\ v_{12}/2$		No	
If yes, v_{12A} =		(Equation 25-18)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4483	4600	No

!

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D = 41.0$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $D_S = 0.491$

Space mean speed in ramp influence area, $S_R = 48.6$ mph

Space mean speed in outer lanes, $S_0 = 54.7$ mph

Space mean speed for all vehicles, $S = 51.6$ mph

```
Const wdPageBreak = 7

strComputer = "."
Set objWMIService = GetObject("winmgmts:\\" & strComputer & "\root\cimv2")

Set objWord = CreateObject("Word.Application")
objWord.Visible = True
Set objDoc = objWord.Documents.Add()
Set objSelection = objWord.Selection

Set FileList = objWMIService.ExecQuery _
    ("ASSOCIATORS OF
{Win32_Directory.Name='N:\2008Projects\2604_Station65ProjectTrafficStudy\Analysis\HCS\Bas
eline No Project\Ramps\reports'} Where " _
        & "ResultClass = CIM_DataFile")

objSelection.Font.Name = "Courier New"

For Each objFile in FileList
    objSelection.InsertFile(objFile.Name)
    objSelection.InsertBreak(wdPageBreak)
Next
```

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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Baseline
Description:	65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8239	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	355	vph
Length of first accel/decel lane	360	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	230	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	8239	355	230	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2239	96	62	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	9135	390	252	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.284 Using Equation 4

$v_{12} = v_F \; (P_{FM}) =$ 2592 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9525	9000	Yes
v_3 or v_{av34}	3271 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 3735		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3735	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 \, v_R + 0.0078 \, v_{12} - 0.00627 \, L_A$ = 35.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, M_S = 0.537

Space mean speed in ramp influence area, S_R = 48.0 mph

Space mean speed in outer lanes, S_0 = 46.1 mph

Space mean speed for all vehicles, S = 46.9 mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst: Bill Penney
Agency/Co.: Fehr & Peers
Date performed: 8/25/2008
Analysis time period: PM
Freeway/Dir of Travel: US 50 WB
Junction: 65th Street
Jurisdiction:
Analysis Year: Baseline
Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7434	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	414	vph
Length of first accel/decel lane	360	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	229	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7434	414	229	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2020	112	62	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8242	454	251	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.276 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2273$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8696	9000	No
v_3 or v_{av34}	2984 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 2842		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2842	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 28.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, M_S = 0.401

Space mean speed in ramp influence area, S_R = 49.8 mph

Space mean speed in outer lanes, S_0 = 46.1 mph

Space mean speed for all vehicles, S = 47.4 mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Baseline
Description:	65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8594	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	230	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	355	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	8594	230	355	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2335	62	96	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	9528	252	390	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.330 Using Equation 4

$v_{12} = v_F (P_{FM}) =$ 3141 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9780	9000	Yes
v_3 or v_{av34}	3193 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 4128		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	4128	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 36.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, M_S = 0.601

Space mean speed in ramp influence area, S_R = 47.2 mph

Space mean speed in outer lanes, S_0 = 46.1 mph

Space mean speed for all vehicles, S = 46.6 mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Baseline
Description:	65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7848	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	229	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	414	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	7848		229		414	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2133		62		112	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade		%		%		%
Length		mi		mi		mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	8701		251		454	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.330 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2869$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8952	9000	No
v_3 or v_{av34}	2916 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 3301		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3301	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A = 30.2$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $M_S = 0.426$

Space mean speed in ramp influence area, $S_R = 49.5$ mph

Space mean speed in outer lanes, $S_0 = 46.1$ mph

Space mean speed for all vehicles, $S = 47.4$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Baseline + Project

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7829	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	513	vph
Length of first accel/decel lane	430	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	780	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7829	513	780	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2127	139	212	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8680	563	856	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.284 Using Equation 4

$v_{12} = v_F (P_{FM}) =$ 2469 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9243	9000	Yes
v_3 or v_{av34}	3105 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 3280		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3280	4400	No

!

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 32.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, M_S = 0.473

Space mean speed in ramp influence area, S_R = 48.9 mph

Space mean speed in outer lanes, S_0 = 46.1 mph

Space mean speed for all vehicles, S = 47.2 mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Baseline + Project

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7820	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	542	vph
Length of first accel/decel lane	430	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	746	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7820	542	746	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2125	147	203	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8670	595	819	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.280 Using Equation 4

$v_{12} = v_F (P_{FM}) =$ 2431 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9265	9000	Yes
v_3 or v_{av34}	3119 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 3270		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3270	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A =$ 32.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $M_S = 0.477$

Space mean speed in ramp influence area, $S_R = 48.8$ mph

Space mean speed in outer lanes, $S_0 = 46.1$ mph

Space mean speed for all vehicles, $S = 47.2$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Baseline + Project

Description: 65th Street Station

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8466	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	637	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	513	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	8466		637		513	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2301		173		139	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	9386		699		563	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} = 4487$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	9386	9000	Yes
$v_{FO} = v_F - v_R$	8687	9000	No
v_R	699	2000	No
v_{3} or v_{av34}	2449 pc/h	(Equation 25-15 or 25-16)	
Is v_{3} or v_{av34} > 2700 pc/h?		No	
Is v_{3} or v_{av34} > 1.5 v_{12}/2		No	
If yes, v_{12A} =		(Equation 25-18)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4487	4600	No

!

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 41.0$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $D_S = 0.491$

Space mean speed in ramp influence area, $S_R = 48.6$ mph

Space mean speed in outer lanes, $S_0 = 54.7$ mph

Space mean speed for all vehicles, $S = 51.6$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Bill Penney
Agency/Co.: Fehr & Peers
Date performed: 8/25/2008
Analysis time period: PM
Freeway/Dir of Travel: US 50 EB
Junction: 65th Street
Jurisdiction:
Analysis Year: Baseline + Project
Description: 65th Street Station

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8516	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	696	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	542	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	8516		696		542	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2314		189		147	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	9442		764		595	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} = 4548$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	9442	9000	Yes
$v_{FO} = v_F - v_R$	8678	9000	No
v_R	764	2000	No
v_3 or v_{av34}	2447 pc/h	(Equation 25-15 or 25-16)	
Is v_3 or v_{av34} > 2700 pc/h?		No	
Is v_3 or v_{av34} > 1.5 v_{12}/2		No	
If yes, v_{12A} =		(Equation 25-18)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4548	4600	No

!

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 41.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $D_S = 0.497$

Space mean speed in ramp influence area, $S_R = 48.5$ mph

Space mean speed in outer lanes, $S_0 = 54.7$ mph

Space mean speed for all vehicles, $S = 51.5$ mph

```
Const wdPageBreak = 7

strComputer = "."
Set objWMIService = GetObject("winmgmts:\\" & strComputer & "\root\cimv2")

Set objWord = CreateObject("Word.Application")
objWord.Visible = True
Set objDoc = objWord.Documents.Add()
Set objSelection = objWord.Selection

Set FileList = objWMIService.ExecQuery _
    ("ASSOCIATORS OF
{Win32_Directory.Name='N:\2008Projects\2604_Station65ProjectTrafficStudy\Analysis\HCS\Bas
eline + Project\Ramps\reports'} Where " _
        & "ResultClass = CIM_DataFile")

objSelection.Font.Name = "Courier New"

For Each objFile in FileList
    objSelection.InsertFile(objFile.Name)
    objSelection.InsertBreak(wdPageBreak)
Next
```

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Baseline + Project
Description:	65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8239	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	335	vph
Length of first accel/decel lane	360	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	268	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	8239	335	268	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2239	91	73	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	9135	368	294	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.286 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2617$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9503	9000	Yes

v_3 or v_{av34} 3259 pc/h (Equation 25-4 or 25-5)

Is v_3 or v_{av34} > 2700 pc/h? Yes

Is v_3 or v_{av34} > 1.5 v_{12}/2 Yes

If yes, v_{12A} = 3735 (Equation 25-8)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3735	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 35.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $M_S = 0.532$

Space mean speed in ramp influence area, $S_R = 48.1$ mph

Space mean speed in outer lanes, $S_0 = 46.1$ mph

Space mean speed for all vehicles, $S = 46.9$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Baseline + Project

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7434	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	414	vph
Length of first accel/decel lane	360	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	297	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7434	414	297	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2020	112	81	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8242	454	326	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.276 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2273$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8696	9000	No
v_3 or v_{av34}	2984 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 2842		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2842	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 28.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $M_S = 0.401$

Space mean speed in ramp influence area, $S_R = 49.8$ mph

Space mean speed in outer lanes, $S_0 = 46.1$ mph

Space mean speed for all vehicles, $S = 47.4$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Baseline + Project

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8574	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	268	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	335	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	8574	268	335	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2330	73	91	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	9506	294	368	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.324 Using Equation 4

$v_{12} = v_F (P_{FM}) = 3084$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9800	9000	Yes
v_3 or v_{av34}	3211 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 4106		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	4106	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 36.8$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $M_S = 0.607$

Space mean speed in ramp influence area, $S_R = 47.1$ mph

Space mean speed in outer lanes, $S_0 = 46.1$ mph

Space mean speed for all vehicles, $S = 46.5$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Baseline + Project
Description:	65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7848	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	297	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	414	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7848	297	414	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2133	81	112	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8701	326	454	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.320 Using Equation 4

$v_{12} = v_F (P_{FM}) =$ 2788 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9027	9000	Yes
v_3 or v_{av34}	2956 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 3301		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3301	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 30.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, M_S = 0.436

Space mean speed in ramp influence area, S_R = 49.3 mph

Space mean speed in outer lanes, S_0 = 46.1 mph

Space mean speed for all vehicles, S = 47.3 mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst: Bill Penney
Agency/Co.: Fehr & Peers
Date performed: 8/25/2008
Analysis time period: AM
Freeway/Dir of Travel: US 50 EB
Junction: 65th Street
Jurisdiction:
Analysis Year: Baseline + HD Project
Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7829	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	541	vph
Length of first accel/decel lane	430	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	780	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7829	541	780	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2127	147	212	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8680	594	856	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.281 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2435$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9274	9000	Yes
v_3 or v_{av34}	3122 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 3280		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3280	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A = 32.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $M_S = 0.479$

Space mean speed in ramp influence area, $S_R = 48.8$ mph

Space mean speed in outer lanes, $S_0 = 46.1$ mph

Space mean speed for all vehicles, $S = 47.2$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Baseline + HD Project
Description:	65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7820	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	545	vph
Length of first accel/decel lane	430	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	746	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7820	545	746	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2125	148	203	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8670	598	819	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.280 Using Equation 4

$v_{12} = v_F \, (P_{FM}) = 2428$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9268	9000	Yes
v_3 or v_{av34}	3121 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12} /2		Yes	
If yes, v_{12A} = 3270		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3270	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 32.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	$M_S = 0.478$
Space mean speed in ramp influence area,	$S_R = 48.8$ mph
Space mean speed in outer lanes,	$S_0 = 46.1$ mph
Space mean speed for all vehicles,	$S = 47.2$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Baseline + HD Project
Description:	65th Street Station

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8472	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	643	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	541	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	8472		643		541	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2302		175		147	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	9393		706		594	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} = 4494$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	9393	9000	Yes
$v_{FO} = v_F - v_R$	8687	9000	No
v_R	706	2000	No
v_3 or v_{av34}	2449 pc/h	(Equation 25-15 or 25-16)	
Is v_3 or v_{av34} > 2700 pc/h?		No	
Is v_3 or v_{av34} > 1.5 $v_{12}/2$		No	
If yes, v_{12A} =		(Equation 25-18)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4494	4600	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 41.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $D_S = 0.492$

Space mean speed in ramp influence area, $S_R = 48.6$ mph

Space mean speed in outer lanes, $S_0 = 54.7$ mph

Space mean speed for all vehicles, $S = 51.6$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Baseline + HD Project
Description:	65th Street Station

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8520	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	700	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	545	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	8520		700		545	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2315		190		148	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	9446		768		598	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} = 4552$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	9446	9000	Yes
$v_{FO} = v_F - v_R$	8678	9000	No
v_R	768	2000	No
v_3 or v_{av34}	2447 pc/h	(Equation 25-15 or 25-16)	
Is v_3 or v_{av34} > 2700 pc/h?		No	
Is v_3 or v_{av34} > 1.5 v_{12}/2		No	
If yes, v_{12A} =		(Equation 25-18)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4552	4600	No

!

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D = 41.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $D_S = 0.497$

Space mean speed in ramp influence area, $S_R = 48.5$ mph

Space mean speed in outer lanes, $S_0 = 54.7$ mph

Space mean speed for all vehicles, $S = 51.5$ mph

```
Const wdPageBreak = 7

strComputer = "."
Set objWMIService = GetObject("winmgmts:\\" & strComputer & "\root\cimv2")

Set objWord = CreateObject("Word.Application")
objWord.Visible = True
Set objDoc = objWord.Documents.Add()
Set objSelection = objWord.Selection

Set FileList = objWMIService.ExecQuery _
    ("ASSOCIATORS OF
{Win32_Directory.Name='N:\2008Projects\2604_Station65ProjectTrafficStudy\Analysis\HCS\Bas
eline + HD Project\Ramps\reports'} Where " _
        & "ResultClass = CIM_DataFile")

objSelection.Font.Name = "Courier New"

For Each objFile in FileList
    objSelection.InsertFile(objFile.Name)
    objSelection.InsertBreak(wdPageBreak)
Next
```

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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Baseline + HD Project

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8239	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	335	vph
Length of first accel/decel lane	360	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	273	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	8239	335	273	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2239	91	74	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	9135	368	300	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.286 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2617$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9503	9000	Yes
v_3 or v_{av34}	3259 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 3735		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3735	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 35.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $M_S = 0.532$

Space mean speed in ramp influence area, $S_R = 48.1$ mph

Space mean speed in outer lanes, $S_0 = 46.1$ mph

Space mean speed for all vehicles, $S = 46.9$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Baseline + HD Project

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7434	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	414	vph
Length of first accel/decel lane	360	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	302	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7434	414	302	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2020	112	82	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8242	454	332	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.276 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2273$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8696	9000	No
v_3 or v_{av34}	2984 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 2842		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2842	4400	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 28.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	$M_S = 0.401$	
Space mean speed in ramp influence area,	$S_R = 49.8$	mph
Space mean speed in outer lanes,	$S_0 = 46.1$	mph
Space mean speed for all vehicles,	$S = 47.4$	mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst: Bill Penney
Agency/Co.: Fehr & Peers
Date performed: 8/25/2008
Analysis time period: AM
Freeway/Dir of Travel: US 50 WB
Junction: 65th Street
Jurisdiction:
Analysis Year: Baseline + HD Project
Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8574	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	273	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	335	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	8574	273	335	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2330	74	91	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	9506	300	368	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.324 Using Equation 4

$v_{12} = v_F (P_{FM}) = 3077$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9806	9000	Yes

v_3 or v_{av34} 3214 pc/h (Equation 25-4 or 25-5)

Is v_3 or v_{av34} > 2700 pc/h? Yes

Is v_3 or v_{av34} > 1.5 v_{12}/2 Yes

If yes, v_{12A} = 4106 (Equation 25-8)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	4106	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 36.9$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $M_S = 0.609$

Space mean speed in ramp influence area, $S_R = 47.1$ mph

Space mean speed in outer lanes, $S_0 = 46.1$ mph

Space mean speed for all vehicles, $S = 46.5$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Baseline + HD Project

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7848	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	302	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	414	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7848	302	414	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2133	82	112	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8701	332	454	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.320 Using Equation 4

$v_{12} = v_F (P_{FM}) =$ 2781 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9033	9000	Yes
v_3 or v_{av34}	2960 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 3301		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3301	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 30.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, M_S = 0.437

Space mean speed in ramp influence area, S_R = 49.3 mph

Space mean speed in outer lanes, S_0 = 46.1 mph

Space mean speed for all vehicles, S = 47.3 mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative A No Project

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7259	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	520	vph
Length of first accel/decel lane	430	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1000	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7259	520	1000	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	1973	141	272	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8048	571	1098	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.283 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2281$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8619	9000	No
v_3 or v_{av34}	2883 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 2648		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2648	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A = 27.6$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $M_S = 0.388$

Space mean speed in ramp influence area, $S_R = 50.0$ mph

Space mean speed in outer lanes, $S_0 = 46.1$ mph

Space mean speed for all vehicles, $S = 47.4$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative A No Project

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7599	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	680	vph
Length of first accel/decel lane	430	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	730	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7599	680	730	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2065	185	198	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8425	747	801	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.261 Using Equation 4

$v_{12} = v_F (P_{FM}) =$ 2202 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9172	9000	Yes
v_3 or v_{av34}	3111 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 3025		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3025	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 31.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	M_S = 0.460	
Space mean speed in ramp influence area,	S_R = 49.0	mph
Space mean speed in outer lanes,	S_0 = 46.1	mph
Space mean speed for all vehicles,	S = 47.2	mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative A No Project
Description:	65th Street Station

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7979	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	720	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	520	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	7979		720		520	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2168		196		141	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	8846		790		571	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} = 4302$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	8846	9000	No
$v_{FO} = v_F - v_R$	8056	9000	No
v_R	790	2000	No
v_3 or v_{av34}	2272 pc/h	(Equation 25-15 or 25-16)	
Is v_3 or v_{av34} > 2700 pc/h?		No	
Is v_3 or v_{av34} > 1.5 v_{12}/2		No	
If yes, v_{12A} =		(Equation 25-18)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4302	4600	No

!

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D = 39.4$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

Speed Estimation

Intermediate speed variable, $D_S = 0.499$

Space mean speed in ramp influence area, $S_R = 48.5$ mph

Space mean speed in outer lanes, $S_0 = 55.4$ mph

Space mean speed for all vehicles, $S = 51.8$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative A No Project

Description: 65th Street Station

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8339	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	740	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	680	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	8339		740		680	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2266		201		185	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	9245		812		747	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} = 4489$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	9245	9000	Yes
$v_{FO} = v_F - v_R$	8433	9000	No
v_R	812	2000	No
v_3 or v_{av34}	2378 pc/h	(Equation 25-15 or 25-16)	
Is v_3 or v_{av34} > 2700 pc/h?		No	
Is v_3 or v_{av34} > 1.5 v_{12}/2		No	
If yes, v_{12A} =		(Equation 25-18)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4489	4600	No

!

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D = 41.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $D_S = 0.501$

Space mean speed in ramp influence area, $S_R = 48.5$ mph

Space mean speed in outer lanes, $S_0 = 55.0$ mph

Space mean speed for all vehicles, $S = 51.6$ mph

```
Const wdPageBreak = 7

strComputer = "."
Set objWMIService = GetObject("winmgmts:\\" & strComputer & "\root\cimv2")

Set objWord = CreateObject("Word.Application")
objWord.Visible = True
Set objDoc = objWord.Documents.Add()
Set objSelection = objWord.Selection

Set FileList = objWMIService.ExecQuery _
    ("ASSOCIATORS OF
{Win32_Directory.Name='N:\2008Projects\2604_Station65ProjectTrafficStudy\Analysis\HCS\Cum
ulative A No Project\Ramps\reports'} Where " _
        & "ResultClass = CIM_DataFile")

objSelection.Font.Name = "Courier New"

For Each objFile in FileList
    objSelection.InsertFile(objFile.Name)
    objSelection.InsertBreak(wdPageBreak)
Next
```

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative A No Project

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8072	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	600	vph
Length of first accel/decel lane	360	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	420	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	8072	600	420	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2193	163	114	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8949	659	461	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.250 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2238$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9608	9000	Yes
v_3 or v_{av34}	3355 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 3549		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3549	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A = 35.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $M_S = 0.558$

Space mean speed in ramp influence area, $S_R = 47.7$ mph

Space mean speed in outer lanes, $S_0 = 46.1$ mph

Space mean speed for all vehicles, $S = 46.8$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative A No Project
Description:	65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	6963	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	500	vph
Length of first accel/decel lane	360	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	390	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	6963	500	390	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	1892	136	106	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	7720	549	428	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.264 Using Equation 4

$v_{12} = v_F (P_{FM}) =$ 2037 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8269	9000	No
v_3 or v_{av34}	2841 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 2320		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2320	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 25.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.365	
Space mean speed in ramp influence area,	S_R = 50.3	mph
Space mean speed in outer lanes,	S_0 = 46.1	mph
Space mean speed for all vehicles,	S = 47.4	mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative A No Project
Description:	65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8672	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	420	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	600	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	8672	420	600	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2357	114	163	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	9615	461	659	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.304 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2918$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	10076	9000	Yes
v_3 or v_{av34}	3348 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 4215		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	4215	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 38.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $M_S = 0.708$

Space mean speed in ramp influence area, $S_R = 45.8$ mph

Space mean speed in outer lanes, $S_0 = 46.1$ mph

Space mean speed for all vehicles, $S = 45.9$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst: Bill Penney
Agency/Co.: Fehr & Peers
Date performed: 8/28/2008
Analysis time period: PM
Freeway/Dir of Travel: US 50 WB
Junction: 65th Street
Jurisdiction:
Analysis Year: Cumulative A No Project
Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7404	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	390	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	500	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7404	390	500	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2012	106	136	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8209	428	549	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.308 Using Equation 4

$v_{12} = v_F (P_{FM}) =$ 2526 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8637	9000	No
v_3 or v_{av34}	2841 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 2809		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2809	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 27.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.389

Space mean speed in ramp influence area, S_R = 49.9 mph

Space mean speed in outer lanes, S_0 = 46.1 mph

Space mean speed for all vehicles, S = 47.5 mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative A + Project

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7259	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	550	vph
Length of first accel/decel lane	430	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	990	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7259	550	990	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	1973	149	269	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8048	604	1087	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.279 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2248$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8652	9000	No
v_3 or v_{av34}	2900 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 2648		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2648	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 27.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.392
Space mean speed in ramp influence area,	S_R = 49.9 mph
Space mean speed in outer lanes,	S_0 = 46.1 mph
Space mean speed for all vehicles,	S = 47.4 mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative A + Project

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7599	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	700	vph
Length of first accel/decel lane	430	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	730	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7599	700	730	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2065	190	198	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8425	768	801	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.259 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2180$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9193	9000	Yes
v_3 or v_{av34}	3122 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 3025		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3025	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A = 32.0$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $M_S = 0.464$

Space mean speed in ramp influence area, $S_R = 49.0$ mph

Space mean speed in outer lanes, $S_0 = 46.1$ mph

Space mean speed for all vehicles, $S = 47.2$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative A + Project

Description: 65th Street Station

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8039	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	780	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	550	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	8039		780		550	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2185		212		149	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	8913		856		604	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} = 4369$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	8913	9000	No
$v_{FO} = v_F - v_R$	8057	9000	No
v_R	856	2000	No
v_3 or v_{av34}	2272 pc/h	(Equation 25-15 or 25-16)	
Is v_3 or v_{av34} > 2700 pc/h?		No	
Is v_3 or v_{av34} > 1.5 v_{12}/2		No	
If yes, v_{12A} =		(Equation 25-18)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4369	4600	No

!

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D$ = 40.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

Speed Estimation

Intermediate speed variable, D_S = 0.505

Space mean speed in ramp influence area, S_R = 48.4 mph

Space mean speed in outer lanes, S_0 = 55.4 mph

Space mean speed for all vehicles, S = 51.7 mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative A + Project
Description:	65th Street Station

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8379	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	780	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	700	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	8379		780		700	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2277		212		190	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	9290		856		768	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} = 4533$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	9290	9000	Yes
$v_{FO} = v_F - v_R$	8434	9000	No
v_R	856	2000	No
v_3 or v_{av34}	2378 pc/h	(Equation 25-15 or 25-16)	
Is v_3 or v_{av34} > 2700 pc/h?		No	
Is v_3 or v_{av34} > 1.5 v_{12}/2		No	
If yes, v_{12A} =		(Equation 25-18)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4533	4600	No

!

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 41.4$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $D_S = 0.505$

Space mean speed in ramp influence area, $S_R = 48.4$ mph

Space mean speed in outer lanes, $S_0 = 55.0$ mph

Space mean speed for all vehicles, $S = 51.6$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

_____Merge Analysis_____

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative A + Project

Description: 65th Street Station

_____Freeway Data_____

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8072	vph

_____On Ramp Data_____

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	600	vph
Length of first accel/decel lane	360	ft
Length of second accel/decel lane		ft

_____Adjacent Ramp Data (if one exists)_____

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	450	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

_____Conversion to pc/h Under Base Conditions_____

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	8072	600	450	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2193	163	122	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8949	659	494	pcph

_____Estimation of V12 Merge Areas_____

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.250 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2238$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9608	9000	Yes
v_3 or v_{av34}	3355 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > $1.5\ v_{12}/2$		Yes	
If yes, $v_{12A} = 3549$		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3549	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 35.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	$M_S = 0.558$	
Space mean speed in ramp influence area,	$S_R = 47.7$	mph
Space mean speed in outer lanes,	$S_0 = 46.1$	mph
Space mean speed for all vehicles,	$S = 46.8$	mph

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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative A + Project
Description:	65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	6963	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	500	vph
Length of first accel/decel lane	360	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	440	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	6963		500		440		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	1892		136		120		v
Trucks and buses	4		2		2		%
Recreational vehicles	0		0		0		%
Terrain type:	Level		Level		Level		
Grade		%		%		%	
Length		mi		mi		mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		
Heavy vehicle adjustment, fHV	0.980		0.990		0.990		
Driver population factor, fP	1.00		1.00		1.00		
Flow rate, vp	7720		549		483		pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.264 Using Equation 4

$v_{12} = v_F\,(P_{FM}) =$ 2037 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8269	9000	No
v_3 or v_{av34}	2841 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 $v_{12}/2$		Yes	
If yes, v_{12A} = 2320		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2320	4400	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 25.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	$M_S = 0.365$	
Space mean speed in ramp influence area,	$S_R = 50.3$	mph
Space mean speed in outer lanes,	$S_0 = 46.1$	mph
Space mean speed for all vehicles,	$S = 47.4$	mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative A + Project

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8672	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	450	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	600	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	8672	450	600	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2357	122	163	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	9615	494	659	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.299 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2879$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	10109	9000	Yes
v_3 or v_{av34}	3368 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 4215		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	4215	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 39.2$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	$M_S = 0.722$
Space mean speed in ramp influence area,	$S_R = 45.6$ mph
Space mean speed in outer lanes,	$S_0 = 46.1$ mph
Space mean speed for all vehicles,	$S = 45.9$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative A + Project

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7404	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	440	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	500	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7404	440	500	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2012	120	136	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8209	483	549	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.301 Using Equation 4

$v_{12} = v_F (P_{FM}) =$ 2469 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8692	9000	No
v_3 or v_{av34}	2870 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 2809		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2809	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 28.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, M_S = 0.394

Space mean speed in ramp influence area, S_R = 49.9 mph

Space mean speed in outer lanes, S_0 = 46.1 mph

Space mean speed for all vehicles, S = 47.4 mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative A + HD Project

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7259	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	557	vph
Length of first accel/decel lane	430	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	990	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7259	557	990	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	1973	151	269	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8048	611	1087	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.278 Using Equation 4

$v_{12} = v_F (P_{FM}) =$ 2241 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8659	9000	No
v_3 or v_{av34}	2903 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 2648		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2648	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 27.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.392

Space mean speed in ramp influence area, S_R = 49.9 mph

Space mean speed in outer lanes, S_0 = 46.1 mph

Space mean speed for all vehicles, S = 47.4 mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative A + HD Project

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7599	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	703	vph
Length of first accel/decel lane	430	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	730	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7599	703	730	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2065	191	198	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8425	772	801	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.258 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2176$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9197	9000	Yes
v_3 or v_{av34}	3124 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 3025		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3025	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 32.0$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $M_S = 0.465$

Space mean speed in ramp influence area, $S_R = 49.0$ mph

Space mean speed in outer lanes, $S_0 = 46.1$ mph

Space mean speed for all vehicles, $S = 47.2$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative A + HD Project
Description:	65th Street Station

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8045	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	786	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	557	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	8045		786		557	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2186		214		151	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	8919		863		611	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} = 4375$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	8919	9000	No
$v_{FO} = v_F - v_R$	8056	9000	No
v_R	863	2000	No
v_3 or v_{av34}	2272 pc/h	(Equation 25-15 or 25-16)	
Is v_3 or v_{av34} > 2700 pc/h?		No	
Is v_3 or v_{av34} > 1.5 v_{12}/2		No	
If yes, v_{12A} =		(Equation 25-18)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4375	4600	No

!

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D = 40.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

Speed Estimation

Intermediate speed variable, $D_S = 0.506$

Space mean speed in ramp influence area, $S_R = 48.4$ mph

Space mean speed in outer lanes, $S_0 = 55.4$ mph

Space mean speed for all vehicles, $S = 51.7$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Bill Penney
Agency/Co.: Fehr & Peers
Date performed: 8/28/2008
Analysis time period: PM
Freeway/Dir of Travel: US 50 EB
Junction: 65th Street
Jurisdiction:
Analysis Year: Cumulative A + HD Project
Description: 65th Street Station

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8383	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	784	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	703	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	8383		784		703	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2278		213		191	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	9294		861		772	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} = 4538$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	9294	9000	Yes
$v_{FO} = v_F - v_R$	8433	9000	No
v_R	861	2000	No
v_3 or v_{av34}	2378 pc/h	(Equation 25-15 or 25-16)	
Is v_3 or v_{av34} > 2700 pc/h?		No	
Is v_3 or v_{av34} > 1.5 v_{12}/2		No	
If yes, v_{12A} =		(Equation 25-18)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4538	4600	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 41.5$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $D_S = 0.505$

Space mean speed in ramp influence area, $S_R = 48.4$ mph

Space mean speed in outer lanes, $S_0 = 55.0$ mph

Space mean speed for all vehicles, $S = 51.6$ mph

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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative A + HD Project
Description:	65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8072	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	600	vph
Length of first accel/decel lane	360	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	455	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	8072	600	455	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2193	163	124	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8949	659	500	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.250 Using Equation 4

$v_{12} = v_F \, (P_{FM}) = 2238$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9608	9000	Yes
v_3 or v_{av34}	3355 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 3549		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3549	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 \, v_R + 0.0078 \, v_{12} - 0.00627 \, L_A = 35.7$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	$M_S = 0.558$	
Space mean speed in ramp influence area,	$S_R = 47.7$	mph
Space mean speed in outer lanes,	$S_0 = 46.1$	mph
Space mean speed for all vehicles,	$S = 46.8$	mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst: Bill Penney
Agency/Co.: Fehr & Peers
Date performed: 8/28/2008
Analysis time period: PM
Freeway/Dir of Travel: US 50 WB
Junction: 65th Street
Jurisdiction:
Analysis Year: Cumulative A + HD Project
Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	6963	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	500	vph
Length of first accel/decel lane	360	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	445	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	6963	500	445	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	1892	136	121	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	7720	549	489	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.264 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2037$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8269	9000	No
v_3 or v_{av34}	2841 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 $v_{12}/2$		Yes	
If yes, $v_{12A} = 2320$		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2320	4400	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 25.3$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	$M_S = 0.365$	
Space mean speed in ramp influence area,	$S_R = 50.3$	mph
Space mean speed in outer lanes,	$S_0 = 46.1$	mph
Space mean speed for all vehicles,	$S = 47.4$	mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative A + HD Project
Description:	65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8672	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	455	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	600	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	8672	455	600	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2357	124	163	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	9615	500	659	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.299 Using Equation 4

$v_{12} = v_F\,(P_{FM}) =$ 2872 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	10115	9000	Yes
v_3 or v_{av34}	3371 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 4215		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	4215	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 39.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, M_S = 0.725

Space mean speed in ramp influence area, S_R = 45.6 mph

Space mean speed in outer lanes, S_0 = 46.1 mph

Space mean speed for all vehicles, S = 45.8 mph

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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative A + HD Project
Description:	65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7404	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	445	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	500	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7404	445	500	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2012	121	136	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8209	489	549	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.300 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2463$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8698	9000	No
v_3 or v_{av34}	2873 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 2809		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2809	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A = 28.2$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	$M_S = 0.395$	
Space mean speed in ramp influence area,	$S_R = 49.9$	mph
Space mean speed in outer lanes,	$S_0 = 46.1$	mph
Space mean speed for all vehicles,	$S = 47.4$	mph

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Phone: Fax:
E-mail:

Merge Analysis

Analyst: Bill Penney
Agency/Co.: Fehr & Peers
Date performed: 8/28/2008
Analysis time period: AM
Freeway/Dir of Travel: US 50 EB
Junction: 65th Street
Jurisdiction:
Analysis Year: Cumulative C No Project
Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7222	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	620	vph
Length of first accel/decel lane	430	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	830	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7222	620	830	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	1962	168	226	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8007	681	911	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.270 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2159$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8688	9000	No
v_{3} or v_{av34}	2924 pc/h	(Equation 25-4 or 25-5)	
Is v_{3} or v_{av34} > 2700 pc/h?		Yes	
Is v_{3} or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 2607		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2607	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 28.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	$M_S = 0.395$	
Space mean speed in ramp influence area,	$S_R = 49.9$	mph
Space mean speed in outer lanes,	$S_0 = 46.1$	mph
Space mean speed for all vehicles,	$S = 47.4$	mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst: Bill Penney
Agency/Co.: Fehr & Peers
Date performed: 8/28/2008
Analysis time period: PM
Freeway/Dir of Travel: US 50 EB
Junction: 65th Street
Jurisdiction:
Analysis Year: Cumulative C No Project
Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7704	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	550	vph
Length of first accel/decel lane	430	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	670	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7704	550	670	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2093	149	182	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8541	604	736	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.279 Using Equation 4

$v_{12} = v_F (P_{FM}) =$ 2385 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9145	9000	Yes
v_3 or v_{av34}	3078 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 3141		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3141	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 31.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	M_S = 0.456
Space mean speed in ramp influence area,	S_R = 49.1 mph
Space mean speed in outer lanes,	S_0 = 46.1 mph
Space mean speed for all vehicles,	S = 47.3 mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative C No Project

Description: 65th Street Station

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7952	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	730	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	620	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	7952		730		620	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2161		198		168	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	8816		801		681	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} = 4296$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	8816	9000	No
$v_{FO} = v_F - v_R$	8015	9000	No
v_R	801	2000	No
v_3 or v_{av34}	2260 pc/h	(Equation 25-15 or 25-16)	
Is v_3 or v_{av34} > 2700 pc/h?		No	
Is v_3 or v_{av34} > 1.5 v_{12}/2		No	
If yes, v_{12A} =		(Equation 25-18)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4296	4600	No

!

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D = 39.4$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

Speed Estimation

Intermediate speed variable, $D_S = 0.500$

Space mean speed in ramp influence area, $S_R = 48.5$ mph

Space mean speed in outer lanes, $S_0 = 55.4$ mph

Space mean speed for all vehicles, $S = 51.8$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/25/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative C No Project

Description: 65th Street Station

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8474	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	770	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	550	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	8474		770		550	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2303		209		149	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	9395		845		604	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} = 4573$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	9395	9000	Yes
$v_{FO} = v_F - v_R$	8550	9000	No
v_R	845	2000	No
v_3 or v_{av34}	2411 pc/h	(Equation 25-15 or 25-16)	
Is v_3 or v_{av34} > 2700 pc/h?		No	
Is v_3 or v_{av34} > 1.5 v_{12}/2		No	
If yes, v_{12A} =		(Equation 25-18)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4573	4600	No

!

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 41.8$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $D_S = 0.504$

Space mean speed in ramp influence area, $S_R = 48.4$ mph

Space mean speed in outer lanes, $S_0 = 54.8$ mph

Space mean speed for all vehicles, $S = 51.5$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative C No Project

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8259	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	650	vph
Length of first accel/decel lane	360	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	420	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	8259	650	420	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2244	177	114	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	9157	714	461	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.243 Using Equation 4

$v_{12} = v_F \, (P_{FM}) =$ 2227 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9871	9000	Yes
v_3 or v_{av34}	3465 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12} /2		Yes	
If yes, v_{12A} = 3757		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3757	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 37.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	M_S = 0.637	
Space mean speed in ramp influence area,	S_R = 46.7	mph
Space mean speed in outer lanes,	S_0 = 46.1	mph
Space mean speed for all vehicles,	S = 46.4	mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative C No Project

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7065	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	500	vph
Length of first accel/decel lane	360	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	350	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	7065		500		350	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	1920		136		95	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade		%		%		%
Length		mi		mi		mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	7833		549		384	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.264 Using Equation 4

$v_{12} = v_F (P_{FM}) =$ 2067 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8382	9000	No
v_3 or v_{av34}	2883 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 2433		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2433	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 26.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, M_S = 0.373

Space mean speed in ramp influence area, S_R = 50.2 mph

Space mean speed in outer lanes, S_0 = 46.1 mph

Space mean speed for all vehicles, S = 47.4 mph

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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative C No Project

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8909	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	420	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	650	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	8909	420	650	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2421	114	177	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	9877	461	714	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.304 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2998$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	10338	9000	Yes
v_3 or v_{av34}	3439 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 4477		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	4477	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 41.0$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	$M_S = 0.834$	
Space mean speed in ramp influence area,	$S_R = 44.2$	mph
Space mean speed in outer lanes,	$S_0 = 46.1$	mph
Space mean speed for all vehicles,	$S = 45.1$	mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative C No Project
Description:	65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7531	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	350	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	500	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7531	350	500	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2046	95	136	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8350	384	549	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.313 Using Equation 4

$v_{12} = v_F (P_{FM}) =$ 2615 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8734	9000	No

v_3 or v_{av34} 2867 pc/h (Equation 25-4 or 25-5)

Is v_3 or v_{av34} > 2700 pc/h? Yes

Is v_3 or v_{av34} > 1.5 v_{12}/2 Yes

If yes, v_{12A} = 2950 (Equation 25-8)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2950	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 28.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, M_S = 0.399

Space mean speed in ramp influence area, S_R = 49.8 mph

Space mean speed in outer lanes, S_0 = 46.1 mph

Space mean speed for all vehicles, S = 47.4 mph

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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative C + Project

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7222	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	640	vph
Length of first accel/decel lane	430	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	830	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	7222		640		830	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	1962		174		226	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade		%		%		%
Length		mi		mi		mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	8007		703		911	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.267 Using Equation 4

$v_{12} = v_F (P_{FM}) =$ 2137 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8710	9000	No
v_3 or v_{av34}	2935 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 2607		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2607	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A$ = 28.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, M_S = 0.398

Space mean speed in ramp influence area, S_R = 49.8 mph

Space mean speed in outer lanes, S_0 = 46.1 mph

Space mean speed for all vehicles, S = 47.4 mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative C + Project
Description:	65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7704	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	570	vph
Length of first accel/decel lane	430	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	670	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	7704		570		670	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2093		155		182	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade		%		%		%
Length		mi		mi		mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	8541		626		736	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.277 Using Equation 4

$v_{12} = v_F (P_{FM}) =$ 2362 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9167	9000	Yes
v_3 or v_{av34}	3089 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 3141		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3141	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\ v_R + 0.0078\ v_{12} - 0.00627\ L_A =$ 31.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, M_S = 0.460

Space mean speed in ramp influence area, S_R = 49.0 mph

Space mean speed in outer lanes, S_0 = 46.1 mph

Space mean speed for all vehicles, S = 47.2 mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative C + Project
Description:	65th Street Station

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8002	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	780	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	640	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	8002		780		640	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2174		212		174	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	8872		856		703	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$$v_{12} = v_R + (v_F - v_R) P_{FD} = 4351 \quad pc/h$$

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	8872	9000	No
$v_{FO} = v_F - v_R$	8016	9000	No
v_R	856	2000	No
v_3 or v_{av34}	2260 pc/h	(Equation 25-15 or 25-16)	
Is v_3 or v_{av34} > 2700 pc/h?		No	
Is v_3 or v_{av34} > 1.5 v_{12}/2		No	
If yes, v_{12A} =		(Equation 25-18)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4351	4600	No

!

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 39.9$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

Speed Estimation

Intermediate speed variable, $D_S = 0.505$

Space mean speed in ramp influence area, $S_R = 48.4$ mph

Space mean speed in outer lanes, $S_0 = 55.4$ mph

Space mean speed for all vehicles, $S = 51.8$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Bill Penney
Agency/Co.: Fehr & Peers
Date performed: 8/28/2008
Analysis time period: PM
Freeway/Dir of Travel: US 50 EB
Junction: 65th Street
Jurisdiction:
Analysis Year: Cumulative C + Project
Description: 65th Street Station

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8524	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	820	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	570	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	8524		820		570	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2316		223		155	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	9451		900		626	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} = 4628$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	9451	9000	Yes
$v_{FO} = v_F - v_R$	8551	9000	No
v_R	900	2000	No
v_3 or v_{av34}	2411 pc/h	(Equation 25-15 or 25-16)	
Is v_3 or v_{av34} > 2700 pc/h?		No	
Is v_3 or v_{av34} > 1.5 v_{12} /2		No	
If yes, v_{12A} =		(Equation 25-18)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4628	4600	No

!

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D = 42.3$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $D_S = 0.509$

Space mean speed in ramp influence area, $S_R = 48.4$ mph

Space mean speed in outer lanes, $S_O = 54.8$ mph

Space mean speed for all vehicles, $S = 51.5$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative C + Project
Description:	65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8259	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	650	vph
Length of first accel/decel lane	360	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	440	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	8259	650	440	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2244	177	120	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	9157	714	483	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.243 Using Equation 4

$v_{12} = v_F \, (P_{FM}) = 2227$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9871	9000	Yes
v_3 or v_{av34}	3465 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 3757		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3757	4400	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 \, v_R + 0.0078 \, v_{12} - 0.00627 \, L_A = 37.8$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $M_S = 0.637$

Space mean speed in ramp influence area, $S_R = 46.7$ mph

Space mean speed in outer lanes, $S_0 = 46.1$ mph

Space mean speed for all vehicles, $S = 46.4$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative C + Project

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7065	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	500	vph
Length of first accel/decel lane	360	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	420	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7065	500	420	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	1920	136	114	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	7833	549	461	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.264 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2067$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8382	9000	No
v_3 or v_{av34}	2883 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 2433		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2433	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 26.2$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	$M_S = 0.373$	
Space mean speed in ramp influence area,	$S_R = 50.2$	mph
Space mean speed in outer lanes,	$S_0 = 46.1$	mph
Space mean speed for all vehicles,	$S = 47.4$	mph

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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative C + Project

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8909	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	440	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	650	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	8909		440		650	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2421		120		177	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade		%		%		%
Length		mi		mi		mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	9877		483		714	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.301 Using Equation 4

$v_{12} = v_F (P_{FM}) =$ 2971 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	10360	9000	Yes
v_3 or v_{av34}	3453 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 4477		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	4477	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 41.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, M_S = 0.846

Space mean speed in ramp influence area, S_R = 44.0 mph

Space mean speed in outer lanes, S_0 = 46.1 mph

Space mean speed for all vehicles, S = 45.1 mph

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Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative C + Project
Description:	65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7531	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	420	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	500	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	7531		420		500	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2046		114		136	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade		%		%		%
Length		mi		mi		mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	8350		461		549	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.304 Using Equation 4

$v_{12} = v_F (P_{FM}) =$ 2534 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8811	9000	No
v_3 or v_{av34}	2908 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 2950		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2950	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 29.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M_S = 0.408	
Space mean speed in ramp influence area,	S_R = 49.7	mph
Space mean speed in outer lanes,	S_0 = 46.1	mph
Space mean speed for all vehicles,	S = 47.4	mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst: Bill Penney
Agency/Co.: Fehr & Peers
Date performed: 8/28/2008
Analysis time period: AM
Freeway/Dir of Travel: US 50 EB
Junction: 65th Street
Jurisdiction:
Analysis Year: Cumulative C + HD Project
Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7222	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	647	vph
Length of first accel/decel lane	430	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	830	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	7222		647		830	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	1962		176		226	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade		%		%		%
Length		mi		mi		mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	8007		710		911	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.266 Using Equation 4

$v_{12} = v_F (P_{FM}) =$ 2130 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8717	9000	No
v_3 or v_{av34}	2938 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 2607		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2607	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 28.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, M_S = 0.398

Space mean speed in ramp influence area, S_R = 49.8 mph

Space mean speed in outer lanes, S_0 = 46.1 mph

Space mean speed for all vehicles, S = 47.4 mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst: Bill Penney
Agency/Co.: Fehr & Peers
Date performed: 8/28/2008
Analysis time period: PM
Freeway/Dir of Travel: US 50 EB
Junction: 65th Street
Jurisdiction:
Analysis Year: Cumulative C + HD Project
Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7704	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	573	vph
Length of first accel/decel lane	430	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	670	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7704	573	670	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	2093	156	182	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	8541	629	736	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.276 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2359$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9170	9000	Yes
v_3 or v_{av34}	3091 pc/h	(Equation 25-4 or 25-5)	

Is v_3 or v_{av34} > 2700 pc/h? Yes

Is v_3 or v_{av34} > 1.5 v_{12}/2 Yes

If yes, v_{12A} = 3141 (Equation 25-8)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3141	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 31.9$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $M_S = 0.460$

Space mean speed in ramp influence area, $S_R = 49.0$ mph

Space mean speed in outer lanes, $S_0 = 46.1$ mph

Space mean speed for all vehicles, $S = 47.2$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Diverge Analysis

Analyst: Bill Penney
Agency/Co.: Fehr & Peers
Date performed: 8/28/2008
Analysis time period: AM
Freeway/Dir of Travel: US 50 EB
Junction: 65th Street
Jurisdiction:
Analysis Year: Cumulative C + HD Project
Description: 65th Street Station

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8008	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	786	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	647	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	8008		786		647	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2176		214		176	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	8878		863		710	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} = 4358$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	8878	9000	No
$v_{FO} = v_F - v_R$	8015	9000	No
v_R	863	2000	No
v_3 or v_{av34}	2260 pc/h	(Equation 25-15 or 25-16)	
Is v_3 or v_{av34} > 2700 pc/h?		No	
Is v_3 or v_{av34} > 1.5 v_{12}/2		No	
If yes, v_{12A} =		(Equation 25-18)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4358	4600	No

!

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D = 39.9$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

Speed Estimation

Intermediate speed variable, $D_S = 0.506$

Space mean speed in ramp influence area, $S_R = 48.4$ mph

Space mean speed in outer lanes, $S_0 = 55.4$ mph

Space mean speed for all vehicles, $S = 51.8$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 EB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative C + HD Project
Description:	65th Street Station

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8528	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	35.0	mph
Volume on ramp	824	vph
Length of first accel/decel lane	200	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	573	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1150	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	8528		824		573	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2317		224		156	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade	0.00	%	0.00	%	0.00	%
Length	0.00	mi	0.00	mi	0.00	mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	9455		905		629	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = 0.436 Using Equation 8

$v_{12} = v_R + (v_F - v_R) P_{FD} = 4633$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	9455	9000	Yes
$v_{FO} = v_F - v_R$	8550	9000	No
v_R	905	2000	No
v_3 or v_{av34}	2411 pc/h	(Equation 25-15 or 25-16)	
Is v_3 or v_{av34} > 2700 pc/h?		No	
Is v_3 or v_{av34} > 1.5 v_{12}/2		No	
If yes, v_{12A} =		(Equation 25-18)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4633	4600	No

!

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\ v_{12} - 0.009\ L_D = 42.3$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $D_S = 0.509$

Space mean speed in ramp influence area, $S_R = 48.4$ mph

Space mean speed in outer lanes, $S_0 = 54.8$ mph

Space mean speed for all vehicles, $S = 51.5$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative C + HD Project

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8259	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	650	vph
Length of first accel/decel lane	360	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	445	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	8259		650		445	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2244		177		121	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade		%		%		%
Length		mi		mi		mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	9157		714		489	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.243 Using Equation 4

$v_{12} = v_F \ (P_{FM}) = 2227$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	9871	9000	Yes
v_3 or v_{av34}	3465 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 3757		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	3757	4400	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 37.8$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $M_S = 0.637$

Space mean speed in ramp influence area, $S_R = 46.7$ mph

Space mean speed in outer lanes, $S_0 = 46.1$ mph

Space mean speed for all vehicles, $S = 46.4$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative C + HD Project

Description: 65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7065	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	500	vph
Length of first accel/decel lane	360	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	425	vph
Position of adjacent Ramp	Downstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	7065	500	425	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	1920	136	115	v
Trucks and buses	4	2	2	%
Recreational vehicles	0	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.980	0.990	0.990	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	7833	549	467	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.264 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2067$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8382	9000	No
v_3 or v_{av34}	2883 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 2433		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2433	4400	No

!

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 26.2$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $M_S = 0.373$

Space mean speed in ramp influence area, $S_R = 50.2$ mph

Space mean speed in outer lanes, $S_0 = 46.1$ mph

Space mean speed for all vehicles, $S = 47.4$ mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	AM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative C + HD Project
Description:	65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	8909	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	445	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	650	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	8909		445		650	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2421		121		177	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade		%		%		%
Length		mi		mi		mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	9877		489		714	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.300 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2963$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	10366	9000	Yes
v_3 or v_{av34}	3457 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 4477		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	4477	4400	No

!

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 41.2$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	$M_S = 0.849$	
Space mean speed in ramp influence area,	$S_R = 44.0$	mph
Space mean speed in outer lanes,	$S_0 = 46.1$	mph
Space mean speed for all vehicles,	$S = 45.0$	mph

HCS+: Ramps and Ramp Junctions Release 5.21

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	Bill Penney
Agency/Co.:	Fehr & Peers
Date performed:	8/28/2008
Analysis time period:	PM
Freeway/Dir of Travel:	US 50 WB
Junction:	65th Street
Jurisdiction:	
Analysis Year:	Cumulative C + HD Project
Description:	65th Street Station

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	4	
Free-flow speed on freeway	55.0	mph
Volume on freeway	7531	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	35.0	mph
Volume on ramp	425	vph
Length of first accel/decel lane	450	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	500	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	On	
Distance to adjacent Ramp	1040	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp	
Volume, V (vph)	7531		425		500	vph
Peak-hour factor, PHF	0.92		0.92		0.92	
Peak 15-min volume, v15	2046		115		136	v
Trucks and buses	4		2		2	%
Recreational vehicles	0		0		0	%
Terrain type:	Level		Level		Level	
Grade		%		%		%
Length		mi		mi		mi
Trucks and buses PCE, ET	1.5		1.5		1.5	
Recreational vehicle PCE, ER	1.2		1.2		1.2	
Heavy vehicle adjustment, fHV	0.980		0.990		0.990	
Driver population factor, fP	1.00		1.00		1.00	
Flow rate, vp	8350		467		549	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 0.303 Using Equation 4

$v_{12} = v_F (P_{FM}) = 2528$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	8817	9000	No
v_3 or v_{av34}	2911 pc/h	(Equation 25-4 or 25-5)	
Is v_3 or v_{av34} > 2700 pc/h?		Yes	
Is v_3 or v_{av34} > 1.5 v_{12}/2		Yes	
If yes, v_{12A} = 2950		(Equation 25-8)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{12A}	2950	4400	No

!

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A = 29.1$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	$M_S = 0.408$	
Space mean speed in ramp influence area,	$S_R = 49.7$	mph
Space mean speed in outer lanes,	$S_0 = 46.1$	mph
Space mean speed for all vehicles,	$S = 47.4$	mph

Weaving Levels of Service (LOS)

Leisch Method for Weaving Analysis

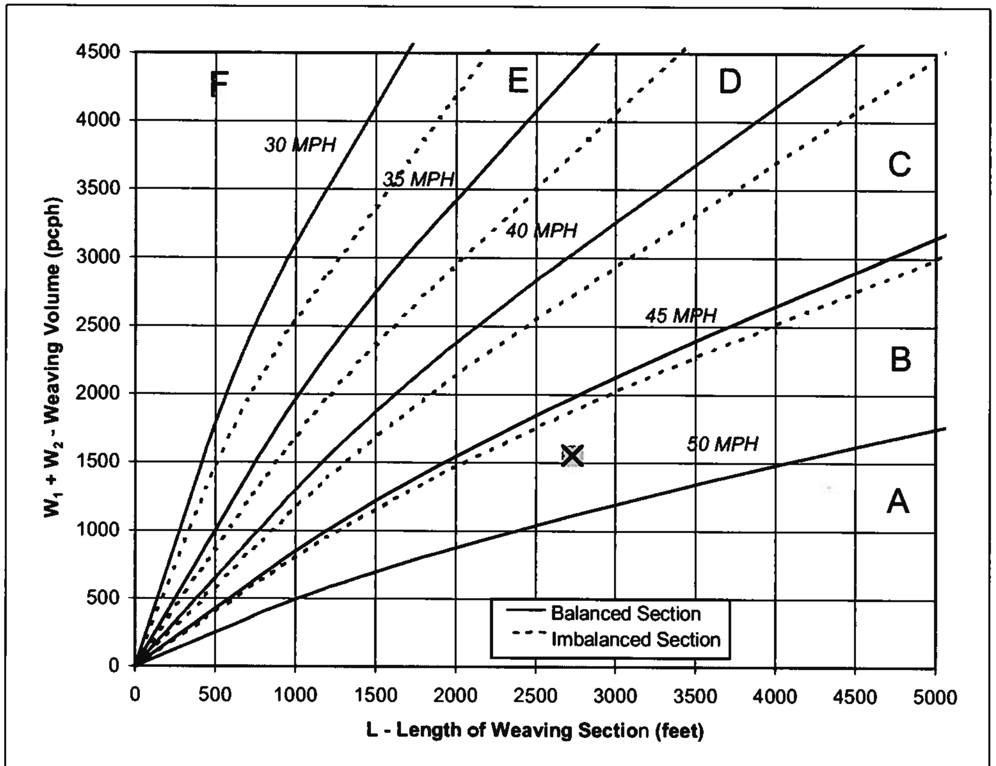
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,730

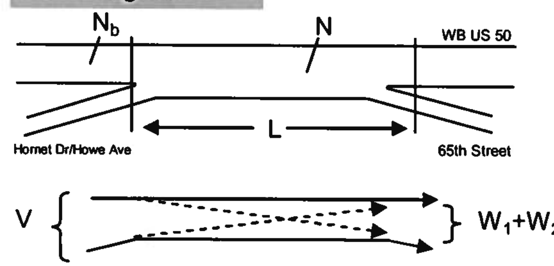
Project Information

Project	65th Street Station
Scenario	Existing AM
Freeway	WB US 50
On-ramp	Hornet Dr/Howe Ave
Off-ramp	65th Street

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	9,159	Volume (vph)*	619	Volume (vph)*	920
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,342	Volume (pcph)	625	Volume (pcph)	929



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   45 MPH and **50 MPH**
   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **47.1**
4. Weaving Intensity Factor (k) **1.66**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **1,951**
6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

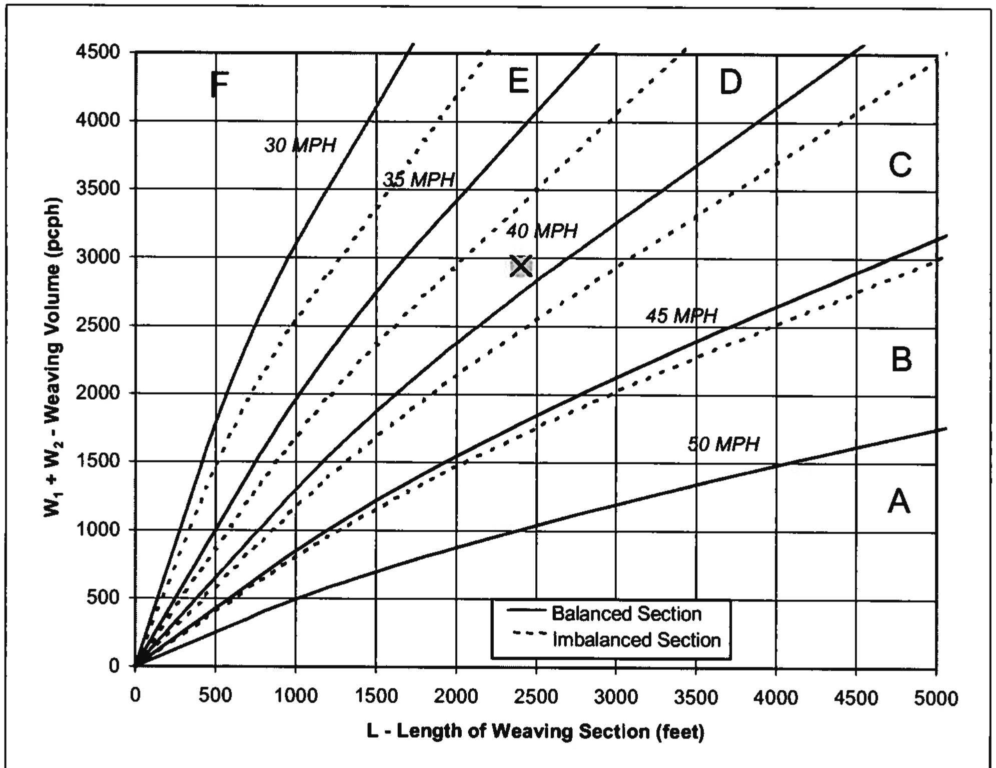
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,400

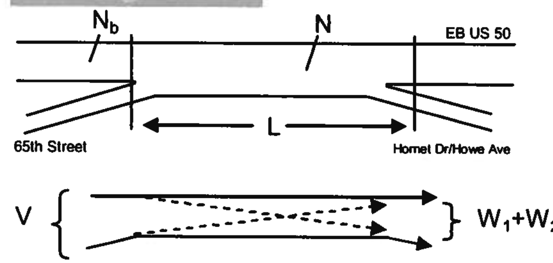
Project Information

Project	65th Street Station
Scenario	Existing AM
Freeway	EB US 50
On-ramp	65th Street
Off-ramp	Hornet Dr/Howe Ave

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	9,107	Volume (vph)*	765	Volume (vph)*	2,151
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,289	Volume (pcph)	773	Volume (pcph)	2,173



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left,
   which two speed curves is the black "x" between?
   35 MPH and **40 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **37.4**
4. Weaving Intensity Factor (k) **2.75**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **2,128**
6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

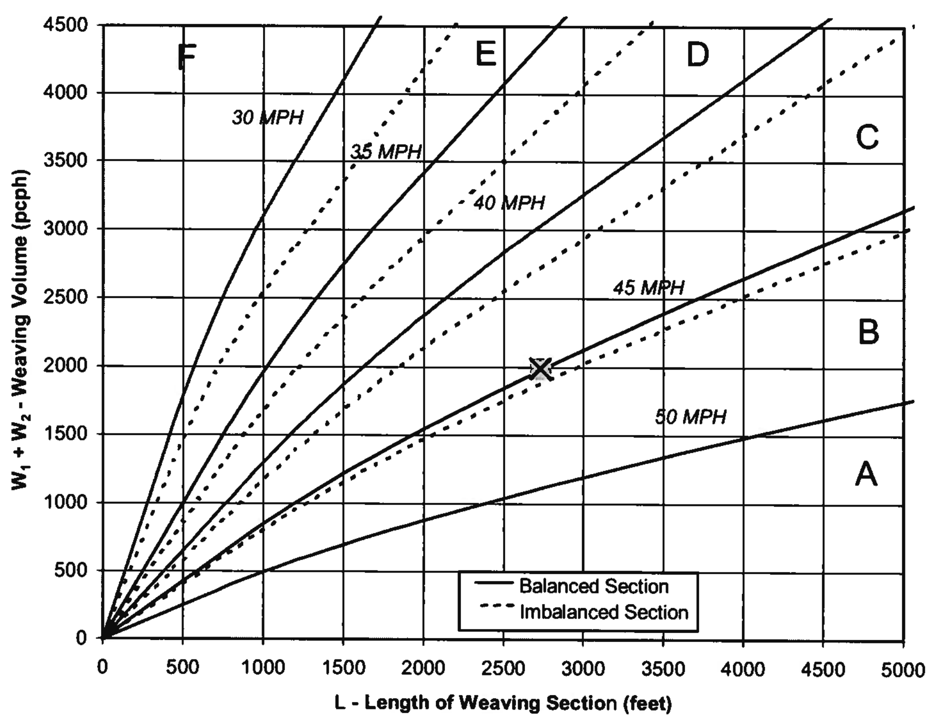
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,730

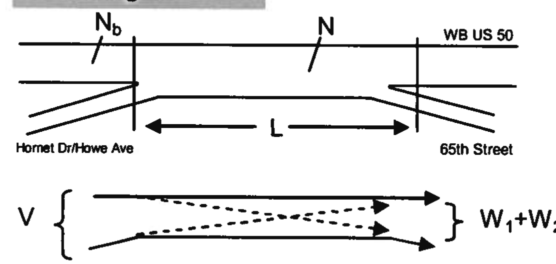
Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,481	Volume (vph)*	926	Volume (vph)*	1,047
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,651	Volume (pcph)	935	Volume (pcph)	1,057

Project Information

Project	65th Street Station
Scenario	Existing PM
Freeway	WB US 50
On-ramp	Hornet Dr/Howe Ave
Off-ramp	65th Street



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   40 MPH and **45 MPH**
   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) 44.3
4. Weaving Intensity Factor (k) 2.06
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ 1,928
6. Level of Service (LOS) F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

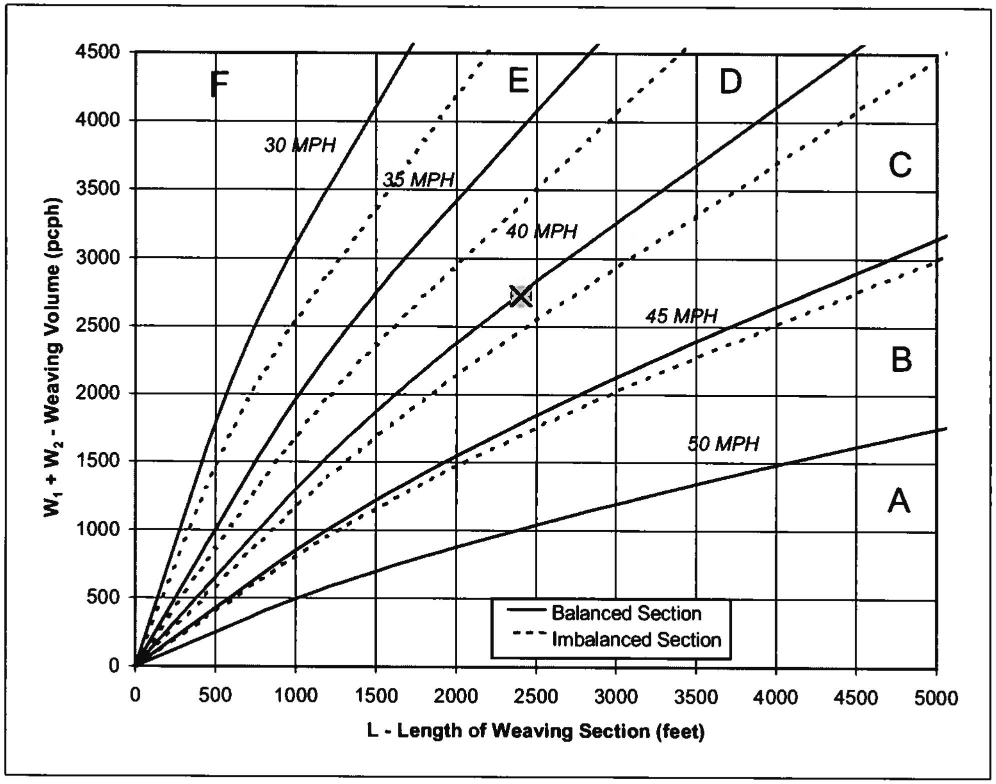
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,400

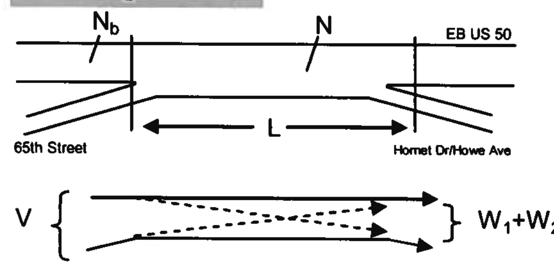
Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,971	Volume (vph)*	653	Volume (vph)*	2,046
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,150	Volume (pcph)	660	Volume (pcph)	2,066

Project Information

Project	65th Street Station
Scenario	Existing PM
Freeway	EB US 50
On-ramp	65th Street
Off-ramp	Hornet Dr/Howe Ave



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between? **35 MPH** and **40 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph): 38.6
4. Weaving Intensity Factor (k): 2.95
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$: 2,087
6. Level of Service (LOS): F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

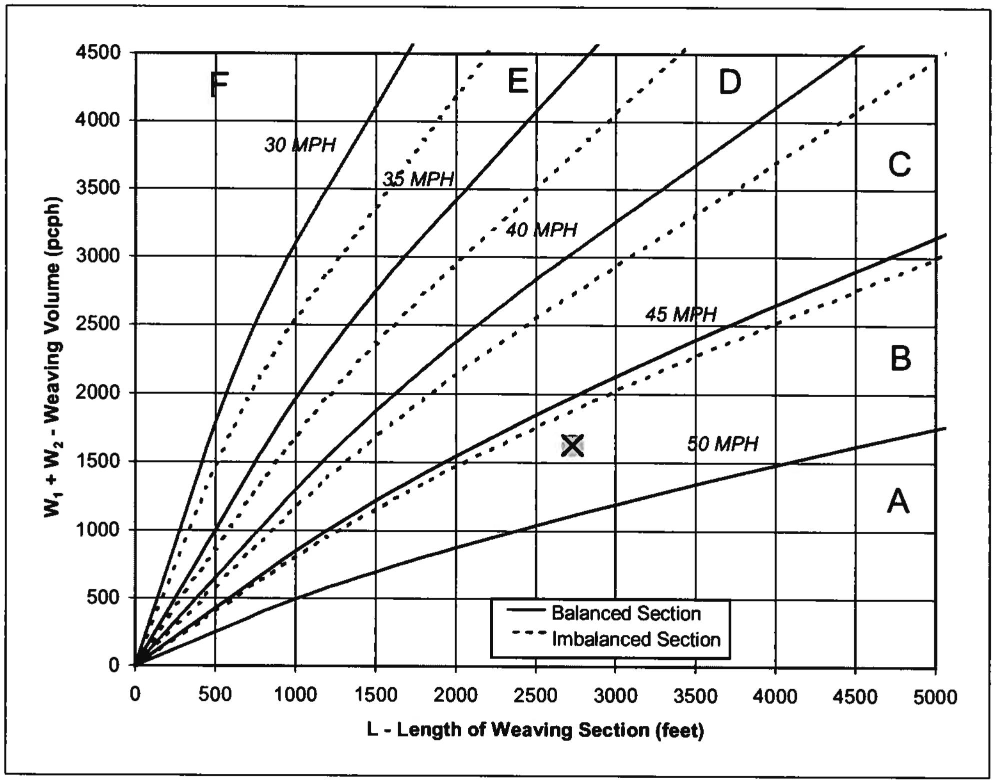
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,730

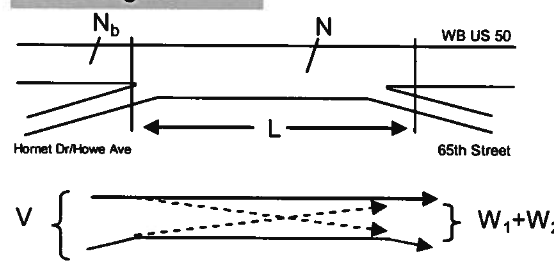
Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	9,231	Volume (vph)*	619	Volume (vph)*	992
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,416	Volume (pcph)	625	Volume (pcph)	1,002

Project Information

Project	65th Street Station
Scenario	Baseline AM
Freeway	WB US 50
On-ramp	Hornet Dr/Howe Ave
Off-ramp	65th Street



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   45 MPH and **50 MPH**
   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) 46.6
4. Weaving Intensity Factor (k) 1.74
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]$ 1,975
6. Level of Service (LOS) F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

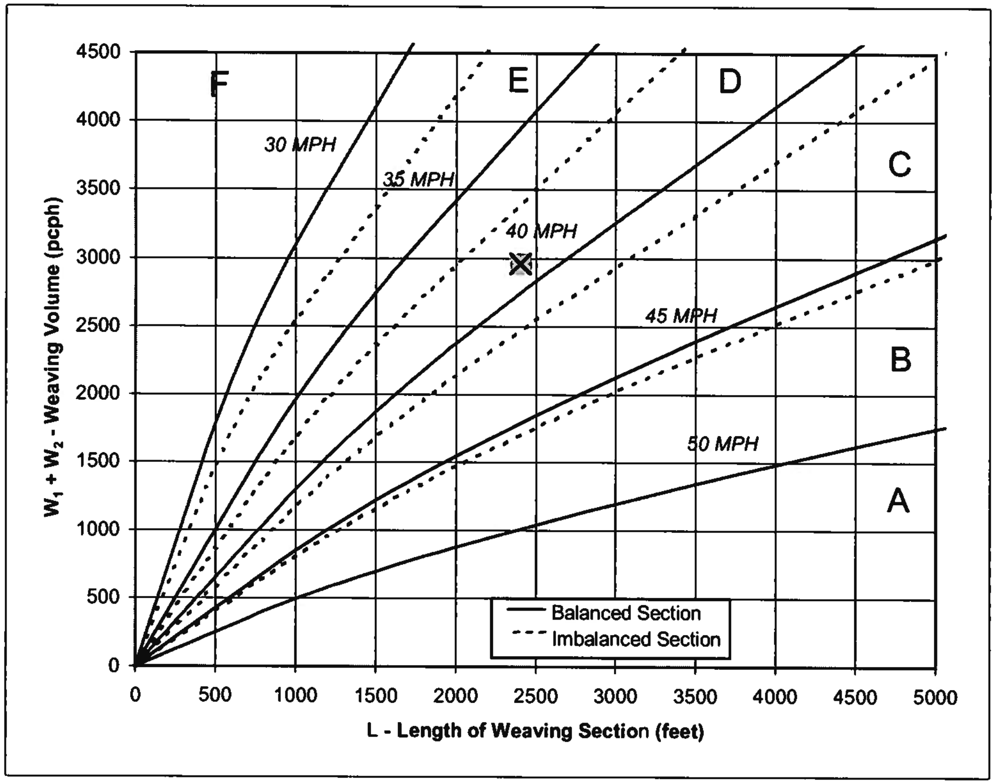
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,400

Project Information

Project	65th Street Station
Scenario	Baseline AM
Freeway	EB US 50
On-ramp	65th Street
Off-ramp	Hornet Dr/Howe Ave

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	9,122	Volume (vph)*	780	Volume (vph)*	2,151
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,304	Volume (pcph)	788	Volume (pcph)	2,173



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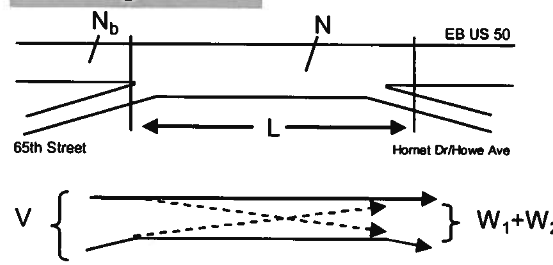


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   35 MPH and **40 MPH**
   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **37.3**
4. Weaving Intensity Factor (k) **2.76**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]$ **2,138**
6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

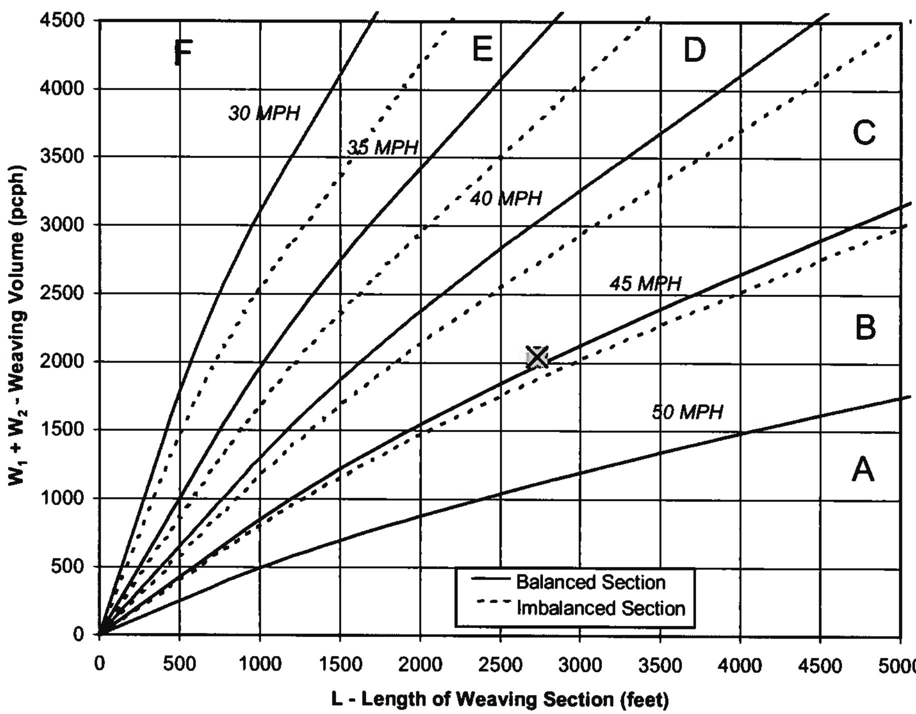
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,730

Project Information

Project	65th Street Station
Scenario	Baseline PM
Freeway	WB US 50
On-ramp	Hornet Dr/Howe Ave
Off-ramp	65th Street

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,532	Volume (vph)*	926	Volume (vph)*	1,098
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,703	Volume (pcph)	935	Volume (pcph)	1,109



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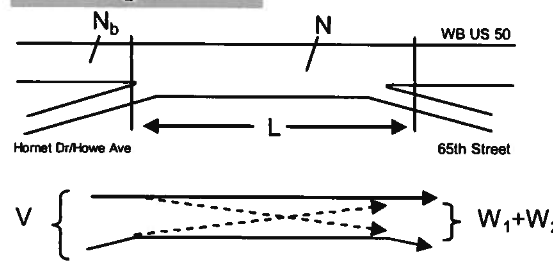


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   40 MPH and **45 MPH**
   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) — 44.0
4. Weaving Intensity Factor (k) — 2.10
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]$ — 1,946
6. Level of Service (LOS) — F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

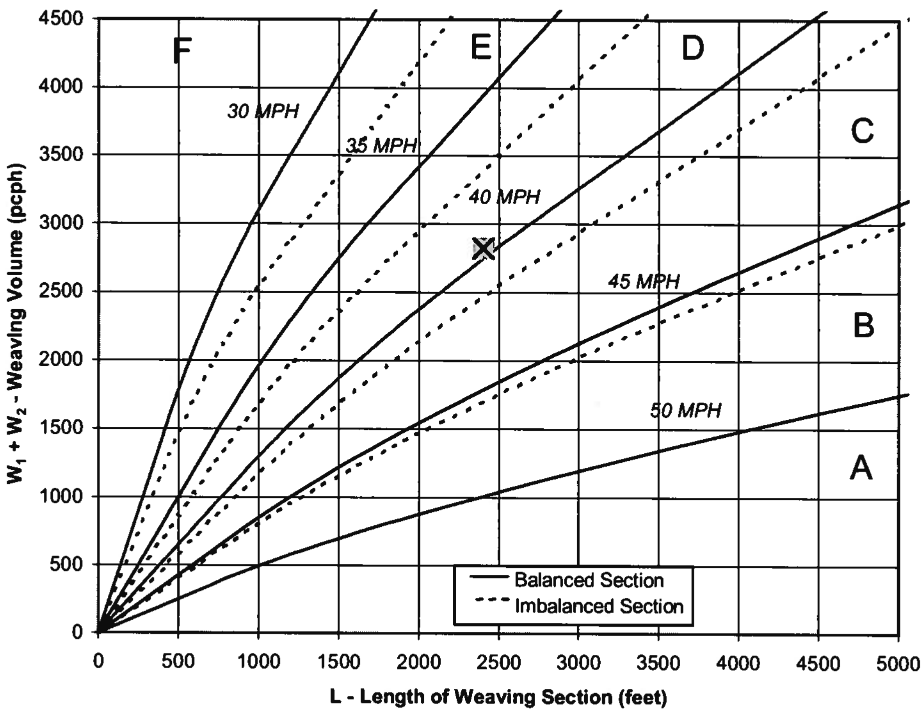
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,400

Project Information

Project	65th Street Station
Scenario	Baseline PM
Freeway	EB US 50
On-ramp	65th Street
Off-ramp	Hornet Dr/Howe Ave

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	9,064	Volume (vph)*	746	Volume (vph)*	2,046
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,245	Volume (pcph)	753	Volume (pcph)	2,066



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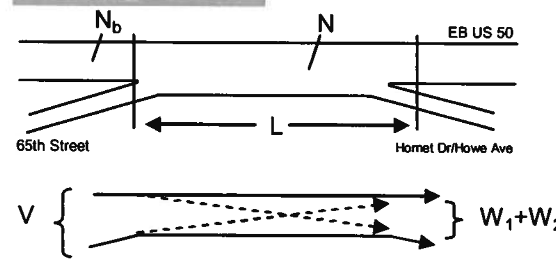


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   35 MPH and **40 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **38.1**
4. Weaving Intensity Factor (k) **2.70**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **2,105**
6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

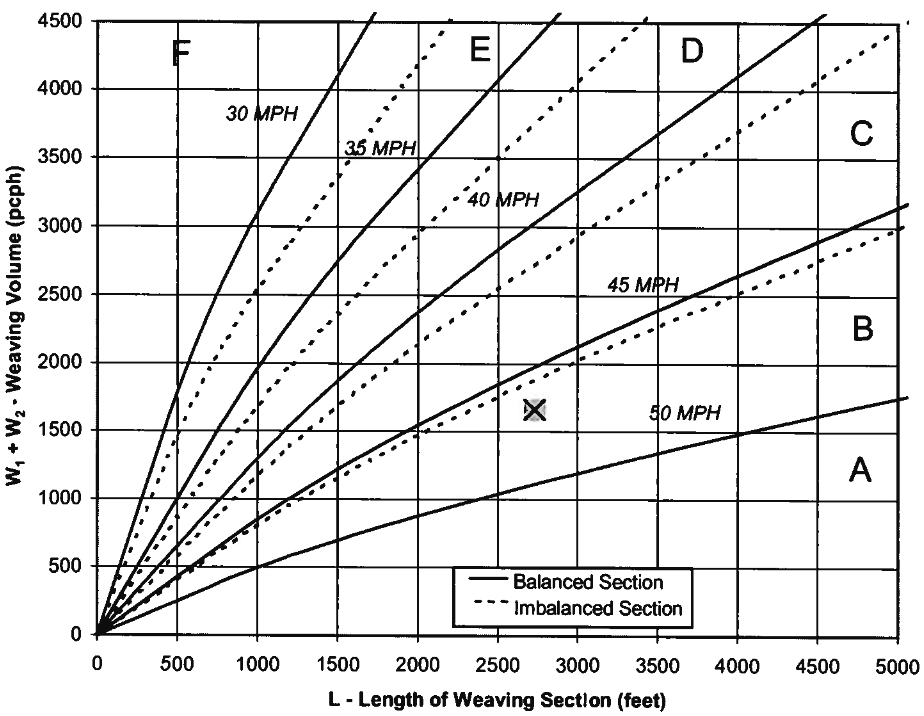
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,730

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	9,268	Volume (vph)*	619	Volume (vph)*	1,029
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,453	Volume (pcph)	625	Volume (pcph)	1,039

Project Information

Project	65th Street Station
Scenario	Baseline + Project AM
Freeway	WB US 50
On-ramp	Hornet Dr/Howe Ave
Off-ramp	65th Street



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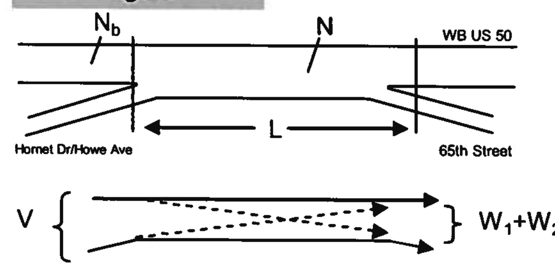


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   45 MPH and **50 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) 46.4
4. Weaving Intensity Factor (k) 1.77
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]$ 1,987
6. Level of Service (LOS) F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

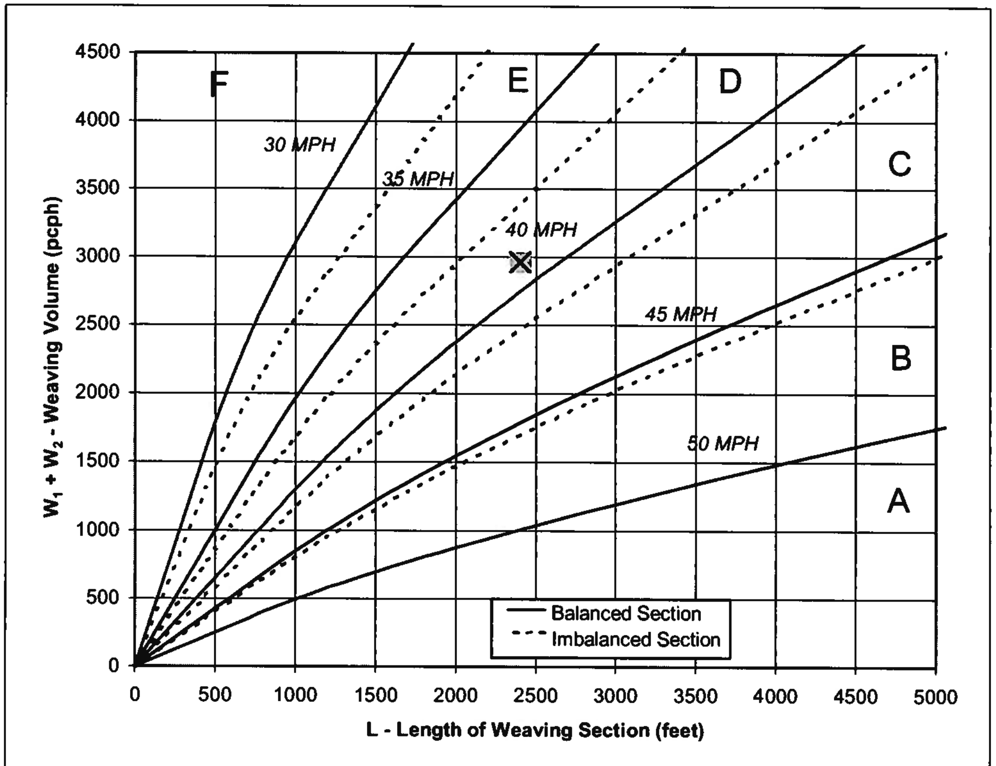
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,400

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	9,122	Volume (vph)*	780	Volume (vph)*	2,151
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,304	Volume (pcph)	788	Volume (pcph)	2,173

Project Information

Project	65th Street Station
Scenario	Baseline + Project AM
Freeway	EB US 50
On-ramp	65th Street
Off-ramp	Hornet Dr/Howe Ave



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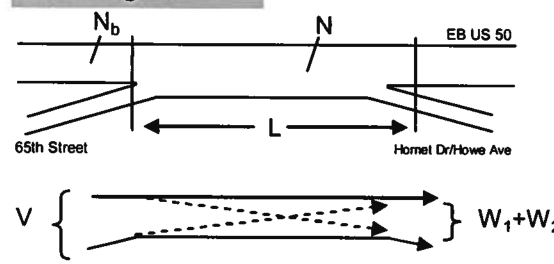


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   35 MPH and **40 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) 37.3
4. Weaving Intensity Factor (k) 2.76
5. Service Volume (SV, pcph)
   SV = (1/N)*[V + (k - 1)*min(W_1, W_2)] 2,138
6. Level of Service (LOS) F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

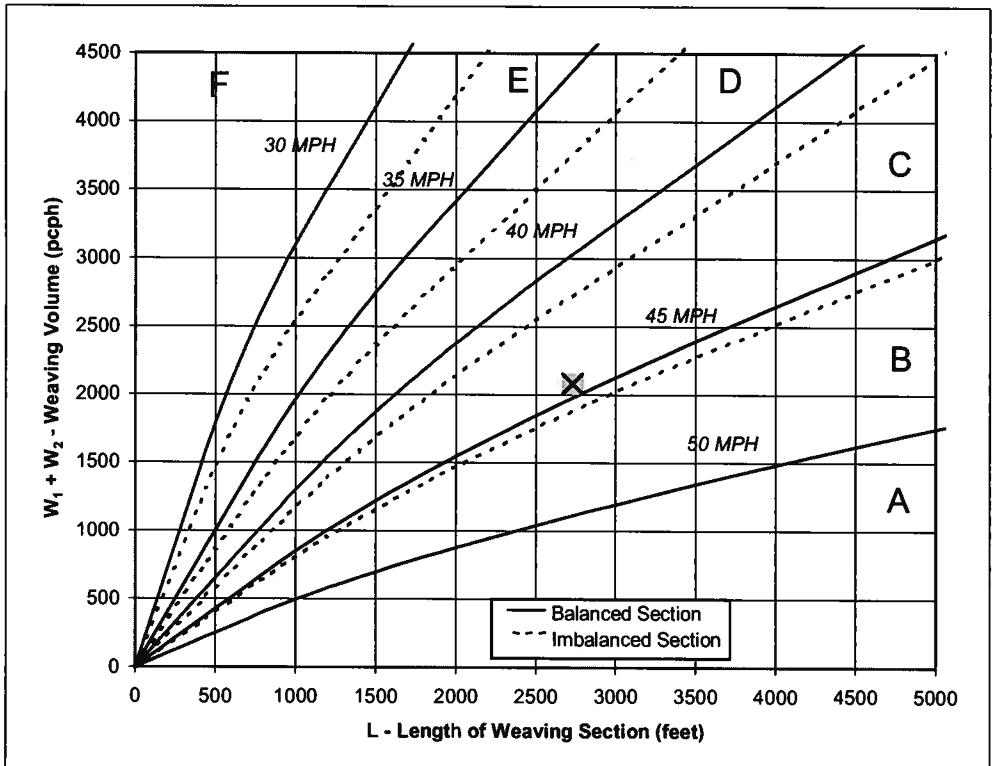
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,730

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,570	Volume (vph)*	926	Volume (vph)*	1,136
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,741	Volume (pcph)	935	Volume (pcph)	1,147

Project Information

Project	65th Street Station
Scenario	Baseline + Project PM
Freeway	WB US 50
On-ramp	Hornet Dr/Howe Ave
Off-ramp	65th Street



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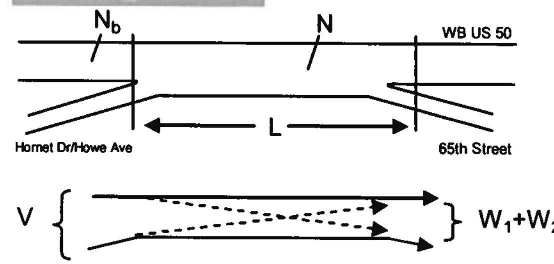


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   40 MPH and **45 MPH**
   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph): 43.8
4. Weaving Intensity Factor (k): 2.12
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$: 1,958
6. Level of Service (LOS): F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

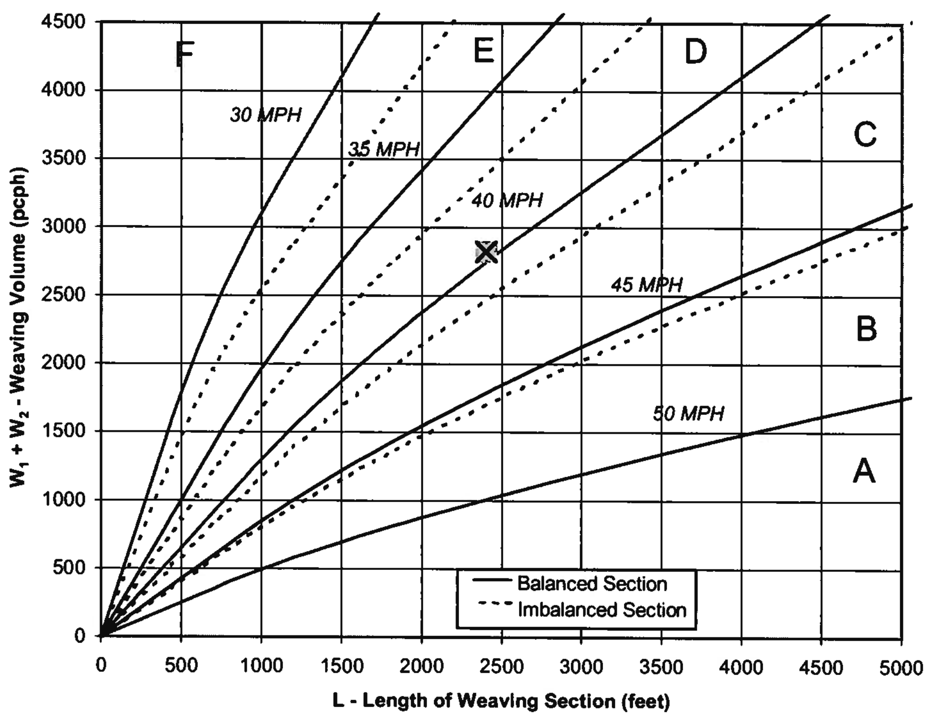
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,400

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	9,108	Volume (vph)*	746	Volume (vph)*	2,046
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,290	Volume (pcph)	753	Volume (pcph)	2,066

Project Information

Project	65th Street Station
Scenario	Baseline + Project PM
Freeway	EB US 50
On-ramp	65th Street
Off-ramp	Hornet Dr/Howe Ave



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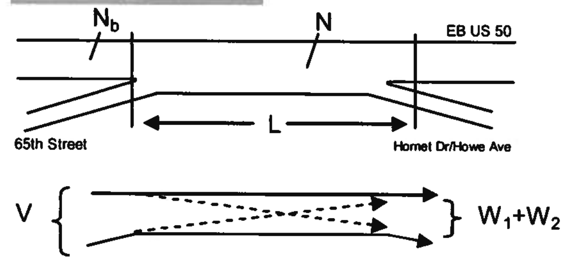


Capacity Analysis

1. Is the weaving section balanced (Y / N)? N
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   35 MPH and **40 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) 38.1
4. Weaving Intensity Factor (k) 2.70
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]$ 2,114
6. Level of Service (LOS) F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

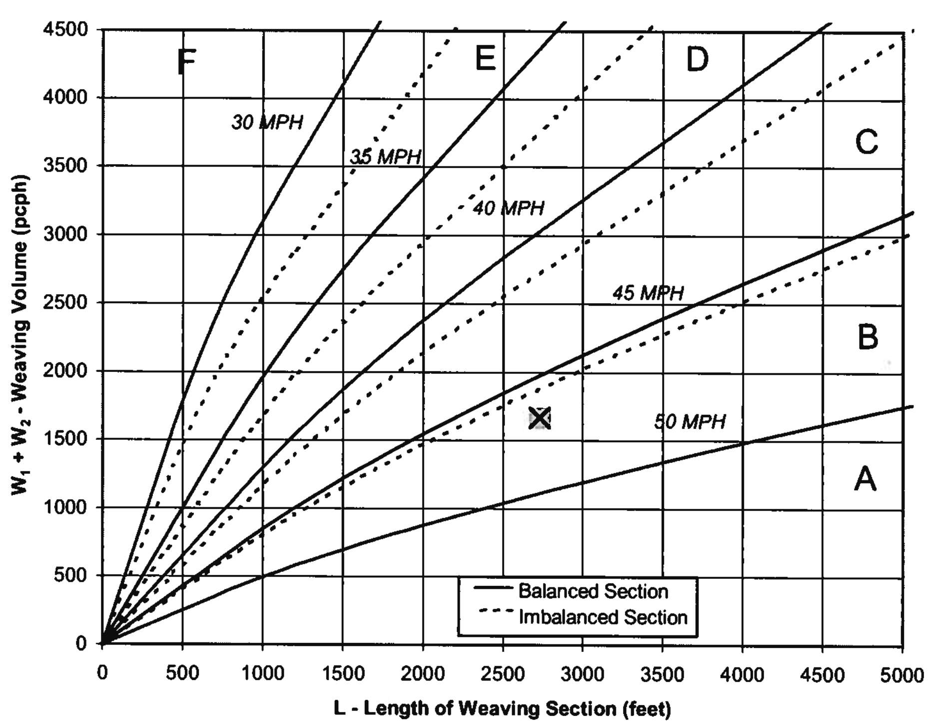
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,730

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	9,272	Volume (vph)*	619	Volume (vph)*	1,033
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,457	Volume (pcph)	625	Volume (pcph)	1,043

Project Information

Project	65th Street Station
Scenario	Baseline + HD Project AM
Freeway	WB US 50
On-ramp	Hornet Dr/Howe Ave
Off-ramp	65th Street



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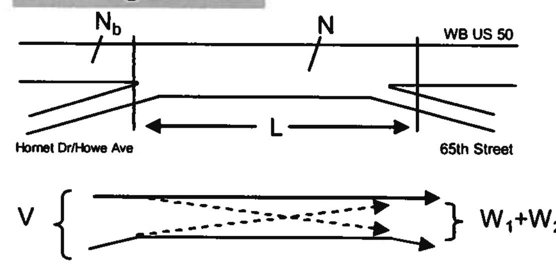


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   45 MPH and **50 MPH**
   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **46.4**
4. Weaving Intensity Factor (k) **1.77**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **1,987**
6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

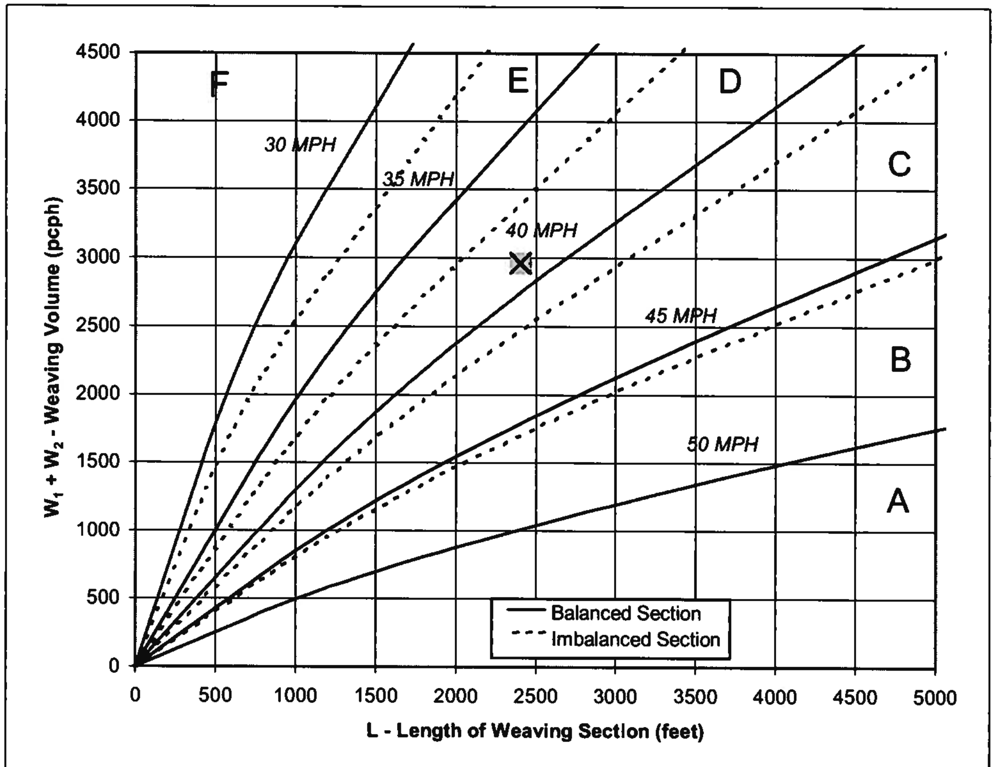
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,400

Project Information

Project	65th Street Station
Scenario	Baseline + HD Project AM
Freeway	EB US 50
On-ramp	65th Street
Off-ramp	Hornet Dr/Howe Ave

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	9,150	Volume (vph)*	780	Volume (vph)*	2,151
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,333	Volume (pcph)	788	Volume (pcph)	2,173



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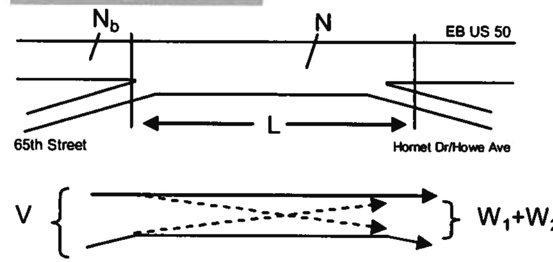


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   35 MPH and **40 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) — 37.3
4. Weaving Intensity Factor (k) — 2.76
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]$ — 2,143
6. Level of Service (LOS) — F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

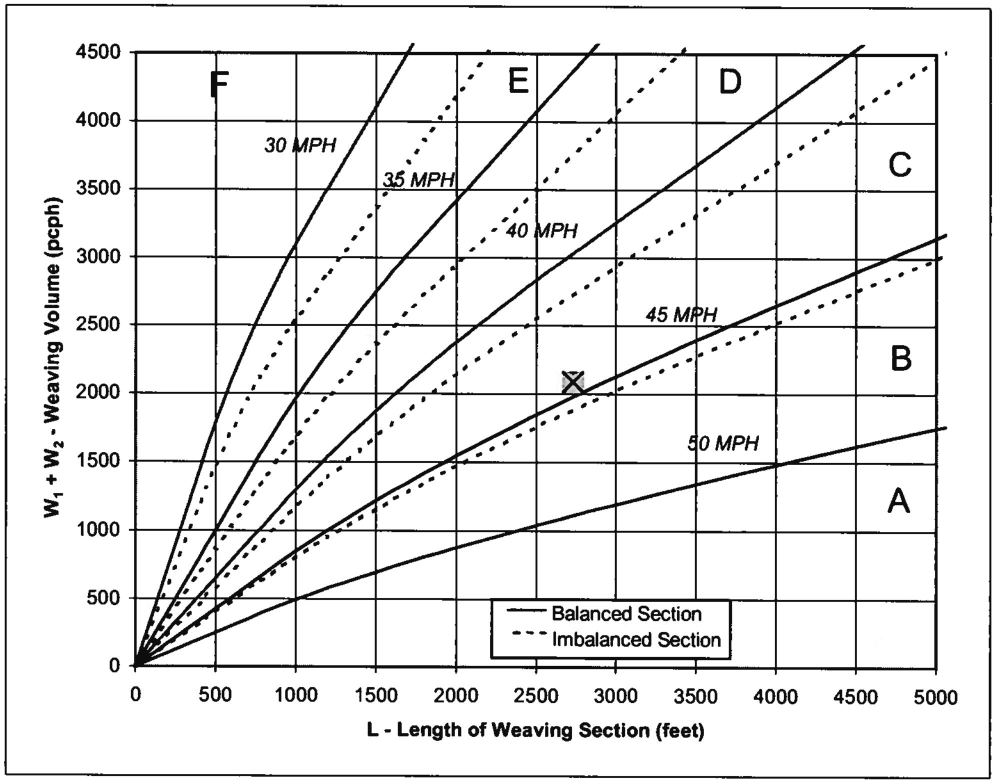
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,730

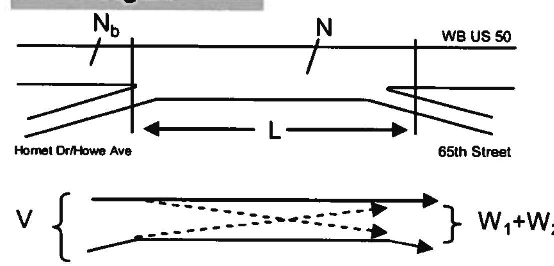
Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,573	Volume (vph)*	926	Volume (vph)*	1,139
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,744	Volume (pcph)	935	Volume (pcph)	1,150

Project Information

Project	65th Street Station
Scenario	Baseline + HD Project PM
Freeway	WB US 50
On-ramp	Hornet Dr/Howe Ave
Off-ramp	65th Street



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? N
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   40 MPH and **45 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) 43.8
4. Weaving Intensity Factor (k) 2.12
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ 1,959
6. Level of Service (LOS) F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

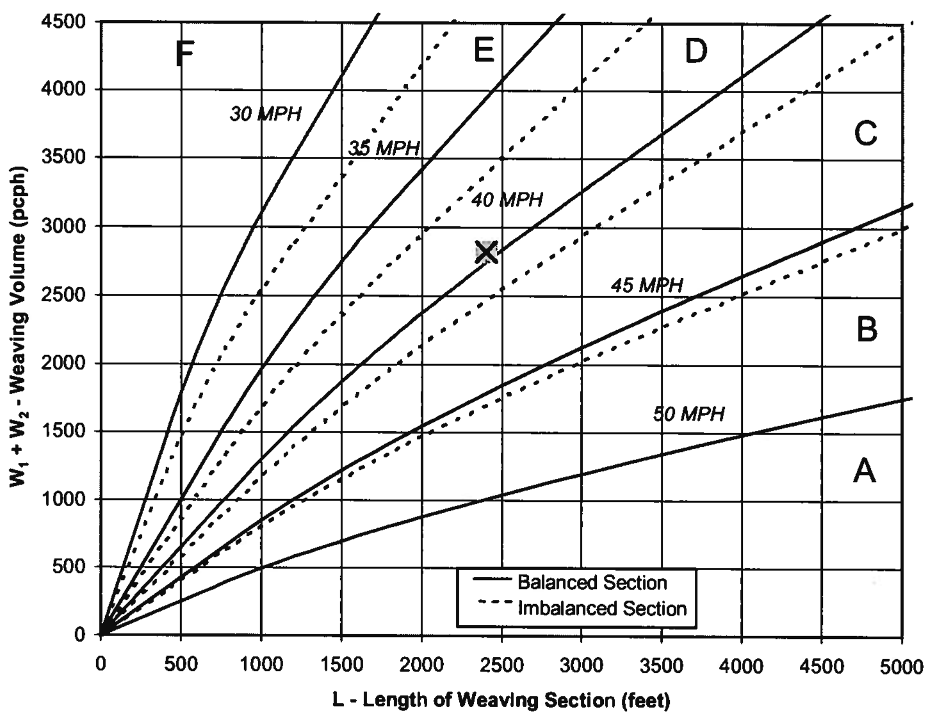
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,400

Project Information

Project	65th Street Station
Scenario	Baseline + HD Project PM
Freeway	EB US 50
On-ramp	65th Street
Off-ramp	Hornet Dr/Howe Ave

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	9,111	Volume (vph)*	746	Volume (vph)*	2,046
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,293	Volume (pcph)	753	Volume (pcph)	2,066



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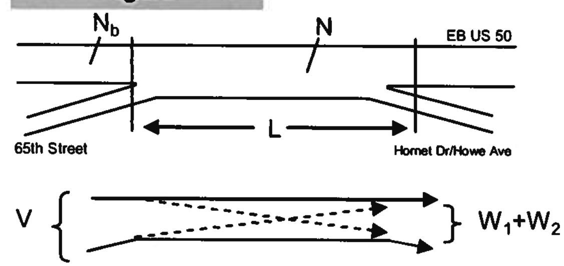

Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   35 MPH and **40 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) 38.1
4. Weaving Intensity Factor (k) 2.70
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ 2,115
6. Level of Service (LOS) F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

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Leisch Method for Weaving Analysis

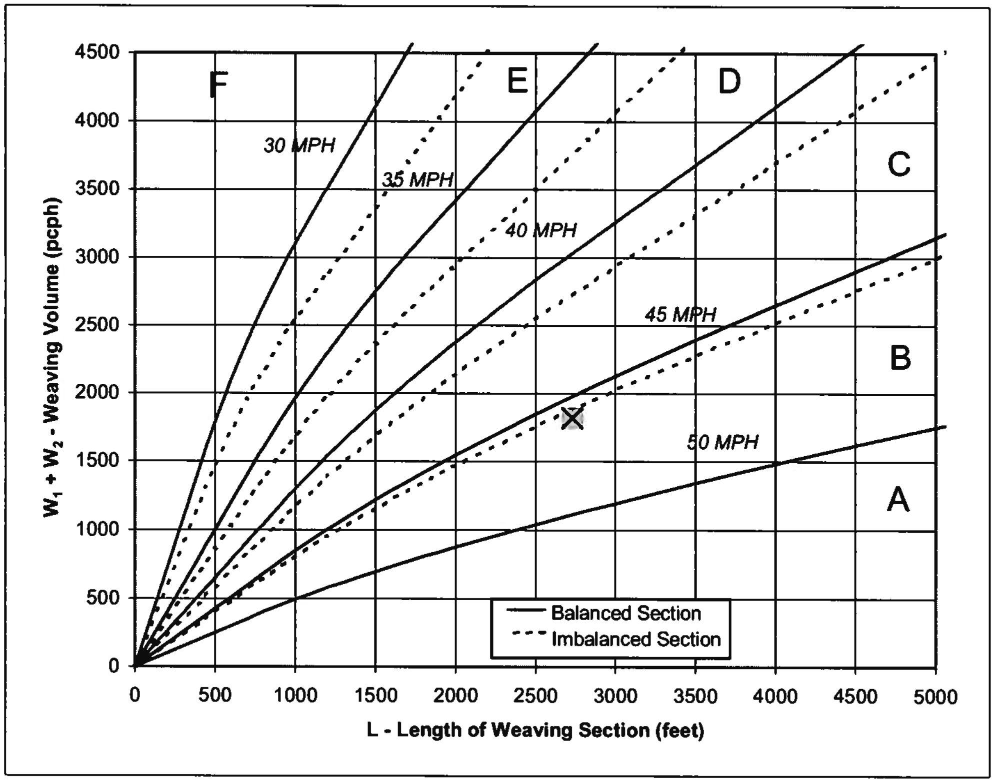
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,730

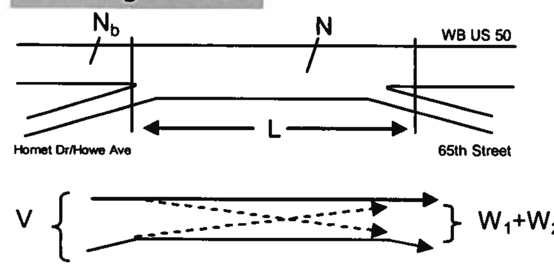
Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	9,082	Volume (vph)*	790	Volume (vph)*	1,010
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,264	Volume (pcph)	798	Volume (pcph)	1,020

Project Information

Project	65th Street Station
Scenario	Cumulative A NP AM
Freeway	WB US 50
On-ramp	Hornet Dr/Howe Ave
Off-ramp	65th Street



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   45 MPH and **50 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) 45.4
4. Weaving Intensity Factor (k) 1.91
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ 1,998
6. Level of Service (LOS) F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

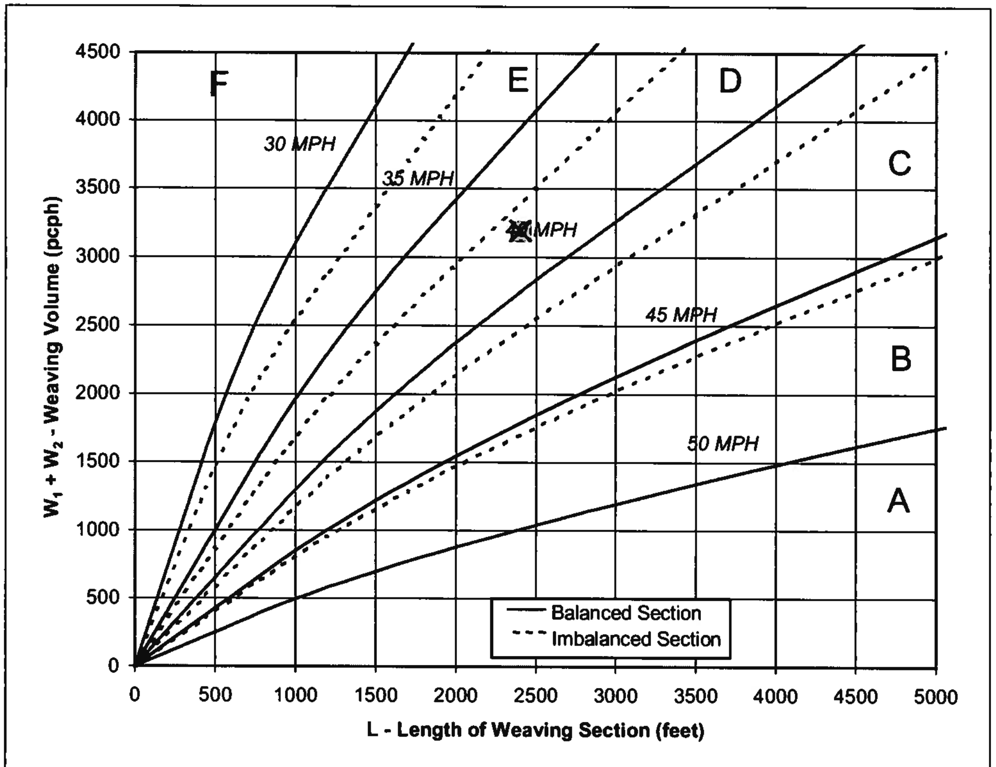
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,400

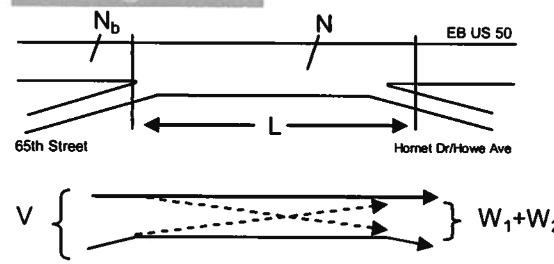
Project Information

Project	65th Street Station
Scenario	Cumulative A NP AM
Freeway	EB US 50
On-ramp	65th Street
Off-ramp	Hornet Dr/Howe Ave

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,779	Volume (vph)*	1,000	Volume (vph)*	2,161
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,955	Volume (pcph)	1,010	Volume (pcph)	2,183



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   35 MPH and **40 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) — 36.1
4. Weaving Intensity Factor (k) — 2.83
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]$ — 2,161
6. Level of Service (LOS) — F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

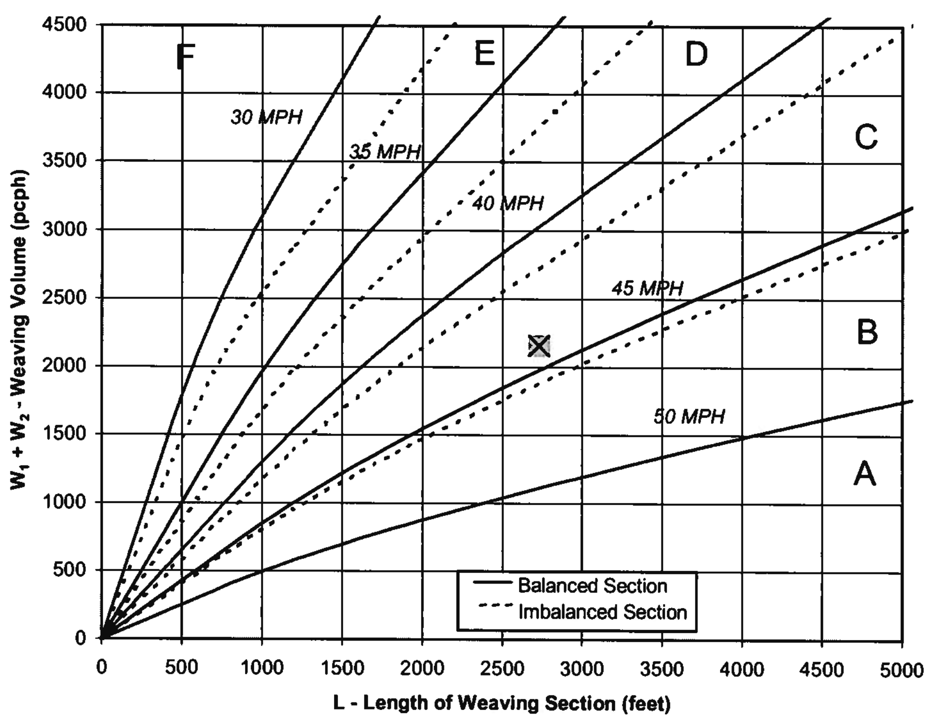
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,730

Project Information

Project	65th Street Station
Scenario	Cumulative A NP PM
Freeway	WB US 50
On-ramp	Hornet Dr/Howe Ave
Off-ramp	65th Street

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,104	Volume (vph)*	936	Volume (vph)*	1,200
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,266	Volume (pcph)	945	Volume (pcph)	1,212



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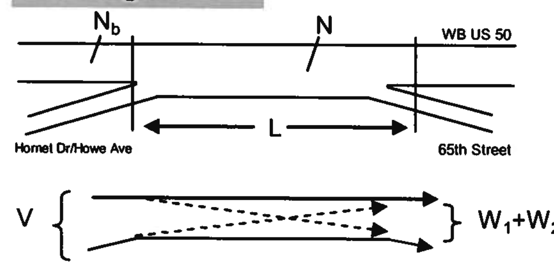


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   40 MPH and **45 MPH**
   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) — 43.4
4. Weaving Intensity Factor (k) — 2.17
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]$ — 1,875
6. Level of Service (LOS) — E

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

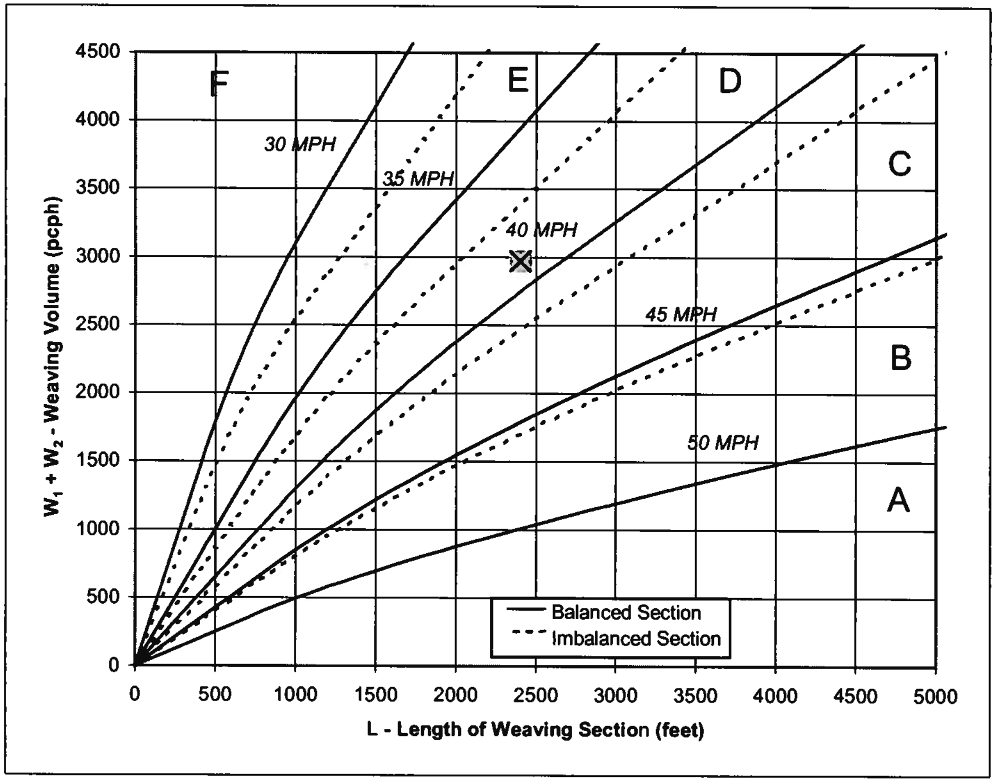
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,400

Project Information

Project	65th Street Station
Scenario	Cumulative A NP PM
Freeway	EB US 50
On-ramp	65th Street
Off-ramp	Hornet Dr/Howe Ave

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	9,009	Volume (vph)*	730	Volume (vph)*	2,212
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,189	Volume (pcph)	737	Volume (pcph)	2,234



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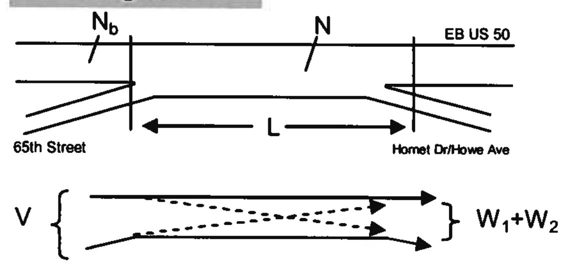


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   35 MPH and **40 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) 37.3
4. Weaving Intensity Factor (k) 2.99
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ 2,131
6. Level of Service (LOS) F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

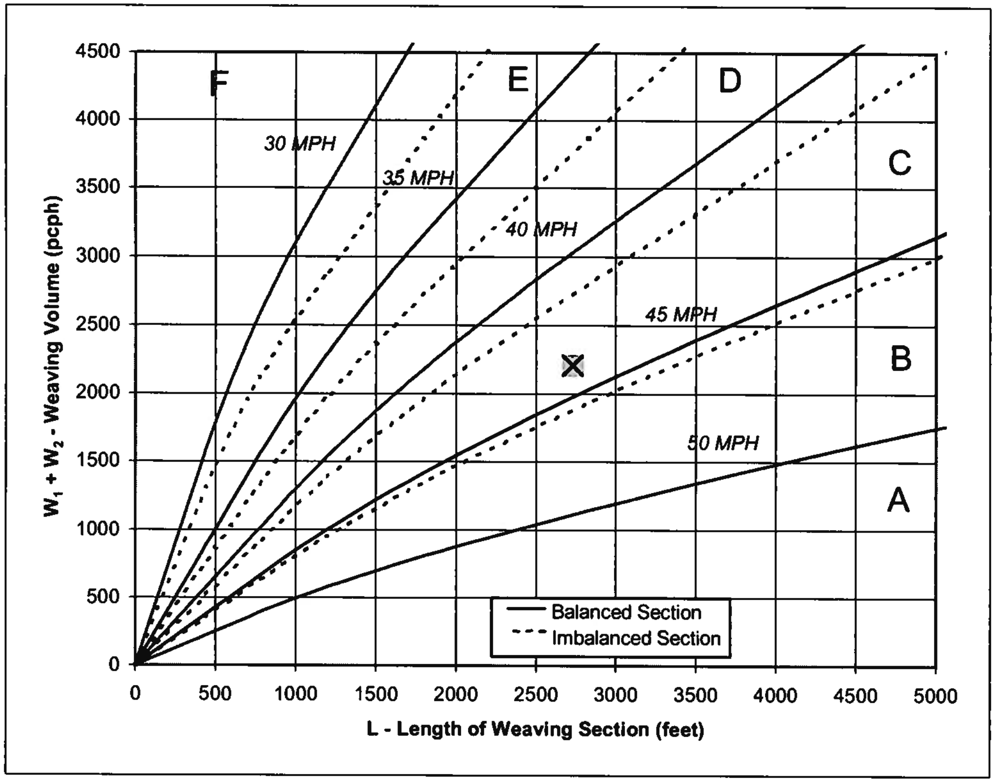
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,730

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	7,844	Volume (vph)*	936	Volume (vph)*	1,250
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,001	Volume (pcph)	945	Volume (pcph)	1,263

Project Information

Project	65th Street Station
Scenario	Cumulative A + Project PM
Freeway	WB US 50
On-ramp	Hornet Dr/Howe Ave
Off-ramp	65th Street



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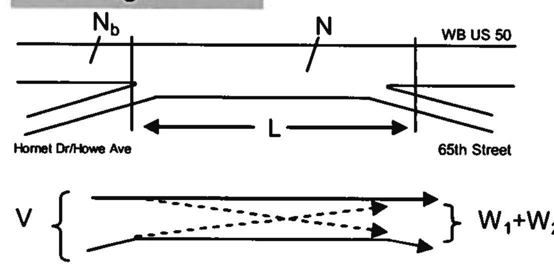


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   40 MPH and **45 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph): 43.1
4. Weaving Intensity Factor (k): 2.21
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]$: 1,829
6. Level of Service (LOS): E

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

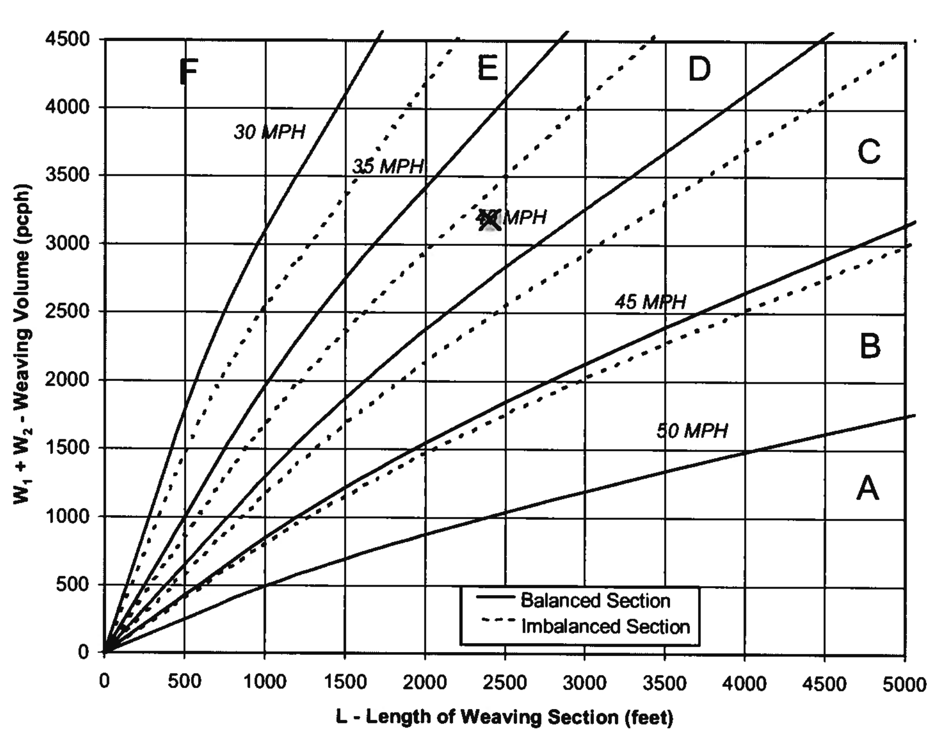
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,400

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,799	Volume (vph)*	990	Volume (vph)*	2,161
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,975	Volume (pcph)	1,000	Volume (pcph)	2,183

Project Information

Project	65th Street Station
Scenario	Cumulative A + Project AM
Freeway	EB US 50
On-ramp	65th Street
Off-ramp	Hornet Dr/Howe Ave



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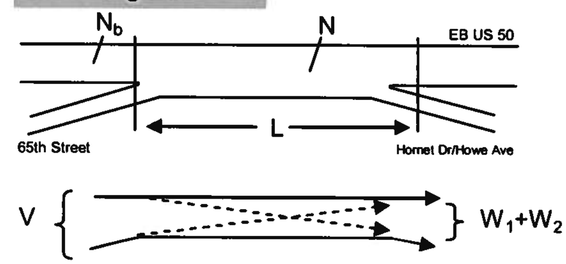


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   35 MPH and **40 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) 36.1
4. Weaving Intensity Factor (k) 2.83
5. Service Volume (SV, pcph)
   SV = (1/N)*[V + (k - 1)*min(W_1, W_2)] 2,162
6. Level of Service (LOS) F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

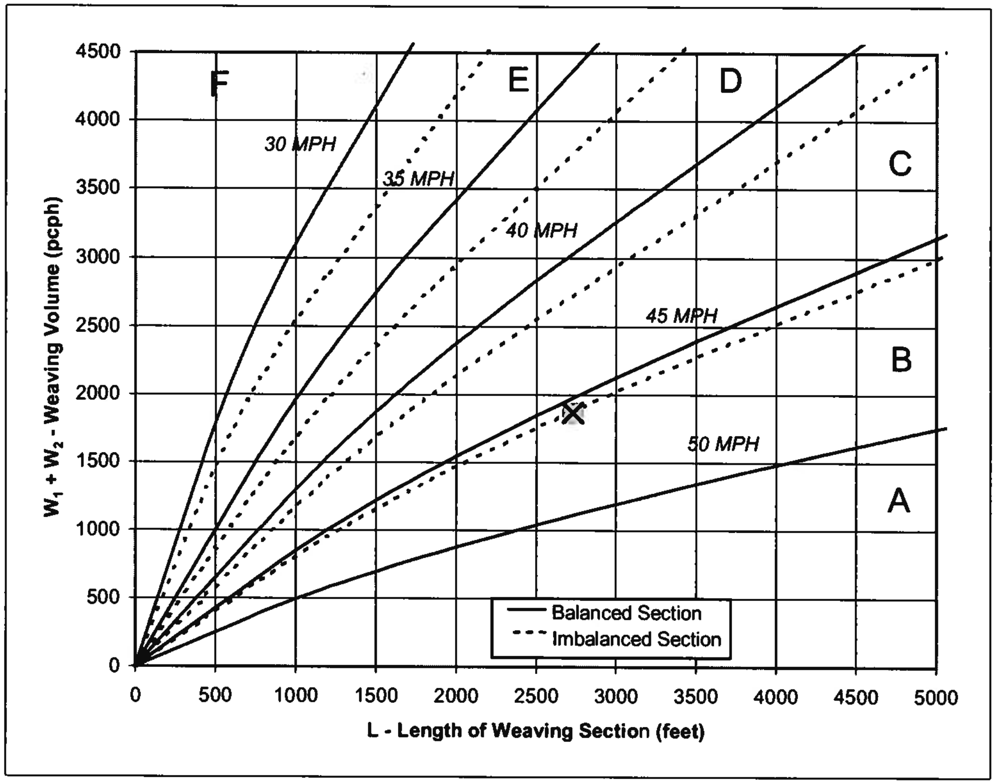
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,730

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	9,122	Volume (vph)*	790	Volume (vph)*	1,060
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,304	Volume (pcph)	798	Volume (pcph)	1,071

Project Information

Project	65th Street Station
Scenario	Cumulative A + Project AM
Freeway	WB US 50
On-ramp	Hornet Dr/Howe Ave
Off-ramp	65th Street



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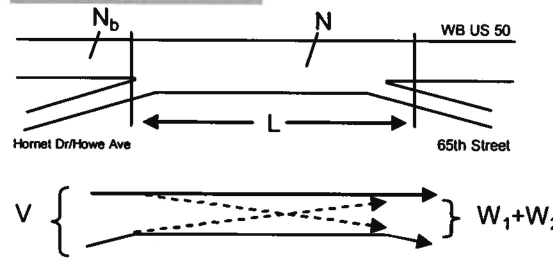


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between? **45 MPH** and **50 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) 45.1
4. Weaving Intensity Factor (k) 1.95
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]$ 2,013
6. Level of Service (LOS) F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

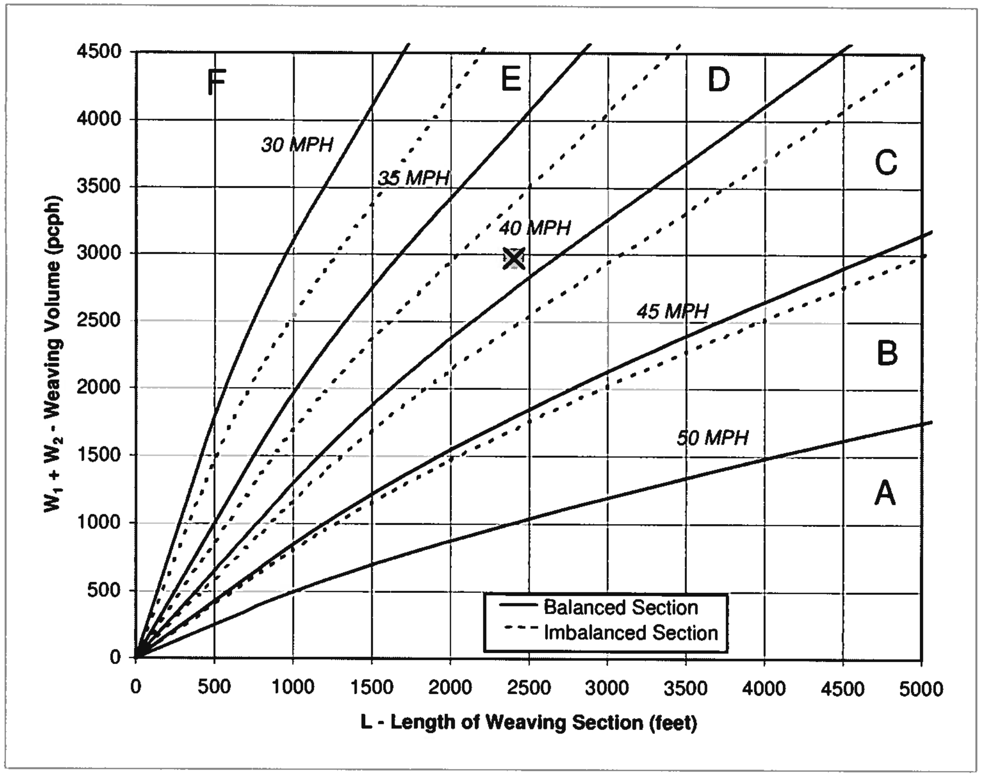
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,400

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	9,029	Volume (vph)*	730	Volume (vph)*	2,212
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,210	Volume (pcph)	737	Volume (pcph)	2,234

Project Information

Project	65th Street Station
Scenario	Cumulative A + Project PM
Freeway	EB US 50
On-ramp	65th Street
Off-ramp	Hornet Dr/Howe Ave



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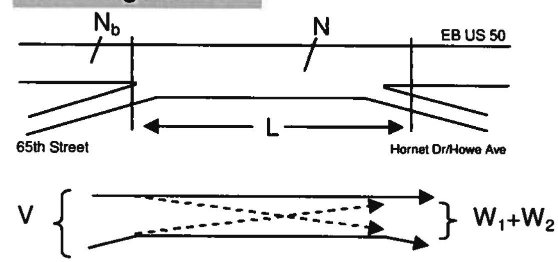


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   35 MPH and **40 MPH**
   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **37.3**
4. Weaving Intensity Factor (k) **2.99**
5. Service Volume (SV, pcph)
   SV = $(1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **2,135**
6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the **PHF** in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

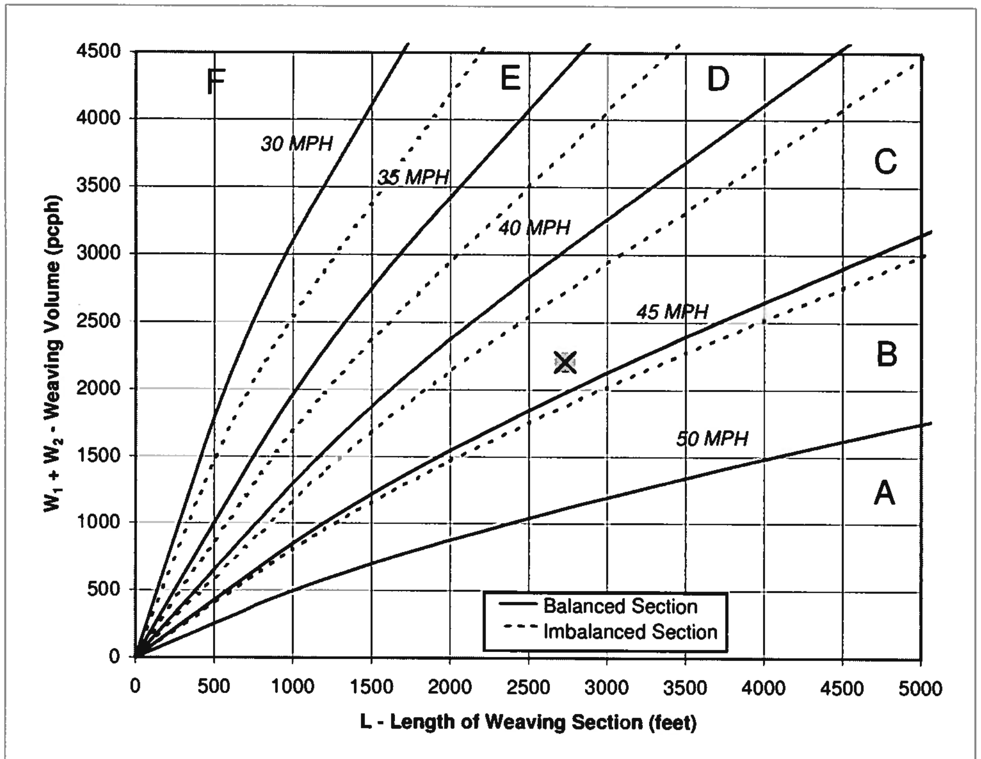
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,730

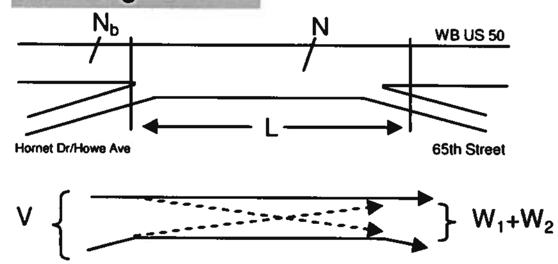
Project Information

Project	65th Street Station
Scenario	Cumulative A + Project PM
Freeway	WB US 50
On-ramp	Hornet Dr/Howe Ave
Off-ramp	65th Street

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,154	Volume (vph)*	936	Volume (vph)*	1,250
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,317	Volume (pcph)	945	Volume (pcph)	1,263



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? N
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   40 MPH and **45 MPH**
   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) 43.1
4. Weaving Intensity Factor (k) 2.21
5. Service Volume (SV, pcph)
   SV = (1/N)*[V + (k - 1)*min(W_1, W_2)] 1,892
6. Level of Service (LOS) E

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

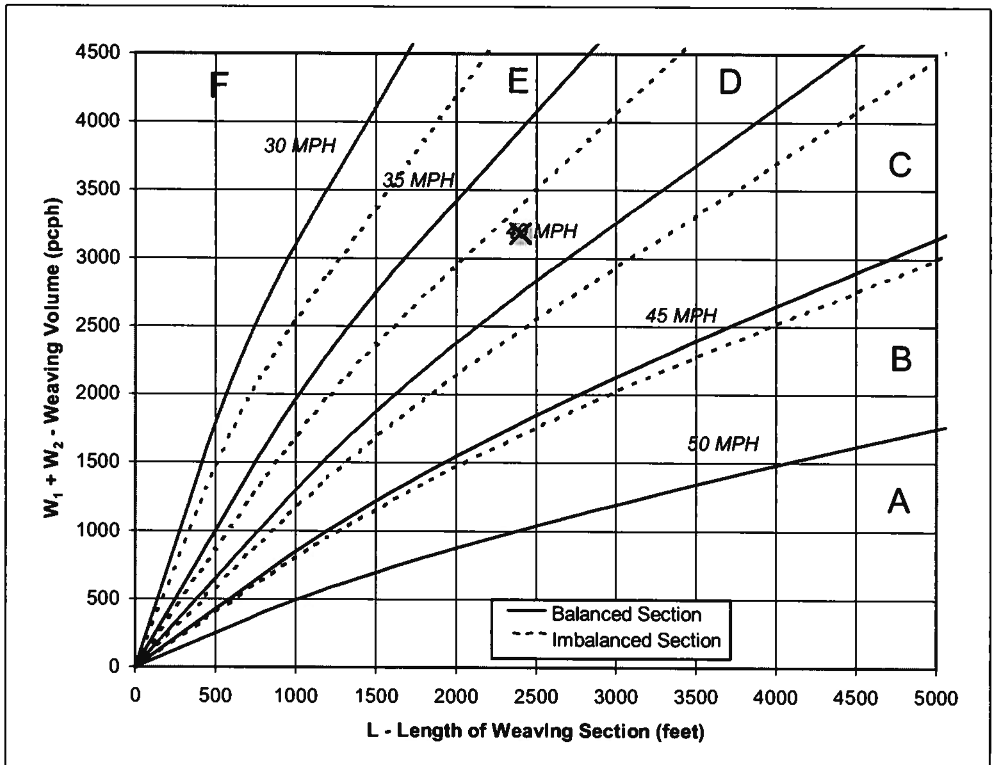
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,400

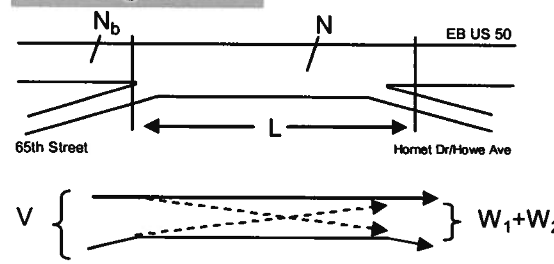
Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,806	Volume (vph)*	990	Volume (vph)*	2,161
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,982	Volume (pcph)	1,000	Volume (pcph)	2,183

Project Information

Project	65th Street Station
Scenario	Cumulative A + HD Project AM
Freeway	EB US 50
On-ramp	65th Street
Off-ramp	Hornet Dr/Howe Ave



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   35 MPH and **40 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **36.1**
4. Weaving Intensity Factor (k) **2.83**
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ **2,163**
6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

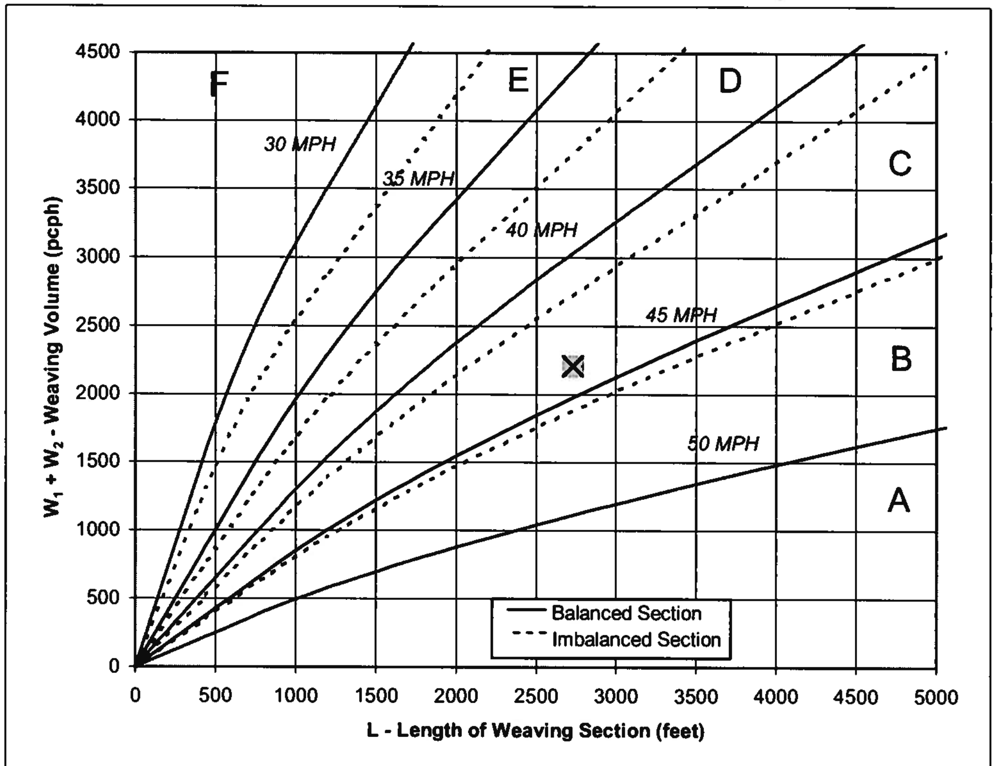
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,730

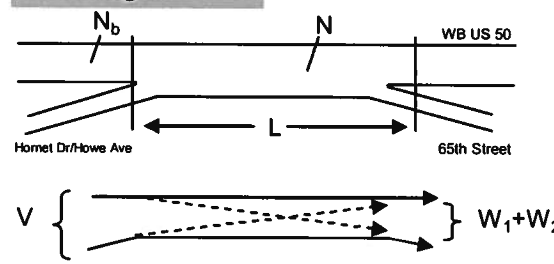
Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,157	Volume (vph)*	936	Volume (vph)*	1,253
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,320	Volume (pcph)	945	Volume (pcph)	1,266

Project Information

Project	65th Street Station
Scenario	Cumulative A + HD Project PM
Freeway	WB US 50
On-ramp	Homet Dr/Howe Ave
Off-ramp	65th Street



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? N
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   40 MPH and **45 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) 43.0
4. Weaving Intensity Factor (k) 2.22
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ 1,895
6. Level of Service (LOS) E

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

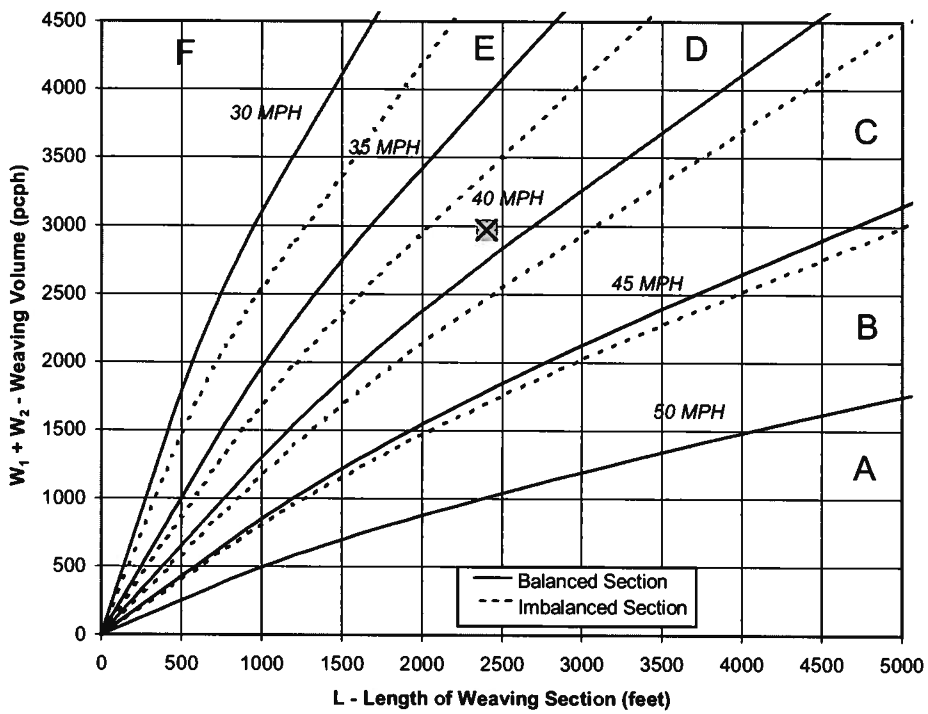
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,400

Project Information

Project	65th Street Station
Scenario	Cumulative A + HD Project PM
Freeway	EB US 50
On-ramp	65th Street
Off-ramp	Hornet Dr/Howe Ave

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	9,032	Volume (vph)*	730	Volume (vph)*	2,212
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,213	Volume (pcph)	737	Volume (pcph)	2,234



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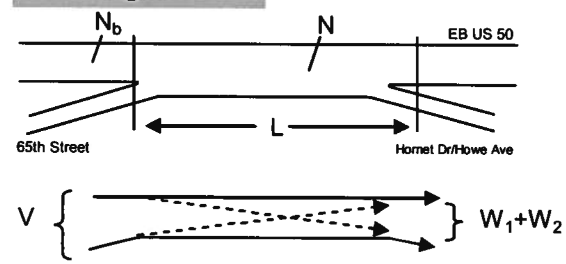


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   35 MPH and **40 MPH**
   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph): 37.3
4. Weaving Intensity Factor (k): 2.99
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$: 2,136
6. Level of Service (LOS): F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

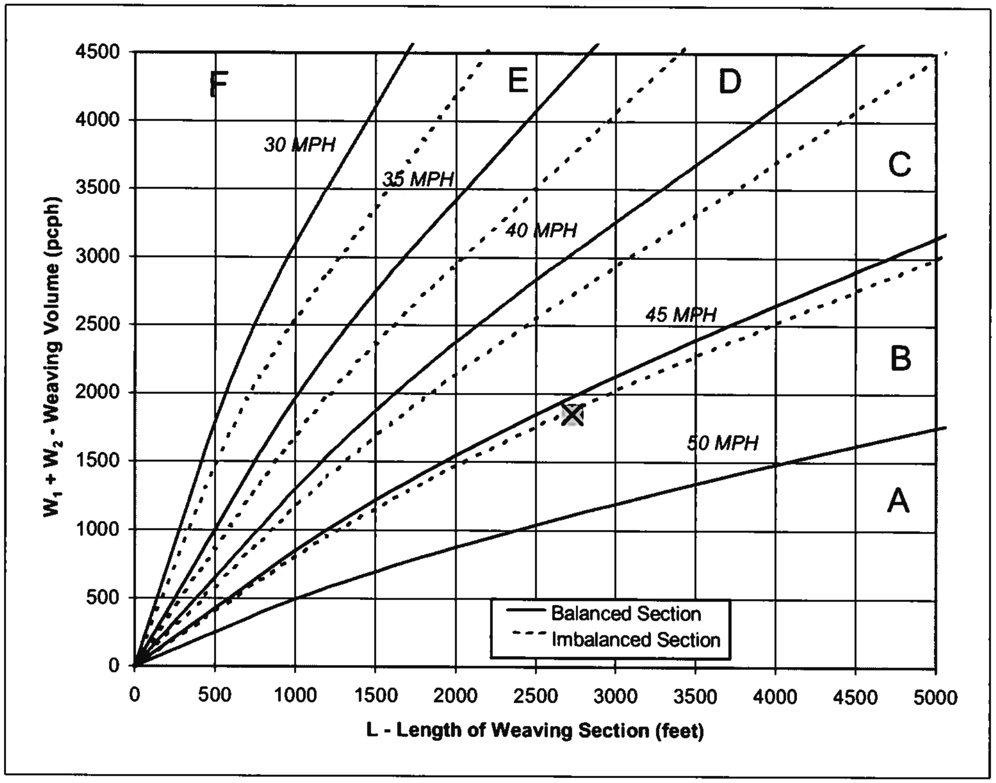
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,730

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	9,269	Volume (vph)*	821	Volume (vph)*	1,010
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,454	Volume (pcph)	829	Volume (pcph)	1,020

Project Information

Project	65th Street Station
Scenario	Cumulative C NP AM
Freeway	WB US 50
On-ramp	Hornet Dr/Howe Ave
Off-ramp	65th Street



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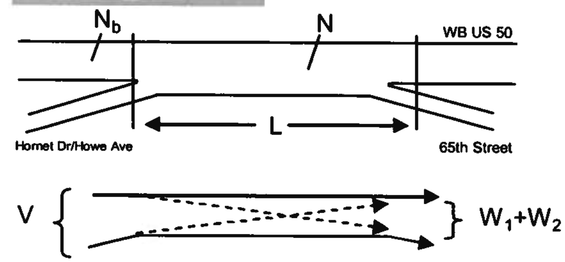


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   45 MPH and **50 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) **45.2**
4. Weaving Intensity Factor (k) **1.94**
5. Service Volume (SV, pcph)
   SV = (1/N)*[V + (k - 1)*min(W_1, W_2)] **2,047**
6. Level of Service (LOS) **F**

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

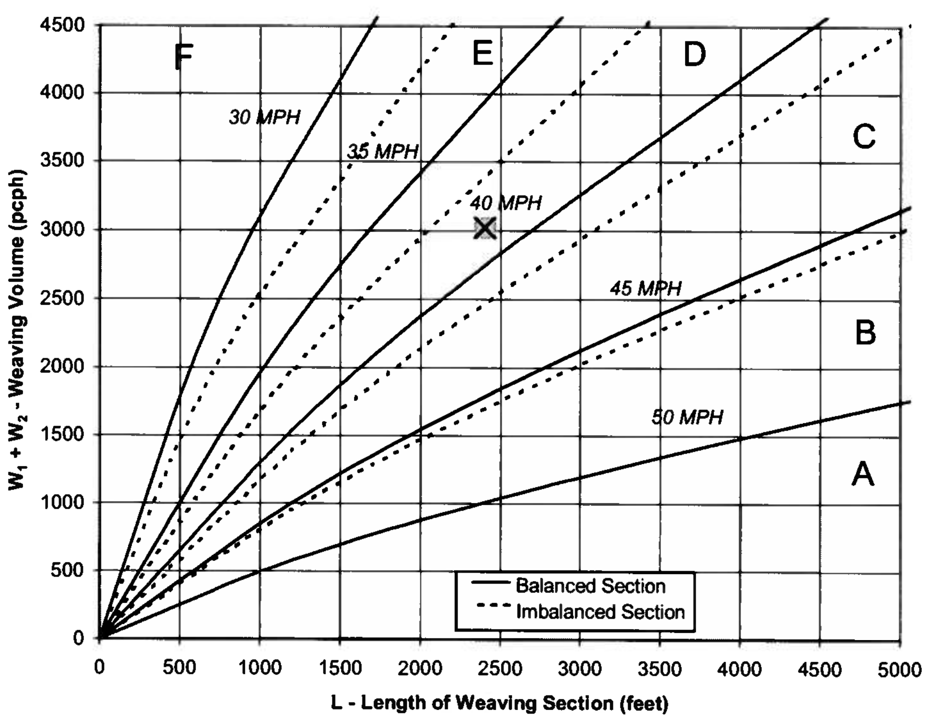
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,400

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,672	Volume (vph)*	830	Volume (vph)*	2,161
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,845	Volume (pcph)	838	Volume (pcph)	2,183

Project Information

Project	65th Street Station
Scenario	Cumulative C NP AM
Freeway	EB US 50
On-ramp	65th Street
Off-ramp	Hornet Dr/Howe Ave



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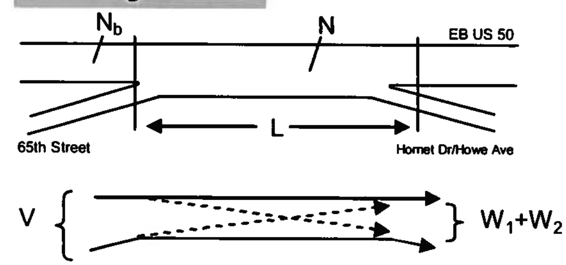


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   35 MPH and **40 MPH**
   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) 37.0
4. Weaving Intensity Factor (k) 2.78
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ 2,067
6. Level of Service (LOS) F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

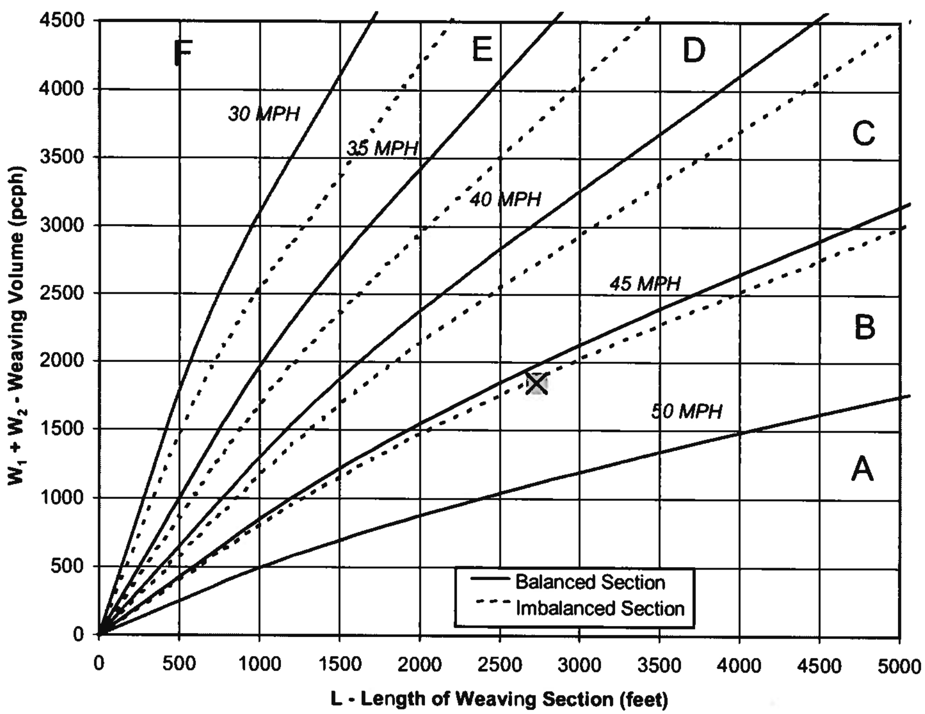
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,730

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,221	Volume (vph)*	639	Volume (vph)*	1,190
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,385	Volume (pcph)	645	Volume (pcph)	1,202

Project Information

Project	65th Street Station
Scenario	Cumulative C NP PM
Freeway	WB US 50
On-ramp	Hornet Dr/Howe Ave
Off-ramp	65th Street



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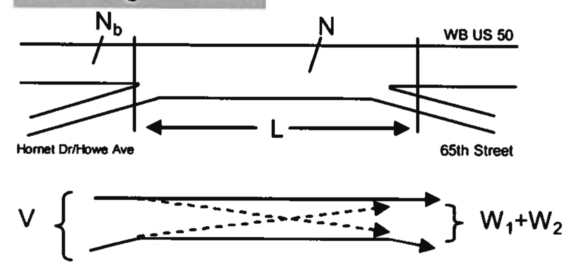


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   45 MPH and **50 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) 45.2
4. Weaving Intensity Factor (k) 1.94
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ 1,798
6. Level of Service (LOS) E

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

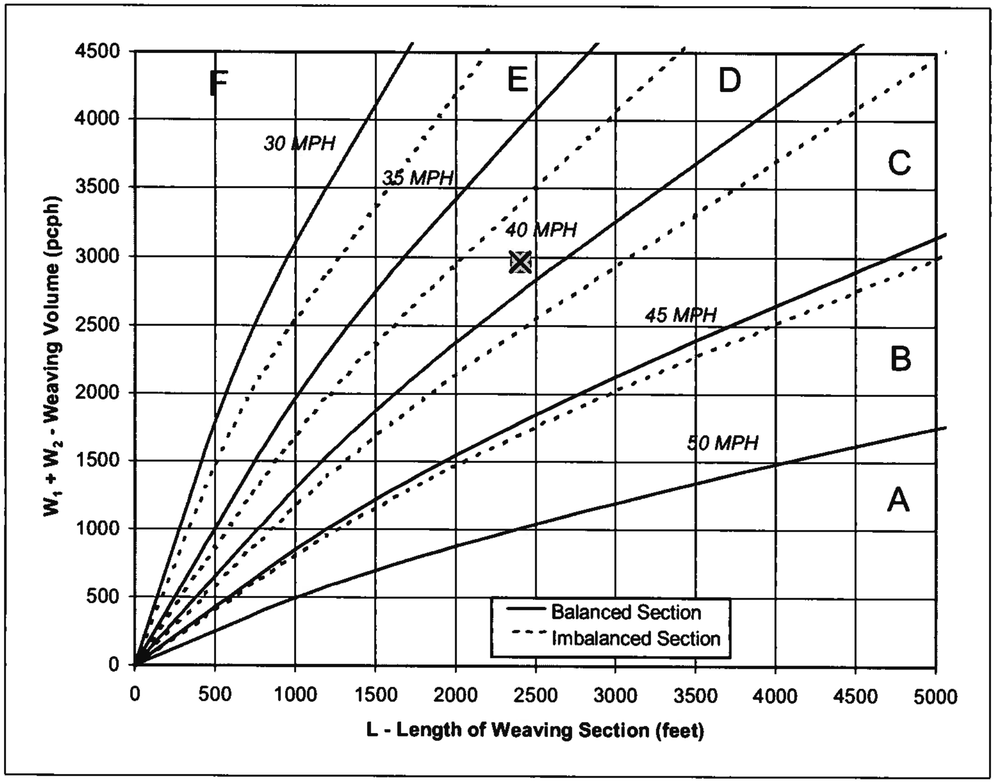
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,400

Project Information

Project	65th Street Station
Scenario	Cumulative C NP PM
Freeway	EB US 50
On-ramp	65th Street
Off-ramp	Hornet Dr/Howe Ave

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,924	Volume (vph)*	670	Volume (vph)*	2,269
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,102	Volume (pcph)	677	Volume (pcph)	2,292



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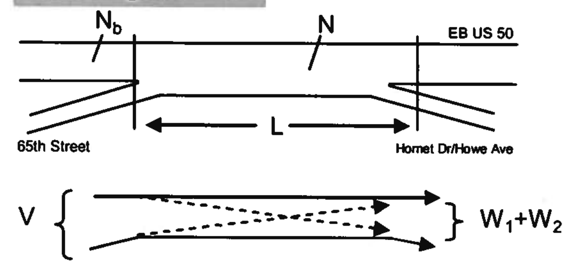


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   35 MPH and **40 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) 37.3
4. Weaving Intensity Factor (k) 2.89
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]$ 2,077
6. Level of Service (LOS) F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

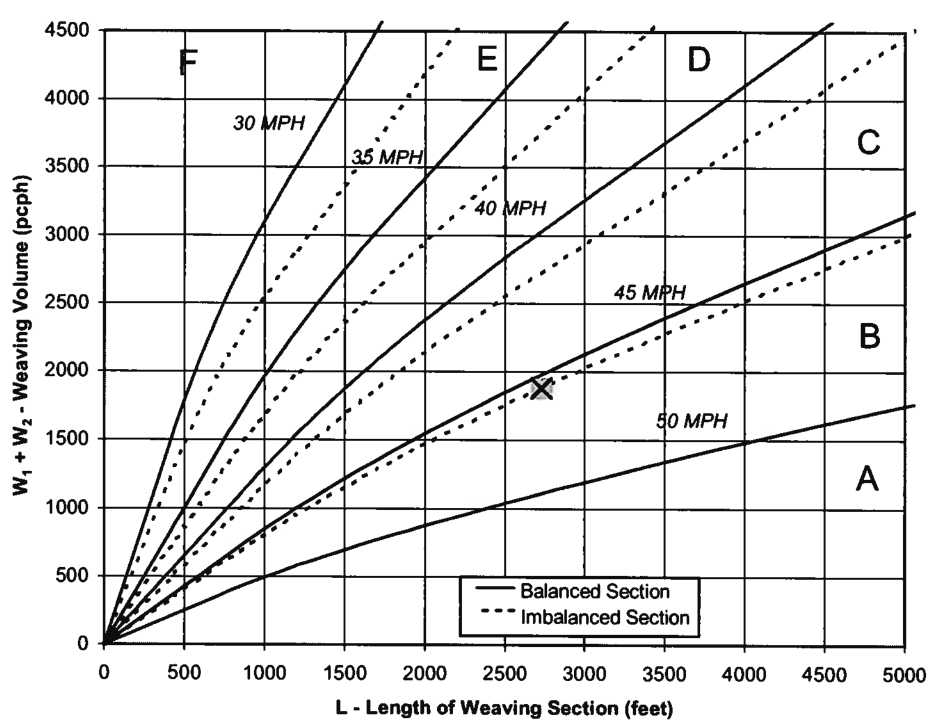
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,730

Project Information

Project	65th Street Station
Scenario	Cumulative C + Project AM
Freeway	WB US 50
On-ramp	Hornet Dr/Howe Ave
Off-ramp	65th Street

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	9,299	Volume (vph)*	821	Volume (vph)*	1,040
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,485	Volume (pcph)	829	Volume (pcph)	1,050



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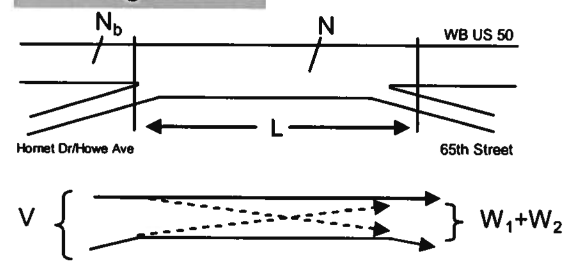


Capacity Analysis

1. Is the weaving section balanced (Y / N)? N
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   40 MPH and **45 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) 45.0
4. Weaving Intensity Factor (k) 1.97
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ 2,057
6. Level of Service (LOS) F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

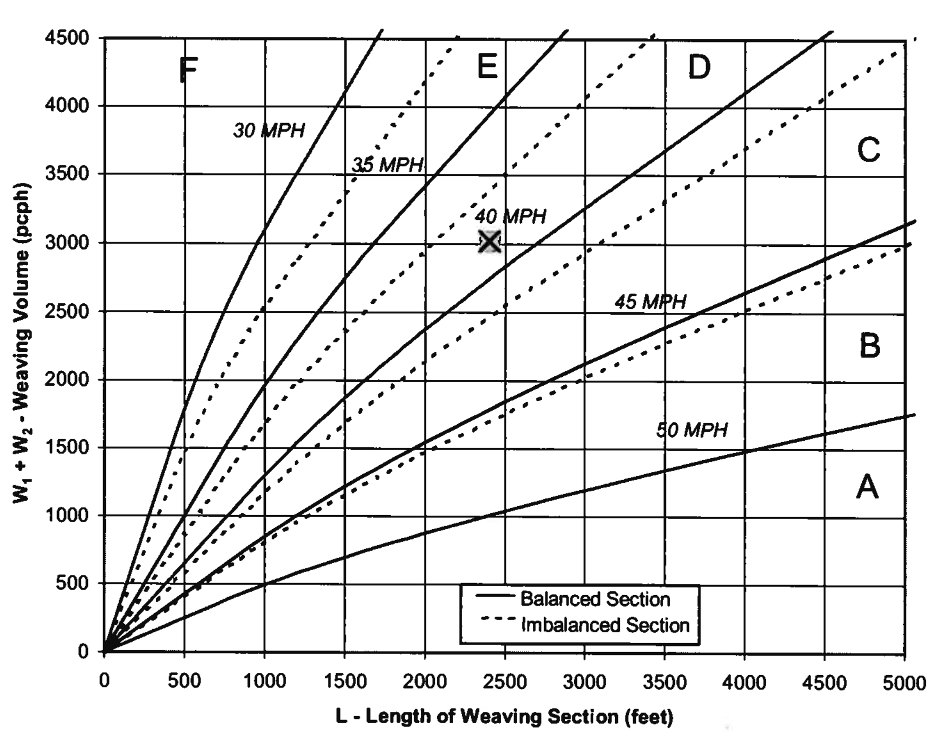
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,400

Project Information

Project	65th Street Station
Scenario	Cumulative C + Project AM
Freeway	EB US 50
On-ramp	65th Street
Off-ramp	Hornet Dr/Howe Ave

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,692	Volume (vph)*	830	Volume (vph)*	2,161
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,866	Volume (pcph)	838	Volume (pcph)	2,183



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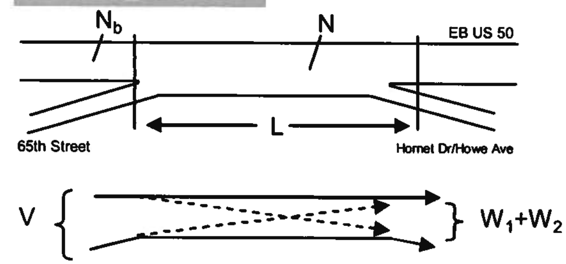


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   35 MPH and **40 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) 37.0
4. Weaving Intensity Factor (k) 2.78
5. Service Volume (SV, pcph)
   $SV = (1/N)^*[V + (k - 1)^*\min(W_1, W_2)]$ 2,071
6. Level of Service (LOS) F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

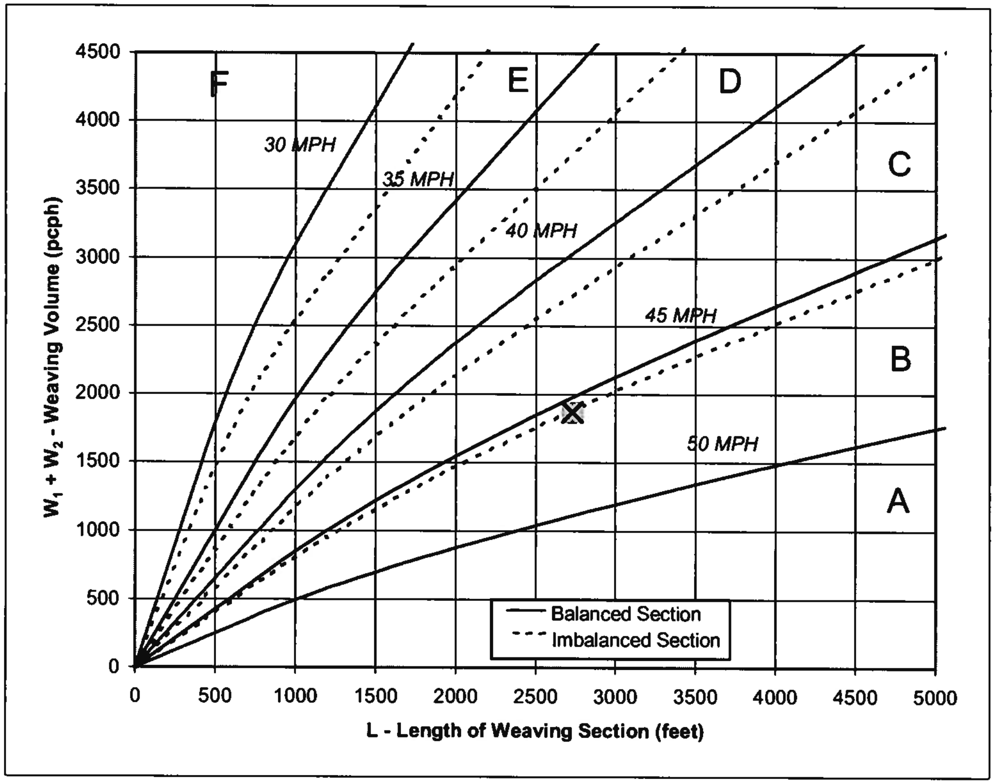
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,730

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,241	Volume (vph)*	639	Volume (vph)*	1,210
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,406	Volume (pcph)	645	Volume (pcph)	1,222

Project Information

Project	65th Street Station
Scenario	Cumulative C + Project PM
Freeway	WB US 50
On-ramp	Hornet Dr/Howe Ave
Off-ramp	65th Street



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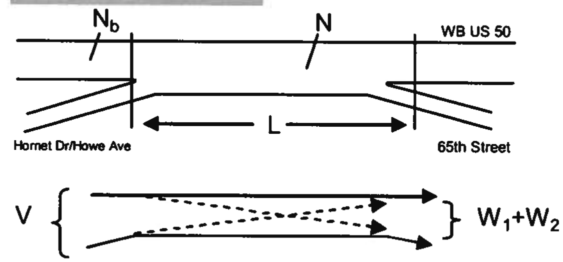


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   45 MPH and **50 MPH**
   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) — 45.1
4. Weaving Intensity Factor (k) — 1.95
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ — 1,804
6. Level of Service (LOS) — E

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

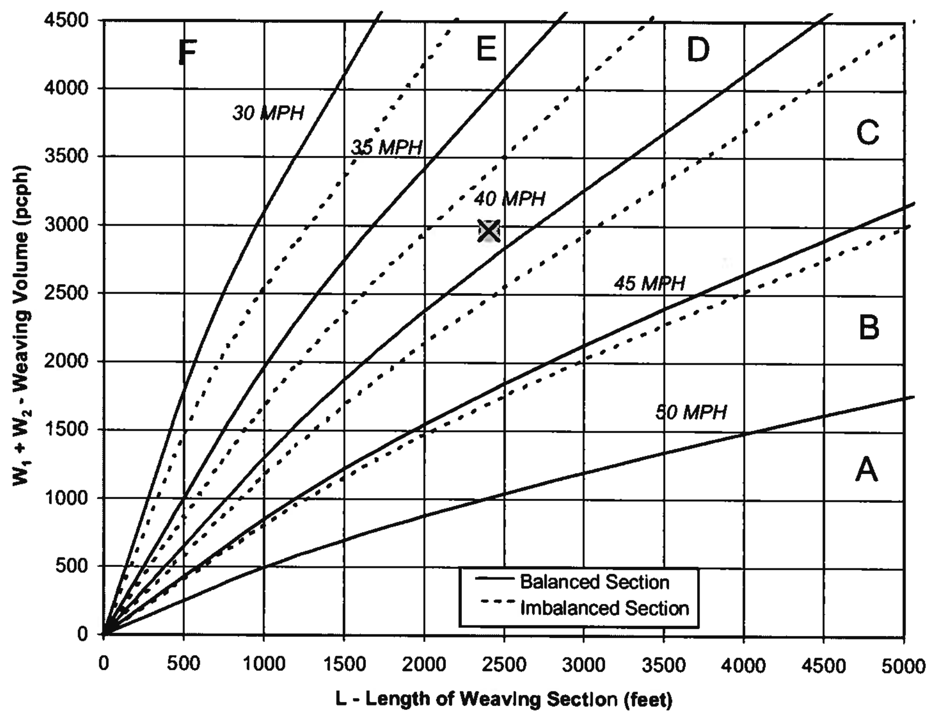
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,400

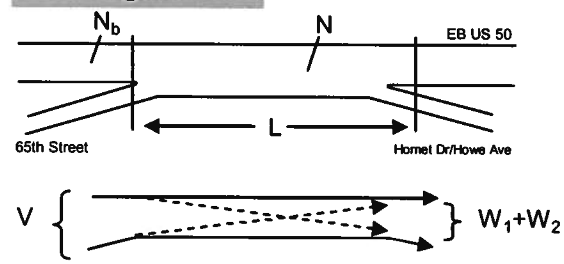
Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,944	Volume (vph)*	670	Volume (vph)*	2,269
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,123	Volume (pcph)	677	Volume (pcph)	2,292

Project Information

Project	65th Street Station
Scenario	Cumulative C + Project PM
Freeway	EB US 50
On-ramp	65th Street
Off-ramp	Homet Dr/Howe Ave



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   35 MPH and **40 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) 37.3
4. Weaving Intensity Factor (k) 2.89
5. Service Volume (SV, pcph)
   SV = (1/N)*[V + (k - 1)*min(W_1, W_2)] 2,081
6. Level of Service (LOS) F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

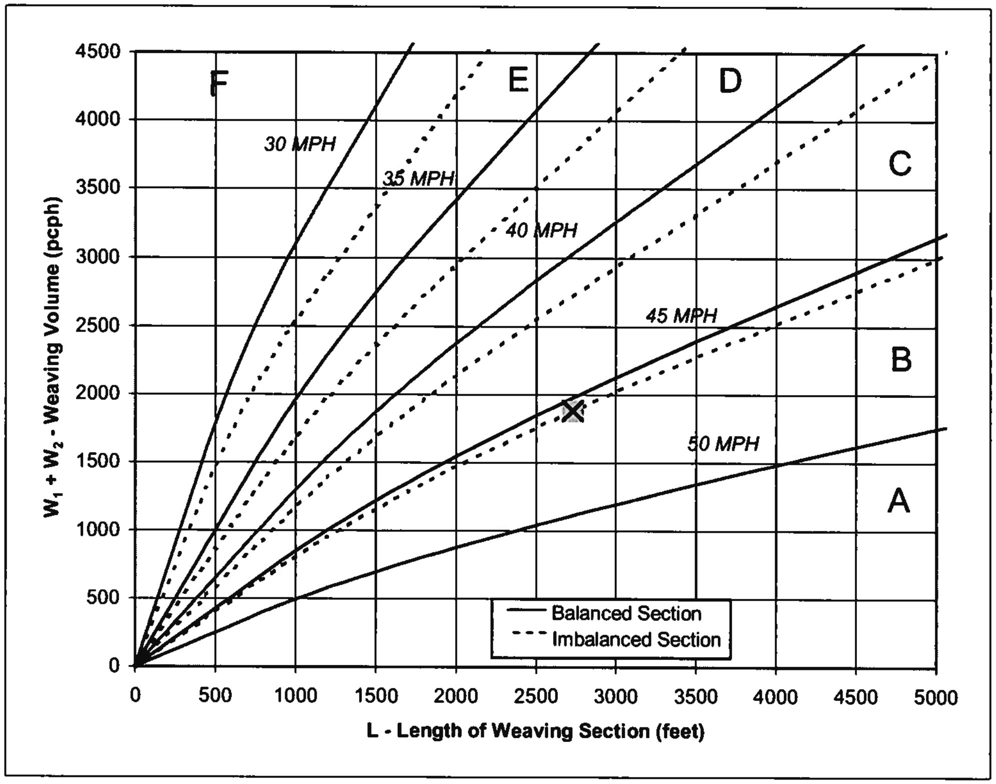
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,730

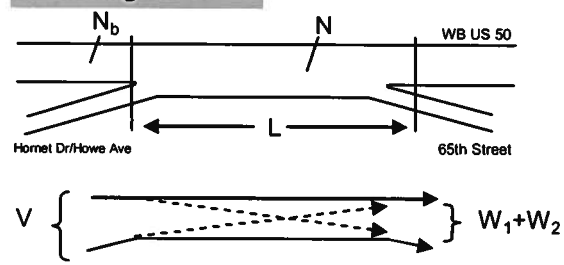
Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	9,303	Volume (vph)*	821	Volume (vph)*	1,044
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,489	Volume (pcph)	829	Volume (pcph)	1,054

Project Information

Project	65th Street Station
Scenario	Cumulative C + HD Project AM
Freeway	WB US 50
On-ramp	Hornet Dr/Howe Ave
Off-ramp	65th Street



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? N
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   40 MPH and **45 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) 45.0
4. Weaving Intensity Factor (k) 1.97
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]$ 2,058
6. Level of Service (LOS) F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

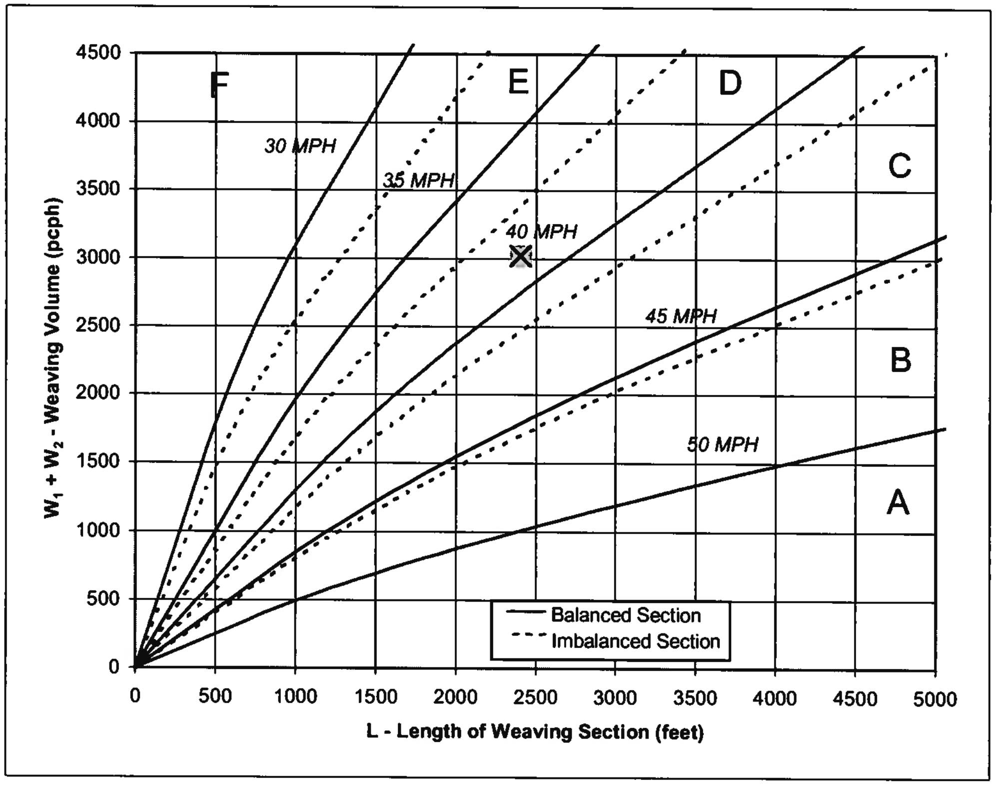
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,400

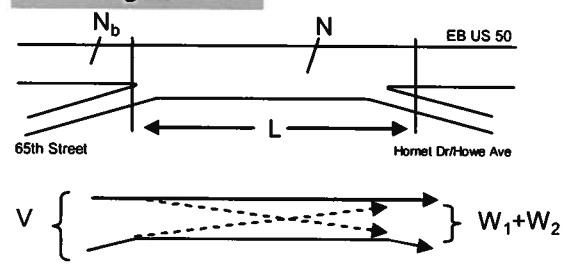
Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,699	Volume (vph)*	830	Volume (vph)*	2,161
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,873	Volume (pcph)	838	Volume (pcph)	2,183

Project Information

Project	65th Street Station
Scenario	Cumulative C + HD Project AM
Freeway	EB US 50
On-ramp	65th Street
Off-ramp	Homet Dr/Howe Ave



Figure



Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   35 MPH and **40 MPH**
   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) 37.0
4. Weaving Intensity Factor (k) 2.78
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*min(W_1, W_2)]$ 2,073
6. Level of Service (LOS) F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

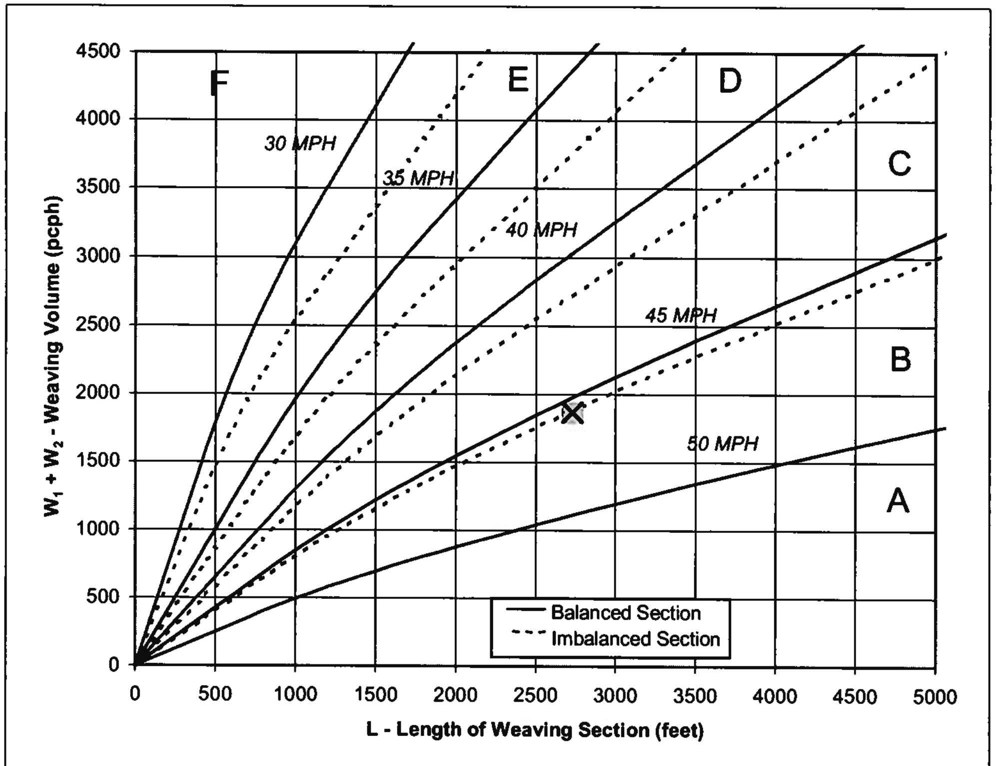
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,730

Project Information

Project	65th Street Station
Scenario	Cumulative C + HD Project PM
Freeway	WB US 50
On-ramp	Hornet Dr/Howe Ave
Off-ramp	65th Street

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,244	Volume (vph)*	639	Volume (vph)*	1,213
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	8,409	Volume (pcph)	645	Volume (pcph)	1,225



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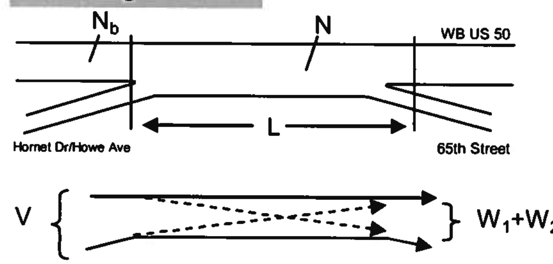


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   45 MPH and **50 MPH**

   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) 45.1
4. Weaving Intensity Factor (k) 1.95
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ 1,805
6. Level of Service (LOS) E

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

Leisch Method for Weaving Analysis

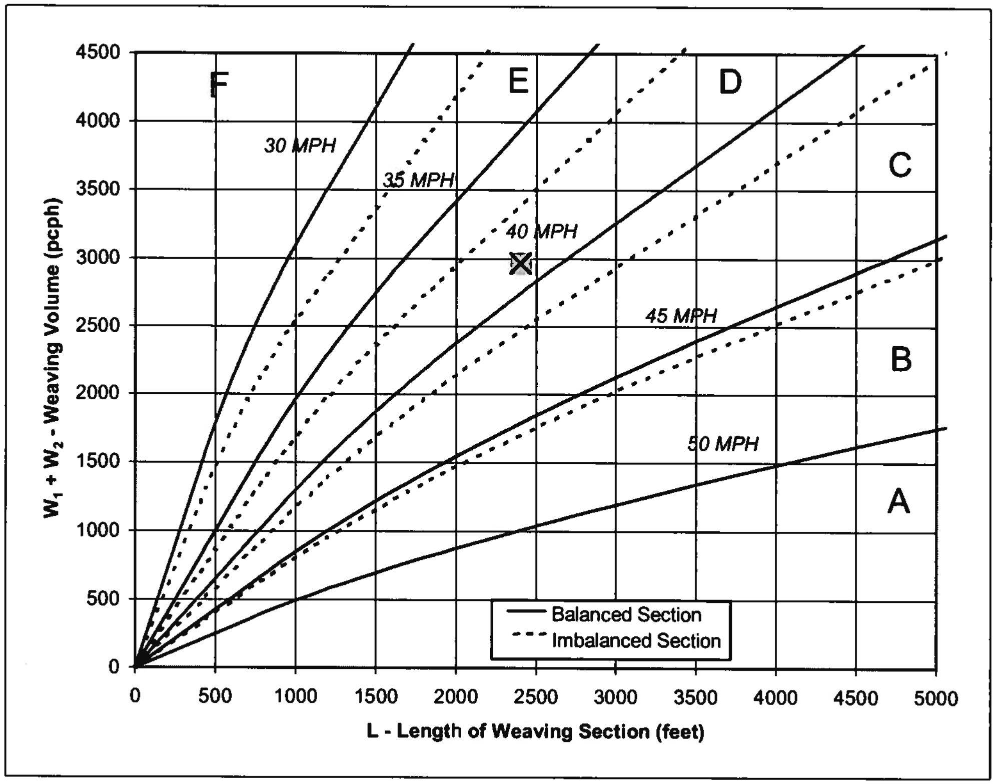
Data Input

Number of Entering Mainline Lanes	N_b	4
Number of Lanes in Weaving Section	N	5
Length of Weaving Section (feet)	L	2,400

Total Weaving Section (V)		On-ramp to Mainline (W_1)		Mainline to Off-ramp (W_2)	
Volume (vph)*	8,947	Volume (vph)*	670	Volume (vph)*	2,269
Truck Percentage	4%	Truck Percentage	2%	Truck Percentage	2%
PCE for Trucks	1.5	PCE for Trucks	1.5	PCE for Trucks	1.5
Volume (pcph)	9,126	Volume (pcph)	677	Volume (pcph)	2,292

Project Information

Project	65th Street Station
Scenario	Cumulative C + HD Project PM
Freeway	EB US 50
On-ramp	65th Street
Off-ramp	Hornet Dr/Howe Ave



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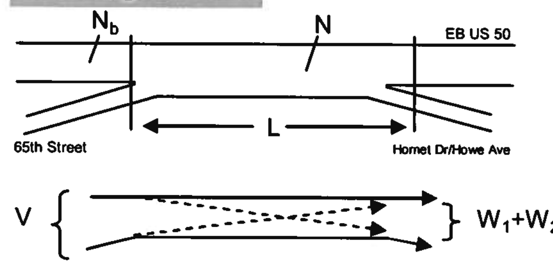


Capacity Analysis

1. Is the weaving section balanced (Y / N)? **N**
   [If optional exit lane, then "Y". Otherwise "N".]
2. In the Weaving Speed Chart to the left, which two speed curves is the black "x" between?
   35 MPH and **40 MPH**
   If below the 50 MPH curve, out of the realm of weaving.
   If left of the 30 MPH curve, LOS is F.
3. Interpolated Weaving Speed (S_w, mph) — 37.3
4. Weaving Intensity Factor (k) — 2.89
5. Service Volume (SV, pcph)
   $SV = (1/N)*[V + (k - 1)*\min(W_1, W_2)]$ — 2,081
6. Level of Service (LOS) — F

The LOS in the chart above refers to the capacity of weaving traffic only; through and ramp to ramp traffic is not included.

* Note: **Do not adjust by a Peak Hour Factor (PHF).** The methodology incorporates the PHF in the Service Volume tables.

Source: *Completion of Procedures for Analysis and Design of Traffic Weaving Sections*, Jack E. Leisch & Associates, September 1983.

TRIP GENERATION

Trip Generation Appendix Table 1
Trip Generation - Scenario A Project

			Trip Rates [1]							Trips						
				AM Peak Hour			PM Peak Hour				AM Peak Hour			PM Peak Hour		
Land Use	Size	Unit	Daily	Total	In	Out	Total	In	Out	Daily	Total	In	Out	Total	In	Out
Retail - Shopping Center	50.00	ksf	42.94	1.03	0.63	0.40	3.75	1.80	1.95	2,147	52	31	20	188	90	98
High Turnover Restaurant	14.00	ksf	127.15	13.53	7.04	6.49	18.80	10.34	8.46	1,780	189	98	91	263	145	118
Health Club	30.00	ksf	32.93	1.21	0.51	0.70	4.05	2.07	1.98	988	36	15	21	122	62	60
Hotel	148.00	rooms	8.17	0.56	0.34	0.22	0.59	0.31	0.28	1,209	83	51	32	87	46	41
Office	52.29	ksf	15.49	2.14	1.88	0.26	2.62	0.45	2.17	810	112	99	13	137	23	114
Residential - Apartments	68.00	du	6.72	0.51	0.10	0.41	0.62	0.40	0.22	457	35	7	28	42	27	15
Internal Trips		See Internalization Sheet -->							Retail	-203	-5	-3	-2	-18	-9	-9
					10%				High Turnover Restaurant	-156	-8	-5	-3	-9	-5	-4
					20%				Hotel	-121	-8	-5	-3	-9	-5	-4
		See Internalization Sheet -->							Health Club	-105	-3	-1	-2	-15	-10	-5
		See Internalization Sheet -->							Office	-130	-2	-1	-1	-12	-3	-9
		See Internalization Sheet -->							Residential	-122	-5	-2	-2	-12	-7	-6
Pass-By/Diverted Trips for Commercial																
Retail			15%			15%			34%	-269	-7	-3	-3	-54	-27	-27
High Turnover Restaurant			15%			15%			43%	-225	-26	-13	-13	-104	-52	-52
Transit/Alternative Mode Trips																
			10%			9%			Residential	-46	-3	-1	-3	-4	-2	-1
			6%			14%			Office	-49	-16	-14	-2	-19	-3	-16
			7%			5%			Health Club/Hotel	-154	-6	-3	-3	-10	-5	-5
									Retail	-150	-3	-2	-1	-9	-5	-5
									High Turnover Restaurant	-125	-9	-5	-5	-13	-7	-6
									Total Gross Trips	7,391	507	301	206	839	393	445
									Internal Trips	-837	-32	-17	-13	-74	-38	-37
									Transit/Alternative Mode Trips	-523	-37	-24	-13	-56	-23	-33
									Total Pass-by/Diverted Trips	-494	-32	-16	-16	-158	-79	-79
									Net New Trips	**5,537**	**406**	**244**	**164**	**550**	**253**	**296**
									Total Driveway Trips	**6,060**	**443**	**268**	**176**	**606**	**276**	**329**

Notes: [1] Trip rates are based on ITE *Trip Generation Manual*, 7th Edition (ITE, 2003), except as noted

[2] du=dwelling units.

[3] ksf = thousand square feet

Source: Fehr & Peers Associates, 2008.

Trip Generation Appendix Table 2
Trip Generation - Scenario B Project

Land Use	Size	Unit	Trip Rates [1]							Trips						
				AM Peak Hour			PM Peak Hour				AM Peak Hour			PM Peak Hour		
			Daily	Total	In	Out	Total	In	Out	Daily	Total	In	Out	Total	In	Out
Retail - Shopping Center	50.00	ksf	42.94	1.03	0.63	0.40	3.75	1.80	1.95	2,147	52	31	20	188	90	98
High Turnover Restaurant	14.00	ksf	127.15	13.53	7.04	6.49	18.80	10.34	8.46	1,780	189	98	91	263	145	118
Health Club	30.00	ksf	32.93	1.21	0.51	0.70	4.05	2.07	1.98	988	36	15	21	122	62	60
Hotel	148.00	rooms	8.17	0.56	0.34	0.22	0.59	0.31	0.28	1,209	83	51	32	87	46	41
Office	71.29	ksf	14.42	2.01	1.77	0.24	2.23	0.38	1.85	1,028	143	126	17	159	27	132
Residential - Apartments	120.00	du	6.72	0.51	0.10	0.41	0.62	0.40	0.22	806	61	12	49	74	48	26
Internal Trips		See Internalization Sheet -->							Retail	-243	-5	-3	-2	-20	-10	-10
					10%				High Turnover Restaurant	-178	-8	-5	-3	-9	-5	-4
					20%				Hotel	-121	-8	-5	-3	-9	-5	-4
		See Internalization Sheet -->							Health Club	-131	-3	-1	-2	-19	-13	-6
		See Internalization Sheet -->							Office	-141	-2	-1	-1	-14	-3	-11
		See Internalization Sheet -->							Residential	-177	-5	-3	-2	-17	-9	-8
Pass-By/Diverted Trips for Commercial																
Retail			15%			15%			34%	-263	-7	-3	-3	-54	-27	-27
High Turnover Restaurant			15%			15%			43%	-222	-26	-13	-13	-104	-52	-52
Transit/Alternative Mode Trips																
			10%			9%			Residential	-81	-5	-1	-4	-7	-4	-2
			6%			14%			Office	-62	-20	-18	-2	-22	-4	-18
			7%			5%			Health Club/Hotel	-154	-6	-3	-3	-10	-5	-5
									Retail	-150	-3	-2	-1	-9	-5	-5
									High Turnover Restaurant	-125	-9	-5	-5	-13	-7	-6
									Total Gross Trips	7,958	564	334	231	893	418	474
									Internal Trips	-991	-32	-18	-13	-87	-44	-43
									Total Pass-by/Diverted Trips	-485	-32	-16	-16	-158	-79	-79
									Transit/Alternative Mode Trips	-571	-44	-28	-15	-62	-25	-37
									Net New Trips	**5,912**	**457**	**271**	**186**	**586**	**270**	**316**
									Total Driveway Volume	**6,397**	**489**	**287**	**202**	**743**	**349**	**395**

Notes: [1] Trip rates are based on ITE *Trip Generation Manual*, 7th Edition (ITE, 2003), except as noted
[2] du=dwelling units.
[3] ksf = thousand square feet
Source: Fehr & Peers Associates, 2008.

PROJECT TITLE: TIA
PROJECT #: 1041-XXXX
ANALYST: KAS
DATE: 7/16/2008

ITE Trip Internalization Spreadsheets for Scenario A Project

This spreadsheet is intented for estimating trip generation and internal capture for multi-use developments. It uses the informaiton provided in the ITE *Trip Generation Handbook*, Chapter 7 March 2001. **(Please read comments and instructions at the right of the tables.)**

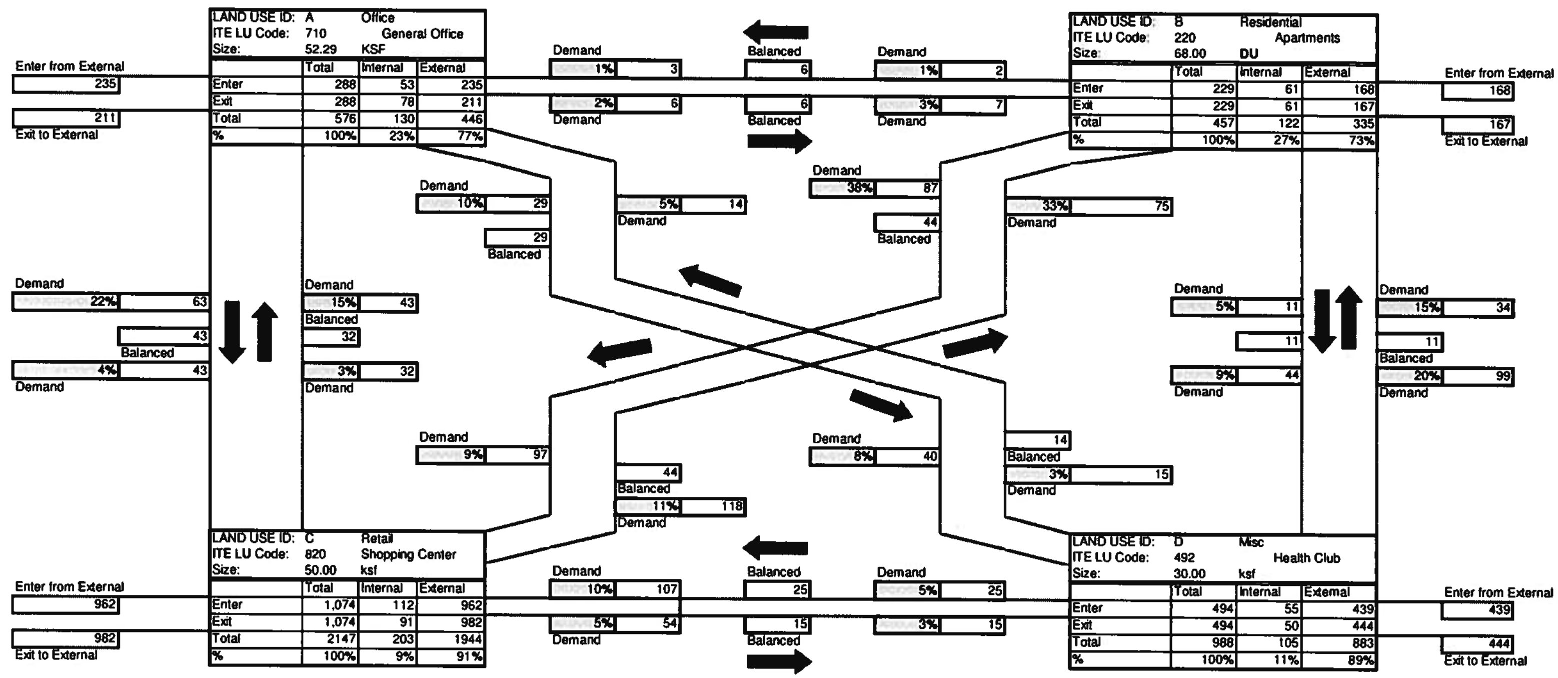
ID	Project Description (1)	Land Use (2)	ITE Code (3)	Size (4)	Units (5)	Rates (6)				Directional Distribution (7)						Total Trips				Inbound and Outbound Trips					
										A.M.		P.M.		Midday						A.M.		P.M.		Midday	
						Daily	A.M.	P.M.	Midday	Entering	Exiting	Entering	Exiting	Entering	Exiting	Daily	A.M.	P.M.	Midday	Entering	Exiting	Entering	Exiting	Entering	Exiting
A	General Office	Office	710	52.29	KSF	11.01	1.55	1.49	0.00	88%	12%	17%	83%	0%	0%	576	81	78	0	71	10	13	65	0	0
B	Apartments	Residential	220	68.00	DU	6.72	0.51	0.62	0.00	20%	80%	65%	65%	0%	0%	457	35	42	0	7	28	27	27	0	0
C	Shopping Center	Retail	820	50.00	ksf	42.94	1.03	3.75	6.78	61%	39%	48%	52%	48%	52%	2,147	52	188	339	32	20	90	98	90	98
D	Health Club	Misc	492	30.00	ksf	32.93	1.21	4.05	0.00	42%	58%	51%	49%	0%	0%	988	36	122	0	15	21	62	60	0	0
															TOTAL	*4,168*	*204*	*430*	*339*	*125*	*79*	*192*	*250*	*90*	*98*
															INTERNAL CAPTURE %	13%	7%	13%	0%	7%	7%	13%	13%	0%	0%
															INTERNAL TRIPS	560	14	56	0	9	6	25	32	0	0
															NET TOTAL	***3,608***	***190***	***374***	***339***	***116***	***73***	***167***	***218***	***90***	***98***

DAILY

Analyst: KAS
Date: 7/16/2008
Project #: 1041-XXXX

MULTI-USE DEVELOPMENT
TRIP GENERATION
AND INTERNAL CAPTURE SUMMARY

Name of Development/Tile: TIA
Time Period: Daily



LAND USE ID: A Office
ITE LU Code: 710 General Office
Size: 52.29 KSF

	Total	Internal	External
Enter	288	53	235
Exit	288	78	211
Total	576	130	446
%	100%	23%	77%

LAND USE ID: B Residential
ITE LU Code: 220 Apartments
Size: 68.00 DU

	Total	Internal	External
Enter	229	61	168
Exit	229	61	167
Total	457	122	335
%	100%	27%	73%

LAND USE ID: C Retail
ITE LU Code: 820 Shopping Center
Size: 50.00 ksf

	Total	Internal	External
Enter	1,074	112	962
Exit	1,074	91	982
Total	2147	203	1944
%	100%	9%	91%

LAND USE ID: D Misc
ITE LU Code: 492 Health Club
Size: 30.00 ksf

	Total	Internal	External
Enter	494	55	439
Exit	494	50	444
Total	988	105	883
%	100%	11%	89%

Net External Trips for Multi-Use Development

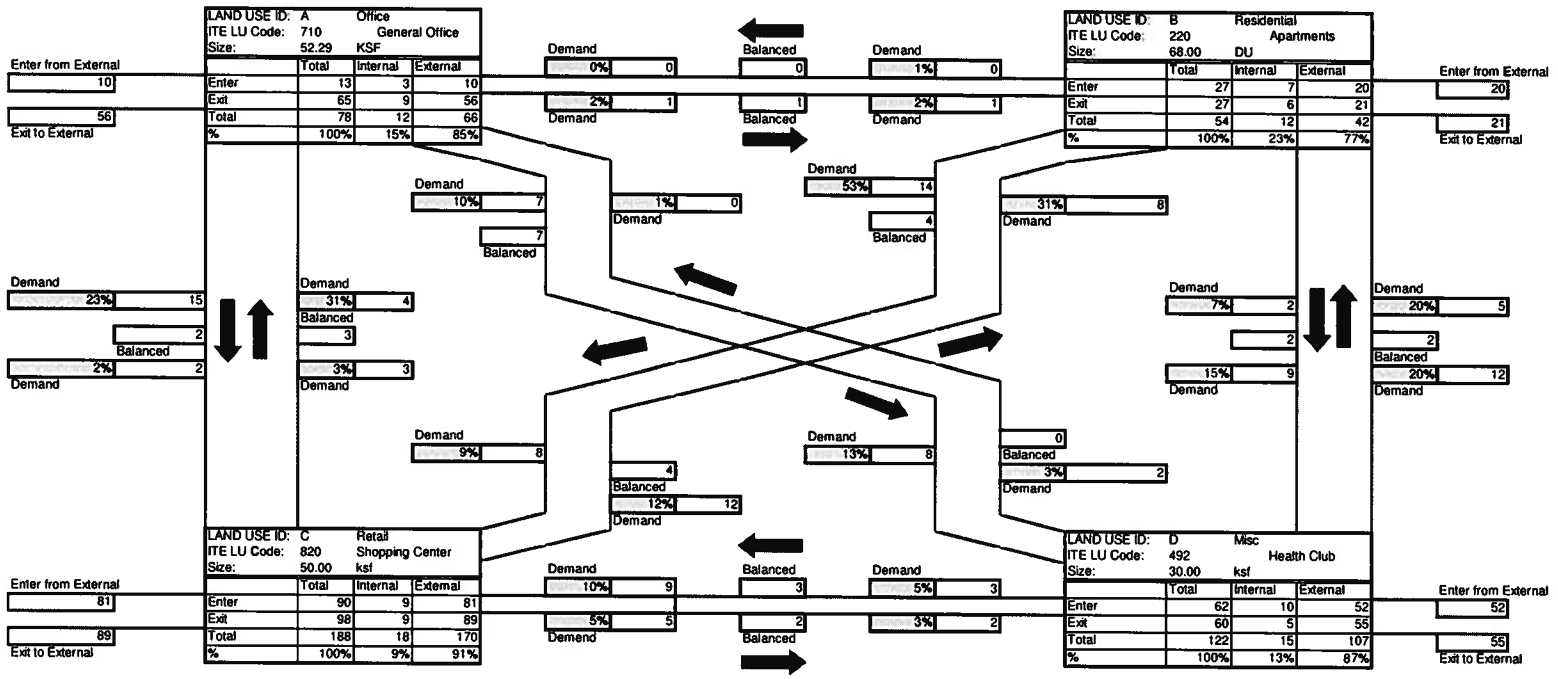
Land Use ID	A	B	C	D	Total	
Enter	235	168	962	439	1804	
Exit	211	167	982	444	1804	
Total	446	335	1944	883	3608	***INTERNAL CAPTURE***
Single-Use Trip Gen. Est.	576	457	2147	988	4168	13%

PM

Analyst: KAS
Date: 7/16/2008
Project #: 1041-XXXX

MULTI-USE DEVELOPMENT
TRIP GENERATION
AND INTERNAL CAPTURE SUMMARY

Name of Development/Title: **TIA**
Time Period: **PM Peak Hour**



LAND USE ID: A — Office
ITE LU Code: 710 — General Office
Size: 52.29 KSF

	Total	Internal	External
Enter	13	3	10
Exit	65	9	56
Total	78	12	66
%	100%	15%	85%

LAND USE ID: B — Residential
ITE LU Code: 220 — Apartments
Size: 68.00 DU

	Total	Internal	External
Enter	27	7	20
Exit	27	6	21
Total	54	12	42
%	100%	23%	77%

LAND USE ID: C — Retail
ITE LU Code: 820 — Shopping Center
Size: 50.00 ksf

	Total	Internal	External
Enter	90	9	81
Exit	98	9	89
Total	188	18	170
%	100%	9%	91%

LAND USE ID: D — Misc
ITE LU Code: 492 — Health Club
Size: 30.00 ksf

	Total	Internal	External
Enter	62	10	52
Exit	60	5	55
Total	122	15	107
%	100%	13%	87%

Net External Trips for Multi-Use Development

Land Use ID	A	B	C	D	Total
Enter	10	20	81	52	163
Exit	56	21	89	55	221
Total	66	42	170	107	385
Single-Use Trip Gen. Est.	78	54	188	122	442

INTERNAL CAPTURE 13%

AM

Analyst: KAS
Date: 7/16/2008
Project #: 1041-XXXX

MULTI-USE DEVELOPMENT
TRIP GENERATION
AND INTERNAL CAPTURE SUMMARY

Name of Development/Title: **TIA**
Time Period: **AM Peak Hour**

LAND USE ID:	A	Office	
ITE LU Code:	710	General Office	
Size:	52.29	KSF	
	Total	Internal	External
Enter	71	1	70
Exit	10	1	9
Total	81	2	79
%	100%	2%	98%

Enter from External 70
Exit to External 9

LAND USE ID:	B	Residential	
ITE LU Code:	220	Apartments	
Size:	68.00	DU	
	Total	Internal	External
Enter	7	2	5
Exit	28	2	26
Total	35	5	30
%	100%	13%	87%

Enter from External 5
Exit to External 26

Demand 0% 0
Balanced 0
Demand 1% 0
Demand 2% 0
Balanced 0
Demand 2% 0

Demand 0% 0
Balanced 0
Demand 3% 2
Demand 30% 8
Balanced 2
Demand 20% 1

Demand 12% 1
Balanced 1
Demand 2% 1
Demand 15% 11
Balanced 1
Demand 3% 1

Demand 8% 2
Balanced 1
Demand 5% 1
Demand 10% 1
Balanced 1
Demand 10% 2

Demand 5% 2
Balanced 1
Demand 7% 1
Demand 1% 0
Balanced 0
Demand 1% 0

Demand 5% 2
Balanced 1
Demand 3% 1
Demand 3% 1
Balanced 0
Demand 3% 0

LAND USE ID:	C	Retail	
ITE LU Code:	820	Shopping Center	
Size:	50.00	ksf	
	Total	Internal	External
Enter	32	3	29
Exit	20	2	18
Total	52	5	47
%	100%	10%	90%

Enter from External 29
Exit to External 18

LAND USE ID:	D	Misc	
ITE LU Code:	492	Health Club	
Size:	30.00	ksf	
	Total	Internal	External
Enter	15	1	14
Exit	21	2	19
Total	36	3	33
%	100%	8%	92%

Enter from External 14
Exit to External 19

Net External Trips for Multi-Use Development

Land Use ID	A	B	C	D	Total
Enter	70	5	29	14	118
Exit	9	26	18	19	72
Total	79	30	47	33	190
Single-Use Trip Gen. Est.	81	35	52	36	204

INTERNAL CAPTURE
7%

PROJECT TITLE: Station 65
PROJECT #: RS08-2604
ANALYST: KAS
DATE: 7/16/2008

ITE Trip Internalization Spreadsheets for Scenario B Project

This spreadsheet is intented for estimating trip generation and internal capture for multi-use developments. It uses the informaiton provided in the ITE *Trip Generation Handbook*, Chapter 7 March 2001. **(Please read comments and instructions at the right of the tables.)**

ID	Project Description (1)	Land Use (2)	ITE Code (3)	Size (4)	Units (5)	Rates (6)				Directional Distribution (7)						Total Trips				Inbound and Outbound Trips					
										A.M.		P.M.		Midday						A.M.		P.M.		Midday	
						Daily	A.M.	P.M.	Midday	Entering	Exiting	Entering	Exiting	Entering	Exiting	Daily	A.M.	P.M.	Midday	Entering	Exiting	Entering	Exiting	Entering	Exiting
A	General Office	Office	710	71.29	KSF	11.01	1.55	1.49	0.00	88%	12%	17%	83%	0%	0%	785	110	106	0	97	13	18	88	0	0
B	Apartments	Residential	220	120.00	DU	6.72	0.51	0.62	0.00	20%	80%	65%	65%	0%	0%	806	61	74	0	12	49	48	48	0	0
C	Shopping Center	Retail	820	50.00	ksf	42.94	1.03	3.75	6.78	61%	39%	48%	52%	48%	52%	2,147	52	188	339	32	20	90	98	90	98
D	Health Club	Misc	492	30.00	ksf	32.93	1.21	4.05	0.00	42%	58%	51%	49%	0%	0%	988	36	122	0	15	21	62	60	0	0
															TOTAL	*4,726*	*259*	*490*	*339*	*156*	*103*	*218*	*294*	*90*	*98*
															INTERNAL CAPTURE %	15%	6%	14%	0%	6%	6%	14%	14%	0%	0%
															INTERNAL TRIPS	691	15	67	0	9	6	30	40	0	0
															NET TOTAL	***4,035***	***244***	***423***	***339***	***147***	***97***	***188***	***254***	***90***	***98***

DAILY

Analyst: KAS
Date: 7/16/2008
Project #: RS08-2604

MULTI-USE DEVELOPMENT
TRIP GENERATION
AND INTERNAL CAPTURE SUMMARY

Name of Development/Tile: **Station 65**
Time Period: **Daily**

LAND USE ID: A — Office
ITE LU Code: 710 — General Office
Size: 71.29 KSF

	Total	Internal	External
Enter	393	51	342
Exit	393	90	302
Total	785	141	644
%	100%	18%	82%

LAND USE ID: B — Residential
ITE LU Code: 220 — Apartments
Size: 120.00 DU

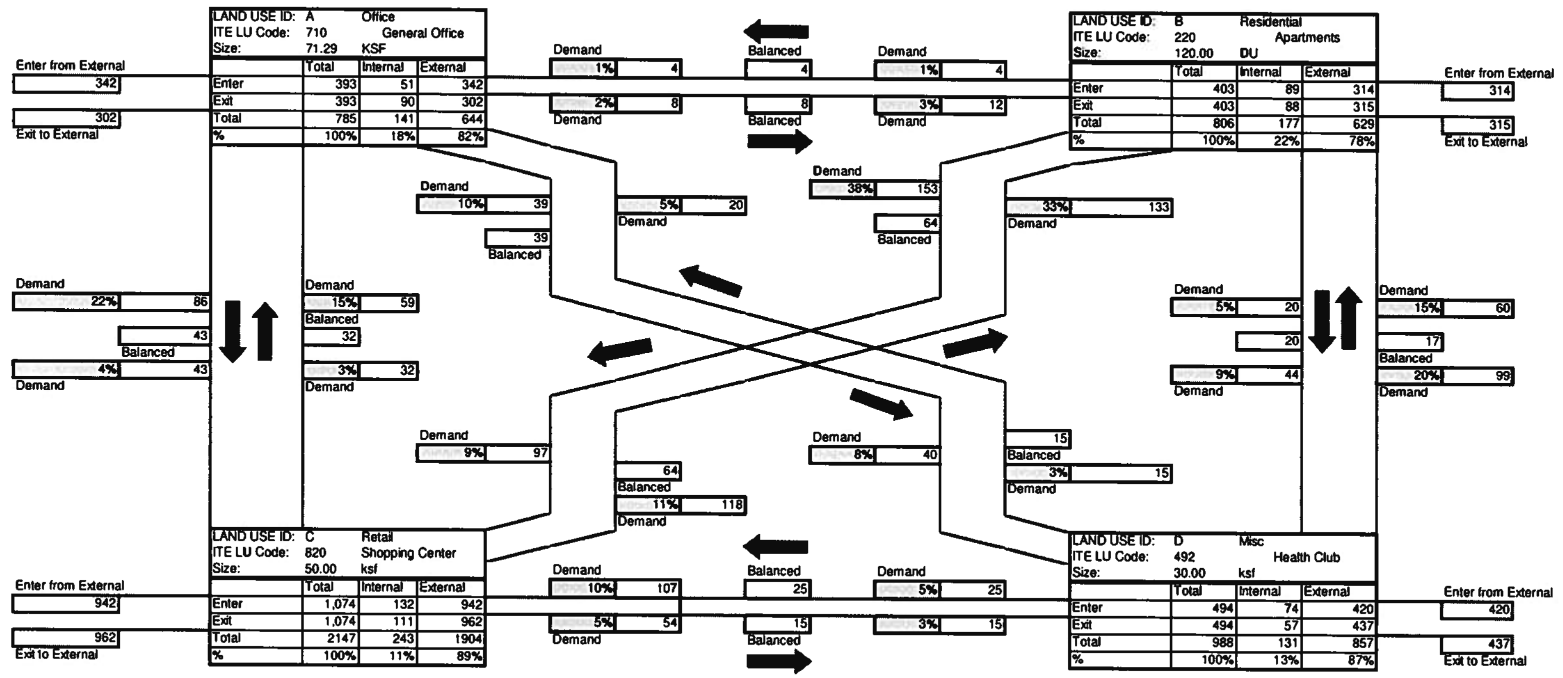
	Total	Internal	External
Enter	403	89	314
Exit	403	88	315
Total	806	177	629
%	100%	22%	78%

LAND USE ID: C — Retail
ITE LU Code: 820 — Shopping Center
Size: 50.00 ksf

	Total	Internal	External
Enter	1,074	132	942
Exit	1,074	111	962
Total	2147	243	1904
%	100%	11%	89%

LAND USE ID: D — Misc
ITE LU Code: 492 — Health Club
Size: 30.00 ksf

	Total	Internal	External
Enter	494	74	420
Exit	494	57	437
Total	988	131	857
%	100%	13%	87%



Net External Trips for Multi-Use Development						
Land Use ID	A	B	C	D	Total	
Enter	342	314	942	420	2017	
Exit	302	315	962	437	2017	
Total	644	629	1904	857	4035	***INTERNAL CAPTURE***
Single-Use Trip Gen. Est.	785	806	2147	988	4726	15%

PM

Analyst: KAS
Date: 7/16/2008
Project #: RS08-2604

MULTI-USE DEVELOPMENT
TRIP GENERATION
AND INTERNAL CAPTURE SUMMARY

Name of Development/Tile: **Station 65**
Time Period: **PM Peak Hour**

LAND USE ID: A — Office
ITE LU Code: 710 — General Office
Size: 71.29 KSF

	Total	Internal	External
Enter	18	3	15
Exit	88	11	77
Total	106	14	92
%	100%	13%	87%

LAND USE ID: B — Residential
ITE LU Code: 220 — Apartments
Size: 120.00 DU

	Total	Internal	External
Enter	48	9	39
Exit	48	8	40
Total	96	17	79
%	100%	18%	82%

LAND USE ID: C — Retail
ITE LU Code: 820 — Shopping Center
Size: 50.00 ksf

	Total	Internal	External
Enter	90	10	80
Exit	98	10	88
Total	188	20	168
%	100%	10%	90%

LAND USE ID: D — Misc
ITE LU Code: 492 — Health Club
Size: 30.00 ksf

	Total	Internal	External
Enter	62	13	49
Exit	60	6	54
Total	122	19	103
%	100%	16%	84%

Land use A: Enter from External 15; Exit to External 77
Land use B: Enter from External 39; Exit to External 40
Land use C: Enter from External 80; Exit to External 88
Land use D: Enter from External 49; Exit to External 54

A – B: Demand 0% 0; Balanced 0; Demand 1% 0
A – B: Demand 2% 2; Balanced 1; Demand 2% 1

A – C: Demand 23% 20; Balanced 2; Demand 2% 2
A – C: Demand 31% 6; Balanced 3; Demand 3% 3

A – D: Demand 10% 9; Balanced 8
A – D: Demand 1% 0

B – C: Demand 53% 25; Balanced 5
B – C: Demand 31% 15

B – D: Demand 7% 3; Balanced 3; Demand 15% 9
B – D: Demand 20% 10; Balanced 3; Demand 20% 12

C – B: Demand 9% 8
C – B: Balanced 5; Demand 12% 12

D – A: Demand 13% 8
D – A: Balanced 0; Demand 3% 2

C – D: Demand 10% 9; Balanced 3; Demand 5% 3
C – D: Demand 5% 5; Balanced 2; Demand 3% 2

Net External Trips for Multi-Use Development					
Land Use ID	A	B	C	D	Total
Enter	15	39	80	49	183
Exit	77	40	88	54	259
Total	92	79	168	103	442
Single-Use Trip Gen. Est.	106	96	188	122	512

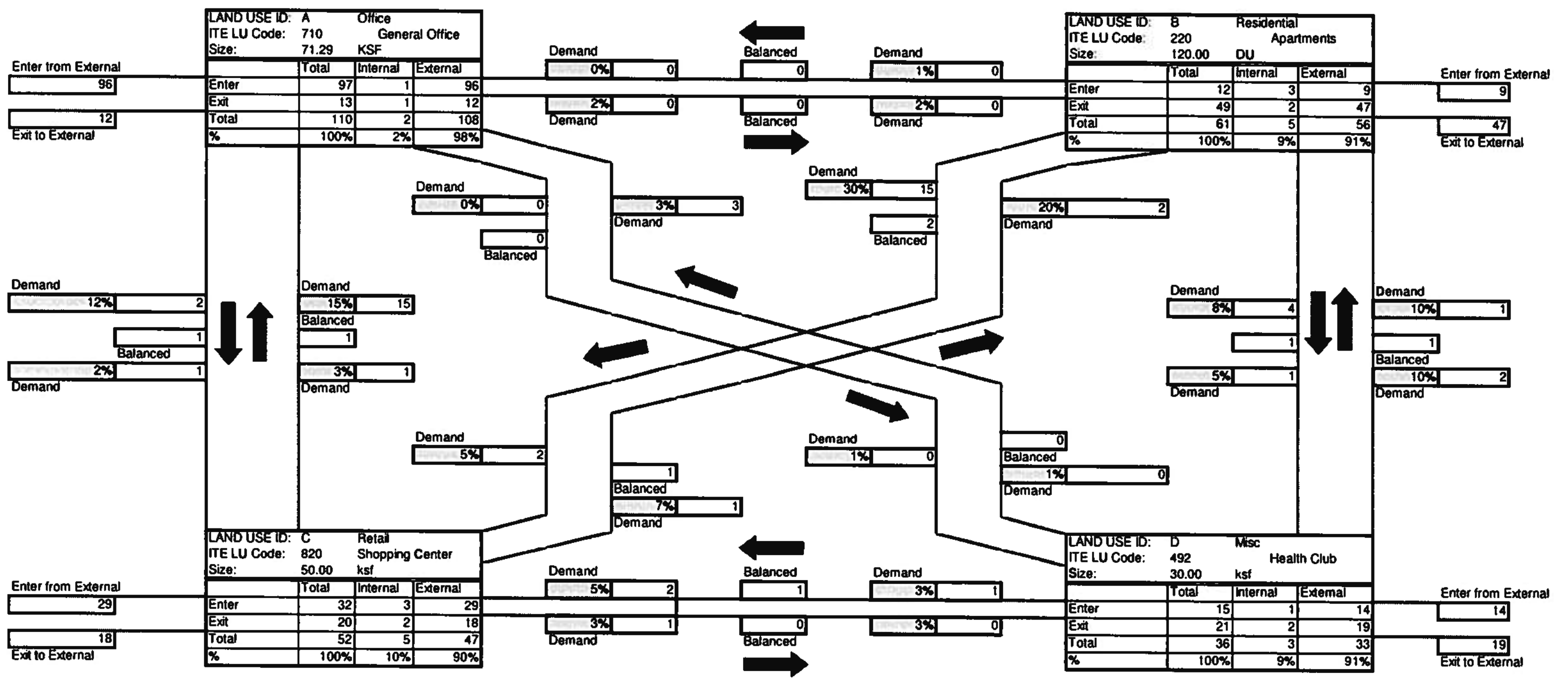
INTERNAL CAPTURE 14%

AM

Analyst: KAS
Date: 7/16/2008
Project #: RS08-2604

MULTI-USE DEVELOPMENT
TRIP GENERATION
AND INTERNAL CAPTURE SUMMARY

Name of Development/Tile: **Station 65**
Time Period: **AM Peak Hour**



LAND USE ID:	A	Office	
ITE LU Code:	710	General Office	
Size:	71.29	KSF	
	Total	Internal	External
Enter	97	1	96
Exit	13	1	12
Total	110	2	108
%	100%	2%	98%

LAND USE ID:	B	Residential	
ITE LU Code:	220	Apartments	
Size:	120.00	DU	
	Total	Internal	External
Enter	12	3	9
Exit	49	2	47
Total	61	5	56
%	100%	9%	91%

LAND USE ID:	C	Retail	
ITE LU Code:	820	Shopping Center	
Size:	50.00	ksf	
	Total	Internal	External
Enter	32	3	29
Exit	20	2	18
Total	52	5	47
%	100%	10%	90%

LAND USE ID:	D	Misc	
ITE LU Code:	492	Health Club	
Size:	30.00	ksf	
	Total	Internal	External
Enter	15	1	14
Exit	21	2	19
Total	36	3	33
%	100%	9%	91%

Net External Trips for Multi-Use Development

Land Use ID	A	B	C	D	Total
Enter	96	9	29	14	148
Exit	12	47	18	19	95
Total	108	56	47	33	244
Single-Use Trip Gen. Est.	110	61	52	36	259

INTERNAL CAPTURE
6%

Innovative Intermodal Solutions for Urban Transportation Paper Award: Quantifying Transit-Oriented Development's Ability to Change Travel Behavior

The Innovative Intermodal Solutions for Urban Transportation Paper Award, in memory of Daniel W. Hoyt, has two purposes: to encourage reporting of activities and programs that have been effective in addressing urban transportation needs through the development of innovative, practical and balanced intermodal solutions; and to publicize the role of transportation professionals in achieving innovative solutions to urban transportation needs. The award has been endowed by Post, Buckley, Schuh & Jernigan Inc. in memory of Daniel W. Hoyt, a fellow member of ITE who was transportation planning manager for Post, Buckley, Schuh & Jernigan Inc. in Miami, FL, USA, until his untimely death in April 1991 at the age of 51. Hoyt was one of the stalwarts of the profession, consistently giving his time, energy and initiative back to the profession. A consummate professional, he always strove energetically for a better solution and a better way.

BY JOHN GARD, P.E.

THIS FEATURE PRESENTS AN innovative approach for determining transit ridership and vehicle trips for two hypothetical transit-oriented developments (TODs) in Sacramento, CA, USA. The suggested approach builds on travel behavior data collected at existing TODs on several rail transit lines in California. It then uses mode split and trip purpose data specific to the Sacramento region to calibrate the approach to match local conditions.

The approach provides estimates of the number of transit riders and external vehicle trips associated with proposed TOD developments. The author describes how this approach may be extended to other regions in which TOD-specific and general travel behavior data are available.

BACKGROUND

The benefits of TODs are well documented. They can increase mobility options, particularly in congested areas. They can enhance quality of life for residents through attractive form and design. They can result in improved air quality and reduced energy consumption. They can reduce rates of vehicle trip-making and automobile ownership; can encourage the use of alternative travel modes such as transit, bicycling and walking; and can reduce some infrastructure costs through compact and infill development. They also can contribute to the supply of affordable and lower-cost housing.

Unfortunately, proposals for TOD projects often are met by strong neighborhood opposition. Concerns about potential increases in localized traffic congestion are frequently cited. Residents and employees of TODs tend to use transit at higher rates (compared to non-TODs); the higher densities typically associated with TOD design can result in additional traffic on neighboring streets.

Although these local traffic impacts are offset by significant regional mobility benefits, jurisdictions do not always take regional benefits into consideration when reviewing individual development proposals. This has become a serious impediment to the wider implementation of TOD in California. These concerns are compounded by the lack of up-to-date and accurate data on transit usage rates and corresponding reductions in vehicle-trips generated by TODs.

LITERATURE REVIEW

The correlation between TODs and increased transit use is well established. However, researchers have found it challenging to quantify the specific transportation-related benefits of TODs. Although several studies have analyzed neighborhoods in California and elsewhere in the United States that resemble TODs, few recent or conclusive studies have been able to quantify the relationship between TODs and travel. One reason is a relative scarcity of established TODs and the limited funding for their study.

Studies by Dr. Robert Cervero and others have demonstrated how the three Ds of TODs —density, design (provision of convenient sidewalks that encourage walking) and diversity (land use mixture) are correlated to vehicle-miles traveled (VMT) and use of alternative travel modes.[1,2,3] A study by Cervero and Kockelman concluded that "higher densities, diverse land uses and pedestrian-friendly designs...must co-exist to a certain degree if meaningful transportation benefits are to accrue."[4] A fourth D, destinations, defined as accessibility to concentrated regional destinations, also has been shown to be a key factor in transit use.

Most studies have focused on computing elasticities, which measure the percentage change in one variable (such as density) that can be associated with a percentage change in another variable (such as VMT). For instance, a 2003 study by Holtzclaw et al. found that a doubling in density resulted in a 25-percent reduction in VMT.[5] However, it is unclear from the data the extent to which this reduction was due specifically to additional transit use.

A recent study by Lund, Cervero and Willson included a detailed data collection effort and analysis of travel behavior at 40 TODs situated along nine different heavy, light, or commuter rail lines in California.[6] The transit lines were located in the Bay Area (Bay Area Rapid Transit, Caltrain, San Jose Valley Transportation Authority), Sacramento (Regional Transit), San Diego (San Diego Coaster, San Diego Trolley) and Los Angeles (Los Angeles Metro red and blue lines, Metrolink) regions. Residents, office employees, retail patrons and hotel guests/employees within the TODs were surveyed in 2003 using mail-back questionnaires and intercept interviews.

The study results showed that TODs had higher rates of transit use than comparable non-TOD areas for both station residents and office workers. The study found that mode choice within TODs was complex and depended on the site's density, diversity of uses, design, accessibility to regional destinations, travel time and parking supply. Following are some of the quantitative findings about transit use by TOD residents, employees and retail patrons.

TOD Residents

A total of 624 completed surveys of TOD residents were obtained from 26 different stations. The self-reported transit use (either bus or rail) by these residents can be summarized as:

- home-based work trips: 26.5 percent via bus or rail
- home-based non-work trips: 8.1 percent via bus or rail

NO PUBLISHED STUDIES HAVE BEEN ABLE TO DEVELOP REASONABLE AND DEFENSIBLE ADJUSTMENTS TO TRIP RATES FROM *TRIP GENERATION* TO ACCOUNT FOR A PROJECT'S LOCATION IN A TOD.

Conversely, the transit mode share for home-based work trips averaged 5.4 percent among residents living in the same cities but outside TODs. These data confirm that TOD residents use transit to a much greater degree than non-TOD residents.

TOD Employees

A total of 877 completed surveys of TOD employees were obtained from 10 different stations. Transit (either rail or bus) was indicated as the primary commute mode by 18.8 percent of the surveyed TOD employees. Conversely, the transit mode share was 5.1 percent for employees in non-TOD areas in the general vicinity of each site.

TOD Retail Patrons

Surveys of 1,237 retail patrons were conducted at three major transit-focused shopping centers along the Los Angeles Metro, Bay Area Rapid Transit and San Diego Trolley lines. Approximately 20 percent of those surveyed indicated that they had used transit (either bus or rail) to access the site.

The expected trip generation of a proposed land development is typically estimated using trip rates published in *Trip Generation*.[7] The rates contained in *Trip Generation* are based on trip generation studies of existing developments throughout the United States. Because most of the surveyed sites are situated in suburban settings with little or no transit service, the resulting vehicle trip rates do not accurately reflect the likely use of transit for projects situated in close proximity to bus or rail lines.

Although prior studies have been able to draw correlations between TODs and reductions in VMT, no published studies have been able to develop reasonable and defensible adjustments to trip rates from *Trip Generation* (especially for peak-hour conditions) to account for a project's location in a TOD.

POLICY CONSIDERATIONS

ITE's *Smart Growth Transportation Guidelines* contains a series of goals, objectives and guidelines to assist transportation professionals in developing transportation systems that encourage and support smart growth.[8] The third goal is to improve accessibility to transit within existing built-up areas. The goal would be realized by creating TODs where applicable, creating pedestrian-friendly environments and making bicycling an attractive and feasible mode of transportation.

Guidelines for achieving this goal include local zoning that is consistent and supportive of TODs; development plans that consider walking distances; easy access to transit services; prioritized development of properties near transit stops and stations; and public/private partnerships that make TODs more self-sufficient.

The difficulties associated with developing TODs in California recently led a California state assembly member to propose a bill that would exempt urban infill housing from some requirements set forth by the California Environmental Quality Act (CEQA). AB 1387, authored by Dave Jones, would eliminate the need to perform traffic impact analyses for infill residential projects of 200 units or less assuming they are consistent with the jurisdiction's general plan.

The bill is intended to reduce the time and money required to analyze infill mixed-use developments. Opponents of the bill argue that it would hinder the ability of neighborhood groups to oppose a specific infill project due to potential traffic concerns not being addressed as required by CEQA. Until this bill is put into law, infill mixed-use projects in California still will be subject to the rigorous analysis standards required by CEQA.

PROPOSED METHODOLOGY

This section describes a proposed methodology for determining how to make appropriate adjustments to trip rates from *Trip Generation* for proposed land developments situated in TODs. This is vitally important because a TOD's external vehicle trip generation is used as the basis for analyzing its impacts on the surrounding roadway system and for identifying what roadway infrastructure is required to provide access to it. A project's trip generation also is frequently used for air quality and noise analyses and in the computation of traffic impact fees.

The three steps described below are suggested for use in estimating the trip generation of a proposed land development located within a TOD.

- Step 1: Develop initial trip generation estimates using *Trip Generation.*
- Step 2: Develop estimates of changes in mode share due to location in TOD.
- Step 3: Apply adjustments to estimates from *Trip Generation.*

Following are two case studies of hypothetical land developments proposed within TODs along the Regional Transit light-rail line in Sacramento. The two studies illustrate how the above steps may be followed to develop adjusted trip generation estimates for projects in TODs.

Case Study 1

Case study 1 consists of a medium-density residential project of 200 detached residential units. The project would be situated within one-half mile of an existing light-rail station with direct walk access to the station platform.

Table 1 displays the expected average daily, a.m. peak-hour and p.m. peak-hour trip generation of the proposed project using rates from *Trip Generation.* Table 2 displays the adjustment procedure to account for the project's proximity to the light-rail station. As the footnotes in the table describe, the adjustment procedure is based on the survey results from the Lund, Cervero and Willson study and data specific to the Sacramento region.[9] Table 3 displays the adjusted trip generation estimate.

Table 1. ITE *Trip Generation* estimate.

Land use	Quantity	Trip rate[1] Daily	Trip rate[1] a.m. peak hour	Trip rate[1] p.m. peak hour	Trips Daily	Trips a.m. peak hour	Trips p.m. peak hour
Single-family residential	200 du	9.57	0.75	1.01	1,914	150	202

[1] Source: *Trip Generation, 2003 Edition.* Washington, DC, USA: Institute of Transportation Engineers (ITE), 2003.

* Note: du = dwelling units

Table 2. Adjustments for project location in TOD.

Home-based trip type	Percent of transit trips for residential project[1] Located in TOD	Percent of transit trips for residential project[1] Not located in TOD	Percent increase in transit trips due to project location in TOD[3]
Work trips	26.5 percent	5.4 percent	16.7 percent
Non-work trips	8.1 percent	1.5 percent[2]	4.3 percent

[1] Based on TOD resident survey results from Lund, Cervero and Willson study.
[2] Estimated based on travel mode by trip purpose data from the Sacramento region.
[3] Calculated by applying the ratio of TOD versus non-TOD transit mode share to the Sacramento region's overall transit mode share of 3.4 percent for work trips and 0.8 percent for non-work trips. These transit trips otherwise would be auto trips if the project was not situated in a TOD.

Table 3. Adjusted *Trip Generation* estimate.

Home-based trip type	Relative percentage[1] during... Daily	a.m. peak hour	p.m. peak hour	Unadjusted trips[2] Daily	a.m. peak hour	p.m. peak hour	Adjusted trips[3] (percent decrease) Daily	a.m. peak hour	p.m. peak hour
Work trips	27 percent	42 percent	37 percent	517	63	75	431	52	62
Non-work trips	73 percent	58 percent	63 percent	1,397	87	127	1,337	83	122
Total				1,914	150	202	**1,768 (8 percent)**	**135 (10 percent)**	**184 (9 percent)**

[1] Trip purpose by time of day data for the Sacramento region.
[2] Source: Results from Table 1 classified as either home-based work or non-work trips.
[3] Adjusted in accordance with the percent increase in transit trips (decrease in auto trips) from Table 2.

With the adjustment process shown in Tables 2 and 3, the proposed project would generate 8 to 10 percent fewer trips (depending on the time period) than the original ITE *Trip Generation* estimate. By virtue of its placement in a TOD, the proposed project's expected transit mode split of 8 percent represents a significant increase over the Sacramento region-wide average of 1.5 percent.

These results appear to generally match the findings of a study by Dr. Cervero in 1993.[10] That study found that residents of four apartment complexes generally located within one-half mile of a Sacramento light-rail transit station reported that 15 percent of their "main trips" (as defined by respondents) were by light rail or bus. The observed mode share from this study closely matched the expected home-based work trip transit mode share of 16.7 percent from Table 2. However, this comparison should be made with caution because it is unclear how many survey respondents considered their commute trip their "main trip."

Table 4. ITE *Trip Generation* estimate.

Land use	Quantity	Weekday p.m. peak hour	
		Trip rate[1]	Trips
Townhomes/condominiums	400 du	0.52	208
Shopping center	200 ksf	4.95	990
General office	150 ksf	1.65	247
Gross trips			1,445
Internal trips between residential, retail and office (15 percent)[2]			< 210 >
Pass-by trips (30 percent of non-internal retail trips)[2]			< 265 >
External trips			970

[1] Source: *Trip Generation, 2003 Edition.* Washington, DC: ITE, 2003.
[2] Source: *Trip Generation Handbook.* Washington, DC: ITE, 2004.
* Note: du = dwelling units; ksf = thousand square feet

Table 5. Adjustments for project location in TOD.

Land use	Weekday p.m. peak hour		
	Total external trips (transit and auto)	Percent increase in transit trips due to project location in TOD	Total external vehicle trips
Townhomes/condominiums	126	9 percent[1]	115
Shopping center	622	20 percent[2]	498
General office	222	13 percent[3]	193
Total	970	17 percent	806

[1] Refer to Table 3 for methodology for estimating transit mode share for residential project in TOD.
[2] Based on results from study by Lund, Cervero and Willson.
[3] Calculated by applying the ratio of TOD versus non-TOD transit mode share to the Sacramento region's overall transit mode split of 3.4 percent for work trips. These transit trips otherwise would be auto trips if the project was not situated in a TOD.

Case Study 2

Case study 2 is a mixed-use TOD project consisting of 400 townhomes/condominiums, 200,000 square feet of retail space and 150,000 square feet of office space. The three steps described previously were used to estimate the external vehicular trip generation of this project for weekday p.m. peak-hour conditions. This case study focused on p.m. peak-hour versus daily conditions due to the lack of reliable daily pass-by percentages for retail uses and limited data on daily transit mode share for retail and office uses.

Table 4 displays the expected p.m. peak-hour trip generation of the proposed project using rates from *Trip Generation*. This table includes adjustments for internal and pass-by trips, both of which were estimated based on data published in Chapter 7 of the *Trip Generation Handbook.*[11] Table 5 shows the adjustment in external trips to account for the project's location in a TOD. As shown, a 17-percent reduction in external vehicle trips would be expected.

If the proposed project was situated on three separate parcels in a suburban setting with little or no transit service, it would be expected to generate approximately 1,180 new vehicle trips (1,445 total trips minus 265 pass-by trips) during the p.m. peak hour. By integrating the uses within a TOD, the number of new vehicle trips is reduced to approximately 805, which is a 32-percent decrease.

This case study illustrates how an analyst may explicitly account for a project's diversity of land uses (through internal trip-making assumptions) and accessibility to transit when estimating its external vehicle trip generation.

This methodology admittedly does not consider the effects of density on external vehicle trip generation. Several studies have been conducted to isolate the effects of changes in residential and non-residential densities on vehicle trips and VMT.

A synthesis of those studies showed a range of elasticities from -0.01 to -0.14 between density and vehicle trips (for example, a 100-percent increase in density results in a 1- to 14-percent decrease in vehicle trips).[12] Although these elasticities are helpful in understanding differences in vehicle trips between projects, it is less clear how they may be reasonably applied to a single proposed project.

CONCLUSIONS

This feature presents an innovative approach for determining transit ridership and vehicle trips for two hypothetical TODs in Sacramento. The analysis methodology can be extended to study TODs in other regions, particularly those with comparable automobile use characteristics to those of California. To apply this methodology in a particular region, an analyst would need to collect travel behavior data from that region, including mode share by trip purpose, trip purpose by time of day and, if available, TOD transit use characteristics.

Analysts should use extreme caution in applying this methodology in regions that are heavily transit-dependent and have low auto ownership rates. Likewise, this methodology should be used with caution to estimate ridership at a new light-rail station by existing residents or office workers. The effect of "self-selection" of residents and office workers to a TOD location (versus the travel habits of pre-existing residents) is a significant phenomenon that must be considered. ■

References

1. *Statewide Transit-Oriented Development Study Factors for Success in California – Final Report.* Caltrans, 2002.

2. Cervero, R. and K. Kockelman. "Travel Demand and the 3D's: Density, Diversity, and Design." *Transportation Research – D,* Vol. 2 (1997).

3. Lund, H., R. Cervero and R. Willson. "Travel Characteristics of Transit-Oriented Developments in California." 2004.

4. Cervero and Kockelman, note 2 above.

5. Holtzclaw, J., R. Clear, H. Dittmar, D. Goldstein and P. Haas. "Location Efficiency: Neighborhood and Socio-Economic Characteristics Determine Auto Ownership and Use-Studies in Chicago, Los Angeles, and San Francisco." *Transportation Planning and Technology,* Vol. 25 (2002).

6. Lund, Cervero and Wilson, note 3 above.

7. *Trip Generation, 2003 Edition.* Washington, DC, USA: Institute of Transportation Engineers (ITE), 2003.

8. *Smart Growth Transportation Guidelines: An ITE Proposed Recommended Practice.* Washington, DC: ITE, 2003.

9. DKS Associates. *Pre-Census Travel Behavior Report Analysis of 2000 SACOG Household Travel Survey,* 2001.

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F65 PM Peak Hour Trip Generation

4:45-5:45 PM Observation, Thursday July 24, 2008

Inbound Trips	Outbound Trips	Total Trips
137	129	266
Pass-through trips to Residential = 17		
Final Total Retail Trips		249

Building footprint = 32,000 square feet

ITE Retail 820 TG Average Rate, 32,000 sf		
Inbound Trips	Outbound Trips	Total Trips
58	62	120

ITE Retail 820 TG Formula Rate, 32,000 sf		
Inbound Trips	Outbound Trips	Total Trips
142	153	295

Restaraunts compose 50% of site (16,000 square feet).

Using average trip generation rates for restaurant and retail uses yields:

ITE Retail 820 TG Average Rate, 16,.000 sf		
Inbound Trips	Outbound Trips	Total Trips
29	31	60
ITE Restaurant TG Average Rate, 16,000 sf		
Inbound Trips	Outbound Trips	Total Trips
107	68	175
Total Trip Generation		235
Difference between estimated and observed:		
249-235=14	5.6%	

PARKING STUDY

Station 65 Transit-Oriented, Mixed-Use Development

Parking Demand Study

Prepared for

lucas enterprises

a real estate services company

by

International Parking Design, Inc.

IPD

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Figures

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1.0 Introduction and Project Description

Station 65's Transit-Oriented Mixed-Use development (Station 65) is planned for combined sites located at 65th Street between Folsom Boulevard and Q Street in Sacramento, California. It is planned to incorporate retail space, a number of restaurants, general and medical office space, a hotel, a family-oriented fitness center and multi-family residential units. The site is currently occupied by the University/65th Street Regional Transit (RT) light rail station, existing commercial uses and the RT bus transfer station and will be served by this public transportation system.

University/65th Street light rail station is the light rail station that is closest to California State University Sacramento. It is located at 65th Street and Folsom Boulevard. This station serves RT's Gold Line as well as 9 connecting bus routes, 4 of them with direct connections to CSUS.

Development specifics include:

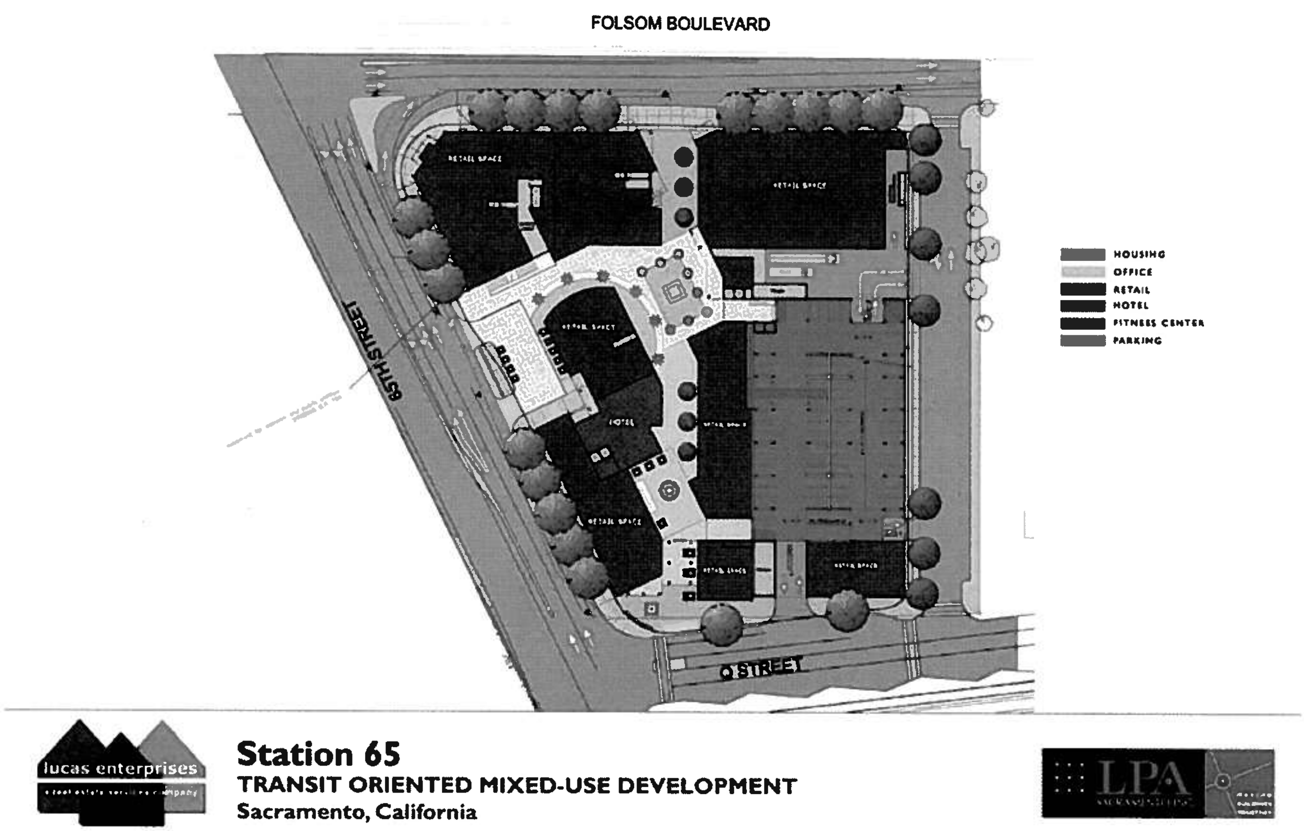
- 42,290 Gross square feet (SF) of general office
- 10,000 SF of medical office
- A 148 guest-room business-class hotel
- A 30,000 SF family-oriented fitness center
- 49,805 SF of retail space
- 13,875 SF of restaurant space
- 68 residential units

The purpose of this study is to determine parking requirements for each of the above uses in the development based upon estimated daily demand. It is planned that the parking supply for all of the uses in the development be on site as a structured facility except for 35 on-street spaces adjacent to the development.

Because the development will incorporate the adjacent light-rail service and that the existing bus transfer station will be relocated nearby, it is anticipated that a significant portion of arrivals to the site will be by transit service and not contribute to the parking demand.

Parking demand for each use will vary depending on time of day, weekdays versus weekends and by month. Due to the fact that this is a multi-use development, each use will benefit from shifts in peak demand periods, allowing a sharing of parking between uses without deprivation of parking for any individual use.

Figure 1



2.0 Executive Summary

Station 65 Transit Oriented Mixed-use Development is planned to combine retail businesses, a business-class hotel, office space, a family-oriented fitness center, restaurants and residential apartments. Parking demand has been calculated separately for each use as if they were stand-alone facilities, which serves as a basis for determination of actual parking demand that takes into account the synergistic effects of combined uses within a single development and also shifts in peak demand hours, days and months. The transit-oriented nature of the development has also been taken into account in terms of reduction of parking demand based on potential, estimated ridership of the mass transit systems that will serve the site directly.

Many users of the development will drive to the Center and visit a number of uses in a single trip. This dynamic is known as captive market effect and has the outcome of reducing parking demand from that calculated separately for each use. Also, each use will experience peak service demands at different times of the day, days of the week and during different months of the year. This allows further adjustments in demand from that calculated separately.

Parking utilization at sites of similar uses was observed on appropriate days for comparison to parking demand calculated based on that published and commonly used for estimation. Parking supplies for these sites were found to be typical for their uses. Parking demand as compared to supply, projected to peak demand months was found to be lower than standard estimates of parking demand except for the retail/ restaurant.

To arrive at base parking demand numbers for the planned development to be used for further calculations, demand estimated separately for each use and based on published data and previous IPD studies resulted in 1,137 spaces for the entire facility. Estimated transit ridership reduced this number to 1,018 and captive market estimates further reduced the base demand to 888 spaces.

The peak-demand month for this development is estimated to be December. Hourly comparisons between uses indicate that the peak demand hour for the year will be on weekdays in December at 2:00 PM, which results in 630 vehicles to be parked for the entire Station 65 Development. Actual demand may be affected by market dynamics that are beyond the scope of this study.

The possible incorporation of a valet operation during peak days will have the effect of increasing the effective supply by approximately 10-12% thereby allowing greater flexibility in leasing and for fluctuation in demand.

3.0 Study Methodology

3.1 Observed Utilization of Sample Sites

In an attempt to obtain real-world, similar parking demand data, a number of actual local sites with uses similar to that proposed were studied. Local sites in settings similar to the planned development were chosen to help minimize demographic and scale differences. These sites were then analyzed as if they were a part of a single, mixed-use development.

3.2 Calculated Base Parking Demand

Parking demand for each planned use has been calculated based on various sources of data. Those include the Urban Land Institute's (ULI) publication *Shared Parking 1st and 2nd Editions,* the Institute of Transportation Engineer's (ITE) publication *Parking Generation 3rd Edition* as well as previous parking demand analyses by International Parking Design and other parking specialists. The parking demand to be generated by each use is calculated separately without regard to peak usage periods.

3.3 Mass Transit Effect

Due to the fact that the site will be served directly by the RT light rail and will have an RT bus transfer station close by, a number of persons arriving at the site by light rail and bus will not contribute to parking demand. Therefore an estimated reduction was is applied to the parking demand based on anticipated mass-transit service.

3.4 Captive Market Effect

There will be a definite market synergy between uses at the Station 65 site that will encourage persons to visit two or more uses in a single trip to the site. Also, site office workers and residents will patronize the retail, restaurant and fitness center uses. This dynamic is common to all multi-use commercial developments. Therefore the total practical parking demand for the development will be reduced from that considered for each use separately. This synergy is defined by ULI as "captive market effect" and this term is used in this report.

3.5 Shared Parking

Parking demand varies from one use-type to another over hours of the day and months of the year. Demand will also vary between weekdays and weekends. Without other patron-enticements such as special promotions, parking demand tends to be generally fairly stable during weekdays varying by hour. Some demands are high on Saturdays, some low. Sunday demands tend to be lower or non-existent depending on use.

Office parking demand is generally stable and at or near its peak across the daytime hours during weekdays but drops very low during evenings and weekends. Retail demand, on the other hand peaks on weekends and is fairly high during each evening for stores that are open. Restaurant peak usage hours are in the evenings at the dinner hour, invariably on Fridays and Saturdays. Some restaurants experience a secondary peak at the lunch hour on weekdays and Saturdays. In a mixed-use development where demands are divergent, demand for one use, at its peak can then absorb the supply of parking for other uses that are not at their service peaks. As an example, parking demand for retail at its peak on weekends may absorb the parking for office space when its demand is very low. This concept is known as shared parking. Calculating and comparing the peak demand hours and months for each use in a multi-use facility is a widely accepted practice used to arrive at a more accurate picture of overall practical peak demand.

4.0 Observed Utilization of Sample Sites

Parking use was observed over hours of appropriate days at sites containing uses similar to those planned where published data tends to range widely. The use-types studied were a hotel, retail/restaurant and a family-oriented fitness center.

According to ITE's *Parking Generation*, at hotels in general, demand ranges over 0.61 - 1.94 vehicles per guest room. For business-class hotels the range is shown to be 0.57 – 0.75 vehicles per guest room and all-suites hotels indicate an average of 1.1 vehicles per guest room over just two studies. Retail in mixed-use settings such as the proposed development is not well represented in published data. Community shopping centers (less than 400,000 SF) are indicated in ULI's *Shared Parking* as 2.9 – 3.2 vehicles per 1,000 SF. Shopping centers of this size and larger experience a larger captive market factor than smaller retail centers. Published data for stand-alone retail ranges from a low of 0.89 – to as high as 17.0 vehicles per 1,000 SF. Many of the retail uses published lack a sufficient number of samples to be definitive. Use data for Family-oriented fitness centers published by ITE ranges from 1.77 – 10.56 spaces per 1,000 SF.

General office use tends to vary less due to the fact that occupancy densities are fairly stable based standardized working spaces. Restaurants do vary based on popularity but when extrapolated to maximum occupancy tend to be reasonably constant in terms of demand.

The sites and days observed for this study were:

- Marriott SpringHill Suites Hotel, Sacramento on Tuesday, September 25, 2007.
- F65 – 65th Street Village (retail, restaurant) at 65th Street and Folsom Blvd. on Saturday, September 22 and Wednesday, September 26, 2007.
- California Family-Fitness, Rancho Cordova on Thursday, September 20, 2007.

4.1 Hotel

The hotel site is comparable in size to that planned – 95 guest rooms versus 148 – both being smaller hotels. As with Station 65's planned hotel, the hotel studied is an all-suites business facility without conference space that would attract a separate demand component. The total parking supply is 94 spaces or 0.99 spaces per guest room. One space per guest room is a typical supply for such hotels.

Occupancy of parking spaces was observed during a weekday between the hours of 1:00 PM and 7:00 PM. Weekdays during the late evening are most commonly the peak-demand periods for such hotels. To complete an estimate of demand for the remainder of the service hours, demand was extrapolated based on a normal curve of space occupancy per hour.

The highest demand observed was 29 vehicles parked at 7:00 PM. This was extrapolated to 39 vehicles at the typical peak hours of 11:00 PM and 12:00 AM. The observed demand equates to 31 % of spaces occupied and the extrapolated peak represents an estimate of 41% of the total occupied.

Hotel management reported that room occupancy was 87% of the total. Many business-class hotels are infrequently 100% occupied and many parking studies reflect less than 100% occupancy of rooms. If the observed parking utilization were to be extrapolated to 100% room occupancy, 33 parking spaces would have been occupied with vehicles at 7:00 PM or 44 spaces at the peak hour.

According to ULI, business-class hotel usage tends to peak in June with September being 93% of the peak month. Projecting demand to the peak month would indicate a demand of 42 spaces or 45% of the existing supply.

Saturday demand was extrapolated from the weekday observations. Hotel management reported that weekend occupancy at the hotel is typically 50 – 70% of weekday demand. Therefore, averaging to arrive at 60% or a 27% reduction of weekday demand produces a peak weekend-day demand of 28 spaces in September and 31 spaces for a Saturday in June or 33% of supply.

The fact that this hotel is in close proximity to Sacramento International Airport and provides shuttle services can explain why its parking demand may be lower than others further from a commercial airport. It is expected that the hotel at Station 65 will experience higher demand from those guests arriving in rental cars, due to its distance to the airport and to downtown. The following Table 1 demonstrates the observed and extrapolated demand for the observed hotel:

Table 1

Use	SpringHill Suites Hotel, Sacramento									
September Variation	93%									
Total Supply	94 Spaces									
	Weekday	% Supply	% Daily	Proj Peak	% Supply	Saturday	% Supply	% Daily	Proj Peak	% Supply
			Peak	(June)		27% Reduction*		Peak	(June)	
6:00 AM	37	39%	95%	40	42%	27	29%	69%	29	31%
7:00 AM	35	37%	90%	38	40%	26	27%	66%	27	29%
8:00 AM	31	33%	79%	33	35%	23	24%	58%	24	26%
9:00 AM	27	29%	69%	29	31%	20	21%	51%	21	23%
10:00 AM	23	24%	59%	25	26%	17	18%	43%	18	19%
11:00 AM	23	24%	59%	25	26%	17	18%	43%	18	19%
12:00 PM	21	22%	54%	23	24%	15	16%	39%	16	18%
1:00 PM	17	18%	44%	18	19%	12	13%	32%	13	14%
2:00 PM	17	18%	44%	18	19%	12	13%	32%	13	14%
3:00 PM	18	19%	46%	19	21%	13	14%	34%	14	15%
4:00 PM	19	20%	49%	20	22%	14	15%	36%	15	16%
5:00 PM	20	21%	51%	22	23%	15	16%	37%	16	17%
6:00 PM	21	22%	54%	23	24%	15	16%	39%	16	18%
7:00 PM	29	31%	75%	31	33%	21	23%	54%	23	24%
8:00 PM	31	33%	80%	33	35%	23	24%	58%	24	26%
9:00 PM	33	35%	85%	35	38%	24	26%	62%	26	28%
10:00 PM	37	39%	95%	40	42%	27	29%	69%	29	31%
11:00 PM	39	41%	100%	42	45%	28	30%	73%	31	33%
12:00 AM	39	41%	100%	42	45%	28	30%	73%	31	33%

Characters in red are extrapolated.

4.2 Family-Oriented Fitness Center

The fitness center studied is 37,145 SF and has a 219-space parking supply which equates to 5.89 spaces per 1,000 SF. Station 65 is planned to have a 30,000 SF fitness facility. Density-differences between these two sized facilities are anticipated to be insignificant. Both will have swimming pools and other similar services.

Occupancy of parking spaces was observed during a weekday from 8:00 AM to 2:00 PM and from 5:00 PM to 9:00 PM. Weekdays were reported by management to be higher than weekend days. The peak demand was observed to be 130 spaces occupied at 6:00 and 7:00 PM or 59% of its supply. This peak hour corresponds to reported peak usage of this center. The balance of the hours of the day was extrapolated based on published variations of demand. Potential Saturday demand is extrapolated from that observed based on published variations and percentages.

Per ULI, January is the typical peak month for fitness facilities with September being 80% of the peak month. Projecting the observed peak occupancy to January, produces a peak demand for the year on weekdays of 163 vehicles to be parked, or 74% of the supply. Management reported that the center is currently operating near 100% of member capacity. The following table 2 represents the observed and extrapolated demand:

Table 2

Use	California Family Fitness, Rancho Cordova									
September Variation	80%									
Total Supply	219 Spaces									
	Weekday	% Supply	% Daily Peak	Proj Peak (Jan.)	% Supply	Saturday 83 % of Weekday	% Supply	% Daily Peak	Proj Peak (Jan)	% Supply
6:00 AM	91	42%	70%	114	52%	76	34%	58%	94	43%
7:00 AM	52	24%	40%	65	30%	43	20%	33%	54	25%
8:00 AM	52	24%	40%	65	30%	43	20%	33%	54	25%
9:00 AM	73	33%	56%	91	42%	61	28%	47%	76	35%
10:00 AM	72	33%	55%	90	41%	60	27%	46%	75	34%
11:00 AM	49	22%	38%	61	28%	41	19%	31%	51	23%
12:00 PM	68	31%	52%	85	39%	56	26%	43%	71	32%
1:00 PM	59	27%	45%	74	34%	49	22%	38%	61	28%
2:00 PM	40	18%	31%	50	23%	33	15%	26%	42	19%
3:00 PM	91	42%	70%	114	52%	76	34%	58%	94	43%
4:00 PM	104	47%	80%	130	59%	86	39%	66%	108	49%
5:00 PM	106	48%	82%	133	61%	88	40%	68%	110	50%
6:00 PM	**130**	59%	100%	**163**	74%	**108**	49%	83%	**135**	62%
7:00 PM	130	59%	100%	163	74%	108	49%	83%	135	62%
8:00 PM	110	50%	85%	138	63%	91	42%	70%	114	52%
9:00 PM	91	42%	70%	114	52%	76	34%	58%	94	43%
10:00 PM	46	21%	35%	58	26%	38	17%	29%	48	22%
11:00 PM	13	6%	10%	16	7%	11	5%	8%	13	6%
12:00 AM	0	0%	0%	0	0%	0	0%	0%	0	0%

Characters in red are extrapolated

4.3 Retail/Restaurant

The retail/restaurant site studied is reported to have a total of 32,000 SF. 22,000 SF of this is an Office Depot store, 4,800 SF is smaller retail and fast food service and 5,200 SF comprising two sit-down, full service restaurants which are referred to as "quality restaurants" having higher parking demand characteristics. The total on-site parking supply is 160 spaces, which equates to 5 spaces per 1,000 SF.

Parking utilization was observed from 7:00 AM to 7:00 PM during one weekday and from 11:00 AM to 7:00 PM during one Saturday. The balance of the weekday and Saturday hours from 6:00 AM to 12:00 AM has been extrapolated. The weekday peak observed was 121 spaces occupied and the Saturday peak was 104 spaces occupied at noon on both days. The weekday peak represented 76% of the on-site supply. The Saturday peak was 65%. In this case, at this time the weekday demand proves to be higher than the observed Saturday. This is probably due to lunchtime visitors from nearby sites and because of the Office Depot, which reportedly experiences higher patron demand during the week than on weekends.

December is invariably the peak demand month for most retail, with September being 64% of the peak. Restaurants tend to peak in December as well but experience less variation over the year than many other uses. The December peak produces a weekday demand of 189 vehicles or 118% of supply. Because there are quality restaurants on the site the supply of 5 spaces per 1,000 SF is inadequate for the peak demand period. A more appropriate supply for this site and its uses would typically be based on 4.4 spaces per 1,000 SF for the retail and 13.6 per 1,000 SF for the quality restaurants (see section 5.5), which would total 204 spaces or 44 more than is on site. This would allow an approximate 7% of supply over the projected demand to facilitate convenience in finding spaces at the peak-demand hours of the year. The following Table 3 shows the retail/restaurant observed and extrapolated demand.

Table 3

Use	65th Street Village Retail/Restaurant, Sacramento									
September Variation	64%									
Total Supply	160									
	Weekday	% Supply	% Daily Peak	Proj Peak (Dec)	% Supply	Saturday	% Supply	% Daily Peak	Proj Peak (Dec)	% Supply
6:00 AM	20	13%	17%	31	20%	5	3%	4%	8	5%
7:00 AM	28	18%	23%	44	27%	10	7%	9%	16	10%
8:00 AM	47	29%	39%	73	46%	21	13%	17%	33	20%
9:00 AM	56	35%	46%	88	55%	31	20%	26%	49	30%
10:00 AM	54	34%	45%	84	53%	52	33%	43%	81	51%
11:00 AM	71	44%	59%	111	69%	98	61%	81%	153	96%
12:00 PM	**121**	76%	100%	**189**	118%	**104**	65%	86%	**163**	102%
1:00 PM	108	68%	89%	169	105%	79	49%	65%	123	77%
2:00 PM	91	57%	75%	142	89%	72	45%	60%	113	70%
3:00 PM	77	48%	64%	120	75%	61	38%	50%	95	60%
4:00 PM	85	53%	70%	133	83%	56	35%	46%	88	55%
5:00 PM	76	48%	63%	119	74%	58	36%	48%	91	57%
6:00 PM	98	61%	81%	153	96%	56	35%	46%	88	55%
7:00 PM	106	66%	88%	166	104%	46	29%	38%	72	45%
8:00 PM	95	59%	79%	148	93%	68	42%	56%	106	66%
9:00 PM	78	49%	64%	122	76%	36	23%	30%	57	36%
10:00 PM	35	22%	29%	55	34%	23	14%	19%	36	22%
11:00 PM	20	13%	17%	31	20%	16	10%	13%	24	15%
12:00 AM	0	0%	0%	0	0%	0	0%	0%	0	0%

Characters in red are extrapolated

4.4 Combined Uses as a Mixed-Use Model

To make further comparisons of the observed to the planned development, this report analyzes the separate use-results as if all of the uses were together on one site with a single parking supply comprised of the total spaces represented by the individual supplies. Table 4 demonstrates standard variations of peak demand in terms of percentages for each month of the year. These percentages are applied to the projected demand by month shown in Table 5. The black numbers are projected from the observed utilization and the red numbers in the table are projected from extrapolated demand. Table 5 demonstrates that December would be the peak demand month for this mixed-use model.

Table 4

Variations of Demand as a Percent of Peak Month

	Hotel		Fitness		Retail/Restaurant	
	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday
January	71%	44%	100%	83%	51%	56%
February	85%	58%	95%	79%	52%	57%
March	91%	64%	85%	71%	58%	64%
April	90%	63%	70%	58%	57%	63%
May	92%	65%	65%	54%	60%	66%
June	100%	73%	65%	54%	61%	67%
July	98%	71%	65%	54%	58%	64%
August	92%	65%	70%	58%	63%	69%
September	93%	66%	80%	66%	58%	64%
October	93%	66%	85%	71%	60%	66%
November	81%	54%	85%	71%	66%	72%
December	67%	40%	90%	75%	91%	100%

Table 5

Variations of Observed Demand by Month Based on Table 4	Hotel		Fitness		Retail/Restaurant		Totals	
	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday
January	30	18	**163**	**135**	83	91	276	245
February	36	24	155	129	85	93	275	246
March	38	27	139	115	95	104	272	246
April	38	26	114	95	93	103	245	224
May	39	27	106	88	98	108	242	223
June	**42**	31	106	88	99	109	247	228
July	41	30	106	88	95	104	242	222
August	39	27	114	95	102	112	255	234
September	39	28	130	108	95	104	264	240
October	39	28	139	115	98	108	275	250
November	34	23	139	115	107	117	279	255
December	28	17	147	122	**148**	**163**	**323**	**302**

Characters in red are extrapolated

As demand varies over the day as well as the month, Table 6 shows a typical variation of peak demand over typical weekdays and Saturdays in terms of percentages. Table 7 applies these percentages to a projection of demand over hours of weekdays and

Saturdays in December, the projected peak month. The totals column in Table 7 indicates an estimated peak demand of 286 vehicles during weekdays and 280 on Saturdays in December.

Table 6

Hourly Variation of Demand as a Percent of Peak						
	Hotel		Fitness		Retail	
	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday
6:00 AM	95%	95%		80%	1%	1%
7:00 AM	90%	90%	40%	45%	5%	5%
8:00 AM	80%	80%	40%	35%	15%	10%
9:00 AM	70%	70%	70%	50%	30%	35%
10:00 AM	60%	60%	70%	35%	55%	60%
11:00 AM	60%	60%	80%	50%	75%	70%
12:00 PM	55%	55%	60%	50%	90%	85%
1:00 PM	55%	55%	70%	30%	100%	95%
2:00 PM	60%	60%	70%	25%	100%	100%
3:00 PM	60%	60%	70%	30%	100%	100%
4:00 PM	65%	65%	80%	55%	95%	95%
5:00 PM	70%	70%	90%	100%	85%	90%
6:00 PM	75%	75%	100%	95%	80%	80%
7:00 PM	75%	75%	90%	60%	75%	75%
8:00 PM	80%	80%	80%	30%	65%	65%
9:00 PM	85%	85%	70%	10%	50%	50%
10:00 PM	95%	95%	35%	1%	30%	35%
11:00 PM	100%	100%	10%	1%	10%	15%
12:00 PM	100%	100%	0%	0%	0%	0%

Table 7

December Days Variation of Demand								
	Hotel		Fitness		Retail		Totals	
	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday
6:00 AM	27	16	103	97	1	2	131	115
7:00 AM	25	15	59	55	7	8	91	78
8:00 AM	22	13	59	43	22	16	103	72
9:00 AM	20	12	103	61	44	57	167	130
10:00 AM	17	10	103	43	82	98	201	150
11:00 AM	17	10	117	61	111	114	245	185
12:00 PM	15	9	88	61	133	139	237	209
1:00 PM	15	9	103	37	148	155	266	201
2:00 PM	17	10	103	30	148	163	268	204
3:00 PM	17	10	103	37	148	163	268	210
4:00 PM	18	11	117	67	141	155	277	233
5:00 PM	20	12	132	122	126	147	278	**280**
6:00 PM	21	13	147	116	119	130	**286**	259
7:00 PM	21	13	132	73	111	122	264	208
8:00 PM	22	13	117	37	96	106	236	156
9:00 PM	24	14	103	12	74	82	201	108
10:00 PM	27	16	51	1	44	57	123	74
11:00 PM	28	17	15	1	15	24	58	42
12:00 PM	28	17	0	0	0	0	28	17

4.5 Summary of Observed Utilization

The observations of parking at these facilities is pertinent to this study as it provides gauges of demand to be compared to the normal process of calculating estimated demand for a development not yet in existence. The demand at the hotel studied is similar in nature to the one that is planned and can be projected based on known differences. The fitness center studied is particularly helpful for comparison as the demographics of the two facilities are similar as will be the population densities. The projection as a mixed-use model to compare real-world demand to what is, except for the retail/restaurant site, typical parking supplies for such uses. The projected peak-of-the-year demand of 286 spaces occurring on weekdays in December represents 60% of the combined 473 space supply.

5.0 Calculated, Estimated Base Parking Demand for Station 65

Parking demand is first estimated separately for each use based upon calculations that compare demand to the gross area (parking spaces per 1,000 SF to be occupied for office, retail and family-oriented uses. Restaurants are calculated based upon an estimate of dining area and seats. Hotel parking is compared to the number of guest rooms and residential to the number of dwelling units.

In a single-use development, such calculations are adequate for determining actual peak demand. In a mixed-use development the results of these calculations do not reflect the total practical peak demand as they ignore captive-market or shared-parking factors. But these estimates provide a starting point that represent the peak-period demand for each use separately. They then form a basis for further calculations of the estimated combined demand for the development as a whole. Therefore, the results of these calculations are referred to herein as *base* peak parking demand.

5.1 General Office Space

According to ULI, general office parking (versus medical or governmental, for example) tends to range between 1.6 and 3.4 spaces per 1,000 SF with an average of 2.5 spaces per 1,000 SF and an 85^{th} percentile of 3/1000 SF. ITE has found a range of 2.73 to 5.58 spaces per 1,000 SF over 173 studies with an 85^{th} percentile of 3.44.

ITE has also found that parking spaces per employee in general office averages .79 spaces per person, which would produce an average vehicle occupancy of 1.3 persons per vehicle (VOF). ULI reports that general office densities in suburban settings average 3.6 persons per 1,000 SF/GA in 2003. Applying 3.6 persons/1,000SF and a VOF of 1.3 produces a parking demand of 2.77 vehicles per 1,000SF.

IPD has found that a VOF in the range of 1.2 is appropriately conservative rather than an average. Previous extrapolations of general office densities by IPD arrived at an 85^{th} percentile of 4.2 persons per 1,000SF including visitors and office employees. This produces a parking demand of 3.5 vehicles per 1,000/SF. This factor is used herein to estimate parking demand for the office component.

It is planned that there will be 42,290 SF of general office space in this development. Therefore, at a rate of 3.5 spaces per 1,000 SF, a base peak-hour demand of 148 parking spaces is calculated and shown in Table 8.

5.1.1 Medical Office Space

Medical office differs from general office in that there is generally a lower ratio of density of employees to floor area but a much higher concentration of visitors (patients). According to ULI a 3.0 vehicle / 1,000 SF ratio is recommended as base demand for visitors and 1.5 vehicles / 1,000 SF for employees for a total of 4.5 vehicles / 1,000 SF. ITE's data ranges from 2.34 to 5.35 vehicles / 1,000 SF with an 85^{th} percentile of 4.3. ULI's higher estimated ratio is used for this study, being slightly more conservative.

There is 10,000 SF of medical office anticipated for this development. Using 4.5 vehicles / 1,000 SF produces a 45-vehicle demand for both visitors and employees.

5.2 Hotel

Hotel guest parking is most commonly supplied at a rate of 1 space per guest room. This can vary depending on the class of hotel as well as its proximity to a major airport and whether or not shuttle services are provided to guests. It can also vary depending on inclusion of conference space, which can also affect the demand peak hour. The hotel planned for this development is a relatively small, 148 guest-room facility. It is not located close to Sacramento International Airport and may or may not have shuttle service. It may be possible that a six to eight-person boardroom is included, which generally would be used by registered guests and therefore would not affect demand to any discernable amount. It will not have conference space.

According to ULI, business-class hotels range in demand from 0.58 to 0.75 spaces per guest room on Saturdays and slightly less on weekdays, which was taken from ITE's *Parking Generation*. Hotels in general are shown to have demands in the range of 0.6 to 1.9 spaces per guest room. Due to the proposed hotel's size, it may operate primarily as a business hotel. Due to its distance from the airport, it is anticipated that it will experience more parking demand generated by guests arriving by rental car than, for example, the hotel observed. It is also approximately 15 minutes by car from downtown Sacramento.

Therefore, it is conservatively estimated that base parking demand will be one space per guest room, which, in spite of the estimated demand mentioned earlier, is what ULI recommends as a base ratio. This produces a total base demand of 148 spaces for guests. Furthermore ULI recommends a ratio of 0.25 spaces per guest room for hotel employees at the peak hour, which produces an additional demand of 37 spaces, or, for this facility a total estimated base demand of 185 vehicles.

5.3 Family-Oriented Fitness Center

According to ITE, health and fitness clubs range from 1.77 to 10.56 vehicles per 1,000 SF. They indicate the 85 percentile as 8.27 and the average as 5.19. ULI recommends a base supply ratio of 6.6 spaces per 1,000 SF. Due to the wide range of supplies indicated in published data, and based on the fitness club observed for this study, a base demand of 5 spaces per 1,000 SF is considered adequately conservative and is used in this study. The fitness club size planned for this development is 30,000 SF. Therefore a base demand is estimated to be 150 vehicles of peak demand, when the fitness club is operating at peak capacity as shown in Table 8.

Employee parking, based on published data tends to be in the range of 0.4 spaces per 1,000 SF which in this case would produce an added demand of 12 vehicles or a total of 162 vehicles

5.4 Retail Space

Parking demand for retail centers is found to vary in ratios of spaces to SF based on the locations of such centers. Suburban centers are sometimes found to have higher parking demand ratios than those in some central business districts. Some particular retail businesses may also cause demand to vary based on popularity. Due to its somewhat suburban location, it is assumed that a somewhat higher percentage of patrons will drive to the site.

ULI indicates a parking demand ratio of between 3.5 and 6.0 spaces per 1,000 SF at the peak hour on Saturdays with a 90th percentile ratio of 5 spaces. During weekdays, the demand ratios were found to range from 2.9 - 3.9 with a 90th percentile of 3.8 spaces per 1,000 SF. ITE has found ratios of 3.23 for weekdays and 3.97 for Saturdays. The average between the ITE and ULI numbers equals 4.4 vehicles per 1,000 SF. This ratio is used to determine a reasonable and conservatively practical peak-hour demand for the retail portion of the development. This generally conforms to previous studies by IPD.

The development plans indicate 49,805 SF of general retail. Using the above ratio, a base peak hour demand of 219 spaces for general retail customer parking is estimated. Retail employee parking ratios are estimated by ULI as 0.7 spaces/1,000 SF. Applying this ratio produces an employee base requirement of 35 spaces for this development or a total of 254 spaces for the retail component.

5.5 Restaurant Space

Parking demand for restaurants varies depending on market factors and type of restaurant. Two categories are commonly considered: Family and quality restaurants. Family restaurants include many of the chain-types such as Denny's. Parking turnover rates at such restaurants are usually less than one hour. Visits to quality restaurants, which are generally of the more expensive, independent type experience patron visits in excess of one hour.

ITE estimates of parking demand are higher for quality restaurants (ranging from 6.25-25.83 spaces per 1,000 SF/GA on weekdays) than for family or more limited counter-service types (ranging from 5.67 –13.50 spaces per 1,000 SF/GA on weekdays). ULI's estimates do not differentiate between quality and family. They indicate a demand range of 7.2-25.8 spaces per 1,000 SF/GA with a recommended 90th percentile design peak demand of 20 spaces per 1,000 SF/GA. Many community-planning codes require parking for restaurants in the range of 10 spaces per 1,000/SF without differentiating type. It is assumed that restaurants within the Station 65 project will be of the independent, quality type.

Rather than calculating demand directly based on spaces per SF/GA, IPD has found that the following formula is effective in determining quality-restaurant peak parking demand:

- 60% of SF devoted to patron seating.
- 18 SF of dining area per seat.
- 85% utilization of seats at peak (Based upon two or three persons seated at four seat tables).
- 8% of seated patrons waiting to be seated at the peak demand hour.
- Vehicle occupancy of 2.25 persons per car.

The development plan that was studied assumed that Station 65 would include 13,875 SF of quality restaurant space. Therefore, 13,875 x 60% = 8,325 SF of dining area, on average. 8,325 / 18 SF per seat = 463 seats x 85% utilization = 393 patrons seated + 8% waiting patrons = 426 total patrons / 2.25 persons per car = 189 vehicles of base peak demand. The equivalent demand based on SF is 13.6 spaces per 1,000 SF/GA. Employee parking for restaurants is indicated by ULI as 2.75 spaces per 1,000 SF, which in this case produces a demand of 39 spaces. Combined with the estimate for customer demand creates a total of 228 spaces of base peak demand.

5.6 Residential Units

In the past, residential parking supplies have often been estimated based on the number of bedrooms per unit. Most current studies though, arrive at estimates based on vehicles per dwelling unit. ULI has published parking accumulations over 19 suburban sites ranging from 0.68 to 1.94 vehicles per low-rise rental dwelling unit. For 12 comparable urban sites, they have found 0.66-1.43 vehicles per unit. ULI recommends a base supply of 1.7 spaces per unit for owned dwellings. This number includes visitor parking. Due to the fact that this development is not within the central business district of Sacramento, but is within the city, a base demand of 1.7 vehicles per unit is conservatively estimated, which will include visitor parking. This is the approximate average between ULI's higher-range urban and suburban numbers. 68 residential units are planned, which produces a total estimated base demand of 116 vehicles.

6.0 Application of Mass Transit Effect

Light-rail and bus transit ridership varies in different cities and within each city system, depending on a number of factors and a complexity of analysis which is far beyond the scope of this study. This includes methods of estimating the number of riders that may arrive at this site versus those that would drive and park. But it is a fact that a number of people will arrive daily at the site for each of the uses by train or bus. Therefore, it is necessary to arrive at conservative estimates that are reasonable assumptions.

The primary occupants of the various uses to be developed are assumed to choose between arriving at the site in a private vehicle versus via mass transit based on relative convenience first. Employees are assumed to decide between the two arrival-methods largely based on the economics of cost versus income. Typical employee incomes will vary depending on the type of use that employs them. As an example, fitness employees may be paid, on average higher than most restaurant or hotel employees and therefore may choose to arrive by vehicle as they can better afford the extra cost. Therefore, higher reduction factors for mass transit are used for assumed lower income employees and vice-versa.

Office workers will be inclined to use the light rail and bus system when it is fundamentally as or more convenient than to drive a vehicle. In many cases public transportation to the site will be more economical than driving. This is especially true for those workers that do not need a vehicle during the workday. To arrive at a conservative parking-demand reduction factor for transit use, this study assumes that a majority of office workers will arrive with a vehicle to be parked. For the office-use component, a reduction in base demand of approximately 14% or 0.5 vehicles per 1000 SF is used, which reduces the base demand number from 148 vehicles to 127.

For the hotel, it is probable that a small number of guests will, on occasion arrive at the site by train or bus but is less likely than for the other uses, therefore no reduction is taken for hotel guests. It is, however, assumed that many hotel workers will take advantage of the transit serving the site and is estimated at a rate of 45%, reducing that demand from 37 to 20 vehicles.

Most members of the fitness center will visit a number of times per week and some may find that the public transit service is preferable to driving to the site. An estimate of approximately 10% may do so, reducing demand by 0.5 vehicles per 1,000 SF. This brings the base-demand estimate down from 150 to 135 vehicles. As with the hotel, a higher percentage of fitness employees than members will probably use public transit. A reduction of 35% brings the base demand from 12 to 8 vehicles.

While a small percentage of retail and restaurant customers may arrive to shop or eat via rail or bus, no reduction is taken for these customers due to the fact that train and bus schedules are likely not to be convenient to these users in many cases. A significant percentage of employees of these uses will use the transit services and are estimated at a rate of 40% for each use-type. Retail base demand by employees is then reduced from 39 to 23 and restaurant from 35 to 21 vehicles.

Residents of the development will no doubt take advantage of at least the light rail system and a number will forgo a second vehicle as a result. Therefore a conservative reduction of 0.4 vehicles per unit is assumed, bringing the base demand from 116 to 88 vehicles. Refer to Table 8.

7.0 Application of Captive Market Effect

Due to the fact that Station 65 is planned to be a multi-use development, many patrons will visit a number of different uses in one trip, using just one parking space. As an example, office employees and hotel guests will visit on-site food service for lunch or dinner. Residents will walk from their dwellings to other uses. Others may come to the site for dinner and also browse the retail. This synergy between uses is of mutual benefit to all users and businesses that are a part of the development.

The actual reduction due to captive market can vary depending on the real market support between uses. Table 8 demonstrates typical and conservation reductions in base peak demand due to this effect based on previous studies of similar developments.

As can be seen from the table, captive market effect conservatively reduces base peak parking demand from 1,018 to 888 parking spaces at the peak.

Table 8

Table 6 - Base Peak Demand with Transit and Captive Market Reductions

Unit	Office	Med Office	Hotel	Employee	Fitness	Employee	Retail	Employee	Restaurant (1)	Employee	Residential	Totals
	Gross SF	Gross SF	Rooms		Gross SF		SF		SF		Dwellings	
Sf/Rooms/Dwellings	42,290	10,000	148		30,000		49,805		13,875		68	
Demand per Unit	3.5/1000(3)	4.5/1000(3)	1	0.25	5/1000(2)	0.4/1000	4.4/1000 (2)	0.7	13.6/1000	2.75/1000	1.7(3)	
Peak Base Demands	148	45	148	37	150	12	219	35	189	39	116	1137
Transit Reduction	0.5/1000	0.5/1000	0	45%	0.5/1000	35%	0	40%	0	40%	0.4	
Demand Adjusted for Transit	127	40	148	20	135	8	219	21	189	23	88	1018
Captive Market Reduction	0	0	0	NA	20%	NA	30%	NA	20%	NA	0	
Adjusted Base Demand	**127**	**40**	**148**	**20**	**108**	**8**	**153**	**21**	**151**	**23**	**88**	**888**
Combined Totals	127	40	168		116		174		174		88	

(1) Basis of Demand for Family/Quality/Full Service Restaurants (which excludes Fast Food/Walk-up Counter Service Restaurants) computed as follows:

Total Full Service Restaurant GLA	13,875 Includes outdoor patio seating area @ 50% capacity discount
60% of GLA devoted to Seating	8,325 SF Dining
18 SF of Dining per seat	463 Seats
85% Utilization of Seats at Peak	393 Persons
Added 8% of Seated Patrons Waiting	425 Persons
Persons per Vehicle	2.25 VOF
Total Peak-Hour Demand	189 Vehicles Parked
Demand per 1,000 SF	13.6

(2) ITE

(3) ULI

8.0 Shared Parking

Based on market conditions and typical user-habits, each of the uses will experience a parking demand that varies over months of the year, days of the week and hours of the day. This is common to all mixed-use facilities. In the determination of estimated actual demand, it is realistic to take into account such variations rather than assume demand based on individual base-peak estimations. The factors used for estimating peak period demand herein are based on published statistics derived from many studies. Also taken into account are physical, on-site studies by IPD.

8.1 Monthly Variations by Percent of Peak-Month Demand

Over months of the year, all of the uses at Station 65 will experience variations in numbers of occupants with corresponding variations in parking demand except for office uses. Office uses are specifically office workers, with a relatively small percentage of visitors, which do not vary based on market conditions as do other uses. Employee populations in office uses drop slightly during the summer months due to vacations. This typically reduces parking demand by an average of ten percent, as shown in Table 9 for the months of June, July and August.

According to published statistics, hotel demand varies over the year with June typically being the peak month. Fitness centers tend to experience peak demand in January. Retail demand invariably peaks during the holiday season for Christmas shopping. In fact, retail demand, as shown in the table, increases steadily from January, the lowest demand month. Restaurant patron demand remains fairly regular throughout the year but often peaks in December as well. The residential component of this development is the only one that will not vary over the year. Table 9 demonstrates the variations of peak demand over the months of the year by percent-of-peak.

Table 9

Monthly Variations as a Percent of Peak Month

	Hotel	Fitness	Restaurant	Retail	General & Medical Office	Residential
January	71%	100%	85%	56%	100%	100%
February	85%	95%	86%	57%	100%	100%
March	91%	85%	95%	64%	100%	100%
April	90%	70%	92%	63%	100%	100%
May	92%	65%	96%	66%	100%	100%
June	100%	65%	95%	67%	100%	100%
July	98%	65%	98%	64%	95%	100%
August	92%	70%	99%	69%	95%	100%
September	93%	80%	91%	64%	100%	100%
October	93%	85%	96%	66%	100%	100%
November	81%	85%	93%	72%	100%	100%
December	67%	90%	100%	100%	100%	100%

8.2 Hourly Variations by Percent of Peak-Hour Demand

All uses vary in terms of patron and employee-presence over the hours of the day and also differ on weekdays versus Saturday. Sunday usage is typically lower than the peak period of the week and therefore is not considered. While office-parking demand does not typically vary from one month to another except for vacation periods, it does vary over the hours in a day. Peak demand for parking spaces serving office uses is during the day on weekdays. The use of office parking during evenings and weekends is typically very low. Therefore, much of office parking supplies are generally available for other uses during office off-peak hours when other uses experience peak demand.

Hotel demand invariably peaks during the late evening hours when most guests have checked in or returned to the hotel from visits elsewhere. Daytime demand is usually 50 to 60% of evening demand. Saturday demand is often less than weekdays in business-class hotels. The management of the hotel observed (see section 4.0) reported that Saturday occupancy of guest rooms is typically 60 – 70% of Weekdays. On this basis, for Saturday demand, a factor of 73% of weekdays is conservatively used.

Fitness centers are generally busier in the early evening than during the day. Weekdays tend to be busier than Weekends by a small percentage. Early Saturday-morning demand is higher than most of the day, with a peak at 5:00 PM versus 6:00 PM during weekdays. Saturday demand, based on published data, is projected as 83% of weekdays based on published data.

Retail peak hours tend to be on Saturdays at 2:00 – 3:00 PM when office parking demand is near its lowest. Weekday demand peak, usually also at midday, is typically in the range of 90% of Saturday demand.

Most quality restaurants peak during the evenings at the dinner hours on Saturdays, following the retail peak. Peak hours on Saturday extend to ten o'clock. As can be seen, restaurant demand at the peak hours for retail ranges from 45 to 60 percent of peak.

Generally residents of the development will leave the site with their vehicles for employment or off-site business commensurate with normal ratios over the hours of the day. Some though, will depart using the transit system and leave their vehicles on site.

Therefore the percentages shown in Table 10 under Residential have been revised to reflect an approximate 15% increase in vehicles present over that indicated by ULI in their standardized table of percentages.

Table 10

Hourly Variation of Demand as a Percent of Peak

	Hotel		Fitness		Restaurant		Retail		General & Medical Office		Residential	
	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday
6:00 AM	95%	95%	70%	80%	0%	0%	1%	1%	3%	0%	100%	100%
7:00 AM	90%	90%	40%	45%	0%	0%	5%	5%	30%	20%	90%	90%
8:00 AM	80%	80%	40%	35%	0%	0%	15%	10%	75%	60%	85%	85%
9:00 AM	70%	70%	70%	50%	0%	0%	30%	35%	95%	80%	80%	80%
10:00 AM	60%	60%	70%	35%	15%	0%	55%	60%	100%	90%	75%	75%
11:00 AM	60%	60%	80%	50%	40%	15%	75%	70%	100%	100%	70%	70%
12:00 PM	55%	55%	60%	50%	75%	50%	90%	85%	90%	90%	65%	65%
1:00 PM	55%	55%	70%	30%	75%	55%	100%	95%	90%	80%	70%	70%
2:00 PM	60%	60%	70%	25%	65%	45%	100%	100%	100%	60%	70%	70%
3:00 PM	60%	60%	70%	30%	40%	45%	100%	100%	100%	40%	70%	70%
4:00 PM	65%	65%	80%	55%	50%	45%	95%	95%	90%	20%	75%	75%
5:00 PM	70%	70%	90%	100%	75%	60%	85%	90%	50%	10%	85%	85%
6:00 PM	75%	75%	100%	95%	95%	90%	80%	80%	25%	5%	90%	90%
7:00 PM	75%	75%	90%	60%	100%	95%	75%	75%	10%	0%	97%	97%
8:00 PM	80%	80%	80%	30%	100%	100%	65%	65%	7%	0%	98%	98%
9:00 PM	85%	85%	70%	10%	100%	90%	50%	50%	3%	0%	99%	99%
10:00 PM	95%	95%	35%	1%	95%	90%	30%	35%	1%	0%	100%	100%
11:00 PM	100%	100%	10%	1%	75%	90%	10%	15%	0%	0%	100%	100%
12:00 PM	100%	100%	0%	0%	25%	50%	0%	0%	0%	0%	100%	100%

8.3 Applied Accumulations by Month and Hour

Table 11 applies the peak demands from the results of captive market reduction shown in Table 8 to the percentages of variation by month shown in Table 9. The columns in this table indicate projected parking demand for the various uses over months of the year. The monthly variation of demand for the office use is substantially constant over the year at 127 vehicles. The hotel use will peak in June at 168 vehicles. The Fitness use is shown to peak in January at 116 vehicles. Retail and Restaurant demand will peak in December with 174 vehicles each. Residential is shown not to vary at 88 spaces throughout the year.

The right-most column of Table 11 shows the accumulations of parking demand from each of the various uses as the demand varies over the months. Due to the fact that the combined retail and restaurant parking demand will be the greatest, at 348 vehicles in December, and that residential is 100% and the fitness use is at 90% (Table 9), or 104 vehicles in December, this proves to be the projected peak month of the year for the development at 821 vehicles shown in the Totals column.

Table 12 applies the demand for each use during December as shown in Table 11 to the hourly percent of peak demand shown in Table 10. 2:00 PM on weekdays is revealed as the peak demand-hour of the week during December. This is due to high residual-of-peak demands for retail, restaurant, and fitness center, a high demand for hotel and residential during weekdays. Office is also at its peak.

The Totals column to the right shows the absolute estimated peak demand for the year as 630 vehicles to be parked during weekdays at 2:00 PM in December. The Saturday peak demand is shown to be 520 vehicles at 6:00 PM.

Table 11

Monthly Variations of Demand

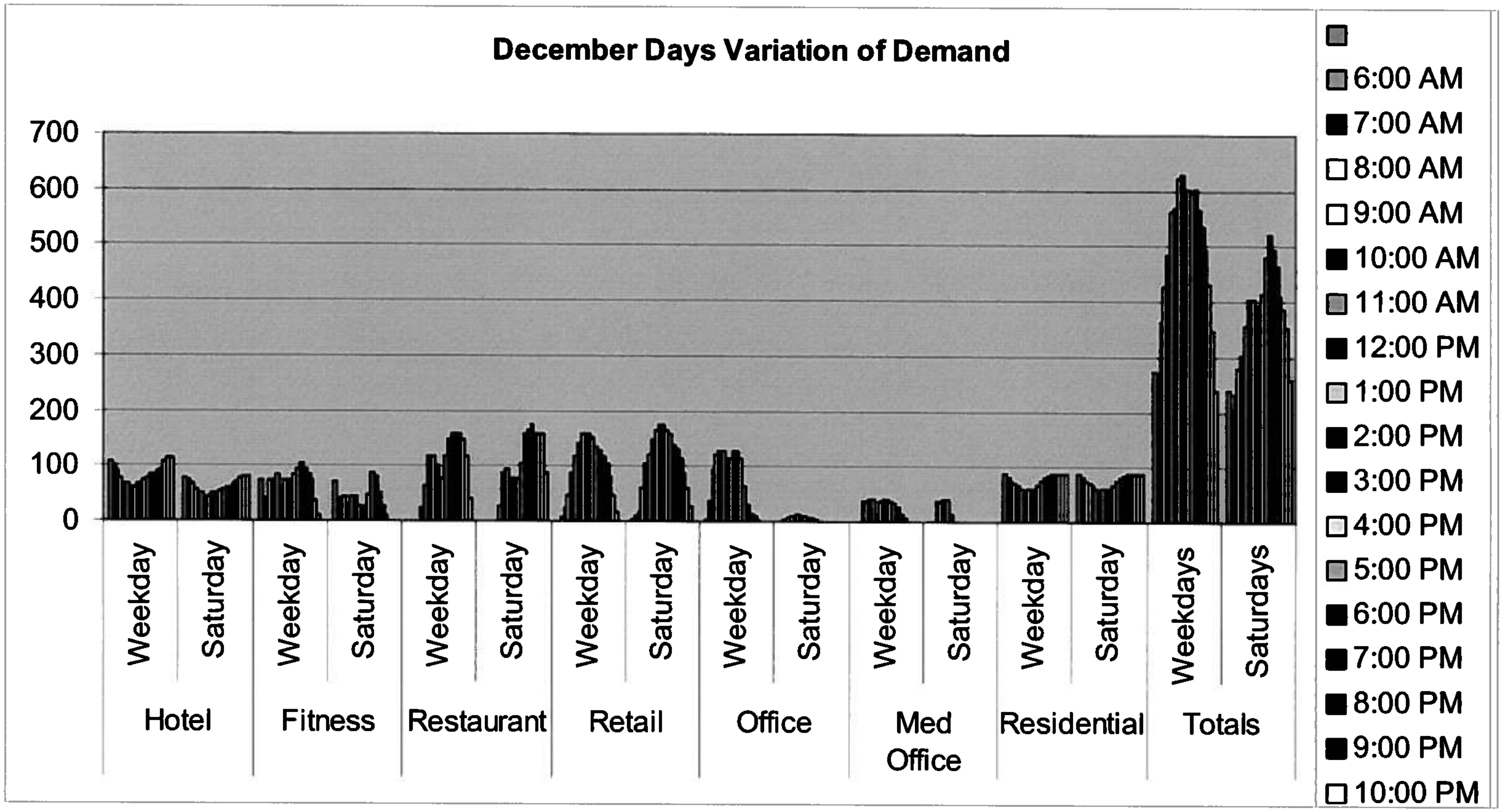
	Hotel	Fitness	Restaurant	Retail	Office	Med Office	Residential	Totals
January	120	**116**	148	98	127	40	88	736
February	143	110	150	99	127	40	88	758
March	153	98	166	112	127	40	88	784
April	152	81	160	110	127	40	88	758
May	155	75	167	115	127	40	88	768
June	**168**	75	166	117	127	40	88	781
July	165	75	171	112	121	38	88	770
August	155	81	173	120	121	38	88	776
September	157	93	159	112	127	40	88	775
October	157	98	167	115	127	40	88	793
November	136	98	162	126	127	40	88	778
December	113	104	**174**	**174**	**127**	**40**	**88**	**821**

Table 12

December Days Variation of Demand

	Hotel		Fitness		Restaurant		Retail		Office		Med Office		Residential		Totals	
	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday	Weekdays	Saturdays
		.73 of Wkdy		.83 of Wkdy	.90 of Sat		.91 of Sat			.10 of Wkdy	Equal	Equal	Equal	Equal		
6:00 AM	107	78	73	69	0	0	2	2	4	0	0	0	88	88	274	238
7:00 AM	102	74	42	39	0	0	8	9	38	3	0	0	80	80	269	204
8:00 AM	90	66	42	30	0	0	24	17	95	8	36	36	75	75	362	232
9:00 AM	79	58	73	43	0	0	48	61	121	10	36	36	71	71	427	279
10:00 AM	68	49	73	30	24	0	87	105	127	11	40	40	66	66	485	302
11:00 AM	68	49	83	43	63	26	119	122	127	13	40	40	62	62	562	355
12:00 PM	62	45	63	43	118	87	143	148	114	11	12	12	57	57	569	405
1:00 PM	62	45	73	26	118	96	159	166	114	10	36	0	62	62	623	405
2:00 PM	68	49	73	22	102	78	159	174	127	8	40	0	62	62	630	393
3:00 PM	68	49	73	26	63	78	159	174	127	5	40	0	62	62	591	395
4:00 PM	73	54	83	48	78	78	151	166	114	3	36	0	66	66	602	414
5:00 PM	79	58	94	87	118	105	135	157	63	1	32	0	75	75	596	482
6:00 PM	85	62	104	82	149	157	127	139	32	1	27	0	80	80	603	520
7:00 PM	85	62	94	52	157	166	119	131	13	0	12	0	86	86	565	496
8:00 PM	90	66	83	26	157	174	103	113	9	0	6	0	87	87	535	466
9:00 PM	96	70	73	9	157	157	79	87	4	0	0	0	88	88	496	410
10:00 PM	107	78	36	1	149	157	48	61	1	0	0	0	88	88	430	385
11:00 PM	113	82	10	1	118	157	16	26	0	0	0	0	88	88	345	355
12:00 PM	113	82	0	0	39	87	0	0	0	0	0	0	88	88	240	258

Figure 2



December Days Variation of Demand
700
600
500
400
300
200
100
0
Weekday
Saturday
Hotel
Fitness
Restaurant
Retail
Office
Med Office
Residential
Weekdays
Saturdays
Totals
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM

9.0 Parking Supply Efficiencies; Ability to Accommodate Peak Demand Variations

9.1 Parking Supply Considerations

While all of the above information and analyses produce a conservative estimate of the number of vehicles to be parked on site, this analysis does not necessarily dictate a reasonable parking supply. Actual demand may be affected by market dynamics that are beyond the scope of this study. Other factors, such as marketing decisions related to the lease of commercial and office space and the rental or sale of residential units are important to the success of any development. Such decision-making is also beyond the scope of this study and the expertise of IPD.

An important additional factor that should be considered is the need for an appropriate level of parking convenience for the project users. A parking supply should provide more parking spaces than dictated by peak-demand estimates. This allows a percentage of parking spaces to be available at the peak period so as to reduce, to acceptable levels the effort required to find a space to park. In general, it is recommended that actual supply exceed projected peak level demand by roughly 5-10%. However, we as consultants and project developers alike understand that parking spaces in excess of real demand may never be used and therefore will not return direct revenue. For this reason, any projecting for over-demand capacity should be sized judiciously in order to control unnecessary capital costs; further, we typically suggest to our clients that rather than building more parking spaces to meet such over-demand capacity/convenience considerations they first consider other alternative and more cost effective possibilities.

9.2 Parking Supply Enhancement Tools

We are aware of several cost efficient means of essentially expanding the ability of a finite parking supply to accommodate increased parking demand, electronic signage systems that direct users to available spaces and attendant-assist or valet services being two of the more well-recognized means. An electronic signage system that informs drivers entering a parking facility of spaces available and their general location can help to make a smaller reserve supply more effective. It is understood that Station 65's on-site supply is planned to be 618 spaces and that there will be 35 on-street spaces available for a total of 653 spaces to meet the estimated peak-hour demand of 630 vehicles. Experience has indicated that the use of an electronic directional signage system can significantly compensate for an otherwise small over-supply of parking spaces. In the case of Station 65's parking structure, which is planned to have relatively small parking floors, such a system should provide a sufficient level of convenience for users at peak demand periods.

The shared-use demand indicated herein is based on the combination of the project's total project size, mix of uses and relative square footages occupied by each particular use. It is foreseeable that any one of these factors might vary since, by way of example, it is not possible to know in advance the eventual area per use type, and the corresponding parking demand. Therefore, to provide for maximum flexibility in designing and/or leasing up the project, it is recommended that a plan for attendant-assist or valet services be developed strictly for the few days of the year that might represent peak demand. This option can allow an increase in parked-vehicle capacity of approximately 10-12% over that estimated based on peak demand and self-park service. Specifically, we have found that the parking use efficiency created by these services may act as the functional equivalent of up to an approximate 10-12% increase in parking supply. Application of these principles to the currently planned project and its estimated 618 stall parking garage indicates that a more intensive project whose demand equates to up to 68 (i.e., 618 x 11%) additional stalls could be developed without increasing the actual physical number of stalls.

PARKING CONTROL AND INTERNAL SERVICE RATES

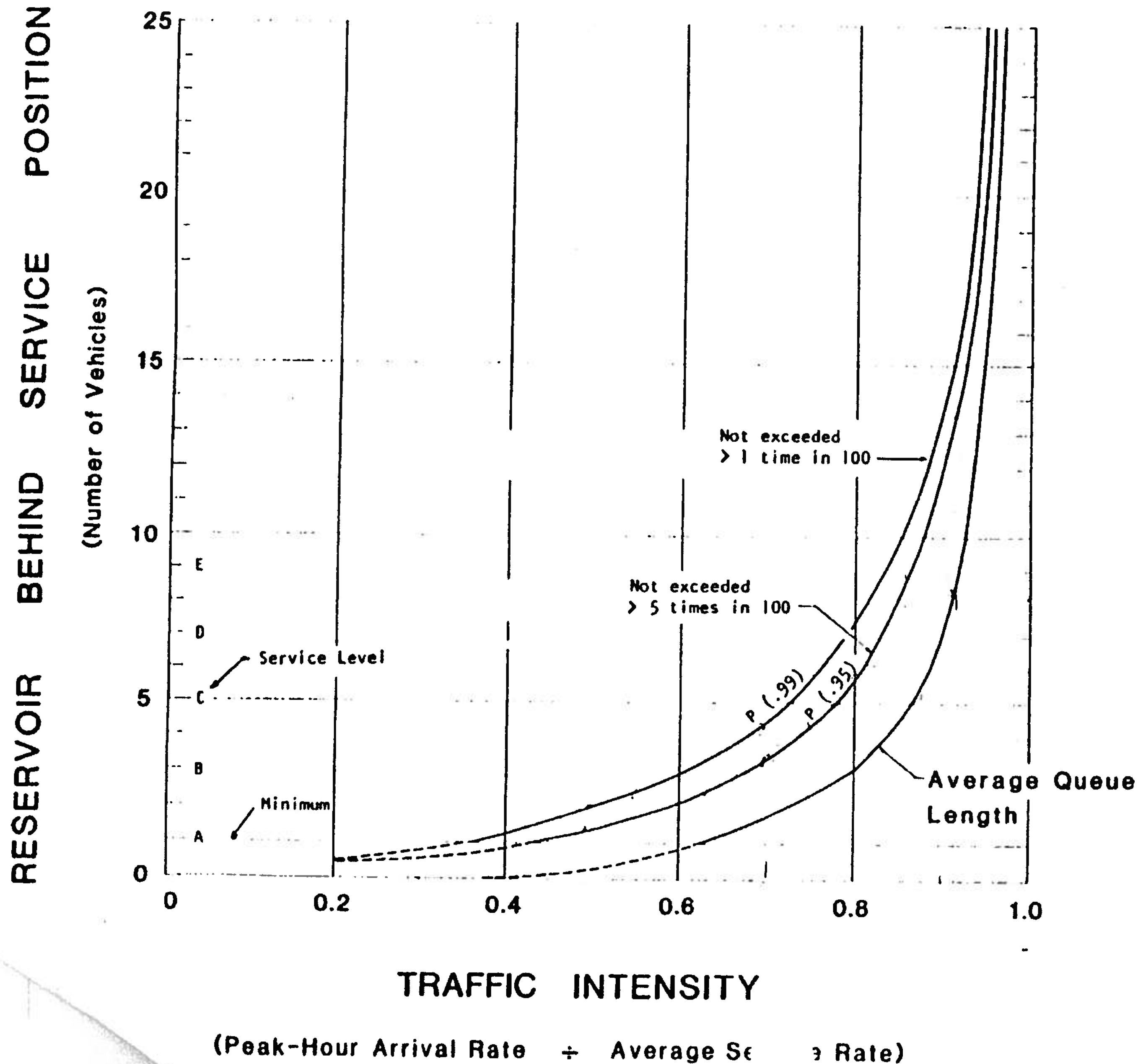
TYPE OF CONTROL	TYPICAL FLOW RATES PER LANE		
	Approximate average Headways (sec/veh)	Hourly Capacity	
		Design[1]	Maximum[2]
Entering (straight approach) :			
Clear aisle, no control	4.0	800	1,000
Ticket dispenser, no gate	5.6	575	720
Cashier, flat fee, no gate			
No information given	10.3	310	390
Direction – info needed	16.0	200	250
Ticket dispenser with gate	9.8	325	410
Coded-card with gate			
Insert or swipe	9.8	325	410
Standard Proximity	8.5	375	470
Long-range proximity	7.1	450	560
AVI with gate	7.1	450	560
Internal :			
Clear aisle or ramp, no parking	2.3	1,400	1,750
Straight ramp with turn at end	2.7	1,200	1,500
Circular ramp (30 ' inside radius)	2.5	1,300	1,625
Parking bay			
Discrete peak			
Inbound	3.9	830	1,035
Outbound	8.0	400	500
Non-discrete flow	5.33	600	750
Exiting (light street traffic)			
W/O control	8.0	400	500
AVI with gate	8.9	360	450
Coded card with gate			
Insert or swipe	10.0	320	400
Standard proximity	9.2	350	435
Long-range proximity	8.9	360	450
Cashier, flat fee, with gate	14.8	215	270
Cashier, variable fee with gate	21.2	150	190
Ticket acceptor only (pay-on-foot)	10.7	300	375

This table is intended for use by those experienced in parking operations. Discretion and knowledge of a particular application must be applied.

[1] Approximately 80% of maximum

[2] Under ideal conditions

RESERVOIR NEEDS VS. TRAFFIC INTENSITY



Assumptions:

1. Arrivals follow a Poisson Distribution
2. Service rate can be represented by an exponential probability function
3. Flow is equally divided between each lane if more than one is available

Note: To obtain total reservoir length use 20-feet per vehicle + 20-feet for the service position (or 12-feet to the driver of the vehicle in the service position).

Source: Robert Crommelin   \soc.