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Thank you for the opportunity to review and comment on the Draft Environmental Impact Statement (DEIS) for Extension of F-Line Streetcar Service to Fort Mason Center. The San Francisco Public Utilities Commission (SFPUC) staff has reviewed DEIS and has the following comments:

See Concern ID 30283, page 347

On page 318, Section 4.14.3, the SFPUC suggests adding the following text to Mitigation Measures: The South Loop (Alternate 2b) and Transition Segment (between Beach Street and the Ft Mason Tunnel / GGNRA land) have the potential to increase stormwater runoff entering into the combined sewer system due to the planned increase in impervious surface. These planned segments are served by the City of San Francisco combined sewer area. While these areas are under federal jurisdiction, it is encouraged that the plan implement stormwater management controls to mitigate the additional runoff and maintain a no net increases in runoff rate and volume in line with the San Francisco Stormwater Design Guidelines.

On page 192, in reality, the proposed rail extension may cross various sewer jurisdictions and boundaries between combined and separated sewer systems. For this reason, this document should carefully and accurately describe the various physical and administrative sewer zones and, preferably, depict them graphically.

See Concern ID 30288, page 367

In Section 4.14.3, the primary potential adverse impacts to the sewer system are (1) damage and loss of service due to construction activities (2) permanent loss of access due to the installation of overlying structures including rails, platforms, other utilities and overhead wires, (3) permanent reduction in service due to alteration of infrastructure, including piping and surface drainage. The language in this section addresses items 1 and 2 at least partially, but does not appear to address item 3. All three items should be addressed fully.

See Concern ID 30215, page 367

Additional global comments are outlined below. These comments apply to all sections of the document, not all sections are identified below.

1. Page 24. Please clarify which permit is intended for reference under the Water Resources bullet. The text says "National Pollutant discharge Elimination System general permit" is this a reference to the SWRCB Construction General Permit or the NPDES Individual permit (MS4 areas)?

See Concern ID 30274, page 344

2. This document should carefully and accurately describe the various physical and administrative sewer zones and, preferably, depict them graphically.

See Concern ID 30288, page 367

3. Page 192. 'Sanitary Sewer /Storm Drain System. Please ensure that all technical terms utilized are the correct term; for reference material please look at the SF Public Works code. The terms for the separate systems include 'Sanitary Sewer System and Stormwater Sewer System. Also stormwater is to be used as one word when not using the proper name of a Federal, State, or Regional Permit.

See Concern ID 30289, page 368

4. Page 294. Same reference to NPDES general permit. The term used under paragraph 2 of section 4.11.3 Impacts of Alt 2, line 12, says 'general construction permit' the correct term is 'construction general permit'. For additional information on this permit please see the following link http://www.swrcb.ca.gov/water_issues/programs/stormwater/constpermits.shtml

See Concern ID 30290, page 368

5. Section 4.14.3. The primary potential adverse impacts to the sewer system are (1) damage and loss of service due to construction activities (2) permanent loss of access due to the installation of overlying structures including rails, platforms, other utilities and overhead wires, (3) permanent reduction in service due to alteration of infrastructure, including piping and surface drainage. The language in this section addresses items 1 and 2 at least partially, but does not appear to address item 3. All three items should be addressed fully.

See Concern ID 30215, page 367

6. Page 323. Under the Agency column of the table, City and County of San Francisco is NOT an agency. Permits will be required from a variety of agencies which include the Port of SF, SFPUC, and DBI (although more agencies could be involved in issuing permits i.e. the fire dept)

See Concern ID 30276, page 344

7. Page 323. Under the Agency column of the table, the RWQCB does not need the 'and'.

See Concern ID 30277, page 344

Thank you for the opportunity to provide the above comments. If you have any questions please contact Kristina Zaccardelli, SFPUC, at 415.554.3114 or kzaccardelli@sfwater.org.

Thank you.

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APPENDICES

Appendix A1. Fort Mason Center Parking Impact Notice (Major Events in 2010)

Appendix A. Alternatives Considered but Dismissed

Appendix B. Transportation and Circulation

Appendix C. Cultural Resources

Appendix D. Biological Resources

Appendix E. Air Quality

Appendix F. Noise

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APPENDIX A1

Fort Mason Center Parking Impact Notice

Appendix A1 presents a list of the major events hosted by the Fort Mason Center in 2010. Attendance numbers are projections.

To: Staff/Residents
 From: Lisa Phillips
 Subject: **PARKING IMPACT**
 Date: January 2010
 February 2010



Event Title	Venue Location	Event Days	Event Times	Attendance	Parking Services / Lot Staff
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JANUARY

Rock With You: A Tribute to Michael Jackson, Latin Style	Cowell Theater	Fri Jan 22 Sat Jan 23	8pm 4pm, 8pm	437	No
Rent	Southside Theatre	Fri Jan 22 Sat Jan 23	8pm	Theater capacity: 162	No
BATS Improv	Bayfront Theatre	Fri Jan 22 Sat Jan 23	8pm 8pm	Theater capacity: 200	No
Oedipus el Rey	Magic Theatre	Thur Jan 28	8pm	Theater capacity: 320	No
ZAP Good Eats	Herbst Pavilion	Thur Jan 28	6-9pm	1,000	No
ZAP Wine Tasting	Herbst & Festival Pavilion	Sat Jan 30	10am-5pm	7,000	No
Rumpelstiltskin	Young Performers Theatre	Sat Jan 30 Sun Jan 31	1pm 1pm, 3:30pm	Theater capacity: 100	No

FEBRUARY

Casky & Lees Arts of Pacific Asia	Festival Pavilion	Thu Feb 4 Fri Feb 5 Sat Feb 6 Sun Feb 7	6pm-9pm Gala 11am-7pm 11am-7pm 11am-5pm	500 2,000 2,000 1,500	Gala: Valet Lot E & City Yachts Daily Valet in Lot E
Oedipus el Rey	Magic Theatre	Thur Feb 4	8pm	Theater capacity: 320	No
Rumpelstiltskin	Young Performers Theatre	Sat Feb 6 Sun Feb 7	1pm 1pm, 3:30pm	Theater capacity: 100	No
Warehouse Sale	Herbst Pavilion	Sat Feb 5	10am-4pm	1,000	No
2010 San Francisco Fine Print Fair	Conference Center	Fri Feb 5 Sat Feb 6 Sun Feb 7	6pm-9pm 10am-6pm 11am-5pm	100 200 200	No
Huun Huur Tu: Xoomei -- Tuvan Throat Singing	Cowell Theater	Thu Feb 11	8pm	200	No
Casky & Lees Tribal Arts	Festival Pavilion	Thu Feb 11 Fri Feb 12 Sat Feb 13 Sun Feb 14	6pm-9pm Gala 11am-7pm 11am-7pm 11am-5pm	500 1,500 1,500 1,000	Gala: Valet Lot E & Daily Valet in Lot E

To: Staff/Residents
 From: Lisa Phillips
 Subject: **PARKING IMPACT**
 Date: January 2010
 February 2010



Rumpelstiltskin	Young Performers Theatre	Sat Feb 13 Sun Feb 14	1pm 1pm, 3:30pm	Theater capacity: 100	No
Oedipus el Rey	Magic Theatre	Thu Feb 11	8pm	Theater capacity: 320	No
Eurythmy Dance Concert	Cowell Theater	Fri Feb 12 Sat Feb 13	8pm 2pm	430 / day	No
Usmp Event	Herbst Pavilion	Sat Feb 20	7-11pm	1,000	Reserved lot C & D for 70 spaces
Chronicle Wine Competition	Festival Pavilion	Sat Feb 20	11am-5pm	3500/ day	No
Rent	Southside Theatre	Sat Feb 20	8pm	Theater capacity: 162	No
BATS Improv	Bayfront Theatre	Sat Feb 20	8pm	Theater capacity: 200	No
Oedipus el Rey	Magic Theatre	Sat Feb 20	8pm	Theater capacity: 320	No
Gambere Rosso Wine Tasting (private)	Herbst Pavilion	Wed Feb 24	12pm-7pm	1,000	No
Ellis Wood Dance	Cowell Theater	Sat Feb 27	8pm	430 / day	No
Pacific Orchid Show	Festival Pavilion	Fri Feb 26 Sat Feb 27 Sun Feb 28	10am-10pm 9am-6pm 10am-5pm	2,000 3,500 3,500	No
BATS Improv	Bayfront Theatre	Fri Feb 26	8pm	Theater capacity: 200	No
Oedipus el Rey	Magic Theatre	Fri Feb 26	8pm	Theater capacity: 320	No

To: Staff/Residents
 From: Lisa Phillips
 Subject: **PARKING IMPACT**
 Date: March 2010



Event Title	Venue Location	Event Days	Event Times	Attendance	Parking Services / Lot Staff
Art Du Jour Okizu Foundation Gala	Herbst Pavilion	Sat Mar 6	5pm-11pm	450	No
Academy of Friends Gala	Festival Pavilion	Sun Mar 7	5:00pm-11pm	3,000	Valet
Great SF Crystal Fair	Conference Cneter	Sat Mar 6 Sun Mar 7	10am-6pm 10am-4pm	300	No
Charlie & the Chocolate Factory	Young Performers Theatre	Sat Mar 6 Sun Mar 7	1pm, 1pm, 3:30pm	Theater capacity: 100	No
Oedipus el Rey	Magic Theatre	Sat Mar 6 Sun Mar 7	8pm 2:30pm	Theater capacity: 320	No
BATS Improv	Bayfront Theatre	Sat Mar 6 Sun Mar 7	8pm 7pm	Theater capacity: 200	No
Stark Carpet Warehouse Sale	Herbst Pavilion	Thur Mar 11 Fri Mar 12 Sat Mar 13 Sun Mar 14	10am-8pm 10am-8pm 10am-8pm 10am-6pm	1000/ day	No
Contemporary Crafts Market	Festival Pavilion	Sat Mar 13 Sun Mar 14	10am-5pm 10am-5pm	800-1,500 / day	Shuttle Marina Middle School
Hi Ho Silver	Marina Room	Sat Mar 13 Sun Mar 14	11am-5pm 11am-4pm	200/ day	No
Charlie & the Chocolate Factory	Young Performers Theatre	Sat Mar 13 Sun Mar 14	1pm, 1pm, 3:30pm	Theater capacity: 100	No
Oedipus el Rey	Magic Theatre	Sat Mar 13 Sun Mar 14	8pm 2:30pm	Theater capacity: 320	No
BATS Improv	Bayfront Theatre	Sat Mar 13 Sun Mar 14	8pm 7pm	Theater capacity: 200	No
A Memory, a Monologue, a Rant and a Prayer	Southside Theater	Fri Mar 12 Sat Mar 13	8pm 2pm, 8pm	Theater capacity: 162	No
SF International Chocolate Salon	Festival Pavilion	Sat Mar 20	10am-6pm	1,000	No
Spring Dance Inspiration 2009	Cowell Theater	Sat Mar 20 Sun Mar 21	8pm 3pm	300	No
Charlie & the Chocolate Factory	Young Performers Theatre	Sat Mar 20 Sun Mar 21	1pm, 1pm, 3:30pm	Theater capacity: 100	No
BATS Improv	Bayfront Theatre	Sat Mar 20 Sun Mar 21	8pm 7pm	Theater capacity: 200	No
CLAWS Bark	Herbst Pavilion	Thu Mar 25	6pm-11pm	500	No
Rhone Rangers Grand Tasting	Festival Pavilion	Sun Mar 28	1:30pm-4pm	2500/ day	No

To: Staff/Residents
 From: Lisa Phillips
 Subject: **PARKING IMPACT NOTICE--APRIL 2010**
 Date: April 2010



Event Title	Venue Location	Event Days	Event Times	Attendance	Parking Services / Lot Staff
Salmon Summit	Conference Center	Thur Apr 1	10am-3pm	300	No
Bay Area Derby Girls	Herbst Pavilion	Sat Apr 3	8pm-10pm	1,200	No
BATS Improv	Bayfront Theater	Sat Apr 3	8pm	Theater capacity: 200	No
SF Conservatory of Music Opera: The Rake's Progress	Cowell Theater	Sat Apr 10 Sun Apr 11	7:30pm 2:00pm	Theater capacity: 437	No
San Francisco Vintner's Market	Festival Pavilion	Sat Apr 10 Sun Apr 11	12pm-5pm 12pm-5pm	2,000 per day	FMC Valet
Airnb Presents: Private Reception	Conference Center	Sat Apr 10	5pm-2am	300	No
The Twitter	Herbst Pavilion	Wed Apr 14 Thu Apr 15	6:00pm thru 6:00pm next day	400-800	No
"Pupi" Sicilian Puppet Theatre	Cowell Theater	Thu Apr 15	7pm	400	No
Cathedral School for Boys Gala Fundraiser	Herbst Pavilion	Sat Apr 17	6pm-12am	400	No
An Accident	Magic Theatre	Thu Apr 15 Sat Apr 17 Sun Apr 18	8pm 8pm 2:30pm	Theater capacity: 320	No
BATS Improv	Bayfront Theater	Sat Apr 17 Sun Apr 18	8pm 7pm	Theater capacity: 200	No
Tell It Slant	Southside Theater	Sat Apr 17 Sun Apr 18	8pm 2pm	Theater Capacity: 162	No
City Dance: Spring on Stage	Cowell Theater	Sat Apr 17	7:30pm 2:00pm	400	No
A Taste of Tamales by the Bay	Conference Center	Sun Apr 18	12pm-4:30pm	300	No

To: Staff/Residents
 From: Lisa Phillips
 Subject: **PARKING IMPACT NOTICE--APRIL 2010**
 Date: April 2010



San Francisco International Beerfest	Festival Pavilion	Sat Apr 24	7pm-10pm	3000 SOLD OUT	No
Vietnamese Poetry Festival	Fleet Room	Sat Apr 24	7pm	200	No
Peter & the Wolf	Young Performers Theatre	Sat Apr 24 Sun Apr 25	1pm, 1pm, 3:30pm	Theater capacity: 100	No
An Accident	Magic Theatre	Sat Apr 24 Sun Apr 25	2:30pm, 8pm 2:30pm	Theater capacity: 320	No
BATS Improv	Bayfront Theater	Sat Apr 24 Sun Apr 25	8pm 7pm	Theater capacity: 200	No
Tell It Slant	Southside Theater	Sat Apr 24 Sun Apr 26	8pm 2pm	Theater Capacity: 162	No
Toe to Toe: The Grand Slam	Herbst Pavilion	Thu Apr 29	6:30pm-9:30pm	400	No
An Accident	Magic Theatre	Thu Apr 30	8pm	Theater capacity: 320	No

To: Staff/Residents
 From: Lisa Phillips
 Subject: **PARKING IMPACT NOTICE MAY 2010**
 Date: May 2010



Event Title	Venue Location	Event Days	Event Times	Attendance	Parking Services / Lot Staff
Norway Days	Herbst Pavilion	Sat May 1 Sun May 2	8am-5pm 10am-4pm	1500 per day	No
Peter and the Wolf	Young Performers Theatre	Sat May 2 Sun May 3	1pm 1pm & 3:30pm	Theater capacity: 100	No
BATS Improv	Bayfront Theater	Fri May 1 Sat May 2	8pm	Theater capacity: 200	No
Tell It Slant	Southsde Theater	Fri May 1 Sat May 2	8pm 2pm, 8pm	Theater Capacity: 162	No
An Accident	Magic Theatre	Fri May 1 Sat May 2 Sun May 3	8pm 8pm 2:30pm, 7pm	Theater capacity: 320	No
SFMOMA Artists Gallery 14th Annual Warehouse Sale	Bldg. A	Wed May 5	6:00pm-9:00pm gala reception	300	No
Wine Warehouse	Herbst Pavilion	Wed May 5	12pm-7pm	1,000	no
SF Underground	Festival Pavilion	Sat May 8	10am-11:30pm	2,000	No
LINES Ballet School Ensemble	Cowell Theater	Fri May 7 Sat May 8	8pm	400	No
Tell It Slant	Southsde Theater	Fri May 7 Sat May 8 Sun May 9	8pm 8pm 2pm, 8pm	Theater Capacity: 162	No
An Accident	Magic Theatre	Sat May 8 Sun May 9	8pm 2:30pm, 7pm	Theater capacity: 320	No
BATS Improv	Bayfront Theater	Sat May 8 Sun May 9	8pm 7pm	Theater capacity: 200	No
Peter and the Wolf	Young Performers Theatre	Sat May 8 Sun May 9	1pm 1pm & 3:30pm	Theater capacity: 100	No
SF Art Institute MFA Graduate Exhibition Opening Night Gala	Herbst Pavilion	Thu May 13	7pm-10pm	500	No
PCBA Book Arts and Printers Fair	Conference Center	Sat May 15	9am-3pm	300	No

To: Staff/Residents
 From: Lisa Phillips
 Subject: **PARKING IMPACT NOTICE MAY 2010**
 Date: May 2010



SF Art Institute MFA Graduate Exhibition	Herbst Pavilion	Sat May 15 thru Sat May 22	12pm-6pm	200 per day	No
20th Annual Star Chefs & Vintners Gala for Meals On Wheels	Festival Pavilion	Sun May 16	5pm-11pm	700	Valet Lots C,D & Lots 1,2
BATS Improv	Bayfront Theater	Sat May 15 Sun May 16	8pm 7pm	Theater capacity: 200	No
Tell It Slant	Southside Theater	Sat May 15 Sun May 16	8pm 2pm	Theater Capacity: 162	No
School of the Arts Dance Concert: Intention	Cowell Theater	Fri May 14 Sat May 15 Sun May 16	8pm 8pm 2pm	350	No
SF Fine Art Fair	Festival Pavilion	Thu May 20 Fri May 21 Sat May 22 Sun May 23	Preview 6-9:30pm 12pm-8pm 11am-7pm 12pm-6pm	1,500	No
Derevo	Cowell Theater	Thu May 20 Fri May 21 Sat May 22	8pm 8pm 8pm	Theater capacity: 437	No
Studio Rue Dance Dana Lawton Dance	Southside Theater	Thu May 20 Sat May 22	8:30pm 9pm 2pm	Theater capacity: 162	No
BATS Improv	Bayfront Theater	Fri May 21 Sat May 21	8pm 8pm	Theater capacity: 200	No

To: Staff/Residents
 From: Lisa Phillips
 Subject: **PARKING IMPACT NOTICE**
 Date: June 2010



Event Title	Venue Location	Event Days	Event Times	Attendance	Parking Services / Lot Staff
ExpressionEngine Codelgniter Conference 2010	Conference Center	Mon May 31 Tue Jun 1 Wed Jun 2	9am-6pm 8am-6pm 8am-6pm	300 per day	No
Alliant International Graduation	Herbst Pavilion	Fri Jun 4	1-5 pm	900	Reserved parking between Bldings. C & D 50 spaces
CFA Examination	Festival Pavilion	Sat Jun 5	8am-5pm	2,283	No
Crush Barrel Wine Market	Fleet Room	Sat Jun 5	12-5pm	500	No
TAPAS Grand Tasting	Conference Center	Sat Jun 5	2-5pm	800	Reserved parking between Bldings. C & D 80 spaces
City Ballet School Spring Dance	Cowell Theater	Sat Jun 5	2pm 7pm	300	No
Synergy School Bay Area Voices	Northside Theater	Sat Jun 6	8:00pm	Theater capacity: 160	No
San Francisco Birth & Baby Fair	Herbst Pavilion	Sun Jun 6	10-5pm	800	No
Fort Mason Center Farmers Market	Parking Lot	Starting Sun Jun 6 Every Sunday	9:30am-1:30pm	High Attendance expected	No
Dance Without Borders	Cowell Theater	Sun Jun 6	5-7pm	Theater capacity: 437	No
BATS Improv	Bayfront Theater	Fri Jun 4 Sat Jun 5 Sun Jun 6	8pm 8pm 7pm	Theater capacity: 200	No
Shecky's Girls Night Out	Herbst Pavilion	Wed Jun 9 Thu Jun 10	5-10pm 5-10pm	400-500	No
Great SF Crystal Fair	Conference Center	Sat Jun 12 Sun Jun 13	10-6pm 10-4pm	300	No
Chamberdance	Cowell Theater	Sat Jun 12 Sun Jun 13	8pm 3pm	300	No

To: Staff/Residents
 From: Lisa Phillips
 Subject: **PARKING IMPACT NOTICE**
 Date: June 2010



BATS Improv	Bayfront Theater	Fri Jun 12 Sat Jun 13 Sun Jun 14	8pm 8pm 7pm	Theater capacity: 200	No
Slow Food "Golden Glass Wine Tasting"	Festival Pavilion	Sat Jun 12	1-5pm	2,000	No
Swinerton Private Event	Herbst Pavilion	Fri Jun 18	7:30am-4pm	300	No
Swinerton Private Event	Cowell Theater	Fri Jun 18	7:30am-4pm	300	No
Glory Glory	Northside Theater	Fri Jun 18 Sat Jun 19 Sun Jun 20	8pm 8pm 7pm	Theater capacity: 162	No
Bay Area Derby Girls	Herbst Pavilion	Sat Jul 19	7-11:00pm	1,200	No
BATS Improv	Bayfront Theater	Fri Jun 18 Sat Jun 19 Sun Jun 20	8pm 8pm 7pm	Theater capacity: 200	No
New Old Time Chautauqua Keep the Faith	Cowell Theater	Sat Jul 19	7:30pm	Theater capacity: 437	No
Glory Glory	Northside Theater	Fri Jun 25 Sat Jun 26 Sun Jun 27	8pm 8pm 2pm	Theater capacity: 162	No
BATS Improv	Bayfront Theater	Fri Jun 25 Sat Jun 26 Sun Jun 27	8pm 8pm 7pm	Theater capacity: 200	No
Pinot Days Grand Tasting	Festival Pavilion	Sun Jun 27	11am-5pm	2,000	No

To: Staff/Residents
 From: Lisa Phillips
 Subject: **PARKING IMPACT NOTICE--**
 Date: July 2010



Event Title	Venue Location	Event Days	Event Times	Attendance	Parking Services / Lot Staff
Crush Barrel Wine Market	Fleet Room Bldg D	Sat Jul 3	12pm-5pm	300	No
FMC Farmers' Market	FMC Parking Lot	Sun Jul 4	9:30am-1:30pm	3,000	No
BATS Improv	Bldg B	Fri Jul 9 Sat Jul 10	8pm 8pm	Theater capacity: 200	No
Easily Distracted Theatre: Foresight	Southside Theater	Fri Jul 9 Sat Jul 10 Sun Jul 11	8pm 2pm, 8pm 8pm	Theater capacity: 162	No
Asahar Dance Foundation Zahara	Cowell Theater	Fri Jul 9	8pm	Theater capacity: 437	No
Avon Walk for Breast Cancer	Great Meadow Upper Fort Mason	Sat Jul 10 Sun Jul 11	Begin: 5:30am End: 3:00pm	High Volume	car entrance to FMC could be impacted as walkers pass by
The Guardsman Roundup	Herbst Pavilion	Sat Jul 10	8:30pm-1am	1,000	No
FMC Farmers' Market	FMC Parking Lot	Sun Jul 11	9:30am-1:30pm	3,000	No
The BreastFest	Herbst Pavilion	Sat Jul 17	12pm-5pm	1,000	No
Lamb Jam San Francisco	Festival Pavilion	Sun Jul 18	1pm-4pm	1,000	No
Easily Distracted Theatre: Foresight	Southside Theater	Fri Jul 16 Sat Jul 17 Sun Jul 18	8pm 8pm 2pm, 8pm	Theater capacity: 162	No
Post:Ballet-- Concert One	Cowell Theater	Fri Jul 16 Sat Jul 17	8pm	Theater capacity: 434	No
BATS Improv	Bayfront Theater	Fri Jul 16 Sat Jul 17 Sun Jul 18	8pm 8pm 2pm	Theater capacity: 200	No
FMC Farmers' Market	FMC Parking Lot	Sun Jul 18	9:30am-1:30pm	3,000	No
Bay Area Producers Conference	Cowell Theater	Sat Jul 24	11am-10pm	Theater capacity: 437	No
BATS Improv	Bayfront Theater	Fri Jul 23 Sat Jul 24 Sun Jul 25	8pm 8pm 2pm	Theater capacity: 200	No
BASOTI Mozart's The Magic Flute	Northside Theater	Thu Jul 22 Fri Jul 23 Sat Jul 24 Sun Jul 25	8pm 8pm 8pm 2pm	Theater capacity: 162	No

To: Staff/Residents
 From: Lisa Phillips
 Subject: **PARKING IMPACT NOTICE--**
 Date: July 2010



Indoor Gardening Exposition	Festival Pavilion	Sat Jul 24 Sun Jul 25	10am-6pm 12pm-6pm	800	No
San Francisco Marathon	passes thru Fort Mason	Sun Jul 25	5:30-8:30am	8,000	car entrance to FMC will be impacted as racers pass by
FMC Farmers' Market	FMC Parking Lot	Sun Jul 25	9:30am-1:30pm	3,000	No
Barney 's New York	Herbst Pavilion	Thu Jul 29 Fri Jul 30 Sat Jul 31	10-8pm	600	No
Renegade Craft Fair	Festival Pavilion	Sat Jul 31 Sun Aug 1	11-7pm 11-7pm	1,000	No
Hi Ho Silver	Gatehouse	Sat Jul 31 Sun Aug 1	10:30-4pm 11-5pm	100	No
BATS Improv	Bayfront Theater	Fri Jul 30 Sat Jul 31	8pm 8pm	Theater capacity: 200	No
BASOTI Mozart's The Magic Flute	Northside Theater	Fri Jul 30 Sat Jul 31	8pm 8pm	Theater capacity: 162	No
West Coast Country Music Festival	Great Meadow Upper Fort Mason	Sat Jul 31	11am-7pm	3,000	No

To: Staff/Residents
 From: Lisa Phillips
 Subject: **PARKING IMPACT NOTICE for August 2010**
 Date: August 2010



Event Title	Venue Location	Event Days	Event Times	Attendance	Parking Services / Lot Staff
Barneys New York Warehouse Sale	Herbst Pavilion	Mon Aug 2 Tue Aug 3 Wed Aug 4 Thu Aug 5 Fri Aug 6 Sat Aug 7 Sun Aug 8	10am-8pm 10am-8pm 10am-8pm 10am-8pm 10am-8pm 10am-7pm 10am-7pm	600 per day	No
SF Opera Merlola L'Elisir d'Amore	Cowell Theater	Fri Aug 6 Sat Aug 7 Sun Aug 8	8pm 8pm 2pm	Theater capacity 437	No
Hi Ho Silver	Marina Room	Fri Aug 6 Sat Aug 7 Sun Aug 8	11-4pm 10-5pm 11-4pm	100	No
Off the Grid	FMC Parking Lot	Fri Aug 6	5pm-9pm	800	Main Parking lot front of building C
Angel Island: Immigrant Gateway to America	Conference Center Bldg. A	Sat Aug 7	1:30pm-4pm	180	No
FMC Farmers' Market	FMC Parking Lot	Sun Aug 8	9:30am-1:30pm	3,000	Parking lot front of building A
Crush Barrel Wine Market	Fleet Room Bldg. D	Sun Aug 9	12pm-5pm	300	No
BATS Improv	Bayfront Theater	Fri Aug 7 Sat Aug 8	8pm 8pm	Theater capacity: 200	No
Fabulous Fashionista Sample Sale	Fleet Room Bldg. D	Sat Aug 14	10-3pm	200	No
ACC Craft Fair 2007	Herbst & Festival Pavilion	Fri Aug 13 Sat Aug 14 Sun Aug 15	10-8pm 10-6pm 10-5pm	2,000 +	Yes
Hi Ho Silver	Marina Room	Fri Aug 13 Sat Aug 14 Sun Aug 15	11-4pm 10-5pm 11-4pm	100	No
Off the Grid	FMC Parking Lot	Fri Aug 13	5pm-9pm	800	Main Parking lot front of building C
BATS Improv	Bayfront Theater	Fri Aug 13 Sat Aug 14	8pm 8pm	Theater capacity: 200	No
FMC Farmers' Market	FMC Parking Lot	Sun Aug 15	9:30am-1:30pm	3,000	Parking lot front of building A
LINES Ballet Summer Showcase	Cowell Theater	Tue Aug 17	8pm	Theater capacity 437	No

To: Staff/Residents
 From: Lisa Phillips
 Subject: **PARKING IMPACT NOTICE for August 2010**
 Date: August 2010



Family Winemakers of California	Festival Pavilion	Sun Aug 22 Mon Aug 23	3-6pm Trade only	1,200-2,000	Yes, Section E
Vintage European Posters Show	Firehouse	Fri Aug 20 Sat Aug 21 Sun Aug 22	10-6pm 10-6pm 11-5pm	150	No
Off the Grid	FMC Parking Lot	Fri Aug 20	5pm-9pm	800	No
BATS Improv	Bayfront Theater	Fri Aug 20 Sat Aug 21	8pm 8pm	Theater capacity: 200	No
FMC Farmers' Market	FMC Parking Lot	Sun Aug 22	9:30am-1:30pm	3,000	Parking lot front of building A
Lyric Theatre The Dollar Princess	Southside Theater	Sat Aug 28 Sun Aug 29	8pm 2pm	Theater capacity: 168	No
Off the Grid	FMC Parking Lot	Fri Aug 27	5pm-9pm	800	Main Parking lot front of building C
FMC Farmers' Market	FMC Parking Lot	Sun Aug 29	9:30am-1:30pm	3,000	Parking lot front of building A
BATS Improv	Bayfront Theater	Fri Aug 27 Sat Aug 28	8pm 8pm	Theater capacity: 200	No

To: Staff/Residents
 From: Lisa Phillips
 Subject: **PARKING IMPACT NOTICE**
 Date: September 3, 2010



Event Title	Venue Location	Event Days	Event Times	Attendance	Parking Services / Lot Staff
Off the Grid	FMC Parking Lot	Fri Sep 3	5pm-9pm	800	Main Parking lot front of building C
BATS Improv	Bayfront Theater	Fri Aug 3 Sat Aug 4	8pm 8pm	Theater capacity: 200	No
FMC Farmers' Market	FMC Parking Lot	Sun Sep 5	9:30am-1:30pm	3,000	Parking lot in front of Bldg. A
Ceramics Annual of America	Herbst Pavilion	Thu Sep 9 Fri Sep 10 Sat Sep 11 Sun Sep 12	5:30-8pm 10-8pm 10-8pm 10-6pm	400-600 per day	No
Off the Grid	FMC Parking Lot	Fri Sep 10	5pm-9pm	800	Main Parking lot front of building C
BATS Improv	Bayfront Theater	Fri Aug 10 Sat Aug 11	8pm 8pm	Theater capacity: 200	No
FMC Farmers' Market	FMC Parking Lot	Sun Sep 12	9:30am-1:30pm	3,000	Parking lot in front of Bldg. A
Bank of America Private Event	Herbst Pavilion	Mon Sep 13	5-10pm	450	Valet Parking Lot E
San Francisco Modernism (SF20)	Festival Pavilion	Thu Sep 16 Fri Sep 17 Sat Sep 18 Sun Sep 19	6-9pm 11-7pm 11-7pm 12-5pm	400 700 700 700	Valet Parking Opening Nite
The Brothers Size	Magic Theatre	Preview Thu Sep 16 Sat Sep 18 Sun Sep 19	8pm 2:30pm, 8pm 2:30pm	Theater capacity: 162	No
Zhukov Dance Theatre Product 03	Cowell Theater	Thu Sep 16 Sat Sep 18 Sun Sep 19	8pm 8pm 8pm	Theater capacity: 437	No
SFMOMA Artists Gallery Reception	Building A	Thu Sep 16	5:30-7:30pm	300	No
Haute Life PR & Marketing	Herbst Pavilion	Thu Sep 16	5-10pm	1,000	No
Off the Grid	FMC Parking Lot	Fri Sep 17	5pm-9pm	800	Main Parking lot front of building C

To: Staff/Residents
 From: Lisa Phillips
 Subject: **PARKING IMPACT NOTICE**
 Date: September 3, 2010



BATS Improv	Bayfront Theater	Fri Aug 17 Sat Aug 18	8pm 8pm	Theater capacity: 200	No
FMC Farmers' Market	FMC Parking Lot	Sun Sep 19	9:30am-1:30pm	3,000	Parking lot in front of Bldg. A
San Francisco Hip Hop DanceFest Auditions	Cowell Theater	Sun Sep 19	11am 3:30pm	Theater capacity: 437	No
Non-Profit Housing Association of CA: NPH Fall Conference	Herbst Pavilion	Tue Sep 21	8am-5:30pm	450	No
Annual Big Book Sale	Festival Pavilion	Tue Sep 21 Wed Sep 22 Thu Sep 23 Fri Sep 24 Sat Sep 25 Sun Sep 26	4-8pm 10-8pm 10-8pm 10-8pm 10-8pm 10-4pm	2,000 +	No
Off the Grid	FMC Parking Lot	Fri Sep 24	5pm-9pm	800	Main Parking lot front of building C
BATS Improv	Bayfront Theater	Fri Sep 24 Sat Sep 25	8pm 8pm	Theater capacity: 200	No
The Brothers Size	Magic Theatre	Fri Sep 24 Sat Sep 25	8pm 2:30pm, 8pm	Theater capacity: 162	No
Summer Search	Herbst Pavilion Cowell Theater	Fri Sep 24	4-11pm	450	Valet Parking
FMC Farmers' Market	FMC Parking Lot	Sun Sep 26	9:30am-1:30pm	3,000	Parking lot in front of Bldg. A
Pinocchio	Young Performers Theatre	Sat Sep 25 Sun Sep 26	1pm 1pm & 3:30pm	Theater capacity: 100	No
West Coast Green	Festival Herbst Southside Theater Building C	Wed Sep 29 Thu Sep 30 Fri Oct 1 Sat Oct 2	8am-4pm 7am-6pm 7am-6pm 7am-6pm	800-900	No

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Event Title	Venue Location	Event Days	Event Times	Attendance	Parking Services / Lot Staff
West Coast Green	Festival Herbst Southside Theater Building C	Fri Oct 1 Sat Oct 2	7am-6pm 7am-6pm	800-900	No
Bridge to Bridge Run	N/A	Sun Oct 3	9-10:30am will pass FMC gates	10,000	No
SOCAP 2010	GG Room Herbst Cowell Fleet Room Building C	Mon Oct 4 Tue Oct 5 Wed Oct 6	8am-9pm daily	900	No
Pinocchio	Young Performers Theatre	Sat Oct 2 Sun Oct 3	1pm, 3:30pm 1pm, 3:30pm	Theater capacity: 100	No
Fleet Week	N/A	Thu Oct 7 Fri Oct 8 Sat Oct 9 Sun Oct 10	Blue Angels at 3pm each day	High Attendance expected on Sat, Sun	No
Navy in Space	Fleet Room	Sat Oct 9 Sun Oct 10	9-5pm	1500/day	No
Summersalt	Herbst Festival and outdoors between building C/D	Sat Oct 9	11am-8pm	3,000	Lot between C/D
BATS Improv	Bayfront Theatre	Fri Oct 8 Sat Oct 9	8pm	Theater capacity: 200	No
The Brothers Size	Magic Theatre	Fri Oct 8 Sat Oct 9 Sun Oct 10	8pm 2:30pm, 8pm 2:30pm	Theater capacity: 162	No
Beatles Fest	Cowell Theater Band Shell	Fri Oct 8 Sat Oct 9	8pm 1pm. 4pm	Theater capacity: 437	No
West Wave	Cowell Theater	Mon Oct 11	8pm	Theater capacity: 437	No
Pinocchio	Young Performers Theatre	Sat Oct 9 Sun Oct 10	1pm, 3:30pm 1pm, 3:30pm	Theater capacity: 100	No
Agile Open 2010	Conference Center	Mon Oct 12 Tue Oct 13	8am-8:30pm 8:30am-5pm		No
Johnnie Walker	Herbst	Wed Oct 13 Thu Oct 14 Fri Oct 15 Sat Oct 16	5:00pm-10pm Nightly	150	No

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Tribal Art Show	Fleet Room	Fri Oct 15 Sat Oct 16 Sun Oct 17	6pm-9pm 11am-7pm 11am-5pm	300	No
BATS Improv	Bayfront Theatre	Fri Oct 15 Sat Oct 16	8pm 8pm	Theater capacity: 200	No
The Brothers Size	Magic Theatre	Fri Oct 15 Sat Oct 16 Sun Oct 17	8pm 8pm 2:30pm	Theater capacity: 162	No
Keep Her Safe	Cowell Theater	Sat Oct 16 Sun Oct 17	8pm 1pm	Theater capacity: 437	No
Title Nine Sale	Herbst Pavilion	Thu Oct 21 Fri Oct 22 Sat Oct 23 Sun Oct 24	9am-9pm	1000 daily	No
SF Open Studios 2006	Conference Center Gatehouse Bldg. C Fleet Room	Fri Oct 22 Sat Oct 23 Sun Oct 24	11am-6pm 11am-6pm	800	No
BATS Improv	Bayfront Theatre	Fri Oct 22 Sat Oct 23	8pm 8pm	Theater capacity: 200	No
Dracula School for Vampires	Young Performers Theatre	Sat Oct 23 Sun Oct 24	1pm 1pm, 3:30pm	Theater capacity: 100	No
LIKHA-Philipino Folk Ensemble	Cowell Theater	Sat Oct 23	2pm, 7pm	Theater capacity: 437	No
E2's 10th Anniversary Celebration & Symposium	Cowell Theater	Thu Oct 28	10am-4:30pm	Theater capacity: 400	No
SF Fall Antiques Show	Festival / Firehouse	Wed Oct 27 Thu Oct 28 Fri Oct 29 Sat Oct 30 Sun Oct 31	7pm-10pm 10am-7pm 10am-7pm 10am-7pm 12pm-6pm	1,000 / gala 1,100 / per day	Valet: Lot E, So .Bldg D & E (wed only) Lot E daily
International Vintage Poster Fair	Conference Cneter	Fri Oct 29 Sat Oct 30 Sun Oct 31	5pm-9pm 10am-7pm 11am-6pm	300 / per day	No
Halloween Party 2010	Herbst Pavilion	Sat Oct 30	8pm-1am	1500	No
Dracula School for Vampires	Young Performers Theatre	Sat Oct 30 Sun Oct 31	1pm 1pm, 3:30pm	Theater capacity: 100	No
BATS Improv	Bayfront Theatre	Sat Oct 30 Sun Oct 31	8pm 8pm	Theater capacity: 200	No

To: Staff/Residents
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Event Title	Venue Location	Event Days	Event Times	Attendance	Parking Services / Lot Staff
Forensics Computer Expo	Herbst Pavilion	Mon Nov 1 Tue Nov 2	10am-7pm 10am-7pm	750	No
Food Buzz	Herbst Pavilion	Fri Nov 5	6-9pm	300	No
Practice Fusion Conference	Cowell Theater	Fri Nov 5	10:30am-5:30pm	Theater capacity: 437	No
Off The Grid	FMC Parking Lot	Fri Nov 5	5pm-9pm	800	Main Parking lot front of building C
SF Ski & Snowboard Festival	Festival Pavilion	Sat Nov 6 Sun Nov 7	11am-8pm 11am-6pm	3,000	No
Magic Theatre Or	Magic Theatre	Sat Nov 6 Sun Nov 7	8pm 2:30pm	Theater capacity: 168	No
Dracula's School For Vampires	Young Performers Theatre	Sat Nov 6 Sun Nov 7	1pm 1pm, 3:30pm	Theater capacity: 100	No
BATS Improv	Bayfront Theatre	Fri Nov 5 Sat Nov 6	8pm 8pm	Theater capacity: 200	No
US Half Marathon San Francisco	Aquatic Park to Marin County	Sun Nov 7	7:00am-10:00am	High Volume	car entrance to FMC could be impacted as walkers pass by
Cowell Theater West Wave	Cowell Theater	Sun Nov 7 Mon Nov 8	8pm-10pm 8pm-10pm	Theater capacity: 437	No
The Global Summit II	Herbst Pavilion	Mon Nov 8 Tue Nov 9 Wed Nov 10	9am-6pm	250	No
Off The Grid	FMC Parking Lot	Fri Nov 12	5pm-9pm	800	Main Parking lot front of building C
Theatre Flamenco: Una Nota Flamenca	Cowell Theater	Fri Nov 12 Sat Nov 13 Sun Nov 14	8pm 8pm 2:00pm	350	No
Dracula's School For Vampires	Young Performers Theatre	Sat Nov 13 Sun Nov 14	1pm 1pm, 3:30pm	Theater capacity: 100	No
Magic Theatre Or	Magic Theatre	Sat Nov 13 Sun Nov 14	2:30pm , 8pm 2:30pm,	Theater capacity: 320	No
BATS Improv	Bayfront Theatre	Sat Nov 13 Sun Nov 14	8pm 8pm	Theater capacity: 200	No
BCBG & Ella Moss Sample Sale	Fleet Room	Sat Nov 13	10-3pm	200	No
Bay Area Brew Fest	Festival Pavilion	Sat Nov 13 Sun Nov 14	1-4pm	1000	No
Fall Luxury Chocolate Salon	Conference Center	Sun Nov 14	10am-5pm	1,000	No
Sencha Users	Herbst Pavilion	Tues Nov 16	4pm-11pm	500	No

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North Face Seminar	Cowell Theater	Tues Nov 16	TBD	Theater capacity: 437	No
Pachamama Luncheon	Festival Pavilion	Wed Nov 17	12-3:30pm	2,000	No
Lines Ballet	Cowell Theater	Wed Nov 17 Thur Nov 18	8pm 8pm	Theater capacity: 437	No
SF Peer Resources Conference	Conference Center C Building Fleet Room	Thu Nov 18	8am-5pm	250	No
Off The Grid	FMC Parking Lot	Fri Nov 19	5pm-9pm	800	Main Parking lot front of building C
BevMo! Holiday Beer Fest	Herbst Pavilion	Sat Nov 20	5:30pm-9pm	1000	No
SF Vitners Market	Festival Pavilion	Sat Nov 20 Sun Nov 21	1pm-5pm public 11am-1pm trade/media	3000	No
Encounters: New Moon Silk Road	Cowell Theater	Sat Nov 20 Sun Nov 21	Sat 8pm Sun 3pm	Theater capacity: 168	No
Magic Theatre Or	Magic Theatre	Sat Nov 20 Sun Nov 21	2:30pm , 8pm 2:30pm,	Theater capacity: 168	No
BATS Improv	Bayfront Theatre	Sat Nov 20 Sun Nov 21	8pm 8pm	Theater capacity: 200	No
SF Birth and Baby Fair	Herbst Pavilion	Sun Nov 21	10-5pm	1,000	No
Celebration of Craftswomen	Herbst Pavilion	Sat Nov 27 Sun Nov 28	10-5pm 10-5pm	900	No
Guardman Christmas Tree Lot	Festival Pavilion	Sat Nov 27 thru Sun Dec 18	open daily	200	No
Magic Theatre Or	Magic Theatre	Sat Nov 27 Sun Nov 28	2:30pm , 8pm 2:30pm,	Theater capacity: 168	No
BATS Improv	Bayfront Theatre	Sat Nov 27 Sun Nov 28	8pm 8pm	Theater capacity: 200	No
San Francisco Crystal Fair	Conference Center	Sat Nov 27 Sun Nov 28	Sat 10-6pm Sun 10-4pm	100	No

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 January 2011



Event Title	Venue Location	Event Days	Event Times	Attendance	Parking Services / Lot Staff
Guardman Christmas Tree Lot	Festival Pavilion	Sat Nov 27 thru Sun Dec 18	open daily	200	Reserved parking Lot 1 (east of Bldg. E) Sat Dec 4, Sun Dec 5, Sat Dec 11, Sun Dec 12
CCSF Fort Mason Art Campus Student Art Exhibit & Sale	Bldg. B	Fri Dec 3 Sat Dec 4 Sun Dec 5	Fri 6pm-9pm Sat 11:30-5pm Sun 11:30-5pm	100 / day	No
Celebration of Craftswomen	Herbst Pavilion	Sat Dec 4 Sun Dec 5	10am-5pm 10am-5pm	900	No
BATS Improv	Bayfront Theatre	Fri Dec 3 Sat Dec 4	8pm 8pm	Theater capacity: 200	No
Magic Theatre: Or	Magic Theatre	Fri Dec 3 Sat Dec 4 Sun Dec 5	8pm 2:30pm, 8pm 2:30pm	Theater capacity: 162	No
Hi-Ho Silver	Conference Center Marina Room	Fri Dec 3 Sat Dec 4 Sun Dec 5	11-4pm 10am-4pm 11am-4pm	100 / day	No
City Dance Studios Student Performance	Cowell Theater	Sat Dec 4	8pm	250	No
SF Bay Area Metal Clay Guild Holiday Sale	Gatehouse	Sat Dec 4	10am-5pm	200	No
Gilt City SF Warehouse Sale	Fleet Room	Sat Dec 4	10-6pm	300	No
RISD Holiday Arts & Crafts Sales	Conference Center	Sun Dec 5	9:30am-5pm	300	No
Peter Pan	Young Performers Theatre	Sat Dec 4 Sun Dec 5	1pm, 3:30pm 1pm, 3:30pm	Theater capacity: 100	No
Shecky's Girls Night Out	Herbst Pavilion	Thu Dec 9 Fri Dec 10	5-10pm 5-10pm	200	No
Joyful Noise Lorraine Hansberry	Southside Theater	Fri Dec 10 Sat Dec 11 Sun Dec 12	8pm 8pm 4pm	Theater capacity: 168	No
The Nutcracker City Ballet School	Cowell Theater	Sat Dec 11 Sun Dec 12	7pm 2pm, 7pm 2pm, 7pm	400	No
BATS Improv	Bayfront Theatre	Fri Dec 10 Sat Dec 11	8pm 8pm	Theater capacity: 200	No
Bazaar Bizarre	Herbst Pavilion	Sat Dec 11 Sun Dec 12	12pm-10pm 12pm-6pm	Theater capacity: 437	No
Peter Pan	Young Performers Theatre	Sat Dec 11 Sun Dec 12	1pm, 3:30pm 1pm, 3:30pm	Theater capacity: 100	No
25th Annual Tibet Day	Conference Center	Sat Dec 11	11am-10:30pm	300	No

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West Wave	Cowell Theater	Mon Dec 13	8pm	Theater capacity: 437	No
Hi-Ho Silver	Gatehouse	Sat Dec 18 Sun Dec 19	11am-5pm 10am-4pm	100 / day	No
Joyful Noise Lorraine Hansberry	Southside Theater	Fri Dec 17 Sat Dec 18 Sun Dec 19	8pm 8pm 4pm	Theater capacity: 162	No
Yaelisa and Caminos	Cowell Theater	Fri Dec 17 Sat Dec 20 Sun Dec 21	8pm 8pm 2pm	Theater capacity: 437	No
Guardsmen Holiday Party	Festival Pavilion	Sat Dec 18	8pm-2am	1500	No
Peter Pan	Young Performers Theatre	Sat Dec 18 Sun Dec 19 Mon Dec 20 Tues Dec 21	1pm, 3:30pm	Theater capacity: 100	No
Joyful Noise Lorraine Hansberry	Southside Theater	Fri Dec 24 Sun Dec 26	2pm 4pm	Theater capacity: 162	No
BATS Improv New Year's EveSpecial	Bayfront Theatre	Fri Dec 31	8-10pm	Theater capacity: 200	No
Joyful Noise Lorraine Hansberry	Southside Theater	Fri Dec 31	2pm 7pm	Theater capacity: 162	No
San Francisco NYE	Festival Pavilion	Fri Dec 31	9pm-2am	2000	No

JANUARY 2011

PAWS for Laughter Benefit	Southside Theater	Sat Jan 15	8pm-11pm	162	No
Walk for Life	Festival Pavilion	Sat Jan 22	2pm-5:30pm	5,000	No
Good Eats & Zin	Herbst Pavilion	Thur Jan 27	6pm-9pm	1,200	No
ZAP	Festival Herbst Pavilions	Sat Jan 29	2pm-5pm	7,000	No
Fine Print Fair	Conference Center Building A	Fri Jan 28 Sat Jan 29 Sun Jan 30	6pm-9pm 10am-6pm 11am-5pm	300	No

APPENDIX A

Alternatives Considered but Dismissed

Appendix A summarizes the alternatives considered and dismissed from further analysis. It details the alternatives that were developed during the scoping of this project, graphic representations, and the rationale for dismissal. The section concludes with the screening criteria tables.

ALTERNATIVES CONSIDERED AND DISMISSED

In-Street Segment Alternatives Dismissed

Alignment Option 1: Promenade and Beach Street

Description of Alternative. Alignment Alternative Option 1 would use more of the historic State Belt Railroad alignment than any other of the alternatives. See **Figure A-1** for an illustration of the alignment option.

Westbound. This alignment alternative would begin from the existing streetcar tracks at Jefferson Street and Jones Street within the historic State Belt Railroad alignment, and continue westbound on Jefferson Street in a single-track configuration. The alignment option would continue within the historic State Belt Railroad alignment along the Promenade, past the Maritime Museum, through the Fort Mason Tunnel, to a terminal at Fort Mason.

Eastbound. In the eastbound direction, this alignment alternative would travel through the Fort Mason Tunnel, and then transition on the east side of the tunnel from the historic State Belt Railroad alignment at Van Ness Avenue southward to Beach Street via one of the transition segment options, through NPS property, in a single track configuration. Alignment Option 1 would continue east on Beach Street, crossing the Hyde Street cable car line at grade, and then rejoin the existing F-line tracks at Beach Street and Jones Street.

Turnback. A “turnback” track would be included on Leavenworth Street between Jefferson Street and Beach Street, to allow streetcars to turn back in the event of blockage without affecting streetcars at the F-line terminal on Jones Street.

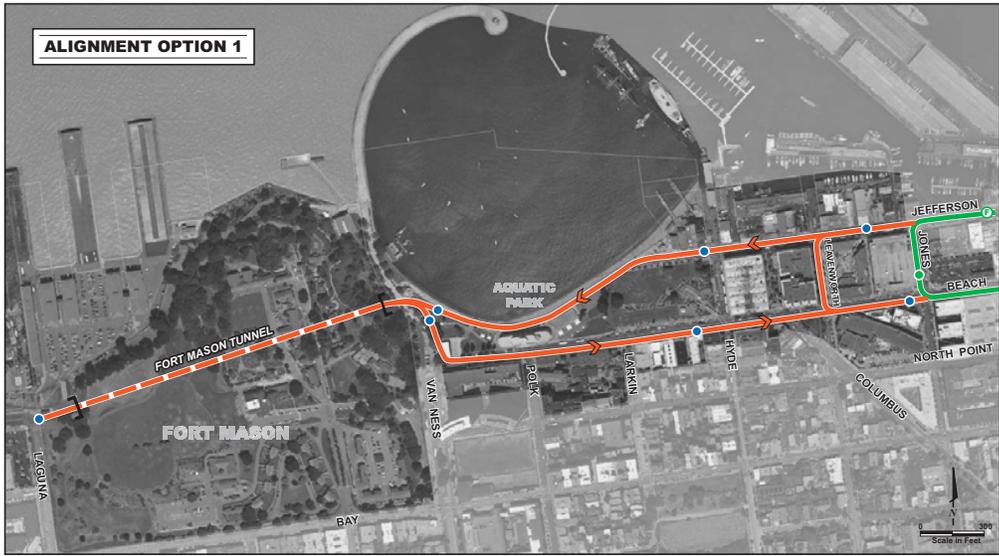
Configuration. Portions of the alternative alignment would be configured to operate either in exclusive or semi-exclusive trackway or in mixed traffic.

Reasons for Dismissal from Further Study. Option 1 was not consistent with park management objectives because it would use the waterfront Promenade for its alignment, thereby creating significant affects to the NHLD by splitting the district and introducing new visual elements to the NHLD, as well as creating streetcar conflict with existing high pedestrian and bicycle traffic on the Promenade. The Promenade/Bay Trail through Aquatic Park is also subject to storm wave over wash. This alternative was ultimately dismissed due to both infeasibility and its conflict with the purpose and need of the project.

Alignment Option 2: Victorian Park and Beach Street

Description of Alternative. Alignment Option 2 is similar to Alignment Option 1 as far as Jefferson Street and Hyde Street in the westbound direction (see **Figure A-1**).

Westbound. At Jefferson Street and Hyde Street, instead of continuing on the Promenade, this alternative alignment would leave the historic State Belt Railroad alignment, turn southward and continue at an angle through Victorian Park, reaching Beach Street approximately mid way between Larkin Street and Polk Street, where it would turn westward onto Beach Street. From this point, the alignment would be double track on Beach Street. The double track alignment would continue



Source: Wilbur Smith Associates, 2004; NPS

LEGEND

- F Market (existing)
- Fort Mason Extension (proposed)
- Platform (existing)
- Platform (proposed)



ALIGNMENT OPTIONS 1, 2 AND 3
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 Historic Streetcar Extension
 San Francisco, California

FIGURE A-1

between Beach Street and the east portal of the Fort Mason Tunnel through NPS property parallel to Van Ness Avenue via one of the transition segment options, switching to single track for the Fort Mason Tunnel, and continuing to a terminal at Fort Mason.

Eastbound. In the eastbound direction, the alignment would travel through the Fort Mason Tunnel and then transition from the historic State Belt Railroad alignment at Van Ness Avenue southward to Beach Street in a double-track configuration via one of the transition segment options. The alignment would continue east on Beach Street, crossing the Hyde Street cable car line at grade, and then rejoin the existing streetcar tracks at Beach Street and Jones Street.

Turnback. A turnback switch would be provided at the point where the westbound track through Victorian Park meets the eastbound track on Beach Street midway between Larkin Street and Polk Street.

Configuration. Portions of the alignment would be configured to operate either in semi-exclusive trackway, or in mixed traffic.

Reasons for Dismissal from Further Study. This option resulted in adverse affects to the National Historic Landmark District, by introducing new visual elements to the NHLD. This alignment did not meet park preservation criteria including: the potential to cause a physical effect on Aquatic Park National Historic Landmark District; potential for visual, noise or other impacts to historic and cultural facilities; and the potential to require the use of parkland for a non-park use since the alignment would cut through Victorian Park. This alternative was ultimately dismissed due to its conflict with the purpose and need of the project.

Alignment Option 4: North Point via Tunnel

Description of Alternative. Alignment Option 4 is a streetcar alternative, see **Figure A-2**. This alignment option would provide more avoidance of the park property than Alignment Options 1, 2 and 3. Additionally, this alignment option differs from Alignment Options 1, 2 and 3 in that it would be configured to operate in both directions on North Point Street between Jones Street and Van Ness Avenue and would operate in the Van Ness Avenue ROW between North Point Street and the tunnel.

Westbound. This alignment option would begin at Jefferson Street and Jones Street, and turn south onto Jones Street, parallel to the existing F-Line terminal track. The track would continue south on Jones Street to North Point Street, and the alignment option then would turn west onto North Point Street. Because of the existing F-line terminal on Jones Street, this alignment option would require two southbound tracks on Jones Street to allow the Fort Mason streetcars to bypass streetcars at the F-line terminal, and because of track geometry limitations. This alignment option would also require two separate station platforms on Jones Street between Jefferson and Beach Streets, because of the parallel tracks. One platform would be for streetcars terminating at Jones Street and would be located at the curbside on the west side of Jones Street. The second platform would be for streetcars continuing through to Fort Mason. This platform would be located towards the middle of Jones Street.



Source: Wilbur Smith Associates, 2004; NPS

LEGEND

- F Market (existing)
- Platform (existing)
- Fort Mason Extension (proposed)
- Platform (proposed)
- 10-Townsend (existing)
- Bus Stop (existing)
- 10-Townsend (proposed)
- Bus Stop (proposed)



ALIGNMENT OPTIONS 4, 4A, AND 5

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FIGURE A-2

The alignment option would then curve west onto North Point Street. The alignment then would continue in a double track configuration on North Point Street to Van Ness Avenue, where the alignment would turn north on Van Ness Avenue. The alignment along Van Ness Avenue switches to single track close to the tunnel portal, and continues through the tunnel to a terminal at Fort Mason.

Eastbound. From the terminal at Fort Mason, this alignment option would begin as single track through the tunnel, then switch, double track east of the tunnel portal and would use the same path travelling westbound as far as Jones Street and Beach Street, where the eastbound track turns east onto Beach Street to rejoin the existing streetcar tracks. Portions of the alignment that are in public street ROW could be configured to operate either in semi-exclusive trackway, or in mixed traffic.

Reasons for Dismissal from Further Study. The San Francisco MTA Office of Health and Safety requested the elimination of Alignment Option 4: North Point via Tunnel from further consideration. San Francisco MTA stated that operation of the historic streetcar on Van Ness Avenue between North Point Street and the Fort Mason Tunnel would be “unacceptably hazardous” for a number of reasons, including conflicts with bicycle traffic and other transit operations, historic streetcar capability with regard to street grade, special trackwork and trackwork curvature, loading platforms and operating in mixed traffic (SFMTA 2006). This alternative was ultimately dismissed due to infeasibility.

Alignment Option 4A: North Point via Bay

Description of Alternative. Alignment Option 4A is a streetcar alternative that responds to a comment card submitted at the May 9, 2006 Public Scoping Meeting that suggested using Bay Street in order to minimize impacts to parkland (see Figure A-2). It is similar to Alignment Option 4 as far as North Point Street and Van Ness Avenue, but differs in that it would not use the Fort Mason Tunnel between Van Ness Avenue and Fort Mason, but instead would use Bay Street.

Westbound. This alignment alternative is the same alignment as Alignment Option 4 east of Van Ness Avenue (as described above). From North Point Street and Van Ness Avenue the double track alignment would turn south on Van Ness Avenue to Bay Street, west on Bay Street to Laguna Street, north on Laguna Street to Marina Boulevard, to a terminal at Fort Mason.

Eastbound. This alignment option would be double track in configuration, therefore in the eastbound direction, this alignment would use the same path travelling westbound as far as Jones Street and Beach Street, where the eastbound track would then turn east onto Beach Street to rejoin the existing F-Line streetcar tracks. Portions of the alignment that are in public street ROW would be configured to operate either in semi-exclusive trackway, or in mixed traffic.

Reasons for Dismissal from Further Study. This alternative received a very low rating for operability. This alternative posed potential for conflict with major bike or pedestrian flows, and did not directly serve NPS facilities. There was also concern with streetcars stacking up at Jones Street before continuing on to Fort Mason Center. This alternative was ultimately dismissed due to both infeasibility and its conflict with the purpose and need of the project.

Alignment Option 5: Motor Coach via Bay

Description of Alternative. Alignment Option 5 is a motor coach alternative that would be an extension of the current Muni 10-Townsend local bus line (see Figure A-2). The 10-Townsend currently operates from the Caltrain Terminal to North Point Street and Van Ness Avenue via Transbay Terminal, and the Sansome/Battery couplet. The buses operate on North Point Street from the Embarcadero to Van Ness Avenue, and terminate on Van Ness Avenue north of North Point Street.

Westbound. This alignment would extend the westbound (inbound) 10-Townsend via Van Ness Avenue, Bay Street and Buchanan Street to Fort Mason.

Eastbound. In the eastbound direction, the alignment option would travel from Fort Mason onto Marina Boulevard, Laguna Street, Bay Street, Van Ness Avenue, and rejoin the existing 10-Townsend route at Van Ness Avenue and North Point Street.

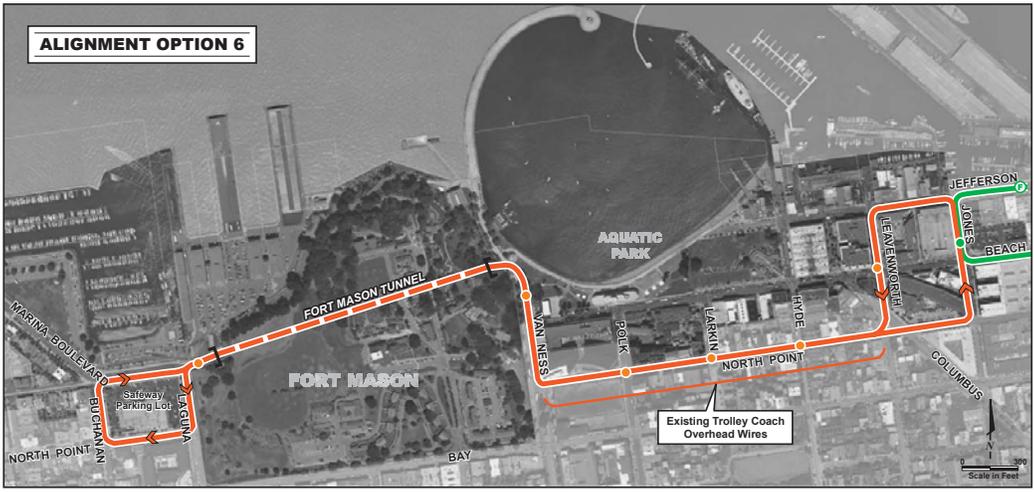
Reasons for Dismissal from Further Study. Option 5 was dismissed during the initial stages of the Feasibility Study because it did not respond to the purpose of the project of providing a mass transit rail connection. This alternative scored low in the alternatives screening for its ability to connect NPS sites directly to traffic generators along the northern waterfront cultural and recreation corridor and would not connect directly to the current historic streetcar. The motor coach alternatives would also be associated with higher air quality impacts which made this alternative less desirable. Another concern with the 10-Townsend is that its schedule is more limited than the F-line, it ends service at 8:00 p.m. There was also a concern that expanding service on the 10-Townsend to match F-Line service would be too costly because transfers from the F-line to the 10 required out of direction movement that would cause drops in ridership and many tourists would not know where to go to make this transfer. Lastly, SFMTA's Transit Effectiveness Project recommendations propose discontinuing the 10-Townsend in the future. This alternative was ultimately dismissed due to both infeasibility and its conflict with the purpose and need of the project.

Alignment Option 5A: Motor Coach via Tunnel

Description of Alternative. Alignment Option 5A is a motor coach alternative that would be an extension of the current 10-Townsend local bus line from the current terminal at Van Ness Avenue and North Point Street, similar to Alignment Option 5, except that it would operate via the Fort Mason Tunnel between Van Ness Avenue and Fort Mason instead of Bay Street. **Figure A-3** illustrates Alignment Option 5A. This alignment option would require the installation of two special systems – the first would be a ventilation system in the tunnel that could evacuate the motor coach exhaust to a safe level and maintain the air quality. The second would be a signal system that would control access to the tunnel for buses so that only buses going in one direction could enter the tunnel at a time, and also provide spacing between buses in the same direction. This type of signaling system is common in rail applications, but is not a standard item for motor coach operations.

Westbound. This alternative would extend the westbound (inbound) 10-Townsend via Van Ness Avenue continuing northward and through the Fort Mason tunnel, terminating at Fort Mason.

Eastbound. In the eastbound direction, the alignment option would be configured to operate in the reverse of the westbound route, as described above.



Source: Wilbur Smith Associates, 2004; NPS

LEGEND

 10-Townsend (existing)	 F Market (existing)
 Bus Stop (existing)	 Platform (existing)
 10-Townsend (proposed)	 New Trolley Coach Line
 Bus Stop (proposed)	 Bus Stop (proposed)



ALIGNMENT OPTIONS 5A, 6, AND 6A

Environmental Impact Statement
Historic Streetcar Extension
San Francisco, California

FIGURE A-3

Reasons for Dismissal from Further Study. This alternative was rated low in the alternatives screening for its ability to connect NPS sites directly to traffic generators along the northern waterfront cultural and recreation corridor and would not connect directly to the current historic streetcar. This alternative was also rated low for operability. Another concern with the 10-Townsend is that it ends service at 8:00 p.m. Lastly, SFMTA’s Transit Effectiveness Project recommendations propose discontinuing the 10-Townsend in the future. This alternative was ultimately dismissed due to both infeasibility and its conflict with the purpose and need of the project.

Alignment Option 6: Trolley Coach via Tunnel

Description of Alternative. Alignment Option 6 is a trolley coach alternative that consists of a new trolley coach line connecting to the current F-line at Jones Street and Beach Street, see Figure A-3. This alignment option requires the construction of new overhead trolley coach wire, except where the alignment uses existing trolley coach wire on North Point Street between Columbus Avenue and Van Ness Avenue. Like the Alignment Option 5A, this alignment option would also require a signal system that would control access to the tunnel for buses so that only buses going in one direction could enter the tunnel at a time, and also provide spacing between buses in the same direction.

Westbound. In the westbound direction, the line would operate from the current terminal of the F-line at Jones and Beach Streets via Jones Street, Jefferson Street, Leavenworth Street, North Point Street, and Van Ness Avenue to the Fort Mason Tunnel, and then to a terminal at Fort Mason.

Eastbound. In the eastbound direction, the line would operate the reverse of the westbound route (described above) to North Point Street and Leavenworth Street, and then continue on North Point Street to Jones Street, then via Jones Street to the terminal at Beach Street.

Reasons for Dismissal from Further Study. This alternative did not meet the purpose of the project of providing a mass transit rail connection. It did not meet the purpose and need criteria for its ability to connect NPS sites directly to traffic generators along the northern waterfront cultural and recreation corridor and it does not connect directly to the current historic streetcar, nor would it increase ridership to NPS sites or improve connectivity for transit-dependent residents. This alternative was ultimately dismissed due to both infeasibility and its conflict with the purpose and need of the project.

Alignment Option 6A: Trolley Coach via Bay

Description of Alternative. Alignment Option 6A is a trolley coach alignment that consists of a new trolley coach line connecting to the current F-line, see Figure A-3.

Westbound. This alignment option is similar to Alignment Option 6 east of Van Ness Avenue, but reaches Fort Mason via Van Ness Avenue, Bay Street, Buchanan Street and Marina Boulevard instead of via the Fort Mason Tunnel.

Eastbound. In the eastbound direction, it would operate via Marina Boulevard, Laguna Street, Bay Street, Van Ness Avenue, and rejoin the existing route at Van Ness Avenue via North Point Street to Jones Street, then via Jones Street to a terminal at Beach Street.

Reasons for Dismissal from Further Study. This alternative did not meet the purpose and need criteria for its ability to connect NPS sites directly to traffic generators along the northern waterfront cultural and recreation corridor and it does not connect directly to the current historic streetcar, nor would it increase ridership to NPS sites or improve connectivity for transit-dependent residents. This alternative was ultimately dismissed due to its conflict with the purpose and need of the project.

Transition Segment Alternatives Dismissed

In-street segments 1 and 2 require traversing NPS property between approximately Beach and Polk Streets and the Van Ness Avenue portal of the Fort Mason Tunnel, in an area known as the “transition.”

Transition Segment #E-3A (1)

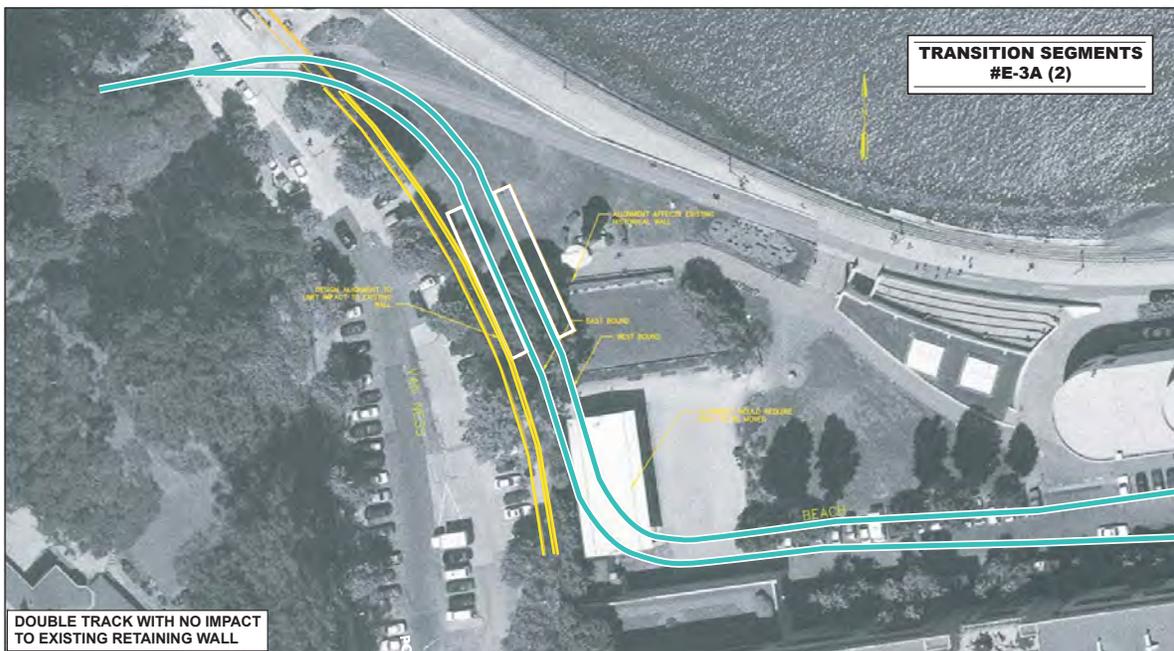
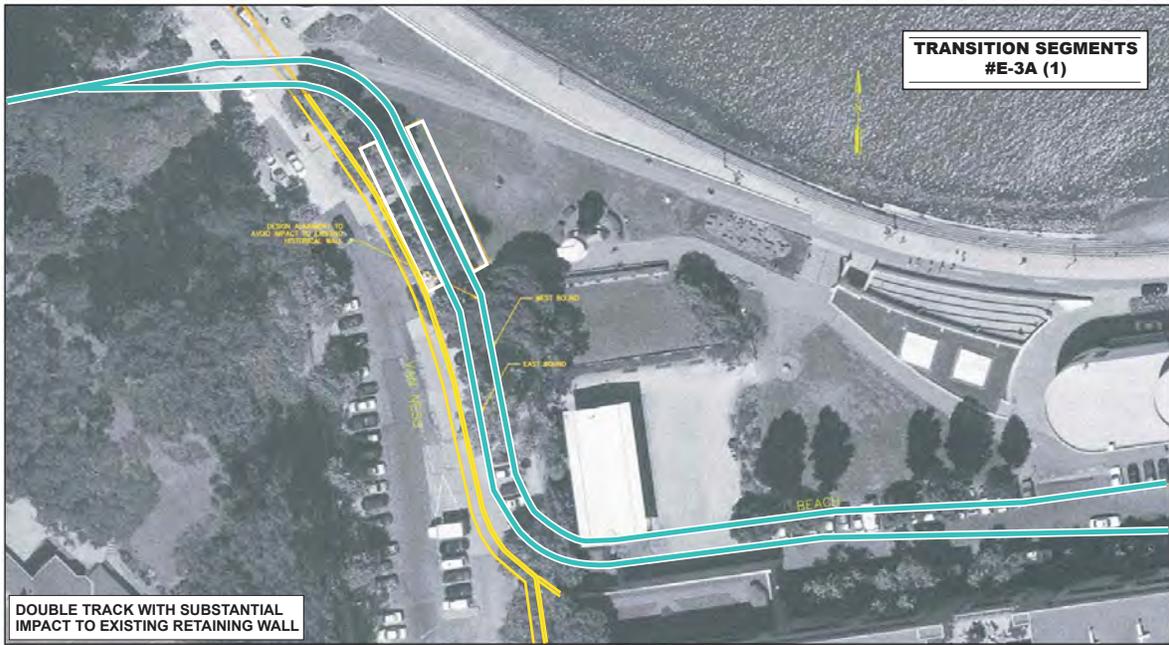
Description of Alternative. Transition Segment Option #E-3A(1) would stretch from the Fort Mason tunnel east portal to Polk Street in an inverted S-curve shape. The design proposes a double-track alignment with an interlocked track at the entrance to the Fort Mason tunnel (**Figure A-4**). This option would accommodate a dual-side platform station, which would be located parallel to the existing retaining wall on the Van Ness Avenue. The existing retaining wall would not be impacted due to the placement of the platforms and the alignment, (unlike Transition Segment Option #2); however, some modifications might be necessary. Under this alignment, the existing bocce court on NPS property (at the western end of Beach Street) would have to be removed and relocated to accommodate the streetcar tracks.

Reasons for Dismissal from Further Study. The transition segment #E-3A (1), developed for the Feasibility Study, was refined in consultation with the project’s TAC and other stakeholders. Transition Segment #E-3A (1) and Transition Segment #E-3A(2) were combined, renamed the Transition Segment Area and are now part of the proposed project.

Transition Segment #E-3A (2)

Description of Alternative. Transition Segment Option #E-3A(2) would stretch from the Fort Mason tunnel east portal to Polk Street in an inverted S-curve shape. The design proposes a double-track alignment with an interlocked track at the entrance to the Fort Mason tunnel, similar to Option 1 (**Figure A-4**). This option would accommodate a dual-side platform station, which would be located parallel to the existing retaining wall on Van Ness Avenue, north of Option 1 platforms. The existing retaining wall would be substantially impacted due to the platform and alignment design, compared to Transition Segment Option #2. However, the existing bocce court on NPS property (at the western end of Beach Street) would not be removed and relocated.

Reasons for Dismissal from Further Study. The transition segment #E-3A (2), developed for the Feasibility Study, was refined in consultation with the project’s TAC and other stakeholders. Transition Segment #E-3A (1) and Transition Segment #E-3A(2) were combined, renamed the Transition Segment Area and are now part of the proposed project.



Source: NPS



TRANSITION SEGMENTS
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FIGURE A-4

Aquatic Park Transition Segment B2

Development of Alternative. This alternative was developed following revisions to the #E-3A (1) and (2). California Public Utilities Commission (CPUC) regulations precluded locating the switch (the transition between double tracks and single tracks) in the sidewalk area due to the high volume of bikes in the area. SFMTA staff suggested that the optimal location would be on the east side of Van Ness Avenue not in the street ROW or in the sidewalk area. SFMTA staff recommended that the westbound platform near Van Ness Avenue be moved to the far side of the walkway so that the platform would be closer to the end of the double track. The NPS preferred to transition the single track east of Van Ness Avenue to avoid intersecting the Bay Trail.

Reasons for Dismissal from Further Study. The Transition Option B2 design located the switch on the west side of Van Ness Avenue, the westbound platform was sited inside the contributing area of the Aquatic Park NHL and the tracks intersected with the Bay Trail creating such unsafe conditions for pedestrians and bicycles that a detour of the bay trail was required. Option B2 was not promoted by members of the public or agencies. It did not conform to SFMTA or San Francisco Maritime NHP management objectives and was not supported by the TAC for technical reasons.

Turnaround Segment Alternatives Dismissed

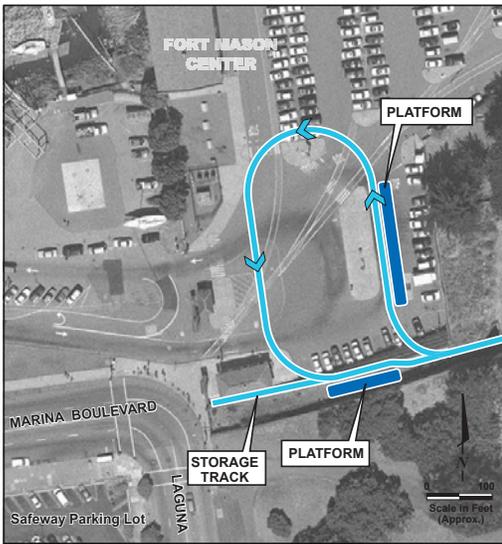
Turnaround Option 1: Fort Mason Loop

Description of Alternative. The turnaround option, as shown on **Figure A-5**, would be in the Fort Mason Center parking lot, east of the Fort Mason gates. The turnaround option would operate in a counter-clockwise loop and would bisect the parking control gates as well as cross over the historic trackwork (known as the Ladder Tracks). The turnaround option would have a minimal footprint, in comparison to Turnaround Option 2 and would include a spur track for layovers and storage. The turnaround option includes two platforms: a boarding platform to the east of the storage track, which would be sized for one streetcar, and a passenger drop-off platform on the eastern side of the loop which could accommodate two streetcars.

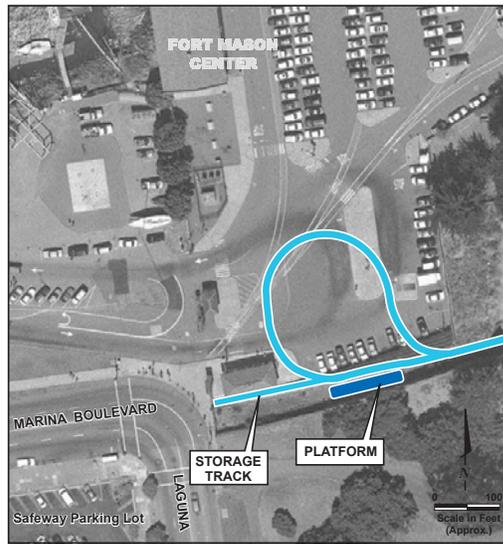
Reasons for Dismissal from Further Study. This alternative presented potential for conflict with automobiles, bicycle or pedestrian flows and had the potential to affect existing park facilities and operations. It was also vulnerable to delay and had potential for interference with traffic flow/patterns in an already congested area. This alternative was ultimately dismissed due to both infeasibility and its conflict with the purpose and need of the project.

Turnaround Option 2: Fort Mason Short Loop

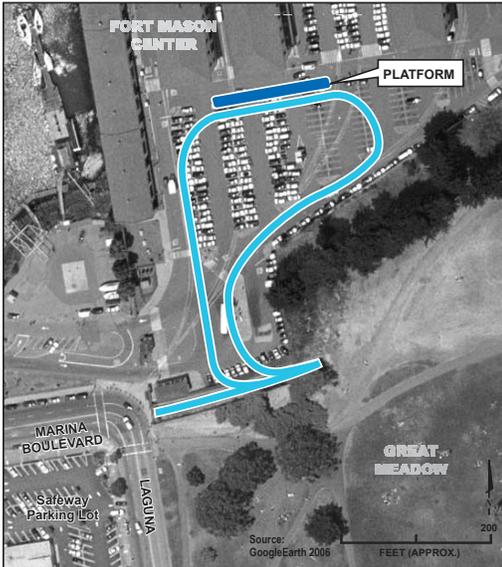
Description of Alternative. This Option would be a loop north of the existing trackway, in the current Fort Mason parking lot, but shorter than Option 1, with less room available for cars. One platform would be provided. A storage track would be created extending west from the loop, adjacent to the Guardhouse.



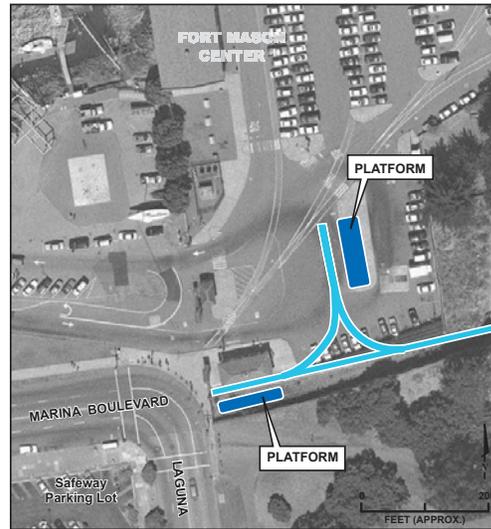
TURNAROUND OPTION 1: FORT MASON LOOP



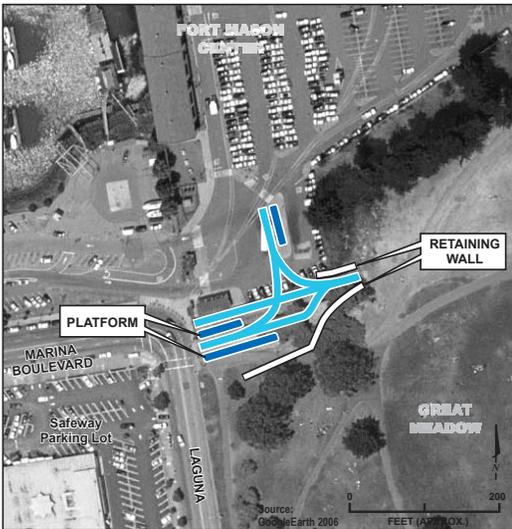
TURNAROUND OPTION 2: FORT MASON SHORT LOOP



TURNAROUND OPTION 4: EAST-WEST LOOP



TURNAROUND OPTION 5: NORTH WYE



TURNAROUND OPTION 6: NORTH WYE - TWO TRACKS

TURNAROUND OPTIONS 1, 2, 4, 5, AND 6

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FIGURE A-5

Reasons for Dismissal from Further Study. This option lacks an outbound drop off platform and a layover area. This alternative was ultimately dismissed due to operational concerns.

Turnaround Option 4: East-West Loop

Description of Alternative. The turnaround option consists of a large counter-clockwise loop within Fort Mason Center parking lot on NPS property, as shown on Figure A-5. The turnaround option would have one platform and a storage track, which would extend to Laguna Street on the historic State Belt Railroad alignment. In contrast to most of the other turnaround options, the platform would be oriented east-west instead of north-south.

Reasons for Dismissal from Further Study. This alternative was rated low because of technical problems and failure to meet park management objectives because of high potential for visual, noise, or other adverse impacts on NHLD; potential for conflict with automobile, bicycles or pedestrian flow; and the utility of turnaround track after extension. This alternative was ultimately dismissed due to both infeasibility and its conflict with the purpose and need of the project.

Turnaround Option 5: North Wye

Description of Alternative. This turnaround option is named for its (“wye”) shaped track north of the main running track, as shown in Figure A-5. The turnaround option would be in the Fort Mason gates on NPS property, and has a minimal footprint that would avoid the historic ladder tracks, but would offer no storage capability. There would be two platforms – one on the historic State Belt Railroad alignment close to Laguna Street for boarding and the other south of the historic ladder tracks for alighting.

Reasons for Dismissal from Further Study. This alternative was eliminated from further consideration because the “wye” turnaround options do not meet SFMTA’s operational requirements. Adequate car capacity was a concern with this alternative. Additionally, compared to the terminal loop options, the “wye” configurations would have higher costs associated with the track switch maintenance, and require the streetcars to move through the switches six times (versus two times with a loop option). The increase in movements through the switches would also increase the probability for track switch failure or overhead contact system failure (SFMTA 2009b). This alternative also lacks layover or storage tracks. This alternative was ultimately dismissed due to infeasibility.

Turnaround Option 6: North Wye – Two Tracks

Description of Alternative. This turnaround option is named for its “wye” shaped track north of the main running track, and additional storage track to the south, as shown on Figure A-5. The turnaround option would be in NPS property and would avoid the historic ladder tracks. There would be three platforms associated with this turnaround option: one on the historic State Belt Railroad alignment, adjacent to Laguna Street for boarding, one south of the historic State Belt Railroad alignment, adjacent to Laguna Street for boarding, and one on the northern tip of the “wye” shaped track for alighting. The existing retaining wall on the southern side will need to be moved to accommodate the third track. The turnaround option would require a retaining wall and additional earth-moving activities to accommodate the second track. This option differs from Turnaround Option 5 in that it would allow for an extra car at the terminal.

Reasons for Dismissal from Further Study. This alternative was eliminated from further consideration because the “wye” turnaround options do not meet SFMTA’s operational requirements. Additionally, compared to the terminal loop options, the “wye” configurations would have higher costs associated with the track switch maintenance, and require the streetcars to move through the switches six times (versus two times with a loop option). The increase in movements through the switches would also increase the probability for track switch failure or overhead contact system failure (SFMTA 2009b). This alternative was ultimately dismissed due to infeasibility.

Turnaround Option 7: South Wye

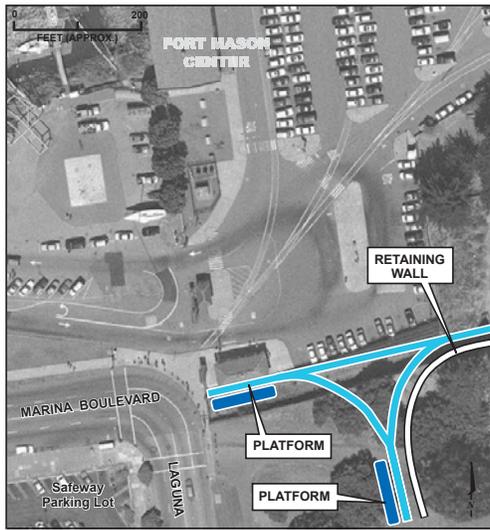
Description of Alternative. This turnaround option is named for its “wye” shaped track to the south of the main running track, as shown on **Figure A-6**. The turnaround option would be on NPS property and would not have a storage track. There would be two platforms, one on the historic State Belt Railroad alignment adjacent to Laguna Street for alighting; the other would be on the southern tip of the “wye” shaped track for boarding. This option would require a curved retaining wall across the existing Bay Trail. Considerable earth moving and grade change would be required.

Reasons for Dismissal from Further Study. This alternative was eliminated from further consideration because the “wye” turnaround options do not meet SFMTA’s operational requirements. Additionally, compared to the terminal loop options, the “wye” configurations would have higher costs associated with the track switch maintenance, and require the streetcars to move through the switches six times (versus two times with a loop option). The increase in movements through the switches would also increase the probability for track switch failure or overhead contact system failure (SFMTA 2009b). This option also lacks a layover area, storage tracks, and does not have enough room if a car needed to be towed. This alternative was ultimately dismissed due to infeasibility.

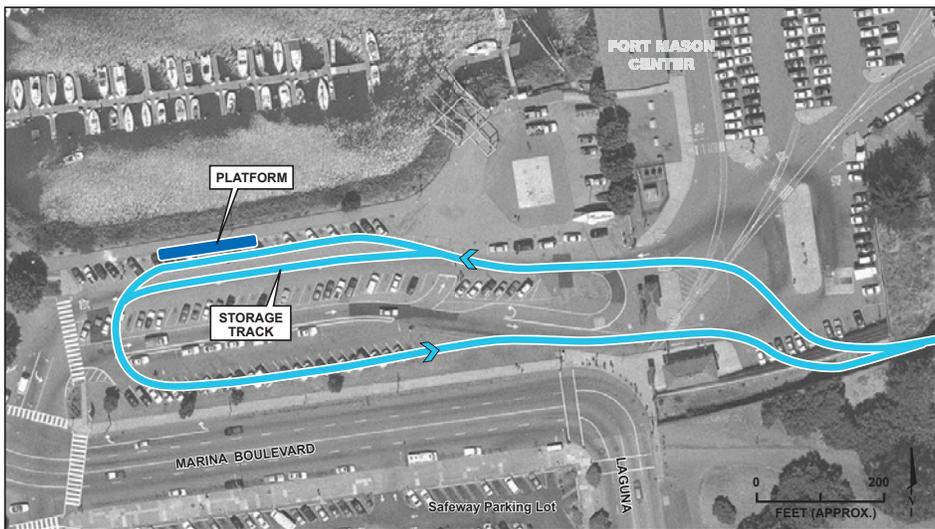
Turnaround Option 9: Fort Mason Gate Loop

Description of Alternative. This turnaround option is a counter-clockwise loop using the Gas House Cove parking lot for both directions and going through the Fort Mason gates, as shown on **Figure A-6**. This turnaround option would not be on NPS property but would offer storage capability for a streetcar through a double-track design on the northern side of the loop. There would be one platform on the northern side of the loop for boarding and alighting.

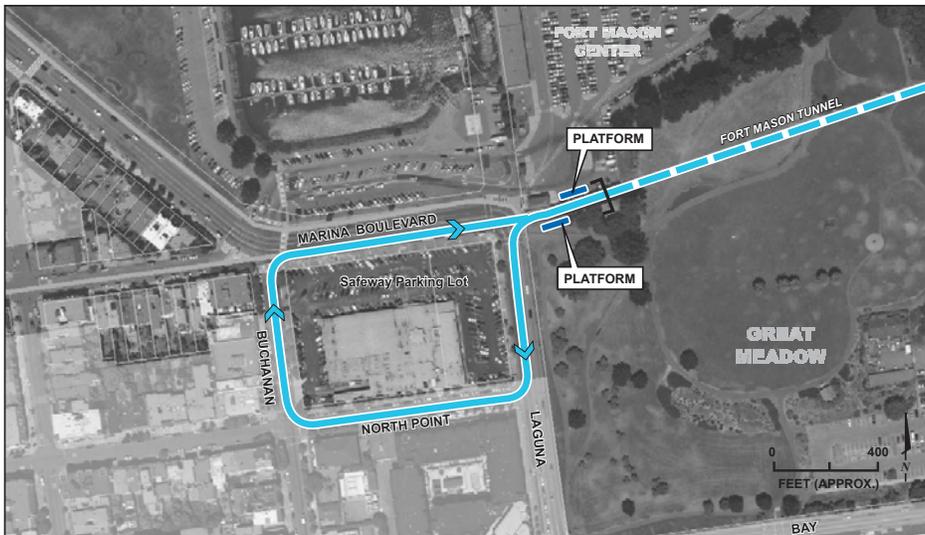
Reasons for Dismissal from Further Study. This alternative was rated low for failing to meet the following park management criteria: sensitivity of resources; potential for conflict with automobile, bicycle or pedestrian flows; affect on existing park facilities and operations. In addition it was rated low for loss of parking as it would cut through a large section of parking spaces at Fort Mason and public safety. This option is lacking a second platform for loading or needs a layover area. This alternative was ultimately dismissed due to both infeasibility and its conflict with the purpose and need of the project.



TURNAROUND OPTION 7: SOUTH WYE



TURNAROUND OPTION 9: FORT MASON GATE LOOP



TURNAROUND OPTION 10: SAFEWAY LOOP

TURNAROUND OPTIONS 7, 9, AND 10

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FIGURE A-6

Turnaround Option 10: Safeway Loop

Description of Alternative. This turnaround is a clockwise loop around the Safeway block within city street ROWs (Laguna Street, North Point Street, Buchanan Street, and Marina Boulevard), as shown on Figure A-6. This turnaround option does not include a storage track. Two platforms would be on the NPS property on the historic State Belt Railroad alignment, adjacent to Laguna Street. This option would require the installation of a rail-to-rail crossing at the intersection of Marina Boulevard and Laguna Street.

Reasons for Dismissal from Further Study. This option did not provide direct access to Fort Mason. Potential problems with this alternative included traffic delays caused by Safeway delivery trucks on North Point Street behind Safeway and by mail delivery trucks blocking Buchanan Street. This alternative was dismissed based on a low rating in the screening process. This option lacks storage tracks. This alternative was ultimately dismissed due to both infeasibility and its conflict with the purpose and need of the project.

Turnaround Option 11: Marina Loop

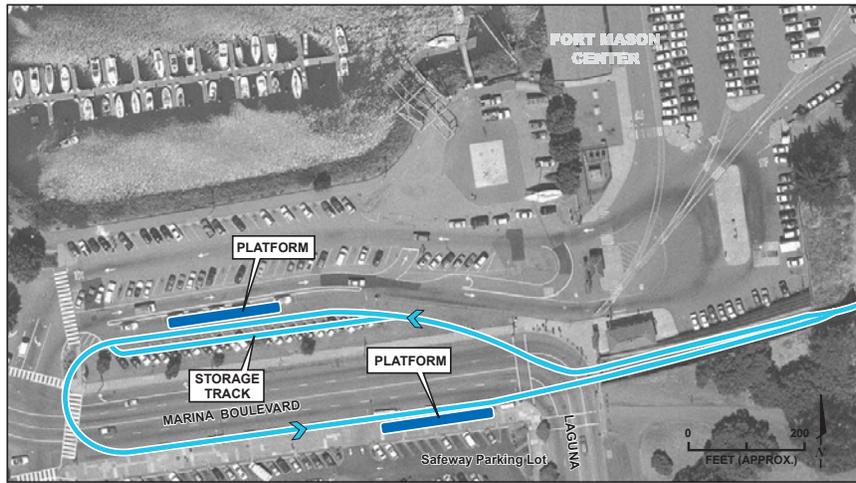
Description of Alternative. This turnaround option was initially presented at the public scoping meeting as Turnaround Option 2. The turnaround option would be a counter-clockwise loop using Gas House Cove parking lot (outbound), with inbound track on south side of Marina Boulevard (Figure A-7). The turnaround option would include a double track storage track on the northern side of the loop. There would be two platforms – one on the northern side of the loop and one on the south side of the loop near the corner of Marina Boulevard and Laguna Street. This design option would require the installation of switches and rail to rail crossings at the intersection of Marina Boulevard and Laguna Street; it would also require a signal at the intersection of Marina Boulevard and Buchanan Street, for the streetcars to exit the Gas House Cove parking lot.

Reasons for Dismissal from Further Study. This alternative was dismissed based on a low rating because it failed to meet park management objectives. This option resulted in adverse affects to the National Historic Landmark District, by introducing new visual elements to the NHL. This alternative also had public safety concerns, loss of parking and low public support. This alternative was ultimately dismissed due to its conflict with the purpose and need of the project.

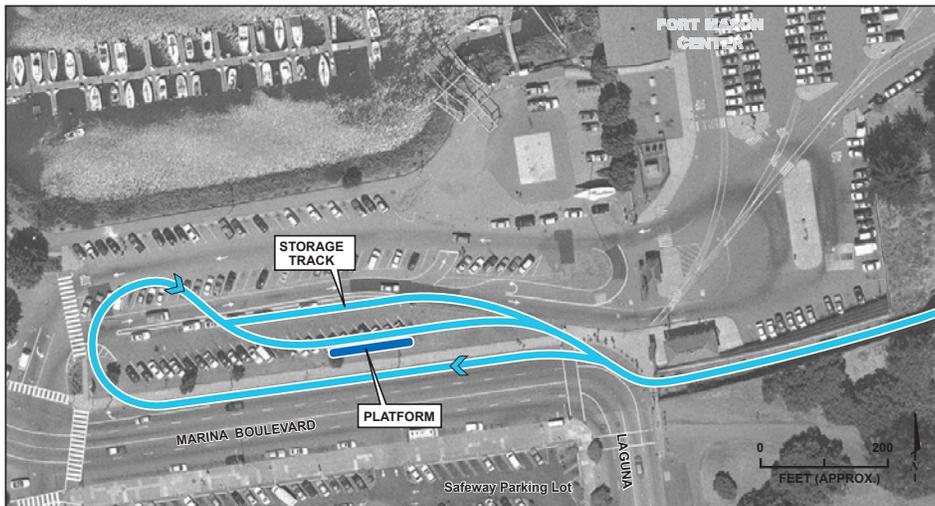
Turnaround Option 12: Small Marina Loop

Description of Alternative. This turnaround option is a clockwise loop that would use the northern side of Marina Boulevard for outbound direction, with a loop in Gas House Cove parking lot, as shown on Figure A-7. This turnaround option would not be on NPS property. A storage track would be to the north of the platform. The turnaround option would require the installation of switches at the intersection of Marina Boulevard and Laguna Street, and would require streetcars to run reverse to the street traffic on Marina Boulevard for a short segment, protected by all-way red signals.

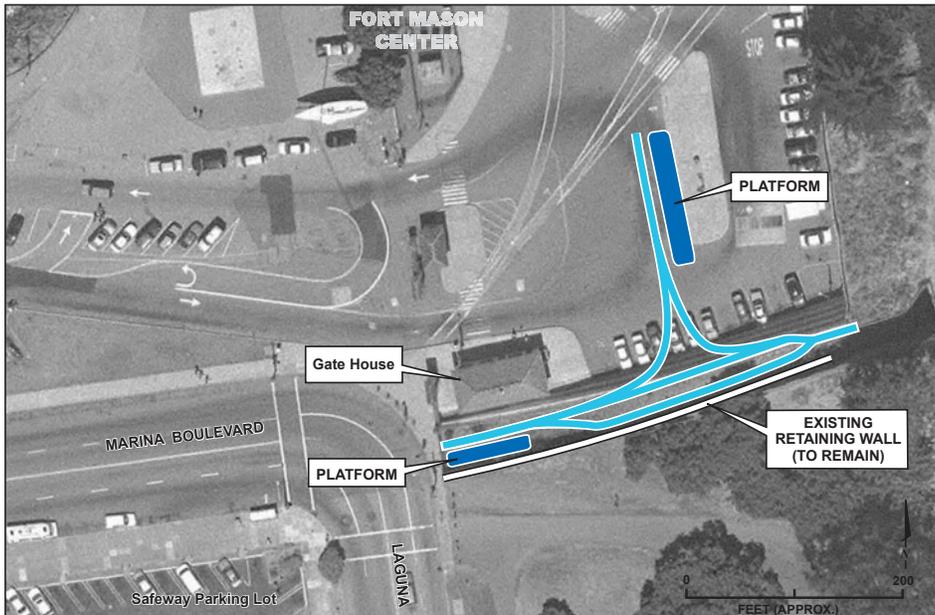
Reasons for Dismissal from Further Study. This alternative received a low rating in the screening process. This alternative also had public safety concerns, loss of parking and low public support. In addition, having only one platform in this option presents a problem with streetcar layover. This alternative was ultimately dismissed due to its conflict with the purpose and need of the project.



TURNAROUND OPTION 11: MARINA LOOP



TURNAROUND OPTION 12: SMALL MARINA LOOP



TURNAROUND OPTION RL: MODIFIED NORTH WYE - TWO TRACKS

TURNAROUND OPTIONS 11, 12, AND RL

Environmental Impact Statement
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FIGURE A-7

Fort Mason Turnaround: Modified North Wye – Two Tracks – Option RL

Description of Alternative. This turnaround option is a slightly modified version of Turnaround Option 6: North Wye – Two Tracks (see Figure A-7). The turnaround option would be a “wye” shaped track to the north of running track, with a separate double-sided turnaround or storage track to the south of the main track. Compared to Turnaround Option 6, the retaining wall would be in a different location stretching south of the tracks. The platform configuration for this turnaround option is less confusing for passengers than Turnaround Option 6. This turnaround option would be on NPS property and designed to avoid the historic ladder tracks. It requires some earth-moving to expand the ROW to accommodate a second track. It could also affect the Bay Trail.

Reasons for Dismissal from Further Study. This alternative was eliminated from further consideration because the “wye” turnaround options do not meet SFMTA’s operational requirements. Additionally, compared to the terminal loop options, the “wye” configurations would have higher costs associated with the track switch maintenance, and require the streetcars to move through the switches six times (versus two times with a loop option). The increase in movements through the switches would also increase the probability for track switch failure or overhead contact system failure (SFMTA 2009b). This alternative was ultimately dismissed due to infeasibility.

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Screening Process - Initial Screen				Streetcar Options				Motor Coach Options		Trolley Coach Options			
Category	Criteria	Measurement	Comment	Option 1 - Promenade Beach	Option 2 - Vict Park Beach	Option 3 - Beach 2-Way	Option 4 - No Pt to Tunnel	Option 4A - No Pt to Bay	Option 5 - Motor Coach via Bay	Option 5A - Motor Coach via Tunnel	Option 6 - Trolley Coach via Tunnel	Option 6A - Trolley Coach via Bay	Comment
Graded Criteria													
1	Purpose and Need	Connect NPS sites directly to traffic generators along Northern Waterfront Cultural and Recreational Corridor	Directly connect NPS sites (Alcatraz Boats, Hyde Street Pier, Argonaut Hotel/Visitor Center, Maritime Museum, Aquatic Park, Municipal Pier, Fort Mason Center) with following traffic generators within 1/2 block of alignment - AT&T Park, Pier 40 Watersports Center, Ferry Building, Pier 7, Pier 27-31, Pier 39, Tour Boats, Cable Cars.	High/Medium/Low	●	●	●	○	○	○	○	○	
					3	3	3	2	1	1	1	1	
2	Purpose and Need	Potential ridership increase	Potential for increased ridership to NPS sites.	High/Medium/Low	●	●	●	●	○	○	○	○	
					3	3	3	3	2	2	1	1	
3	Purpose and Need	Connectivity with regional transit services	Number of regional transit connections within 1/2 block of alignment - Caltrain Terminal, Ferry Building, BART, Transbay Terminal	High (3), Med (2), Low (1)	●	●	●	●	●	●	○	○	
					3	3	3	3	3	3	1	1	
4	Purpose and Need	Improved connectivity for transit-dependent residents	Number of Muni lines connected to Northern Waterfront with one transfer	High (30+ lines), Medium (20-30), Low (Less than 20)	●	●	●	●	●	●	○	○	
					3	3	3	3	3	3	1	1	
5	Purpose and Need	Historic Infrastructure	Project incorporates historic rail infrastructure	High/Low	●	●	●	○	○	○	●	●	
					3	3	3	1	1	3	3	1	Wording modified to address SFCTA issue.
6	Purpose and Need	Local transit access	Project provides enhanced local transit access for residents to downtown	High/Medium/Low	○	○	○	○	●	●	○	○	Added to address SFCTA comment.
					2	2	2	2	3	3	2	1	
7	Purpose and Need	Connectivity with current historic streetcar service	Transfers required to access F-line	High/Low	●	●	●	●	○	○	○	○	
					3	3	3	3	1	1	1	1	
Purpose and Need Subtotal				Score	20	20	20	19	17	14	15	9	7
				Total Possible	21	21	21	21	21	21	21	21	
				Percent	95%	95%	95%	90%	81%	67%	71%	43%	33%
8	Park Preservation	Impact on NHL Resources	Potential to cause a physical effect on Aquatic Park National Historic Landmark District	High/Medium/Low	○	○	○	●	●	●	●	●	Added to address NPS/SFMNHP comment
					1	1	1	3	3	3	3	3	
9	Park Preservation	Impact on the existing historic and cultural setting	Potential for visual, noise or other impacts on historic and cultural facilities.	High/Medium/Low	○	○	○	○	●	●	○	○	
					1	1	1	2	3	3	1	2	3
10	Park Preservation	4-F impact	Potential to require the use of parkland for a non-park use.	High/Medium/Low	○	○	○	●	●	○	○	○	
					1	1	2	3	3	3	2	2	3
11	Park Preservation	Access to NPS facilities	Project directly serves NPS sites with no barriers or grades for elderly/disabled access.	High/Medium/Low	●	●	●	●	○	○	○	○	
					3	3	3	3	1	1	2	2	1
12	Park Preservation	Bike and Pedestrian Impacts	Potential for conflict with major bike or pedestrian flows.	High/Medium/Low	○	○	○	○	○	○	○	○	
					1	1	2	2	1	3	2	2	3
13	Park Preservation	Minimize air quality impacts	Operates with electrically-powered vehicles or other zero-emission vehicles	High/Low	●	●	●	●	○	○	○	○	
					3	3	3	3	1	1	3	3	
Park Preservation Subtotal				Score	10	10	12	16	14	11	14	16	
				Total Possible	18	18	18	18	18	18	18	18	
				Percent	56%	56%	67%	89%	78%	61%	78%	89%	
14	Operability	Engineering - Street grade	Grades between 6% and 9% not desirable for rail. Grades between 3% and 6% more desirable. Grades less than 3% most desirable	High/Medium/Low	○	○	○	○	○				
					2	2	2	1	1				
15	Operability	Engineering - Curves and Specialwork	Complex trackwork not desirable. Specialwork on steep grades not desirable. Curves on steep grades not desirable.	High/Medium/Low	●	●	○	○	○				
					3	3	2	1	1				
16	Operability	Maximize separate right-of-way for transit	Measurement of mileage operating in a separate off-street right-of-way	High - 50% or more, Medium 25-50%, Low - less than 25% in PRW	●	●	○	○	○	○	○	○	
					3	3	2	2	1	3	2	1	
17	Operability	Arterial traffic	Ability to create reserved ROW within street ROW for separation from arterial traffic.	High/Medium/Low	●	●	○	○	○	○	○	○	
					3	3	2	1	1	1	1	1	
18	Operability	Minimize operating cost impacts	Estimated incremental additional operating cost for each alternative over current system	High/Medium/Low	●	●	○	○	○	○	○	○	
					3	3	3	2	1	1	1	1	
19	Operability	Service design	Adheres to Muni Service Planning guidelines - fits in overall route network structure, straight line routes, minimize use of single-purpose shuttles, both directions same location	High/Medium/Low	○	○	○	○	○	○	○	○	
					2	2	3	1	1	3	2	1	1
20	Operability	Legibility of service structure	Minimize out of direction travel.	High/Medium/Low	●	●	●	○	○	○	○	○	
					3	3	3	1	1	3	2	1	1
21	Operability	Conflict with other transit operations	Minimize conflicts with other transit modes, operations and terminals. Minimize necessity to move other transit operations to accommodate project.	High/Medium/Low	●	●	○	○	○	○	○	○	
					3	3	2	1	1	2	2	1	1
22	Operability	Surface operational safety	Surface operational safety is not compromised by any operating condition, or combination of conditions.	High/Medium/Low	○	○	○	○	○	○	○	○	
					2	2	3	1	2	3	3	3	Added to address Muni comment
23	Operability	Tunnel Operational Safety	Secure method for controlling operation in tunnel, and restricting non-transit vehicle access into tunnel.	High/Medium/Low	●	●	●	○					
					3	3	3	3					
Operability Subtotal				Score	27	27	25	14	10	14	15	12	9
				Total Possible	30	30	30	30	27	21	24	21	
				Percent	90%	90%	83%	47%	37%	67%	63%	50%	43%
TOTAL				Score	57	57	57	49	41	42	41	35	32
				Total Possible	69	69	69	69	66	60	63	60	
				Percent	83%	83%	83%	71%	62%	70%	65%	56%	53%

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Table A-2 Turnaround Options Screening

HISTORIC STREETCAR EXTENSION EIS
Preliminary Screening of Terminal Alternatives
July 11, 2007

Maximum score / criterion = 5

Estimated quantitative or un-measured ratings

SCREENING CRITERIA FOR TERMINAL OPTIONS					Within Fort Mason gates						Within NPS property			Other				Comments
#	Category	Criterion	Measurement	Range	1	2	3	4	5	RL	6	7	8	10	11	12	13	
					Fort Mason Loop	Fort Mason Short Loop	Bldg A Loop	East-West Loop	North Wye	Modified North Wye; 2 tracks	North Wye: 2 tracks	South Wye	Great Meadow Loop	F Mason Gate Loop	Safeway Loop	Marina Loop	Small Marina Loop	
PURPOSE AND NEED : Criteria relating to the established Need and Purpose for the project																		
1	Purpose and Need	Potential ridership increase	Potential for increased ridership to SAFR and GGNRA	1 = Low potential 5 = High potential	4	4	5	5	4	4	4	3	3	2	2	2	2	
2	Purpose and Need	Local transit access	Project provides enhanced local transit access for residents	1 = Poor access 5 = High access	3	3	3	3	3	4	4	4	4	4	5	4	4	
3	Purpose and Need	Fort Mason access	Provides direct access for visitors, residents, and employers at/to Fort Mason Center, regardless of personal physical mobility	1 = Poor access 5 = High access	4	4	5	5	3	3	3	2	2	2	1	2	2	
		Subtotal:	PURPOSE AND NEED	Score	11	11	13	13	10	11	11	9	9	8	8	8	8	
				Total Possible	15	15	15	15	15	15	15	15	15	15	15	15	15	
				Percent	73%	73%	87%	87%	67%	73%	73%	60%	60%	53%	53%	53%	53%	
COMPATIBILITY WITH PARK ACTIVITIES AND RESOURCES : Criteria relating to the various objectives of the National Park Service in owning and operating the national parks through which this project passes																		
4	Park Preservation	NHPA Section 106	Potential for visual, noise, or other adverse impacts on NHLD.	1 = High impact 5 = Minimal impact	3	2	1	1	3	3	2	5	5	3	4	4	4	
5	Park Preservation	US DOT Section 4F	Potential for harm to recreational resources.	1 = High impact 5 = Minimal impact	4	4	4	4	4	4	4	2	1	3	5	3	3	Note - does not include impacts to NPS or other parking areas as a recreational resource. Parking evaluated in Category 19.
6	Park Preservation	US DOT Section 4F	Sensitivity of resources	1 = High sensitivity 5 = Minimal sensitivity	4	4	3	3	4	4	4	2	2	1	5	3	3	Need clarification from NPS (Nancy Horner) as to what 'sensitivity' means in this context
7	Park Preservation	US DOT Section 4F	Alteration of physical boundaries that define the edges of the NHLD	1 = High impact 5 = Minimal impact	5	5	5	5	4	3	3	1	1	4	5	5	5	
8	Park Preservation	Bike and ped impacts	Potential for conflict with automobile, bicycle or pedestrian flows	1 = High impact 5 = Minimal impact	1	2	1	1	3	3	3	1	1	1	1	1	1	
9	Park Preservation	Park facilities impacts	Affects existing park facilities and operations (GGNRA)	1 = High impact 5 = Minimal impact	1	2	1	1	4	4	4	4	4	1	5	3	2	
		Subtotal:	COMPATIBILITY WITH PARK ACTIVITIES AND RESOURCES	Score	18	19	15	15	22	21	20	15	14	13	25	19	18	
				Total Possible	30	30	30	30	30	30	30	30	30	30	30	30	30	
				Percent	60%	63%	50%	50%	73%	70%	67%	50%	47%	43%	83%	63%	60%	
OPERABILITY : Criteria relating to the technical capabilities and limitations of the transit vehicles and infrastructure proposed for use in the various alternatives, and criteria relating to the objectives of the MTA/Municipal Railway in operating the system																		
10	Operability	Engineering - Street grade	Grades between 6% and 9% not desirable for rail. Grades between 3% and 6% more desirable. Grades less than 3% most desirable.	1 = Grade of 6% and more 3 = Grade of 3% to 5% 5 = Grade of 2% or less	5	5	5	5	5	5	5	3	3	5	5	5	5	
11	Operability	Engineering - Curves and Specialwork	Complex trackwork not desirable. Specialwork on steep grades not desirable. Curves on steep grades not desirable.	1 = Large amount of curves and specialwork 5 = Minimal amount of curves and specialwork	4	4	4	4	3	1	2	3	4	4	2	4	4	
12	Operability	Maximize separate ROW for transit	Measurement of mileage operating in a separate off-street right-of-way	1 = Less than 25% in PRW 3 = 25 to 50% in PRW 5 = 50% or more in PRW	3	3	3	3	4	4	4	5	5	2	1	1	1	
	Operability	Operational flexibility and efficiency	Ability to store vehicles, serve large events, vary order of dispatch, maintain headways	1 = Low flex / eff 5 = High flex / eff	3	2	5	5	2	3	3	2	5	5	4	5	5	Need to refine definition and understanding of each alternative's attributes
13	Operability	Minimize operating cost impacts	Estimated incremental additional operating cost for each alternative over current system	1 = High (estimated) operating cost 5 = Low (estimated) operating cost	4	4	4	4	3	3	3	3	4	2	1	2	2	

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Table A-2 Turnaround Options Screening

HISTORIC STREETCAR EXTENSION EIS
Preliminary Screening of Terminal Alternatives
July 11, 2007

Maximum score / criterion = 5

Estimated quantitative or un-measured ratings

SCREENING CRITERIA FOR TERMINAL OPTIONS					Within Fort Mason gates						Within NPS property			Other				Comments
#	Category	Criterion	Measurement	Range	1	2	3	4	5	RL	6	7	8	10	11	12	13	
					Fort Mason Loop	Fort Mason Short Loop	Bldg A Loop	East-West Loop	North Wye	Modified North Wye; 2 tracks	North Wye: 2 tracks	South Wye	Great Meadow Loop	F Mason Gate Loop	Safeway Loop	Marina Loop	Small Marina Loop	
14	Operability	Service design	Adheres to Muni Service Planning guidelines fits in overall route network structure, straight line routes, minimize use of single-purpose shuttles, both directions same location	1 = Low adherence 5 = High adherence	3	2	4	4	2	3	3	2	4	3	3	3	3	
15	Operability	Surface operational safety	Surface operational safety of streetcar system is not compromised by any operating condition or combination of conditions	1 = Low safety levels 5 = High safety levels	3	3	4	4	3	3	3	3	4	2	2	2	2	
16	Operability	Vulnerability to delay	Susceptibility to potential streetcar delays from interference with internal circulation and parking (i.e., within Fort Mason)	1 = High susceptibility 5 = Low susceptibility	1	1	2	2	4	4	4	5	5	2	2	2	2	
Subtotal: OPERABILITY				Score	26	24	31	31	26	26	27	26	34	25	20	24	24	
				Total Possible	40	40	40	40	40	40	40	40	40	40	40	40	40	
				Percent	65%	60%	78%	78%	65%	65%	68%	65%	85%	63%	50%	60%	60%	
LOCAL CONSIDERATIONS : Criteria involving how the proposed terminal would be integrated with the adjacent neighborhoods and local plans and policies																		
17	Local considerations	Impacts on neighboring uses	Potential for visual, noise, vibration, or other impacts on nearby residents and businesses	1 = High impact 5 = Minimal impact	4	4	4	4	3	3	3	2	2	2	1	2	2	
18	Local considerations	Interference with street traffic	Interference with traffic flow/patterns in an already congested area	1 = High degree of interference 5 = Low degree of interference	1	2	2	2	4	4	4	5	5	2	1	2	2	
19	Local considerations	Impact on parking	Results in loss of parking - either in lots or on-street	1 = High impact 5 = Minimal impact	2	2	2	2	4	3	3	5	5	1	1	1	1	
20	Local considerations	Plan consistency	Conformance with existing local plans and policies (i.e., GGNRA, city plans and policies)	1 = Inconsistent 5 = Consistent	3	3	3	3	3	3	3	2	2	1	1	1	1	
21	Local considerations	Adaptability	Adaptability for extension beyond Fort Mason; utility of turnaround trackage after extension; no extraneous or redundant trackwork	1 = Low 5 = High	2	2	1	1	4	4	5	4	1	3	2	3	3	
22	Local considerations	Impacts on landscape	Changes required to physical landscape (grading, fill removal)	1 = High (estimated) cost 5 = Low (estimated) cost	4	4	4	4	4	2	2	2	1	4	4	4	4	
23	Local considerations	Public safety	Public safety, including access for emergency vehicles. Ability to access Fort Mason facilities by emergency vehicles.	1 = Low safety levels 5 = High safety levels	3	4	3	2	5	5	5	5	5	1	2	1	1	
24	Local considerations	Public opinion	Estimated community support for terminal alternative	1 = Low 5 = High	4	2	4	4	4	3	3	1	1	1	1	1	1	
Subtotal: LOCAL CONSIDERATIONS				Score	23	23	23	22	31	27	28	26	22	15	13	15	15	
				Total Possible	40	40	40	40	40	40	40	40	40	40	40	40	40	
				Percent	58%	58%	58%	55%	78%	68%	70%	65%	55%	38%	33%	38%	38%	
TOTAL					Score	78	77	82	81	89	85	86	76	79	61	66	66	65
					Total Possible	125	125	125	125	125	125	125	125	125	125	125	125	
					Percent	62.4%	61.6%	65.6%	64.8%	71.2%	68.0%	68.8%	60.8%	63.2%	48.8%	52.8%	52.8%	52.0%
					Score Ranges	70 % +	65-69.9 %	60-64.9 %	55-59.9 %	< 55%								

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APPENDIX B

Transportation and Circulation

Appendix B includes traffic turning movement counts at intersections in the project area and level of service calculation sheets.

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TRANSPORTATION-CIRCULATION

Traffic Turning Movement Counts at Intersections in the Project Area

- A. Study Intersections (Weekday and Weekend Peak Periods)
 - 1. Jefferson Street and Jones Street
 - 2. Beach Street and Jones Street
 - 3. Beach Street and Hyde Street
 - 4. Jefferson Street and Leavenworth Street
 - 5. Beach Street and Leavenworth Street
 - 6. Beach Street and Larkin Street
 - 7. Beach Street and Polk Street
 - 8. Beach Street and Columbus Avenue

- B. Embarcadero and Bay Street (used to set seasonal adjustment factor)

Intersection: **Jones**
 Direction: N / S <= Pick => E / W
 Time Period: **4 P-6 P**

Jefferson
 N / S <= Pick => E / W

Date: **January 16, 2008** **Wednesday**

Project: 100368 E Line SF

INPUTS

Labels =>

15-min period Ending Time
4:15
4:30
4:45
5:00
5:15
5:30
5:45
6:00

15-min period Ending Time	Northbound			Apprh PHF	Southbound			Apprh PHF	Eastbound			Apprh PHF	Westbound			Apprh PHF
	L	T	R		L	T	R		L	T	R		L	T	L-tram	
4:15	15												13	42	2	
4:30	27												19	94	5	
4:45	34												24	135	6	
5:00	47												33	183	8	
5:15	56												40	220	11	
5:30	63												46	257	13	
5:45	75												53	295	15	
6:00	92												64	336	16	

15-min period Ending Time	OUTPUTS			Apprh PHF	975	Apprh PHF	15 min. totals	60 min totals	15-min Ending					
	L	T	R								72	271	4	
4:15	15	0	0	15	0	0	0	0	0	0	72		4	
4:30	12	0	0	12	0	0	0	0	0	0	73		4	
4:45	7	0	0	7	0	0	0	0	0	0	54		4	
5:00	13	0	0	13	0	0	0	0	0	0	72	271	5	
5:15	9	0	0	9	0	0	0	0	0	0	56	255	5	
5:30	7	0	0	7	0	0	0	0	0	0	52	234	5	
5:45	12	0	0	12	0	0	0	0	0	0	59	239	5	
6:00	17	0	0	17	0	0	0	0	0	0	70	237	6	
Peak Hour	47	0	0		0	0	0	0	0	0	33	183	8	271

PEAK =>
 HOUR
 TOTAL

47	0	33	183	8	271									
-----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	-----------	------------	----------	------------

5 :00

Total Intersection Vol

WHOLE INTERSECTION

PEAK HR VOL 271
 PEAK 15 MIN VOL 73
 PEAK HR FACTOR (PHF) 0.93

4 :00 Peak Period Starting at
5 :00 Peak Period Ending at

BY APPROACH

PEAK HR VOL	47	-	-	224
PEAK 15 MIN VOL	15	-	-	61
PEAK HR FACTOR (PHF)	0.78	-	-	0.92

CAUTION : PHF below 0.9

Intersection: **Jones** / **Jefferson**
 Direction: **N / S** <= Pick => <= Pick => **E / W**
 Time Period: **12 N - 2:30 PM**

Date: **February 16, 2008** **Saturday**

Project: **E Line SF100368**

INPUTS

Labels =>

15-min period

Ending Time

- 12 :15
- 12 :30
- 12 :45
- 1 :00
- 1 :15
- 1 :30
- 1 :45
- 2 :00
- 2 :15
- 2 :30
- 2 :45
- 3 :00

	Northbound			Apprh PHF	Southbound			Apprh PHF	Eastbound			Apprh PHF	Westbound			Apprh PHF
	L	T	R		L	T	R		L	T	R		L	T	L Tram	
12 :15	14											15	49	2		
12 :30	33											34	131	3		
12 :45	54											53	195	6		
1 :00	70											78	264	8		
1 :15	88											124	355	9		
1 :30	114											162	444	11		
1 :45	129											186	532	14		
2 :00	147											207	611	17		
2 :15	176											234	704	18		
2 :30	203											256	789	21		
2 :45																
3 :00																

15-min period

Ending Time

- 12 :15
- 12 :30
- 12 :45
- 1 :00
- 1 :15
- 1 :30
- 1 :45
- 2 :00
- 2 :15
- 2 :30

OUTPUTS

	Northbound			Apprh PHF	Southbound			Apprh PHF	Eastbound			Apprh PHF	Westbound			Apprh PHF	15 min. totals	60 min totals	15-min period Ending Time
	L	T	R		L	T	R		L	T	R		L	T	L Tram				
12 :15	14	0	0	14	0	0	0	0	0	0	0	15	49	2	66	80	12 :15		
12 :30	19	0	0	19	0	0	0	0	0	0	0	19	82	1	102	121	12 :30		
12 :45	21	0	0	21	0	0	0	0	0	0	0	19	64	3	86	107	12 :45		
1 :00	16	0	0	16	0	0	0	0	0	0	0	25	69	2	96	112	1 :00		
1 :15	18	0	0	18	0	0	0	0	0	0	0	46	91	1	138	156	1 :15		
1 :30	26	0	0	26	0	0	0	0	0	0	0	38	89	2	129	155	1 :30		
1 :45	15	0	0	15	0	0	0	0	0	0	0	24	88	3	115	130	1 :45		
2 :00	18	0	0	18	0	0	0	0	0	0	0	21	79	3	103	121	2 :00		
2 :15	29	0	0	29	0	0	0	0	0	0	0	27	93	1	121	150	2 :15		
2 :30	27	0	0	27	0	0	0	0	0	0	0	22	85	3	110	137	2 :30		
PEAK =>	77	0	0		0	0	0		0	0	0	129	347	9		562			

Peak Hour
562
 Total Intersection Vol

Starting at 12:06 PM

WHOLE INTERSECTION

PEAK HR VOL 562
 PEAK 15 MIN VOL 156
 PEAK HR FACTOR (PHF) **0.90**

464 Default Comments
 Change These in The Preferences Window
 Select File/Preference in the Main Scree
 Then Click the Comments Tab

File Name : Jones_Beach_4_6pm
 Site Code : 00000004
 Start Date : 1/16/2008
 Page No : 1

Groups Printed- Unshifted - Bank 1

Start Time	Jones (SB)					Beach (WB)					Jones (NB)					Beach (EB)					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	1	5	9	0	15	1	19	1	2	23	5	8	5	0	18	6	38	5	0	49	105
04:15 PM	2	7	2	0	11	2	20	1	2	25	3	9	5	0	17	6	33	3	0	42	95
04:30 PM	2	6	4	0	12	1	28	2	3	34	8	2	9	0	19	8	22	5	0	35	100
04:45 PM	4	8	3	0	15	1	21	0	1	23	4	8	3	0	15	6	29	7	0	42	95
Total	9	26	18	0	53	5	88	4	8	105	20	27	22	0	69	26	122	20	0	168	395
05:00 PM	2	7	4	0	13	4	20	6	3	33	4	4	3	0	11	5	39	1	0	45	102
05:15 PM	3	7	2	0	12	2	28	1	2	33	5	5	5	0	15	4	37	0	0	41	101
05:30 PM	2	2	3	0	7	1	32	0	2	35	2	4	6	0	12	2	37	4	0	43	97
05:45 PM	2	13	2	0	17	2	26	0	3	31	1	11	4	0	16	3	44	2	0	49	113
Total	9	29	11	0	49	9	106	7	10	132	12	24	18	0	54	14	157	7	0	178	413
Grand Total	18	55	29	0	102	14	194	11	18	237	32	51	40	0	123	40	279	27	0	346	808
Apprch %	17.6	53.9	28.4	0		5.9	81.9	4.6	7.6		26	41.5	32.5	0		11.6	80.6	7.8	0		
Total %	2.2	6.8	3.6	0	12.6	1.7	24	1.4	2.2	29.3	4	6.3	5	0	15.2	5	34.5	3.3	0	42.8	
Unshifted	18	55	29	0	102	14	194	11	18	237	32	51	40	0	123	40	279	27	0	346	808
% Unshifted	100	100	100	0	100	100	100	100	100	100	100	100	100	0	100	100	100	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Jones (SB)					Beach (WB)					Jones (NB)					Beach (EB)					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

05:00 PM	2	7	4			4	20	6	3		5					5	39	1	0	45	102
05:15 PM	3	7	2	0	12	2	28	1	2	33	2					2	37	4	0	43	97
05:30 PM	2	2	3	0	7	1	32	0	2	35	2	4	6	0	12	2	37	4	0	43	97
05:45 PM	2	13	2	0	17	2	26	0	3	31	1	11	4	0	16	3	44	2	0	49	113
Total Volume	9	29	11	0	49	9	106	7	10	132	12	24	18	0	54	14	157	7	0	178	413
% App. Total	18.4	59.2	22.4	0		6.8	80.3	5.3	7.6		22.2	44.4	33.3	0		7.9	88.2	3.9	0		
PHF	.750	.558	.688	.000	.721	.563	.828	.292	.833	.943	.600	.545	.750	.000	.844	.700	.892	.438	.000	.908	.914

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File Name : Jones_Beach_4_6pm
 Site Code : 00000004
 Start Date : 1/16/2008
 Page No : 2

Start Time	Jones (SB)					Beach (WB)					Jones (NB)					Beach (EB)					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	04:00 PM					05:00 PM					04:00 PM					05:00 PM					
+0 mins.	1	5	9		15	4	20	6	3		3	9	5	0	17	5	39	1	0	45	
+15 mins.	2	7	2	0	11	2	28	1	2	33	3	9	5	0	17	4	37	0	0	41	
+30 mins.	2	6	4	0	12	1	32	0	2	35	8	9	9	0	19	2	37	4	0	43	
+45 mins.	4	8	3	0	15	2	26	0	3	31	4	8	3	0	15	3	44	2	0	49	
Total Volume	9	26	18	0	53	9	106	7	10	132	20	27	22	0	69	14	157	7	0	178	
% App. Total	17	49.1	34	0		6.8	80.3	5.3	7.6		29	39.1	31.9	0		7.9	88.2	3.9	0		
PHF	.563	.813	.500	.000	.883	.563	.828	.292	.833	.943	.625	.750	.611	.000	.908	.700	.892	.438	.000	.908	

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File Name : Jones_Beach_12pm_230pm

Site Code : 00000001

Start Date : 2/16/2008

Page No : 1

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Groups Printed- Unshifted - Bank 1

Start Time	Beach (southbound)					Jones (westbound)					Beach (northbound)					Jones (eastbound)					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
12:00 PM	6	2	8	0	16	2	39	6	0	47	10	18	14	0	42	8	59	4	0	71	176
12:15 PM	3	13	10	0	26	5	30	0	0	35	12	9	22	0	43	10	70	8	0	88	192
12:30 PM	3	11	7	0	21	2	35	3	0	40	8	11	12	0	31	9	50	9	0	68	160
12:45 PM	7	6	8	0	21	0	29	4	0	33	11	7	22	0	40	12	51	5	0	68	162
Total	19	32	33	0	84	9	133	13	0	155	41	45	70	0	156	39	230	26	0	295	690
01:00 PM	20	11	11	0	42	7	46	5	0	58	8	13	22	0	43	18	69	8	1	96	239
01:15 PM	10	14	14	0	38	4	37	4	0	45	11	20	14	0	45	18	50	7	0	75	203
01:30 PM	6	21	14	0	41	3	51	7	0	61	9	8	30	0	47	10	68	7	0	85	234
01:45 PM	7	9	10	0	26	3	51	11	0	65	8	8	22	0	38	16	83	9	0	108	237
Total	43	55	49	0	147	17	185	27	0	229	36	49	88	0	173	62	270	31	1	364	913
02:00 PM	9	11	14	0	34	5	54	9	0	68	13	10	17	0	40	12	73	10	0	95	237
Grand Total	71	98	96	0	265	31	372	49	0	452	90	104	175	0	369	113	573	67	1	754	1840
Apprch %	26.8	37	36.2	0		6.9	82.3	10.8	0		24.4	28.2	47.4	0		15	76	8.9	0.1		
Total %	3.9	5.3	5.2	0	14.4	1.7	20.2	2.7	0	24.6	4.9	5.7	9.5	0	20.1	6.1	31.1	3.6	0.1	41	
Unshifted	71	98	96	0	265	31	372	49	0	452	90	104	175	0	369	113	573	67	1	754	1840
% Unshifted	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	100	100	100	100	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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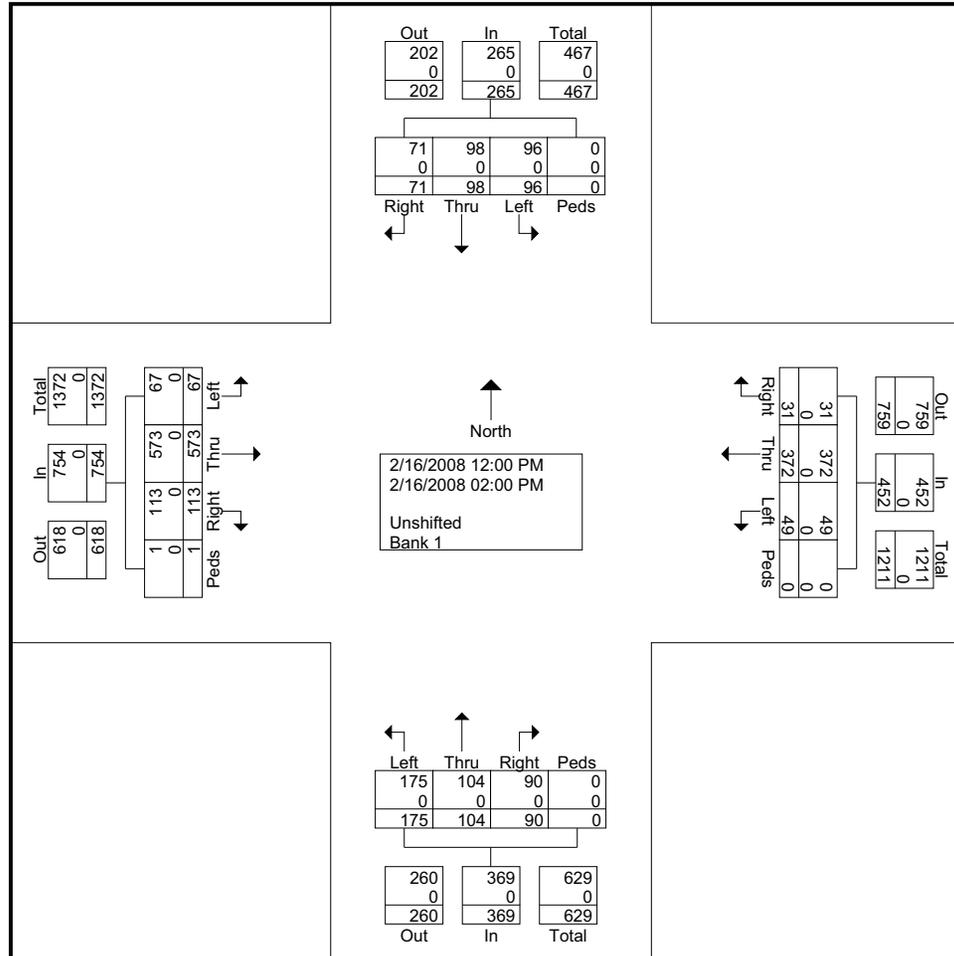
Then Click the Comments Tab

File Name : Jones_Beach_12pm_230pm

Site Code : 00000001

Start Date : 2/16/2008

Page No : 2



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File Name : Jones_Beach_12pm_230pm
Site Code : 00000001
Start Date : 2/16/2008
Page No : 3

Start Time	Beach (southbound)					Jones (westbound)					Beach (northbound)					Jones (eastbound)					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 12:00 PM to 02:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	20	11	11	0	42	7	46	5	0	58	8	13	22	0	43	18	69	8	1	96	239
01:15 PM	10	14	14								11	20	14	0	45	18	50	7	0	75	203
01:30 PM	6	21					51	7	0	61	9	8	30	0	47	10	68	7	0	85	234
01:45 PM	7	9	10	0	26	3	51	11	0	65	8	8	22	0	38	16	83	9		108	237
Total Volume	43	55	49	0	147	17	185	27	0	229	36	49	88	0	173	62	270	31	1	364	913
% App. Total	29.3	37.4	33.3	0		7.4	80.8	11.8	0		20.8	28.3	50.9	0		17	74.2	8.5	0.3		
PHF	.538	.655	.875	.000	.875	.607	.907	.614	.000	.881	.818	.613	.733	.000	.920	.861	.813	.861	.250	.843	.955

Intersection: **Hyde**
 Direction: N / S <= Pick => E / W
 Time Period: **4 P-6 P**

Beach
 N / S <= Pick => E / W

Date: **January 16, 2008** **Wednesday**

Project: 100368 E Line SF

INPUTS

Labels =>

15-min period Ending Time	Northbound			Apprh PHF	Southbound			Apprh PHF	Eastbound			Apprh PHF	Westbound			Apprh PHF
	Cable in	T	R		L	T	R		L	T	Cable out		L	T	R	
4:15	6		4		20	9	20		6	30	4		30	4		
4:30	8		11		30	34	41		12	56	6		52	5		
4:45	11		20		46	51	54		13	67	8		66	9		
5:00	12		26		69	74	76		20	90	9		94	12		
5:15	15		35		86	90	98		23	116	11		141	20		
5:30	18		56		106	102	111		30	158	12		171	24		
5:45	20		67		115	118	124		33	183	14		199	28		
6:00	23		78		132	133	148		34	211	15		223	29		

15-min period Ending Time	OUTPUTS			Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending												
4:15	6	0	4	10	20	9	20	49	6	30	4	40	0	30	4	34	133		4												
4:30	2	0	7	9	10	25	21	56	6	26	2	34	0	22	1	23	122		4												
4:45	3	0	9	12	16	17	13	46	1	11	2	14	0	14	4	18	90		4												
5:00	1	0	6	7	23	23	22	68	7	23	1	31	0	28	3	31	137	482	5												
5:15	3	0	9	12	17	16	22	55	3	26	2	31	0	47	8	55	153	502	5												
5:30	3	0	21	24	20	12	13	45	7	42	1	50	0	30	4	34	153	533	5												
5:45	2	0	11	13	9	16	13	38	3	25	2	30	0	28	4	32	113	556	5												
6:00	3	0	11	14	17	15	24	56	1	28	1	30	0	24	1	25	125	544	6												
																Peak Hour															
																9	0	47	69	67	70	20	116	6	0	133	19	556			

PEAK =>
 HOUR
 TOTAL

9	0	47	69	67	70	20	116	6	0	133	19
---	---	----	----	----	----	----	-----	---	---	-----	----

556
 Total Intersection Vol

5:45

WHOLE INTERSECTION

PEAK HR VOL 556
 PEAK 15 MIN VOL 153
 PEAK HR FACTOR (PHF) 0.91

4:45
 Peak Period Starting at

5:45
 Peak Period Ending at

BY APPROACH

PEAK HR VOL 56
 PEAK 15 MIN VOL 24
 PEAK HR FACTOR (PHF) **0.58**
 CAUTION : PHF below 0.9

206
 68
0.76
 CAUTION : PHF below 0.9

142
 50
0.71
 CAUTION : PHF below 0.9

152
 55
0.69
 CAUTION : PHF below 0.9

Intersection: **Hyde** / **Beach**
 Direction: N / S <= Pick => <= Pick => E / W
 Time Period: **12 N - 2:30 PM**

Date: **February 16, 2008** **Saturday**

Project: **E Line SF100368**

INPUTS

Labels =>

15-min period

Ending Time

12:15
12:30
12:45
1:00
1:15
1:30
1:45
2:00
2:15
2:30
2:45
3:00

15-min period Ending Time	Northbound			Apprh PHF	Southbound			Apprh PHF	Eastbound			Apprh PHF	Westbound			Apprh PHF
	L	Cable Car	R		L	T	R		L	T	R		L	T	**	
12:15	1	0	24		34	28	31		39	8		13	49	2		
12:30	3	3	44		80	47	65		95	17		31	81	3		
12:45	4	4	66		109	68	89		135	19		40	111	5		
1:00	6	6	98		158	92	114		187	24		47	152	6		
1:15	8	6	115		209	131	161		258	34		57	195	7		
1:30	9	8	135		250	164	196		315	42		65	236	9		
1:45	9	8	168		292	188	233		364	53		74	276	10		
2:00	13	10	190		345	221	282		428	56		79	333	11		
2:15	13	12	215		398	258	320		492	77		88	387	12		
2:30	14	13	243		456	296	369		553	91		99	427	14		

15-min period

Ending Time

12:15
12:30
12:45
1:00
1:15
1:30
1:45
2:00
2:15
2:30

OUTPUTS

15-min period Ending Time	Northbound			Apprh PHF	Southbound			Apprh PHF	Eastbound			Apprh PHF	Westbound			Apprh PHF	15 min. totals	60 min totals	15-min period Ending Time
	L	Cable Car	R		L	T	R		L	T	R		L	T	**				
12:15	1	0	24	25	34	28	31	93	0	39	8	47	13	49	2	64	229	12:15	
12:30	2	3	20	25	46	19	34	99	0	56	9	65	18	32	1	51	240	12:30	
12:45	1	1	22	24	29	21	24	74	0	40	2	42	9	30	2	41	181	12:45	
1:00	2	2	32	36	49	24	25	98	0	52	5	57	7	41	1	49	240	1:00	
1:15	2	0	17	19	51	39	47	137	0	71	10	81	10	43	1	54	291	1:15	
1:30	1	2	20	23	41	33	35	109	0	57	8	65	8	41	2	51	248	1:30	
1:45	0	0	33	33	42	24	37	103	0	49	11	60	9	40	1	50	246	1:45	
2:00	4	2	22	28	53	33	49	135	0	64	3	67	5	57	1	63	293	2:00	
2:15	0	2	25	27	53	37	38	128	0	64	21	85	9	54	1	64	304	2:15	
2:30	1	1	28	30	58	38	49	145	0	61	14	75	11	40	2	53	303	2:30	
PEAK =>	5	5	108		206	132	173		0	238	49		34	191	5				1146

** Cable cars from the lot to sb Hyde St.

Total Intersection Vol

WHOLE INTERSECTION

PEAK HR VOL 1,146
 PEAK 15 MIN VOL 304
 PEAK HR FACTOR (PHF) **0.94**

Intersection: **Leavenworth**
 Direction: N / S <= Pick => E / W
 Time Period: **4 P-6 P**

Jefferson
 N / S <= Pick =: E / W

Date: **January 16, 2008** **Wednesday**

Project: 100368 E Line SF

INPUTS

Labels =>

15-min period Ending Time
4:15
4:30
4:45
5:00
5:15
5:30
5:45
6:00

15-min period Ending Time	Northbound			Apprh PHF	Southbound			Apprh PHF	Eastbound			Apprh PHF	Westbound			Apprh PHF
	L	T	R		L	T	R		L	T	R		L	T	R	
4:15	10	0				4	1						19	41	1	
4:30	20	0				4	1						35	86	2	
4:45	37	3				6	1						44	124	3	
5:00	52	6				8	1						64	170	4	
5:15	64	8				12	1						77	201	5	
5:30	85	9				14	2						95	230	5	
5:45	95	11				17	2						106	264	5	
6:00	112	12				17	2						118	300	5	

15-min period Ending Time
4:15
4:30
4:45
5:00
5:15
5:30
5:45
6:00

OUTPUTS

15-min period Ending Time	Northbound			Apprh PHF	Southbound			Apprh PHF	Eastbound			Apprh PHF	Westbound			Apprh PHF	15 min. totals	60 min totals	15-min Ending
	L	T	R		L	T	R		L	T	R		L	T	R				
4:15	10	0	0	10	0	4	1	5	0	0	0	0	19	41	1	61	76	4	
4:30	10	0	0	10	0	0	0	0	0	0	0	0	16	45	1	62	72	4	
4:45	17	3	0	20	0	2	0	2	0	0	0	0	9	38	1	48	70	4	
5:00	15	3	0	18	0	2	0	2	0	0	0	0	20	46	1	67	87	5	
5:15	12	2	0	14	0	4	0	4	0	0	0	0	13	31	1	45	63	5	
5:30	21	1	0	22	0	2	1	3	0	0	0	0	18	29	0	47	72	5	
5:45	10	2	0	12	0	3	0	3	0	0	0	0	11	34	0	45	60	5	
6:00	17	1	0	18	0	0	0	0	0	0	0	0	12	36	0	48	66	5	
Peak Hour	52	6	0		0	8	1		0	0	0		64	170	4		305		

PEAK =>
 HOUR
 TOTAL

52 6 0

0 8 1

0 0 0

64 170 4

305
 Total Intersection Vol

5 :00

WHOLE INTERSECTION

PEAK HR VOL 305
 PEAK 15 MIN VOL 87
 PEAK HR FACTOR (PHF) 0.88
 CAUTION : PHF below 0.9

4 :00
 Peak Period Starting at

5 :00
 Peak Period Ending at

BY APPROACH

PEAK HR VOL 58
 PEAK 15 MIN VOL 20
 PEAK HR FACTOR (PHF) **0.73**
 CAUTION : PHF below 0.9

9
 5
0.45
 CAUTION : PHF below 0.9

-
 -
-

238
 67
0.89
 CAUTION : PHF below 0.9

Intersection: **Leavenworth** / **Jefferson**
 Direction: **N/S** <= Pick => <= Pick => **E/W**
 Time Period: **12 N - 2:30 PM**

Date: **February 16, 2008** **Saturday**

Project: **E Line SF100368**

INPUTS

Labels =>

15-min period

Ending Time

12:15
12:30
12:45
1:00
1:15
1:30
1:45
2:00
2:15
2:30
2:45
3:00

15-min period Ending Time	Northbound			Apprh PHF	Southbound			Apprh PHF	Eastbound			Apprh PHF	Westbound			Apprh PHF
	L	T	R		L	T	R		L	T	R		L	T	R	
12:15	24	4				3	0					28	55	0		
12:30	49	7				6	1					49	115	1		
12:45	81	8				7	1					62	176	1		
1:00	116	12				11	1					73	237	2		
1:15	145	17				15	3					91	323	4		
1:30	181	19				19	5					117	406	8		
1:45	217	21				20	6					133	479	9		
2:00	257	28				27	6					151	563	11		
2:15	298	33				33	9					167	644	13		
2:30	338	34				39	10					196	750	14		

15-min period

Ending Time

12:15
12:30
12:45
1:00
1:15
1:30
1:45
2:00
2:15
2:30

OUTPUTS

15-min period Ending Time	Northbound			Apprh PHF	Southbound			Apprh PHF	Eastbound			Apprh PHF	Westbound			Apprh PHF
	L	T	R		L	T	R		L	T	R		L	T	R	
12:15	24	4	0	28	0	3	0	3	0	0	0	0	28	55	0	83
12:30	25	3	0	28	0	3	1	4	0	0	0	0	21	60	1	82
12:45	32	1	0	33	0	1	0	1	0	0	0	0	13	61	0	74
1:00	35	4	0	39	0	4	0	4	0	0	0	0	11	61	1	73
1:15	29	5	0	34	0	4	2	6	0	0	0	0	18	86	2	106
1:30	36	2	0	38	0	4	2	6	0	0	0	0	26	83	4	113
1:45	36	2	0	38	0	1	1	2	0	0	0	0	16	73	1	90
2:00	40	7	0	47	0	7	0	7	0	0	0	0	18	84	2	104
2:15	41	5	0	46	0	6	3	9	0	0	0	0	16	81	2	99
2:30	40	1	0	41	0	6	1	7	0	0	0	0	29	106	1	136

15 min. totals 60 min totals

15-min period

Ending Time

12:15
12:30
12:45
1:00
1:15
1:30
1:45
2:00
2:15
2:30

114
114
108
116
146
157
130
158
154
184

Peak Hour

626

Total Intersection Vol

PEAK =>
 HOUR
 TOTAL

157	15	0
-----	----	---

0	20	5
---	----	---

0	0	0
---	---	---

79	344	6
----	-----	---

WHOLE INTERSECTION

PEAK HR VOL 626
 PEAK 15 MIN VOL 184
 PEAK HR FACTOR (PHF) **0.85**

Default Comments
 Change These in The Preferences Window
 Select File/Preference in the Main Scree
 Then Click the Comments Tab

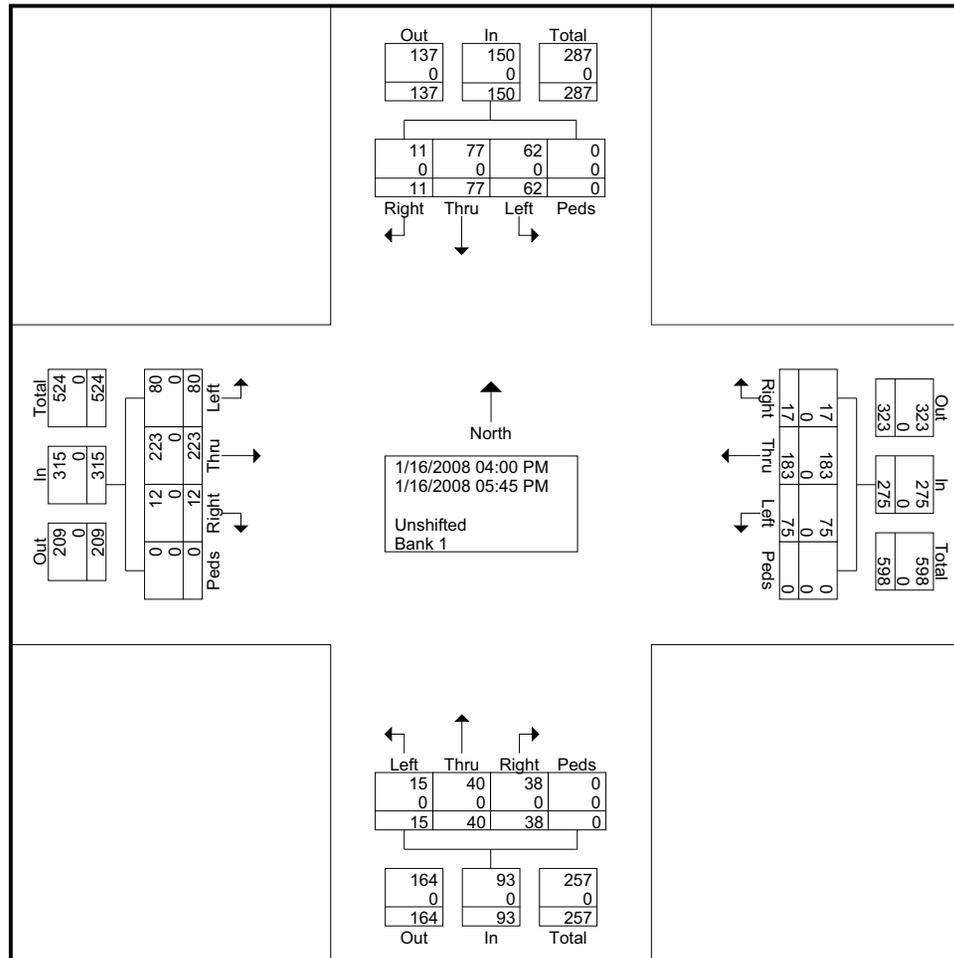
File Name : Leavenworth_Beach 4_6pm
 Site Code : 00000004
 Start Date : 1/16/2008
 Page No : 1

Groups Printed- Unshifted - Bank 1

Start Time	Leavenworth (SB)					Beach (WB)					Leavenworth (NB)					Beach (EB)					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	1	14	6	0	21	1	17	7	0	25	4	3	3	0	10	1	34	6	0	41	97
04:15 PM	3	12	8	0	23	1	19	11	0	31	6	3	2	0	11	0	22	6	0	28	93
04:30 PM	3	4	7	0	14	2	28	12	0	42	8	9	2	0	19	2	20	13	0	35	110
04:45 PM	1	11	11	0	23	1	24	3	0	28	1	4	0	0	5	2	31	14	0	47	103
Total	8	41	32	0	81	5	88	33	0	126	19	19	7	0	45	5	107	39	0	151	403
05:00 PM	1	14	5	0	20	3	19	9	0	31	3	4	3	0	10	2	34	9	0	45	106
05:15 PM	2	10	10	0	22	2	30	7	0	39	4	10	1	0	15	2	23	13	0	38	114
05:30 PM	0	5	8	0	13	3	29	12	0	44	5	1	0	0	6	2	29	9	0	40	103
05:45 PM	0	7	7	0	14	4	17	14	0	35	7	6	4	0	17	1	30	10	0	41	107
Total	3	36	30	0	69	12	95	42	0	149	19	21	8	0	48	7	116	41	0	164	430
Grand Total	11	77	62	0	150	17	183	75	0	275	38	40	15	0	93	12	223	80	0	315	833
Apprch %	7.3	51.3	41.3	0		6.2	66.5	27.3	0		40.9	43	16.1	0		3.8	70.8	25.4	0		
Total %	1.3	9.2	7.4	0	18	2	22	9	0	33	4.6	4.8	1.8	0	11.2	1.4	26.8	9.6	0	37.8	
Unshifted	11	77	62	0	150	17	183	75	0	275	38	40	15	0	93	12	223	80	0	315	833
% Unshifted	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	100	100	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

474
 Default Comments
 Change These in The Preferences Window
 Select File/Preference in the Main Scree
 Then Click the Comments Tab

File Name : Leavenworth_Beach 4_6pm
 Site Code : 00000004
 Start Date : 1/16/2008
 Page No : 2



Default Comments
 Change These in The Preferences Window
 Select File/Preference in the Main Scree
 Then Click the Comments Tab

File Name : Leavenworth_Beach 4_6pm
 Site Code : 00000004
 Start Date : 1/16/2008
 Page No : 3

Start Time	Leavenworth (SB)					Beach (WB)					Leavenworth (NB)					Beach (EB)					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	3	4	7	0	14	2	28	12	0	42	8				19	2	20	13	0	35	110
04:45 PM	1	11	11		23	1	24	3	0	28	1	4	0	0	5	2	31	14		47	103
05:00 PM	1	14				3	19	9	0	31	3	4	3	0	10	2	34				
05:15 PM	2	10	10	0	22	2	30	7	0	39	4	10	1	0	15	2	23	13	0	38	114
Total Volume	7	39	33	0	79	8	101	31	0	140	16	27	6	0	49	8	108	49	0	165	433
% App. Total	8.9	49.4	41.8	0		5.7	72.1	22.1	0		32.7	55.1	12.2	0		4.8	65.5	29.7	0		
PHF	.583	.696	.750	.000	.859	.667	.842	.646	.000	.833	.500	.675	.500	.000	.645	1.000	.794	.875	.000	.878	.950

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:00 PM					05:00 PM					04:30 PM					04:45 PM				
+0 mins.	1	14									8				19	2	31	14		47
+15 mins.	3	12	8	0	23	2	30	7	0	39	1	4	0	0	5	2	34			
+30 mins.	3	4	7	0	14	3	29	12	0	44	3	4	3	0	10	2	23	13	0	38
+45 mins.	1	11	11			4	17	14	0	35	4	10	1	0	15	2	29	9	0	40
Total Volume	8	41	32	0	81	12	95	42	0	149	16	27	6	0	49	8	117	45	0	170
% App. Total	9.9	50.6	39.5	0		8.1	63.8	28.2	0		32.7	55.1	12.2	0		4.7	68.8	26.5	0	
PHF	.667	.732	.727	.000	.880	.750	.792	.750	.000	.847	.500	.675	.500	.000	.645	1.000	.860	.804	.000	.904

Wilbur Smith Associates

201 Mission St. Suite 1450
San Francisco, CA 94105

Your Tagline Here

File Name : Leavenworth_Beach 12pm_230pm

Site Code : 00000001

Start Date : 2/16/2008

Page No : 1

476 Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Comments Tab

Groups Printed- Unshifted - Bank 1

Start Time	Leavenworth (southbound)					Beach (westbound)					Leavenworth (northbound)					Beach (eastbound)					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
12:00 PM	7	10	21	0	38	4	33	16	0	53	14	9	2	0	25	5	53	17	0	75	191
12:15 PM	2	6	18	0	26	5	31	6	0	42	12	11	3	0	26	3	63	9	0	75	169
12:30 PM	3	6	10	0	19	6	31	8	0	45	9	12	5	0	26	3	61	17	0	81	171
12:45 PM	4	6	7	0	17	9	28	6	0	43	9	12	7	0	28	5	75	23	0	103	191
Total	16	28	56	0	100	24	123	36	0	183	44	44	17	0	105	16	252	66	0	334	722
01:00 PM	2	6	13	0	21	7	32	8	0	47	26	10	3	0	39	6	78	22	0	106	213
01:15 PM	4	14	16	0	34	6	32	10	0	48	12	19	8	0	39	4	71	18	0	93	214
01:30 PM	2	3	10	0	15	15	55	13	1	84	16	14	1	0	31	6	66	23	0	95	225
01:45 PM	6	11	12	0	29	13	42	18	0	73	38	18	4	0	60	6	61	24	0	91	253
Total	14	34	51	0	99	41	161	49	1	252	92	61	16	0	169	22	276	87	0	385	905
02:00 PM	1	10	14	0	25	9	51	23	0	83	20	22	5	0	47	10	60	23	0	93	248
02:15 PM	1	13	20	0	34	10	49	17	0	76	21	13	2	0	36	9	73	19	0	101	247
Grand Total	32	85	141	0	258	84	384	125	1	594	177	140	40	0	357	57	661	195	0	913	2122
Apprch %	12.4	32.9	54.7	0		14.1	64.6	21	0.2		49.6	39.2	11.2	0		6.2	72.4	21.4	0		
Total %	1.5	4	6.6	0	12.2	4	18.1	5.9	0	28	8.3	6.6	1.9	0	16.8	2.7	31.1	9.2	0	43	
Unshifted	32	85	141	0	258	84	384	125	1	594	177	140	40	0	357	57	661	195	0	913	2122
% Unshifted	100	100	100	0	100	100	100	100	100	100	100	100	100	0	100	100	100	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Wilbur Smith Associates

201 Mission St. Suite 1450
San Francisco, CA 94105

Your Tagline Here

Default Comments

Change These in The Preferences Window

Select File/Preference in the Main Scree

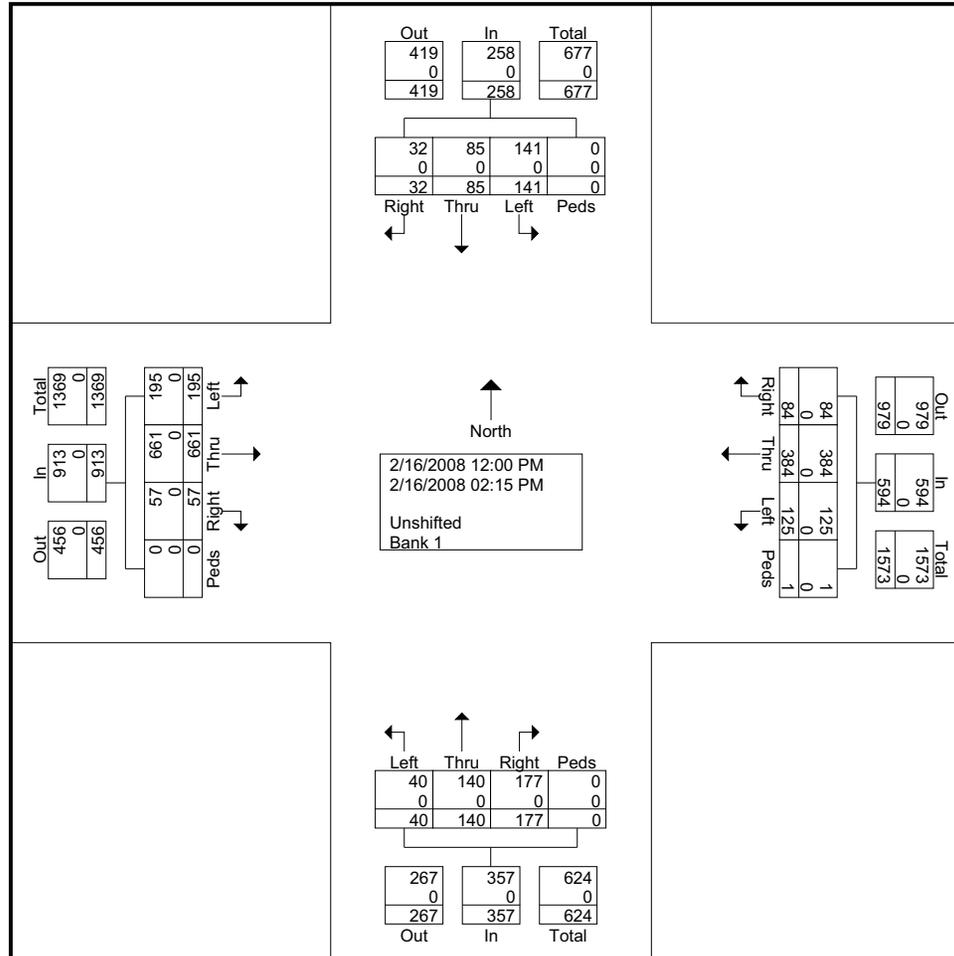
Then Click the Comments Tab

File Name : Leavenworth_Beach 12pm_230pm

Site Code : 00000001

Start Date : 2/16/2008

Page No : 2



Wilbur Smith Associates

201 Mission St. Suite 1450
San Francisco, CA 94105

Your Tagline Here

File Name : Leavenworth_Beach 12pm_230pm

Site Code : 00000001

Start Date : 2/16/2008

Page No : 3

478 Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Comments Tab

Start Time	Leavenworth (southbound)					Beach (westbound)					Leavenworth (northbound)					Beach (eastbound)					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 12:00 PM to 02:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:30 PM																					
01:30 PM	2	3	10	0	15	15	55	13	1	84	16	14	1	0	31	6	66	23	0	95	225
01:45 PM	6	11	12	0	29	13	42	18	0	73	38				60	6	61	24			253
02:00 PM	1	10	14	0	25	9	51	23	0	83	20	22	5	0	47	10	60	23	0	93	248
02:15 PM	1	13	20		34	10	49	17	0	76	21	13	2	0	36	9	73			101	247
Total Volume	10	37	56	0	103	47	197	71	1	316	95	67	12	0	174	31	260	89	0	380	973
% App. Total	9.7	35.9	54.4	0		14.9	62.3	22.5	0.3		54.6	38.5	6.9	0		8.2	68.4	23.4	0		
PHF	.417	.712	.700	.000	.757	.783	.895	.772	.250	.940	.625	.761	.600	.000	.725	.775	.890	.927	.000	.941	.961

Intersection: **Larkin**
 Direction: **N / S <= Pick > E / W**
 Time Period: **4 P-6 P**

Beach
 N / S <= Pick > E / W

Date: **January 16, 2008** **Wednesday**

Project: 100368 E Line SF

INPUTS

Labels =>

15-min period Ending Time	Northbound			Apprh PHF	Southbound			Apprh PHF	Eastbound			Apprh PHF	Westbound			Apprh PHF
	L	T	R		L	T	R		L	T	R		L	T	R	
4:15	3		8						16	4			11	30		
4:30	7		21						33	8			20	68		
4:45	9		30						50	13			28	107		
5:00	15		46						69	15			44	130		
5:15	23		61						83	21			58	163		
5:30	26		82						96	27			71	190		
5:45	31		90						119	29			83	221		
6:00	35		99						130	31			90	257		

15-min period Ending Time	OUTPUTS			Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
	L	T	R		L	T	R		L	T	R		L	T	R				
4:15	3	0	8	11	0	0	0	0	0	16	4	20	11	30	0	41	72		4
4:30	4	0	13	17	0	0	0	0	0	17	4	21	9	38	0	47	85		4
4:45	2	0	9	11	0	0	0	0	0	17	5	22	8	39	0	47	80		4
5:00	6	0	16	22	0	0	0	0	0	19	2	21	16	23	0	39	82	319	5
5:15	8	0	15	23	0	0	0	0	0	14	6	20	14	33	0	47	90	337	5
5:30	3	0	21	24	0	0	0	0	0	13	6	19	13	27	0	40	83	335	5
5:45	5	0	8	13	0	0	0	0	0	23	2	25	12	31	0	43	81	336	5
6:00	4	0	9	13	0	0	0	0	0	11	2	13	7	36	0	43	69	323	6
TOTAL	20	0	53		0	0	0		0	67	17		47	133	0				337

PEAK => **20 0 53** **0 0 0** **0 67 17** **47 133 0** **337**
 HOUR TOTAL **5:15** **Total Intersection Vol**

WHOLE INTERSECTION
 PEAK HR VOL 337 **4:15** Peak Period Starting at
 PEAK 15 MIN VOL 90 **5:15** Peak Period Ending at
 PEAK HR FACTOR (PHF) 0.94

BY APPROACH
 PEAK HR VOL 73 - 84 180
 PEAK 15 MIN VOL 23 - 22 47
 PEAK HR FACTOR (PHF) **0.79** **-** **0.95** **0.96**
 CAUTION : PHF below 0.9

Intersection: **Larkin** / **Beach**
 Direction: **N/S <= Pick =>** **<= Pick => E/W**
 Time Period: **12 N - 2:30 PM**

Date: **February 16, 2008** **Saturday**

Project: **E Line SF100368**

INPUTS

Labels =>

15-min period

Ending Time

12:15
12:30
12:45
1:00
1:15
1:30
1:45
2:00
2:15
2:30
2:45
3:00

15-min period Ending Time	Northbound			Apprh PHF	Southbound			Apprh PHF	Eastbound			Apprh PHF	Westbound			Apprh PHF
	L	T	R		L	T	R		L	T	R		L	T	R	
12:15	10		20					22	3			18	58			
12:30	20		48					47	7			32	106			
12:45	29		65					78	18			54	150			
1:00	44		86					118	32			87	188			
1:15	54		133					155	40			117	249			
1:30	62		163					191	47			150	298			
1:45	74		193					223	68			187	345			
2:00	82		221					250	81			234	405			
2:15	93		265					301	97			260	468			
2:30	115		299					349	106			285	533			

15-min period

Ending Time

12:15
12:30
12:45
1:00
1:15
1:30
1:45
2:00
2:15
2:30

OUTPUTS

15-min period Ending Time	Northbound			Apprh PHF	Southbound			Apprh PHF	Eastbound			Apprh PHF	Westbound			Apprh PHF	15 min. totals	60 min totals	15-min period Ending Time
	L	T	R		L	T	R		L	T	R		L	T	R				
12:15	10	0	20	30	0	0	0	0	0	22	3	25	18	58	0	76	131	12:15	
12:30	10	0	28	38	0	0	0	0	0	25	4	29	14	48	0	62	129	12:30	
12:45	9	0	17	26	0	0	0	0	0	31	11	42	22	44	0	66	134	12:45	
1:00	15	0	21	36	0	0	0	0	0	40	14	54	33	38	0	71	161	1:00	
1:15	10	0	47	57	0	0	0	0	0	37	8	45	30	61	0	91	193	1:15	
1:30	8	0	30	38	0	0	0	0	0	36	7	43	33	49	0	82	163	1:30	
1:45	12	0	30	42	0	0	0	0	0	32	21	53	37	47	0	84	179	1:45	
2:00	8	0	28	36	0	0	0	0	0	27	13	40	47	60	0	107	183	2:00	
2:15	11	0	44	55	0	0	0	0	0	51	16	67	26	63	0	89	211	2:15	
2:30	22	0	34	56	0	0	0	0	0	48	9	57	25	65	0	90	203	2:30	
	53	0	136		0	0	0		0	158	59		135	235	0		776		

PEAK =>
 HOUR
 TOTAL

Peak Hour
776
 Total Intersection Vol

WHOLE INTERSECTION

PEAK HR VOL 776
 PEAK 15 MIN VOL 211
 PEAK HR FACTOR (PHF) **0.92**

Intersection: **Polk**
 Direction: N / S <= Pick => E / W
 Time Period: **4 P-6 P**

Beach
 N / S <= Pick => E / W

Date: **January 16, 2008** **Wednesday**

Project: 100368 E Line SF

INPUTS

Labels =>

15-min period Ending Time	Northbound			Apprh PHF	Southbound			Apprh PHF	Eastbound			Apprh PHF	Westbound			Apprh PHF
	L	T	R		L	T	R		L	T	R		L	T	R	
4:15	0		10						7	5			30	4		
4:30	3		23						15	10			62	8		
4:45	8		34						16	16			98	11		
5:00	12		51						20	24			131	14		
5:15	12		65						22	31			174	15		
5:30	13		76						23	35			207	15		
5:45	15		98						26	41			242	15		
6:00	16		109						27	47			280	18		

15-min period Ending Time	OUTPUTS			Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
	L	T	R		L	T	R		L	T	R		L	T	R				
4:15	0	0	10	10	0	0	0	0	0	7	5	12	30	4	0	34	56		4
4:30	3	0	13	16	0	0	0	0	0	8	5	13	32	4	0	36	65		4
4:45	5	0	11	16	0	0	0	0	0	1	6	7	36	3	0	39	62		4
5:00	4	0	17	21	0	0	0	0	0	4	8	12	33	3	0	36	69	252	5
5:15	0	0	14	14	0	0	0	0	0	2	7	9	43	1	0	44	67	263	5
5:30	1	0	11	12	0	0	0	0	0	1	4	5	33	0	0	33	50	248	5
5:45	2	0	22	24	0	0	0	0	0	3	6	9	35	0	0	35	68	254	5
6:00	1	0	11	12	0	0	0	0	0	1	6	7	38	3	0	41	60	245	6
	12	0	55		0	0	0		0	15	26		144	11	0				Peak Hour

PEAK => **12** **0** **55** **0** **0** **0** **0** **15** **26** **144** **11** **0** **263**
 HOUR
 TOTAL
 5:15
 Total Intersection Vol

WHOLE INTERSECTION

PEAK HR VOL 263
 PEAK 15 MIN VOL 69
 PEAK HR FACTOR (PHF) 0.95
 Peak Period Starting at **4:15**

Peak Period Ending at **5:15**

BY APPROACH

PEAK HR VOL 67
 PEAK 15 MIN VOL 21
 PEAK HR FACTOR (PHF) **0.80**
 CAUTION : PHF below 0.9

PEAK HR VOL 41
 PEAK 15 MIN VOL 13
 PEAK HR FACTOR (PHF) **0.79**
 CAUTION : PHF below 0.9

PEAK HR VOL 155
 PEAK 15 MIN VOL 44
 PEAK HR FACTOR (PHF) **0.88**
 CAUTION : PHF below 0.9

Intersection: **Polk** / **Beach**
 Direction: **N / S** <= Pick => <= Pick => **E / W**
 Time Period: **12 N - 2:30 PM**

Date: **February 16, 2008** **Saturday**

Project: **E Line SF100368**

INPUTS

Labels =>

15-min period

Ending Time

- 12 :15
- 12 :30
- 12 :45
- 1 :00
- 1 :15
- 1 :30
- 1 :45
- 2 :00
- 2 :15
- 2 :30
- 2 :45
- 3 :00

	Northbound			Apprh PHF	Southbound			Apprh PHF	Eastbound			Apprh PHF	Westbound			Apprh PHF
	L	T	R		L	T	R		L	T	R		L	T	R	
12 :15	1		35					5	2			59	7			
12 :30	6		62					8	6			105	7			
12 :45	9		91					13	8			156	10			
1 :00	16		160					18	19			183	21			
1 :15	22		197					23	24			240	27			
1 :30	30		244					31	31			294	32			
1 :45	37		287					38	36			340	41			
2 :00	47		335					49	44			394	50			
2 :15	53		392					59	49			442	57			
2 :30	63		447					70	61			521	66			
2 :45																
3 :00																

15-min period

Ending Time

- 12 :15
- 12 :30
- 12 :45
- 1 :00
- 1 :15
- 1 :30
- 1 :45
- 2 :00
- 2 :15
- 2 :30

OUTPUTS

				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min period Ending Time
	L	T	R		L	T	R		L	T	R		L	T	R				
12 :15	1	0	35	36	0	0	0	0	0	5	2	7	59	7	0	66	109	12 :15	
12 :30	5	0	27	32	0	0	0	0	0	3	4	7	46	0	0	46	85	12 :30	
12 :45	3	0	29	32	0	0	0	0	0	5	2	7	51	3	0	54	93	12 :45	
1 :00	7	0	69	76	0	0	0	0	0	5	11	16	27	11	0	38	130	1 :00	
1 :15	6	0	37	43	0	0	0	0	0	5	5	10	57	6	0	63	116	1 :15	
1 :30	8	0	47	55	0	0	0	0	0	8	7	15	54	5	0	59	129	1 :30	
1 :45	7	0	43	50	0	0	0	0	0	7	5	12	46	9	0	55	117	1 :45	
2 :00	10	0	48	58	0	0	0	0	0	11	8	19	54	9	0	63	140	2 :00	
2 :15	6	0	57	63	0	0	0	0	0	10	5	15	48	7	0	55	133	2 :15	
2 :30	10	0	55	65	0	0	0	0	0	11	12	23	79	9	0	88	176	2 :30	
PEAK =>	33	0	203		0	0	0		0	39	30		227	34	0			Peak Hour	
HOUR TOTAL																		566	Total Intersection Vol

WHOLE INTERSECTION

PEAK HR VOL 566
 PEAK 15 MIN VOL 176
 PEAK HR FACTOR (PHF) **0.80**

Intersection: **Columbus** / **Beach**
 Direction: **N/S <= Pick =>** **<= Pick => E/W**
 Time Period: **12 N - 2:30 PM**

Date: **February 16, 2008** **Saturday**

Project: **E Line SF100368**

INPUTS

Labels =>

15-min period

Ending Time

- 12:15
- 12:30
- 12:45
- 1:00
- 1:15
- 1:30
- 1:45
- 2:00
- 2:15
- 2:30
- 2:45
- 3:00

	Northbound			Apprh PHF	Southbound			Apprh PHF	Eastbound			Apprh PHF	Westbound			Apprh PHF
	L	T	R		L	T	R		L	T	R		L	T	R	
12:15	5		2					43	12			4	29			
12:30	15		17					128	79			9	62			
12:45	27		32					205	135			15	92			
1:00	41		49					286	151			20	121			
1:15	54		62					360	177			26	153			
1:30	68		75					438	205			32	186			
1:45	81		91					519	241			40	234			
2:00	96		108					604	275			50	273			
2:15	109		122					681	317			61	317			
2:30	121		136					780	364			69	358			

15-min period

Ending Time

- 12:15
- 12:30
- 12:45
- 1:00
- 1:15
- 1:30
- 1:45
- 2:00
- 2:15
- 2:30

OUTPUTS

	Northbound			Apprh PHF	Southbound			Apprh PHF	Eastbound			Apprh PHF	Westbound			Apprh PHF	15 min. totals	60 min totals	15-min period Ending Time
	L	T	R		L	T	R		L	T	R		L	T	R				
12:15	5	0	2	7	0	0	0	0	43	12	55	4	29	0	33	95		12:15	
12:30	10	0	15	25	0	0	0	0	85	67	152	5	33	0	38	215		12:30	
12:45	12	0	15	27	0	0	0	0	77	56	133	6	30	0	36	196		12:45	
1:00	14	0	17	31	0	0	0	0	81	16	97	5	29	0	34	162	668	1:00	
1:15	13	0	13	26	0	0	0	0	74	26	100	6	32	0	38	164	737	1:15	
1:30	14	0	13	27	0	0	0	0	78	28	106	6	33	0	39	172	694	1:30	
1:45	13	0	16	29	0	0	0	0	81	36	117	8	48	0	56	202	700	1:45	
2:00	15	0	17	32	0	0	0	0	85	34	119	10	39	0	49	200	738	2:00	
2:15	13	0	14	27	0	0	0	0	77	42	119	11	44	0	55	201	775	2:15	
2:30	12	0	14	26	0	0	0	0	99	47	146	8	41	0	49	221	824	2:30	
PEAK =>	53	0	61		0	0	0		0	342	159		37	172	0		824		

Peak Hour
824
 Total Intersection Vol

WHOLE INTERSECTION

PEAK HR VOL 824
 PEAK 15 MIN VOL 221
 PEAK HR FACTOR (PHF) **0.93**

Intersection:
Direction
Time Period:

Thom Embarcadero
N/S <=> Pick => E/W
4 - 6 PM

Bay St.
N/S <=> Pick <=> E/W

Date:

June 20, 2007 Wednesday

Project: 100919

INPUTS

Labels =>

15-min period Ending Time

4:15
4:30
4:45
5:00
5:15
5:30
5:45
6:00

Northbound			Apprh PHF	A Southbound			Apprh PHF	Eastbound			Apprh PHF	B Westbound			Apprh PHF
L	T	U		L	T	R		L	T	R		L	T	R	
230	155	9		146	2			4		123					
384	279	10		314	6			9		243					
598	433	15		433	7			14		372					
830	580	16		560	11			15		507					
1086	700	16		713	16			22		645					
1355	843	16		834	24			27		804					
1645	985	16		963	28			31		946					
1947	1136	17		1091	34			32		1067					

OUTPUTS

15-min period Ending Time

4:15
4:30
4:45
5:00
5:15
5:30
5:45
6:00

Northbound			Apprh PHF	A Southbound			Apprh PHF	Eastbound			Apprh PHF	B Westbound			Apprh PHF	15 min. totals	60 min totals	15-min Ending
L	T	U		L	T	R		L	T	R		L	T	R				
230	155	9	394	0	146	2	148	4	0	123	127	0	0	0	0	669		4
154	124	1	279	0	168	4	172	5	0	120	125	0	0	0	0	576		4
214	154	5	373	0	119	1	120	5	0	129	134	0	0	0	0	627		4
232	147	1	380	0	127	4	131	1	0	135	136	0	0	0	0	647	2519	5
256	120	0	376	0	153	5	158	7	0	138	145	0	0	0	0	679	2529	5
269	143	0	412	0	121	8	129	5	0	159	164	0	0	0	0	705	2658	5
290	142	0	432	0	129	4	133	4	0	142	146	0	0	0	0	711	2742	5
302	151	1	454	0	128	6	134	1	0	121	122	0	0	0	0	710	2805	6
1117	556	1		0	531	23		17	0	560		0	0	0				Peak Hour

PEAK =>
HOUR
TOTAL

1117 556 1

0 531 23

6:00

17 0 560

0 0 0

2805 Total Intersection Vol

WHOLE INTERSECTION

PEAK HR VOL 2,805
PEAK 15 MIN VOL 711
PEAK HR FACTOR (PHF) 0.99

5:00 Peak Period Starting at

6:00 Peak Period Ending at

BY APPROACH

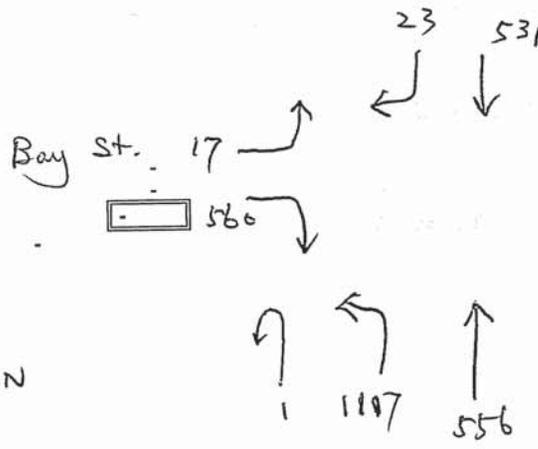
PEAK HR VOL 1,674
PEAK 15 MIN VOL 454
PEAK HR FACTOR (PHF) 0.92

554
158
0.88

CAUTION : PHF below 0.9

577
164
0.88

CAUTION : PHF below 0.9



The Embarcadero

Intersection: Embarcadero
 Direction: N/S <=> Pick => E/W
 Time Period: 12N-2P

Bay
 N/S := Pick = E/W

Date: June 23, 2007 Saturday

Project: 100919

INPUTS

Labels =>

15-min period Ending Time

12:15
12:30
12:45
1:00
1:15
1:30
1:45
2:00

Northbound			Apprh PHF	Southbound			Apprh PHF	Eastbound			Apprh PHF	Westbound			Apprh PHF
L	T	U		L	T	R		L	T	R		L	T	R	
108	219	3		107	4			8		201					
232	483	4		192	8			15		355					
328	662	5		284	11			23		496					
451	894	5		394	17			27		629					
554	1068	6		485	24			32		733					
680	1307	8		593	35			34		854					
799	1528	12		706	45			37		971					
908	1728	12		817	53			43		1083					

OUTPUTS

15-min period Ending Time

12:15
12:30
12:45
1:00
1:15
1:30
1:45
2:00

			Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending	
L	T	U		L	T	R		L	T	R		L	T	R					
108	219	3	330	0	107	4	111	8	0	201	209	0	0	0	0	650		12	
232	483	1	389	0	85	4	89	7	0	154	161	0	0	0	0	639		12	
328	662	1	276	0	92	3	95	8	0	141	149	0	0	0	0	520		12	
451	894	0	355	0	110	6	116	4	0	133	137	0	0	0	0	608	2417	1	
554	1068	1	278	0	91	7	98	5	0	104	109	0	0	0	0	485	2252	1	
680	1307	2	367	0	108	11	119	2	0	121	123	0	0	0	0	609	2222	1	
799	1528	4	344	0	113	10	123	3	0	117	120	0	0	0	0	587	2289	1	
908	1728	0	309	0	111	8	119	6	0	112	118	0	0	0	0	546	2227	2	
451	894	5		0	394	17		27	0	629		0	0	0				Peak Hour	
																			2417
																			Total Intersection Vol

PEAK =>
 HOUR
 TOTAL

451 894 5

0 394 17

1:00

27 0 629

0 0 0

2417

WHOLE INTERSECTION

PEAK HR VOL 2,417
 PEAK 15 MIN VOL 650
 PEAK HR FACTOR (PHF) 0.93

12:00
 Peak Period Starting at

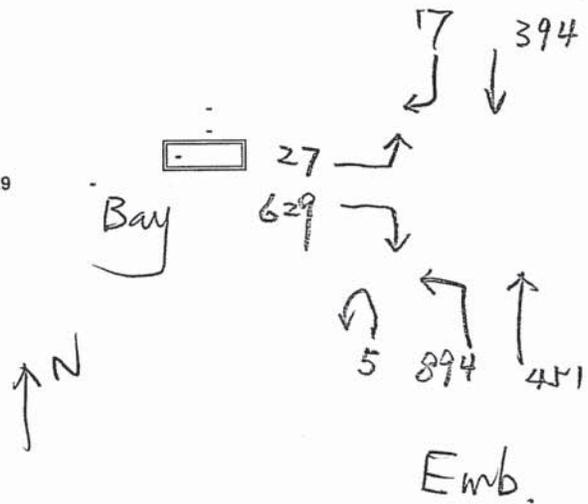
1:00
 Peak Period Ending at

BY APPROACH

PEAK HR VOL 1,350
 PEAK 15 MIN VOL 389
 PEAK HR FACTOR (PHF) 0.87
 CAUTION : PHF below 0.9

411
 116
0.89
 CAUTION : PHF below 0.9

656
 209
0.78
 CAUTION : PHF below 0.9



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File Name : The Embarcadero_Bay_4_6pm
 Site Code : 00000004
 Start Date : 1/16/2008
 Page No : 1

Groups Printed- Unshifted - Bank 1

Start Time	The Embarcadero (SB)					Bay St (WB)					The Embarcadero (NB)					Bay St (EB)					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	5	127	0	2	134	0	0	0	0	0	0	108	164	1	273	129	0	2	0	131	538
04:15 PM	1	122	0	2	125	0	0	0	0	0	0	114	242	3	359	139	0	4	0	143	627
04:30 PM	3	99	0	1	103	0	0	0	0	0	0	94	203	2	299	103	0	3	0	106	508
04:45 PM	2	131	0	1	134	0	0	0	0	0	0	109	221	1	331	133	0	6	0	139	604
Total	11	479	0	6	496	0	0	0	0	0	0	425	830	7	1262	504	0	15	0	519	2277
05:00 PM	0	124	0	1	125	0	0	0	0	0	0	109	296	3	408	162	0	0	0	162	695
05:15 PM	0	111	0	3	114	0	0	0	0	0	0	108	357	2	467	187	0	1	0	188	769
05:30 PM	1	153	0	2	156	0	0	0	0	0	0	132	385	3	520	208	0	1	0	209	885
05:45 PM	1	153	0	4	158	0	0	0	0	0	0	126	473	2	601	204	0	0	0	204	963
Total	2	541	0	10	553	0	0	0	0	0	0	475	1511	10	1996	761	0	2	0	763	3312
Grand Total	13	1020	0	16	1049	0	0	0	0	0	0	900	2341	17	3258	1265	0	17	0	1282	5589
Apprch %	1.2	97.2	0	1.5		0	0	0	0		0	27.6	71.9	0.5		98.7	0	1.3	0		
Total %	0.2	18.3	0	0.3	18.8	0	0	0	0		0	16.1	41.9	0.3	58.3	22.6	0	0.3	0	22.9	
Unshifted	13	1020	0	16	1049	0	0	0	0	0	0	900	2341	17	3258	1265	0	17	0	1282	5589
% Unshifted	100	100	0	100	100	0	0	0	0	0	0	100	100	100	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	The Embarcadero (SB)					Bay St (WB)					The Embarcadero (NB)					Bay St (EB)					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

05:00 PM	0	124	0	1	125	0	0	0	0	0	0	109	296	3	408	162	0	0	0	162	695
05:15 PM	0	111	0	3	114	0	0	0	0	0	0	108	357	2	467	187	0	1	0	188	769
05:30 PM	1	153	0	2	156	0	0	0	0	0	0	132	385	3	520	208	0	1	0	209	885
05:45 PM	1	153	0	4	158	0	0	0	0	0	0	126	473	2	601	204	0	0	0	204	963
Total Volume	2	541	0	10	553	0	0	0	0	0	0	475	1511	10	1996	761	0	2	0	763	3312
% App. Total	0.4	97.8	0	1.8		0	0	0	0		0	23.8	75.7	0.5		99.7	0	0.3	0		
PHF	.500	.884	.000	.625	.875	.000	.000	.000	.000	.000	.000	.900	.799	.833	.830	.915	.000	.500	.000	.913	.860

488
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File Name : The Embarcadero_Bay_4_6pm
 Site Code : 00000004
 Start Date : 1/16/2008
 Page No : 2

Start Time	The Embarcadero (SB)					Bay St (WB)					The Embarcadero (NB)					Bay St (EB)					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	05:00 PM					04:00 PM					05:00 PM					05:00 PM				
+0 mins.	0	124	0	1	125	0	0	0	0	0	0	109	296	3	408	162	0	0	0	162
+15 mins.	0	111	0	3	114	0	0	0	0	0	0	108	357	2	467	187	0	1		
+30 mins.	1	153	0	2	156	0	0	0	0	0	0	132	385	3	520	208	0	1	0	209
+45 mins.	1	153	0	4	158	0	0	0	0	0	0	126	473	2	601	204	0	0	0	204
Total Volume	2	541	0	10	553	0	0	0	0	0	0	475	1511	10	1996	761	0	2	0	763
% App. Total	0.4	97.8	0	1.8		0	0	0	0		0	23.8	75.7	0.5		99.7	0	0.3	0	
PHF	.500	.884	.000	.625	.875	.000	.000	.000	.000	.000	.000	.900	.799	.833	.830	.915	.000	.500	.000	.913

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File Name : The Embarcadero_Bay_12pm_230pm

Site Code : 00000001

Start Date : 2/16/2008

Page No : 1

Groups Printed- Unshifted - Bank 1

Start Time	Embarcadero (southbound)					Bay (westbound)					Embarcadero (northbound)					Bay (eastbound)					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
12:15 PM	10	136	0	0	146	0	0	0	0	0	0	262	120	1	383	137	0	7	1	145	674
12:30 PM	18	102	0	3	123	0	0	0	0	0	0	243	114	5	362	121	0	2	0	123	608
12:45 PM	11	79	0	4	94	0	0	0	0	0	0	246	113	1	360	137	0	5	0	142	596
Total	39	317	0	7	363	0	0	0	0	0	0	751	347	7	1105	395	0	14	1	410	1878
01:00 PM	13	92	0	2	107	0	0	0	0	0	0	244	127	3	374	122	0	14	2	138	619
01:15 PM	13	113	0	2	128	0	0	0	0	0	0	216	145	2	363	152	0	7	0	159	650
01:30 PM	14	106	0	2	122	0	0	0	0	0	1	248	139	4	392	90	0	10	0	100	614
01:45 PM	12	124	0	2	138	0	0	0	0	0	0	197	159	1	357	121	0	4	0	125	620
Total	52	435	0	8	495	0	0	0	0	0	1	905	570	10	1486	485	0	35	2	522	2503
02:00 PM	12	122	0	1	135	0	0	0	0	0	0	251	139	3	393	98	0	6	0	104	632
02:15 PM	20	135	0	2	157	0	0	0	0	0	0	196	131	1	328	130	0	15	0	145	630
Grand Total	123	1009	0	18	1150	0	0	0	0	0	1	2103	1187	21	3312	1108	0	70	3	1181	5643
Apprch %	10.7	87.7	0	1.6		0	0	0	0	0	0	63.5	35.8	0.6		93.8	0	5.9	0.3		
Total %	2.2	17.9	0	0.3	20.4	0	0	0	0	0	0	37.3	21	0.4	58.7	19.6	0	1.2	0.1	20.9	
Unshifted	123	1009	0	18	1150	0	0	0	0	0	1	2103	1187	21	3312	1108	0	70	3	1181	5643
% Unshifted	100	100	0	100	100	0	0	0	0	0	100	100	100	100	100	100	0	100	100	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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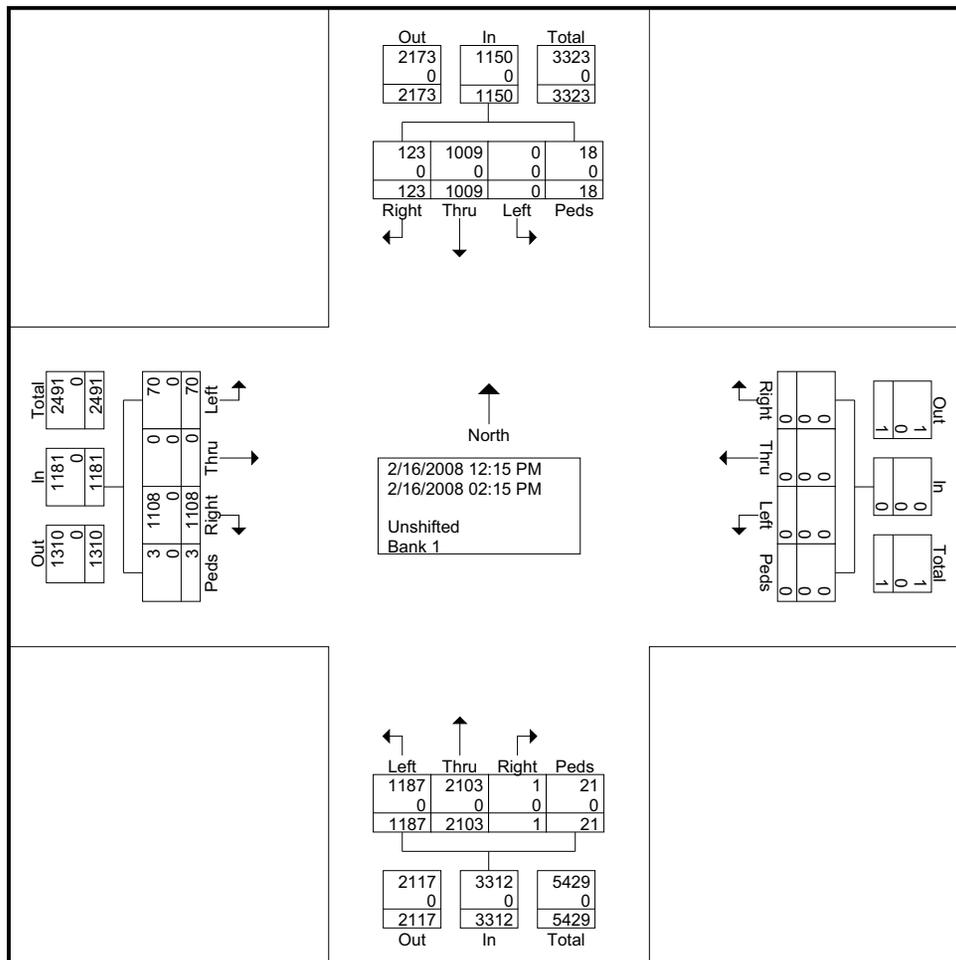
File Name : The Embarcadero_Bay_12pm_230pm

Site Code : 00000001

Start Date : 2/16/2008

Page No : 2

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File Name : The Embarcadero_Bay_12pm_230pm

Site Code : 00000001

Start Date : 2/16/2008

Page No : 3

Start Time	Embarcadero (southbound)					Bay (westbound)					Embarcadero (northbound)					Bay (eastbound)					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 12:15 PM to 02:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:15 PM																					
01:15 PM	13	113	0	2	128	0	0	0	0	0	0	216	145	2	363	152	0	7	0	159	650
01:30 PM	14	106	0	2	122	0	0	0	0	0	1	912	582	4	392	90	0	10	0	125	620
01:45 PM	12	124	0	2	138	0	0	0	0	0	0	197	159	1	357	121	0	4	0	104	632
02:00 PM	12	122	0	1	135	0	0	0	0	0	0	251	139	3	393	98	0	6	0	488	2516
Total Volume	51	465	0	7	523	0	0	0	0	0	1	912	582	10	1505	461	0	27	0	488	2516
% App. Total	9.8	88.9	0	1.3		0	0	0	0	0	0.1	60.6	38.7	0.7		94.5	0	5.5	0		
PHF	.911	.938	.000	.875	.947	.000	.000	.000	.000	.000	.250	.908	.915	.625	.957	.758	.000	.675	.000	.767	.968

TRANSPORTATION-CIRCULATION

Level of Service Calculation Sheets

A. Existing Weekday Conditions (Table 3.4-2)

1. Jefferson Street and Jones Street
2. Beach Street and Jones Street
3. Beach Street and Hyde Street
4. Jefferson Street and Leavenworth Street
5. Beach Street and Leavenworth Street
6. Beach Street and Larkin Street
7. Beach Street and Polk Street
8. Beach Street and Columbus Avenue

B. Existing Weekend Conditions (Table 3.4-3)

1. Jefferson Street and Jones Street
2. Beach Street and Jones Street
3. Beach Street and Hyde Street
4. Jefferson Street and Leavenworth Street
5. Beach Street and Leavenworth Street
6. Beach Street and Larkin Street
7. Beach Street and Polk Street
8. Beach Street and Columbus Avenue

HCM Signalized Intersection Capacity Analysis
 1: Jefferson St. & Jones St.

Existing PM
 7/27/2010



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↕↕	↕	
Volume (vph)	0	0	58	228	58	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.5	3.5	
Lane Util. Factor				0.95	1.00	
Frt				1.00	1.00	
Flt Protected				0.99	0.95	
Satd. Flow (prot)				3504	1770	
Flt Permitted				0.99	0.95	
Satd. Flow (perm)				3504	1770	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	63	248	63	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	311	63	0
Turn Type			Perm			
Protected Phases				2	4	
Permitted Phases			2			
Actuated Green, G (s)				26.0	15.0	
Effective Green, g (s)				26.0	15.0	
Actuated g/C Ratio				0.35	0.20	
Clearance Time (s)				3.5	3.5	
Lane Grp Cap (vph)				1215	354	
v/s Ratio Prot					c0.04	
v/s Ratio Perm				0.09		
v/c Ratio				0.26	0.18	
Uniform Delay, d1				17.6	24.9	
Progression Factor				1.00	1.20	
Incremental Delay, d2				0.5	1.1	
Delay (s)				18.1	30.9	
Level of Service				B	C	
Approach Delay (s)	0.0			18.1	30.9	
Approach LOS	A			B	C	

Intersection Summary			
HCM Average Control Delay	20.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	34.0
Intersection Capacity Utilization	18.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Beach St. & Jones St.

Existing PM
7/27/2010

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	9	187	17	9	133	14	22	30	15	9	32	12	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.0			4.0			4.0			4.0		
Lane Util. Factor		0.95			1.00			1.00			1.00		
Frbp, ped/bikes		0.98			0.95			0.95			0.90		
Flpb, ped/bikes		0.98			0.99			0.87			0.97		
Frt		0.99			0.99			0.97			0.97		
Flt Protected		1.00			1.00			0.98			0.99		
Satd. Flow (prot)		3357			1730			1478			1566		
Flt Permitted		0.95			0.98			0.92			0.96		
Satd. Flow (perm)		3182			1708			1375			1519		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	10	203	18	10	145	15	24	33	16	10	35	13	
RTOR Reduction (vph)	0	7	0	0	5	0	0	12	0	0	10	0	
Lane Group Flow (vph)	0	224	0	0	165	0	0	61	0	0	48	0	
Confl. Peds. (#/hr)	260		110	110		260	180		150	150		180	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		2			6			4			8		
Permitted Phases	2			6			4			8			
Actuated Green, G (s)		45.5			45.5			18.5			18.5		
Effective Green, g (s)		45.5			45.5			18.5			18.5		
Actuated g/C Ratio		0.61			0.61			0.25			0.25		
Clearance Time (s)		4.0			4.0			4.0			4.0		
Lane Grp Cap (vph)		1930			1036			339			375		
v/s Ratio Prot													
v/s Ratio Perm		0.07			0.10			0.04			0.03		
v/c Ratio		0.12			0.16			0.18			0.13		
Uniform Delay, d1		6.2			6.4			22.3			22.0		
Progression Factor		1.00			1.00			1.00			2.04		
Incremental Delay, d2		0.1			0.3			1.2			0.7		
Delay (s)		6.4			6.8			23.4			45.5		
Level of Service		A			A			C			D		
Approach Delay (s)		6.4			6.8			23.4			45.5		
Approach LOS		A			A			C			D		
Intersection Summary													
HCM Average Control Delay			13.1									HCM Level of Service	B
HCM Volume to Capacity ratio			0.16										
Actuated Cycle Length (s)			75.0									Sum of lost time (s)	8.0
Intersection Capacity Utilization			36.1%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis
3: Beach St. & Hyde St.

Existing PM
7/27/2010



Movement	EBT	EBR	WBL	WBT	NBR	SBL	SBT	SBR	SER	
Lane Configurations	↑↑			↑	↑	↑	↑↓		↑	
Volume (vph)	140	22	22	155	58	84	82	86	8	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	3.6			3.6	3.6	3.6	3.6	4.0		
Lane Util. Factor	0.95			1.00	1.00	0.95	0.95	1.00		
Frb, ped/bikes	0.92			1.00	0.73	1.00	0.74	1.00		
Flpb, ped/bikes	1.00			0.95	1.00	0.66	0.98	1.00		
Frt	0.98			1.00	0.86	1.00	0.93	0.86		
Flt Protected	1.00			0.99	1.00	0.95	1.00	1.00		
Satd. Flow (prot)	3206			1753	1172	1114	1196	1611		
Flt Permitted	1.00			0.96	1.00	0.95	1.00	1.00		
Satd. Flow (perm)	3206			1691	1172	1114	1196	1611		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	152	24	24	168	63	91	89	93	9	
RTOR Reduction (vph)	14	0	0	0	39	0	0	0	0	
Lane Group Flow (vph)	162	0	0	192	24	82	191	0	9	
Confl. Peds. (#/hr)	300		300	340		340	250			
Turn Type	Perm			custom		Perm		custom		
Protected Phases	2		2		8		1			
Permitted Phases	2			4		8		1		
Actuated Green, G (s)	21.7			21.7	20.9	20.9	20.9	0.7		
Effective Green, g (s)	21.7			21.7	20.9	20.9	20.9	0.7		
Actuated g/C Ratio	0.40			0.40	0.38	0.38	0.38	0.01		
Clearance Time (s)	3.6			3.6	3.6	3.6	3.6	4.0		
Vehicle Extension (s)	3.0			3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	1277			673	449	427	459	21		
v/s Ratio Prot	0.05								c0.01	
v/s Ratio Perm				c0.11	0.02	0.07	0.16			
v/c Ratio	0.13			0.29	0.05	0.19	0.42	0.43		
Uniform Delay, d1	10.4			11.1	10.6	11.2	12.3	26.7		
Progression Factor	1.00			1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.2			1.1	0.1	0.2	0.6	13.4		
Delay (s)	10.6			12.2	10.6	11.4	12.9	40.1		
Level of Service	B			B	B	B	B	D		
Approach Delay (s)	10.6			12.2		12.5				
Approach LOS	B			B		B				

Intersection Summary			
HCM Average Control Delay	12.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	54.5	Sum of lost time (s)	11.2
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 4: Jefferson St. & Leavenworth St.

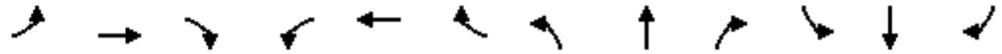
Existing PM
 7/27/2010



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	0	78	208	0	88	14	0	0	15	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	85	226	0	96	15	0	0	16	2
Direction, Lane #	WB 1	WB 2	NB 1	SB 1								
Volume Total (vph)	198	113	111	18								
Volume Left (vph)	85	0	96	0								
Volume Right (vph)	0	0	0	2								
Hadj (s)	0.25	0.03	0.21	-0.04								
Departure Headway (s)	5.1	4.9	4.9	4.8								
Degree Utilization, x	0.28	0.15	0.15	0.02								
Capacity (veh/h)	694	719	702	704								
Control Delay (s)	8.8	7.5	8.7	7.9								
Approach Delay (s)	8.4		8.7	7.9								
Approach LOS	A		A	A								
Intersection Summary												
Delay			8.4									
HCM Level of Service			A									
Intersection Capacity Utilization			32.6%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 5: Beach St. & Leavenworth St.

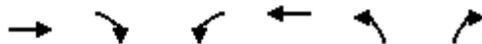
Existing PM
 7/27/2010



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔↔			↔↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	64	143	10	38	124	10	8	33	24	41	48	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	70	155	11	41	135	11	9	36	26	45	52	10
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1							
Volume Total (vph)	147	89	187	71	107							
Volume Left (vph)	70	0	41	9	45							
Volume Right (vph)	0	11	11	26	10							
Hadj (s)	0.27	-0.05	0.04	-0.16	0.06							
Departure Headway (s)	5.4	5.1	4.8	4.9	5.1							
Degree Utilization, x	0.22	0.13	0.25	0.10	0.15							
Capacity (veh/h)	633	677	713	666	648							
Control Delay (s)	8.7	7.6	9.4	8.4	9.0							
Approach Delay (s)	8.3		9.4	8.4	9.0							
Approach LOS	A		A	A	A							
Intersection Summary												
Delay			8.8									
HCM Level of Service			A									
Intersection Capacity Utilization			49.9%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 6: Beach St. & Larkin St.

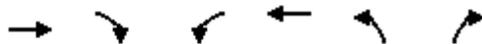
Existing PM
 7/27/2010



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↷			↶	↷	
Sign Control	Stop			Stop	Stop	
Volume (vph)	82	21	66	173	25	75
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	89	23	72	188	27	82
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	112	260	109			
Volume Left (vph)	0	72	27			
Volume Right (vph)	23	0	82			
Hadj (s)	-0.09	0.09	-0.37			
Departure Headway (s)	4.3	4.4	4.4			
Degree Utilization, x	0.14	0.32	0.13			
Capacity (veh/h)	796	796	762			
Control Delay (s)	8.0	9.4	8.0			
Approach Delay (s)	8.0	9.4	8.0			
Approach LOS	A	A	A			
Intersection Summary						
Delay			8.7			
HCM Level of Service			A			
Intersection Capacity Utilization	39.4%			ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
7: Beach St. & Polk St.

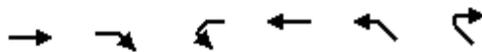
Existing PM
7/27/2010



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↷			↶	↷	
Sign Control	Stop			Stop	Stop	
Volume (vph)	22	32	178	15	15	76
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	35	193	16	16	83
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	59	210	99			
Volume Left (vph)	0	193	16			
Volume Right (vph)	35	0	83			
Hadj (s)	-0.32	0.22	-0.43			
Departure Headway (s)	4.0	4.4	4.1			
Degree Utilization, x	0.07	0.26	0.11			
Capacity (veh/h)	861	791	828			
Control Delay (s)	7.3	8.9	7.6			
Approach Delay (s)	7.3	8.9	7.6			
Approach LOS	A	A	A			
Intersection Summary						
Delay			8.3			
HCM Level of Service			A			
Intersection Capacity Utilization			36.5%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 8: Beach St. & Columbus

Existing PM
 7/27/2010



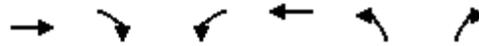
Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑↑			↑	↑↑	
Sign Control	Stop			Stop	Stop	
Volume (vph)	187	97	21	125	47	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	203	105	23	136	51	33

Direction, Lane #	EB 1	EB 2	WB 1	NW 1
Volume Total (vph)	136	173	159	84
Volume Left (vph)	0	0	23	51
Volume Right (vph)	0	105	0	33
Hadj (s)	0.03	-0.39	0.06	-0.08
Departure Headway (s)	4.9	4.5	4.6	4.8
Degree Utilization, x	0.18	0.21	0.20	0.11
Capacity (veh/h)	723	788	758	689
Control Delay (s)	7.8	7.5	8.7	8.4
Approach Delay (s)	7.6		8.7	8.4
Approach LOS	A		A	A

Intersection Summary			
Delay		8.1	
HCM Level of Service		A	
Intersection Capacity Utilization	35.5%		ICU Level of Service A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
 1: Jefferson St. & Jones St.

Existing Weekend MID
 7/27/2010



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↕↕	↕	
Volume (vph)	0	0	181	430	121	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.5	3.5	
Lane Util. Factor				0.95	1.00	
Frt				1.00	1.00	
Flt Protected				0.99	0.95	
Satd. Flow (prot)				3487	1770	
Flt Permitted				0.99	0.95	
Satd. Flow (perm)				3487	1770	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	197	467	132	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	664	132	0
Turn Type			Perm			
Protected Phases				2	4	
Permitted Phases			2			
Actuated Green, G (s)				26.0	15.0	
Effective Green, g (s)				26.0	15.0	
Actuated g/C Ratio				0.35	0.20	
Clearance Time (s)				3.5	3.5	
Lane Grp Cap (vph)				1209	354	
v/s Ratio Prot					c0.07	
v/s Ratio Perm				0.19		
v/c Ratio				0.55	0.37	
Uniform Delay, d1				19.8	25.9	
Progression Factor				1.00	1.07	
Incremental Delay, d2				1.8	2.4	
Delay (s)				21.6	30.0	
Level of Service				C	C	
Approach Delay (s)	0.0			21.6	30.0	
Approach LOS	A			C	C	

Intersection Summary			
HCM Average Control Delay		23.0	HCM Level of Service C
HCM Volume to Capacity ratio		0.48	
Actuated Cycle Length (s)		75.0	Sum of lost time (s) 34.0
Intersection Capacity Utilization		30.5%	ICU Level of Service A
Analysis Period (min)		15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Beach St. & Jones St.

Existing Weekend MID
7/27/2010

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	49	412	99	33	229	21	109	61	45	61	68	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		0.95			1.00			1.00			1.00	
Frbp, ped/bikes		0.91			0.95			0.93			0.83	
Flpb, ped/bikes		0.97			0.98			0.83			0.94	
Frt		0.97			0.99			0.97			0.96	
Flt Protected		1.00			0.99			0.98			0.98	
Satd. Flow (prot)		3015			1703			1358			1376	
Flt Permitted		0.90			0.90			0.70			0.83	
Satd. Flow (perm)		2730			1547			969			1159	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	53	448	108	36	249	23	118	66	49	66	74	58
RTOR Reduction (vph)	0	24	0	0	4	0	0	13	0	0	20	0
Lane Group Flow (vph)	0	585	0	0	304	0	0	220	0	0	178	0
Confl. Peds. (#/hr)	528		226	226		528	367		293	293		367
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		45.5			45.5			18.5			18.5	
Effective Green, g (s)		45.5			45.5			18.5			18.5	
Actuated g/C Ratio		0.61			0.61			0.25			0.25	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		1656			939			239			286	
v/s Ratio Prot												
v/s Ratio Perm		c0.21			0.20			c0.23			0.15	
v/c Ratio		0.35			0.32			0.92			0.62	
Uniform Delay, d1		7.4			7.2			27.5			25.2	
Progression Factor		1.00			1.00			1.00			1.79	
Incremental Delay, d2		0.6			0.9			40.9			8.4	
Delay (s)		8.0			8.1			68.5			53.4	
Level of Service		A			A			E			D	
Approach Delay (s)		8.0			8.1			68.5			53.4	
Approach LOS		A			A			E			D	
Intersection Summary												
HCM Average Control Delay			25.1									HCM Level of Service C
HCM Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			75.0								8.0	
Intersection Capacity Utilization			64.1%									ICU Level of Service C
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
3: Beach St. & Hyde St.

Existing Weekend MID
7/27/2010



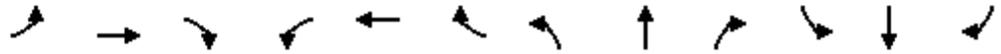
Movement	EBT	EBR	WBL	WBT	NBR	SBL	SBT	SBR	SER
Lane Configurations	↑↑			↑	↑	↑	↑↓		↑
Volume (vph)	308	64	42	237	134	255	164	215	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.6			3.6	3.6	3.6	3.6	4.0	
Lane Util. Factor	0.95			1.00	1.00	0.95	0.95	1.00	
Frb, ped/bikes	0.88			1.00	0.69	1.00	0.63	1.00	
Flpb, ped/bikes	1.00			0.95	1.00	0.58	0.97	1.00	
Frt	0.97			1.00	0.86	1.00	0.92	0.86	
Flt Protected	1.00			0.99	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	3033			1750	1113	974	991	1611	
Flt Permitted	1.00			0.89	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	3033			1573	1113	974	991	1611	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	335	70	46	258	146	277	178	234	9
RTOR Reduction (vph)	25	0	0	0	68	0	0	0	0
Lane Group Flow (vph)	380	0	0	304	78	249	440	0	9
Confl. Peds. (#/hr)	542		542	563		563	552		
Turn Type	Perm			custom		Perm		custom	
Protected Phases	2		2		8		1		
Permitted Phases	2			4		8		1	
Actuated Green, G (s)	16.6			16.6	32.4	32.4	32.4	0.7	
Effective Green, g (s)	16.6			16.6	32.4	32.4	32.4	0.7	
Actuated g/C Ratio	0.27			0.27	0.53	0.53	0.53	0.01	
Clearance Time (s)	3.6			3.6	3.6	3.6	3.6	4.0	
Vehicle Extension (s)	3.0			3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	827			429	592	518	527	19	
v/s Ratio Prot	0.13							c0.01	
v/s Ratio Perm				c0.19	0.07	0.26	0.44		
v/c Ratio	0.46			0.71	0.13	0.48	0.83	0.47	
Uniform Delay, d1	18.4			20.0	7.2	9.0	12.0	29.9	
Progression Factor	1.00			1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.8			9.5	0.1	0.7	11.0	17.5	
Delay (s)	20.3			29.5	7.3	9.7	23.0	47.4	
Level of Service	C			C	A	A	C	D	
Approach Delay (s)	20.3			29.5		18.2			
Approach LOS	C			C		B			

Intersection Summary			
HCM Average Control Delay	20.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	60.9	Sum of lost time (s)	11.2
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 4: Jefferson St. & Leavenworth St.

Existing Weekend MID
 7/27/2010



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	0	98	427	7	100	10	0	0	25	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	107	464	8	109	11	0	0	27	7
Direction, Lane #	WB 1	WB 2	NB 1	SB 1								
Volume Total (vph)	339	240	120	34								
Volume Left (vph)	107	0	109	0								
Volume Right (vph)	0	8	0	7								
Hadj (s)	0.19	0.01	0.22	-0.08								
Departure Headway (s)	5.1	4.9	5.4	5.3								
Degree Utilization, x	0.48	0.33	0.18	0.05								
Capacity (veh/h)	683	713	628	632								
Control Delay (s)	11.6	9.2	9.6	8.5								
Approach Delay (s)	10.6		9.6	8.5								
Approach LOS	B		A	A								
Intersection Summary												
Delay			10.3									
HCM Level of Service			B									
Intersection Capacity Utilization			35.1%	ICU Level of Service								A
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 5: Beach St. & Leavenworth St.

Existing Weekend MID
 7/27/2010



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔↔			↔↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	126	377	45	88	244	58	15	83	118	69	46	12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	137	410	49	96	265	63	16	90	128	75	50	13

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	342	254	424	235	138
Volume Left (vph)	137	0	96	16	75
Volume Right (vph)	0	49	63	128	13
Hadj (s)	0.23	-0.10	-0.01	-0.28	0.09
Departure Headway (s)	6.9	6.5	6.3	6.8	7.5
Degree Utilization, x	0.65	0.46	0.75	0.44	0.29
Capacity (veh/h)	507	534	546	476	421
Control Delay (s)	20.7	13.8	25.7	15.0	13.5
Approach Delay (s)	17.8		25.7	15.0	13.5
Approach LOS	C		D	C	B

Intersection Summary	
Delay	19.3
HCM Level of Service	C
Intersection Capacity Utilization	79.3% ICU Level of Service D
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 6: Beach St. & Larkin St.

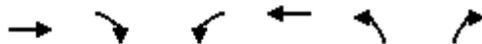
Existing Weekend MID
 7/27/2010



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↷			↶	↷	
Sign Control	Stop			Stop	Stop	
Volume (vph)	212	78	167	291	66	169
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	230	85	182	316	72	184
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	315	498	255			
Volume Left (vph)	0	182	72			
Volume Right (vph)	85	0	184			
Hadj (s)	-0.13	0.11	-0.34			
Departure Headway (s)	5.3	5.2	5.6			
Degree Utilization, x	0.46	0.73	0.40			
Capacity (veh/h)	649	670	582			
Control Delay (s)	12.7	20.8	12.3			
Approach Delay (s)	12.7	20.8	12.3			
Approach LOS	B	C	B			
Intersection Summary						
Delay			16.4			
HCM Level of Service			C			
Intersection Capacity Utilization			75.1%	ICU Level of Service	D	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
7: Beach St. & Polk St.

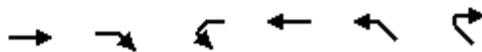
Existing Weekend MID
7/27/2010



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↷			↶	↷	
Sign Control	Stop			Stop	Stop	
Volume (vph)	48	37	306	46	41	252
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	52	40	333	50	45	274
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	92	383	318			
Volume Left (vph)	0	333	45			
Volume Right (vph)	40	0	274			
Hadj (s)	-0.23	0.21	-0.45			
Departure Headway (s)	5.0	5.0	4.7			
Degree Utilization, x	0.13	0.54	0.41			
Capacity (veh/h)	657	684	715			
Control Delay (s)	8.7	13.7	10.9			
Approach Delay (s)	8.7	13.7	10.9			
Approach LOS	A	B	B			
Intersection Summary						
Delay			12.0			
HCM Level of Service			B			
Intersection Capacity Utilization			55.7%	ICU Level of Service	B	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
8: Beach St. & Columbus

Existing Weekend MID
7/27/2010



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑↑			↑	↑↑	
Sign Control	Stop			Stop	Stop	
Volume (vph)	472	219	46	213	66	76
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	513	238	50	232	72	83
Direction, Lane #	EB 1	EB 2	WB 1	NW 1		
Volume Total (vph)	342	409	282	154		
Volume Left (vph)	0	0	50	72		
Volume Right (vph)	0	238	0	83		
Hadj (s)	0.03	-0.37	0.07	-0.19		
Departure Headway (s)	5.3	4.9	5.3	5.7		
Degree Utilization, x	0.50	0.56	0.41	0.25		
Capacity (veh/h)	661	724	661	569		
Control Delay (s)	12.4	12.6	11.9	10.6		
Approach Delay (s)	12.5		11.9	10.6		
Approach LOS	B		B	B		
Intersection Summary						
Delay			12.1			
HCM Level of Service			B			
Intersection Capacity Utilization			54.6%		ICU Level of Service	A
Analysis Period (min)			15			

Level of Service Calculation Sheets

C. Existing Plus Project Weekday Conditions (Table 4.4-1) (Semi-Exclusive and Shared Lane Options)

1. Jefferson Street and Jones Street
2. Beach Street and Jones Street
3. Beach Street and Hyde Street
4. Jefferson Street and Leavenworth Street
5. Beach Street and Leavenworth Street
6. Beach Street and Larkin Street
7. Beach Street and Polk Street
8. Beach Street and Columbus Avenue

HCM Signalized Intersection Capacity Analysis
 1: Jefferson St. & Jones St.

Semi-Exclusive Option
 9/1/2010



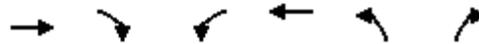
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations			↶	↷	↶	
Volume (vph)	0	0	58	228	58	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			3.5	3.5	3.5	
Lane Util. Factor			1.00	1.00	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1770	1863	1770	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1770	1863	1770	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	63	248	63	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	63	248	63	0
Turn Type			Perm			
Protected Phases				2	4	
Permitted Phases			2			
Actuated Green, G (s)			26.0	26.0	15.0	
Effective Green, g (s)			26.0	26.0	15.0	
Actuated g/C Ratio			0.35	0.35	0.20	
Clearance Time (s)			3.5	3.5	3.5	
Lane Grp Cap (vph)			614	646	354	
v/s Ratio Prot				c0.13	c0.04	
v/s Ratio Perm			0.04			
v/c Ratio			0.10	0.38	0.18	
Uniform Delay, d1			16.6	18.5	24.9	
Progression Factor			1.00	1.00	1.17	
Incremental Delay, d2			0.3	1.7	1.1	
Delay (s)			16.9	20.2	30.1	
Level of Service			B	C	C	
Approach Delay (s)	0.0			19.5	30.1	
Approach LOS	A			B	C	

Intersection Summary			
HCM Average Control Delay	21.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	34.0
Intersection Capacity Utilization	22.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 1: Jefferson St. & Jones St.

Shared Lane Option
 9/1/2010



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↕↕	↕	
Volume (vph)	0	0	58	228	58	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.5	3.5	
Lane Util. Factor				0.95	1.00	
Frt				1.00	1.00	
Flt Protected				0.99	0.95	
Satd. Flow (prot)				3504	1770	
Flt Permitted				0.99	0.95	
Satd. Flow (perm)				3504	1770	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	63	248	63	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	311	63	0
Turn Type			Perm			
Protected Phases				2	4	
Permitted Phases			2			
Actuated Green, G (s)				26.0	15.0	
Effective Green, g (s)				26.0	15.0	
Actuated g/C Ratio				0.35	0.20	
Clearance Time (s)				3.5	3.5	
Lane Grp Cap (vph)				1215	354	
v/s Ratio Prot					c0.04	
v/s Ratio Perm				0.09		
v/c Ratio				0.26	0.18	
Uniform Delay, d1				17.6	24.9	
Progression Factor				1.00	1.29	
Incremental Delay, d2				0.5	1.1	
Delay (s)				18.1	33.1	
Level of Service				B	C	
Approach Delay (s)	0.0			18.1	33.1	
Approach LOS	A			B	C	

Intersection Summary			
HCM Average Control Delay	20.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	34.0
Intersection Capacity Utilization	18.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Beach St. & Jones St.

Semi-Exclusive Option

9/1/2010

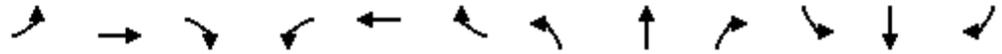


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	9	187	17	9	133	14	22	30	15	9	32	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.98			0.95			0.92			0.90	
Flpb, ped/bikes		0.98			0.99			0.87			0.95	
Frt		0.99			0.99			0.97			0.97	
Flt Protected		1.00			1.00			0.98			0.99	
Satd. Flow (prot)		1769			1731			1428			1531	
Flt Permitted		0.99			0.98			0.92			0.96	
Satd. Flow (perm)		1755			1710			1329			1486	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	203	18	10	145	15	24	33	16	10	35	13
RTOR Reduction (vph)	0	4	0	0	5	0	0	12	0	0	10	0
Lane Group Flow (vph)	0	227	0	0	165	0	0	61	0	0	48	0
Confl. Peds. (#/hr)	260		110	110		260	180		150	150		180
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		45.5			45.5			18.5			18.5	
Effective Green, g (s)		45.5			45.5			18.5			18.5	
Actuated g/C Ratio		0.61			0.61			0.25			0.25	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		1065			1037			328			367	
v/s Ratio Prot												
v/s Ratio Perm		c0.13			0.10			c0.05			0.03	
v/c Ratio		0.21			0.16			0.19			0.13	
Uniform Delay, d1		6.7			6.4			22.3			22.0	
Progression Factor		0.51			1.00			1.00			2.09	
Incremental Delay, d2		0.4			0.3			1.2			0.7	
Delay (s)		3.8			6.8			23.6			46.8	
Level of Service		A			A			C			D	
Approach Delay (s)		3.8			6.8			23.6			46.8	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM Average Control Delay	12.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
2: Beach St. & Jones St.

Shared Lane Option
9/1/2010



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↕			↕	
Volume (vph)	9	187	17	9	133	14	22	30	15	9	32	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0			4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frbp, ped/bikes		1.00	0.73		0.95			0.92			0.90	
Flpb, ped/bikes		0.98	1.00		0.99			0.87			0.95	
Frt		1.00	0.85		0.99			0.97			0.97	
Flt Protected		1.00	1.00		1.00			0.98			0.99	
Satd. Flow (prot)		1823	1152		1729			1428			1531	
Flt Permitted		0.99	1.00		0.99			0.92			0.96	
Satd. Flow (perm)		1808	1152		1709			1329			1486	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	203	18	10	145	15	24	33	16	10	35	13
RTOR Reduction (vph)	0	0	7	0	5	0	0	12	0	0	10	0
Lane Group Flow (vph)	0	213	11	0	165	0	0	61	0	0	48	0
Confl. Peds. (#/hr)	260		110	110		260	180		150	150		180
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6			4			8		
Actuated Green, G (s)		45.5	45.5		45.5			18.5			18.5	
Effective Green, g (s)		45.5	45.5		45.5			18.5			18.5	
Actuated g/C Ratio		0.61	0.61		0.61			0.25			0.25	
Clearance Time (s)		4.0	4.0		4.0			4.0			4.0	
Lane Grp Cap (vph)		1097	699		1037			328			367	
v/s Ratio Prot												
v/s Ratio Perm		c0.12	0.01		0.10			c0.05			0.03	
v/c Ratio		0.19	0.02		0.16			0.19			0.13	
Uniform Delay, d1		6.6	5.9		6.4			22.3			22.0	
Progression Factor		0.63	0.42		1.00			1.00			2.04	
Incremental Delay, d2		0.4	0.0		0.3			1.2			0.7	
Delay (s)		4.5	2.5		6.8			23.6			45.6	
Level of Service		A	A		A			C			D	
Approach Delay (s)		4.4			6.8			23.6			45.6	
Approach LOS		A			A			C			D	
Intersection Summary												
HCM Average Control Delay			12.3									
HCM Volume to Capacity ratio			0.18									
Actuated Cycle Length (s)			75.0									
Intersection Capacity Utilization			50.0%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 3: Beach St. & Hyde St.

Semi-Exclusive Option
 9/1/2010



Movement	EBT	EBR	WBL	WBT	NBR	SBL	SBT	SBR	SER
Lane Configurations	↔			↔	↔	↔	↔		↔
Volume (vph)	140	22	22	155	58	84	82	86	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.6			3.6	3.6	3.6	3.6		4.0
Lane Util. Factor	1.00			1.00	1.00	1.00	1.00		1.00
Frb, ped/bikes	0.92			1.00	0.73	1.00	0.73		1.00
Flpb, ped/bikes	1.00			0.95	1.00	0.66	1.00		1.00
Frt	0.98			1.00	0.86	1.00	0.92		0.86
Flt Protected	1.00			0.99	1.00	0.95	1.00		1.00
Satd. Flow (prot)	1691			1753	1172	1172	1255		1611
Flt Permitted	1.00			0.96	1.00	0.95	1.00		1.00
Satd. Flow (perm)	1691			1693	1172	1172	1255		1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	152	24	24	168	63	91	89	93	9
RTOR Reduction (vph)	7	0	0	0	39	0	0	0	0
Lane Group Flow (vph)	169	0	0	192	24	91	182	0	9
Confl. Peds. (#/hr)		300	300		340	340		250	
Turn Type			Perm		custom		Perm		custom
Protected Phases	2			2			8		1
Permitted Phases			2		4	8			1
Actuated Green, G (s)	21.7			21.7	20.9	20.9	20.9		0.7
Effective Green, g (s)	21.7			21.7	20.9	20.9	20.9		0.7
Actuated g/C Ratio	0.40			0.40	0.38	0.38	0.38		0.01
Clearance Time (s)	3.6			3.6	3.6	3.6	3.6		4.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	673			674	449	449	481		21
v/s Ratio Prot	0.10						c0.15		c0.01
v/s Ratio Perm				c0.11	0.02	0.08			
v/c Ratio	0.25			0.28	0.05	0.20	0.38		0.43
Uniform Delay, d1	11.0			11.1	10.6	11.2	12.1		26.7
Progression Factor	1.00			1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	0.9			1.1	0.1	0.2	0.5		13.4
Delay (s)	11.9			12.2	10.6	11.5	12.6		40.1
Level of Service	B			B	B	B	B		D
Approach Delay (s)	11.9			12.2			12.2		
Approach LOS	B			B			B		
Intersection Summary									
HCM Average Control Delay			12.3		HCM Level of Service				B
HCM Volume to Capacity ratio			0.33						
Actuated Cycle Length (s)			54.5		Sum of lost time (s)				11.2
Intersection Capacity Utilization			66.5%		ICU Level of Service				C
Analysis Period (min)			15						

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Beach St. & Hyde St.

Shared Lane Option
9/1/2010



Movement	EBT	WBL	WBT	NBR	SBL	SBT	SBR	SER
Lane Configurations	↑		↔	↔	↔	↔		↔
Volume (vph)	162	22	155	58	84	82	86	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.6		3.6	3.6	3.6	3.6		4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00		1.00
Frbp, ped/bikes	1.00		1.00	0.73	1.00	0.73		1.00
Flpb, ped/bikes	1.00		0.95	1.00	0.66	1.00		1.00
Frt	1.00		1.00	0.86	1.00	0.92		0.86
Flt Protected	1.00		0.99	1.00	0.95	1.00		1.00
Satd. Flow (prot)	1863		1753	1172	1172	1255		1611
Flt Permitted	1.00		0.96	1.00	0.95	1.00		1.00
Satd. Flow (perm)	1863		1693	1172	1172	1255		1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	176	24	168	63	91	89	93	9
RTOR Reduction (vph)	0	0	0	39	0	0	0	0
Lane Group Flow (vph)	176	0	192	24	91	182	0	9
Confl. Peds. (#/hr)		300		340	340		250	
Turn Type		Perm		custom		Perm		custom
Protected Phases	2		2			8		1
Permitted Phases		2		4		8		1
Actuated Green, G (s)	21.7		21.7	20.9	20.9	20.9		0.7
Effective Green, g (s)	21.7		21.7	20.9	20.9	20.9		0.7
Actuated g/C Ratio	0.40		0.40	0.38	0.38	0.38		0.01
Clearance Time (s)	3.6		3.6	3.6	3.6	3.6		4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	742		674	449	449	481		21
v/s Ratio Prot	0.09					c0.15		c0.01
v/s Ratio Perm			c0.11	0.02	0.08			
v/c Ratio	0.24		0.28	0.05	0.20	0.38		0.43
Uniform Delay, d1	10.9		11.1	10.6	11.2	12.1		26.7
Progression Factor	1.00		1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	0.8		1.1	0.1	0.2	0.5		13.4
Delay (s)	11.7		12.2	10.6	11.5	12.6		40.1
Level of Service	B		B	B	B	B		D
Approach Delay (s)	11.7		12.2			12.2		
Approach LOS	B		B			B		
Intersection Summary								
HCM Average Control Delay			12.3			HCM Level of Service		B
HCM Volume to Capacity ratio			0.33					
Actuated Cycle Length (s)			54.5			Sum of lost time (s)		11.2
Intersection Capacity Utilization			66.2%			ICU Level of Service		C
Analysis Period (min)			15					

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
4: Jefferson St. & Leavenworth St.

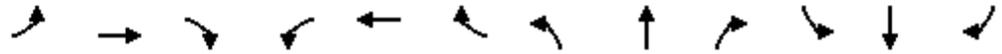
Semi-Exclusive Option
9/1/2010



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Volume (vph)	0	0	0	78	208	0	88	14	0	0	15	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5			3.5			3.5	
Lane Util. Factor					1.00			1.00			1.00	
Frbp, ped/bikes					1.00			1.00			0.98	
Flpb, ped/bikes					0.78			0.84			1.00	
Frt					1.00			1.00			0.98	
Flt Protected					0.99			0.96			1.00	
Satd. Flow (prot)					1432			1503			1793	
Flt Permitted					0.99			0.74			1.00	
Satd. Flow (perm)					1432			1164			1793	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	85	226	0	96	15	0	0	16	2
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	0	0	0	311	0	0	111	0	0	16	0
Confl. Peds. (#/hr)				870		570	80					80
Turn Type				Perm		Perm						
Protected Phases					8			2			6	
Permitted Phases				8		2						
Actuated Green, G (s)					21.5			12.5			12.5	
Effective Green, g (s)					21.5			12.5			12.5	
Actuated g/C Ratio					0.29			0.17			0.17	
Clearance Time (s)					3.5			3.5			3.5	
Lane Grp Cap (vph)					411			194			299	
v/s Ratio Prot											0.01	
v/s Ratio Perm					0.22			0.10				
v/c Ratio					0.76			0.57			0.05	
Uniform Delay, d1					24.4			28.8			26.3	
Progression Factor					0.86			1.11			1.00	
Incremental Delay, d2					11.8			11.5			0.3	
Delay (s)					32.6			43.3			26.6	
Level of Service					C			D			C	
Approach Delay (s)		0.0			32.6			43.3			26.6	
Approach LOS		A			C			D			C	
Intersection Summary												
HCM Average Control Delay			35.1									HCM Level of Service D
HCM Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			75.0								41.0	
Intersection Capacity Utilization			35.3%									ICU Level of Service A
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
4: Jefferson St. & Leavenworth St.

Shared Lane Option
9/1/2010



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Volume (vph)	0	0	0	78	208	0	88	14	0	0	15	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5			3.5			3.5	
Lane Util. Factor					1.00			1.00			1.00	
Frbp, ped/bikes					1.00			1.00			0.98	
Flpb, ped/bikes					0.78			0.84			1.00	
Frt					1.00			1.00			0.98	
Flt Protected					0.99			0.96			1.00	
Satd. Flow (prot)					1432			1503			1793	
Flt Permitted					0.99			0.74			1.00	
Satd. Flow (perm)					1432			1164			1793	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	85	226	0	96	15	0	0	16	2
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	0	0	0	311	0	0	111	0	0	16	0
Confl. Peds. (#/hr)				870		570	80					80
Turn Type				Perm		Perm						
Protected Phases					8			2			6	
Permitted Phases				8		2						
Actuated Green, G (s)					21.5			12.5			12.5	
Effective Green, g (s)					21.5			12.5			12.5	
Actuated g/C Ratio					0.29			0.17			0.17	
Clearance Time (s)					3.5			3.5			3.5	
Lane Grp Cap (vph)					411			194			299	
v/s Ratio Prot											0.01	
v/s Ratio Perm					0.22			0.10				
v/c Ratio					0.76			0.57			0.05	
Uniform Delay, d1					24.4			28.8			26.3	
Progression Factor					0.89			1.23			1.00	
Incremental Delay, d2					12.1			11.1			0.3	
Delay (s)					33.7			46.4			26.6	
Level of Service					C			D			C	
Approach Delay (s)		0.0			33.7			46.4			26.6	
Approach LOS		A			C			D			C	
Intersection Summary												
HCM Average Control Delay			36.6		HCM Level of Service				D			
HCM Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			75.0		Sum of lost time (s)				41.0			
Intersection Capacity Utilization			35.3%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
5: Beach St. & Leavenworth St.

Semi-Exclusive Option

9/1/2010

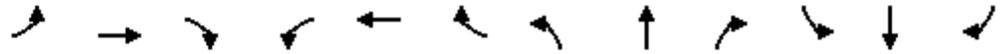


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	64	143	10	38	124	10	8	33	24	41	48	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.99			0.99			0.87			0.97	
Flpb, ped/bikes		0.96			0.98			0.97			0.87	
Frt		0.99			0.99			0.95			0.99	
Flt Protected		0.99			0.99			0.99			0.98	
Satd. Flow (prot)		1731			1767			1485			1529	
Flt Permitted		0.87			0.91			0.97			0.86	
Satd. Flow (perm)		1533			1622			1444			1342	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	155	11	41	135	11	9	36	26	45	52	10
RTOR Reduction (vph)	0	2	0	0	3	0	0	21	0	0	5	0
Lane Group Flow (vph)	0	234	0	0	184	0	0	50	0	0	102	0
Confl. Peds. (#/hr)	210		150	150		210	110		140	140		110
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		40.0			40.0			15.0			15.0	
Effective Green, g (s)		40.0			40.0			15.0			15.0	
Actuated g/C Ratio		0.53			0.53			0.20			0.20	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		818			865			289			268	
v/s Ratio Prot												
v/s Ratio Perm		c0.15			0.11			0.03			c0.08	
v/c Ratio		0.29			0.21			0.17			0.38	
Uniform Delay, d1		9.6			9.2			24.9			26.0	
Progression Factor		1.00			0.82			1.00			1.46	
Incremental Delay, d2		0.9			0.6			1.3			3.2	
Delay (s)		10.5			8.1			26.2			41.1	
Level of Service		B			A			C			D	
Approach Delay (s)		10.5			8.1			26.2			41.1	
Approach LOS		B			A			C			D	

Intersection Summary			
HCM Average Control Delay	17.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	52.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5: Beach St. & Leavenworth St.

Shared Lane Option
9/1/2010



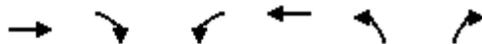
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	64	143	10	38	124	10	8	33	24	41	48	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frbp, ped/bikes	1.00	0.98		1.00	0.96			0.92			0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.97			0.93	
Frt	1.00	0.99		1.00	0.99			0.95			0.99	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.98	
Satd. Flow (prot)	1770	1800		1770	1772			1586			1629	
Flt Permitted	0.95	1.00		0.95	1.00			0.97			0.86	
Satd. Flow (perm)	1770	1800		1770	1772			1542			1430	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	155	11	41	135	11	9	36	26	45	52	10
RTOR Reduction (vph)	0	4	0	0	4	0	0	21	0	0	5	0
Lane Group Flow (vph)	70	162	0	41	142	0	0	50	0	0	102	0
Confl. Peds. (#/hr)	210		150	150		210	110		140	140		110
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	6.0	30.0		6.0	30.0			15.0			15.0	
Effective Green, g (s)	6.0	30.0		6.0	30.0			15.0			15.0	
Actuated g/C Ratio	0.08	0.40		0.08	0.40			0.20			0.20	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)	142	720		142	709			308			286	
v/s Ratio Prot	c0.04	c0.09		0.02	0.08							
v/s Ratio Perm								0.03			c0.07	
v/c Ratio	0.49	0.23		0.29	0.20			0.16			0.36	
Uniform Delay, d1	33.0	14.8		32.5	14.7			24.8			25.8	
Progression Factor	1.00	1.00		0.83	0.93			1.00			1.17	
Incremental Delay, d2	11.7	0.7		5.0	0.6			1.1			2.8	
Delay (s)	44.8	15.6		32.0	14.3			25.9			32.9	
Level of Service	D	B		C	B			C			C	
Approach Delay (s)		24.2			18.2			25.9			32.9	
Approach LOS		C			B			C			C	

Intersection Summary

HCM Average Control Delay	24.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	40.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 6: Beach St. & Larkin St.

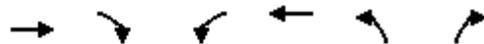
Semi-Exclusive Option
 9/1/2010



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↷			↶	↷	
Sign Control	Stop			Stop	Stop	
Volume (vph)	82	21	66	173	25	75
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	89	23	72	188	27	82
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	112	260	109			
Volume Left (vph)	0	72	27			
Volume Right (vph)	23	0	82			
Hadj (s)	-0.09	0.09	-0.37			
Departure Headway (s)	4.3	4.4	4.4			
Degree Utilization, x	0.14	0.32	0.13			
Capacity (veh/h)	796	796	762			
Control Delay (s)	8.0	9.4	8.0			
Approach Delay (s)	8.0	9.4	8.0			
Approach LOS	A	A	A			
Intersection Summary						
Delay			8.7			
HCM Level of Service			A			
Intersection Capacity Utilization	39.4%			ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
6: Beach St. & Larkin St.

Shared Lane Option
9/1/2010



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩		↩	↩	↩	
Sign Control	Stop			Stop	Stop	
Volume (vph)	82	21	66	173	25	75
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	89	23	72	188	27	82

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total (vph)	112	72	188	109
Volume Left (vph)	0	72	0	27
Volume Right (vph)	23	0	0	82
Hadj (s)	-0.09	0.53	0.03	-0.37
Departure Headway (s)	4.5	5.4	4.9	4.4
Degree Utilization, x	0.14	0.11	0.25	0.13
Capacity (veh/h)	780	647	718	764
Control Delay (s)	8.2	7.8	8.3	8.1
Approach Delay (s)	8.2	8.2		8.1
Approach LOS	A	A		A

Intersection Summary			
Delay		8.2	
HCM Level of Service		A	
Intersection Capacity Utilization	33.3%		ICU Level of Service A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
7: Beach St. & Polk St.

Semi-Exclusive Option
9/1/2010

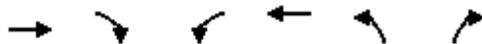


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩			↩	↩	
Volume (vph)	22	32	178	15	15	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	
Lane Util. Factor	1.00			1.00	1.00	
Frbp, ped/bikes	0.93			1.00	0.91	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.92			1.00	0.89	
Flt Protected	1.00			0.96	0.99	
Satd. Flow (prot)	1600			1781	1485	
Flt Permitted	1.00			0.96	0.99	
Satd. Flow (perm)	1600			1781	1485	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	35	193	16	16	83
RTOR Reduction (vph)	30	0	0	0	71	0
Lane Group Flow (vph)	29	0	0	209	28	0
Confl. Peds. (#/hr)		80	80		20	50
Turn Type			Split			
Protected Phases	4		8	8	2	
Permitted Phases						
Actuated Green, G (s)	11.0			27.0	11.0	
Effective Green, g (s)	11.0			27.0	11.0	
Actuated g/C Ratio	0.15			0.36	0.15	
Clearance Time (s)	4.0			4.0	4.0	
Lane Grp Cap (vph)	235			641	218	
v/s Ratio Prot	c0.02			c0.12	c0.02	
v/s Ratio Perm						
v/c Ratio	0.12			0.33	0.13	
Uniform Delay, d1	27.8			17.4	27.8	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	1.1			1.4	1.2	
Delay (s)	28.9			18.8	29.1	
Level of Service	C			B	C	
Approach Delay (s)	28.9			18.8	29.1	
Approach LOS	C			B	C	

Intersection Summary			
HCM Average Control Delay	23.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
7: Beach St. & Polk St.

Shared Lane Option
9/1/2010

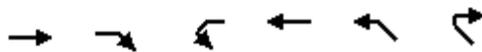


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩			↩	↩	
Volume (vph)	22	32	178	15	15	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	
Lane Util. Factor	1.00			1.00	1.00	
Frb, ped/bikes	0.88			1.00	0.89	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.92			1.00	0.89	
Flt Protected	1.00			0.96	0.99	
Satd. Flow (prot)	1506			1781	1453	
Flt Permitted	1.00			0.96	0.99	
Satd. Flow (perm)	1506			1781	1453	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	35	193	16	16	83
RTOR Reduction (vph)	30	0	0	0	71	0
Lane Group Flow (vph)	29	0	0	209	28	0
Confl. Peds. (#/hr)		80	80		20	50
Turn Type			Split			
Protected Phases	4		8	8	2	
Permitted Phases						
Actuated Green, G (s)	11.0			27.0	11.0	
Effective Green, g (s)	11.0			27.0	11.0	
Actuated g/C Ratio	0.15			0.36	0.15	
Clearance Time (s)	4.0			4.0	4.0	
Lane Grp Cap (vph)	221			641	213	
v/s Ratio Prot	c0.02			c0.12	c0.02	
v/s Ratio Perm						
v/c Ratio	0.13			0.33	0.13	
Uniform Delay, d1	27.8			17.4	27.8	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	1.2			1.4	1.3	
Delay (s)	29.1			18.8	29.1	
Level of Service	C			B	C	
Approach Delay (s)	29.1			18.8	29.1	
Approach LOS	C			B	C	

Intersection Summary			
HCM Average Control Delay	23.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	37.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 8: Beach St. & Columbus

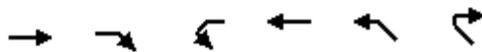
Semi-Exclusive Option
 9/1/2010



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑	↗		↖	↖	↗
Sign Control	Stop			Stop	Stop	
Volume (vph)	187	97	21	125	47	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	203	105	23	136	51	33
Direction, Lane #	EB 1	EB 2	WB 1	NW 1		
Volume Total (vph)	203	105	159	84		
Volume Left (vph)	0	0	23	51		
Volume Right (vph)	0	105	0	33		
Hadj (s)	0.03	-0.67	0.06	-0.08		
Departure Headway (s)	4.9	4.2	4.6	4.8		
Degree Utilization, x	0.28	0.12	0.20	0.11		
Capacity (veh/h)	724	837	757	687		
Control Delay (s)	8.5	6.6	8.8	8.4		
Approach Delay (s)	7.9		8.8	8.4		
Approach LOS	A		A	A		
Intersection Summary						
Delay			8.2			
HCM Level of Service			A			
Intersection Capacity Utilization			35.5%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 8: Beach St. & Columbus

Shared Lane Option
 9/1/2010



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↑	↗		↖	↖	↗
Sign Control	Stop			Stop	Stop	
Volume (vph)	187	119	21	125	47	30
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	203	129	23	136	51	33
Direction, Lane #	EB 1	EB 2	WB 1	NW 1		
Volume Total (vph)	203	129	159	84		
Volume Left (vph)	0	0	23	51		
Volume Right (vph)	0	129	0	33		
Hadj (s)	0.03	-0.67	0.06	-0.08		
Departure Headway (s)	4.9	4.2	4.6	4.9		
Degree Utilization, x	0.28	0.15	0.20	0.11		
Capacity (veh/h)	724	838	754	681		
Control Delay (s)	8.5	6.7	8.8	8.5		
Approach Delay (s)	7.8		8.8	8.5		
Approach LOS	A		A	A		
Intersection Summary						
Delay			8.2			
HCM Level of Service			A			
Intersection Capacity Utilization			35.5%		ICU Level of Service	A
Analysis Period (min)			15			

Level of Service Calculation Sheets

D. Existing Plus Project Weekend Conditions (Table 4.4-2) (Semi-Exclusive and Shared Lane Options)

1. Jefferson Street and Jones Street
2. Beach Street and Jones Street
3. Beach Street and Hyde Street
4. Jefferson Street and Leavenworth Street
5. Beach Street and Leavenworth Street
6. Beach Street and Larkin Street
7. Beach Street and Polk Street
8. Beach Street and Columbus Avenue

HCM Signalized Intersection Capacity Analysis
1: Jefferson St. & Jones St.

Semi-Exclusive Option
8/31/2010



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations			↶	↷	↶	
Volume (vph)	0	0	181	430	121	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			3.5	3.5	3.5	
Lane Util. Factor			1.00	1.00	1.00	
Frt			1.00	1.00	1.00	
Flt Protected			0.95	1.00	0.95	
Satd. Flow (prot)			1770	1863	1770	
Flt Permitted			0.95	1.00	0.95	
Satd. Flow (perm)			1770	1863	1770	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	197	467	132	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	197	467	132	0
Turn Type			Perm			
Protected Phases				2	4	
Permitted Phases			2			
Actuated Green, G (s)			26.0	26.0	15.0	
Effective Green, g (s)			26.0	26.0	15.0	
Actuated g/C Ratio			0.35	0.35	0.20	
Clearance Time (s)			3.5	3.5	3.5	
Lane Grp Cap (vph)			614	646	354	
v/s Ratio Prot				c0.25	c0.07	
v/s Ratio Perm			0.11			
v/c Ratio			0.32	0.72	0.37	
Uniform Delay, d1			18.0	21.4	25.9	
Progression Factor			1.00	1.00	1.03	
Incremental Delay, d2			1.4	6.9	2.1	
Delay (s)			19.4	28.2	28.8	
Level of Service			B	C	C	
Approach Delay (s)	0.0			25.6	28.8	
Approach LOS	A			C	C	

Intersection Summary			
HCM Average Control Delay	26.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	34.0
Intersection Capacity Utilization	36.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 1: Jefferson St. & Jones St.

Shared Lane Option
 8/31/2010



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↕↕	↕	
Volume (vph)	0	0	181	430	121	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.5	3.5	
Lane Util. Factor				0.95	1.00	
Frt				1.00	1.00	
Flt Protected				0.99	0.95	
Satd. Flow (prot)				3487	1770	
Flt Permitted				0.99	0.95	
Satd. Flow (perm)				3487	1770	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	197	467	132	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	664	132	0
Turn Type			Perm			
Protected Phases				2	4	
Permitted Phases			2			
Actuated Green, G (s)				26.0	15.0	
Effective Green, g (s)				26.0	15.0	
Actuated g/C Ratio				0.35	0.20	
Clearance Time (s)				3.5	3.5	
Lane Grp Cap (vph)				1209	354	
v/s Ratio Prot					c0.07	
v/s Ratio Perm				0.19		
v/c Ratio				0.55	0.37	
Uniform Delay, d1				19.8	25.9	
Progression Factor				1.00	1.16	
Incremental Delay, d2				1.8	2.3	
Delay (s)				21.6	32.4	
Level of Service				C	C	
Approach Delay (s)	0.0			21.6	32.4	
Approach LOS	A			C	C	

Intersection Summary			
HCM Average Control Delay		23.4	HCM Level of Service C
HCM Volume to Capacity ratio		0.48	
Actuated Cycle Length (s)		75.0	Sum of lost time (s) 34.0
Intersection Capacity Utilization		30.5%	ICU Level of Service A
Analysis Period (min)		15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Beach St. & Jones St.

Semi-Exclusive Option
8/31/2010



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	49	412	99	33	229	21	109	61	45	61	68	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.95			0.96			0.92			0.87	
Flpb, ped/bikes		0.97			0.99			0.87			0.94	
Frt		0.98			0.99			0.97			0.96	
Flt Protected		1.00			0.99			0.98			0.98	
Satd. Flow (prot)		1677			1744			1421			1439	
Flt Permitted		0.95			0.91			0.70			0.83	
Satd. Flow (perm)		1601			1592			1014			1212	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	53	448	108	36	249	23	118	66	49	66	74	58
RTOR Reduction (vph)	0	10	0	0	4	0	0	13	0	0	20	0
Lane Group Flow (vph)	0	599	0	0	304	0	0	220	0	0	178	0
Confl. Peds. (#/hr)	260		110	110		260	180		150	150		180
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		45.5			45.5			18.5			18.5	
Effective Green, g (s)		45.5			45.5			18.5			18.5	
Actuated g/C Ratio		0.61			0.61			0.25			0.25	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		971			966			250			299	
v/s Ratio Prot												
v/s Ratio Perm		c0.37			0.19			c0.22			0.15	
v/c Ratio		0.62			0.31			0.88			0.60	
Uniform Delay, d1		9.3			7.2			27.2			25.0	
Progression Factor		0.46			1.00			1.00			1.87	
Incremental Delay, d2		1.9			0.9			33.0			8.2	
Delay (s)		6.2			8.0			60.1			54.9	
Level of Service		A			A			E			D	
Approach Delay (s)		6.2			8.0			60.1			54.9	
Approach LOS		A			A			E			D	

Intersection Summary

HCM Average Control Delay	23.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Beach St. & Jones St.

Shared Lane Option
8/31/2010



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↕			↕	
Volume (vph)	49	412	99	33	229	21	109	61	45	61	68	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0			4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frbp, ped/bikes		1.00	0.73		0.96			0.92			0.87	
Flpb, ped/bikes		0.97	1.00		0.99			0.87			0.94	
Frt		1.00	0.85		0.99			0.97			0.96	
Flt Protected		0.99	1.00		0.99			0.98			0.98	
Satd. Flow (prot)		1794	1152		1740			1421			1439	
Flt Permitted		0.94	1.00		0.92			0.70			0.83	
Satd. Flow (perm)		1696	1152		1612			1014			1212	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	53	448	108	36	249	23	118	66	49	66	74	58
RTOR Reduction (vph)	0	0	42	0	4	0	0	13	0	0	20	0
Lane Group Flow (vph)	0	501	66	0	304	0	0	220	0	0	178	0
Confl. Peds. (#/hr)	260		110	110		260	180		150	150		180
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		2			6			4			8	
Permitted Phases	2		2	6			4			8		
Actuated Green, G (s)		45.5	45.5		45.5			18.5			18.5	
Effective Green, g (s)		45.5	45.5		45.5			18.5			18.5	
Actuated g/C Ratio		0.61	0.61		0.61			0.25			0.25	
Clearance Time (s)		4.0	4.0		4.0			4.0			4.0	
Lane Grp Cap (vph)		1029	699		978			250			299	
v/s Ratio Prot												
v/s Ratio Perm		c0.30	0.06		0.19			c0.22			0.15	
v/c Ratio		0.49	0.09		0.31			0.88			0.60	
Uniform Delay, d1		8.2	6.2		7.2			27.2			25.0	
Progression Factor		1.18	2.70		1.00			1.00			1.79	
Incremental Delay, d2		1.2	0.2		0.8			33.0			7.2	
Delay (s)		11.0	16.8		8.0			60.1			51.9	
Level of Service		B	B		A			E			D	
Approach Delay (s)		12.0			8.0			60.1			51.9	
Approach LOS		B			A			E			D	

Intersection Summary			
HCM Average Control Delay	25.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: Beach St. & Hyde St.

Semi-Exclusive Option
8/31/2010



Movement	EBT	EBR	WBL	WBT	NBR	SBL	SBT	SBR	SER
Lane Configurations	↔			↔		↔			↔
Volume (vph)	308	64	42	237	134	255	164	215	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.6			3.6	3.6	3.6	3.6	4.0	
Lane Util. Factor	1.00			1.00	1.00	1.00	1.00	1.00	
Frb, ped/bikes	0.90			1.00	0.79	1.00	0.70	1.00	
Flpb, ped/bikes	1.00			0.97	1.00	0.66	1.00	1.00	
Frt	0.98			1.00	0.86	1.00	0.91	0.86	
Flt Protected	1.00			0.99	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1643			1793	1277	1161	1184	1611	
Flt Permitted	1.00			0.69	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1643			1255	1277	1161	1184	1611	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	335	70	46	258	146	277	178	234	9
RTOR Reduction (vph)	11	0	0	0	71	0	0	0	0
Lane Group Flow (vph)	394	0	0	304	75	277	412	0	9
Confl. Peds. (#/hr)	300		300	340		340	250		
Turn Type	Perm			custom		Perm		custom	
Protected Phases	2			2			8		1
Permitted Phases	2			4		8		1	
Actuated Green, G (s)	16.6			16.6	29.7	29.7	29.7	0.6	
Effective Green, g (s)	16.6			16.6	29.7	29.7	29.7	0.6	
Actuated g/C Ratio	0.29			0.29	0.51	0.51	0.51	0.01	
Clearance Time (s)	3.6			3.6	3.6	3.6	3.6	4.0	
Vehicle Extension (s)	3.0			3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	469			359	653	593	605	17	
v/s Ratio Prot	0.24						c0.35	c0.01	
v/s Ratio Perm				c0.24	0.06	0.24			
v/c Ratio	0.84			0.85	0.11	0.47	0.68	0.53	
Uniform Delay, d1	19.5			19.6	7.4	9.1	10.6	28.6	
Progression Factor	1.00			1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	16.5			21.2	0.1	0.6	3.2	26.7	
Delay (s)	36.0			40.7	7.5	9.7	13.8	55.3	
Level of Service	D			D	A	A	B	E	
Approach Delay (s)	36.0			40.7		12.2			
Approach LOS	D			D		B			
Intersection Summary									
HCM Average Control Delay	23.8			HCM Level of Service				C	
HCM Volume to Capacity ratio	0.74								
Actuated Cycle Length (s)	58.1			Sum of lost time (s)				11.2	
Intersection Capacity Utilization	79.5%			ICU Level of Service				D	
Analysis Period (min)	15								

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Beach St. & Hyde St.

Shared Lane Option
8/31/2010



Movement	EBT	WBL	WBT	NBR	SBL	SBT	SBR	SER
Lane Configurations	↑		↖	↗	↖	↗		↗
Volume (vph)	372	42	237	134	255	164	215	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.6		3.6	3.6	3.6	3.6		4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00		1.00
Frbp, ped/bikes	1.00		1.00	0.79	1.00	0.70		1.00
Flpb, ped/bikes	1.00		0.97	1.00	0.66	1.00		1.00
Frt	1.00		1.00	0.86	1.00	0.91		0.86
Flt Protected	1.00		0.99	1.00	0.95	1.00		1.00
Satd. Flow (prot)	1863		1793	1277	1161	1184		1611
Flt Permitted	1.00		0.70	1.00	0.95	1.00		1.00
Satd. Flow (perm)	1863		1259	1277	1161	1184		1611
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	404	46	258	146	277	178	234	9
RTOR Reduction (vph)	0	0	0	71	0	0	0	0
Lane Group Flow (vph)	404	0	304	75	277	412	0	9
Confl. Peds. (#/hr)		300		340	340		250	
Turn Type		Perm		custom		Perm		custom
Protected Phases	2		2			8		1
Permitted Phases		2		4		8		1
Actuated Green, G (s)	16.6		16.6	29.7	29.7	29.7		0.6
Effective Green, g (s)	16.6		16.6	29.7	29.7	29.7		0.6
Actuated g/C Ratio	0.29		0.29	0.51	0.51	0.51		0.01
Clearance Time (s)	3.6		3.6	3.6	3.6	3.6		4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	532		360	653	593	605		17
v/s Ratio Prot	0.22					c0.35		c0.01
v/s Ratio Perm			c0.24	0.06	0.24			
v/c Ratio	0.76		0.84	0.11	0.47	0.68		0.53
Uniform Delay, d1	18.9		19.5	7.4	9.1	10.6		28.6
Progression Factor	1.00		1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	9.8		20.9	0.1	0.6	3.2		26.7
Delay (s)	28.7		40.4	7.5	9.7	13.8		55.3
Level of Service	C		D	A	A	B		E
Approach Delay (s)	28.7		40.4			12.2		
Approach LOS	C		D			B		
Intersection Summary								
HCM Average Control Delay			21.8					HCM Level of Service C
HCM Volume to Capacity ratio			0.74					
Actuated Cycle Length (s)			58.1					Sum of lost time (s) 11.2
Intersection Capacity Utilization			77.5%					ICU Level of Service D
Analysis Period (min)			15					

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
4: Jefferson St. & Leavenworth St.

Semi-Exclusive Option
8/31/2010



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Volume (vph)	0	0	0	98	427	7	100	10	0	0	25	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5			3.5			3.5	
Lane Util. Factor					1.00			1.00			1.00	
Frbp, ped/bikes					0.99			1.00			0.96	
Flpb, ped/bikes					0.85			0.84			1.00	
Frt					1.00			1.00			0.97	
Flt Protected					0.99			0.96			1.00	
Satd. Flow (prot)					1553			1492			1735	
Flt Permitted					0.99			0.72			1.00	
Satd. Flow (perm)					1553			1125			1735	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	107	464	8	109	11	0	0	27	7
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	0	0	0	578	0	0	120	0	0	28	0
Confl. Peds. (#/hr)				870		570	80					80
Turn Type				Perm		Perm						
Protected Phases					8			2			6	
Permitted Phases				8		2						
Actuated Green, G (s)					21.5			12.5			12.5	
Effective Green, g (s)					21.5			12.5			12.5	
Actuated g/C Ratio					0.29			0.17			0.17	
Clearance Time (s)					3.5			3.5			3.5	
Lane Grp Cap (vph)					445			188			289	
v/s Ratio Prot											0.02	
v/s Ratio Perm					0.37			0.11				
v/c Ratio					1.30			0.64			0.10	
Uniform Delay, d1					26.8			29.1			26.5	
Progression Factor					1.09			1.20			1.00	
Incremental Delay, d2					147.0			11.0			0.7	
Delay (s)					176.3			46.0			27.1	
Level of Service					F			D			C	
Approach Delay (s)		0.0			176.3			46.0			27.1	
Approach LOS		A			F			D			C	

Intersection Summary

HCM Average Control Delay	148.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	41.0
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
4: Jefferson St. & Leavenworth St.

Shared Lane Option
8/31/2010

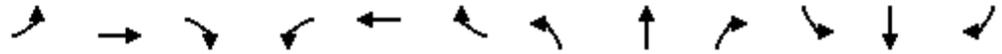


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Volume (vph)	0	0	0	98	427	7	100	10	0	0	25	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5			3.5			3.5	
Lane Util. Factor					1.00			1.00			1.00	
Frbp, ped/bikes					0.99			1.00			0.96	
Flpb, ped/bikes					0.85			0.84			1.00	
Frt					1.00			1.00			0.97	
Flt Protected					0.99			0.96			1.00	
Satd. Flow (prot)					1553			1492			1735	
Flt Permitted					0.99			0.72			1.00	
Satd. Flow (perm)					1553			1125			1735	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	107	464	8	109	11	0	0	27	7
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	0	0	0	578	0	0	120	0	0	28	0
Confl. Peds. (#/hr)				870		570	80					80
Turn Type				Perm		Perm						
Protected Phases					8			2			6	
Permitted Phases				8		2						
Actuated Green, G (s)					21.5			12.5			12.5	
Effective Green, g (s)					21.5			12.5			12.5	
Actuated g/C Ratio					0.29			0.17			0.17	
Clearance Time (s)					3.5			3.5			3.5	
Lane Grp Cap (vph)					445			188			289	
v/s Ratio Prot											0.02	
v/s Ratio Perm					0.37			0.11				
v/c Ratio					1.30			0.64			0.10	
Uniform Delay, d1					26.8			29.1			26.5	
Progression Factor					1.00			1.14			1.00	
Incremental Delay, d2					148.7			9.8			0.7	
Delay (s)					175.3			42.9			27.1	
Level of Service					F			D			C	
Approach Delay (s)		0.0			175.3			42.9			27.1	
Approach LOS		A			F			D			C	

Intersection Summary			
HCM Average Control Delay	146.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	41.0
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
5: Beach St. & Leavenworth St.

Semi-Exclusive Option
8/31/2010



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	126	377	45	88	244	58	15	83	118	69	46	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.99			0.97			0.80			0.97	
Flpb, ped/bikes		0.98			0.99			0.99			0.90	
Frt		0.99			0.98			0.93			0.99	
Flt Protected		0.99			0.99			1.00			0.97	
Satd. Flow (prot)		1757			1727			1360			1574	
Flt Permitted		0.82			0.79			0.98			0.56	
Satd. Flow (perm)		1453			1388			1332			901	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	137	410	49	96	265	63	16	90	128	75	50	13
RTOR Reduction (vph)	0	4	0	0	8	0	0	58	0	0	5	0
Lane Group Flow (vph)	0	592	0	0	416	0	0	176	0	0	133	0
Confl. Peds. (#/hr)	210		150	150		210	110		140	140		110
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		40.0			40.0			15.0			15.0	
Effective Green, g (s)		40.0			40.0			15.0			15.0	
Actuated g/C Ratio		0.53			0.53			0.20			0.20	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		775			740			266			180	
v/s Ratio Prot												
v/s Ratio Perm		c0.41			0.30			0.13			c0.15	
v/c Ratio		0.76			0.56			0.66			0.74	
Uniform Delay, d1		13.8			11.7			27.7			28.2	
Progression Factor		1.00			0.87			1.00			1.39	
Incremental Delay, d2		7.0			2.7			12.3			2.5	
Delay (s)		20.8			12.8			40.0			41.7	
Level of Service		C			B			D			D	
Approach Delay (s)		20.8			12.8			40.0			41.7	
Approach LOS		C			B			D			D	
Intersection Summary												
HCM Average Control Delay			23.7			HCM Level of Service			C			
HCM Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			75.0			Sum of lost time (s)		20.0				
Intersection Capacity Utilization			77.3%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
5: Beach St. & Leavenworth St.

Shared Lane Option
8/31/2010

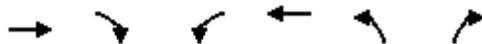


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	126	377	45	88	244	58	15	83	118	69	46	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frbp, ped/bikes	1.00	0.96		1.00	0.90			0.89			0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99			0.94	
Frt	1.00	0.98		1.00	0.97			0.93			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.97	
Satd. Flow (prot)	1770	1762		1770	1635			1508			1648	
Flt Permitted	0.95	1.00		0.95	1.00			0.98			0.56	
Satd. Flow (perm)	1770	1762		1770	1635			1476			943	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	137	410	49	96	265	63	16	90	128	75	50	13
RTOR Reduction (vph)	0	6	0	0	11	0	0	58	0	0	5	0
Lane Group Flow (vph)	137	453	0	96	317	0	0	176	0	0	133	0
Confl. Peds. (#/hr)	210		150	150		210	110		140	140		110
Turn Type	Prot			Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	6.0	30.0		6.0	30.0			15.0			15.0	
Effective Green, g (s)	6.0	30.0		6.0	30.0			15.0			15.0	
Actuated g/C Ratio	0.08	0.40		0.08	0.40			0.20			0.20	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Grp Cap (vph)	142	705		142	654			295			189	
v/s Ratio Prot	c0.08	c0.26		0.05	0.19							
v/s Ratio Perm								0.12			c0.14	
v/c Ratio	0.96	0.64		0.68	0.48			0.60			0.70	
Uniform Delay, d1	34.4	18.2		33.6	16.7			27.3			27.9	
Progression Factor	1.00	1.00		0.78	1.26			1.00			1.16	
Incremental Delay, d2	66.7	4.5		20.2	2.2			8.7			2.0	
Delay (s)	101.1	22.6		46.5	23.3			35.9			34.5	
Level of Service	F	C		D	C			D			C	
Approach Delay (s)		40.7			28.6			35.9			34.5	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM Average Control Delay	35.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
6: Beach St. & Larkin St.

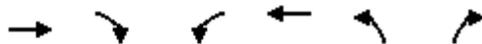
Semi-Exclusive Option
8/31/2010



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↷			↶	↷	
Sign Control	Stop			Stop	Stop	
Volume (vph)	212	78	167	291	66	169
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	230	85	182	316	72	184
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total (vph)	315	498	255			
Volume Left (vph)	0	182	72			
Volume Right (vph)	85	0	184			
Hadj (s)	-0.13	0.11	-0.34			
Departure Headway (s)	5.3	5.2	5.6			
Degree Utilization, x	0.46	0.73	0.40			
Capacity (veh/h)	649	670	582			
Control Delay (s)	12.7	20.8	12.3			
Approach Delay (s)	12.7	20.8	12.3			
Approach LOS	B	C	B			
Intersection Summary						
Delay			16.4			
HCM Level of Service			C			
Intersection Capacity Utilization			72.8%	ICU Level of Service	C	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
6: Beach St. & Larkin St.

Shared Lane Option
8/31/2010



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↷		↶	↶	↷	
Sign Control	Stop			Stop	Stop	
Volume (vph)	212	78	167	291	66	169
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	230	85	182	316	72	184
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total (vph)	315	182	316	255		
Volume Left (vph)	0	182	0	72		
Volume Right (vph)	85	0	0	184		
Hadj (s)	-0.13	0.53	0.03	-0.34		
Departure Headway (s)	5.3	6.2	5.7	5.5		
Degree Utilization, x	0.46	0.31	0.50	0.39		
Capacity (veh/h)	651	564	617	604		
Control Delay (s)	12.7	10.8	13.0	11.9		
Approach Delay (s)	12.7	12.2		11.9		
Approach LOS	B	B		B		
Intersection Summary						
Delay			12.3			
HCM Level of Service			B			
Intersection Capacity Utilization			57.5%	ICU Level of Service	B	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
7: Beach St. & Polk St.

Semi-Exclusive Option
8/31/2010



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩			↩	↩	
Volume (vph)	48	37	306	46	41	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	
Lane Util. Factor	1.00			1.00	1.00	
Frb, ped/bikes	0.95			1.00	0.90	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.94			1.00	0.88	
Flt Protected	1.00			0.96	0.99	
Satd. Flow (prot)	1668			1785	1478	
Flt Permitted	1.00			0.96	0.99	
Satd. Flow (perm)	1668			1785	1478	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	40	333	50	45	274
RTOR Reduction (vph)	34	0	0	0	234	0
Lane Group Flow (vph)	58	0	0	383	85	0
Confl. Peds. (#/hr)		80	80		20	50
Turn Type			Split			
Protected Phases	4		8	8	2	
Permitted Phases						
Actuated Green, G (s)	11.0			27.0	11.0	
Effective Green, g (s)	11.0			27.0	11.0	
Actuated g/C Ratio	0.15			0.36	0.15	
Clearance Time (s)	4.0			4.0	4.0	
Lane Grp Cap (vph)	245			643	217	
v/s Ratio Prot	c0.03			c0.21	c0.06	
v/s Ratio Perm						
v/c Ratio	0.24			0.60	0.39	
Uniform Delay, d1	28.3			19.6	29.0	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	2.3			4.0	5.3	
Delay (s)	30.5			23.6	34.2	
Level of Service	C			C	C	
Approach Delay (s)	30.5			23.6	34.2	
Approach LOS	C			C	C	

Intersection Summary			
HCM Average Control Delay	28.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			