

APPENDIX A

Project Plan and Elevations - Sites D and F2, Newly Proposed Variants (2014)



google maps dated 8/29/2012

4 over 2
60 Units
Parcel D



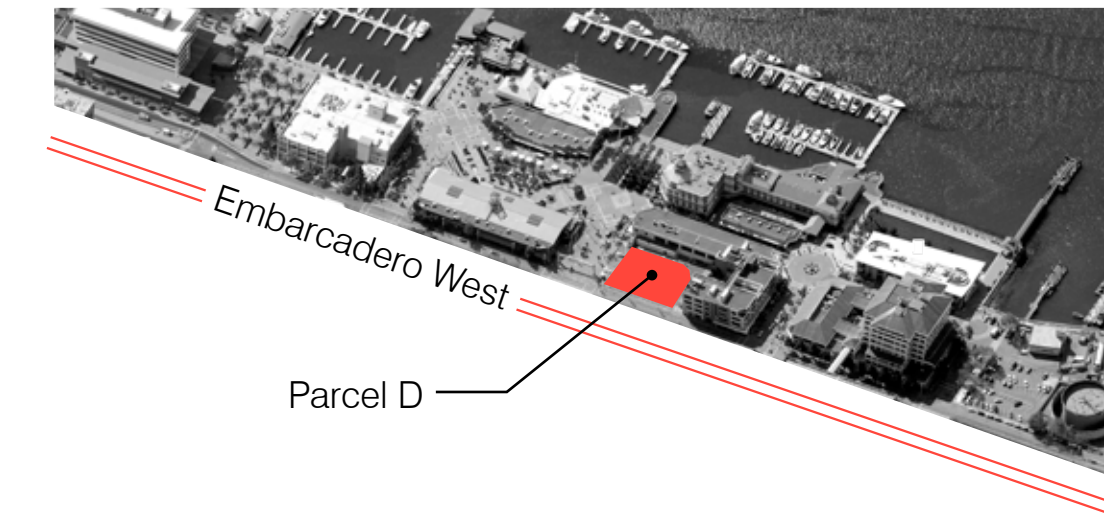
JACK LONDON SQUARE
OAKLAND, CALIFORNIA

PARCEL D

21 MAY 2013
PROJECT NO: 47850
2470 MARINER SQUARE LOOP
ALAMEDA, CA 94501
T 510.865.8663 F 510.865.1611
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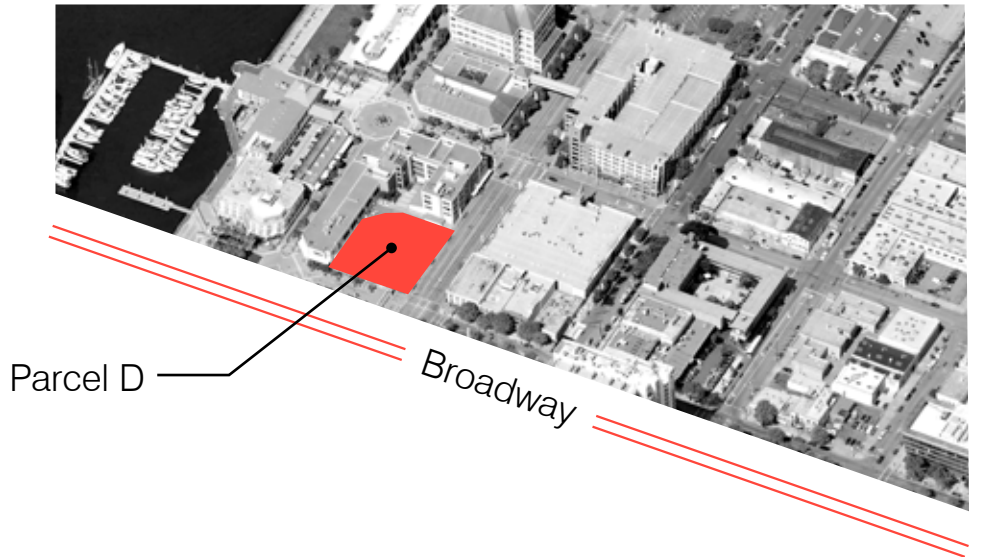
← Franklin St. → Existing Building ↔ Broadway ↔ **Parcel D** ↔ Existing Building → Washington St. → Existing Buildings → Clay St. →



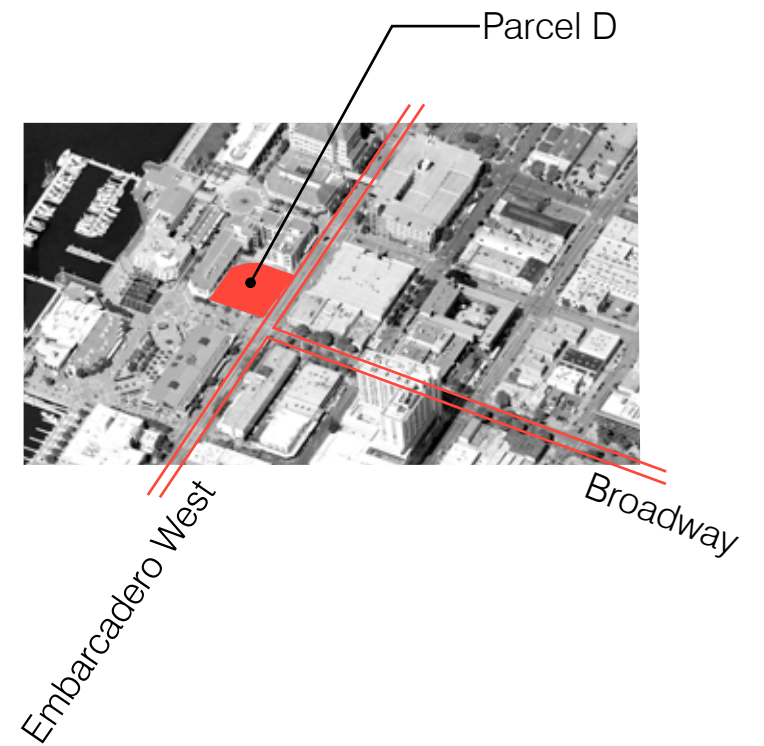
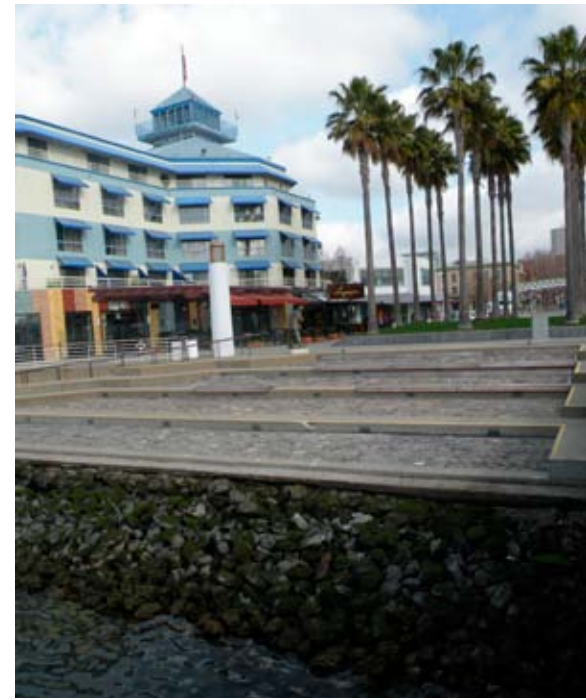
Embarcadero West Panoramic



San Francisco Bay ↔ Existing Building ↔ Water St. ↔ Existing Building ↔ **Parcel D** ↔ Embarcadero West ↔ Existing Buildings ↔ 2nd St. ↔ Existing Buildings



Broadway Panoramic



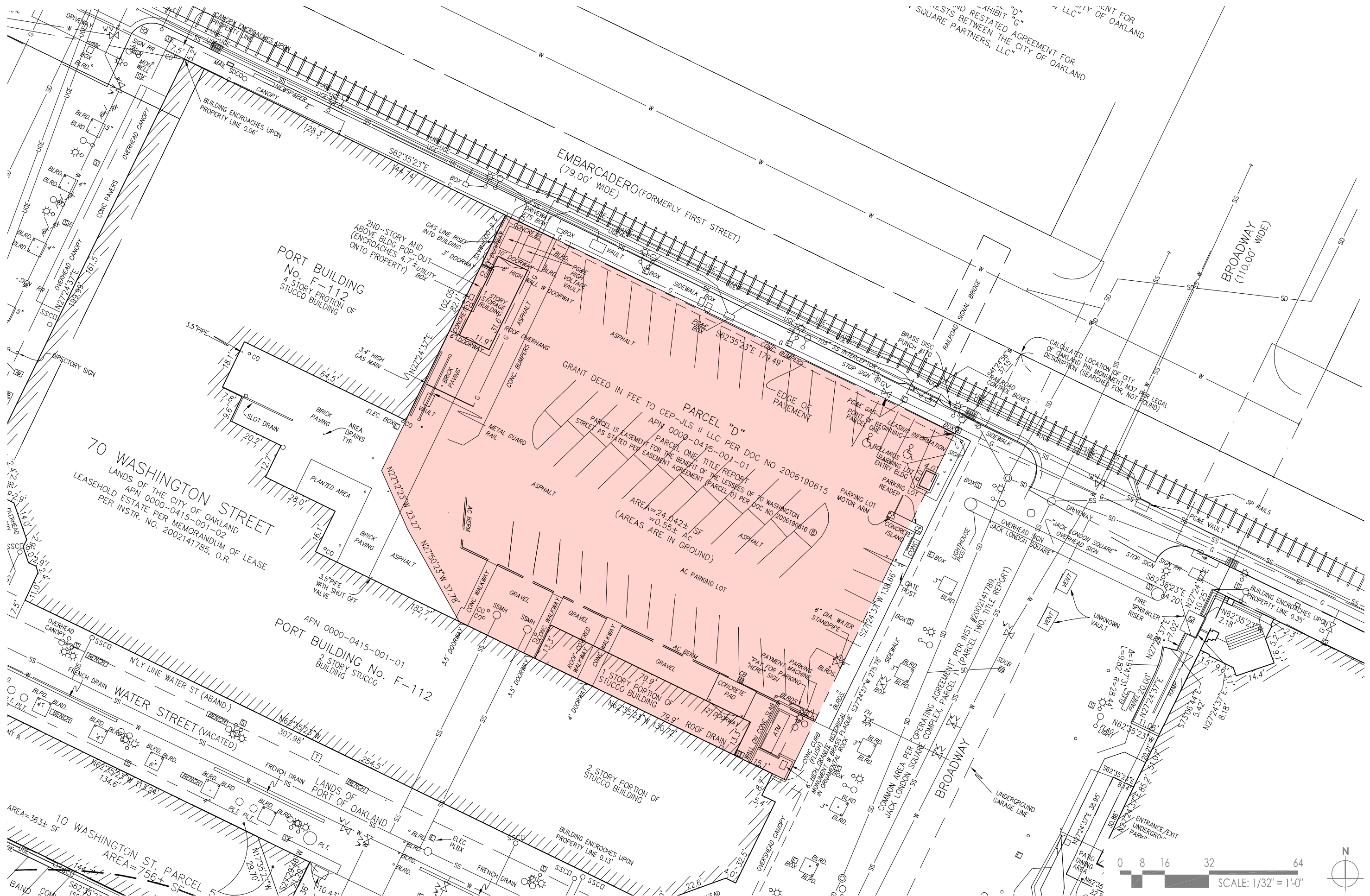
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PARCEL D

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Parcel D Contextual Photos





"EXHIBIT D" AND RESTATEMENT AGREEMENT FOR INTERESTS BETWEEN THE CITY OF OAKLAND AND SQUARE PARTNERS, LLC"

70 WASHINGTON STREET
 LANDS OF THE CITY OF OAKLAND
 APN 0000-0415-001-02
 LEASEHOLD ESTATE PER MEMORANDUM OF LEASE PER INSTR. NO. 2002141785, O.R.

APN 0000-0415-001-01
 PORT BUILDING No. F-112
 2 STORY STUCCO BUILDING

EMBARCADERO (FORMERLY FIRST STREET)
 (79.00' WIDE)

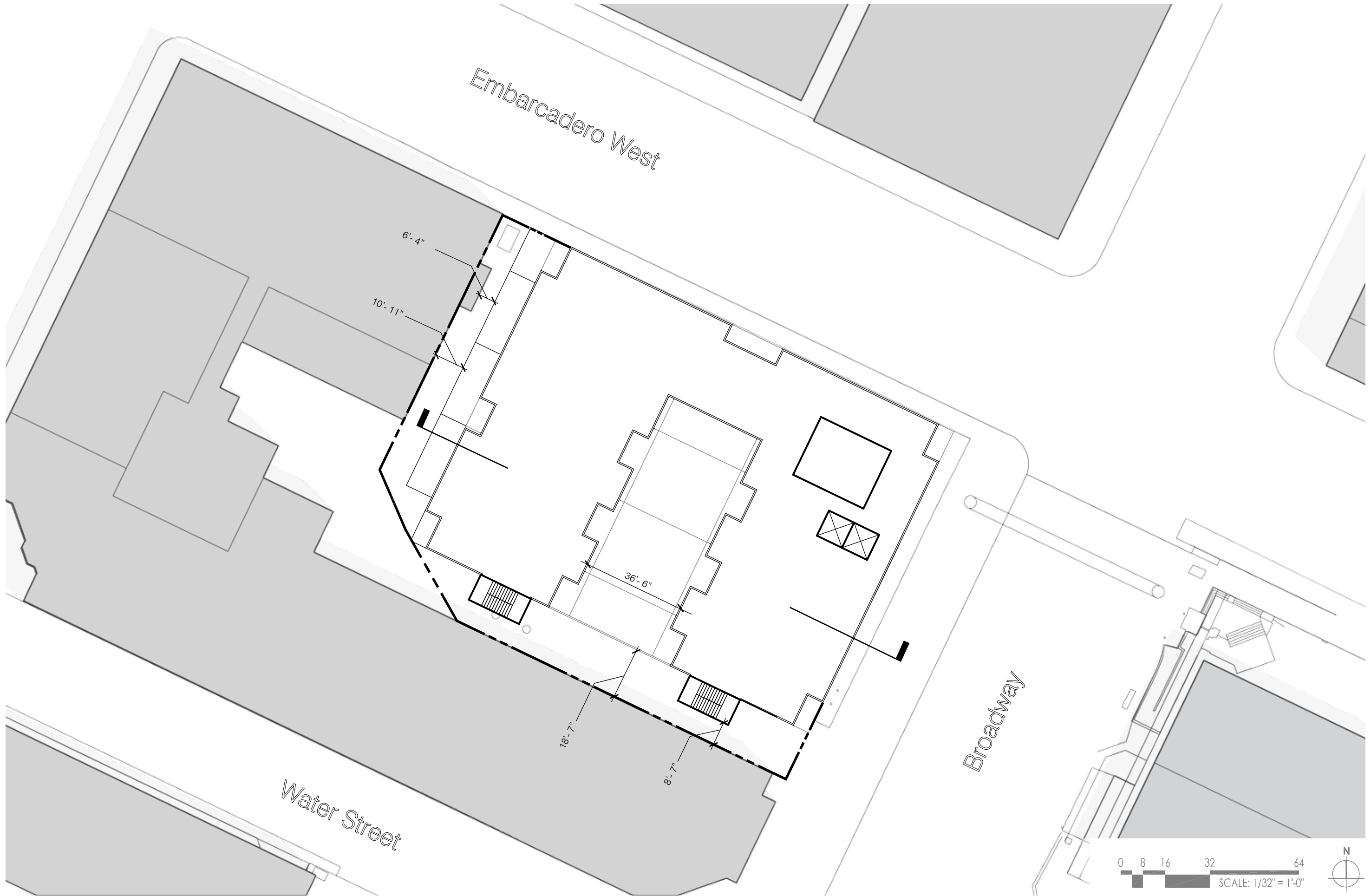
PARCEL "D"
 APN 0000-0415-001-01
 PARCEL ONE, TITLE REPORT FOR THE BENEFIT OF THE LESSEES OF 70 WASHINGTON STREET AS STATED PER EASEMENT AGREEMENT (PARCEL D) PER DOC NO 2006190615
 AREA=24,042± SF
 =0.55± AC
 (AREAS ARE IN GROUND)

BROADWAY
 (110.00' WIDE)



Survey Plan

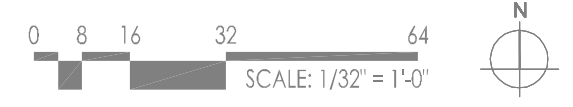




Water Street

Embarcadero West

Broadway



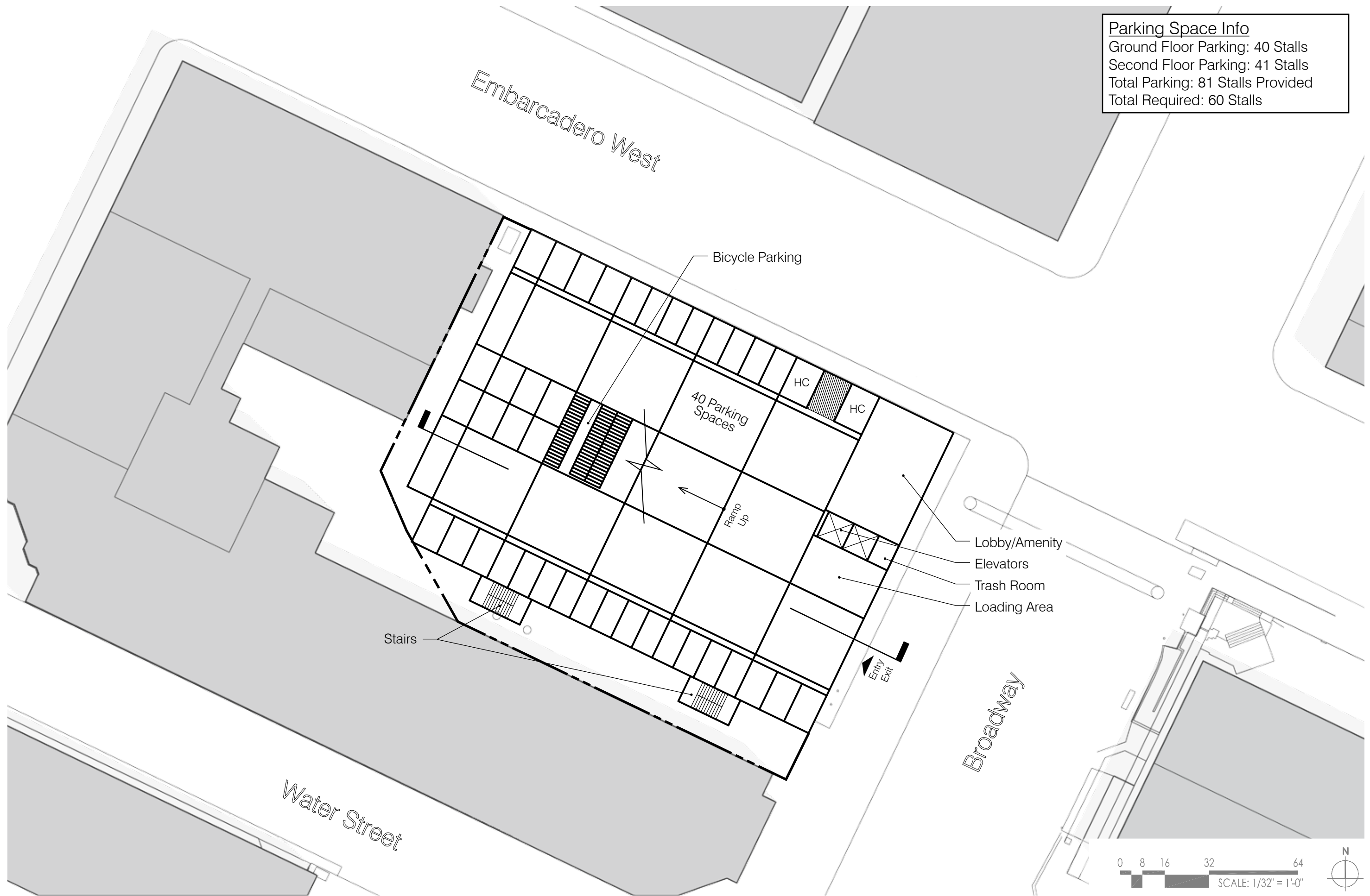
Site Plan



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Parking Space Info
 Ground Floor Parking: 40 Stalls
 Second Floor Parking: 41 Stalls
 Total Parking: 81 Stalls Provided
 Total Required: 60 Stalls

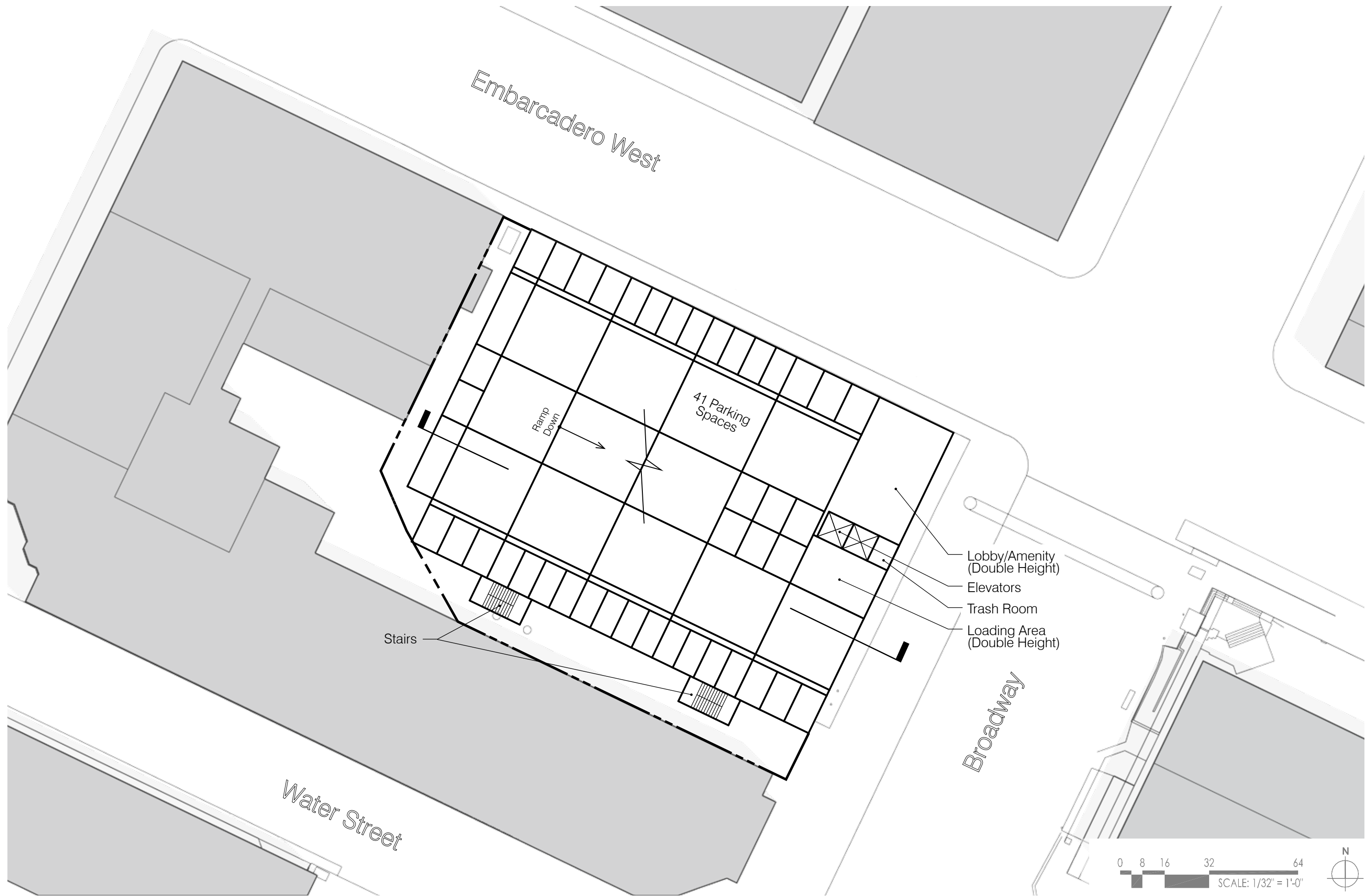
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 PARCEL D



First Floor Plan





Water Street

Embarcadero West

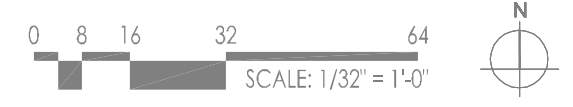
Broadway

41 Parking Spaces

Ramp Down

Stairs

- Lobby/Amenity (Double Height)
- Elevators
- Trash Room
- Loading Area (Double Height)



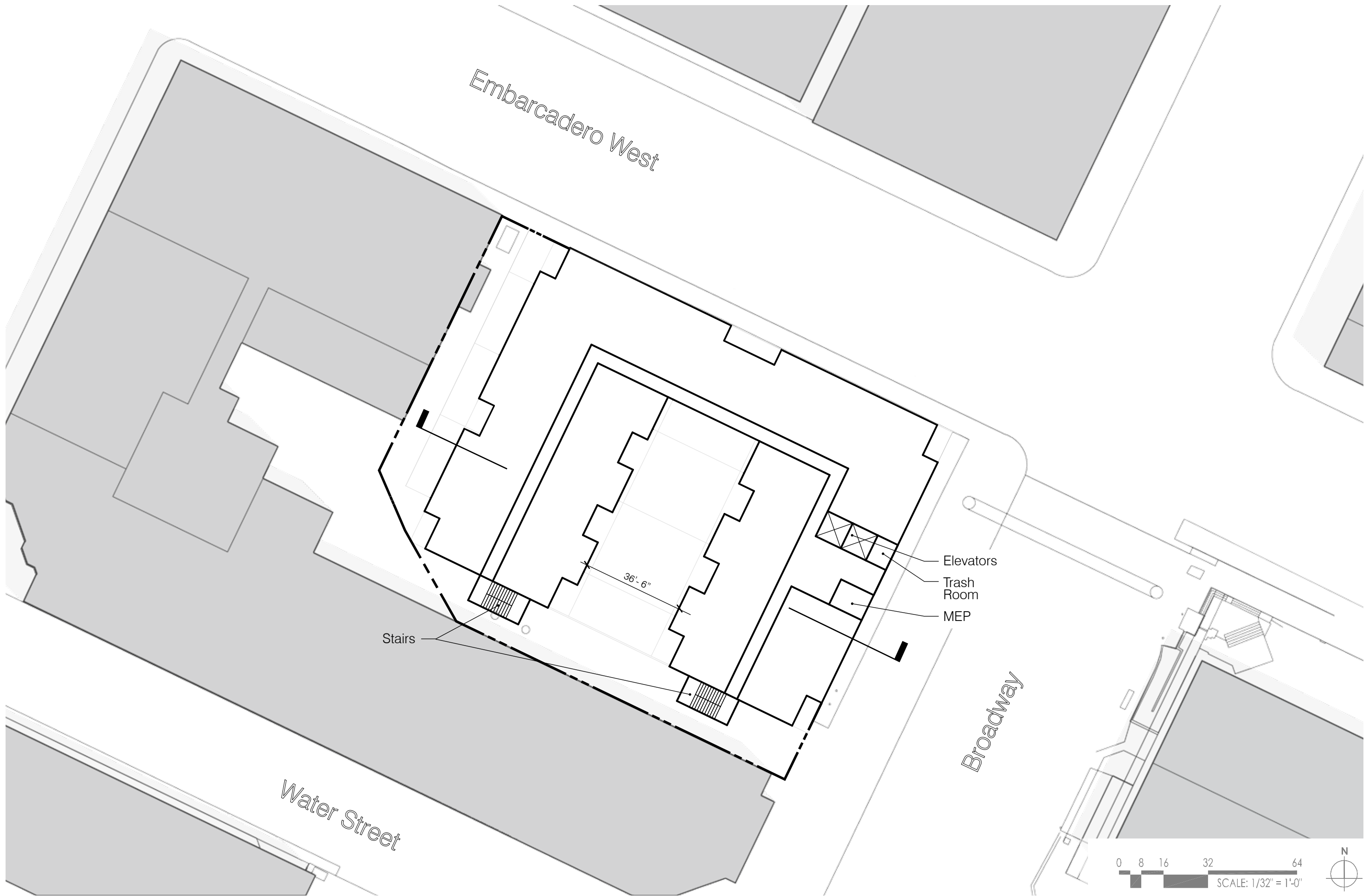
Second Floor Plan



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Water Street

Embarcadero West

Broadway

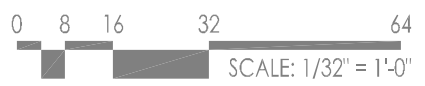
Stairs

36'-6"

Elevators

Trash Room

MEP



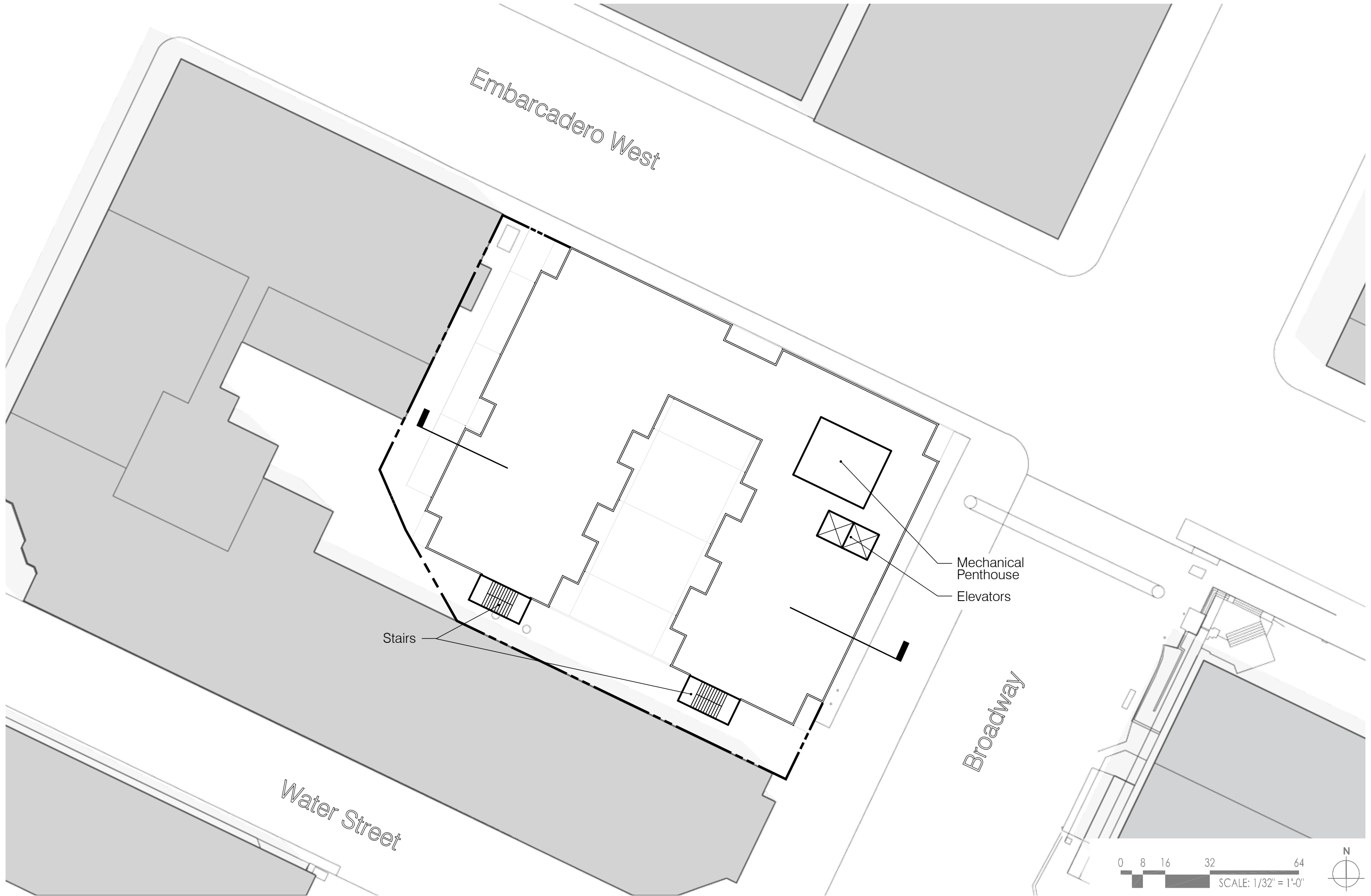
Typical Plan (Third - Sixth Floor)

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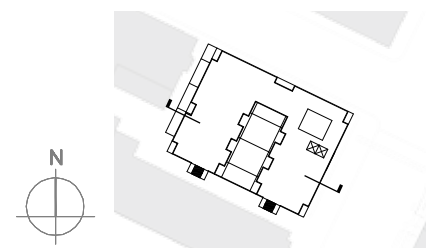
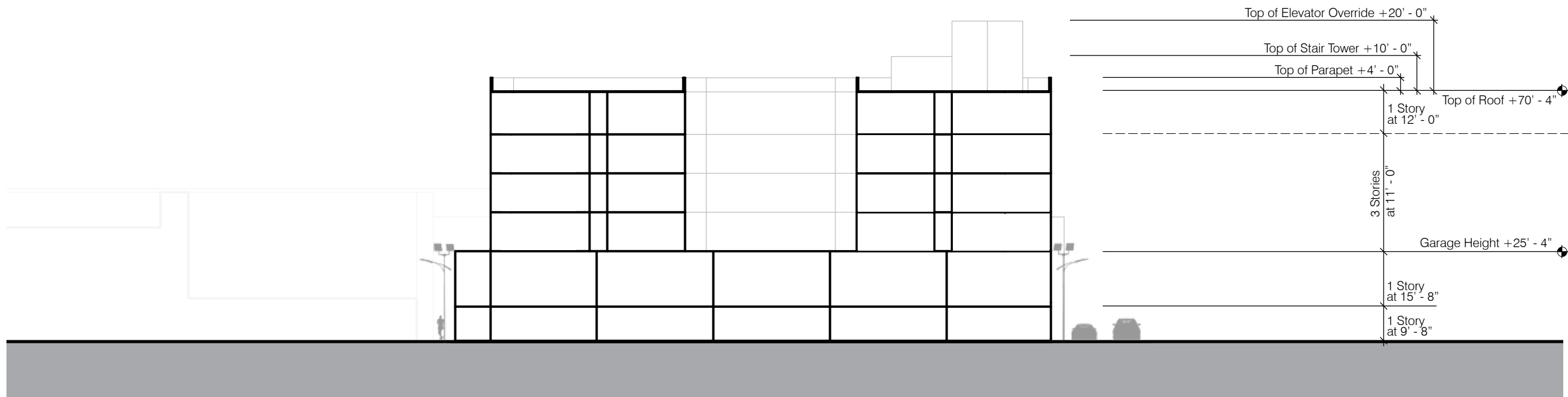


Roof Plan

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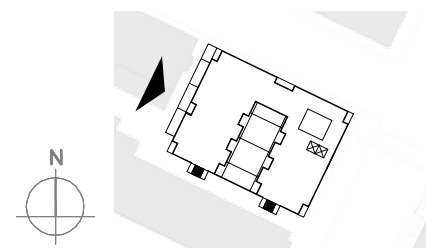


Section



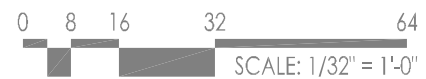
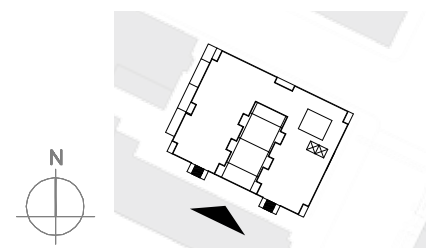
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OAKLAND, CALIFORNIA
PARCEL D

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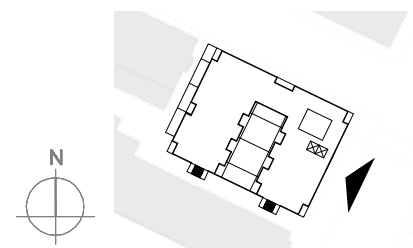
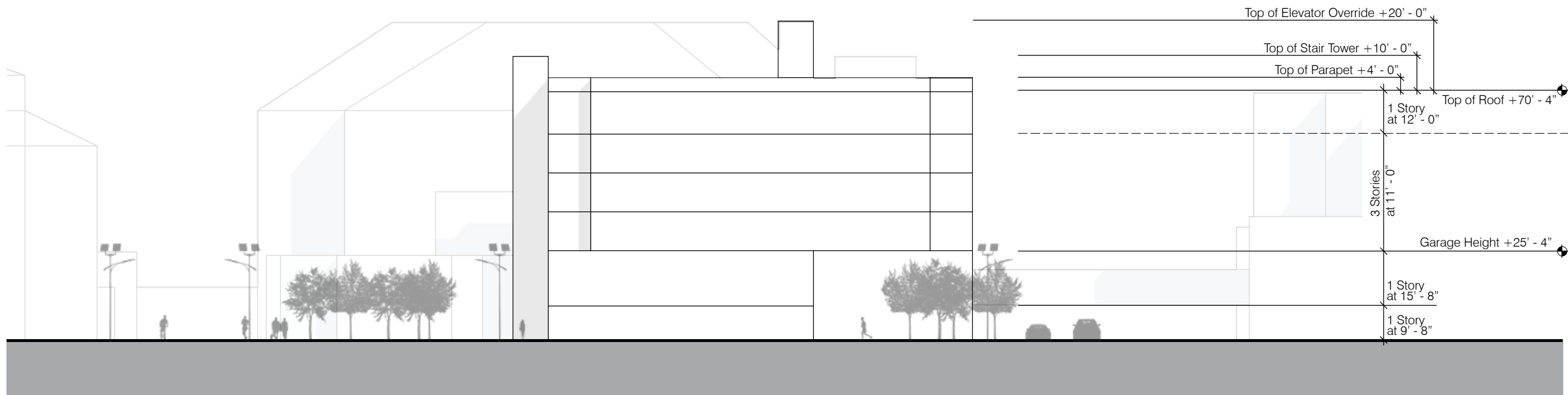
West Elevation



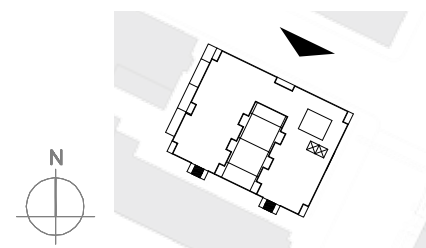
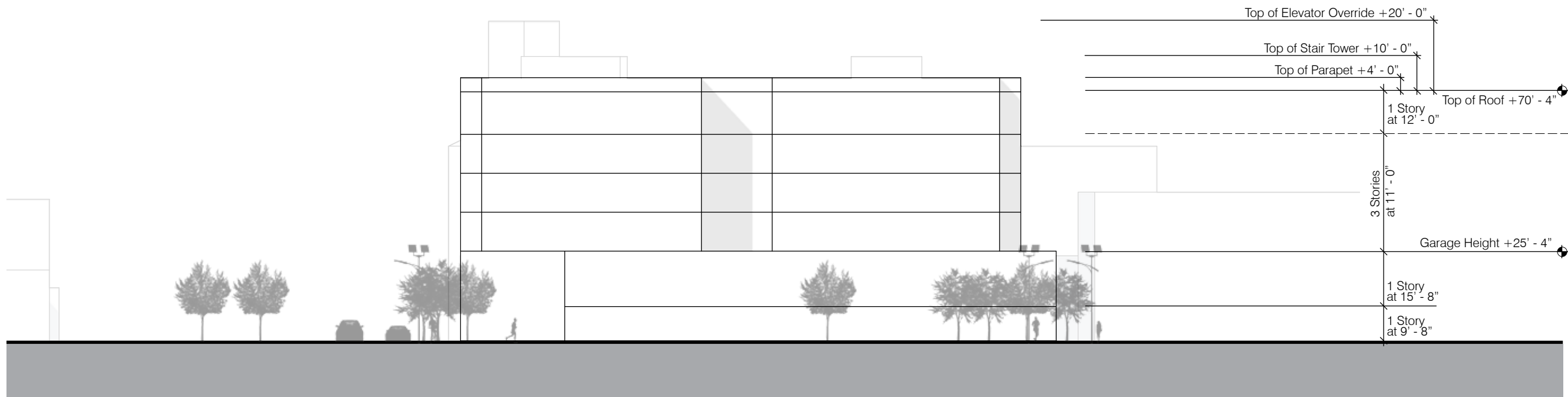


South Elevation



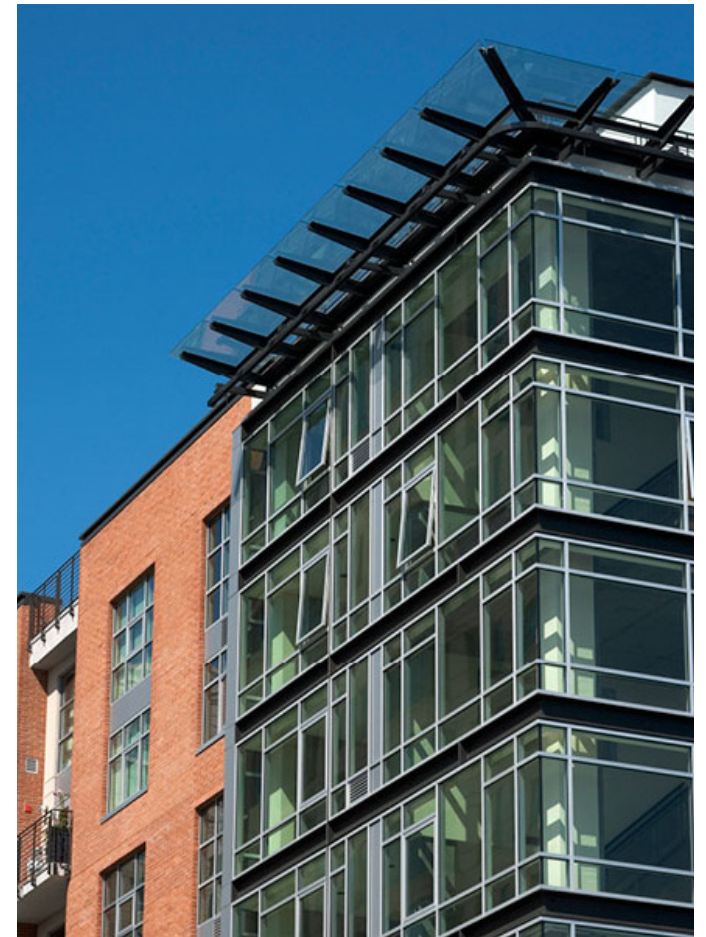
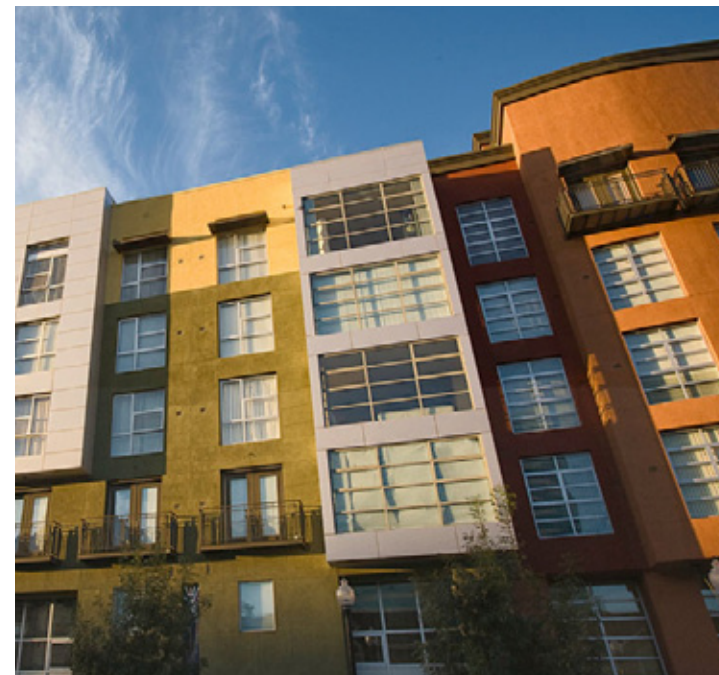
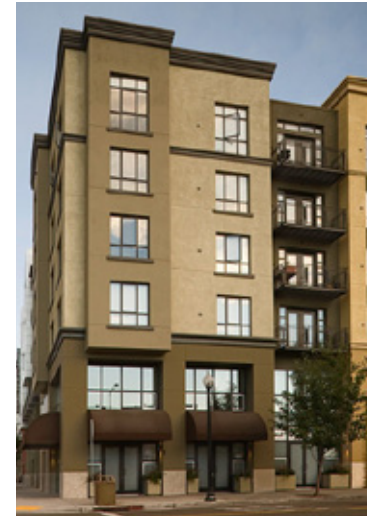
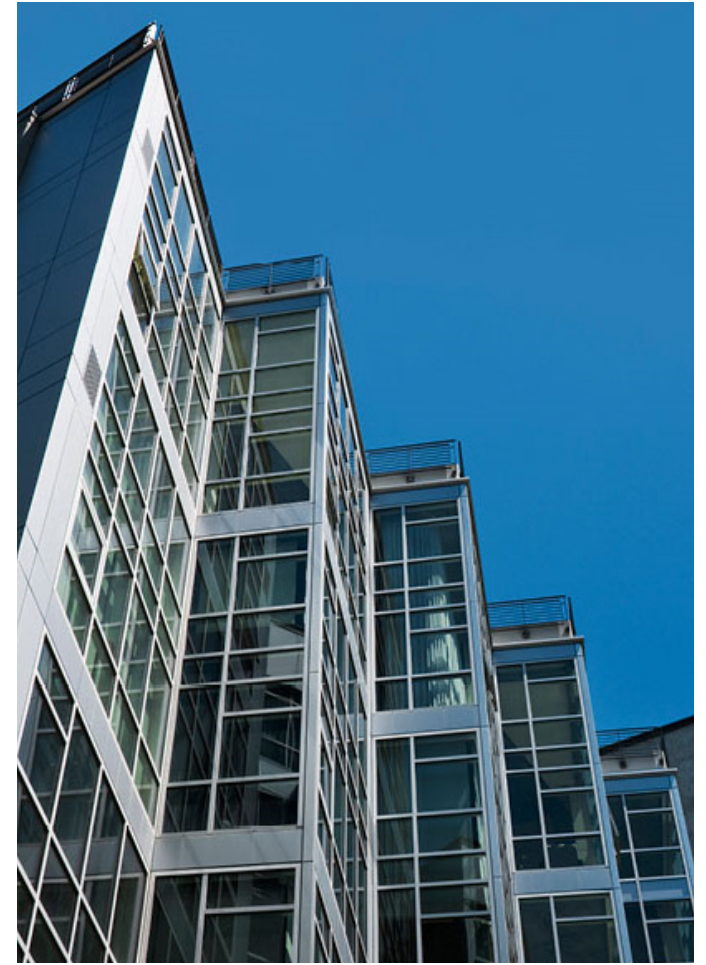


East Elevation



North Elevation





Colors, Finishes and Materials to be selected during FDP Phase

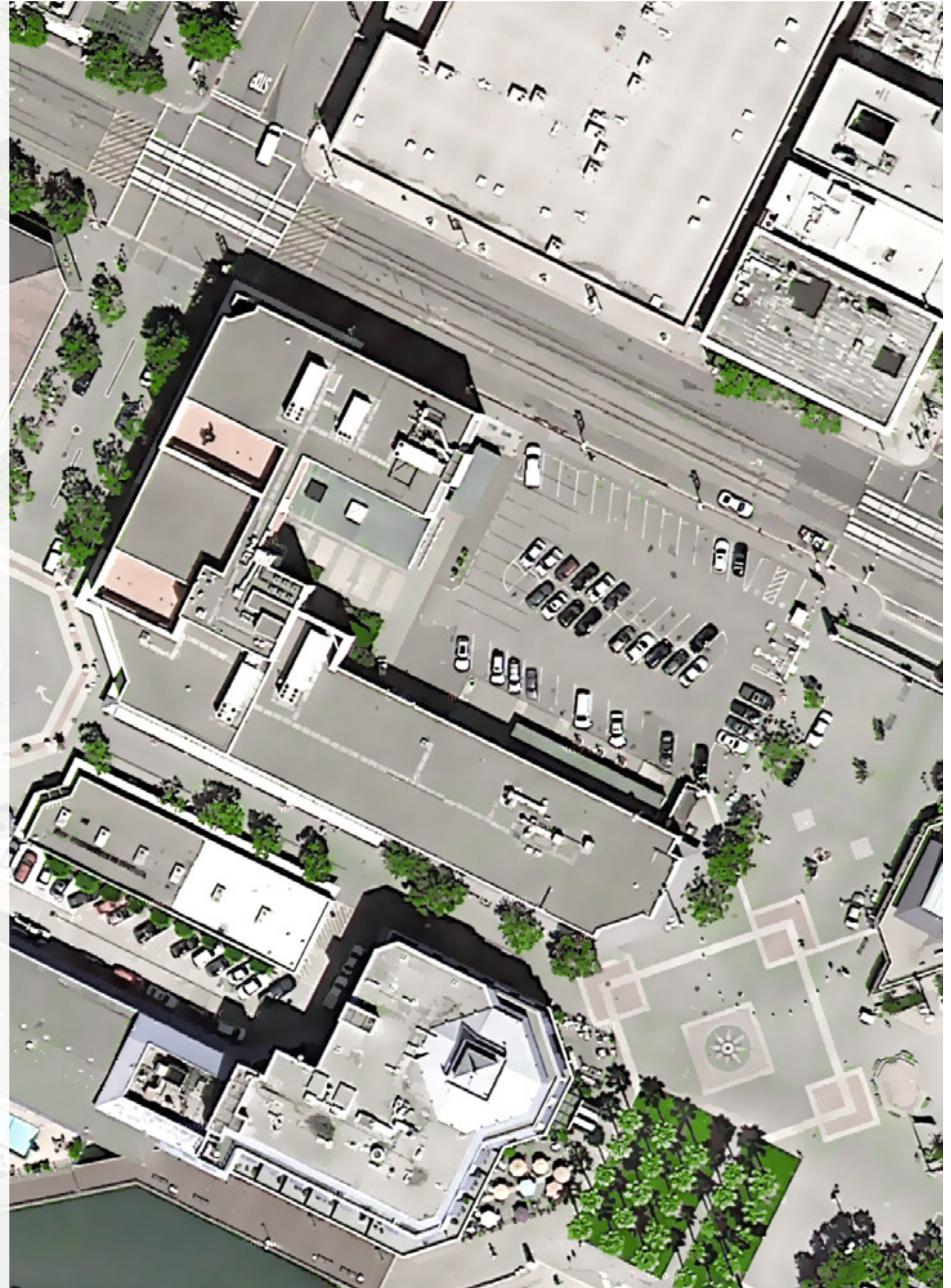
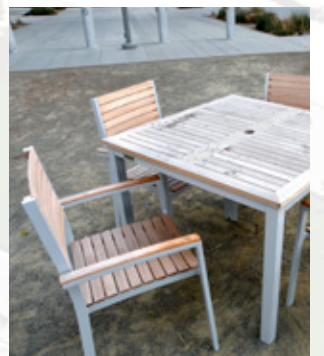
Exterior Design Study

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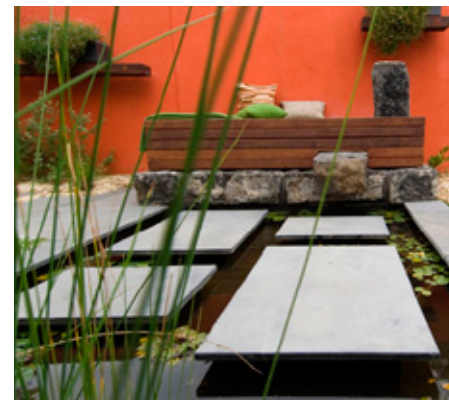
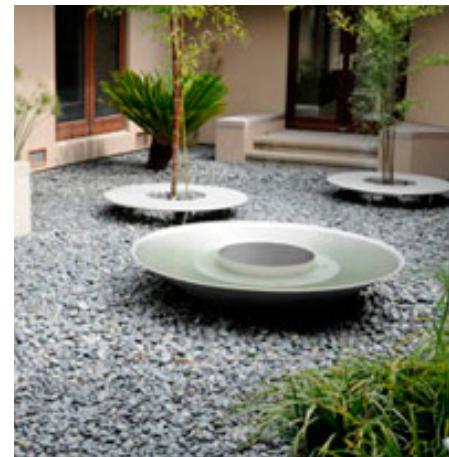


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Existing Landscape and Lighting



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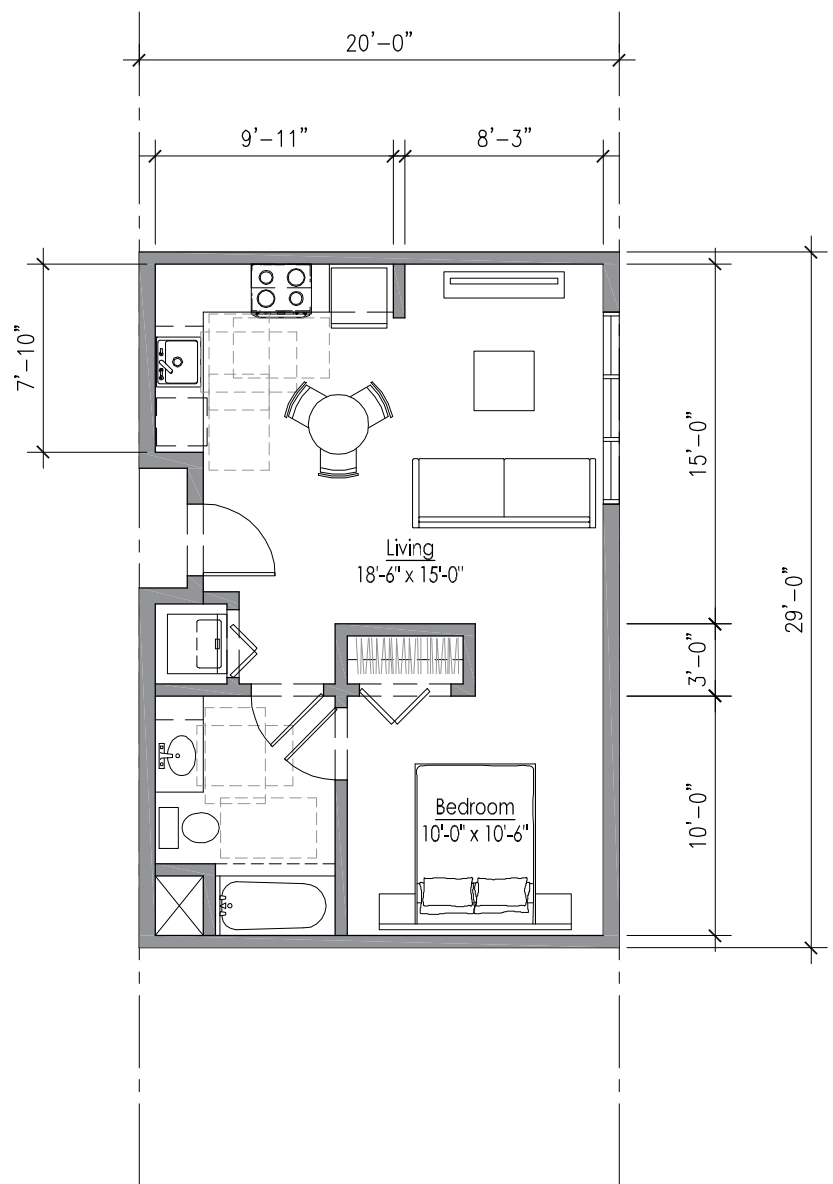
PARCEL D

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OAKLAND, CALIFORNIA



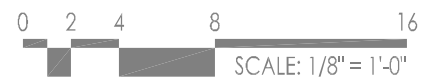
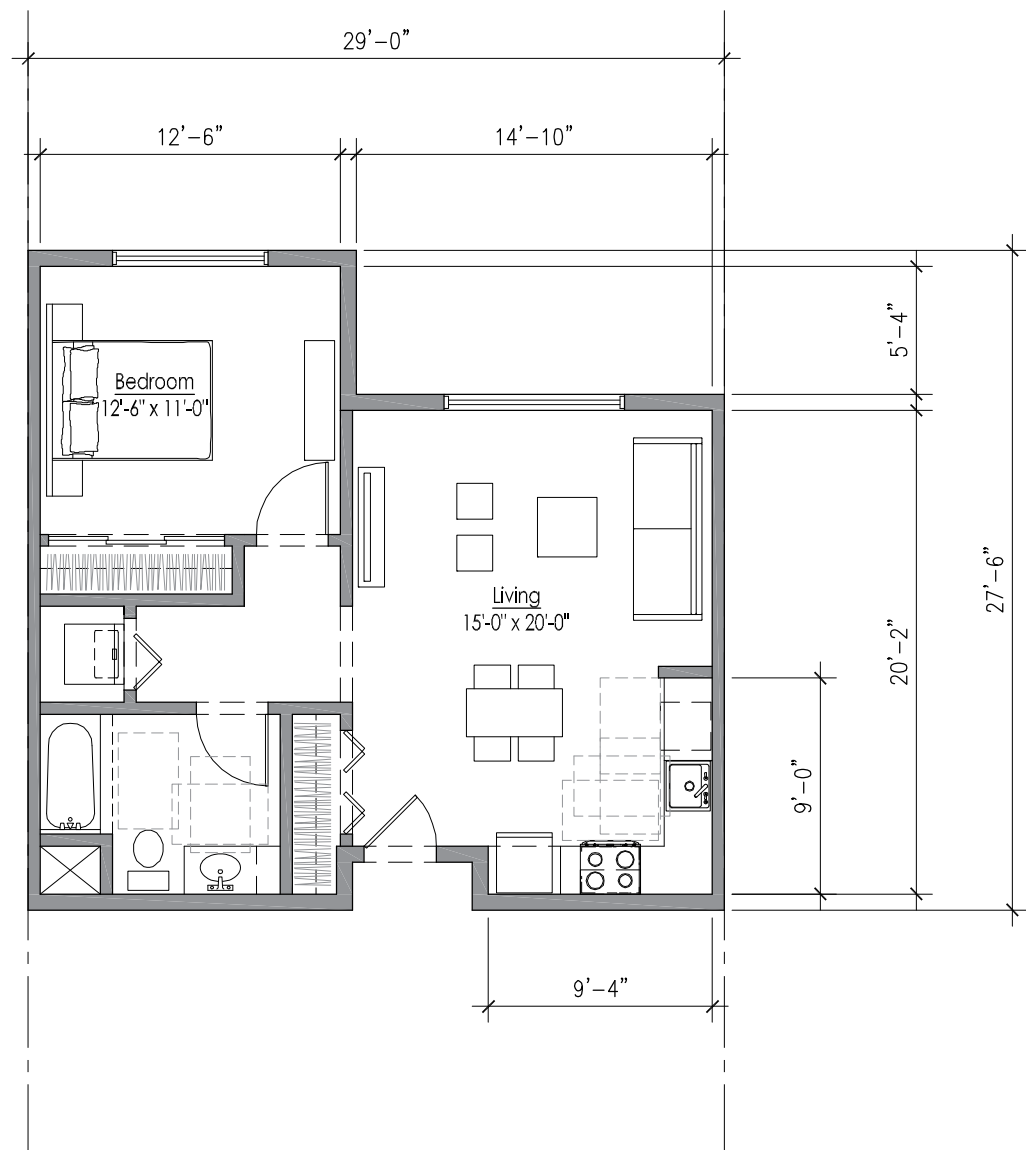
Amenity, Landscape and Lighting Study





Unit A - Junior One Bed/One Bath



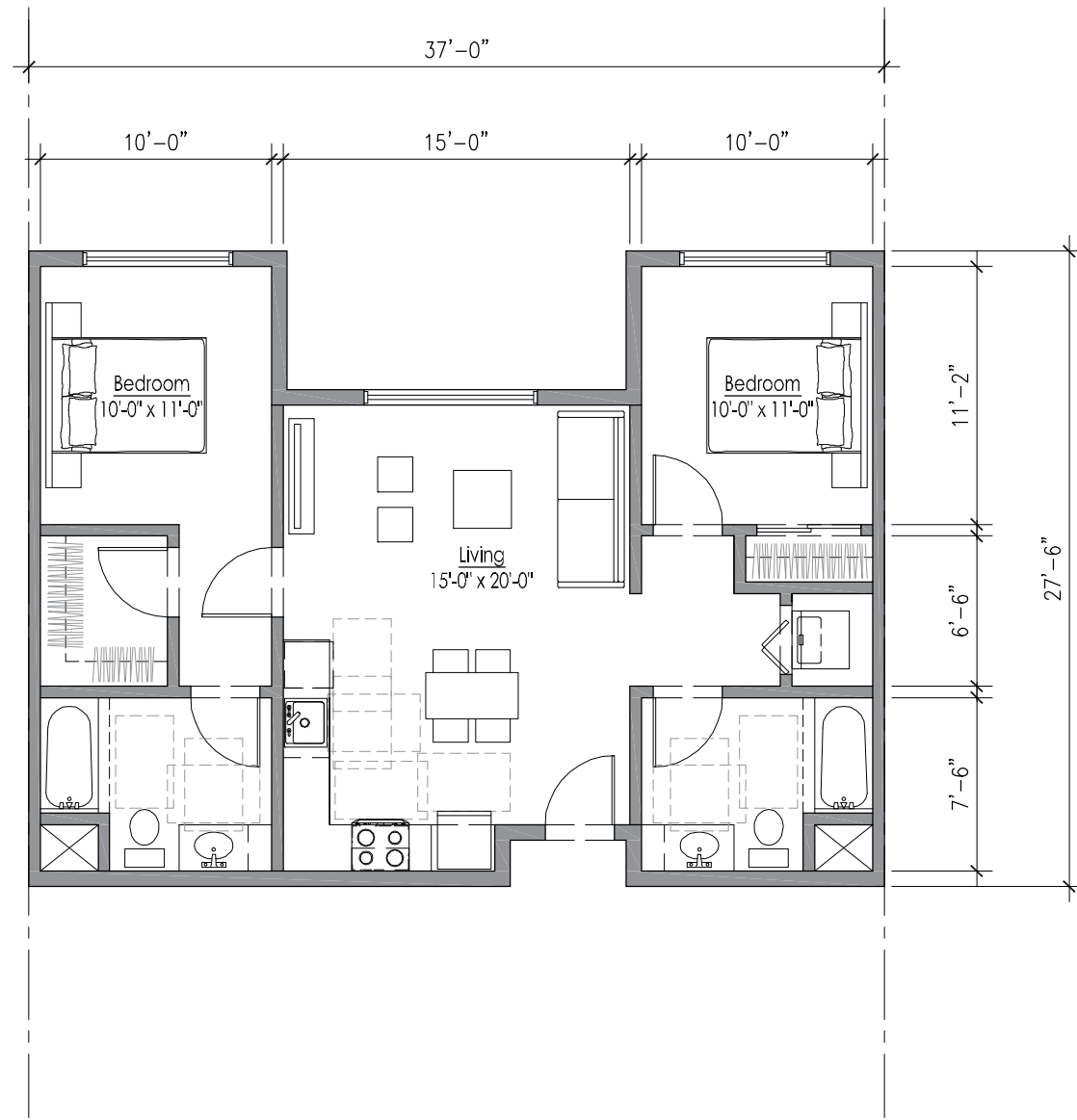


Unit B - One Bed/One Bath



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Unit C - Two Bed/Two Bath





google maps dated 8/29/2012

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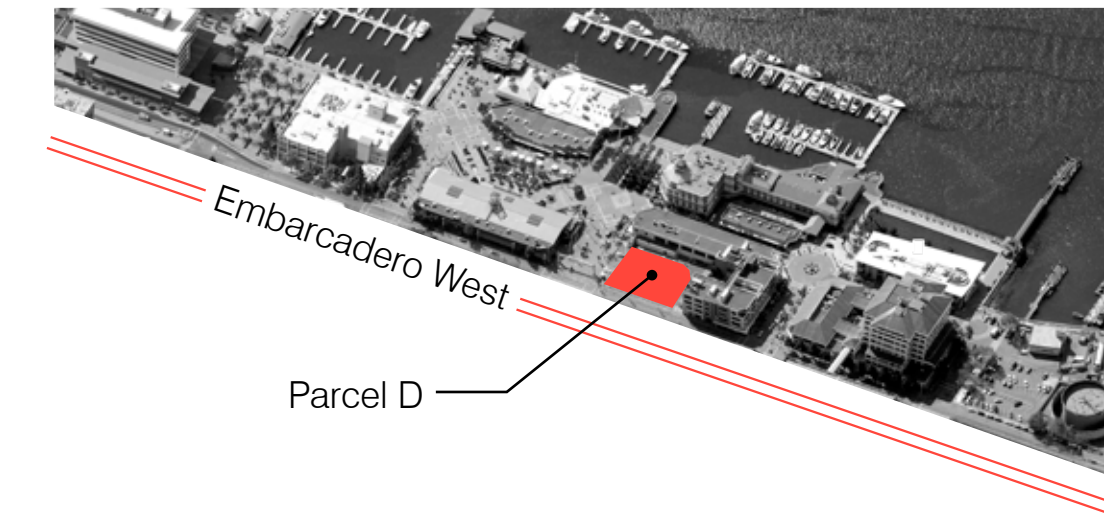
JACK LONDON SQUARE
OAKLAND, CALIFORNIA
PARCEL D

6 over 2
90 Units
Parcel D





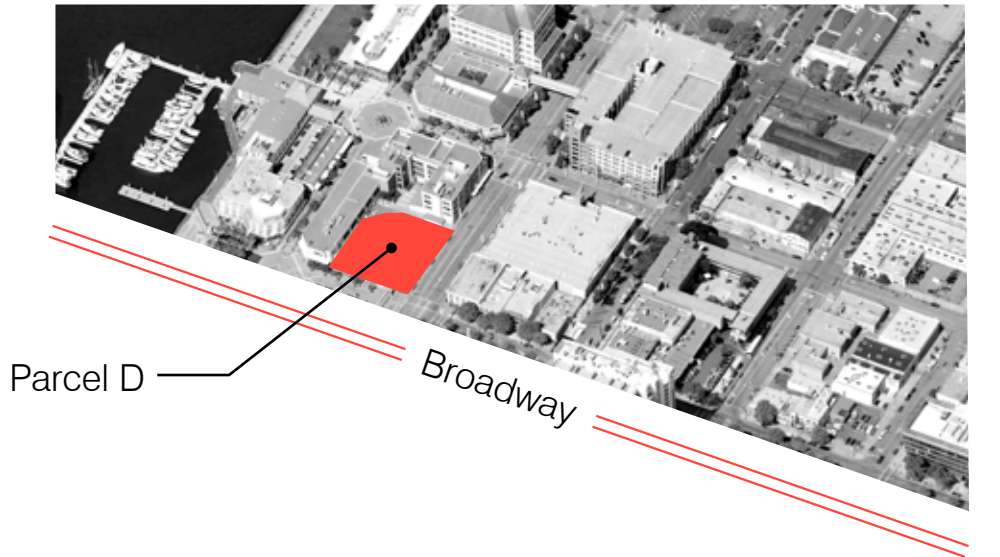
← Franklin St. → Existing Building ↔ Broadway ↔ **Parcel D** ↔ Existing Building → Washington St. → Existing Buildings → Clay St. →



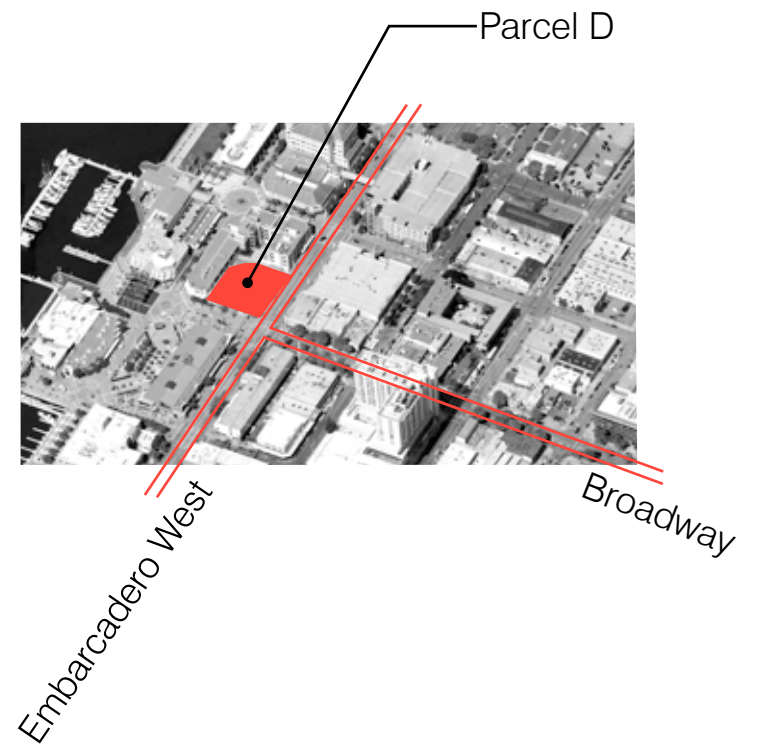
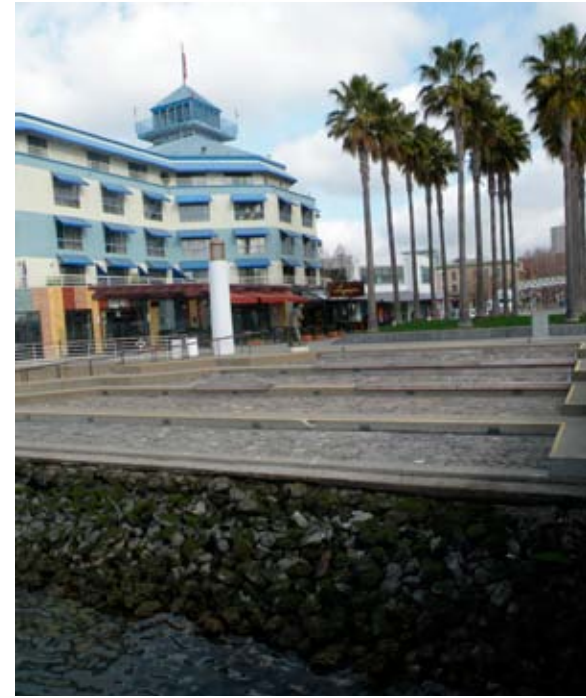
Embarcadero West Panoramic



San Francisco Bay ↔ Existing Building ↔ Water St. ↔ Existing Building ↔ **Parcel D** ↔ Embarcadero West ↔ Existing Buildings ↔ 2nd St. ↔ Existing Buildings



Broadway Panoramic



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PARCEL D

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Parcel D Contextual Photos



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OAKLAND, CALIFORNIA

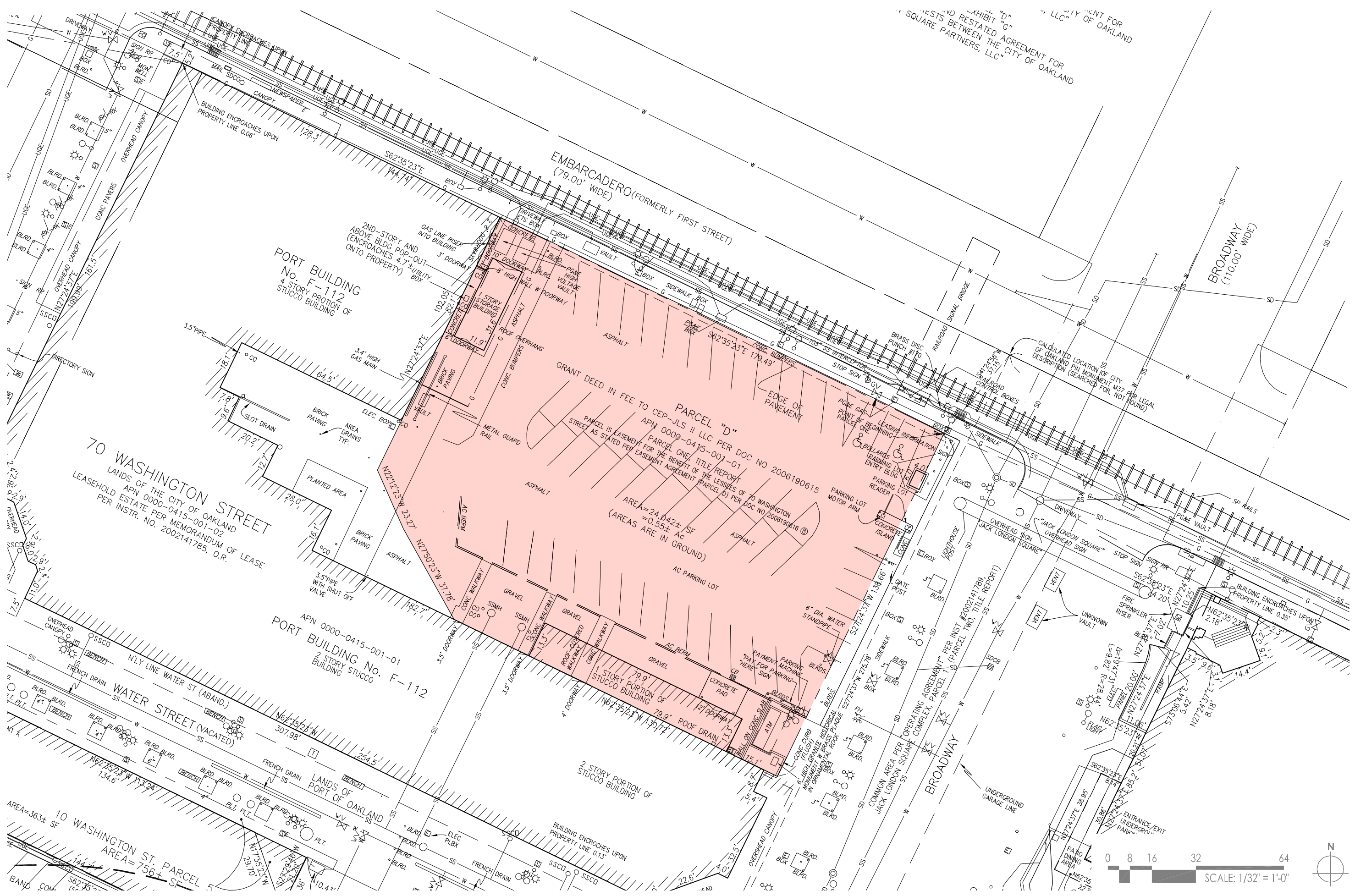
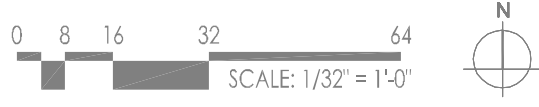
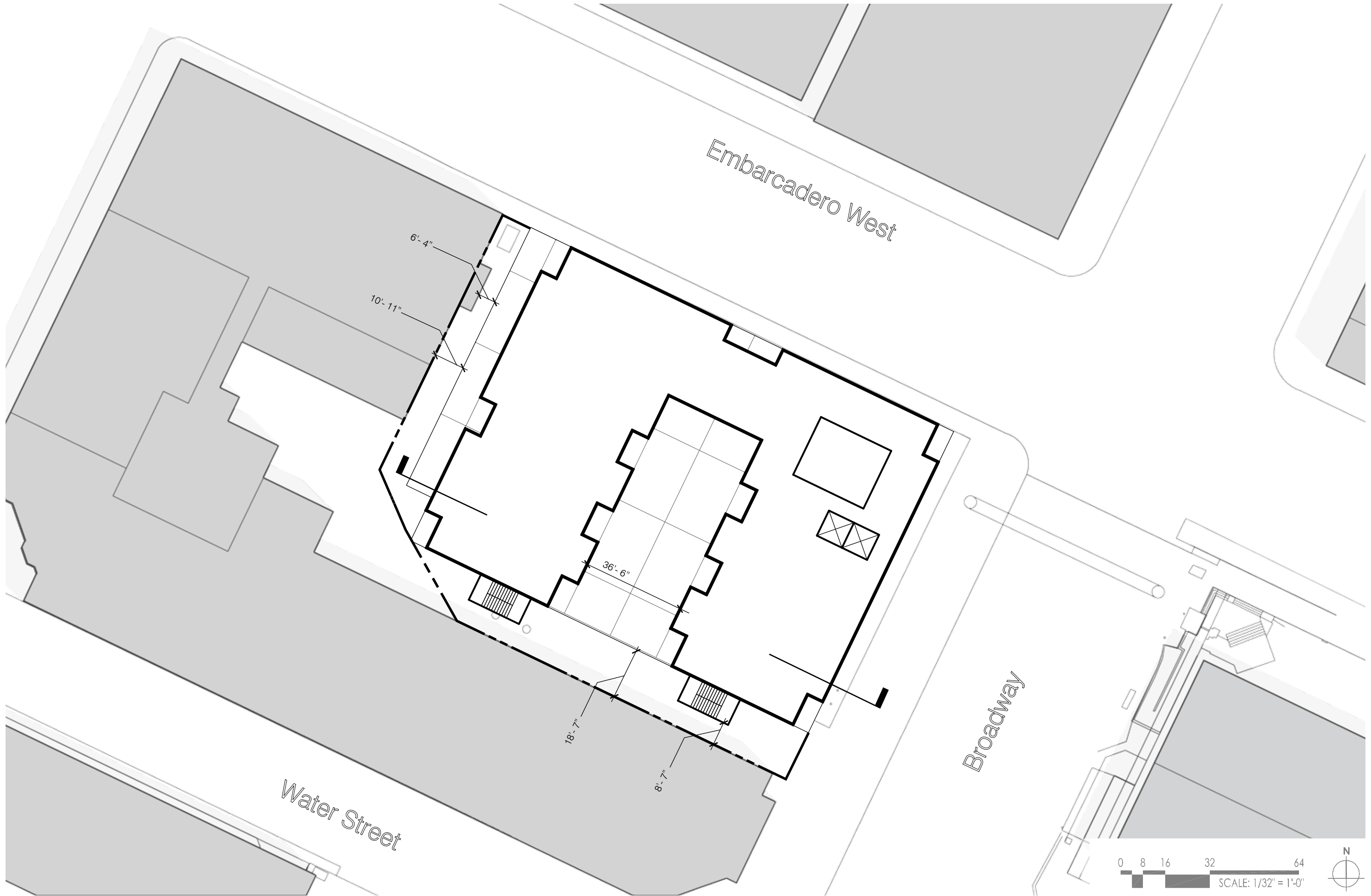


EXHIBIT "D"
AND RESTATED AGREEMENT FOR
ESTS BETWEEN THE CITY OF OAKLAND
AND SQUARE PARTNERS, LLC



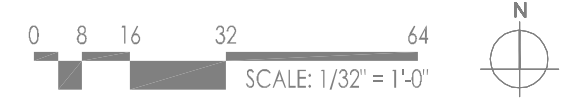
Survey Plan



Water Street

Embarcadero West

Broadway



Site Plan

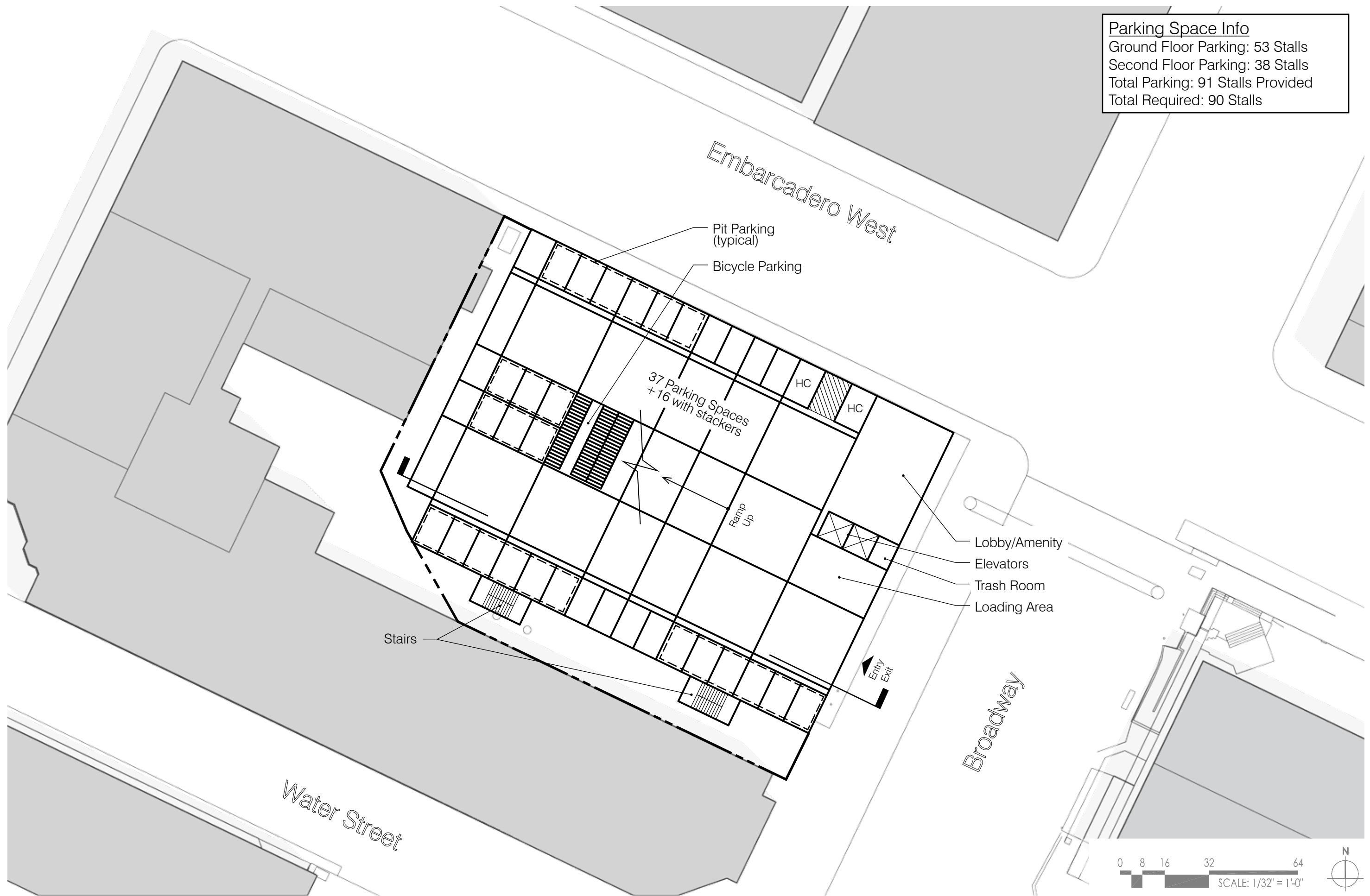
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PARCEL D

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 OAKLAND, CALIFORNIA



Parking Space Info
 Ground Floor Parking: 53 Stalls
 Second Floor Parking: 38 Stalls
 Total Parking: 91 Stalls Provided
 Total Required: 90 Stalls



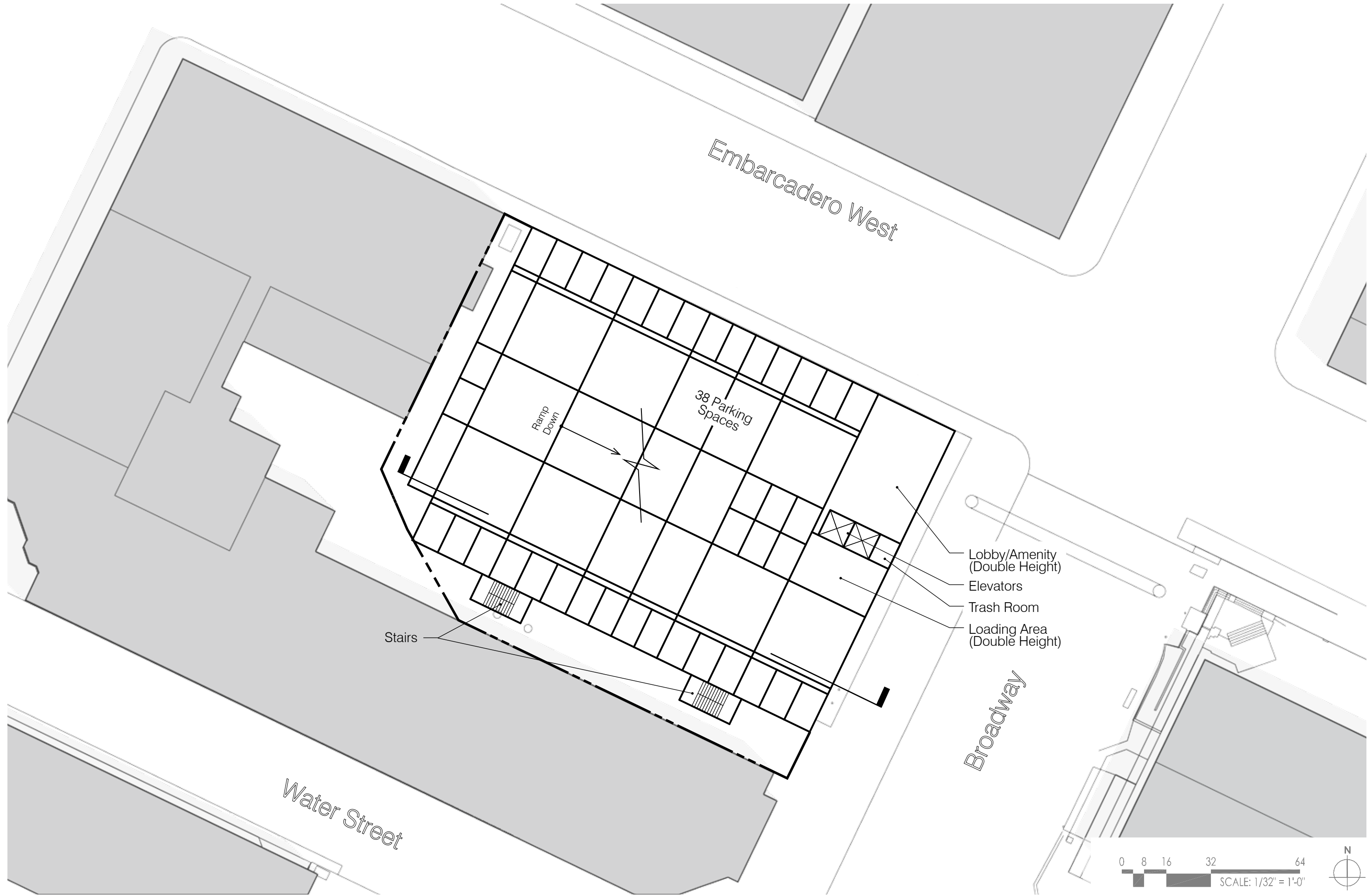
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 PARCEL D



First Floor Plan



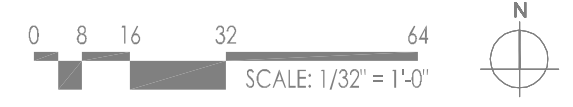
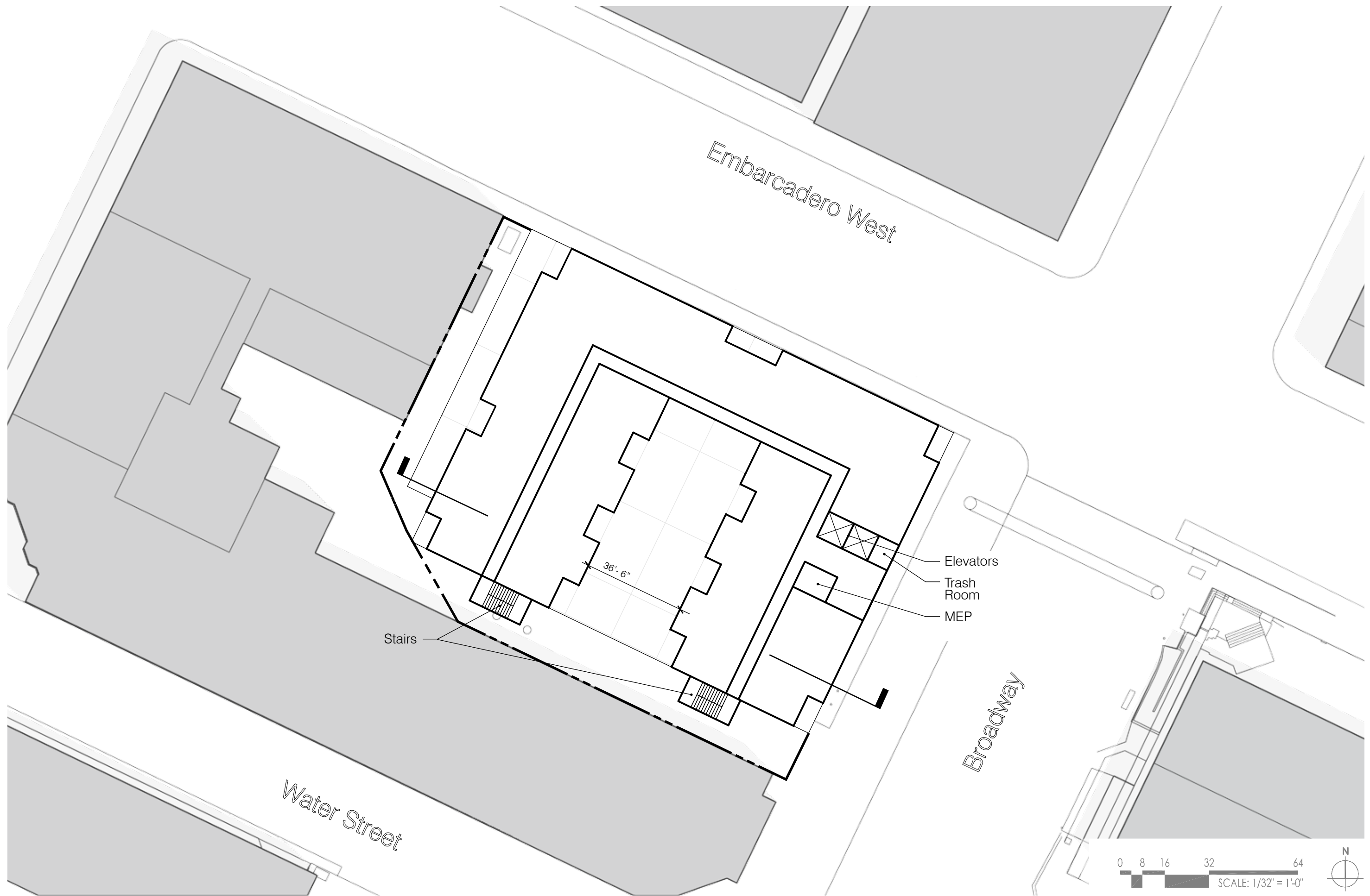


Second Floor Plan

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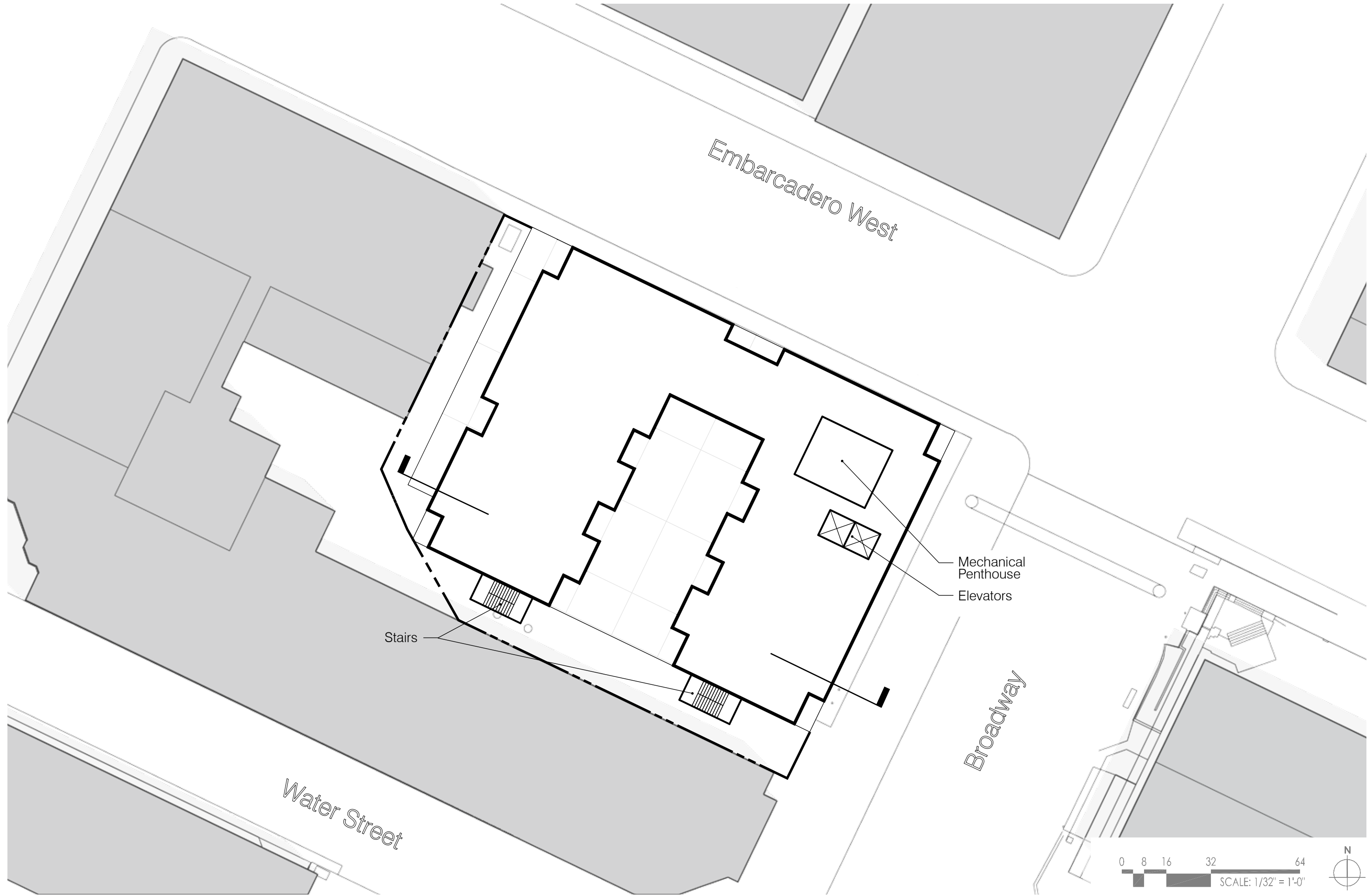


Typical Plan (Third - Eighth Floor)

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 PARCEL D





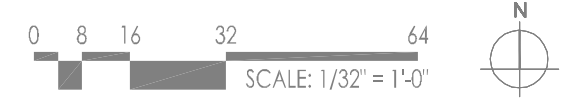
Water Street

Embarcadero West

Broadway

Stairs

Mechanical Penthouse
Elevators



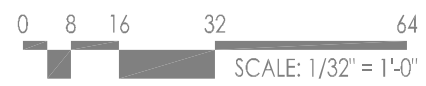
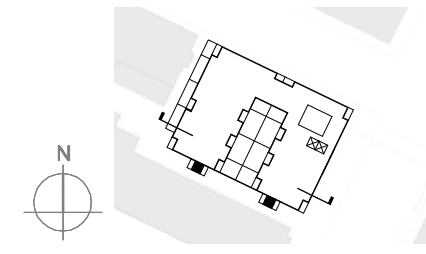
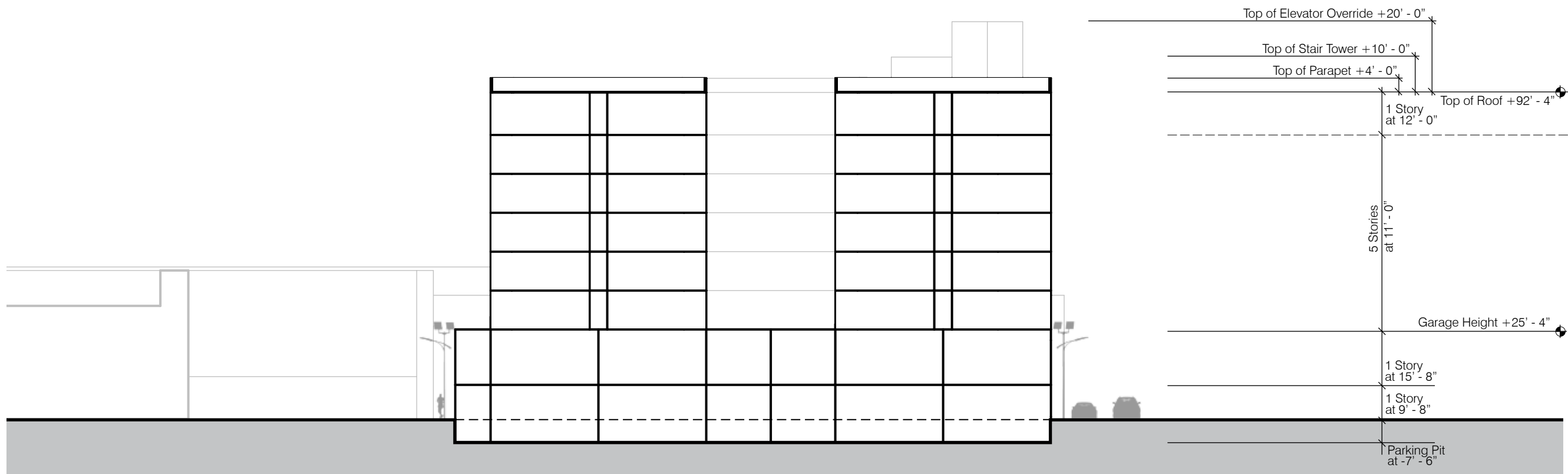
Roof Plan

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PARCEL D

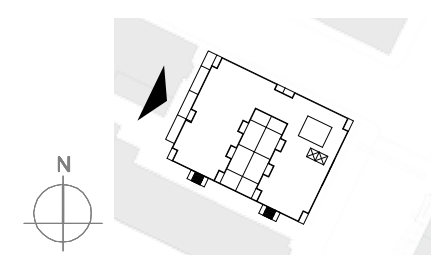
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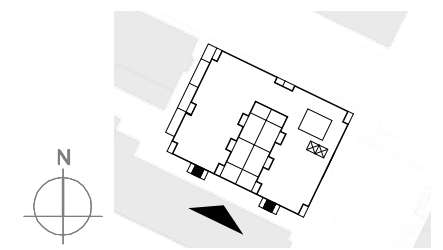
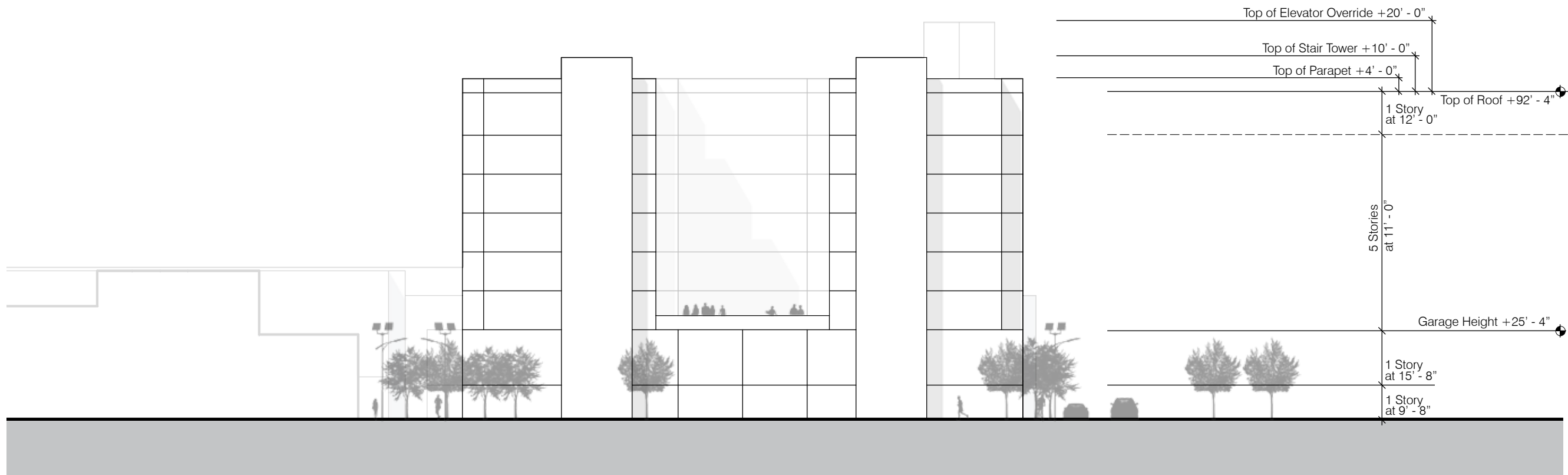


Section



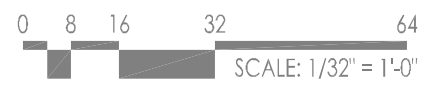
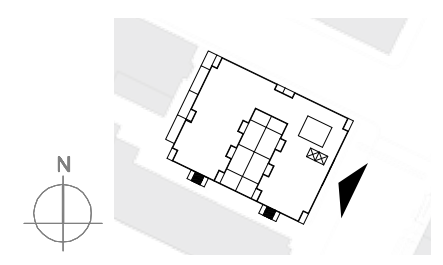


West Elevation

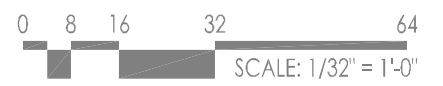
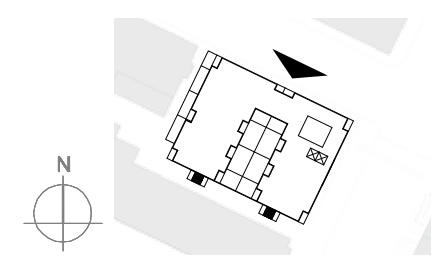
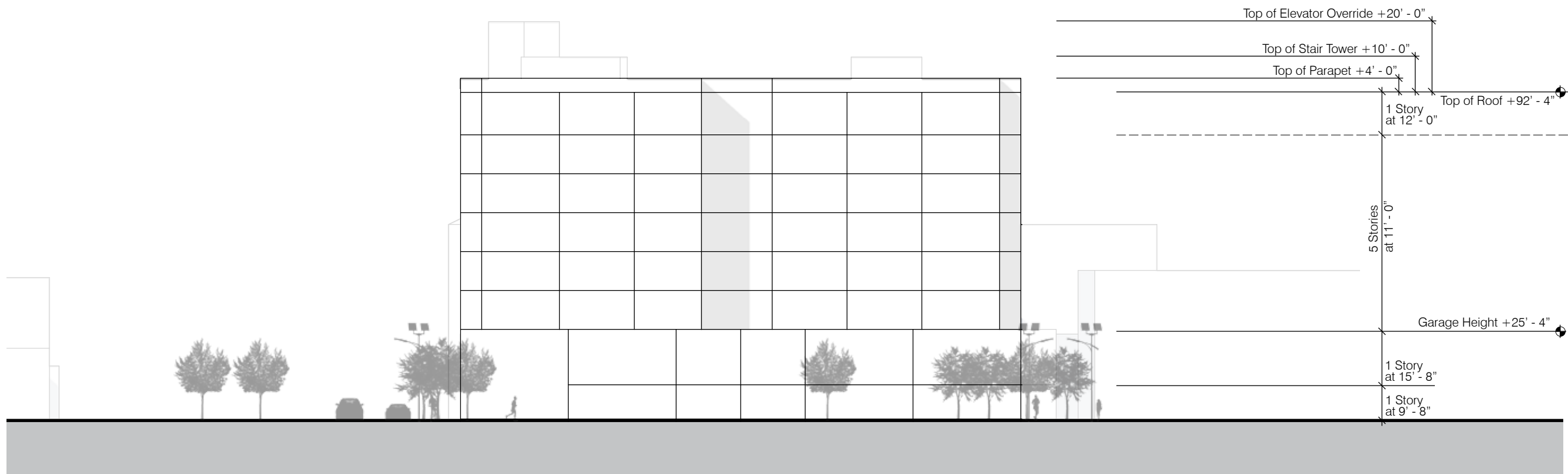


South Elevation



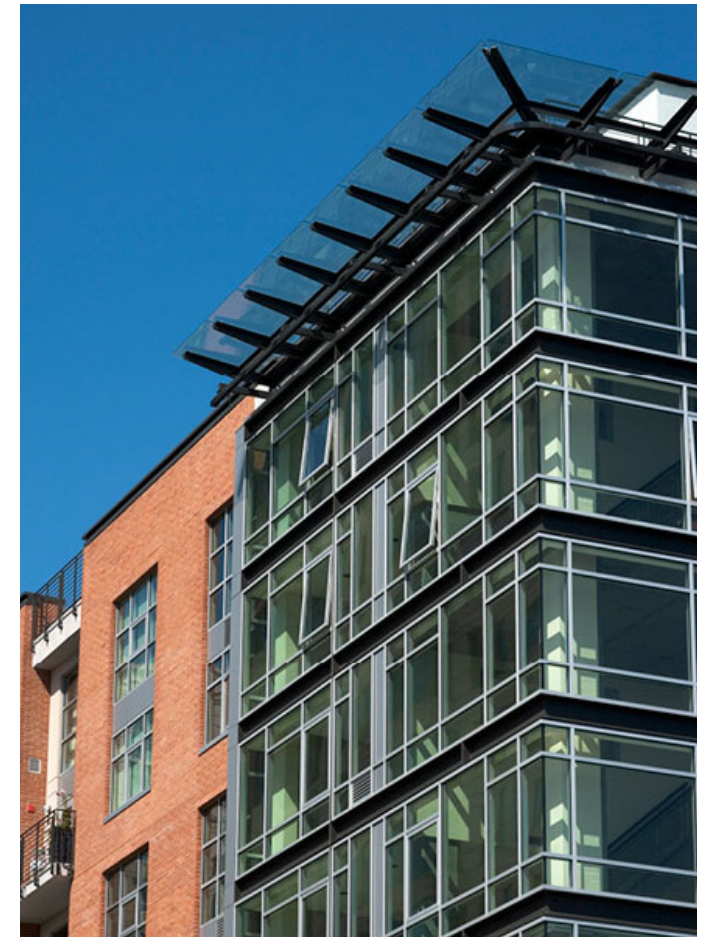
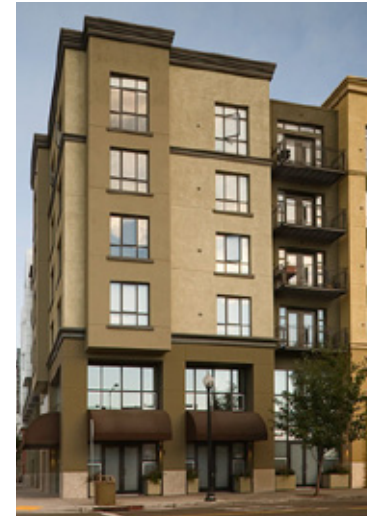
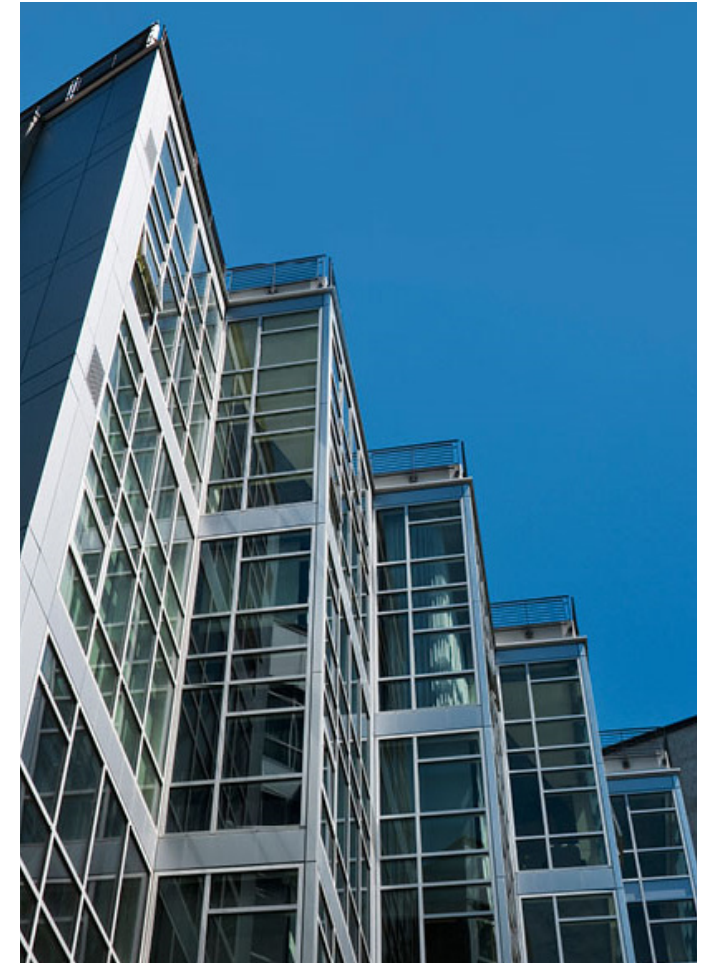


East Elevation



North Elevation





Colors, Finishes and Materials to be selected during FDP Phase

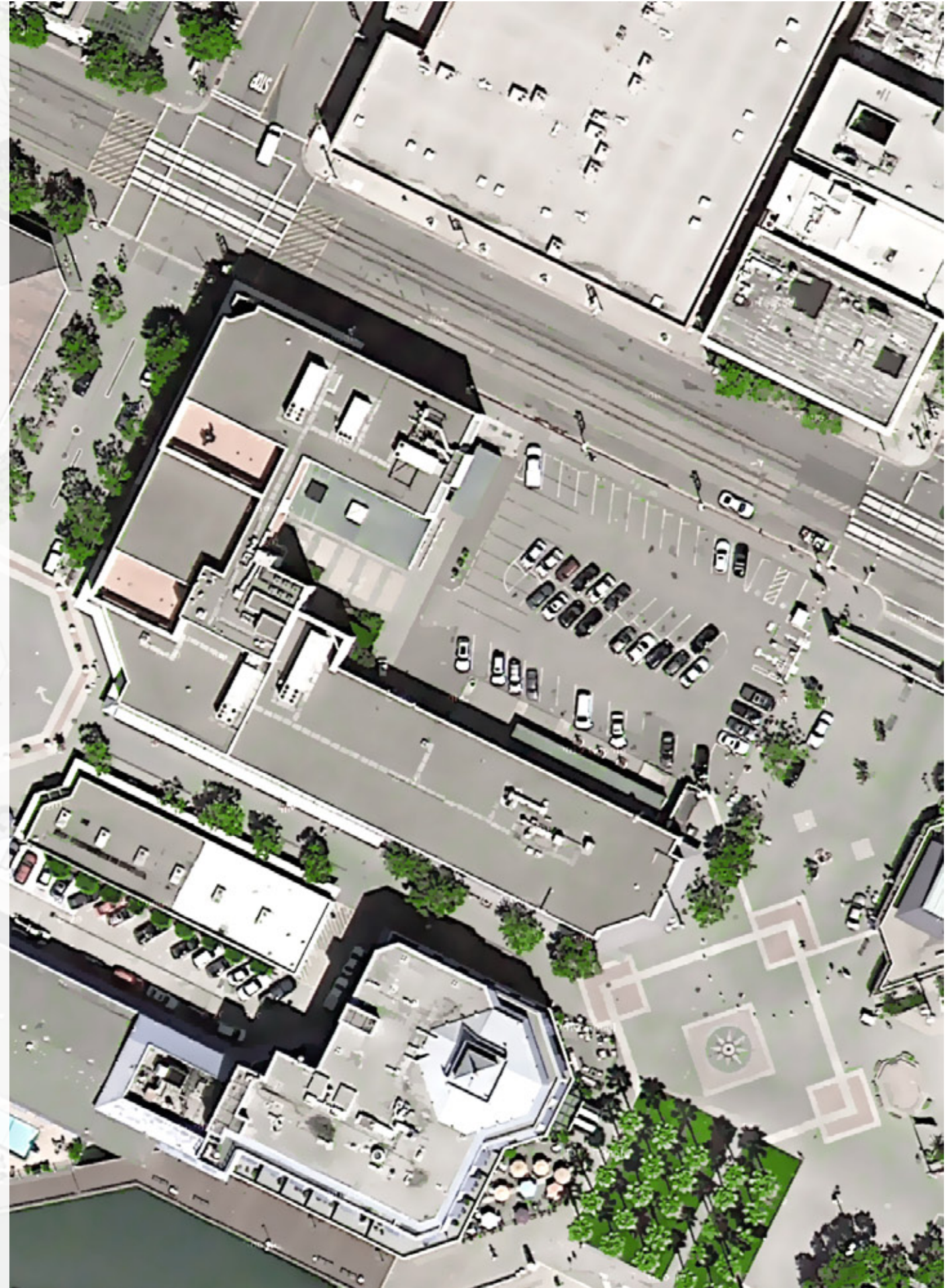
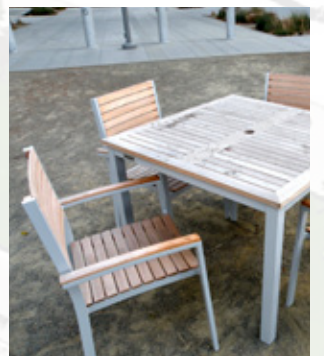
Exterior Design Study



JACK LONDON SQUARE
OAKLAND, CALIFORNIA

PARCEL D

21 MAY 2013
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2470 MARINER SQUARE LOOP
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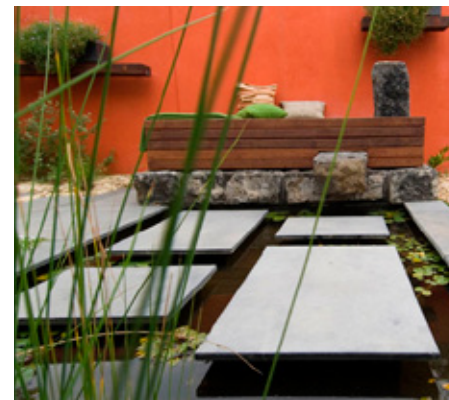
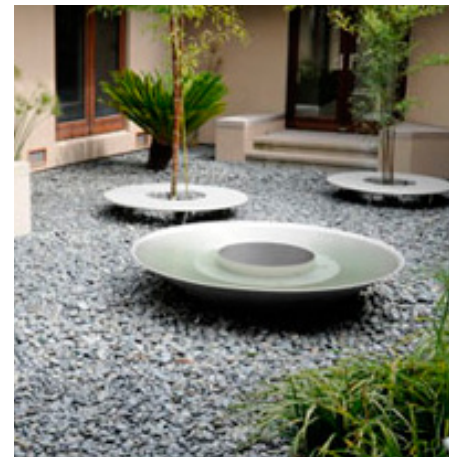


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Amenity, Landscape and Lighting Study



Open Space Calculations
 Required Group Open Space: 13,500 sf
 Provided Podium Courtyard Space: 3,175 sf
 Provided Private Podium Space: 1,025
 Provided Private Balcony Space: 2,370 sf
 At Grade Open Space: 3,585 sf
 Total Space Provided: **3,175** + **(1,025 x 2)** + **(2,370 x 2)** + **3,585** = 13,550 sf of Total Open Space

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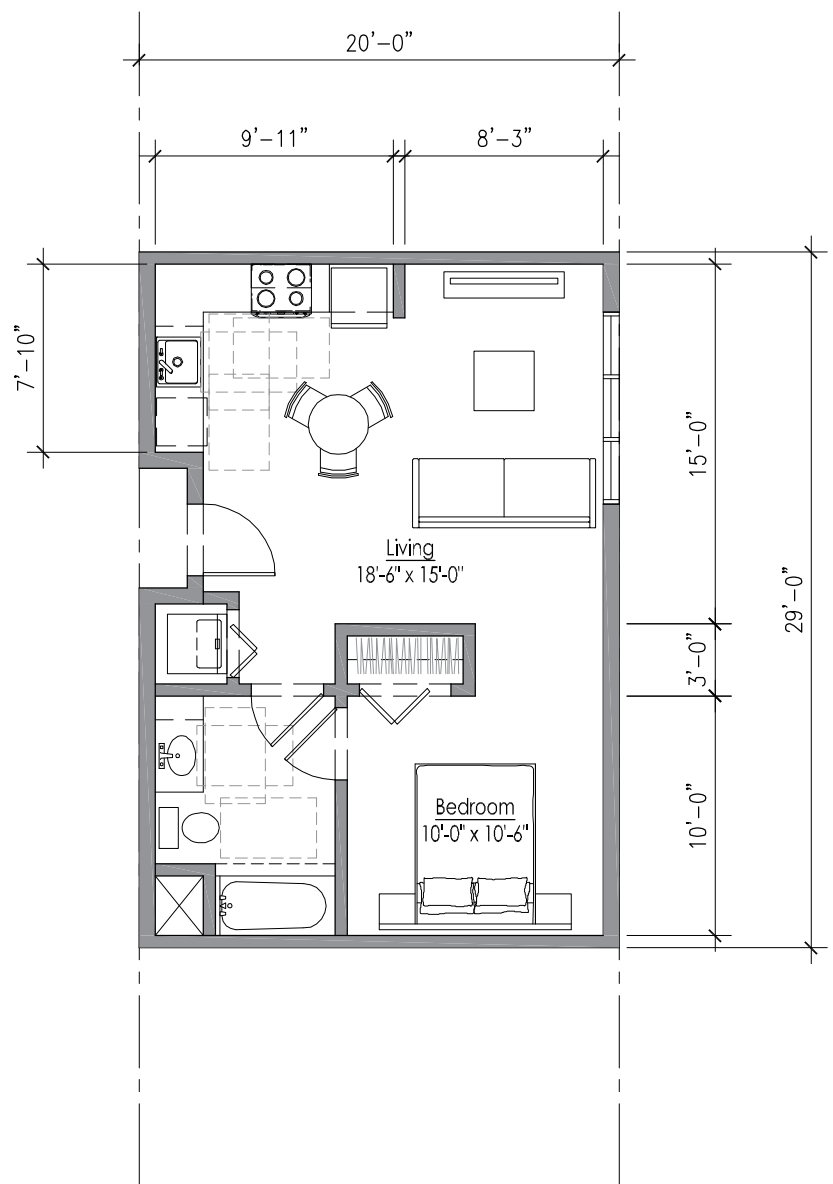
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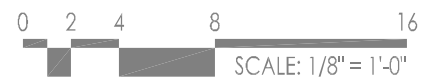
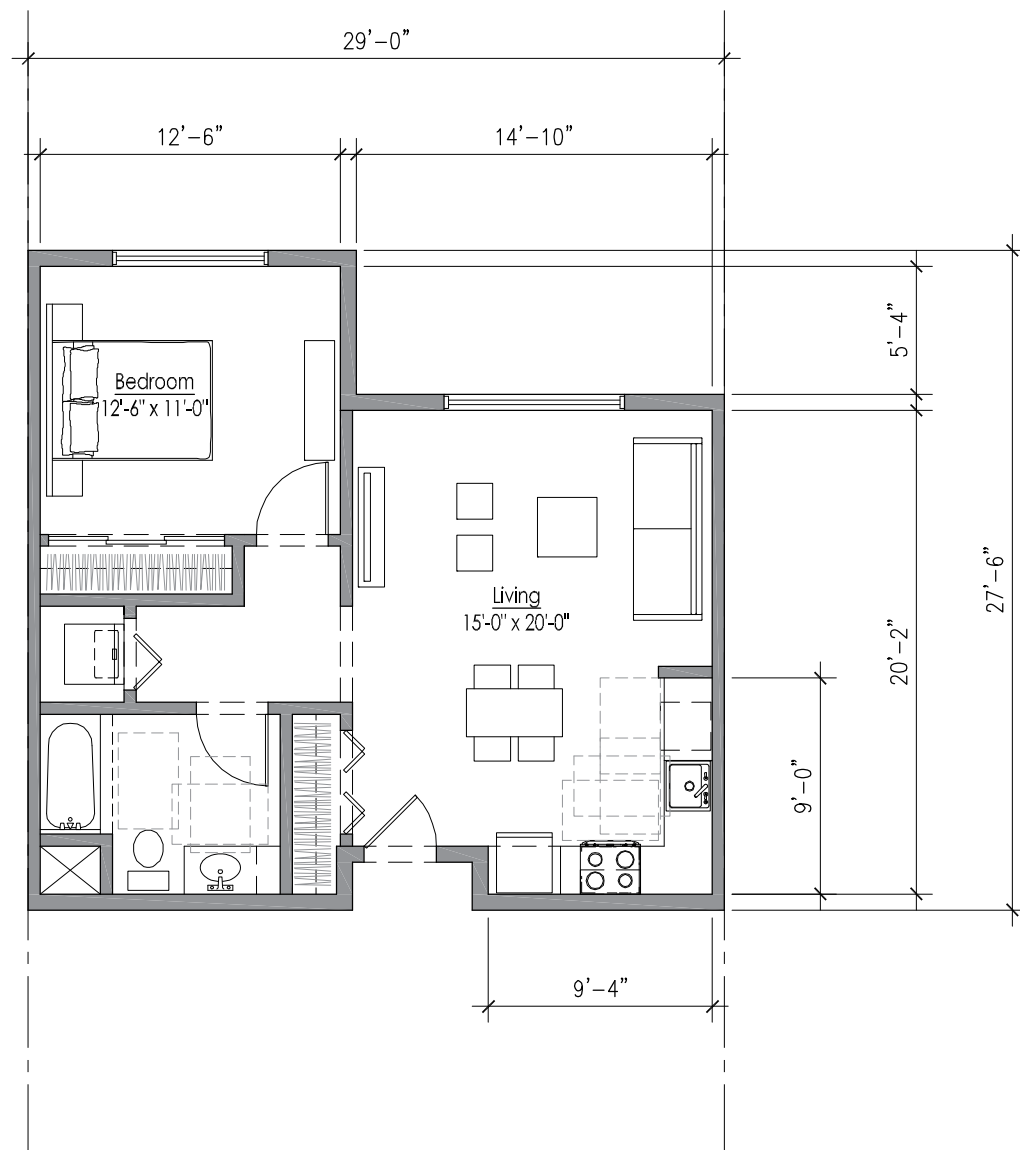
Proposed Landscape and Lighting Plan





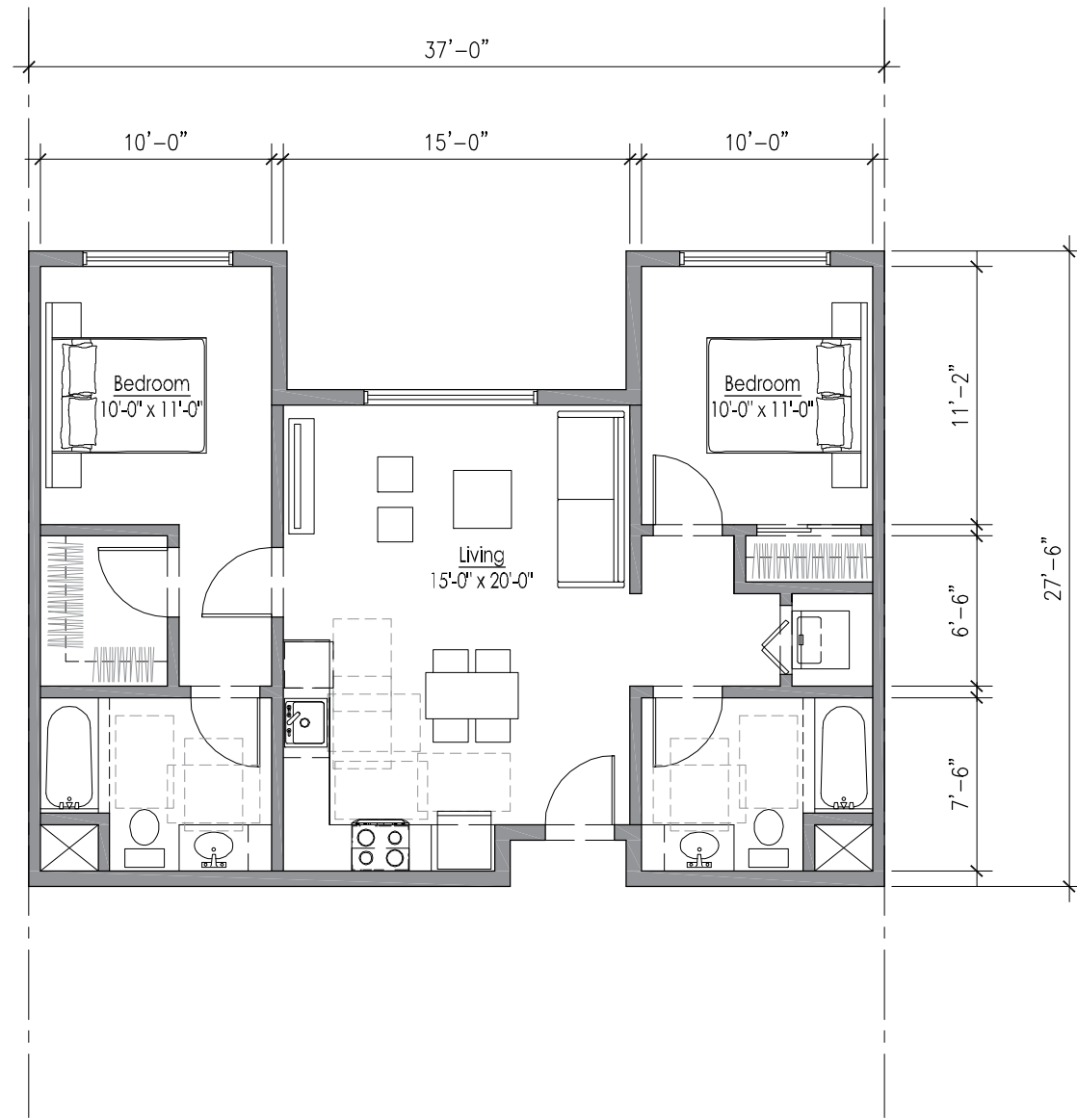
Unit A - Junior One Bed/One Bath





Unit B - One Bed/One Bath





Unit C - Two Bed/Two Bath





google maps dated 8/29/2012

13 over 4
167 Units
Parcel D

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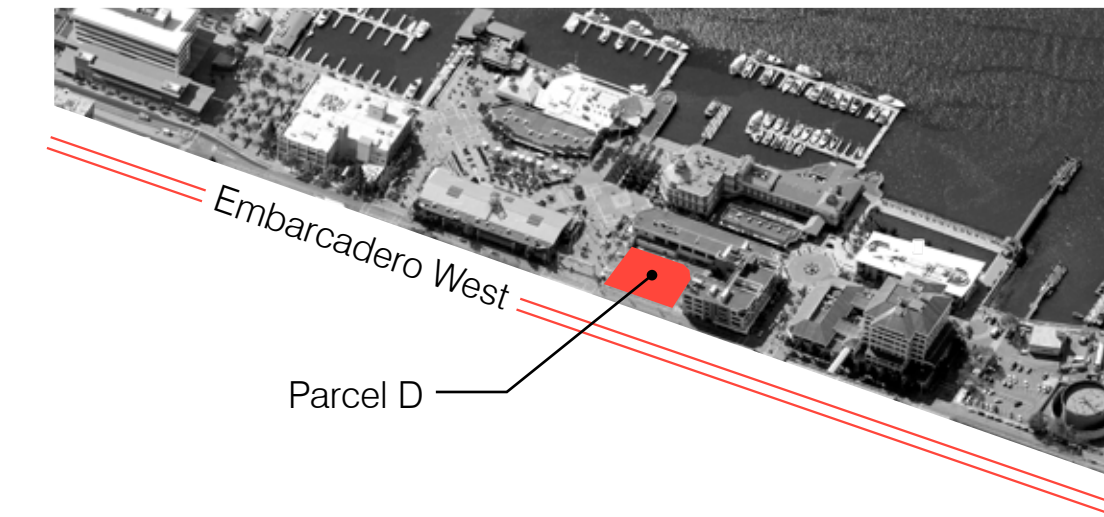
PARCEL D

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OAKLAND, CALIFORNIA





← Franklin St. → Existing Building ↔ Broadway ↔ **Parcel D** ↔ Existing Building → Washington St. → Existing Buildings → Clay St. →



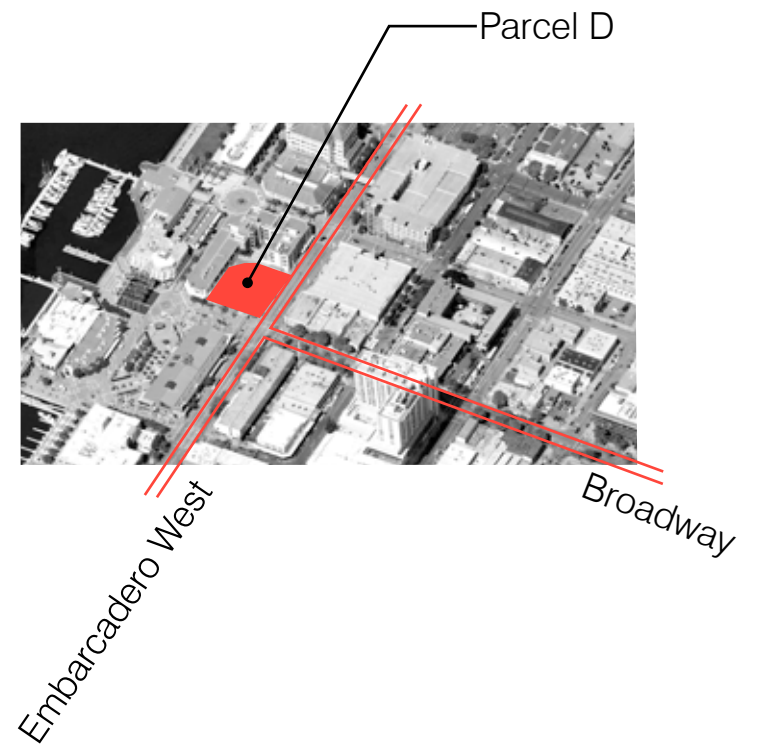
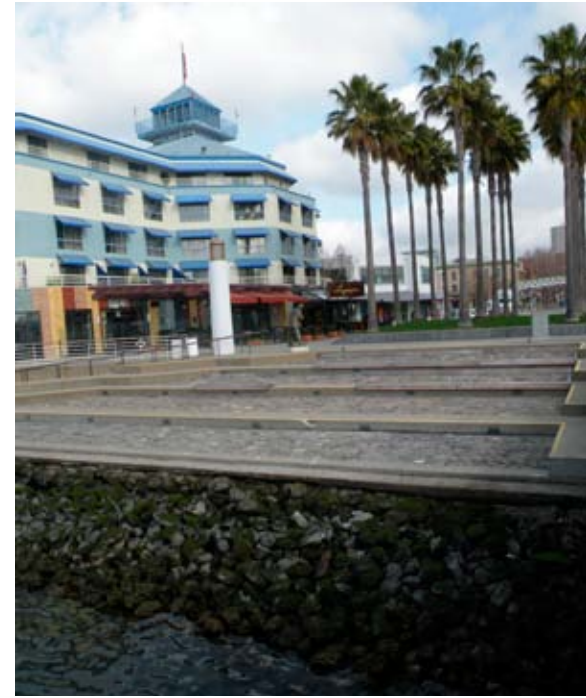
Embarcadero West Panoramic



San Francisco Bay ↔ Existing Building ↔ Water St. ↔ Existing Building ↔ **Parcel D** ↔ Embarcadero West ↔ Existing Buildings ↔ 2nd St. ↔ Existing Buildings



Broadway Panoramic



Parcel D Contextual Photos

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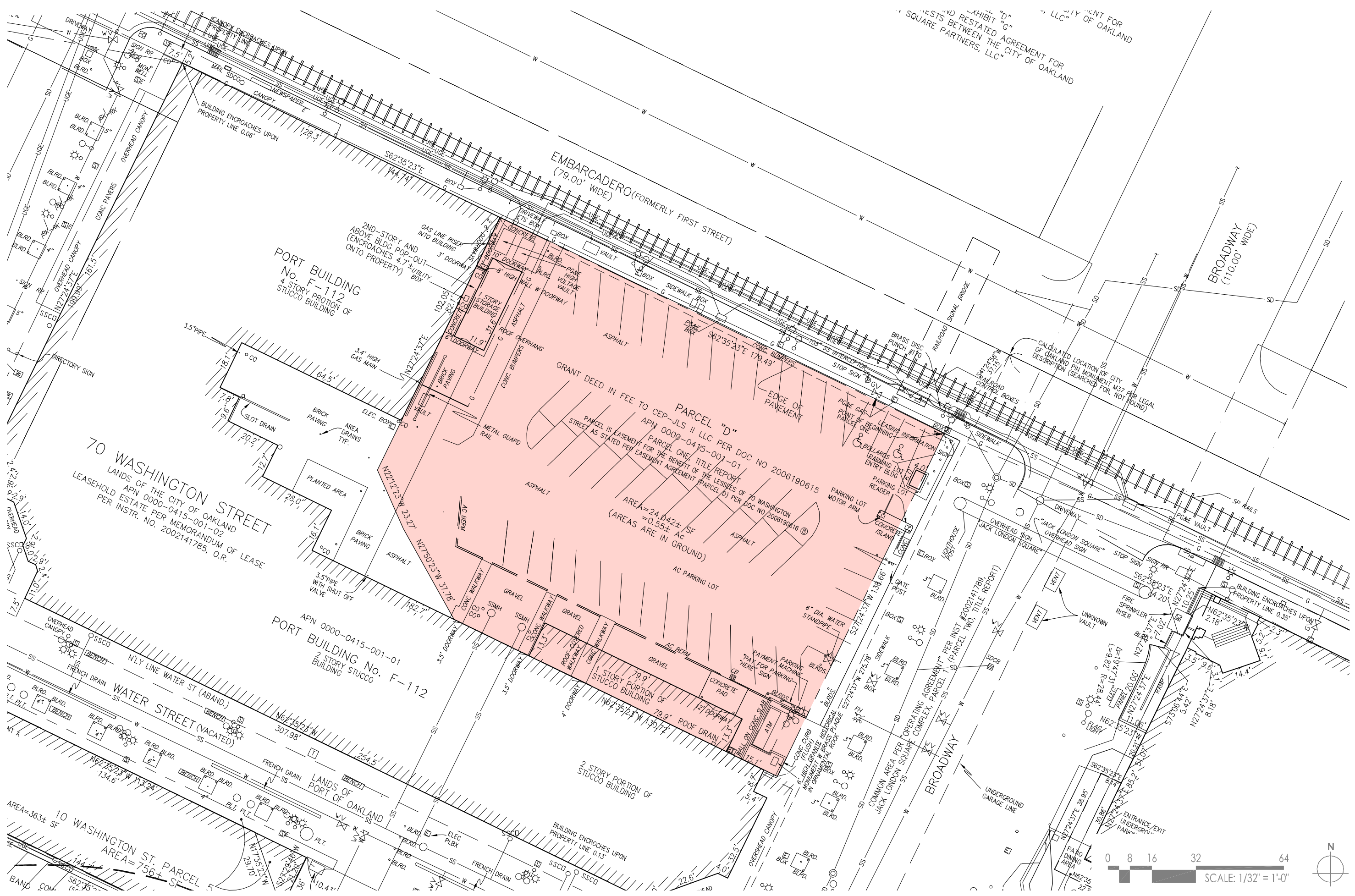


EXHIBIT "D"
 AND RESTATED AGREEMENT FOR
 EASEMENTS BETWEEN THE CITY OF OAKLAND
 AND SQUARE PARTNERS, LLC

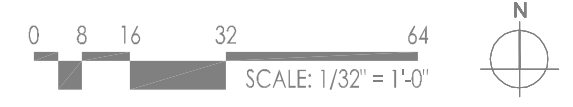
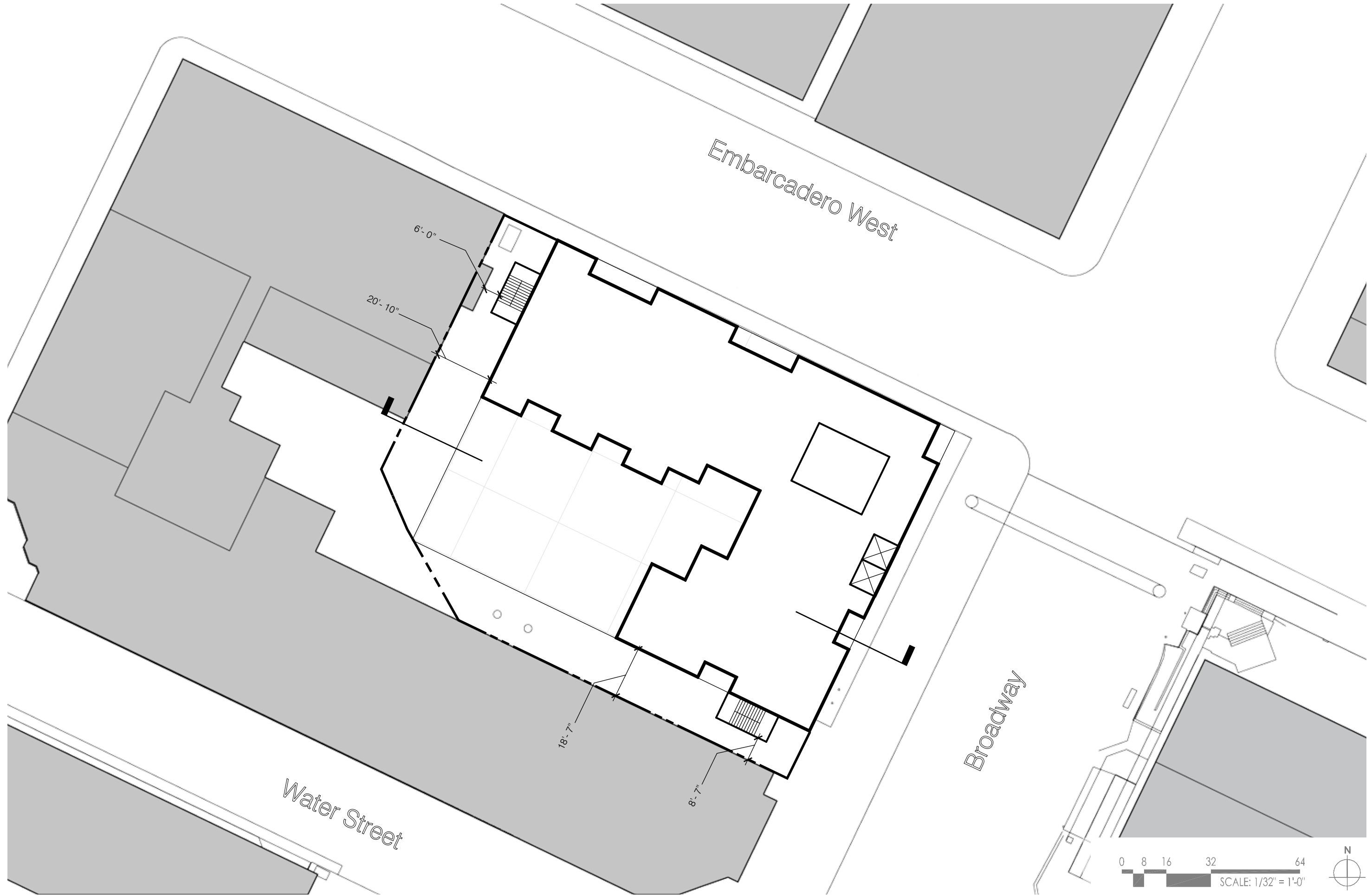
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Survey Plan



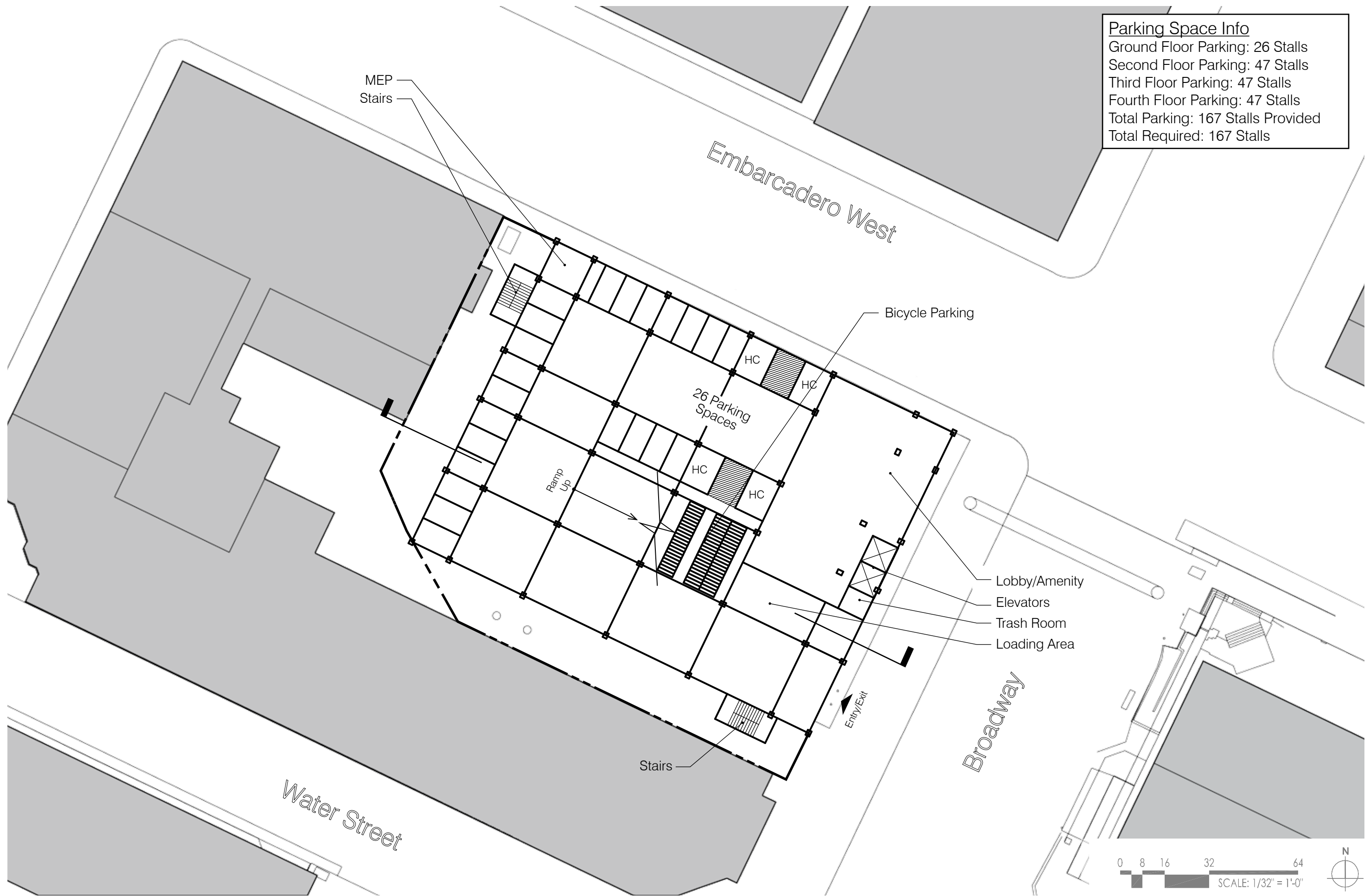


Site Plan

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Parking Space Info
 Ground Floor Parking: 26 Stalls
 Second Floor Parking: 47 Stalls
 Third Floor Parking: 47 Stalls
 Fourth Floor Parking: 47 Stalls
 Total Parking: 167 Stalls Provided
 Total Required: 167 Stalls

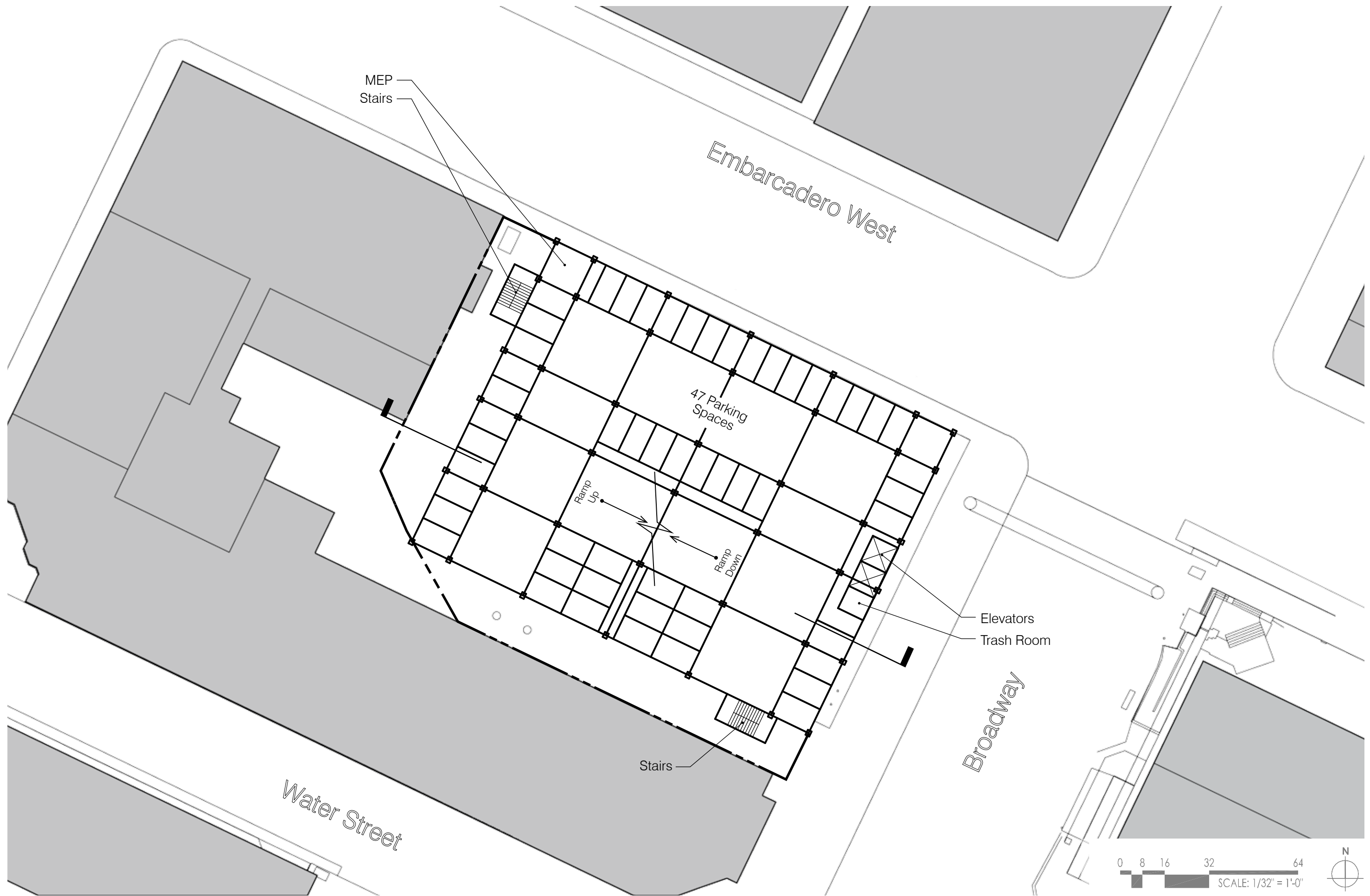
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 PARCEL D



First Floor Plan





MEP
Stairs

Embarcadero West

47 Parking
Spaces

Ramp
Up

Ramp
Down

Elevators
Trash Room

Broadway

Stairs

Water Street



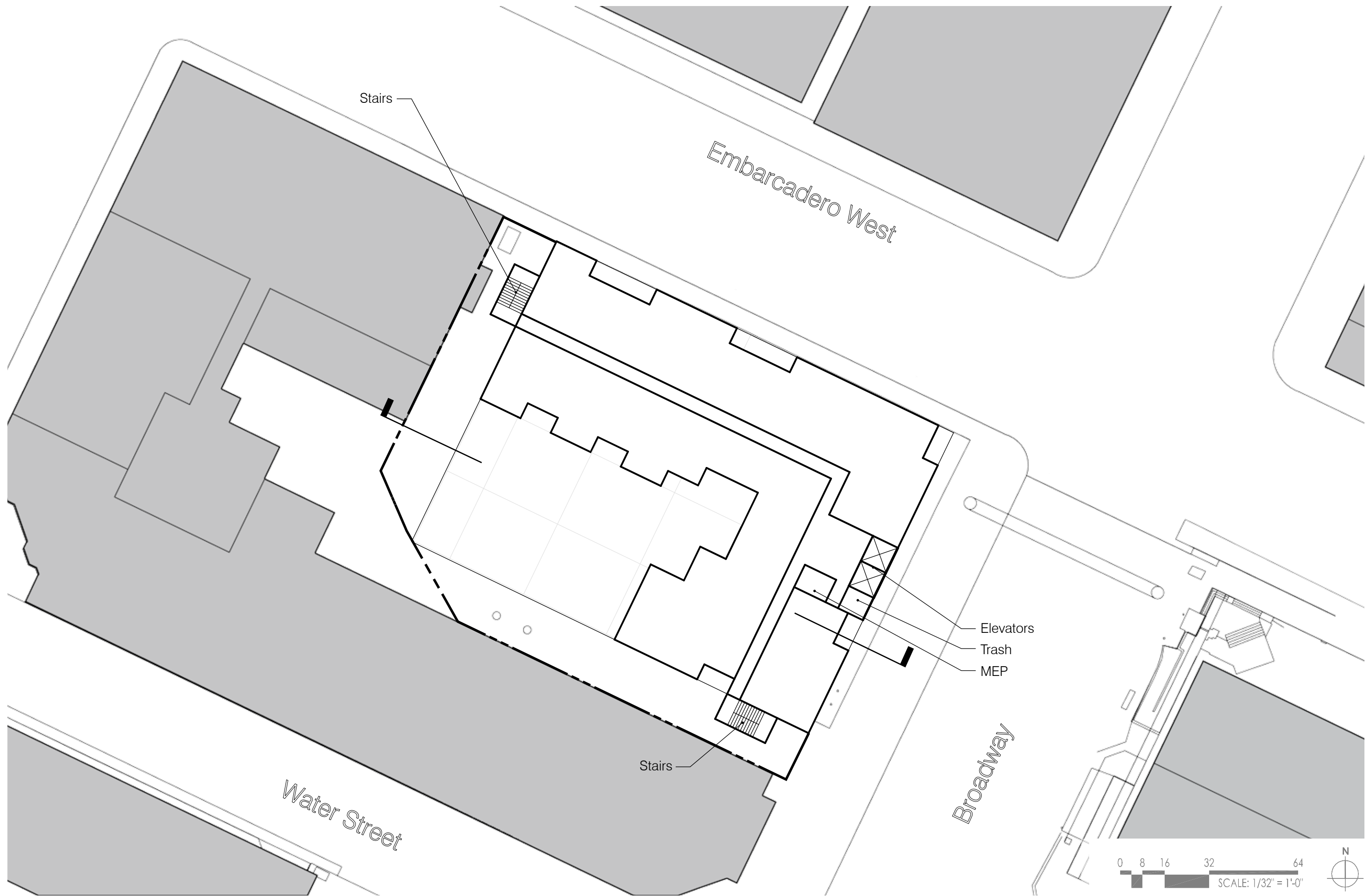
Second - Fourth Floor Plan

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Stairs

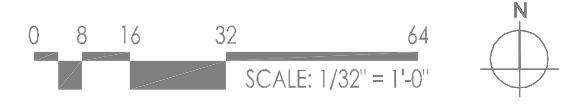
Embarcadero West

Elevators
Trash
MEP

Stairs

Broadway

Water Street



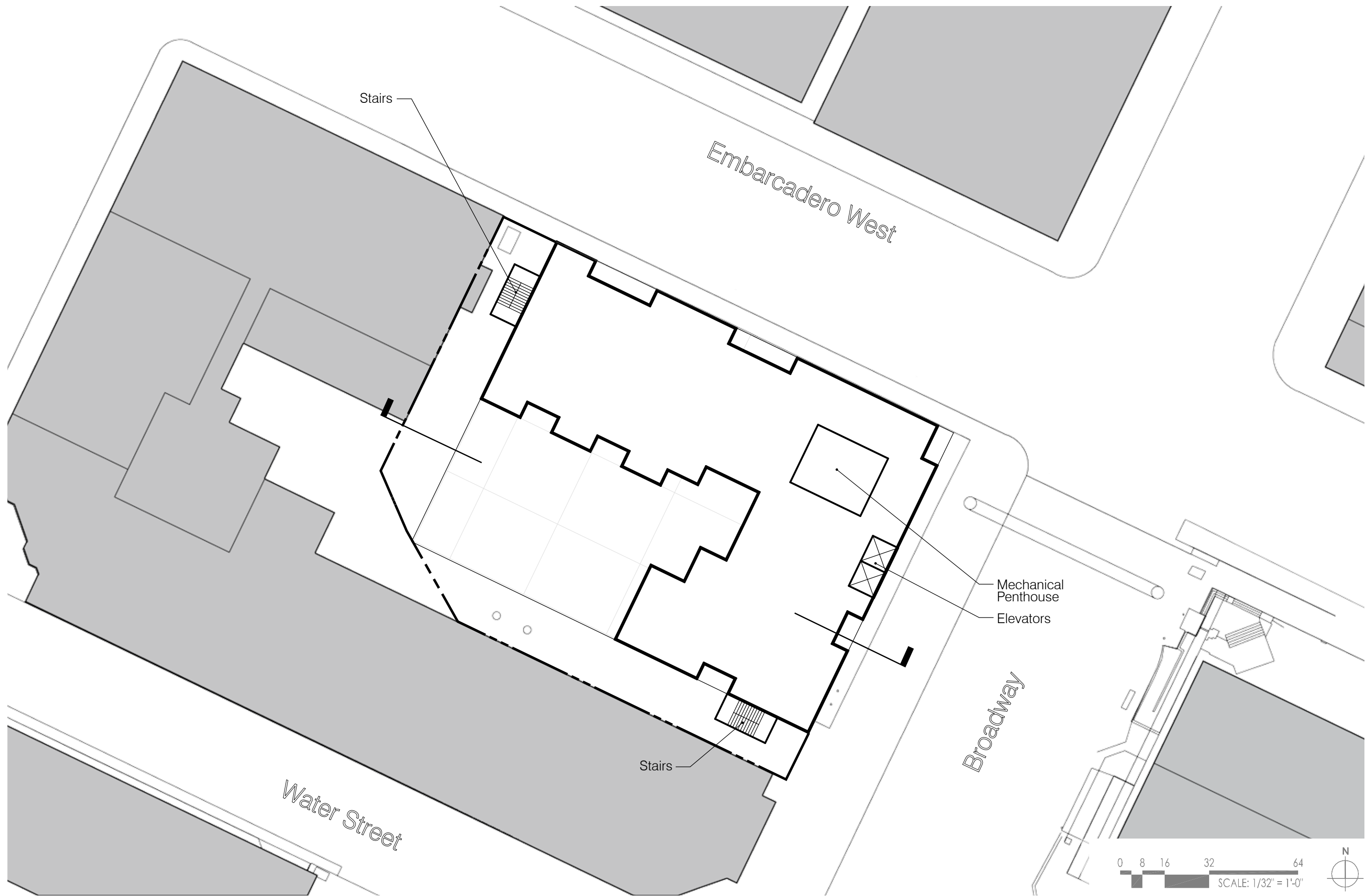
Typical Plan (Fifth - Seventeenth Floor)

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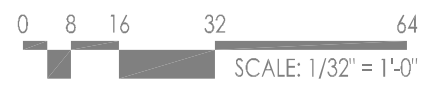
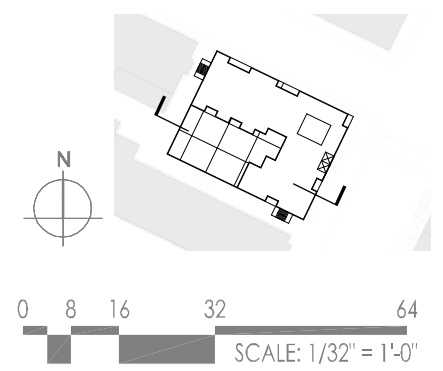
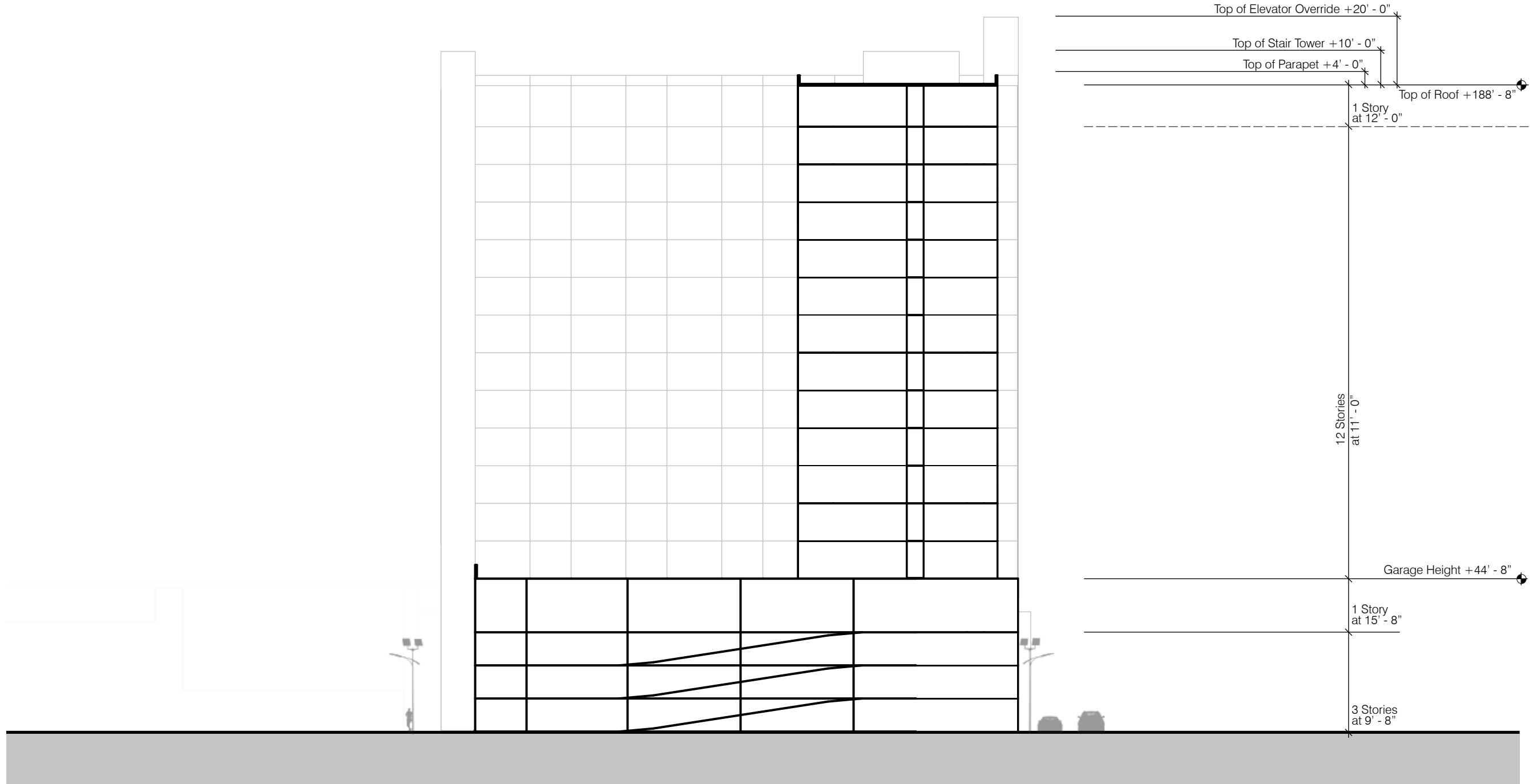


Roof Plan

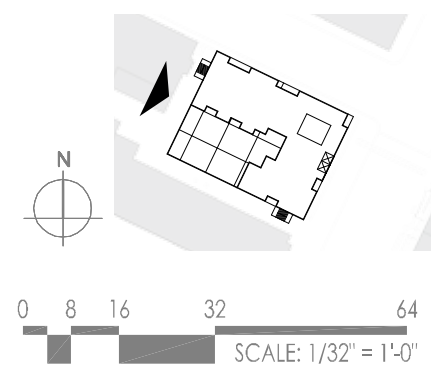
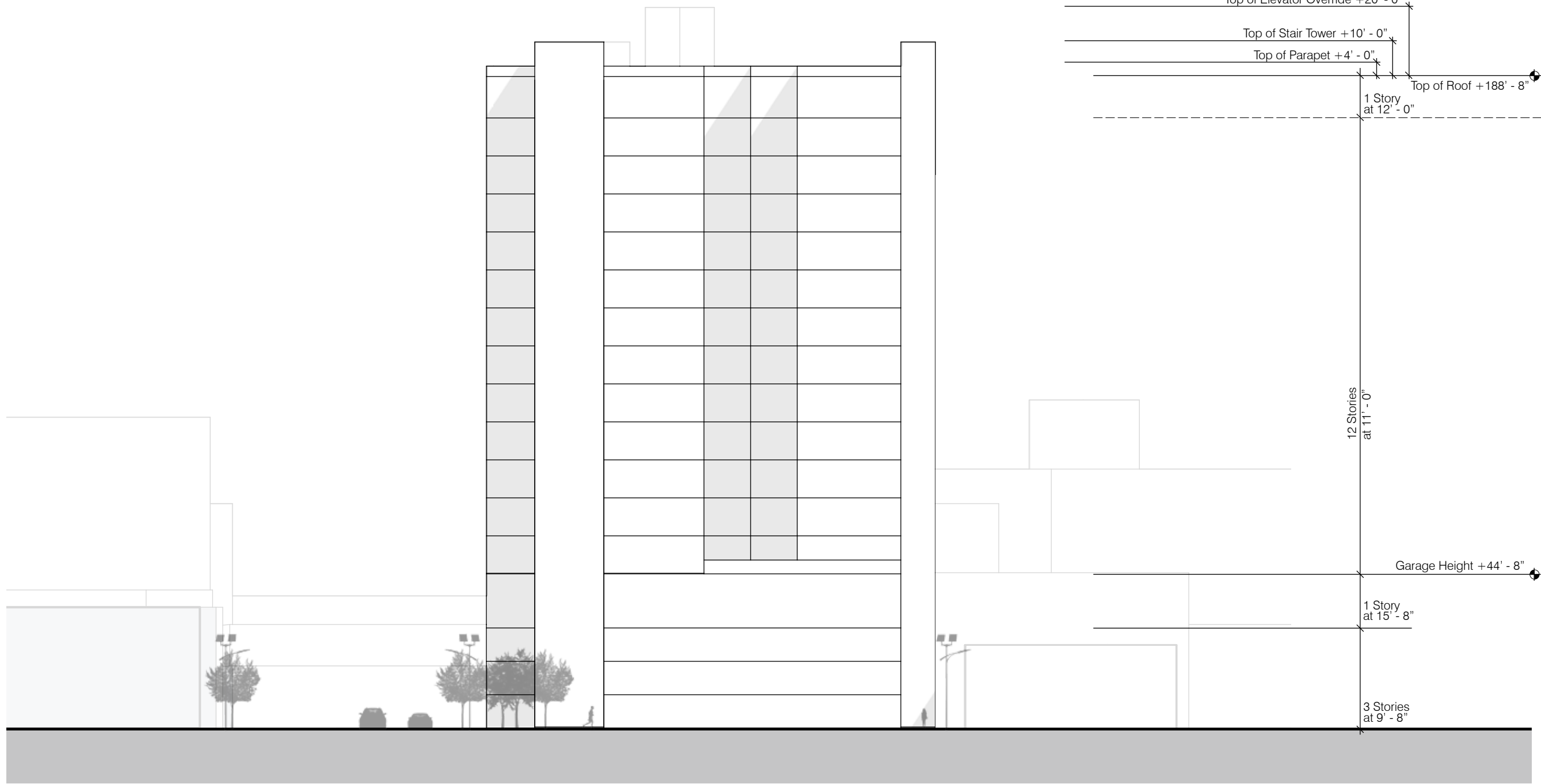
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Section

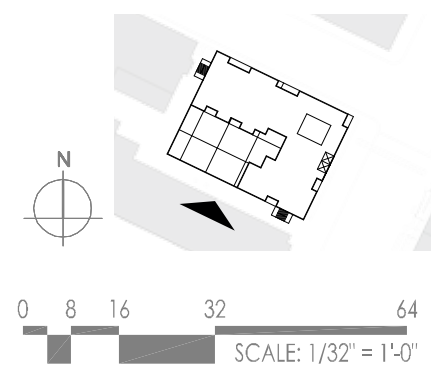
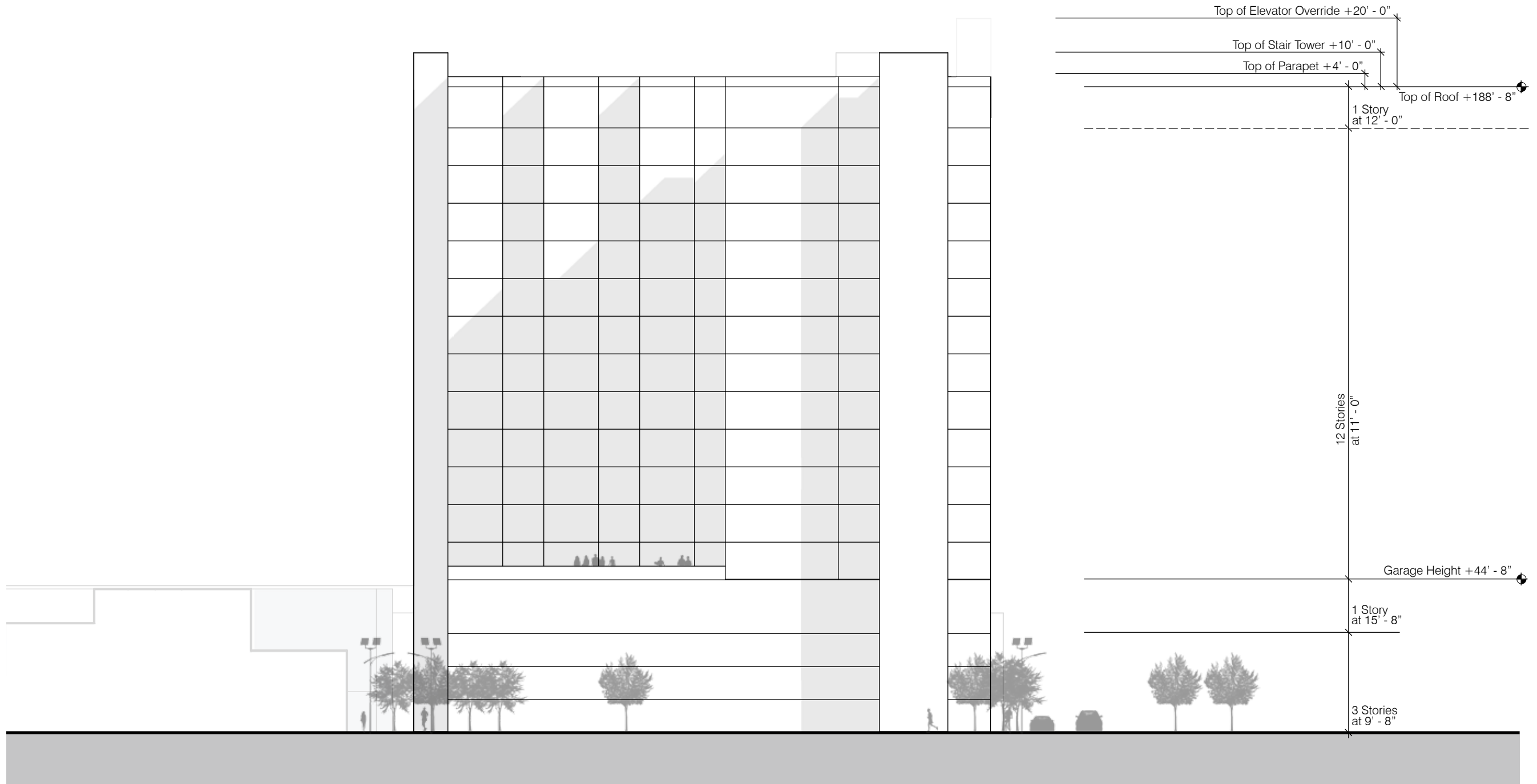


West Elevation

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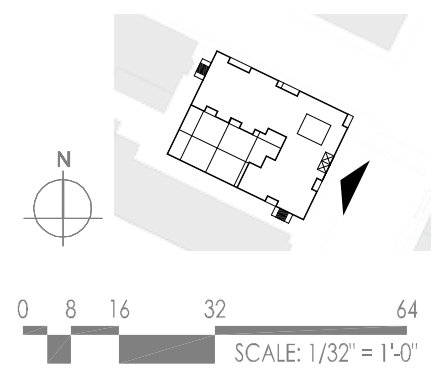
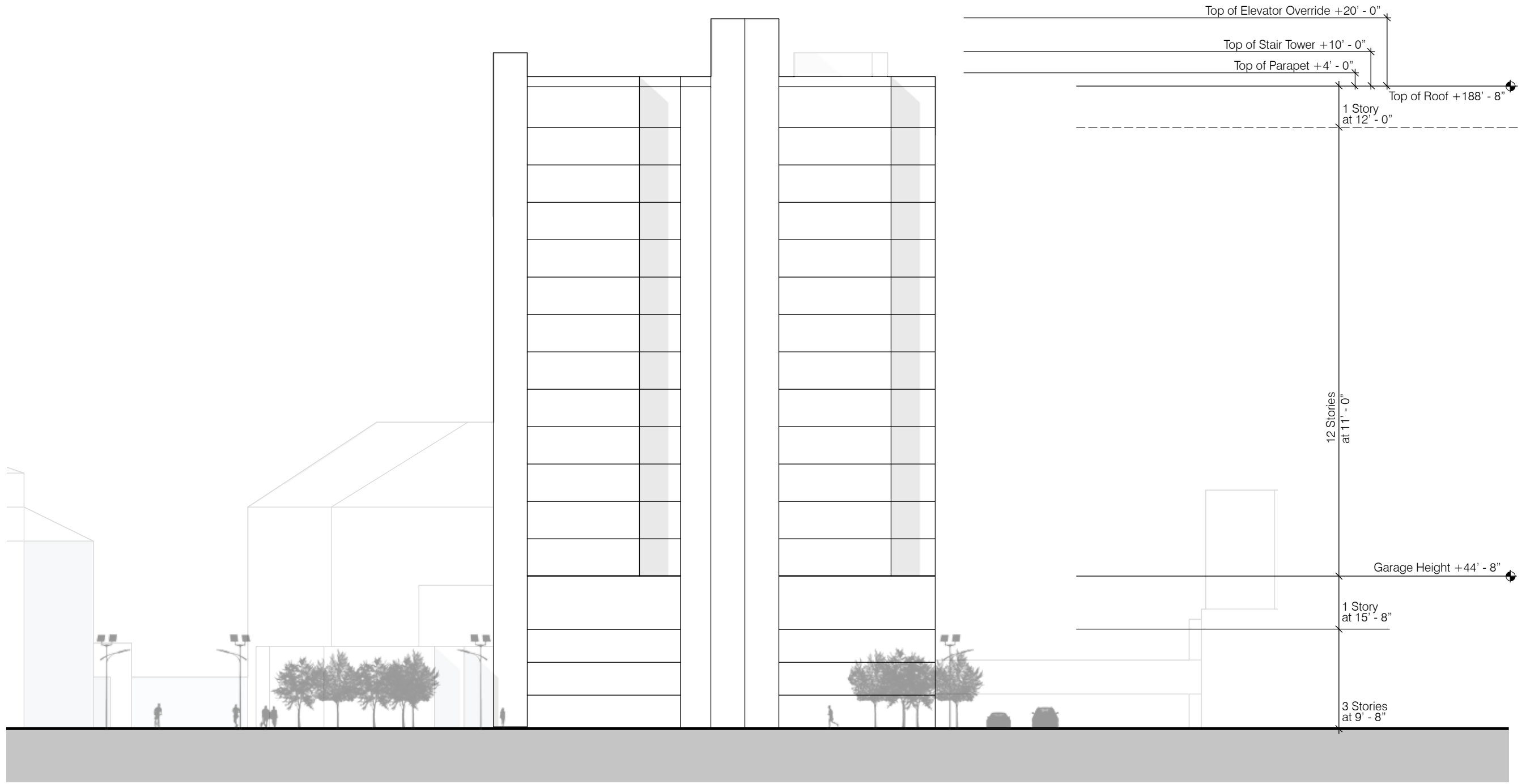
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 PARCEL D





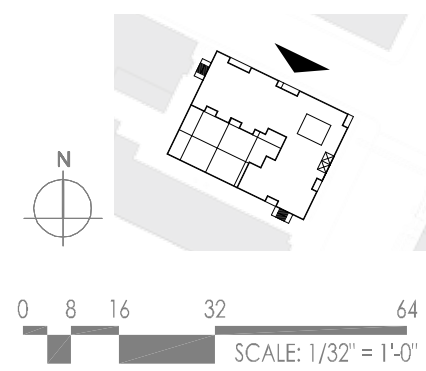
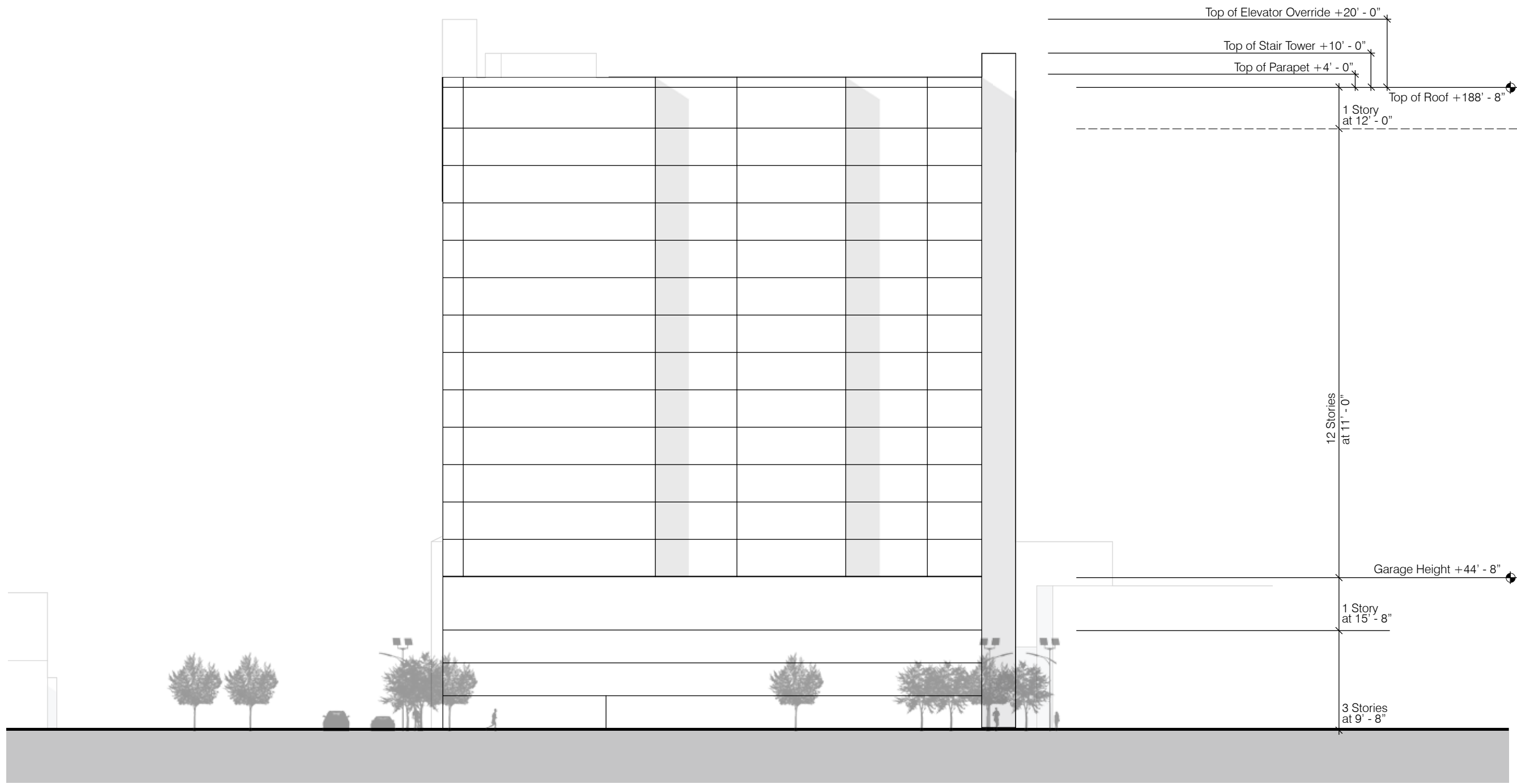
South Elevation





East Elevation

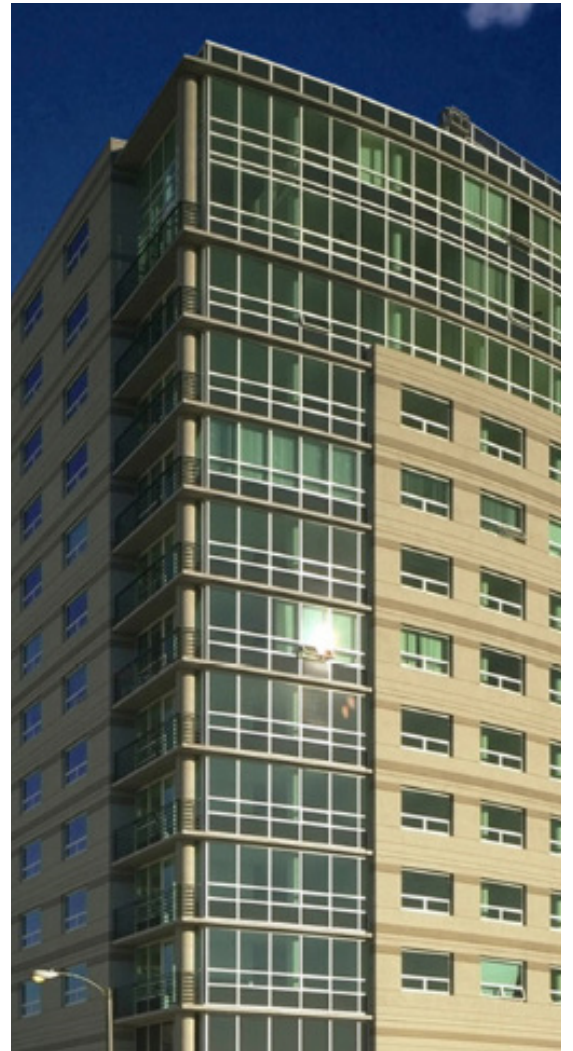
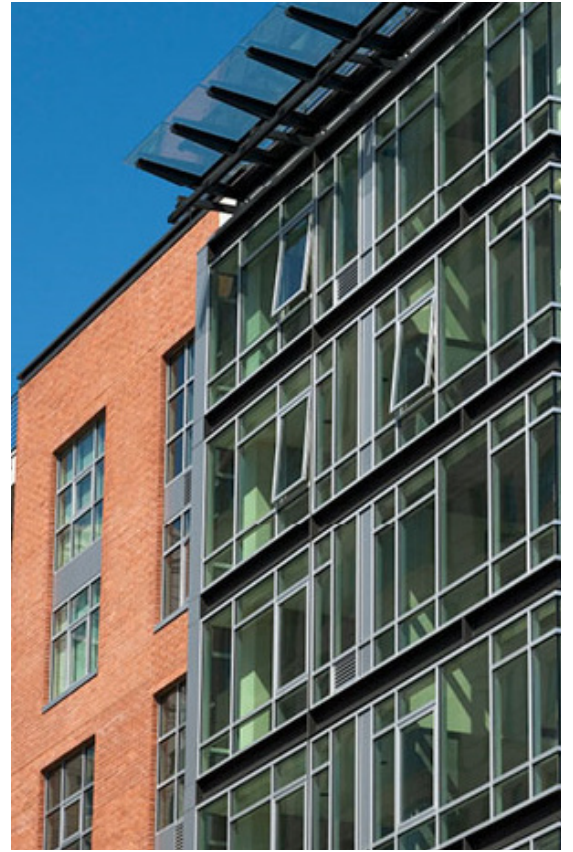
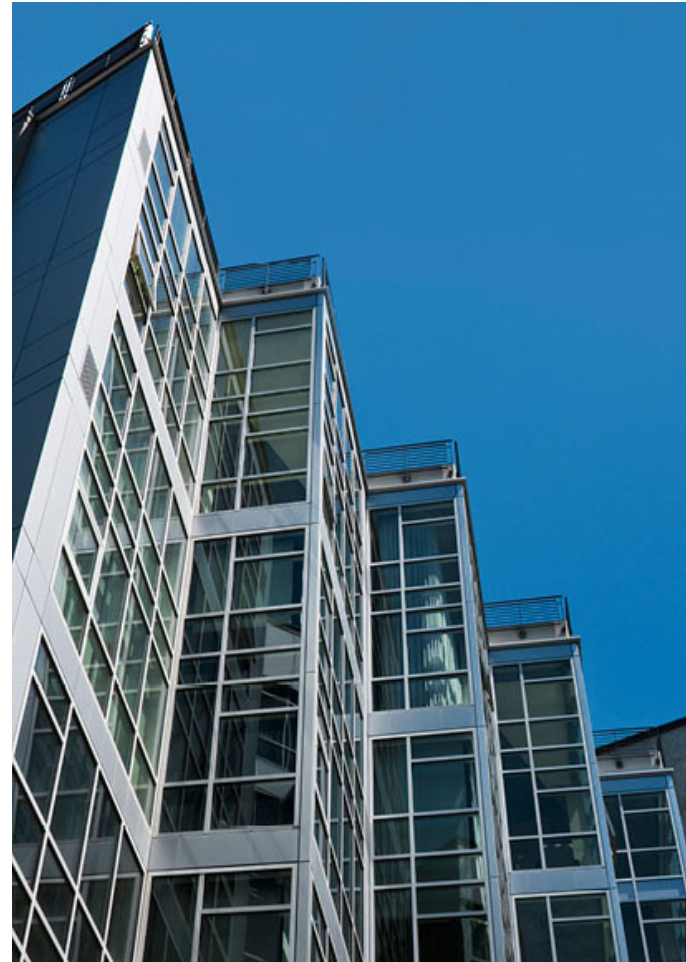
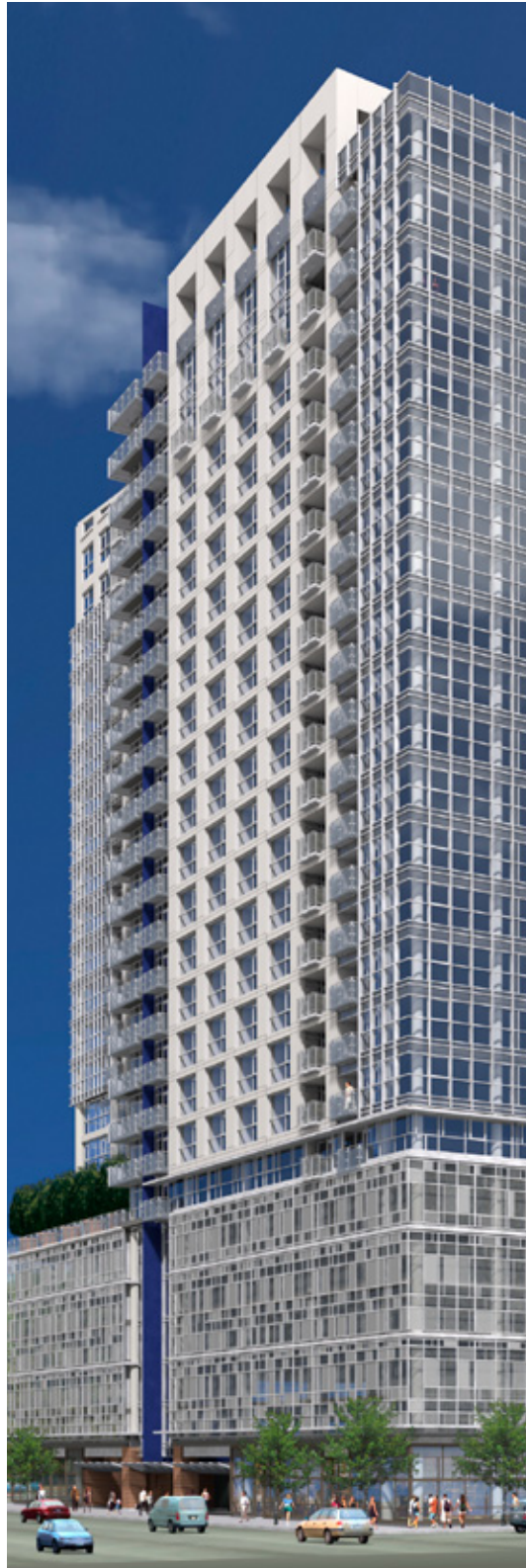




North Elevation

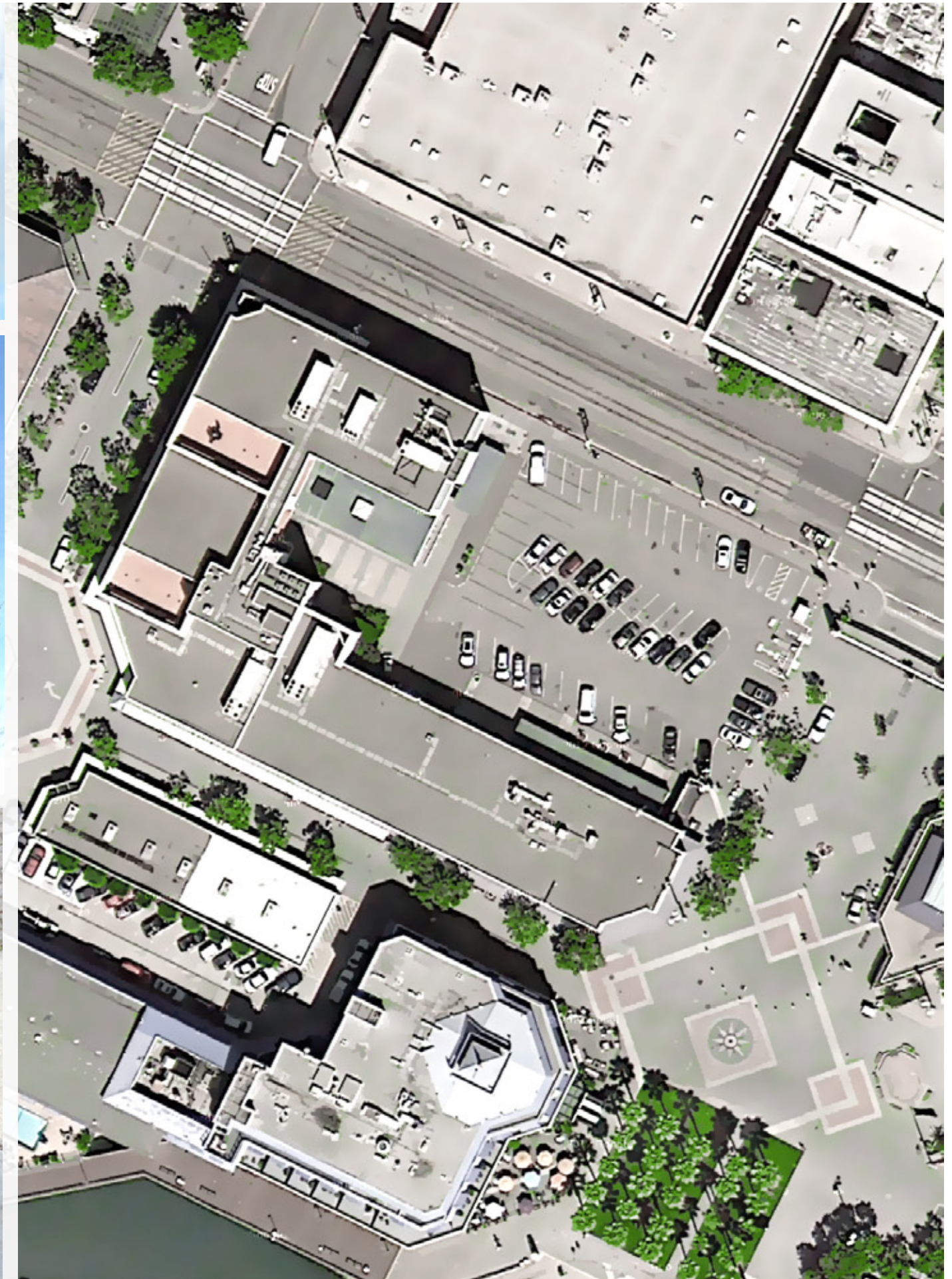
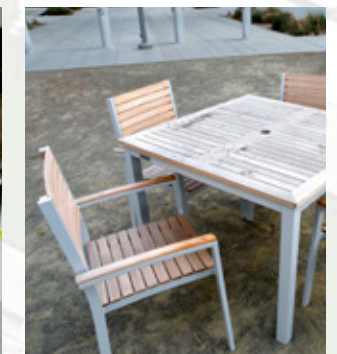


Colors, Finishes and Materials to be selected during FDP Phase



Exterior Design Study



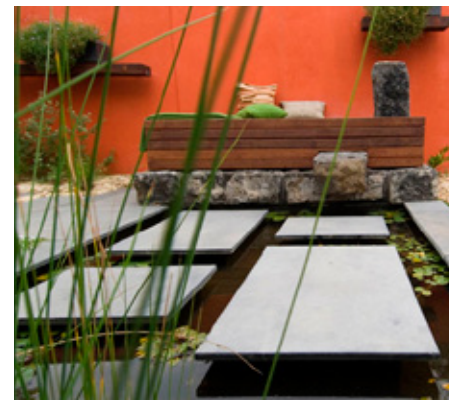
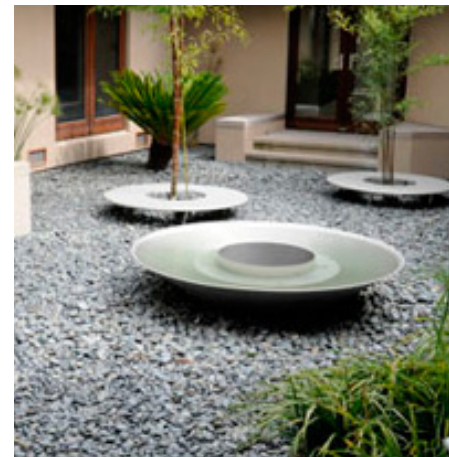


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PARCEL D



Existing Landscape and Lighting



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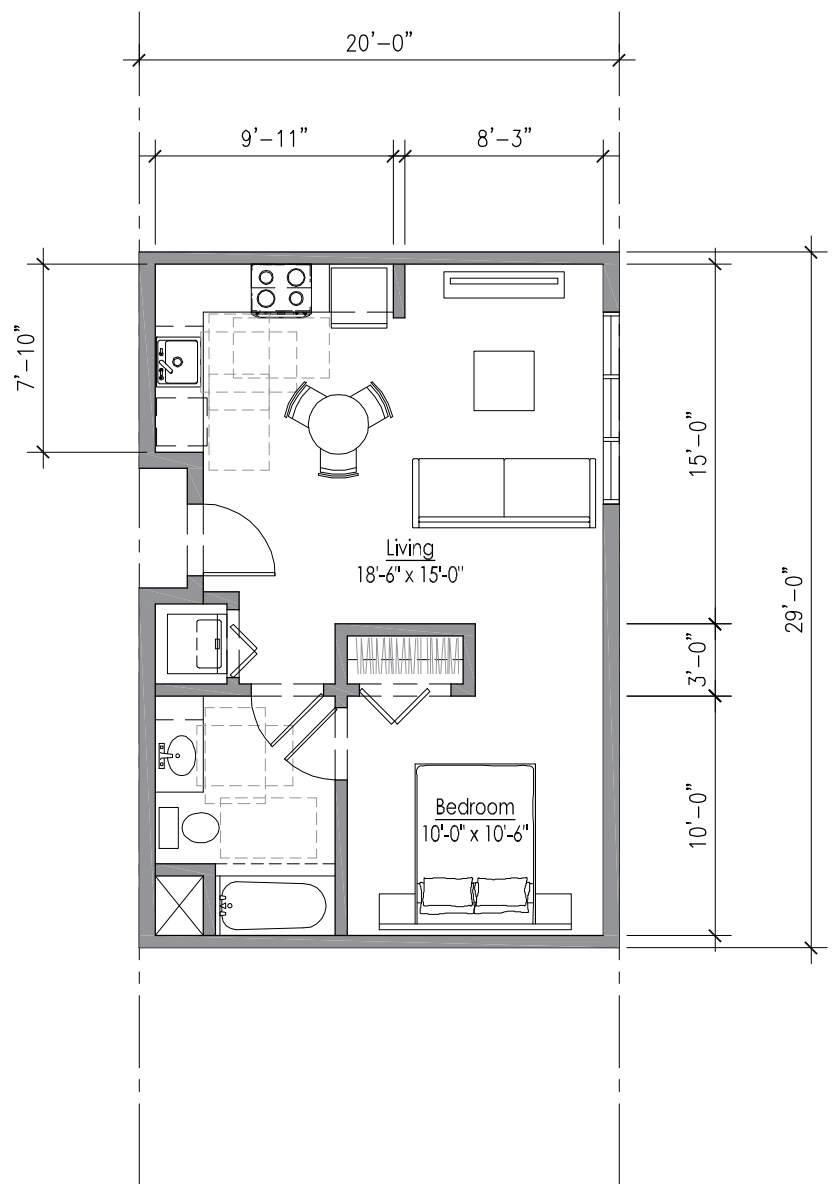
Amenity, Landscape and Lighting Study



Open Space Calculations
 Required Group Open Space: 25,050 sf
 Provided Podium Courtyard Space: 4,860 sf
 Provided Private Balcony Space: 7,850 sf
 Provided At Grade Open Space: 4,615 sf
 Total Space Provided: **4,860 + (7,850 x 2) + 4,615 = 25,175 sf Total Open Space**

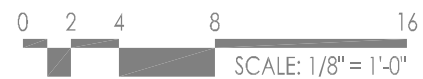
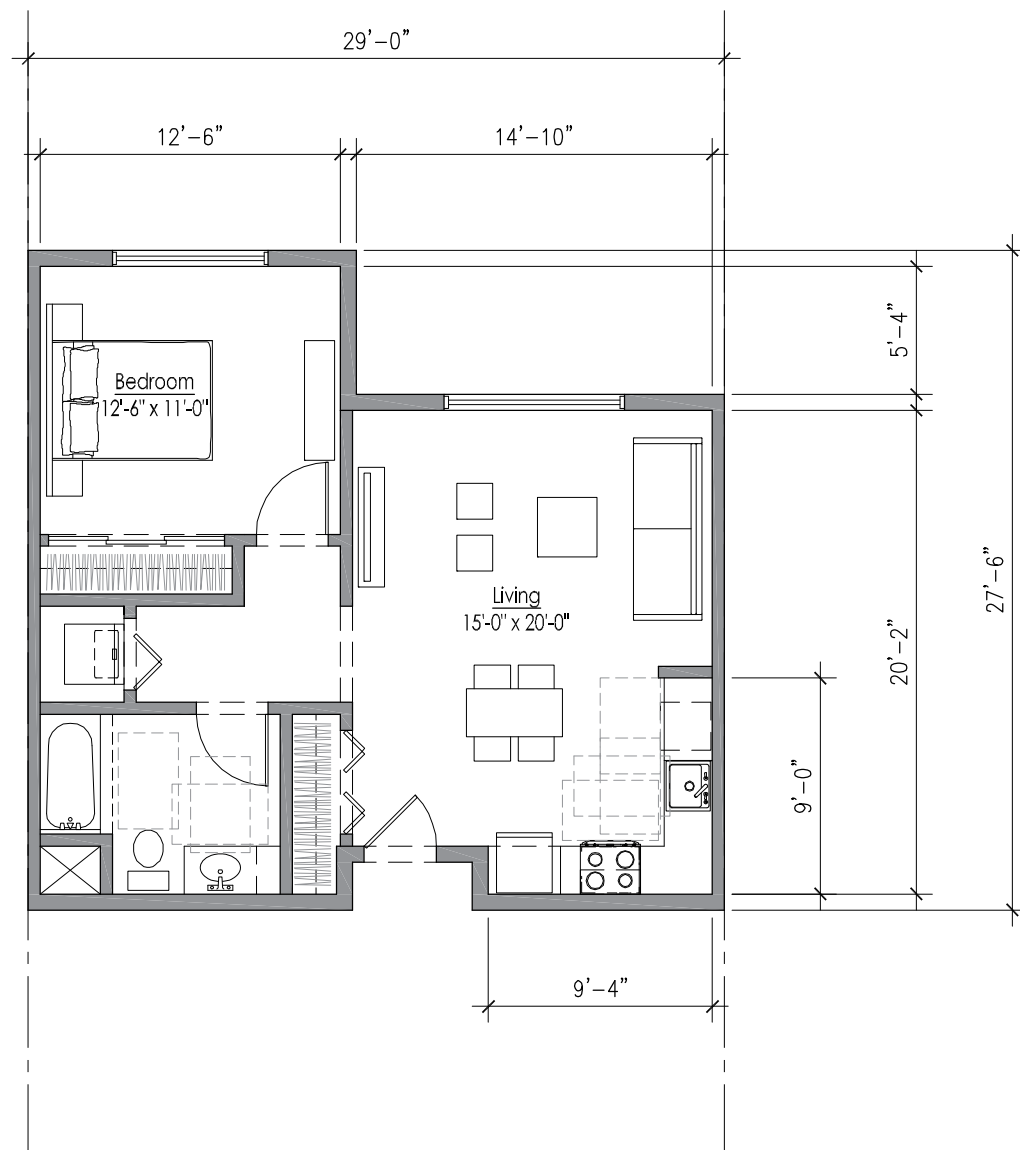


Proposed Landscape and Lighting Plan



Unit A - Junior One Bed/One Bath



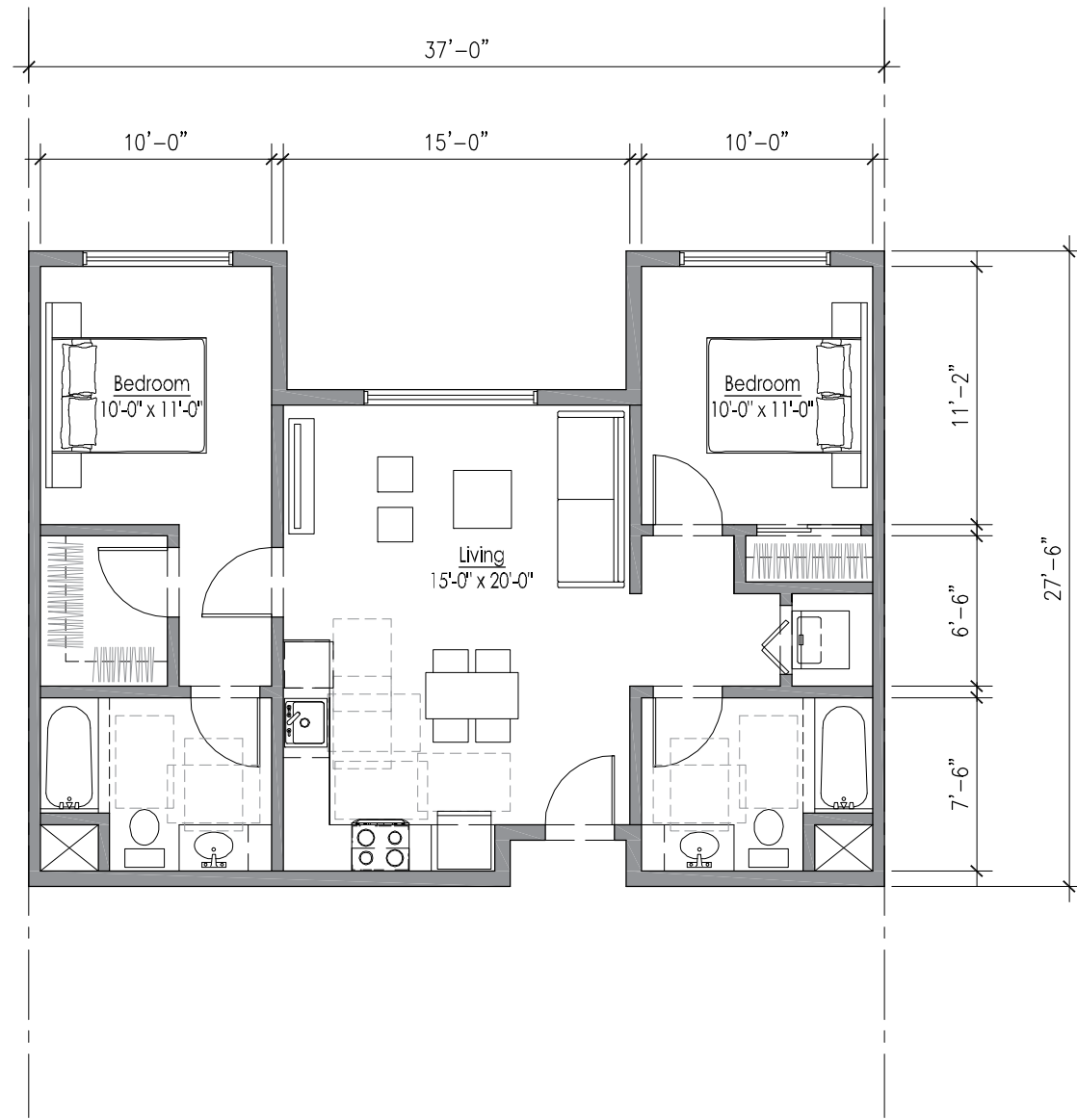


Unit B - One Bed/One Bath



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Unit C - Two Bed/Two Bath



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google maps dated 8/29/2012

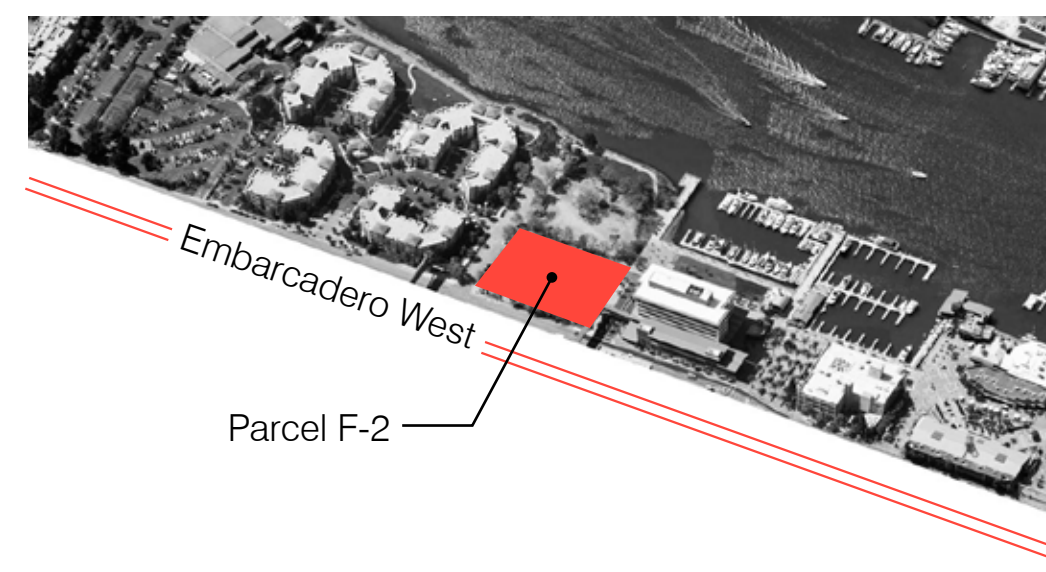
4 over 2
217 Units
Parcel F-2



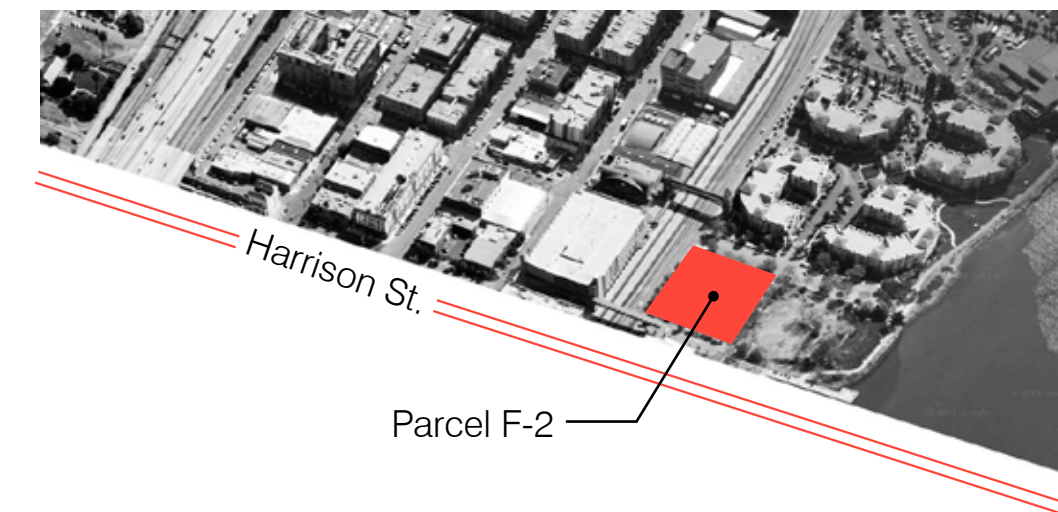
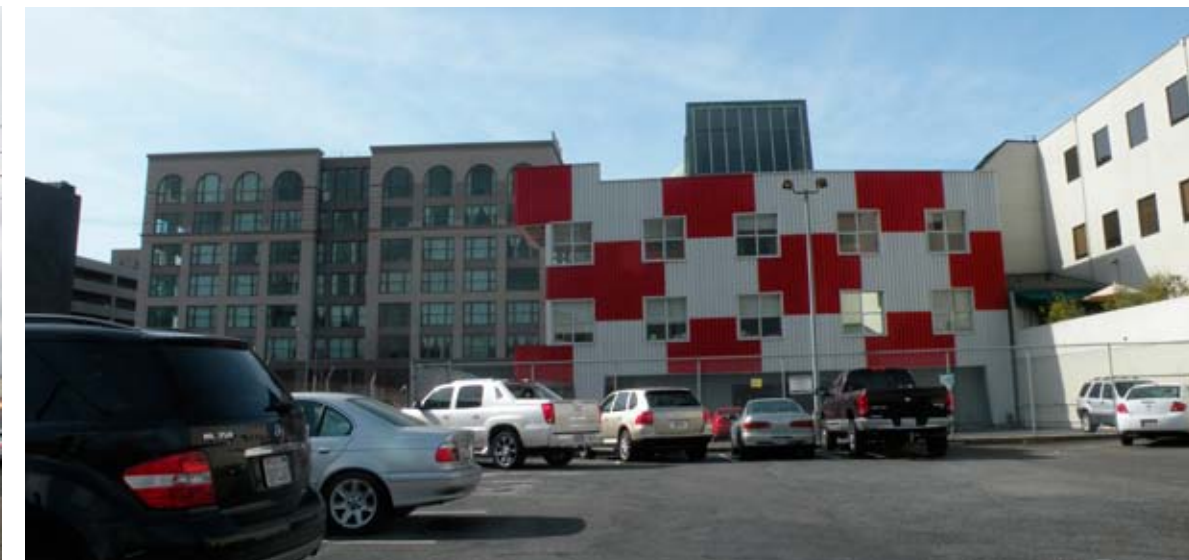
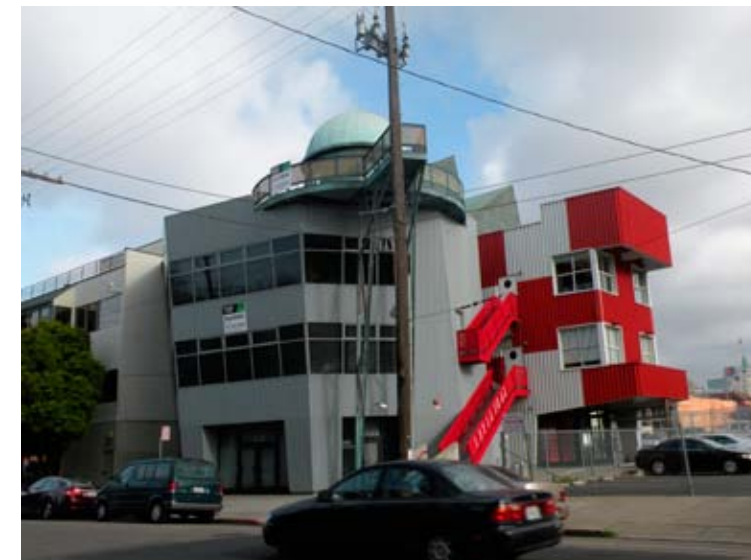
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PARCEL F-2

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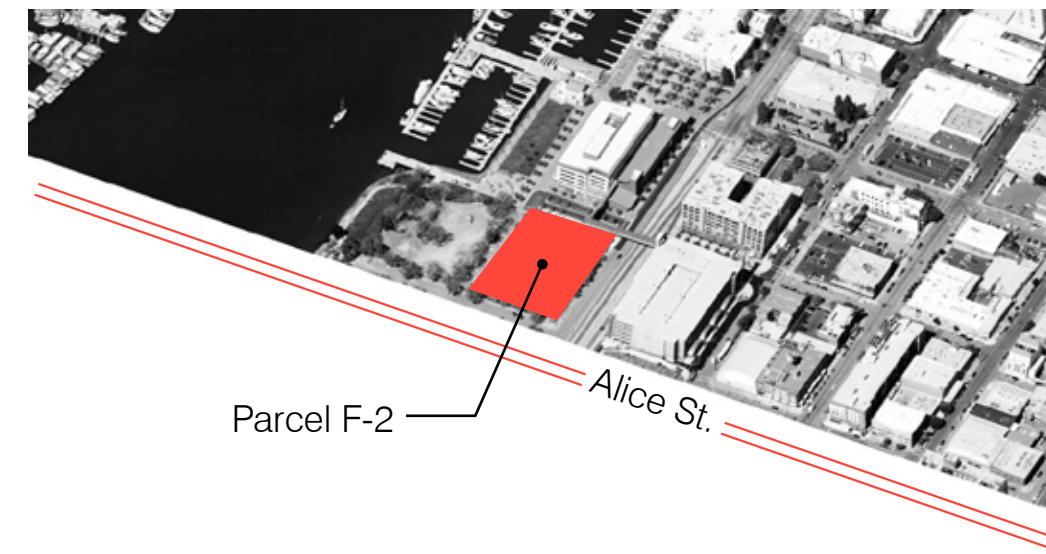
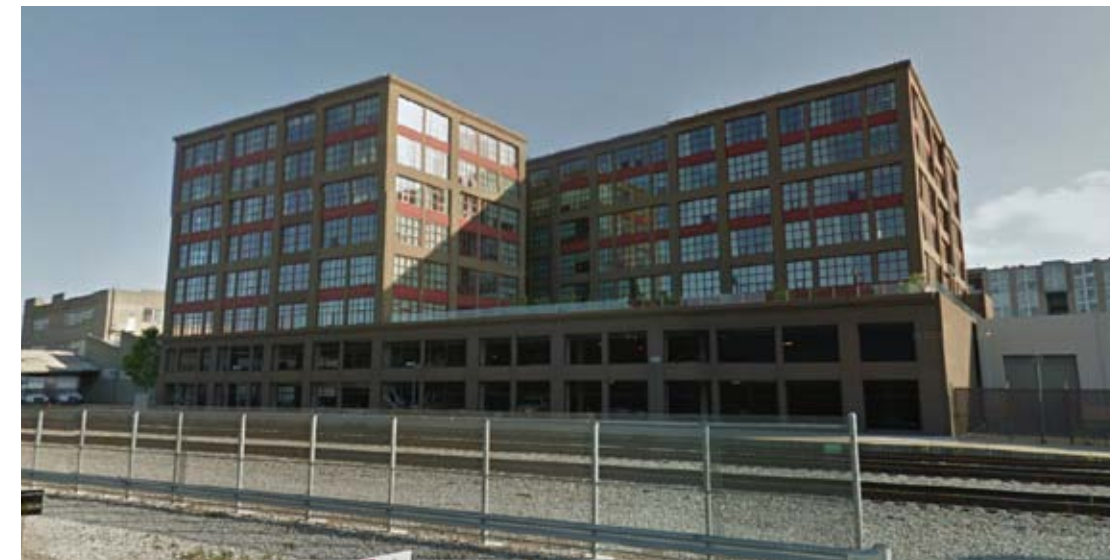
Embarcadero West Panoramic



Harrison Street Panoramic

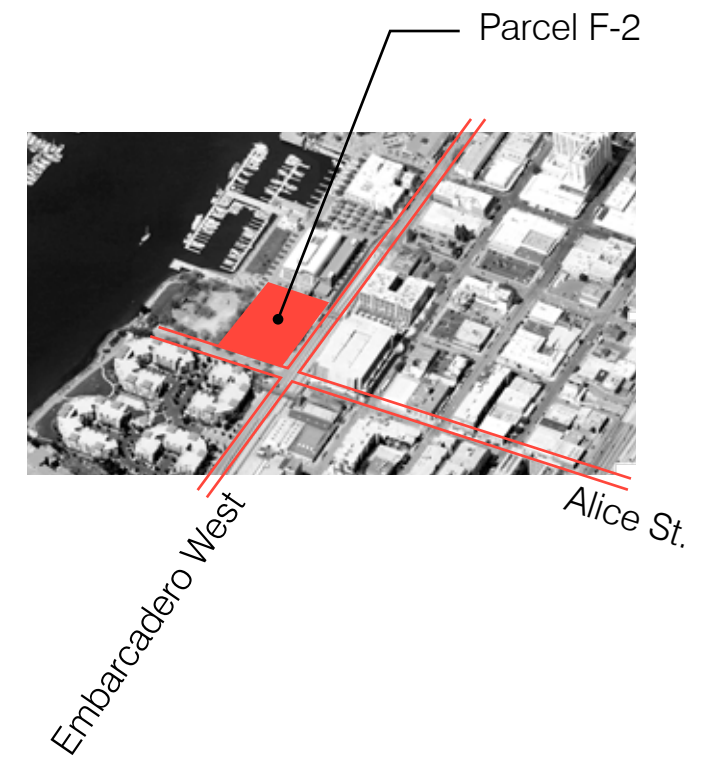


San Francisco Bay Existing Vacant Lot **Parcel F-2** 1st St. Amtrak Existing Building

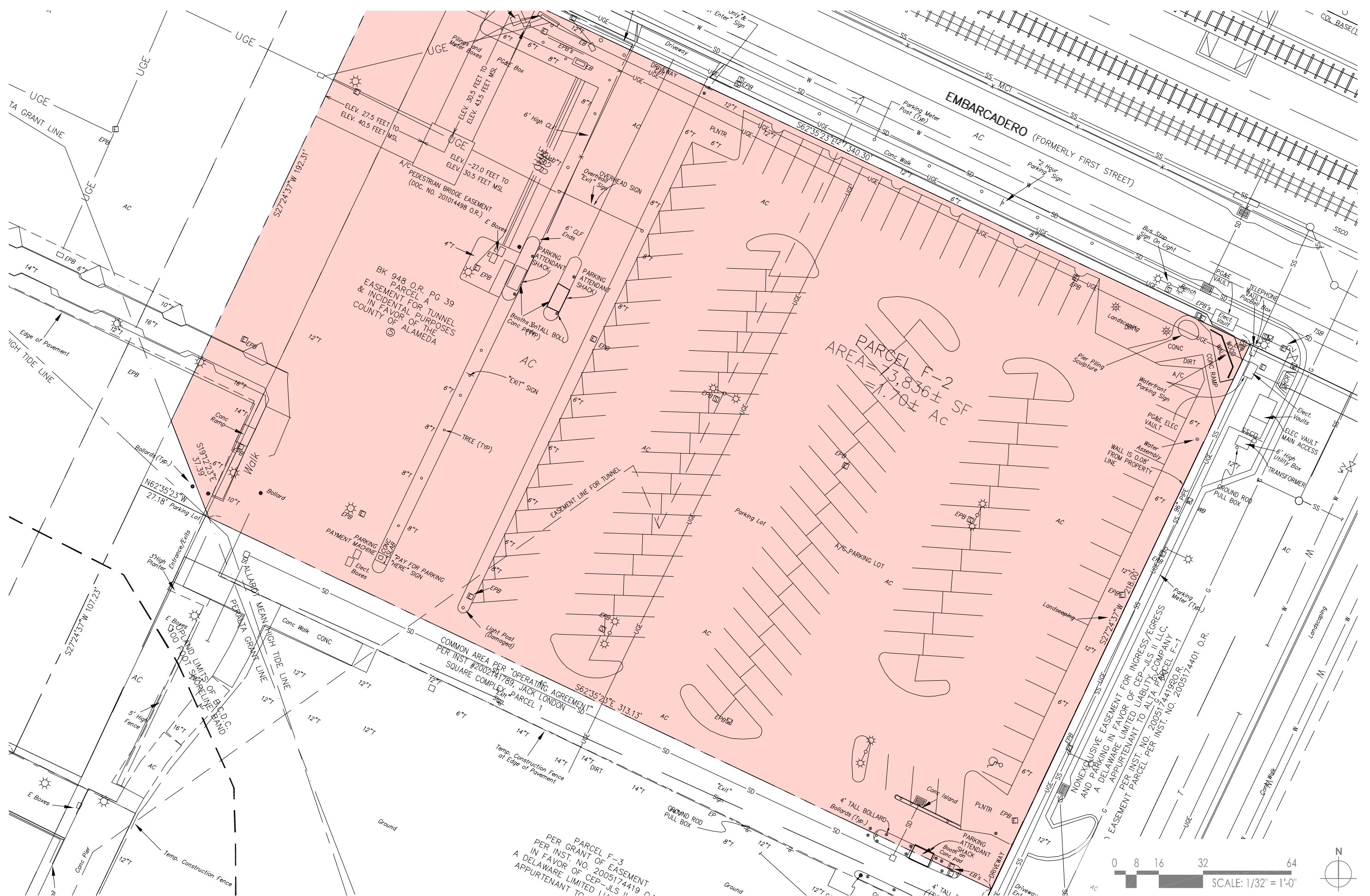


Parcel F-2 Alice St.

Alice Street Panoramic



Parcel F-2 Contextual Photos



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PARCEL F-2

JACK LONDON SQUARE
 OAKLAND, CALIFORNIA



Survey Plan



PER PARCEL F-3
 IN FAVOR OF EASEMENT
 GRANT OF INST. NO. 2005174419
 A DELAWARE LIMITED LIABILITY
 COMPANY TO

NONEXCLUSIVE EASEMENT FOR INGRESS/EGRESS
 AND PARKING IN FAVOR OF CEP-JLS II LLC,
 APPLICABLE LIMITED LIABILITY COMPANY,
 APPLICANT TO ALTA PARCEL COMPANY
 PER INST. NO. 2005174419 O.R.
 PARCEL F-1
 EASEMENT PER INST. NO. 2005174401 O.R.

COMMON AREA PER "OPERATING AGREEMENT"
 PER INST. #200241789, JACK LONDON
 SQUARE COMPLEX, PARCEL 1



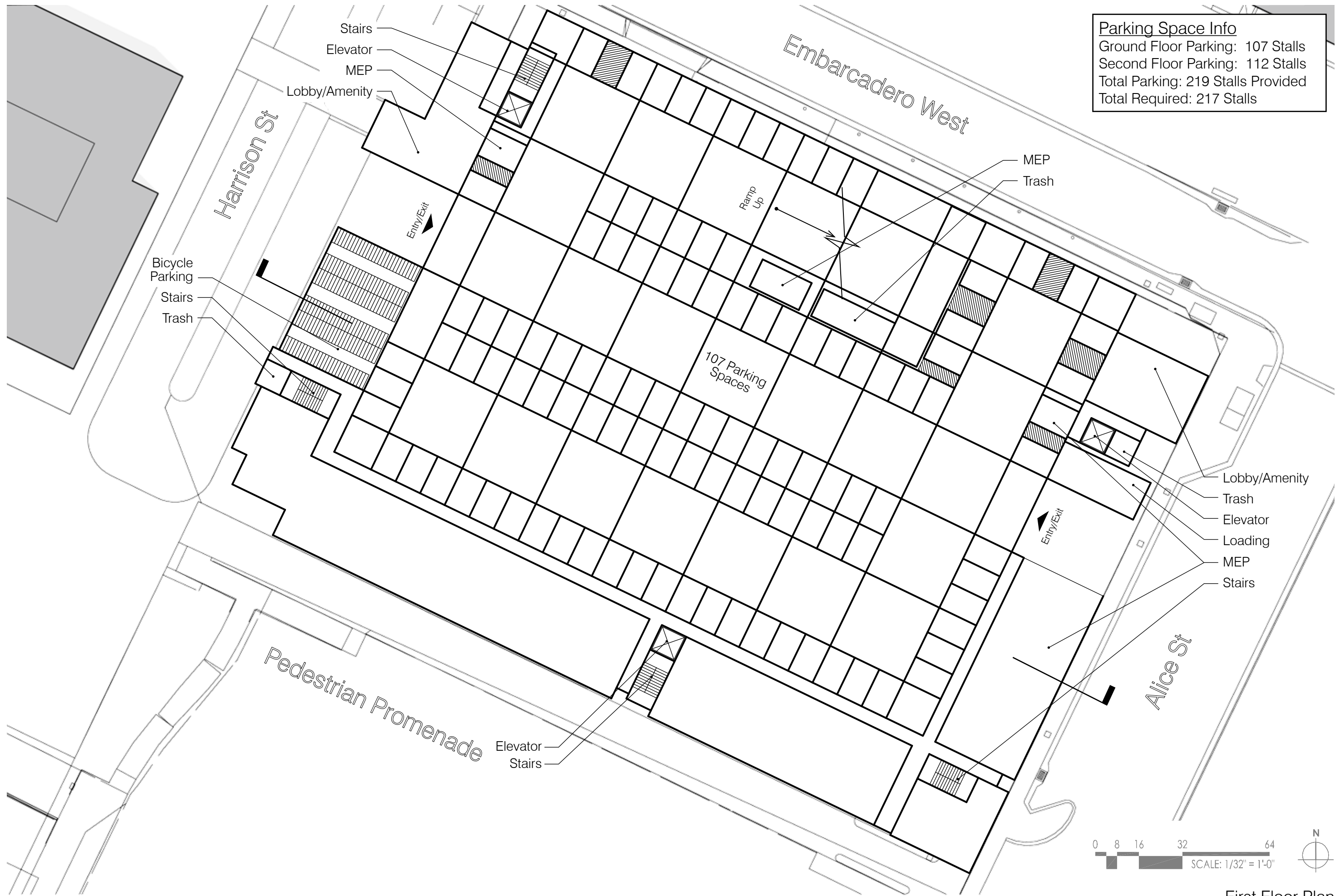
Site Plan



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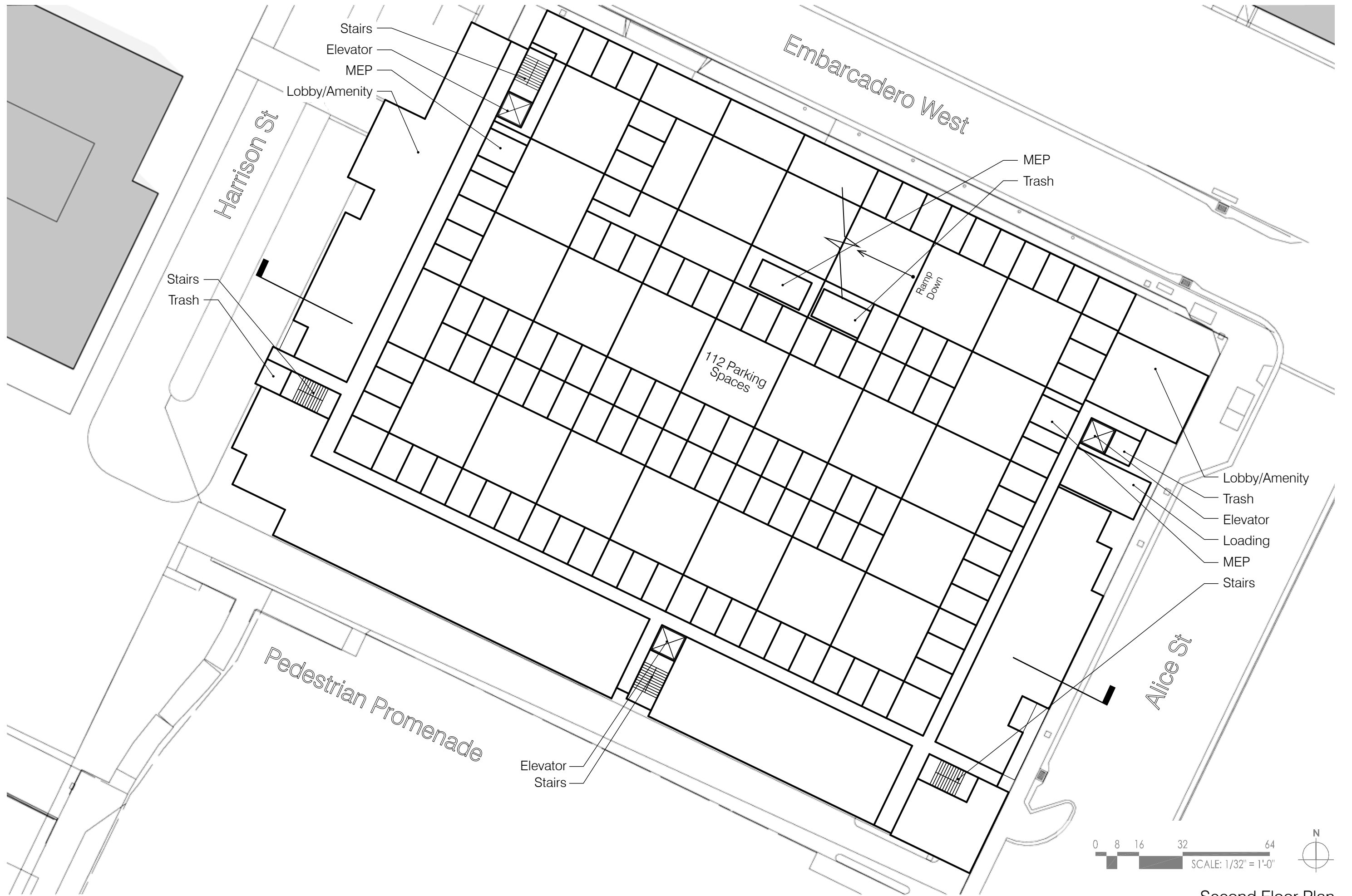
PARCEL F-2

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Parking Space Info
 Ground Floor Parking: 107 Stalls
 Second Floor Parking: 112 Stalls
 Total Parking: 219 Stalls Provided
 Total Required: 217 Stalls

First Floor Plan



Harrison St

Embarcadero West

Alice St

Pedestrian Promenade

112 Parking Spaces

Stairs
Elevator
MEP
Lobby/Amenity

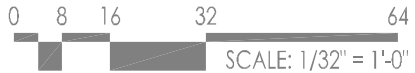
Stairs
Trash

MEP
Trash

Ramp Down

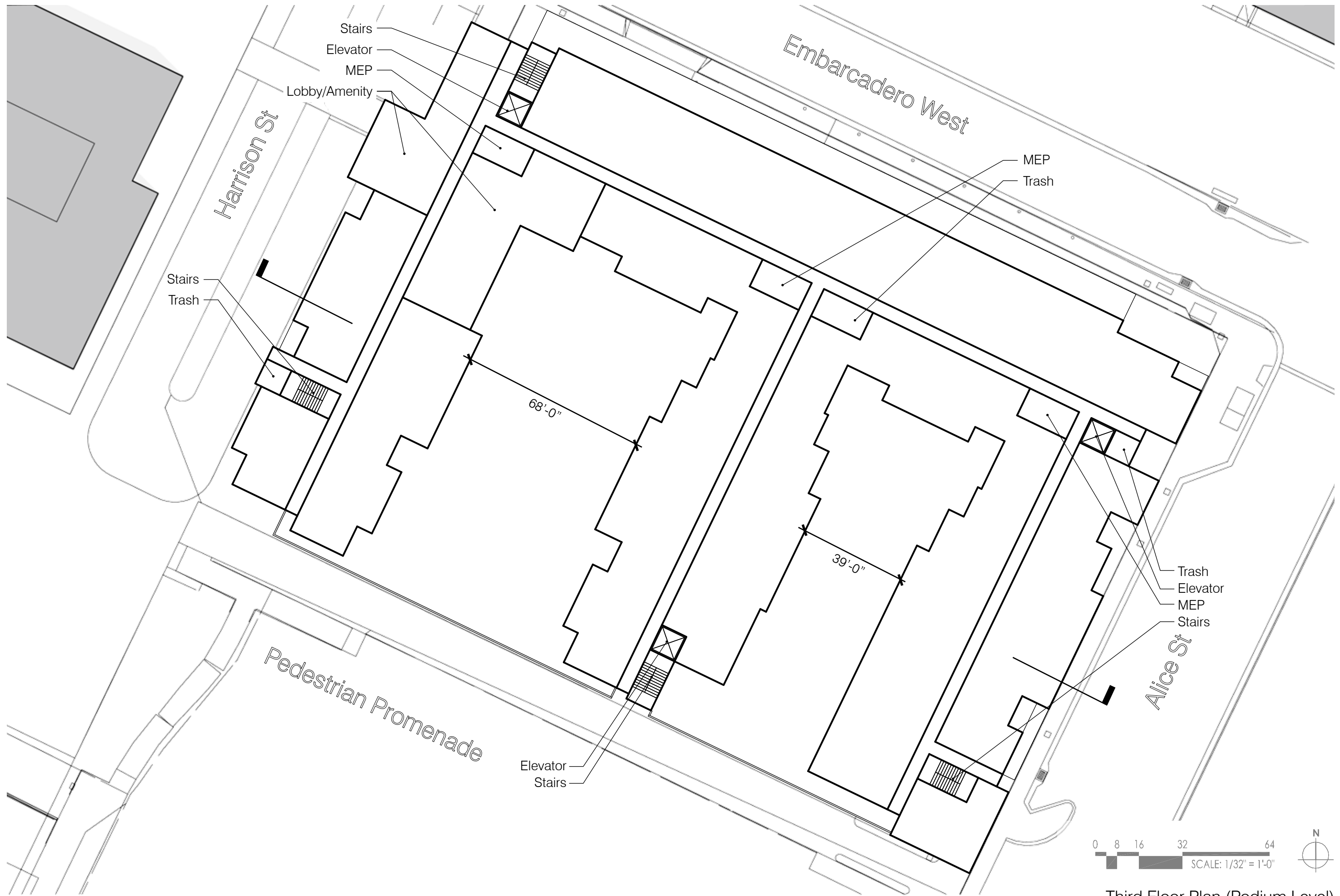
Lobby/Amenity
Trash
Elevator
Loading
MEP
Stairs

Elevator
Stairs



Second Floor Plan





Harrison St

Embarcadero West

Pedestrian Promenade

Alice St

Stairs
Elevator
MEP
Lobby/Amenity

MEP
Trash

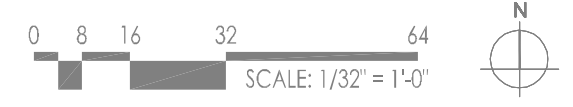
Stairs
Trash

68'-0"

39'-0"

Trash
Elevator
MEP
Stairs

Elevator
Stairs



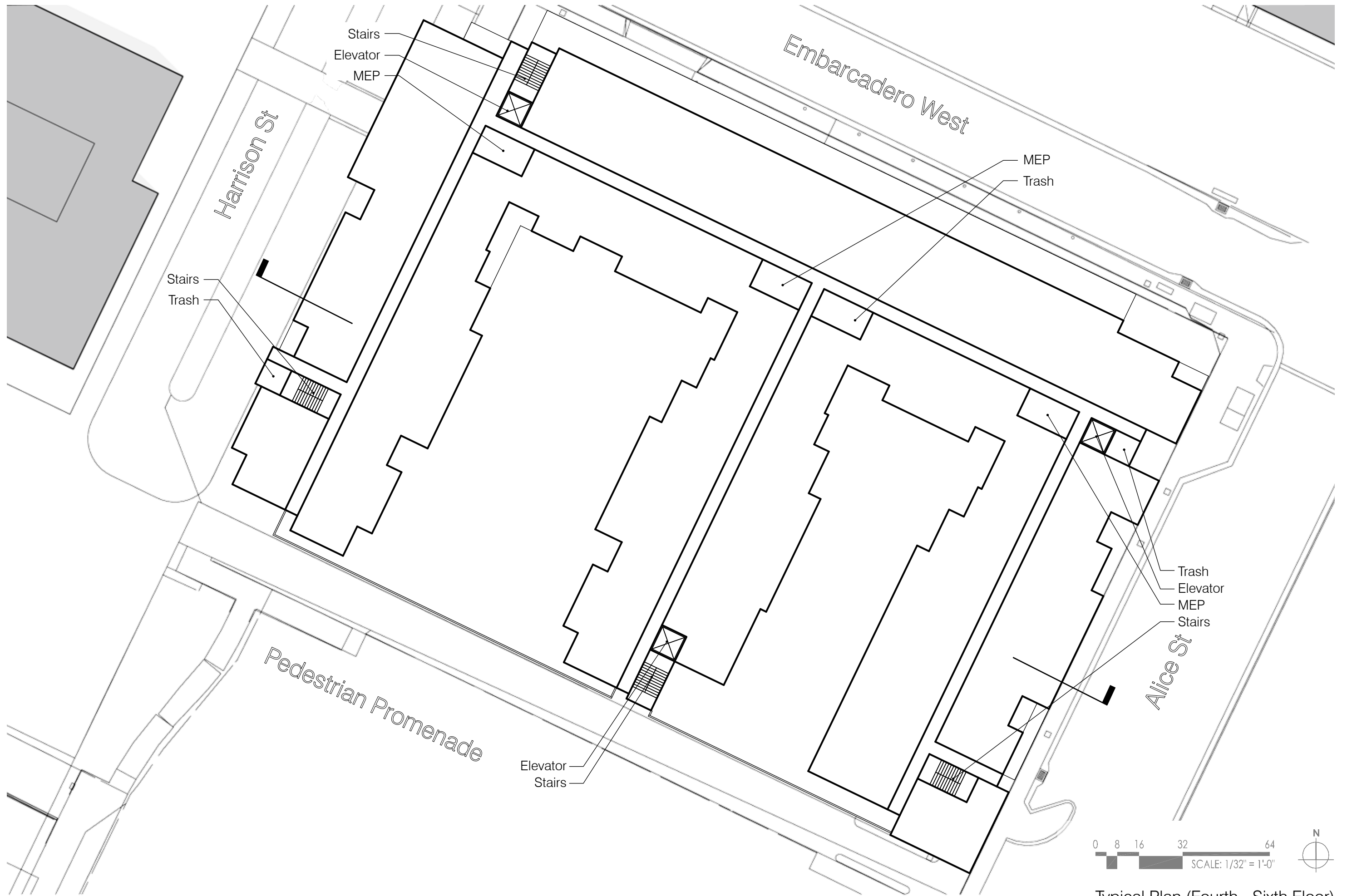
Third Floor Plan (Podium Level)

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PARCEL F-2

JACK LONDON SQUARE
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Harrison St

Embarcadero West

Pedestrian Promenade

Alice St

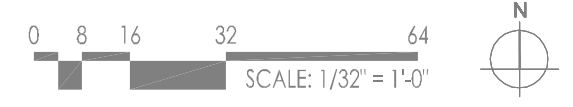
Stairs
Elevator
MEP

Stairs
Trash

MEP
Trash

Elevator
Stairs

Trash
Elevator
MEP
Stairs



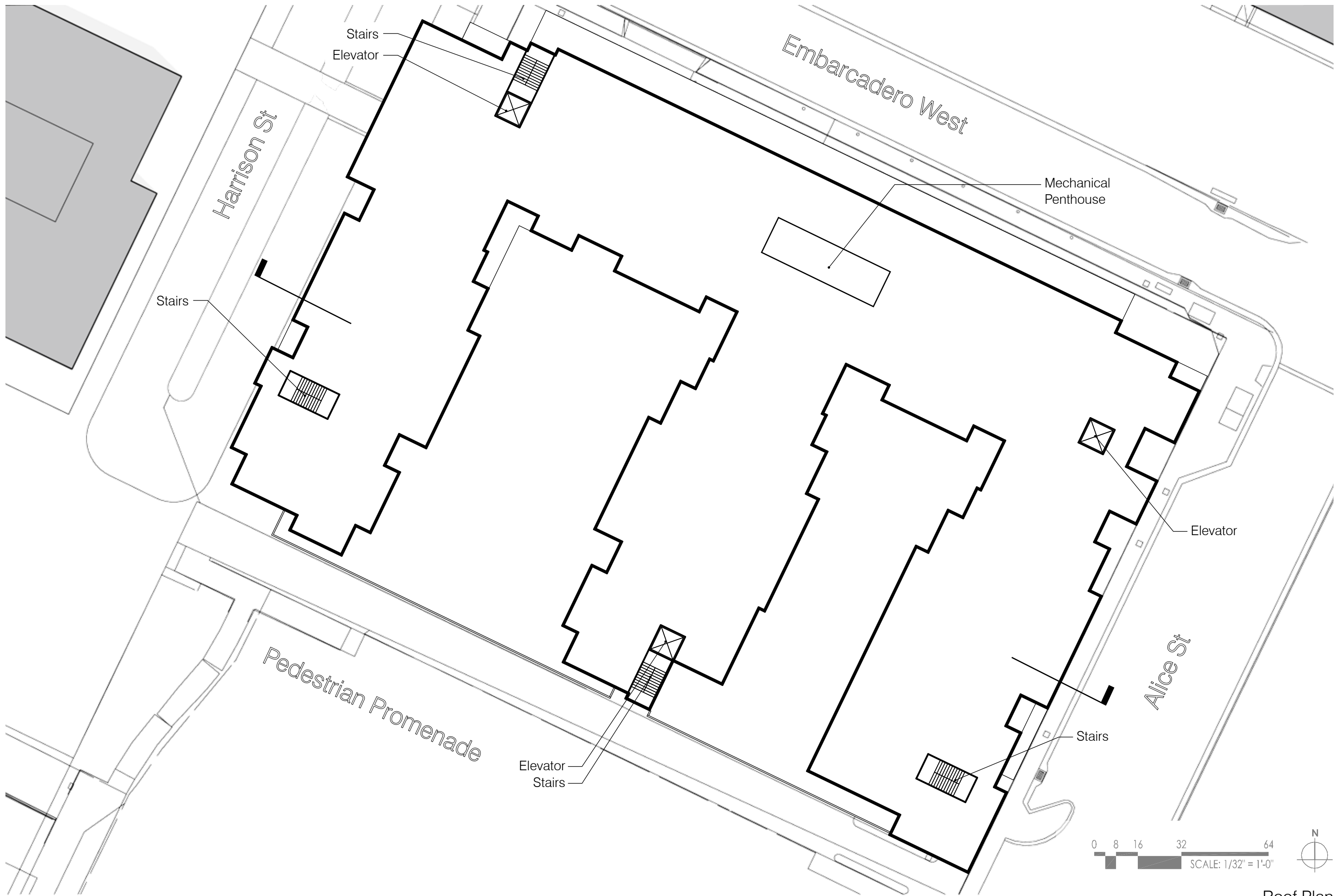
Typical Plan (Fourth - Sixth Floor)

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PARCEL F-2

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Harrison St

Embarcadero West

Alice St

Pedestrian Promenade

Stairs
Elevator

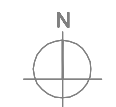
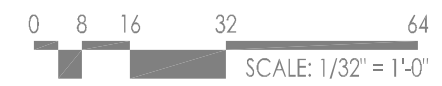
Stairs

Mechanical
Penthouse

Elevator

Elevator
Stairs

Stairs



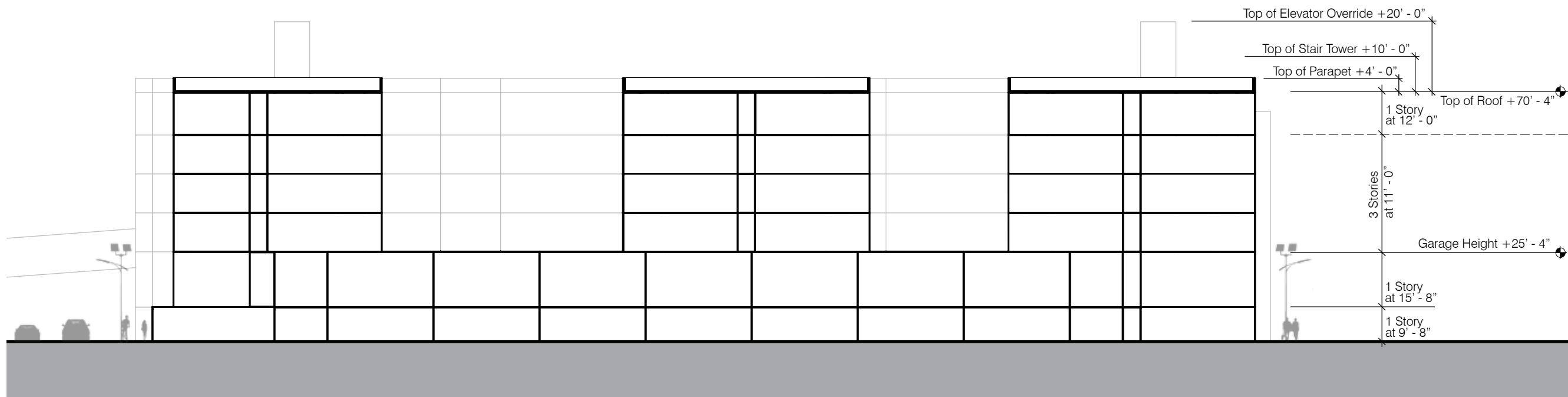
Roof Plan

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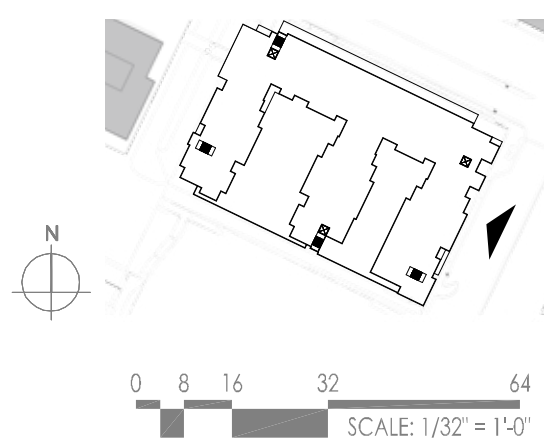
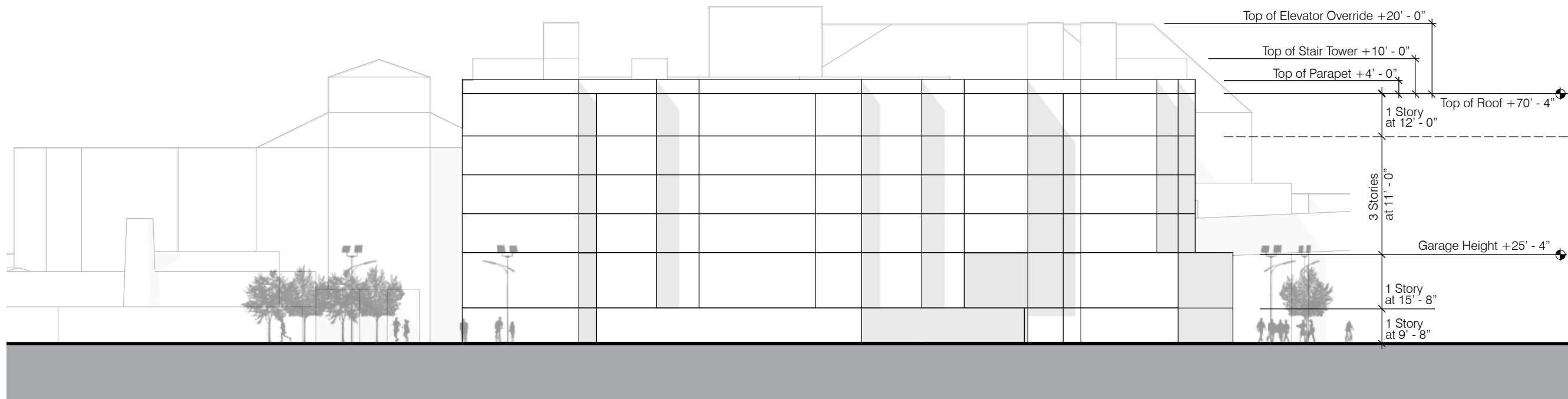
Section



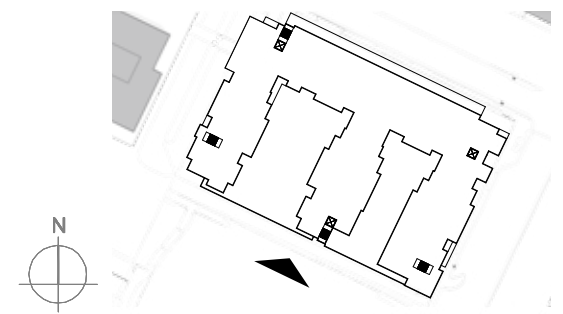
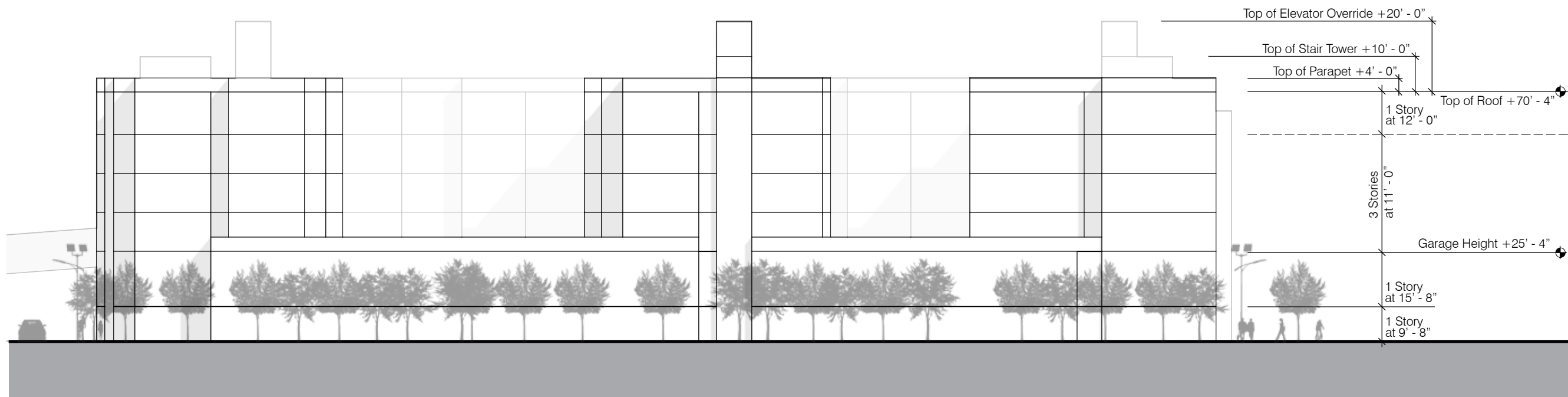
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PARCEL F-2

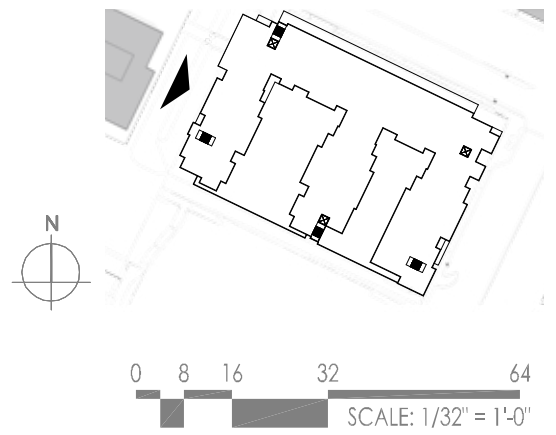
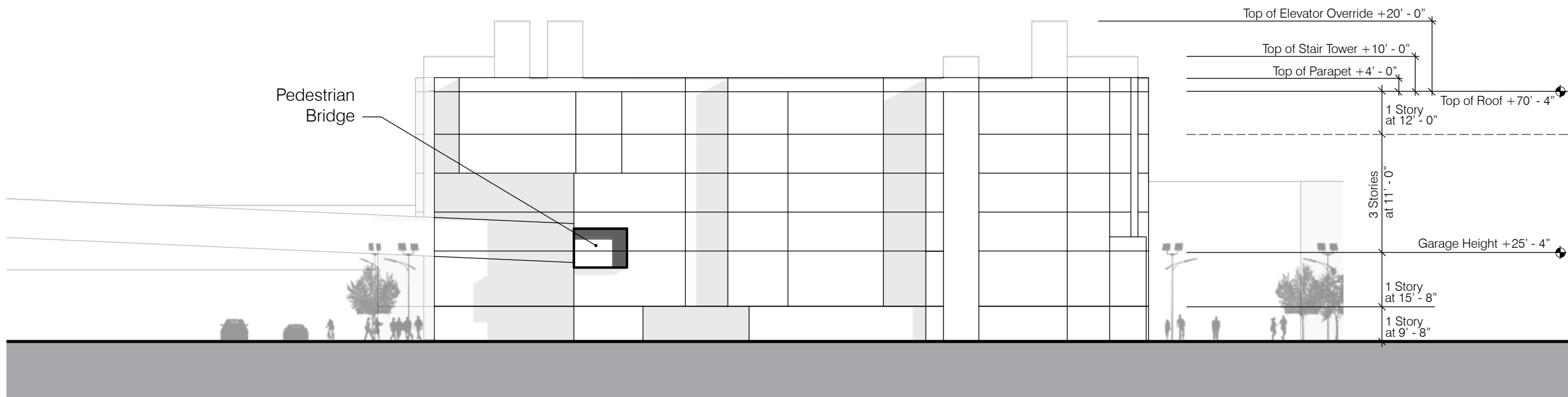
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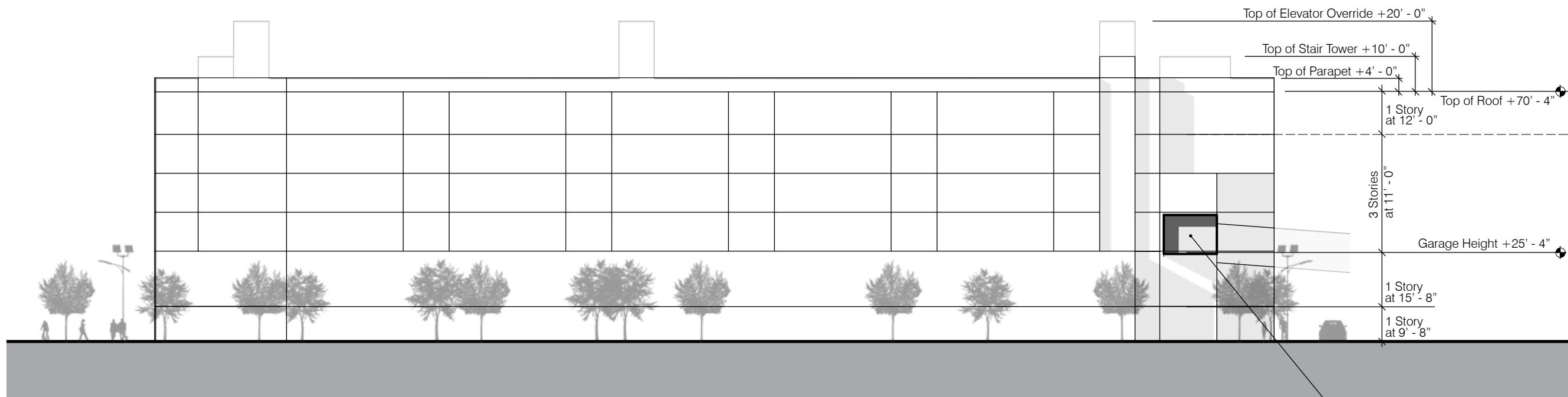
East Elevation



South Elevation



West Elevation

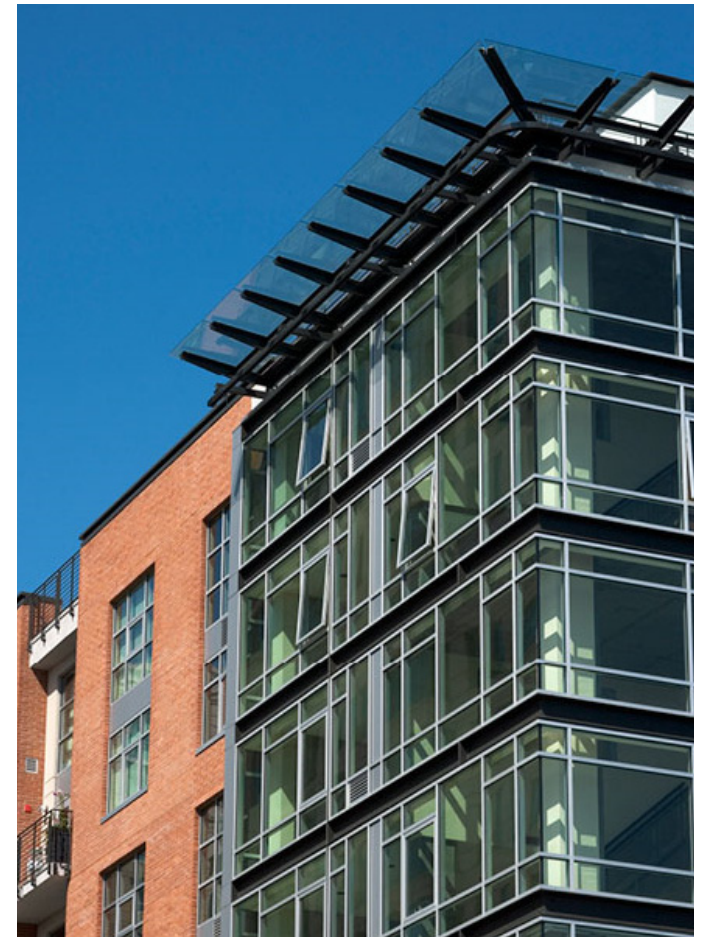
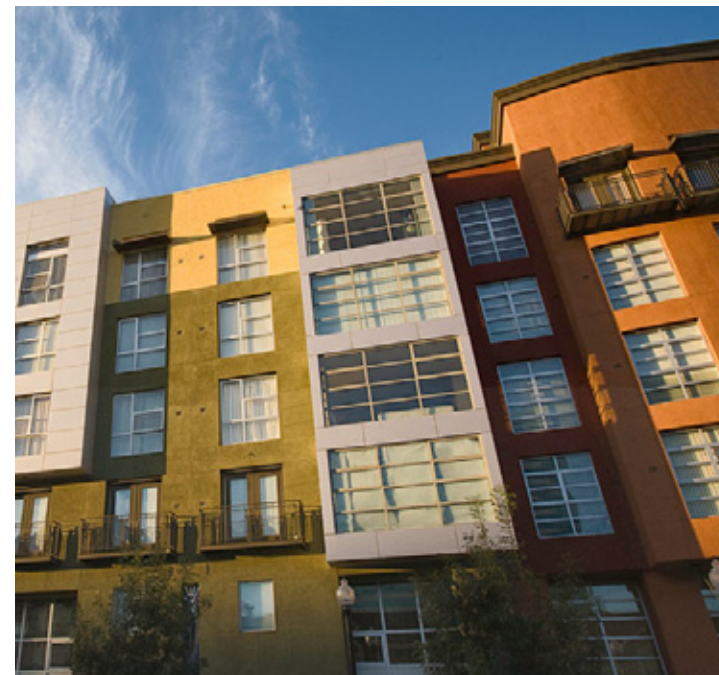
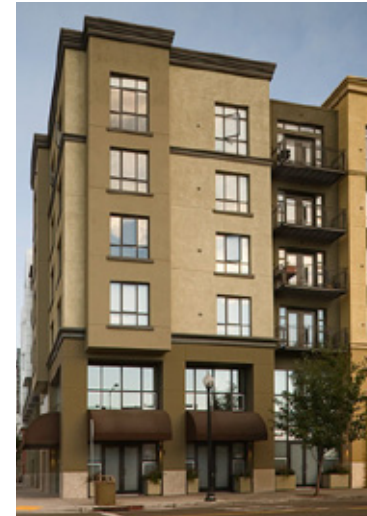
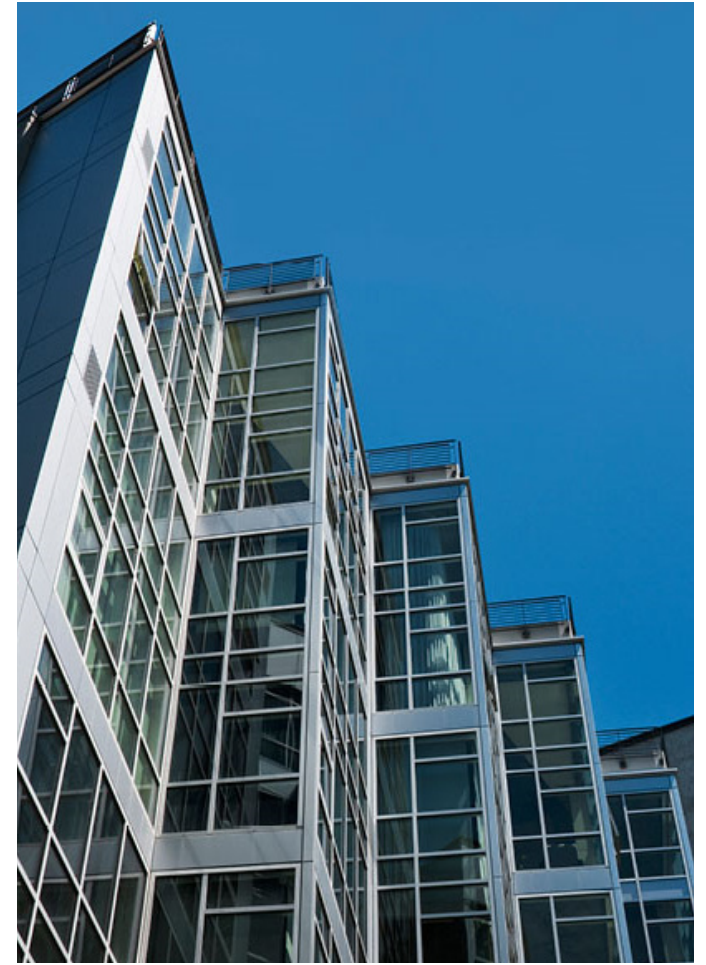


Pedestrian Bridge



North Elevation





Colors, Finishes and Materials to be selected during FDP Phase

Exterior Design Study

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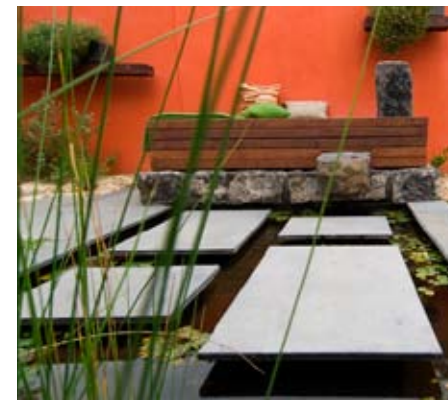
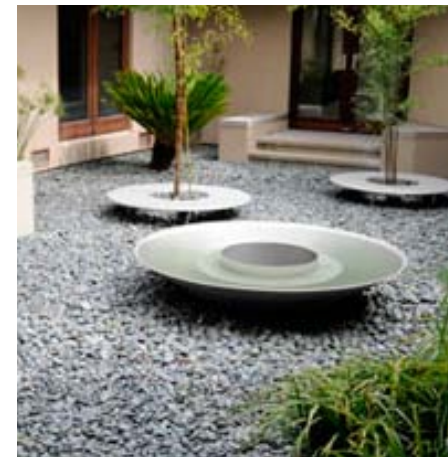
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Existing Landscape and Lighting



Amenity, Landscape and Lighting Study

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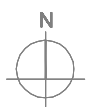
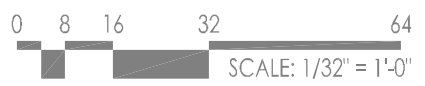
PARCEL F-2

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OAKLAND, CALIFORNIA





Open Space Calculations
 Required Group Open Space: 32,550 sf
 Provided Podium Courtyard Area: 15,340 sf
 Provided Private Podium Space: 2,450 sf
 Provided Private Balcony Space: 5,065 sf
 Provided At Grade Open Space: 2,245 sf
 Total Space Provided: **15,340** + **(2,450 x 2)** + **(5,065 x 2)** + **2,245** = **32,615 sf Total Open Space**

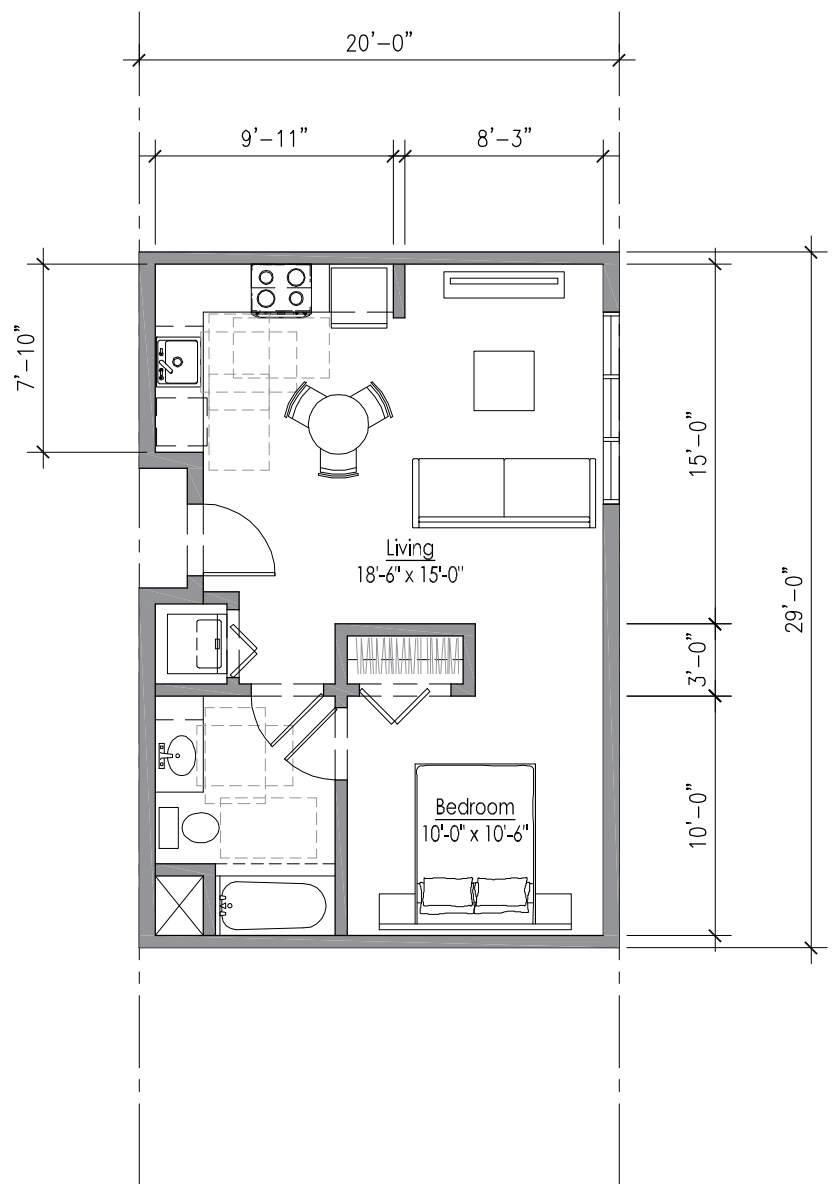


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PARCEL F-2

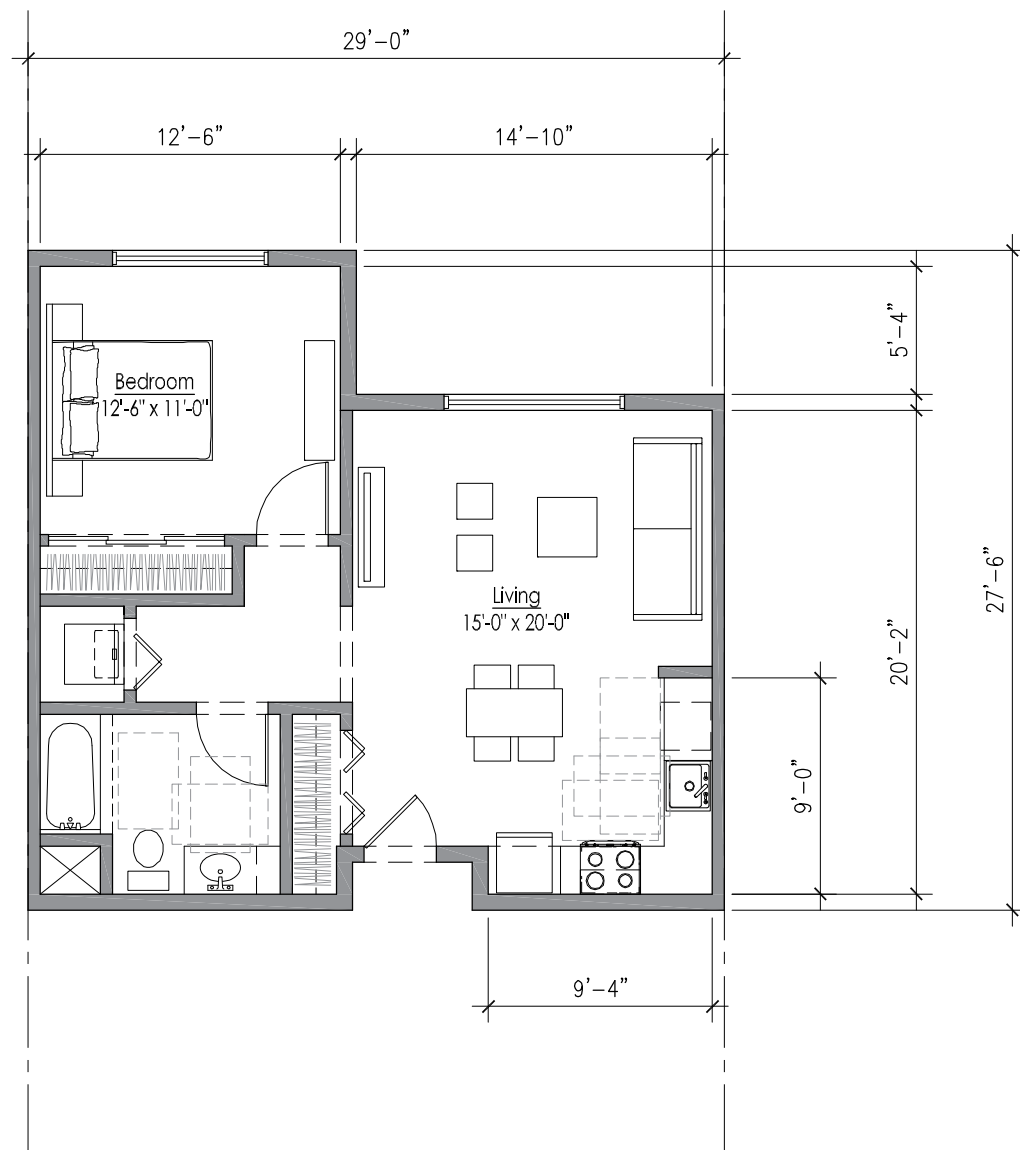
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Unit A - Junior One Bed/One Bath





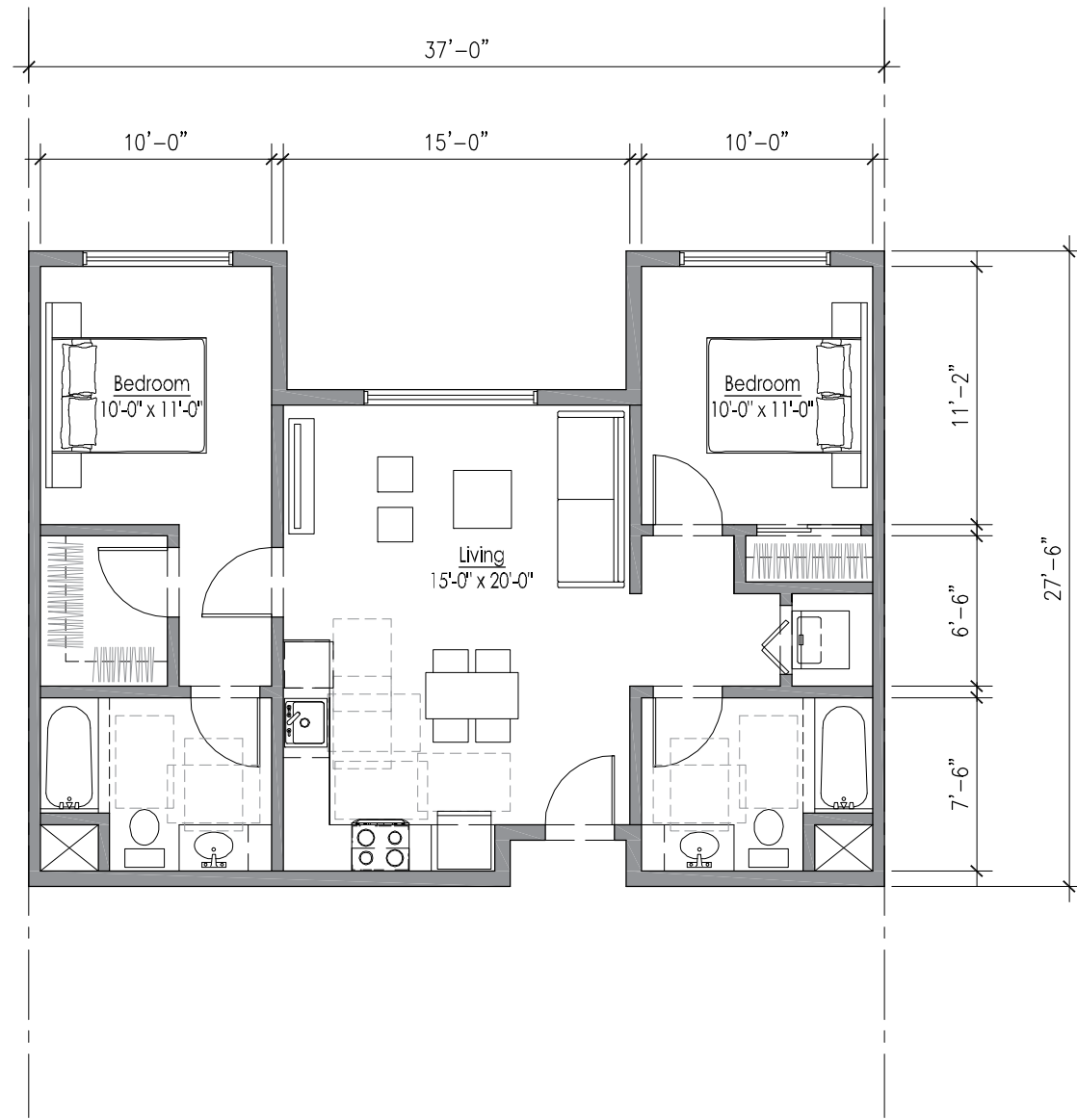
Unit B - One Bed/One Bath



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PARCEL F-2

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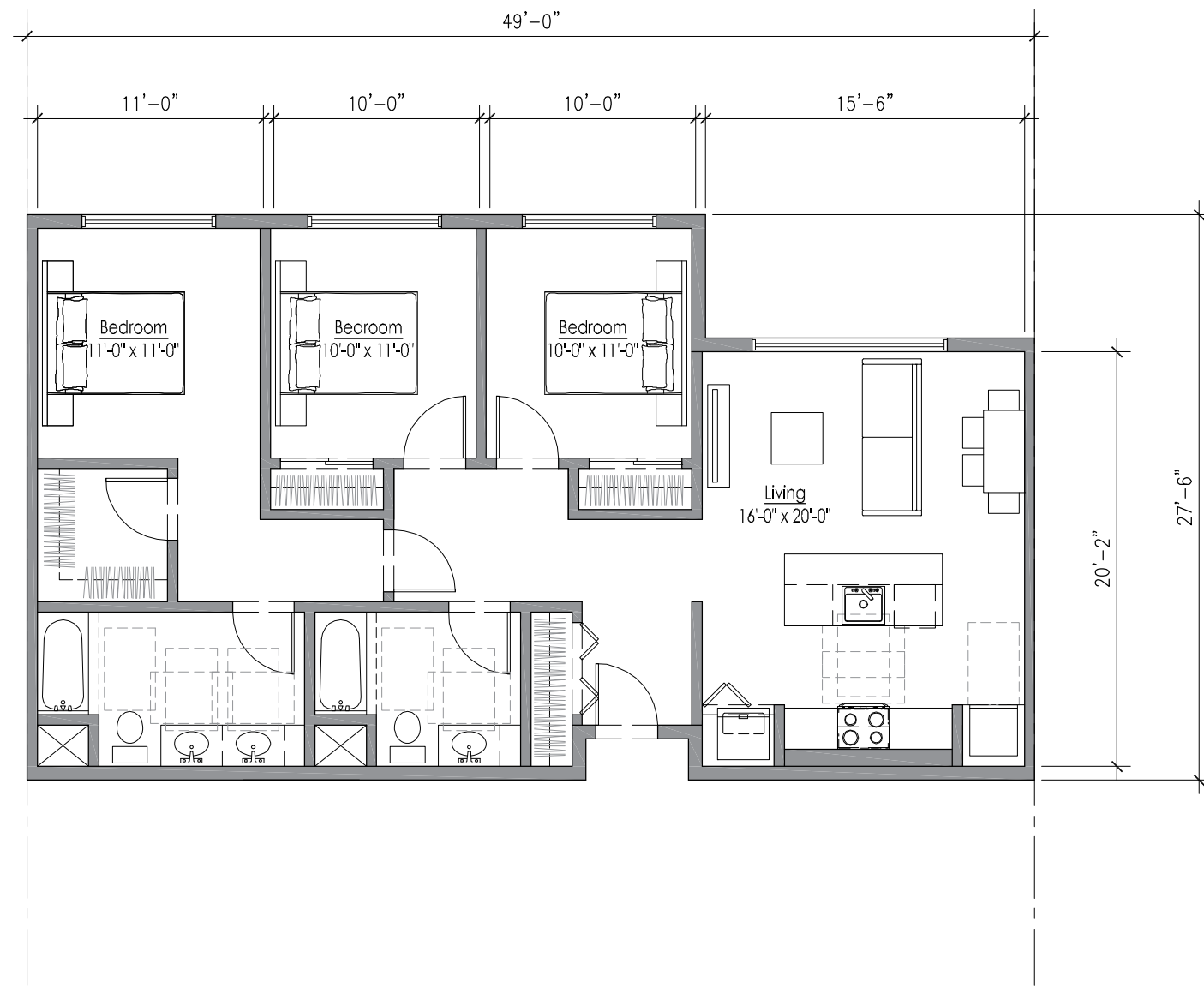
Unit C - Two Bed/Two Bath



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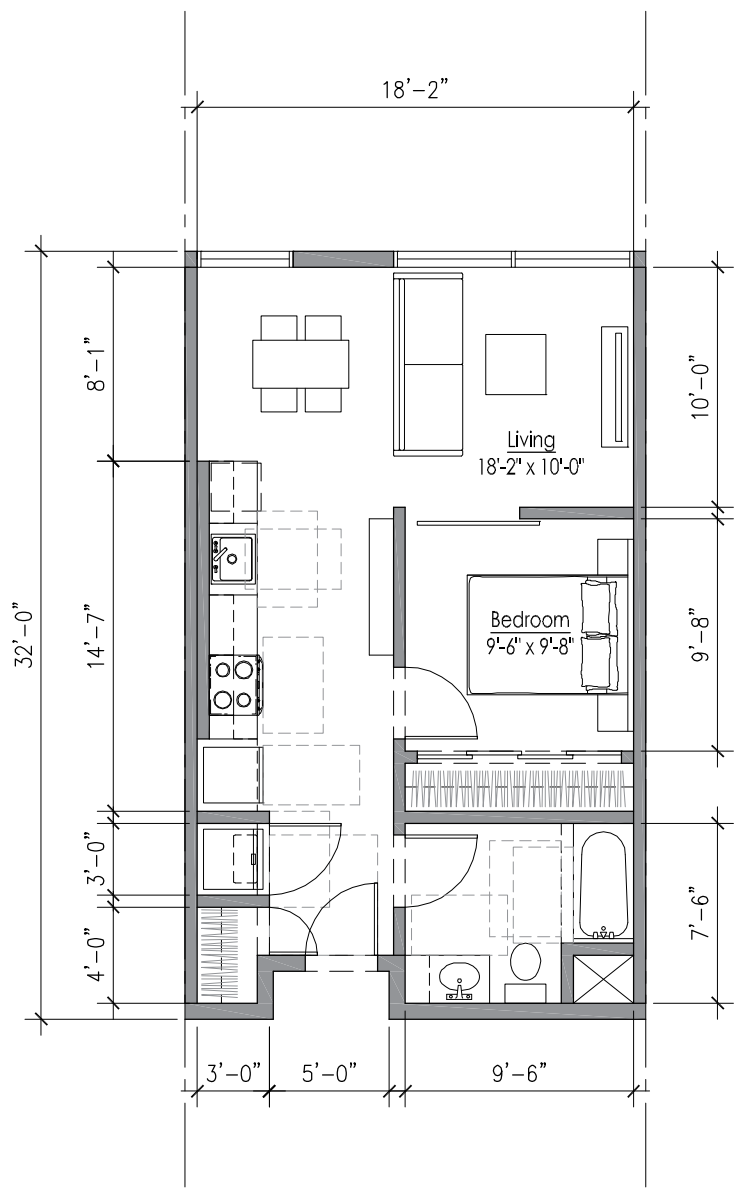
PARCEL F-2

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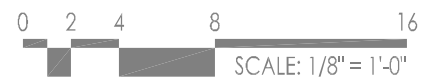
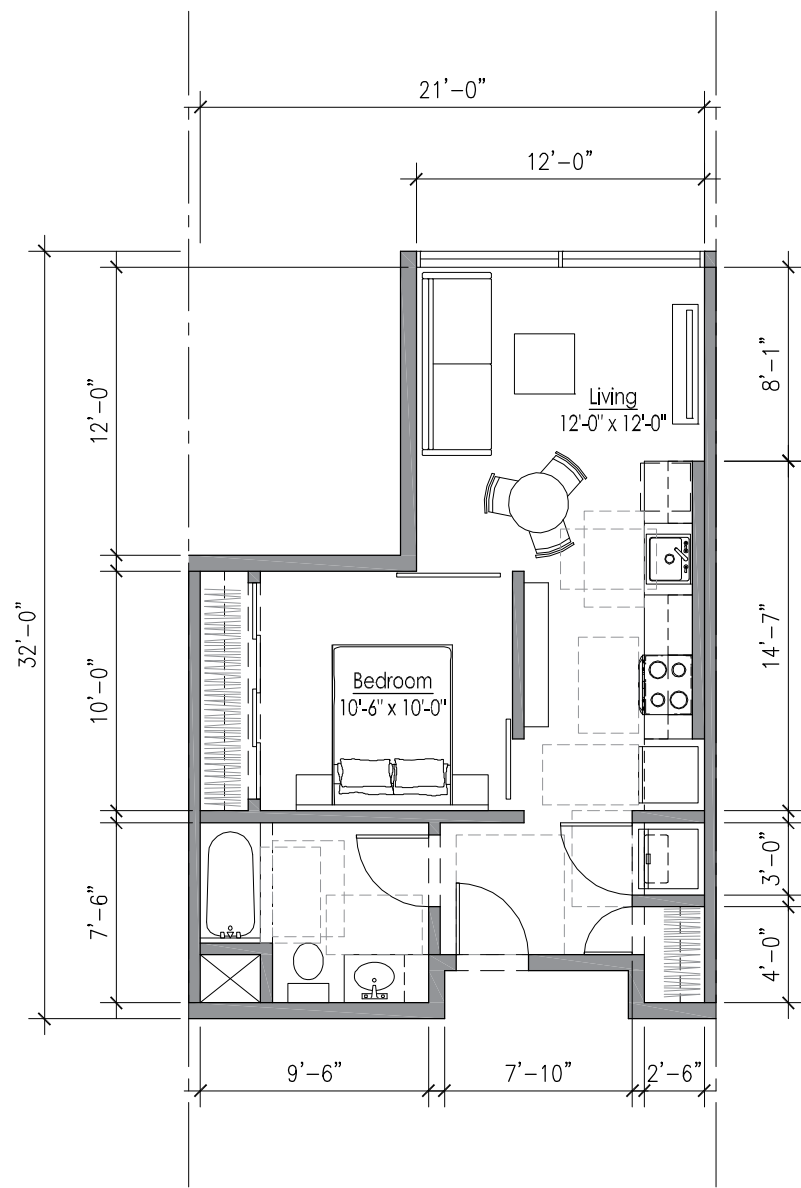
Unit D - Three Bed/Two Bath





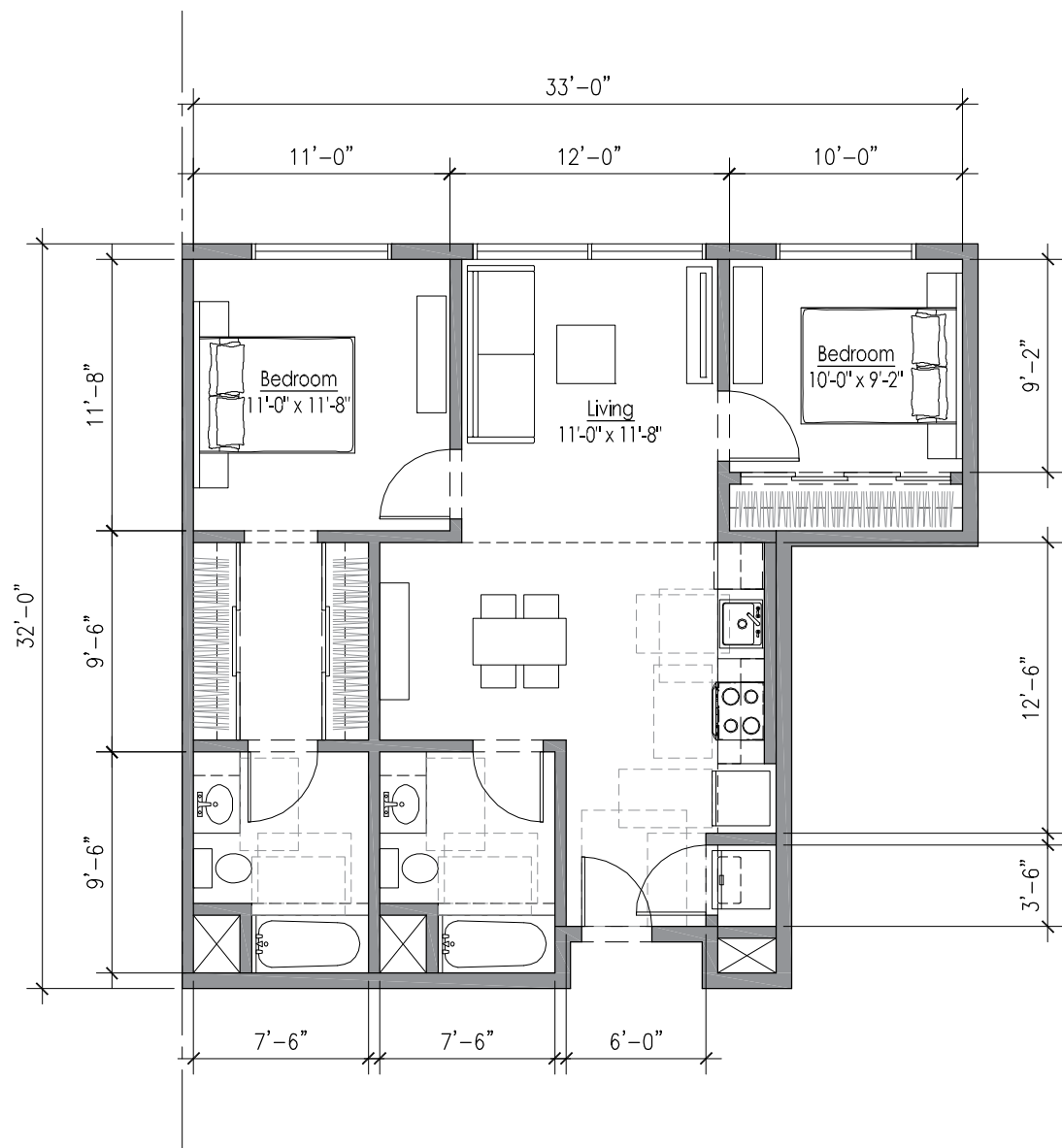
Unit E - Junior One Bed/One Bath





Unit F - Junior One Bed/One Bath





Unit G - Two Bed/Two Bath



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PARCEL F-2

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google maps dated 8/29/2012

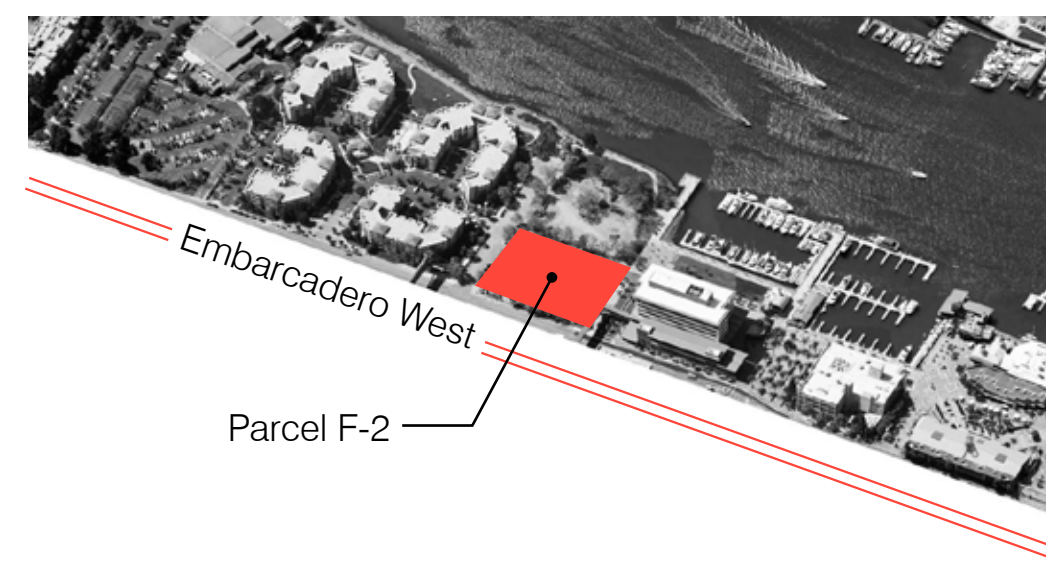
6 over 2
282 Units
Parcel F-2



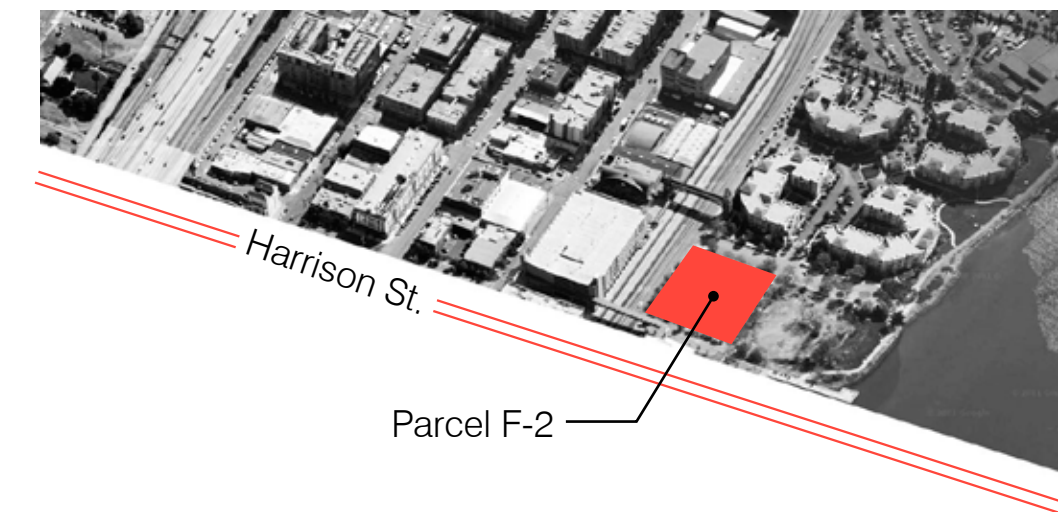
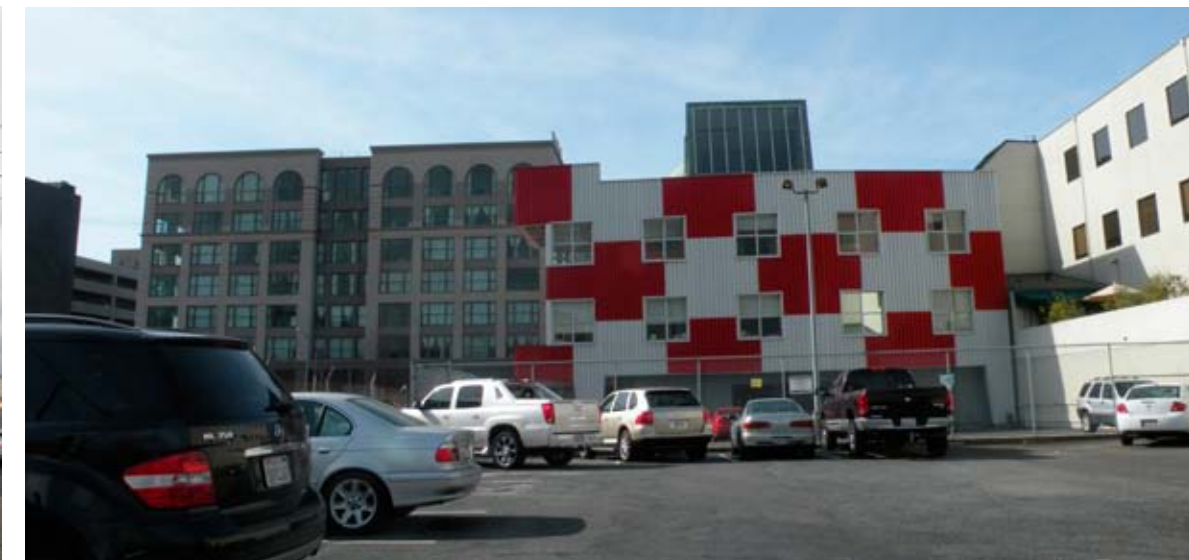
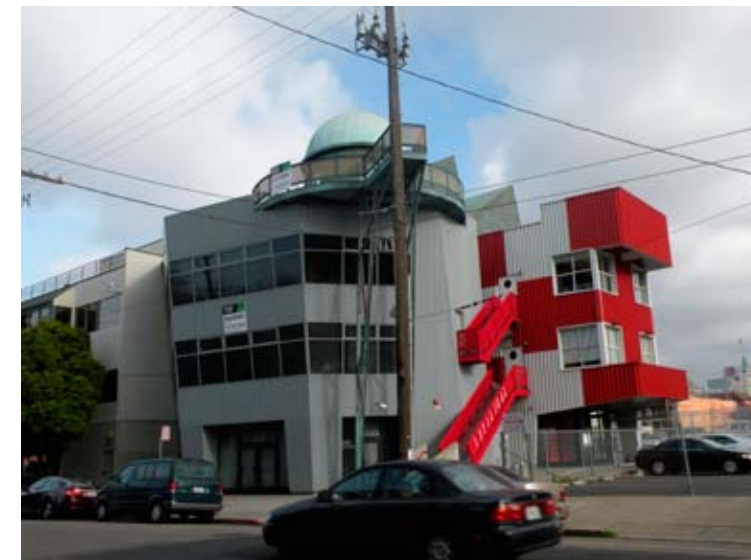
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PARCEL F-2

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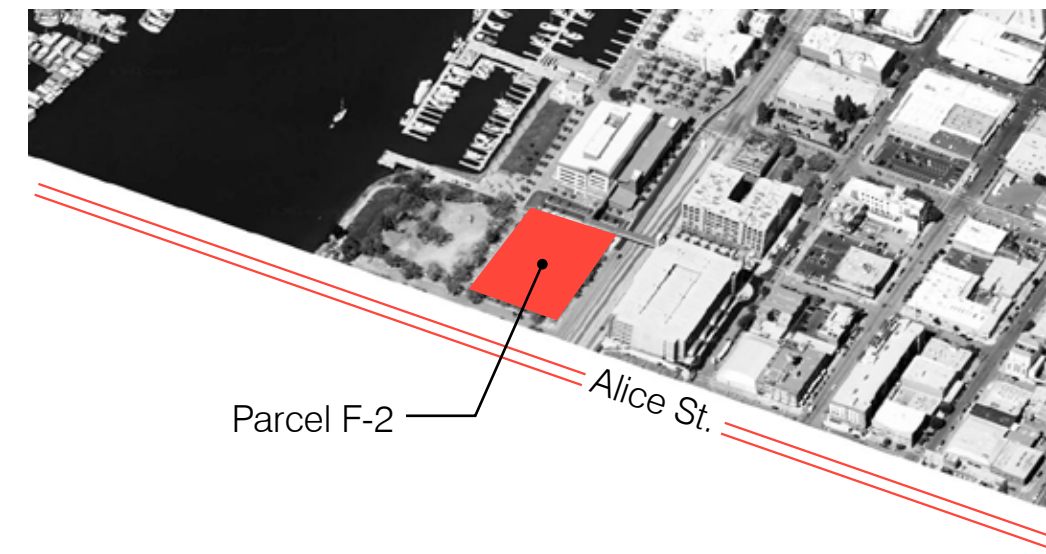
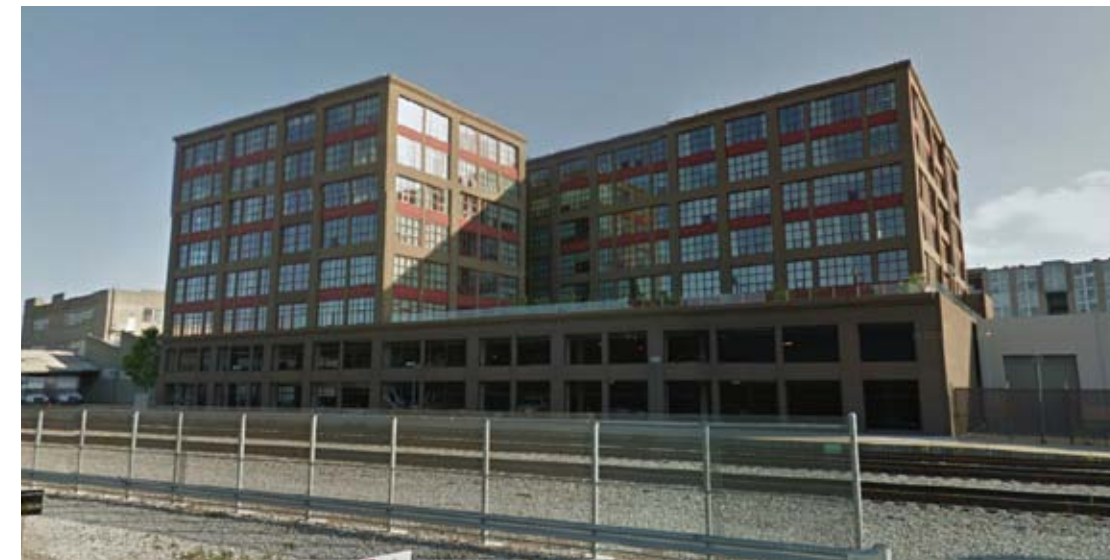
Embarcadero West Panoramic



Harrison Street Panoramic

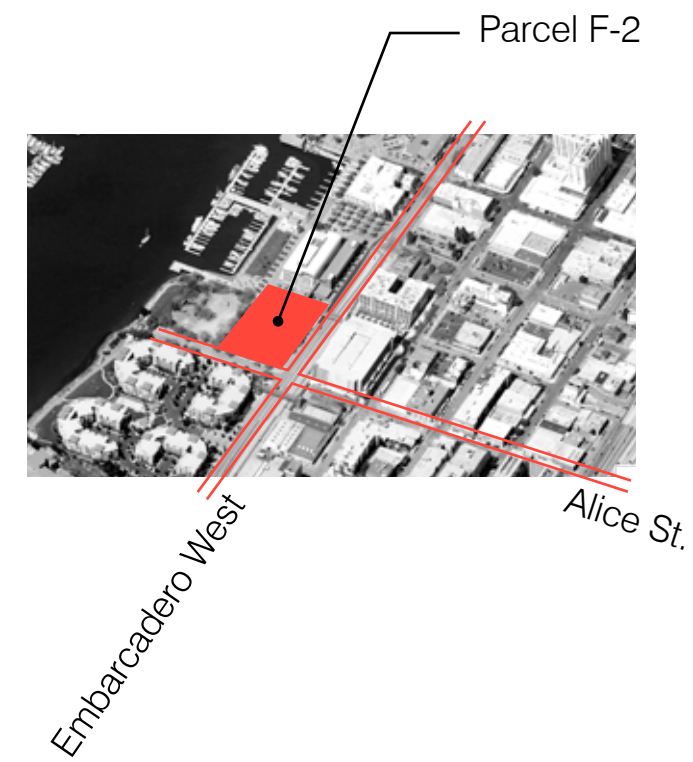
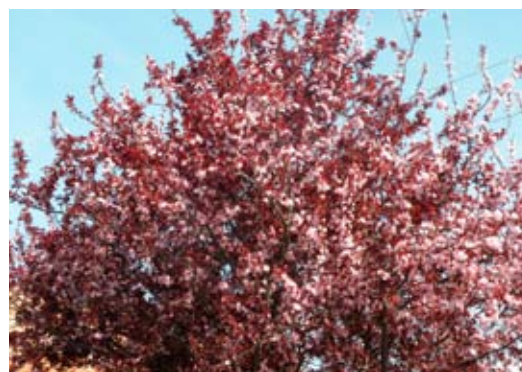


San Francisco Bay Existing Vacant Lot **Parcel F-2** 1st St. Amtrak Existing Building



Parcel F-2 Alice St.

Alice Street Panoramic



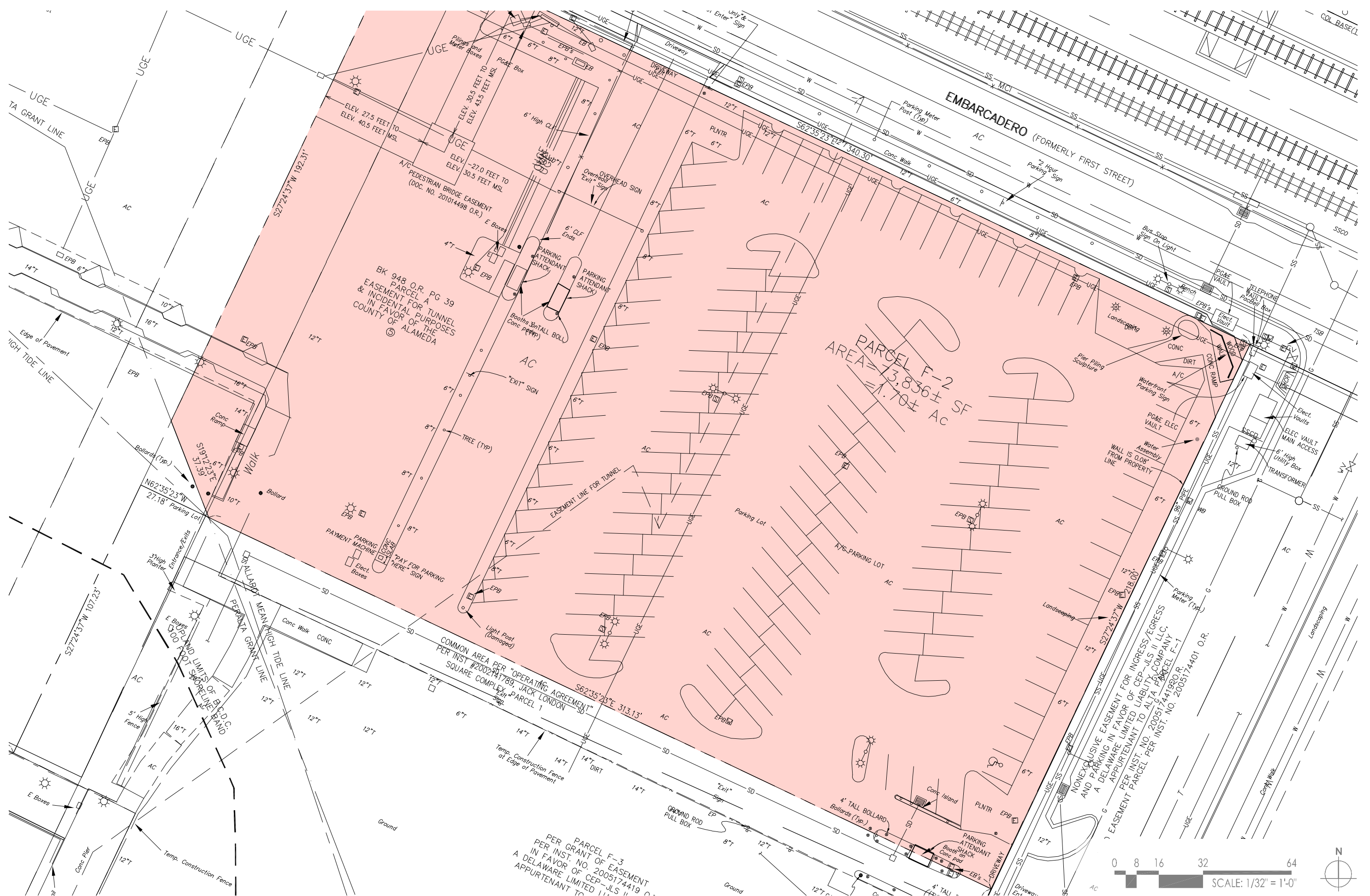
Parcel F-2 Contextual Photos

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PARCEL F-2

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PARCEL F-2

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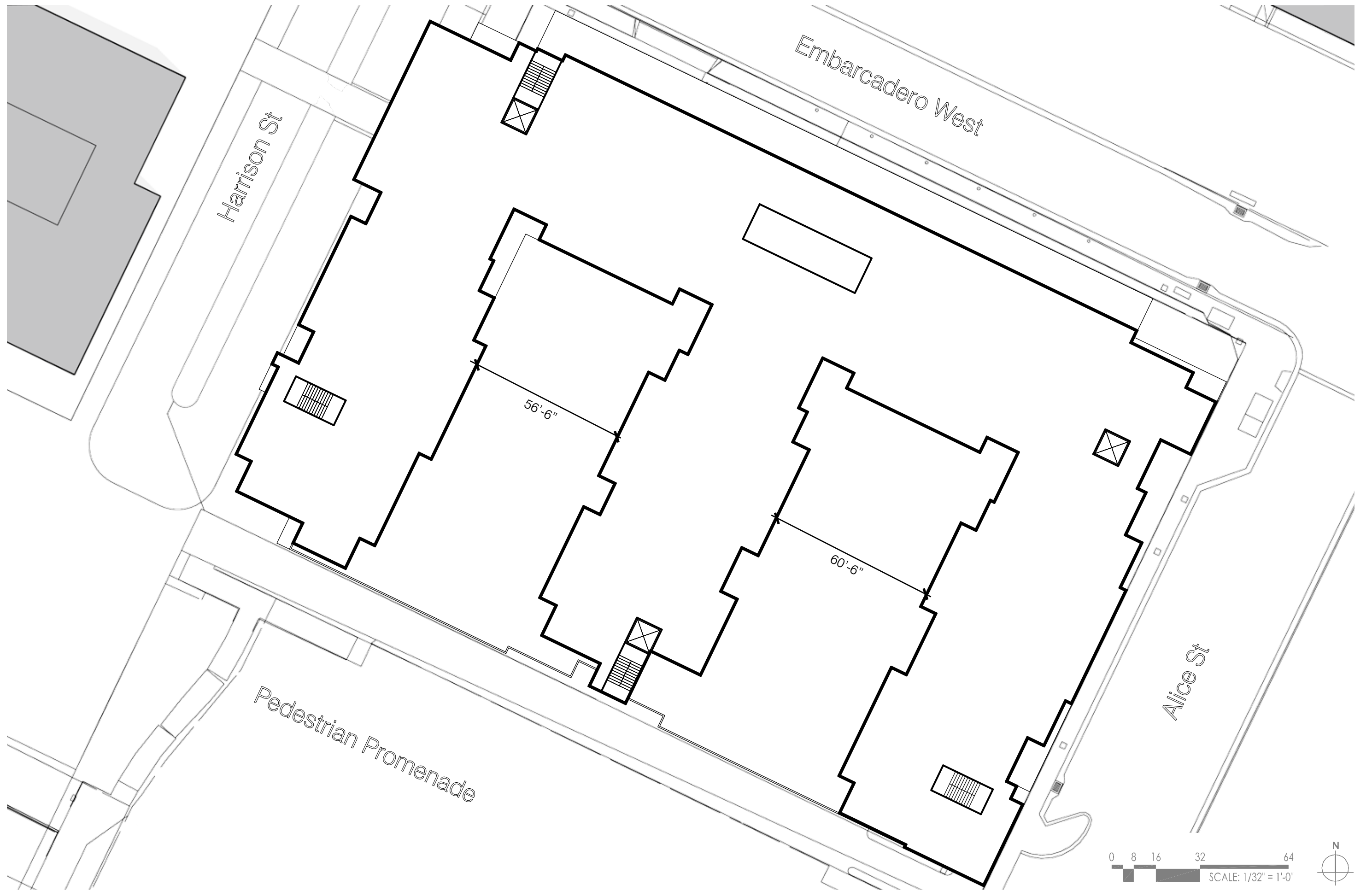
Survey Plan



PER PARCEL F-3
 IN FAVOR OF EASEMENT
 IN FAVOR OF INST. NO. 2005174419
 A DELAWARE LIMITED LIABILITY COMPANY
 APPURTENANT TO

COMMON AREA PER "OPERATING AGREEMENT"
 PER INST. #2002171789, JACK LONDON
 SQUARE COMPLEX, PARCEL 1

NONEXCLUSIVE EASEMENT FOR INGRESS/EGRESS
 AND PARKING IN FAVOR OF CEP-JLS II LLC,
 APPLICABLE LIMITED LIABILITY COMPANY
 APPURTENANT TO ALTA SURVEY COMPANY
 PER INST. NO. 2005174419 O.R.
 PARCEL F-1
 EASEMENT PER INST. NO. 2005174401 O.R.



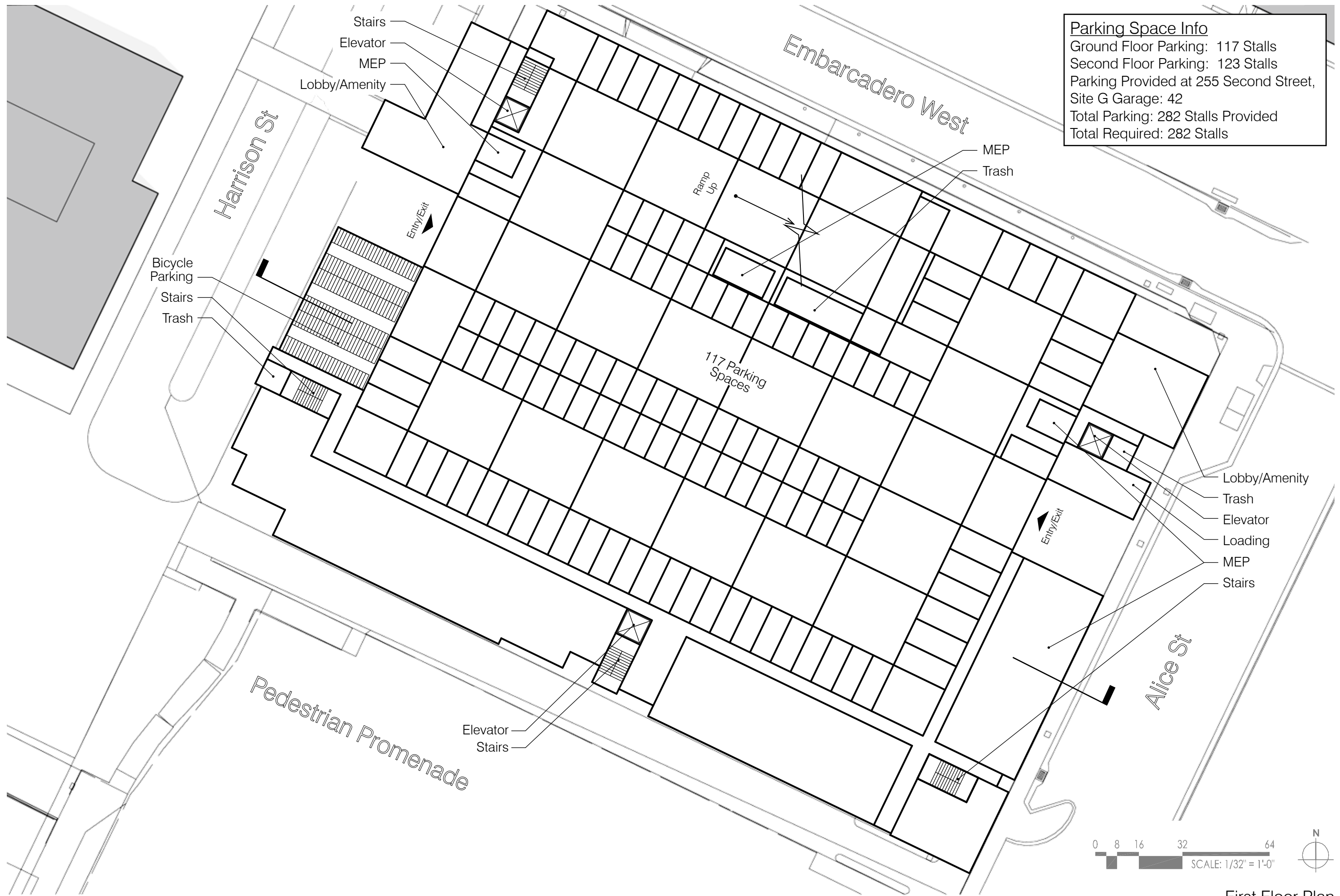
Site Plan



JACK LONDON SQUARE
OAKLAND, CALIFORNIA

PARCEL F-2

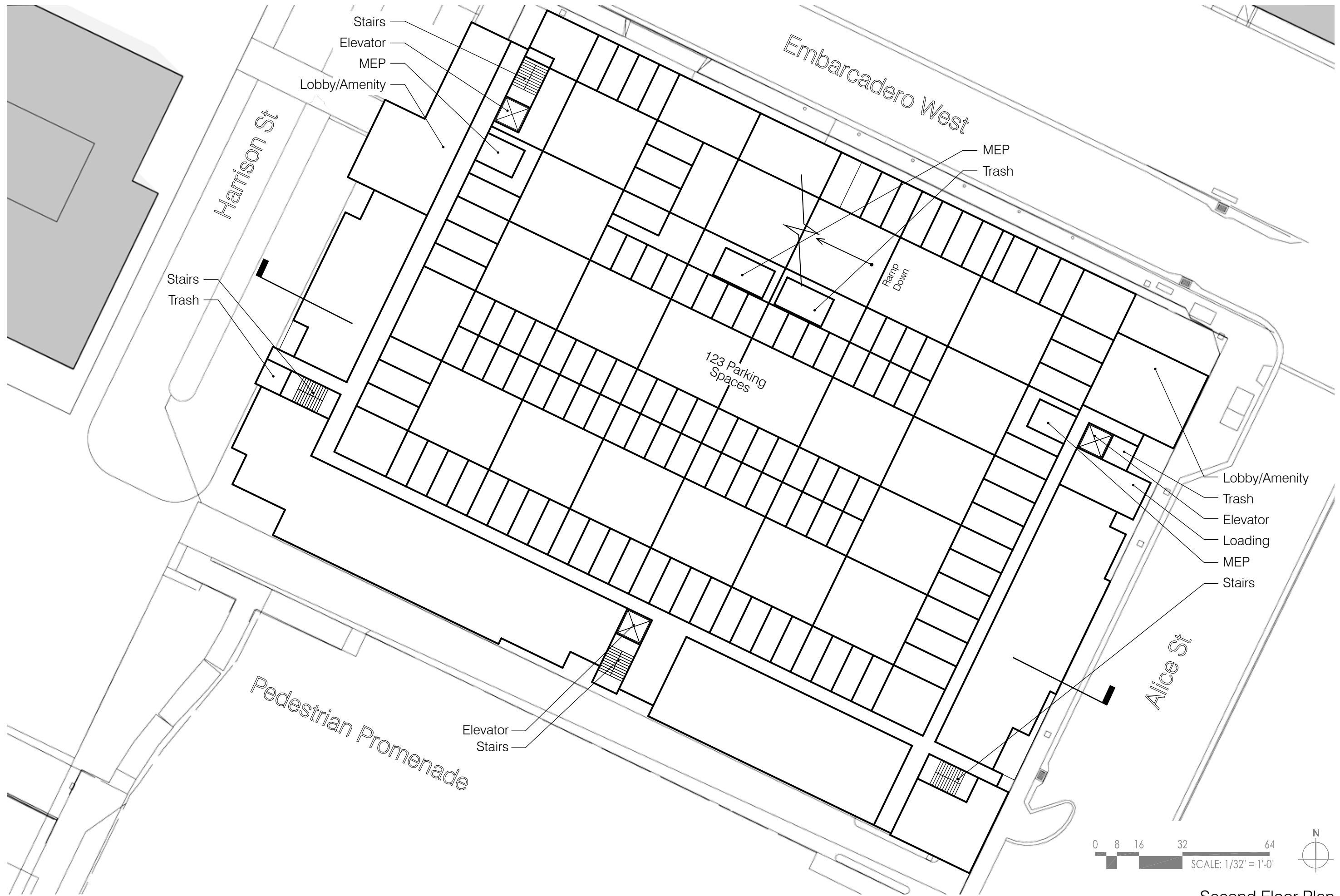
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Parking Space Info
 Ground Floor Parking: 117 Stalls
 Second Floor Parking: 123 Stalls
 Parking Provided at 255 Second Street,
 Site G Garage: 42
 Total Parking: 282 Stalls Provided
 Total Required: 282 Stalls



First Floor Plan



Stairs
Elevator
MEP
Lobby/Amenity

Stairs
Trash

MEP
Trash

Lobby/Amenity
Trash
Elevator
Loading
MEP
Stairs

Elevator
Stairs

123 Parking Spaces

Ramp Down

Harrison St

Embarcadero West

Alice St

Pedestrian Promenade

0 8 16 32 64
SCALE: 1/32" = 1'-0"



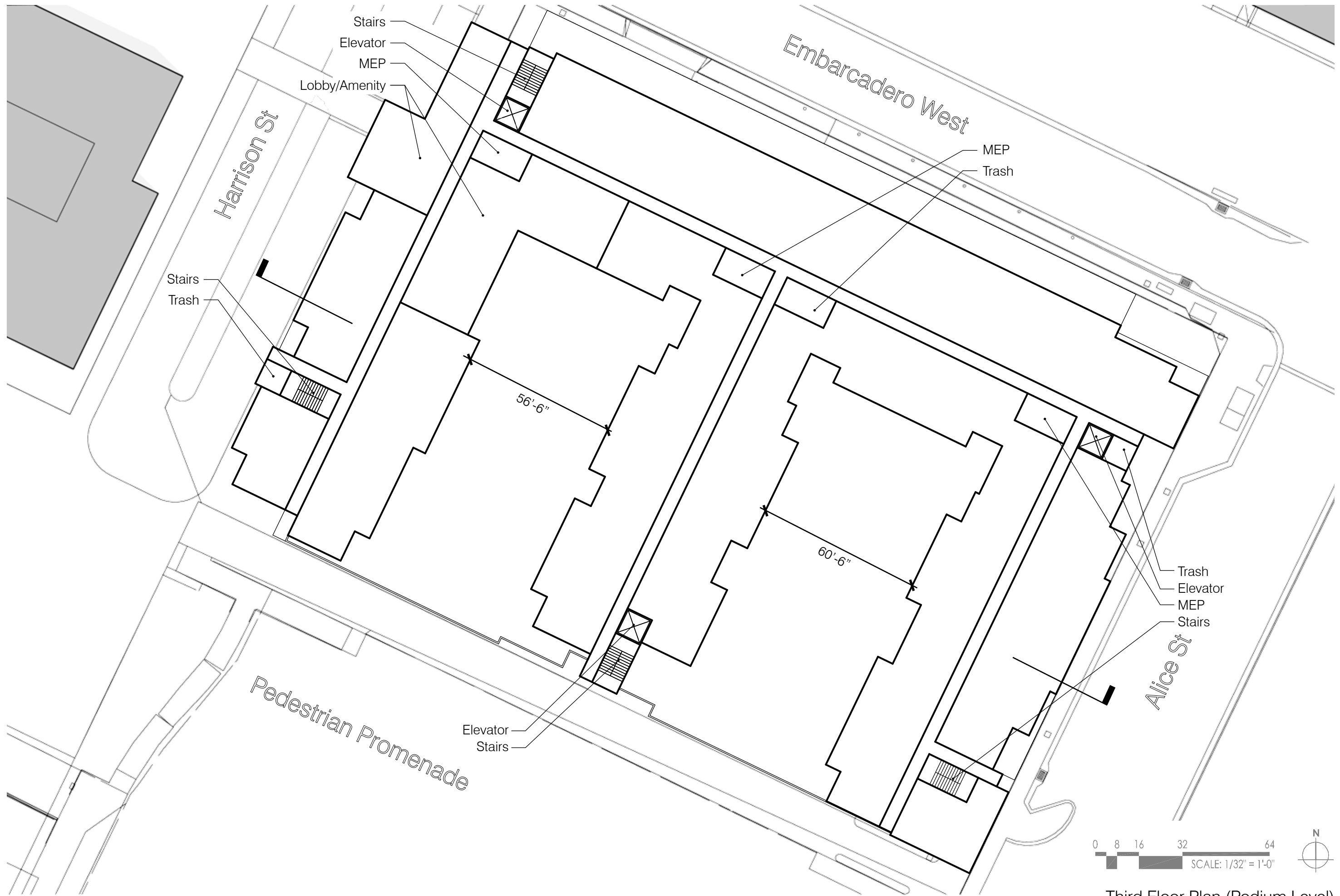
Second Floor Plan

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PARCEL F-2

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OAKLAND, CALIFORNIA





Harrison St

Embarcadero West

Pedestrian Promenade

Alice St

Stairs
Elevator
MEP
Lobby/Amenity

MEP
Trash

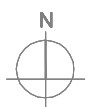
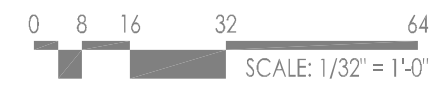
Stairs
Trash

56'-6"

60'-6"

Trash
Elevator
MEP
Stairs

Elevator
Stairs



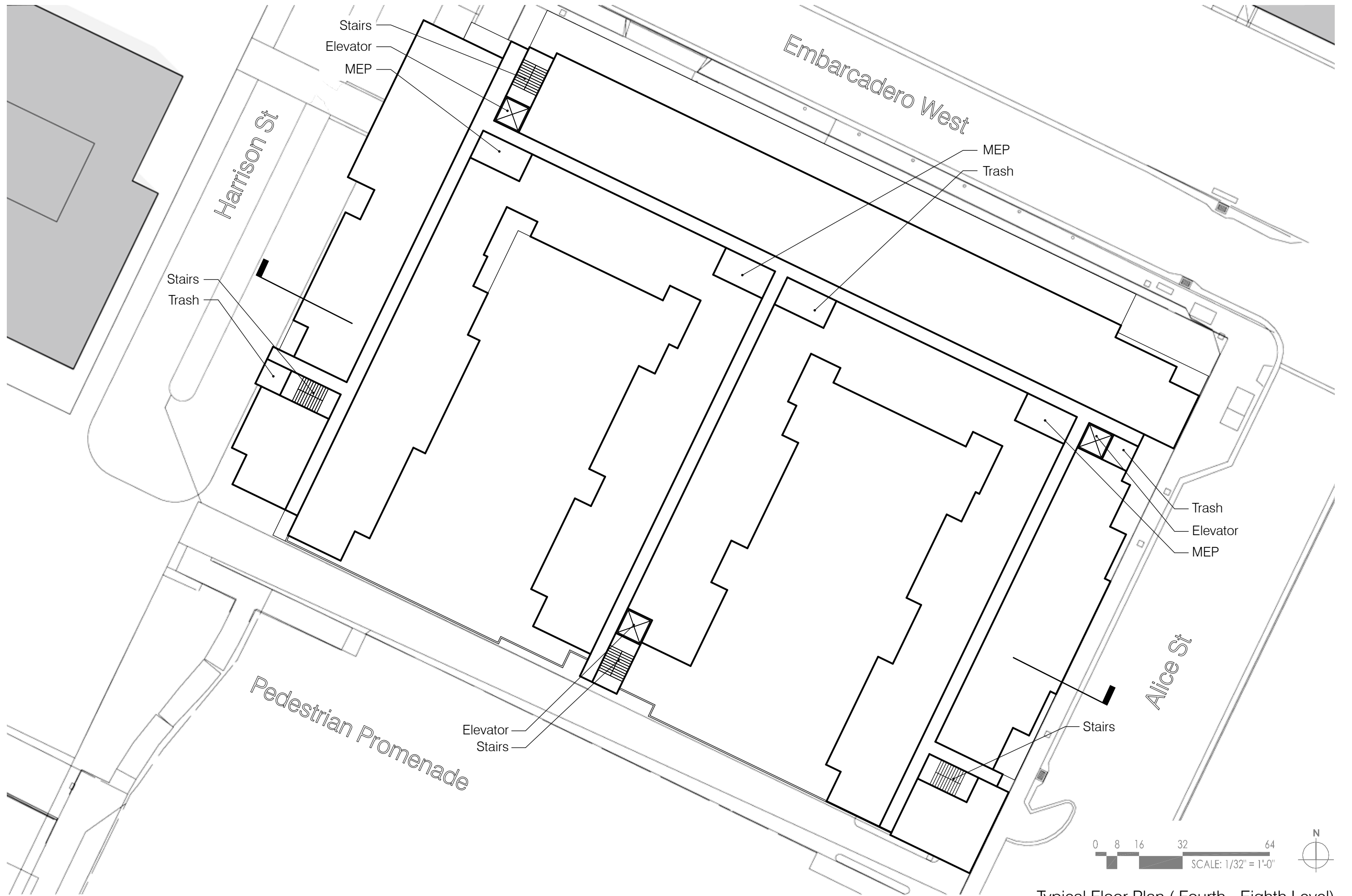
Third Floor Plan (Podium Level)

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PARCEL F-2

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OAKLAND, CALIFORNIA





Stairs
Elevator
MEP

Stairs
Trash

MEP
Trash

Trash
Elevator
MEP

Elevator
Stairs

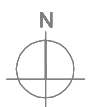
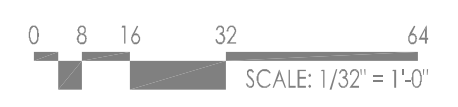
Stairs

Harrison St

Embarcadero West

Pedestrian Promenade

Alice St



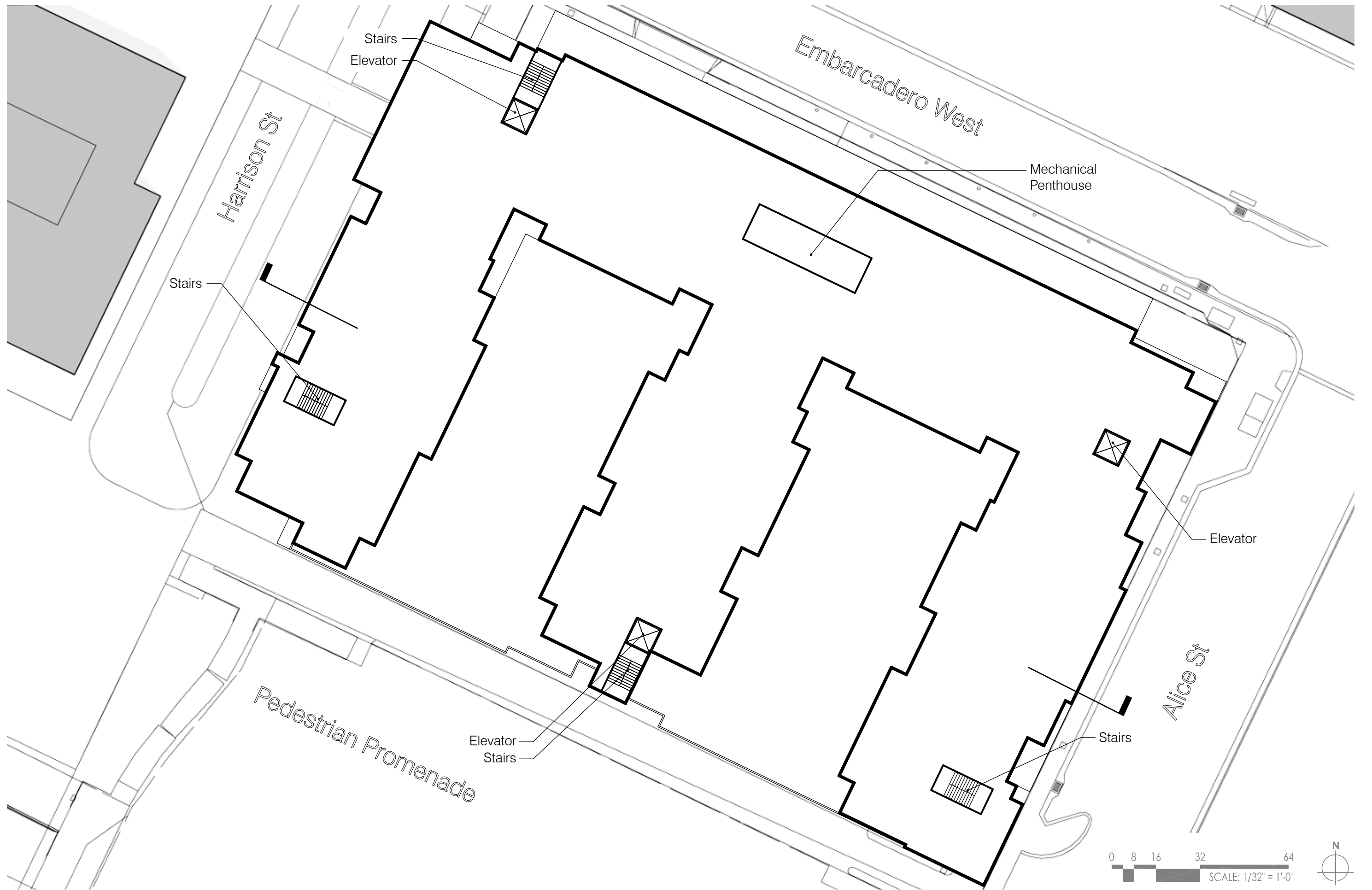
Typical Floor Plan (Fourth - Eighth Level)

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PARCEL F-2

JACK LONDON SQUARE
OAKLAND, CALIFORNIA





Harrison St

Stairs

Elevator

Embarcadero West

Mechanical Penthouse

Pedestrian Promenade

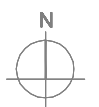
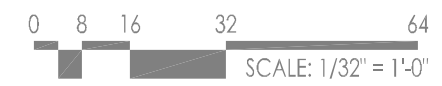
Elevator

Stairs

Elevator

Alice St

Stairs



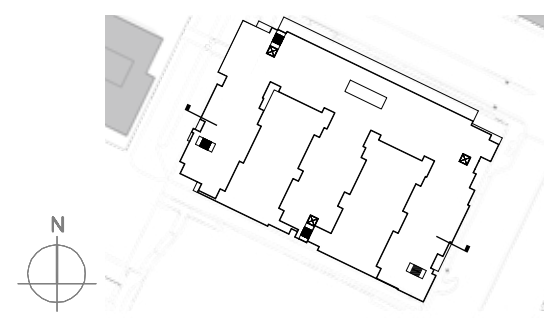
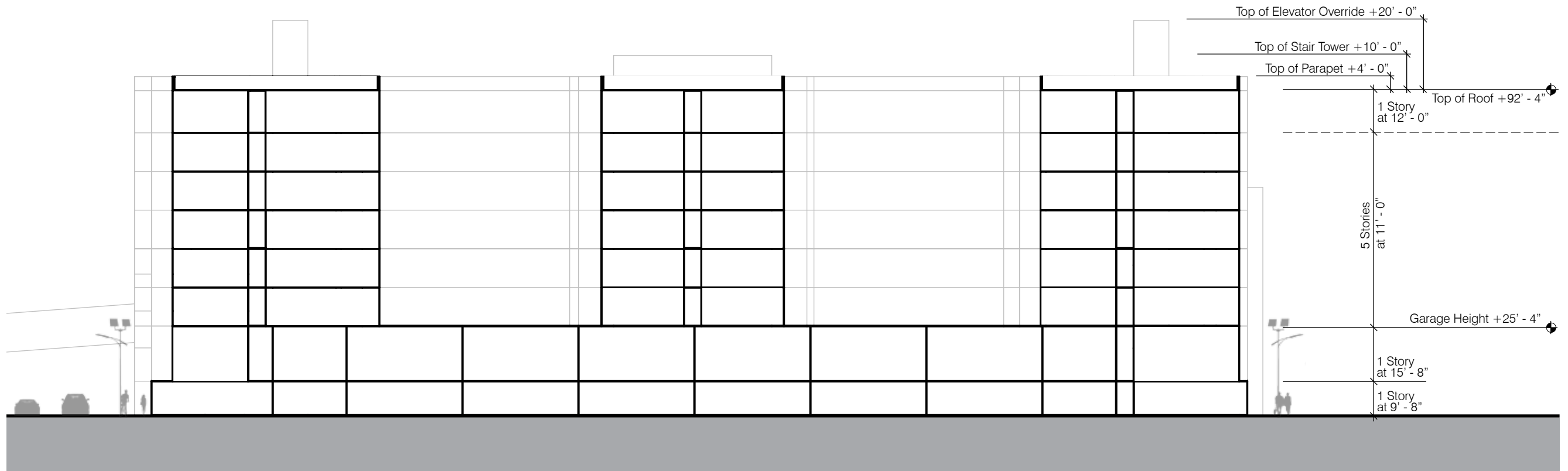
Roof Plan

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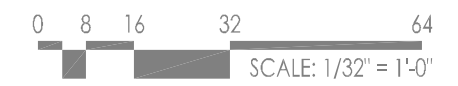
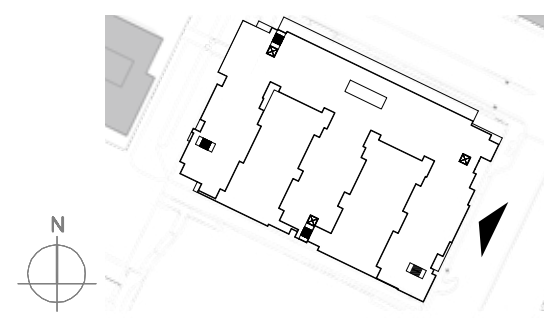
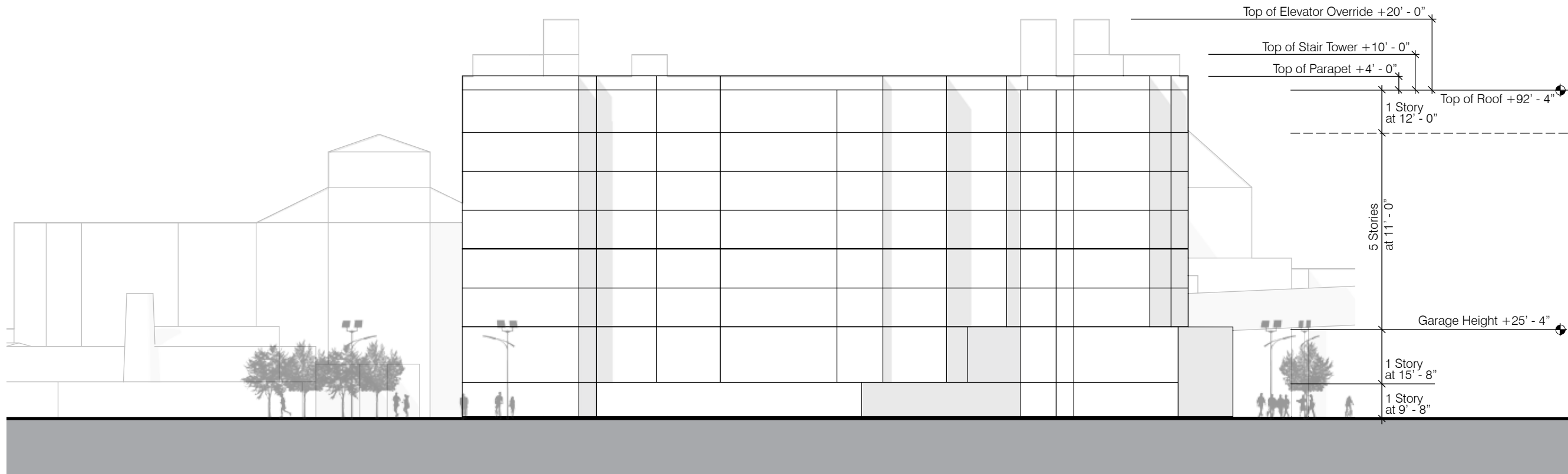
PARCEL F-2

JACK LONDON SQUARE
 OAKLAND, CALIFORNIA



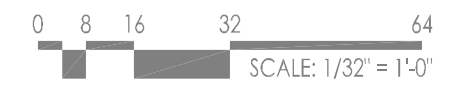
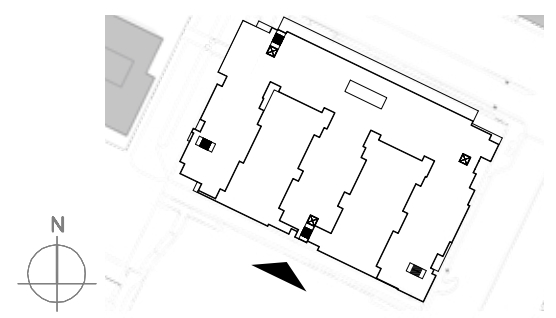


Section



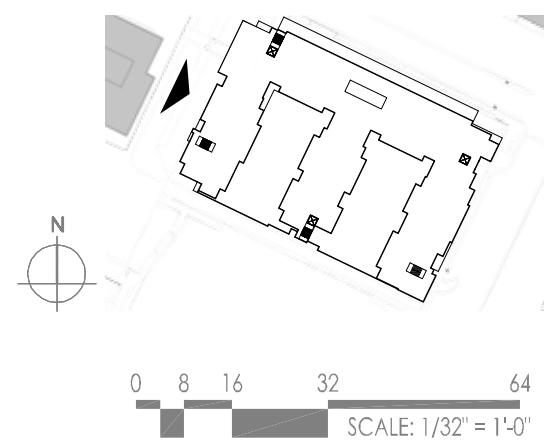
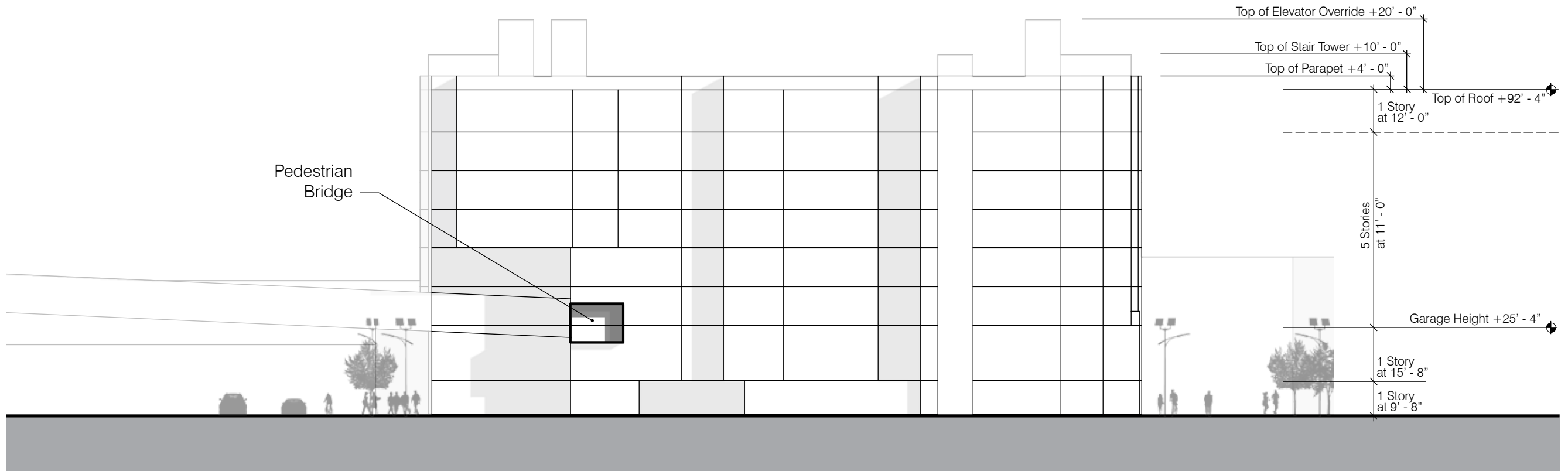
East Elevation



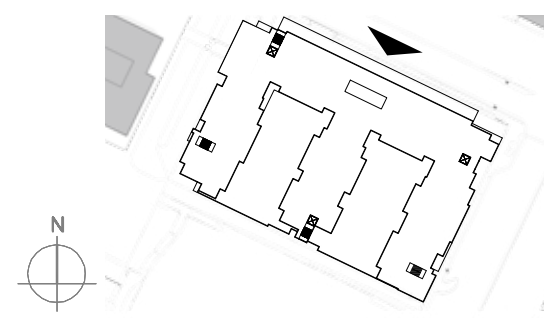
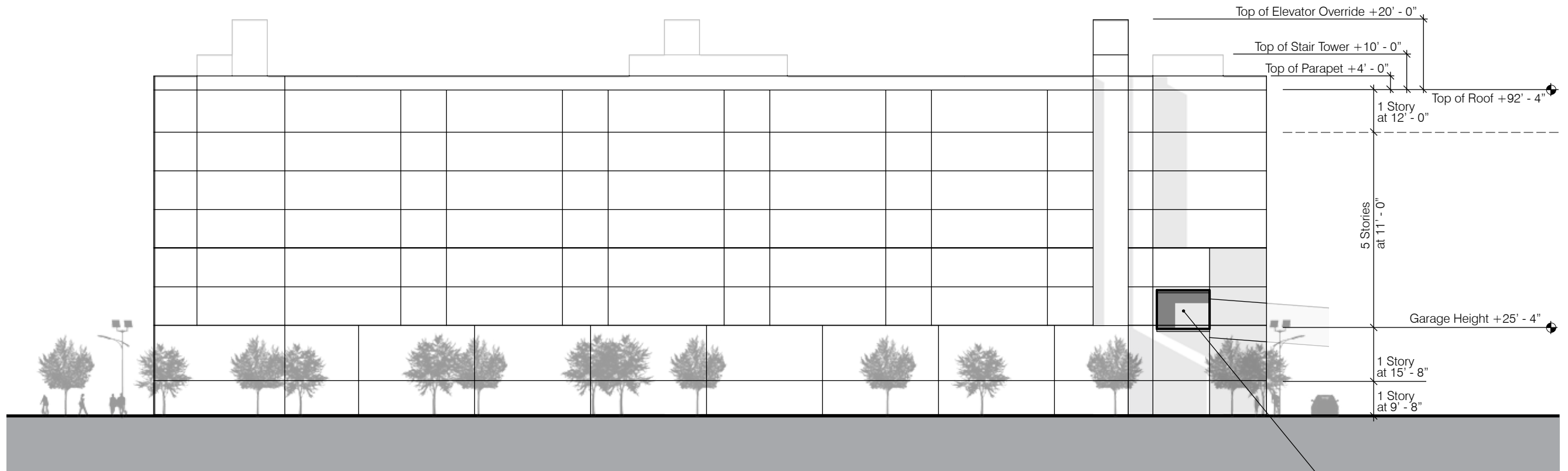


South Elevation



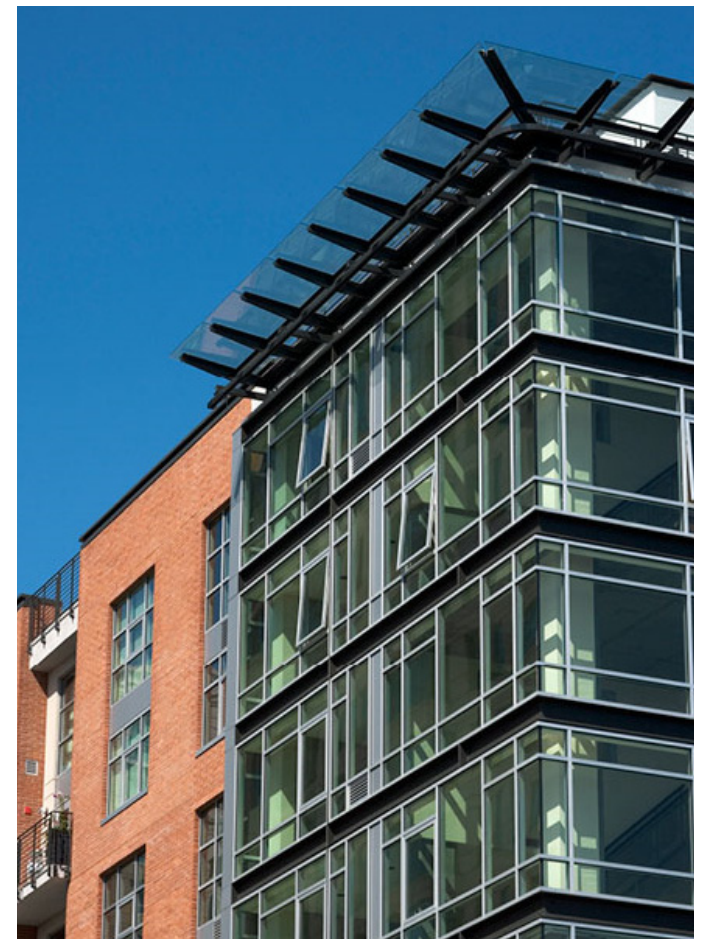
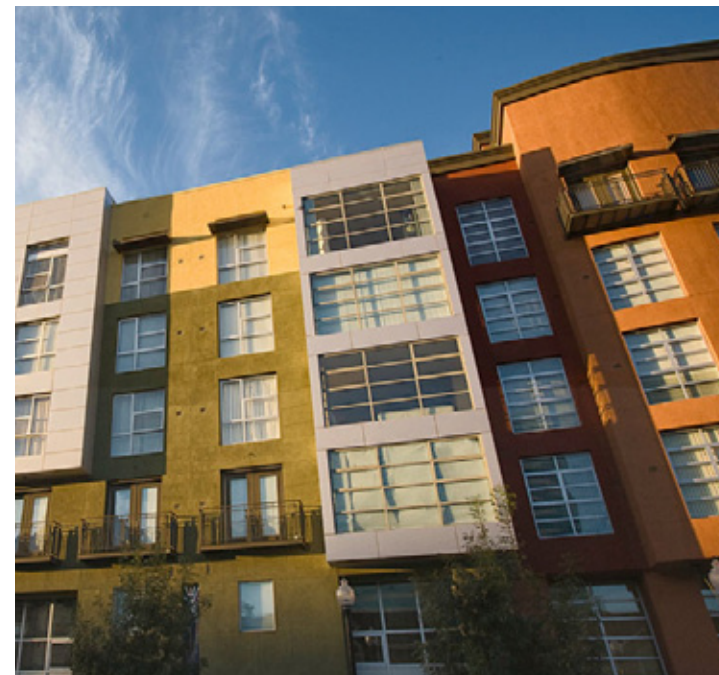
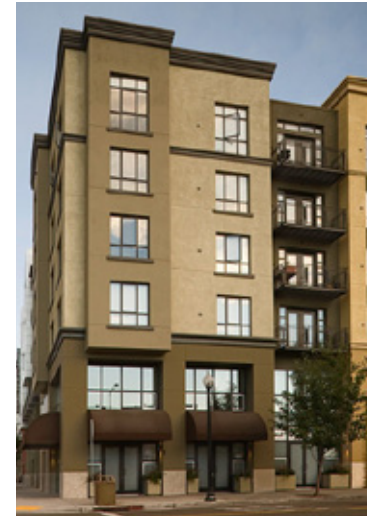
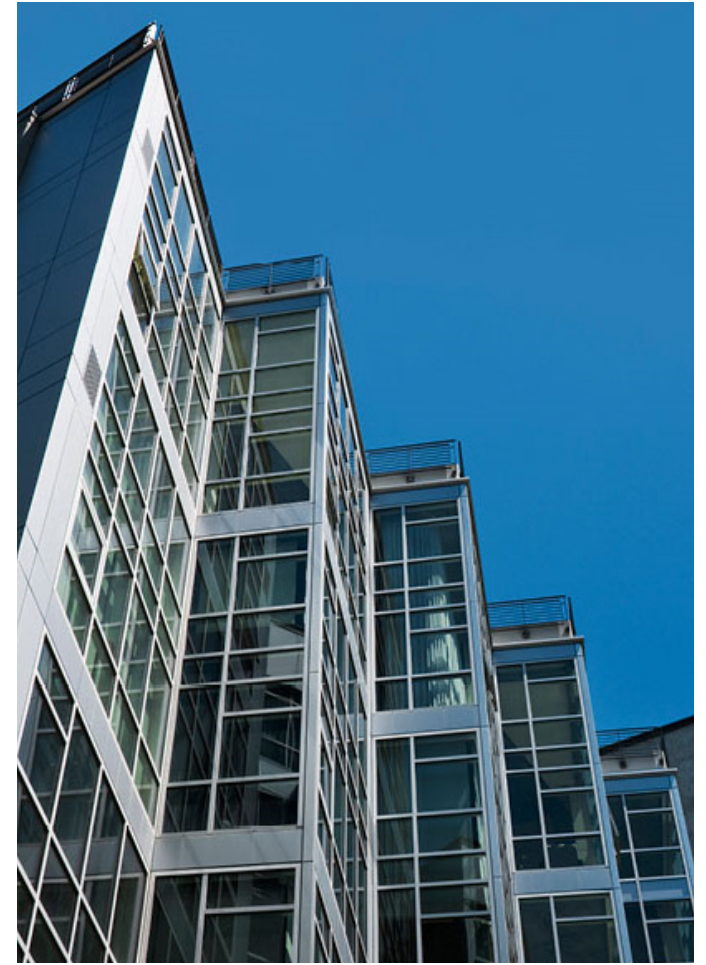


West Elevation



North Elevation





Colors, Finishes and Materials to be selected during FDP Phase

Exterior Design Study



JACK LONDON SQUARE
OAKLAND, CALIFORNIA

PARCEL F-2

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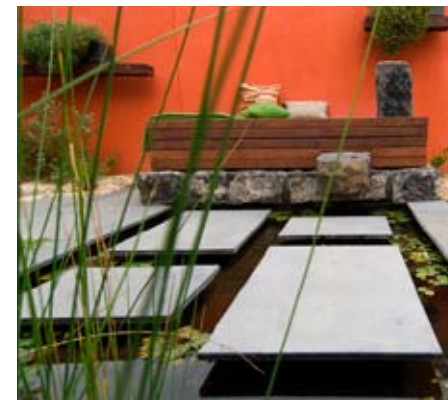
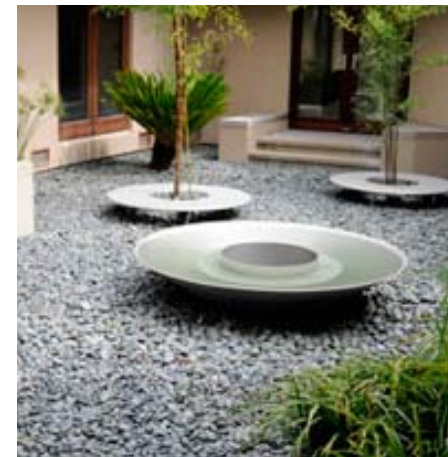
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Existing Landscape and Lighting



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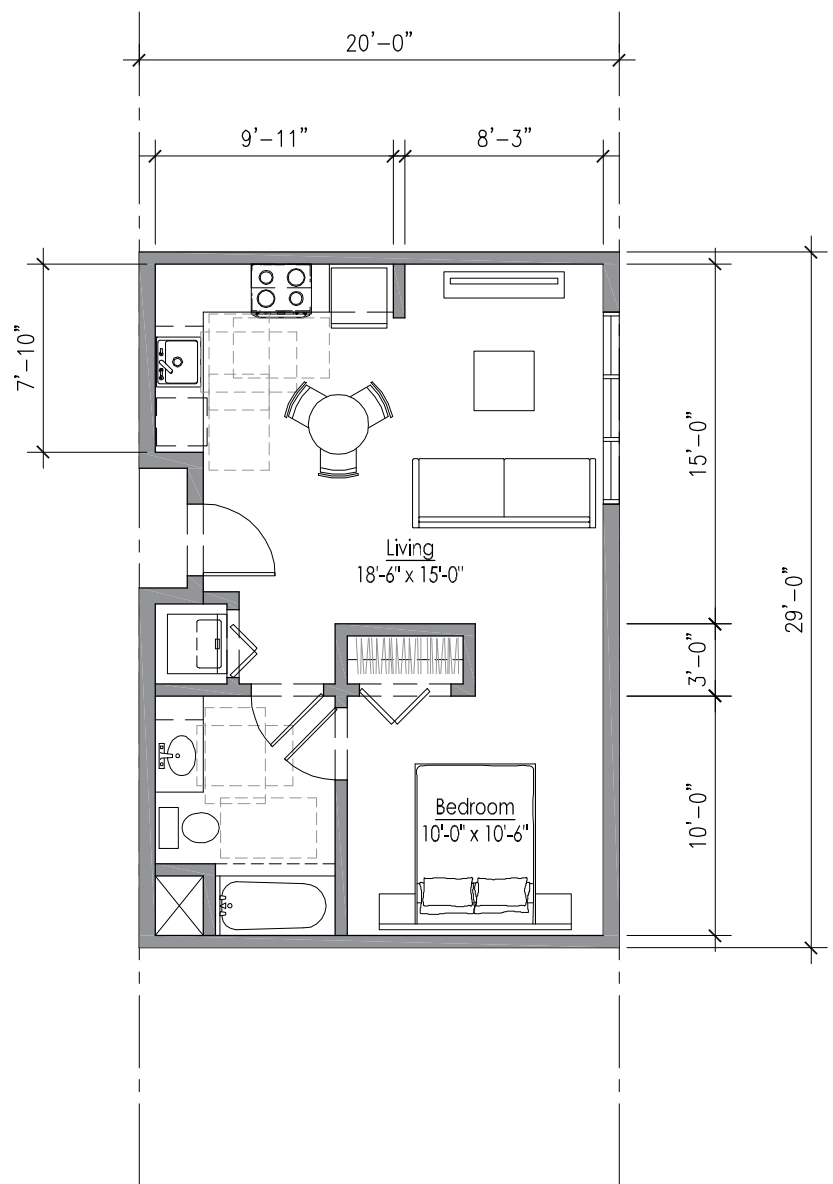


Amenity, Landscape and Lighting Study



Open Space Calculations
 Required Group Open Space: 42,300 sf
 Provided Podium Courtyard Area: 17,460 sf
 Provided Private Podium Space: 2,910 sf
 Provided Private Balcony Space: 8,415 sf
 Provided At Grade Open Space: 2,245 sf
 Total Space Provided: **17,460 + (2,910 x 2) + (8,415 x 2) + 2,245 = 42,355 sf Total Open Space**





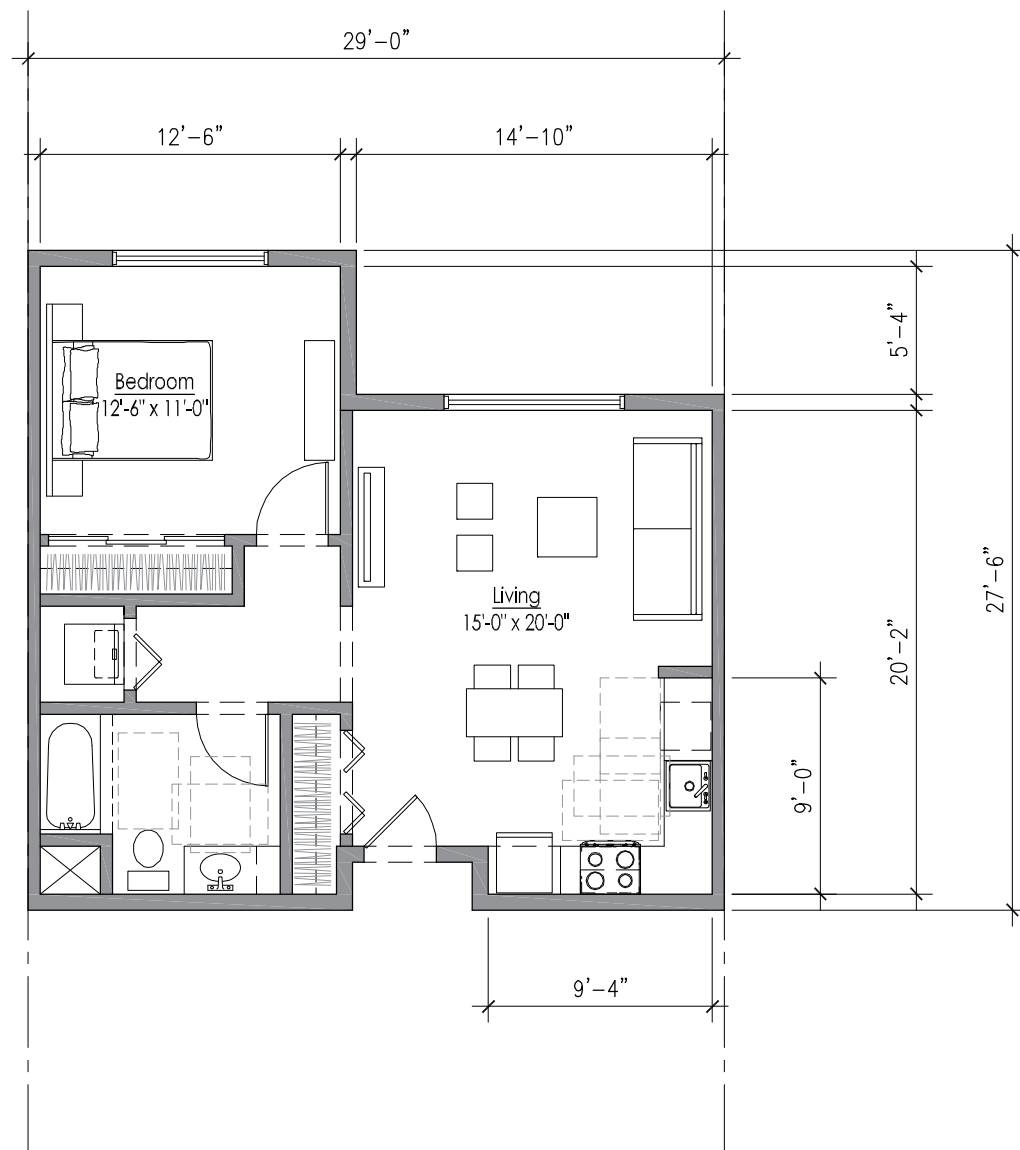
Unit A - Junior One Bed/One Bath



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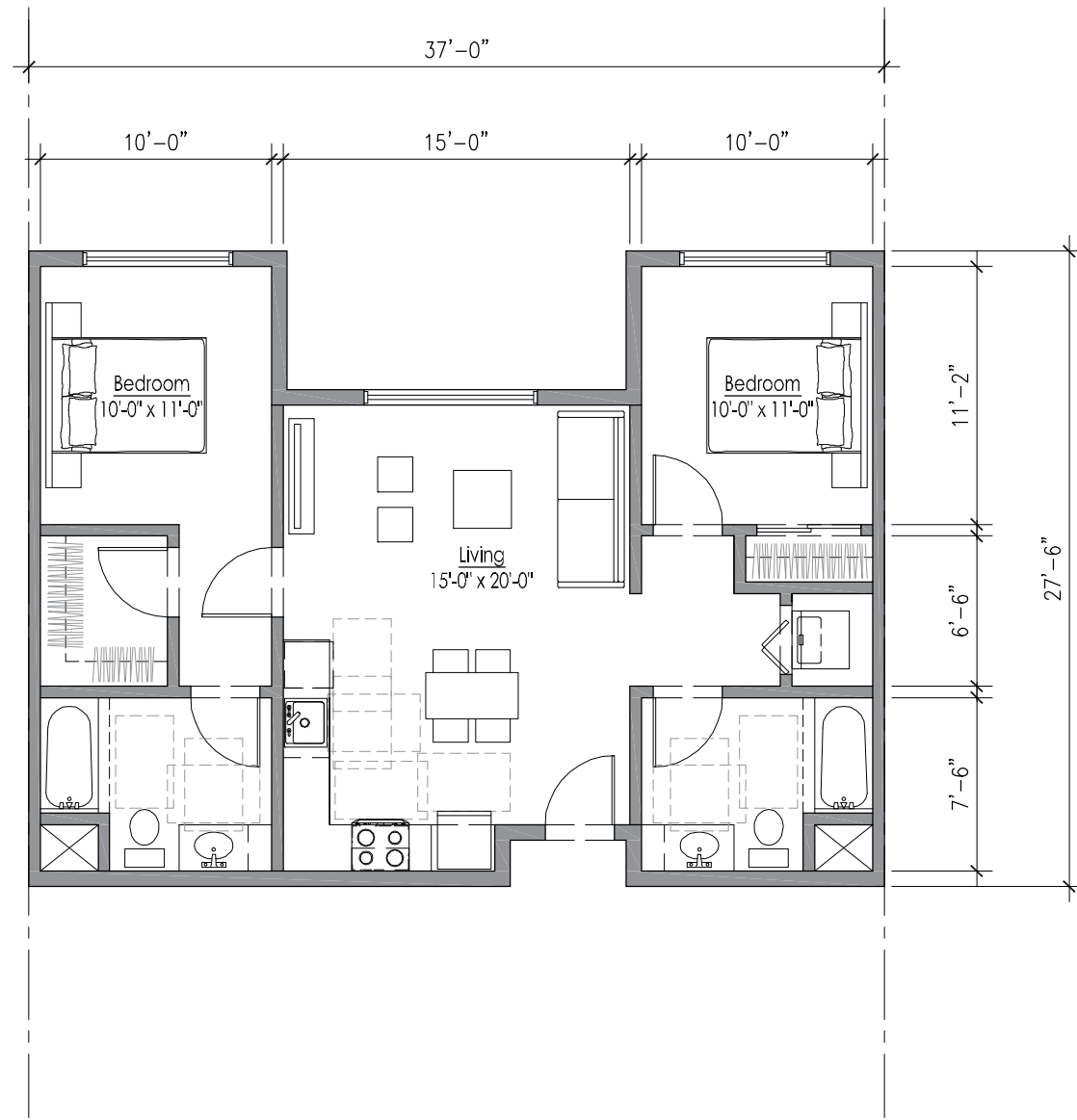
Unit B - One Bed/One Bath



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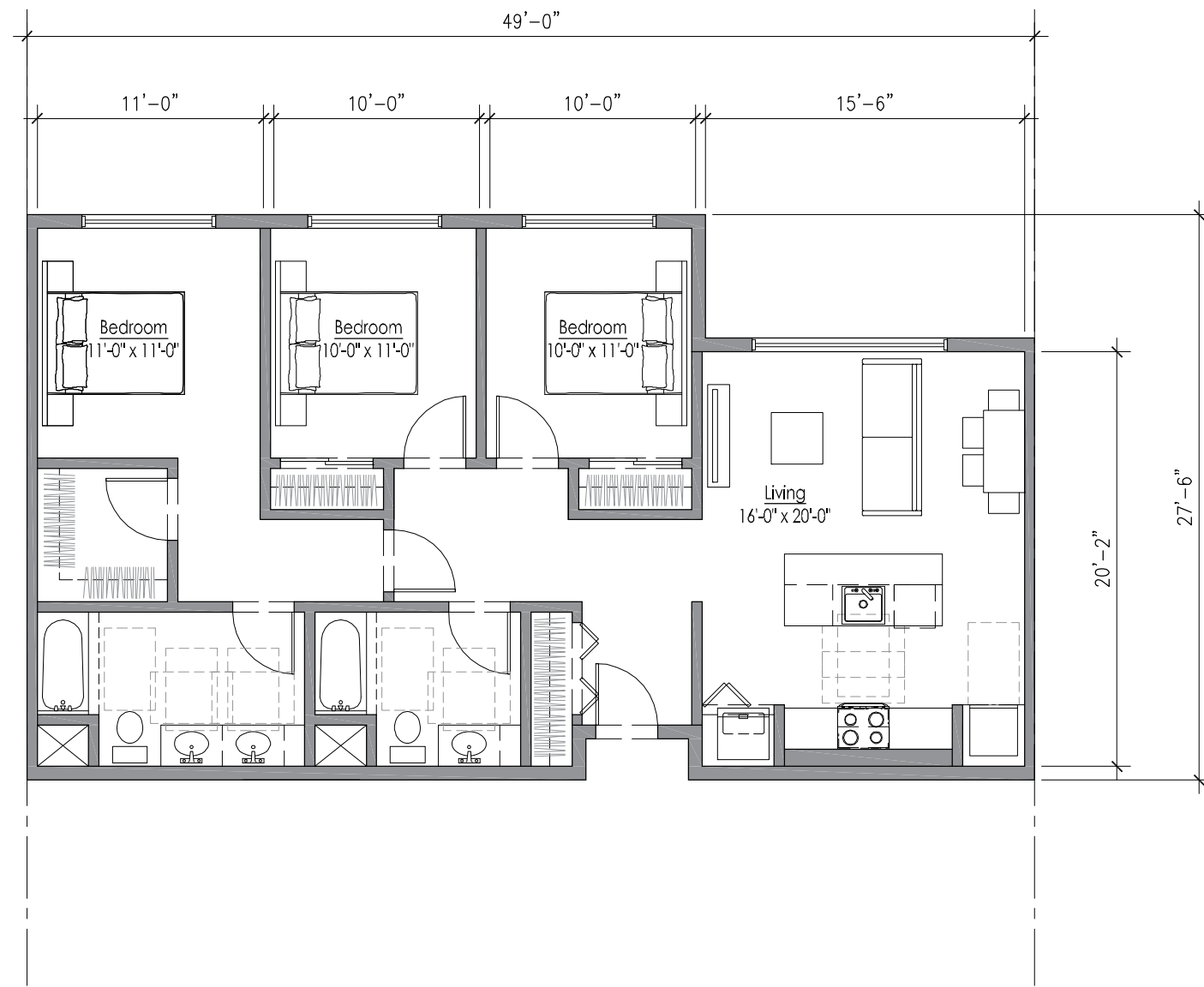
Unit C - Two Bed/Two Bath



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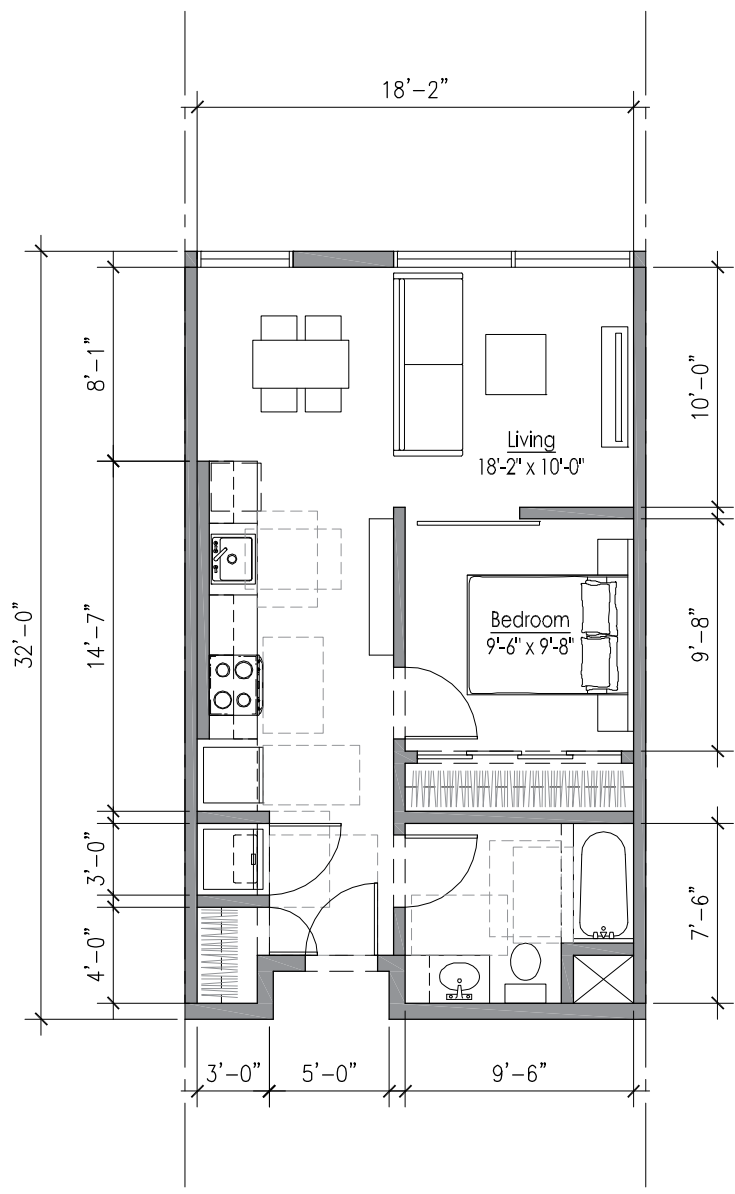
Unit D - Three Bed/Two Bath



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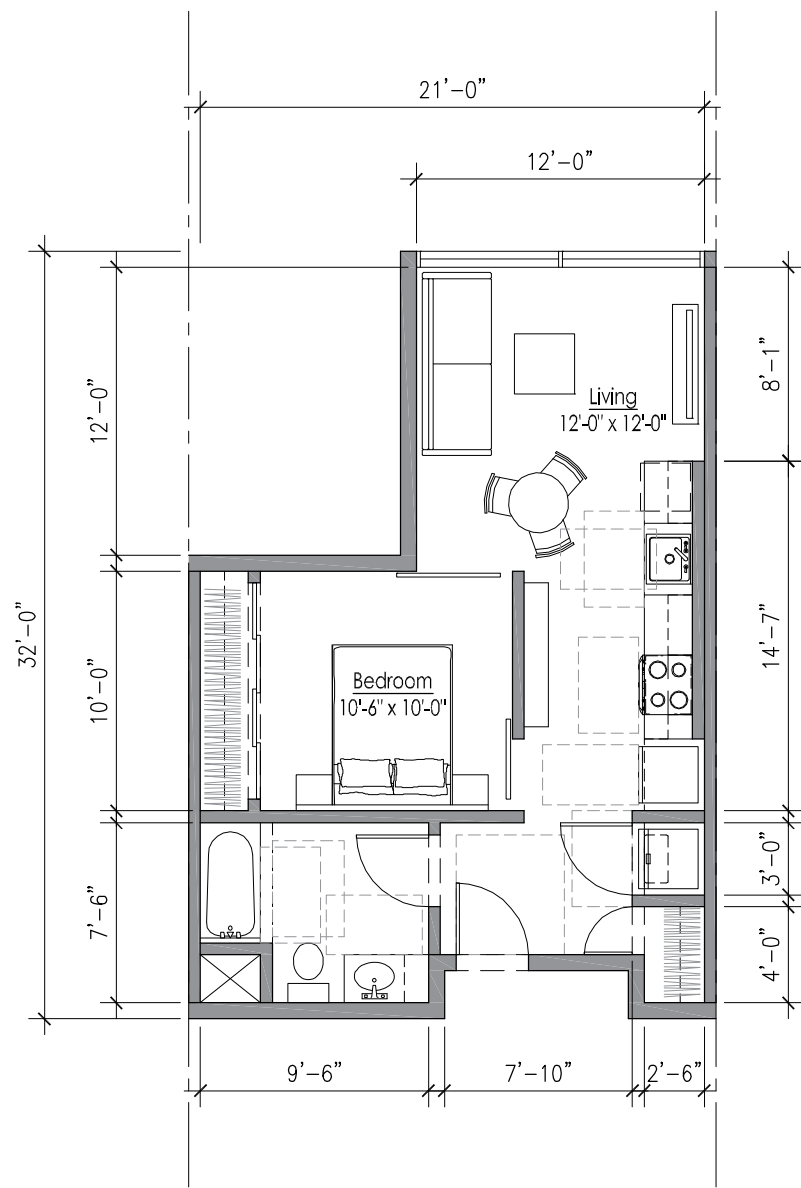
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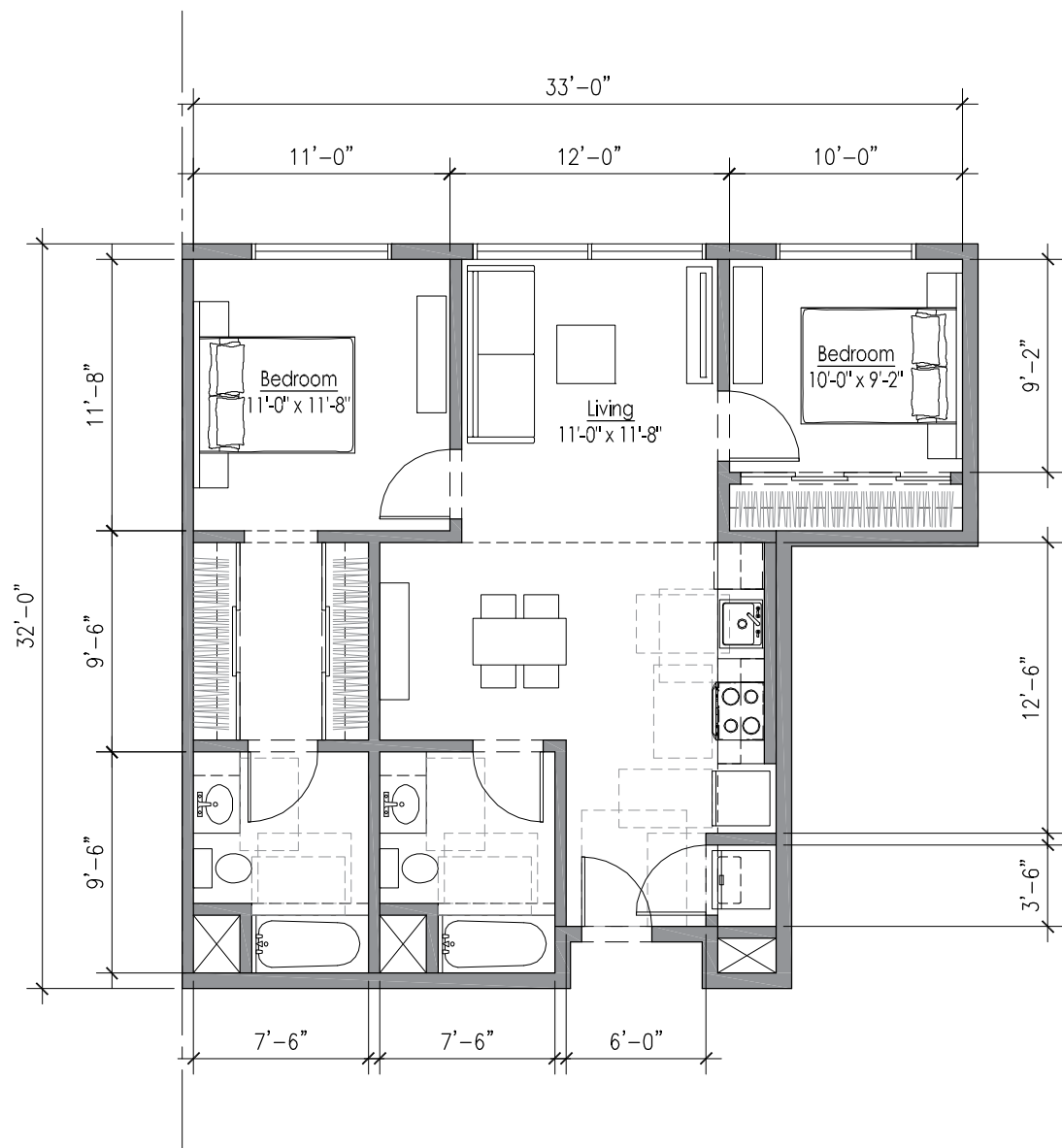
Unit E - Junior One Bed/One Bath





Unit F - Junior One Bed/One Bath





Unit G - Two Bed/Two Bath



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google maps dated 8/29/2012

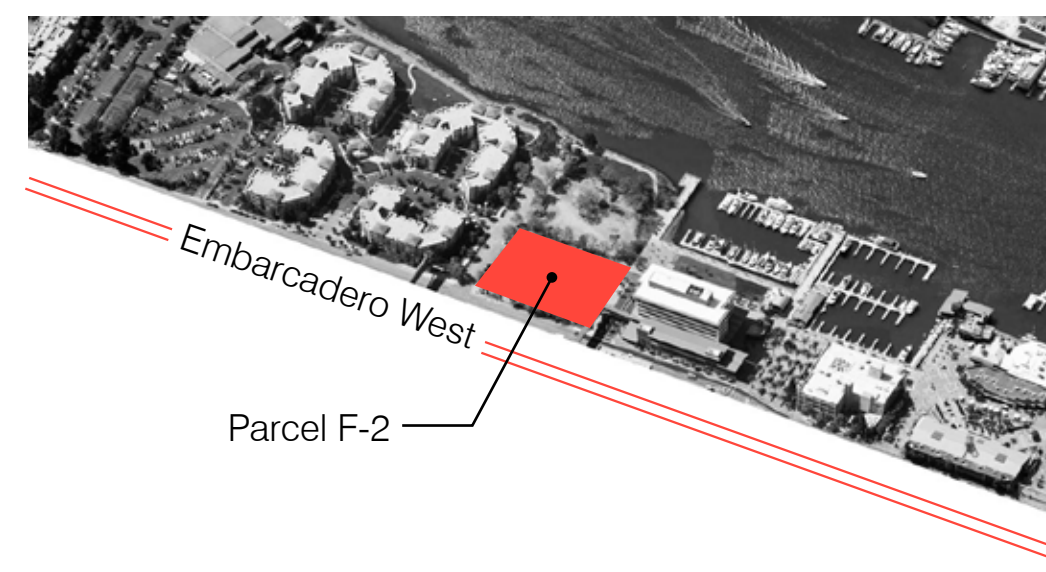
23 over 3
370 Units
Parcel F-2



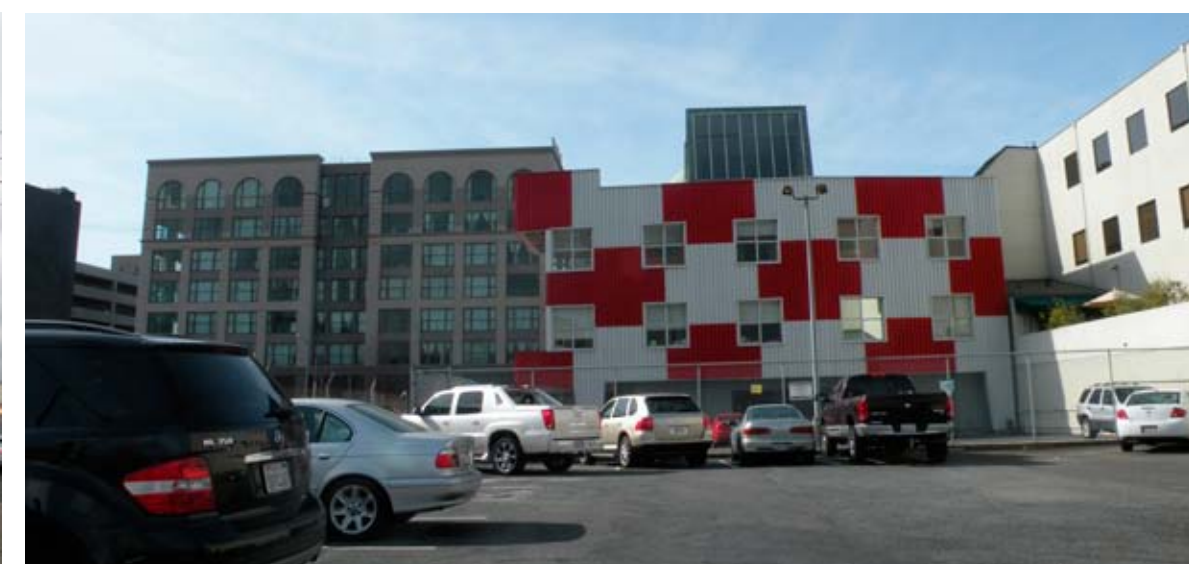
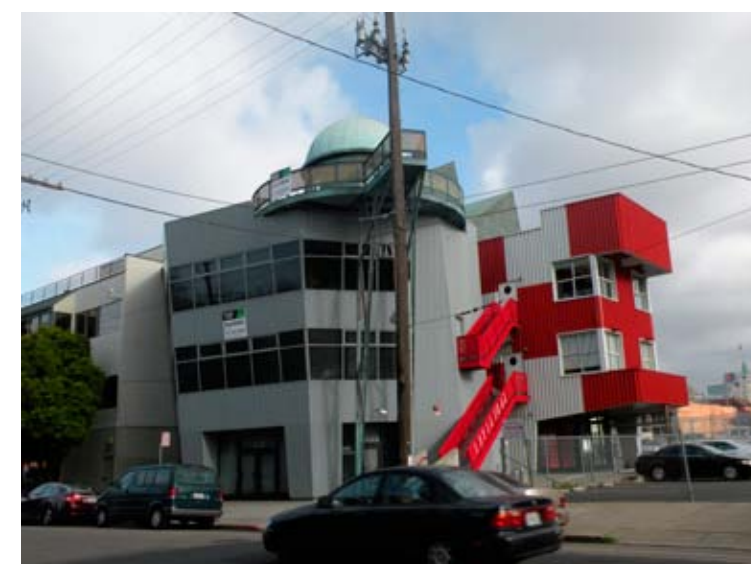
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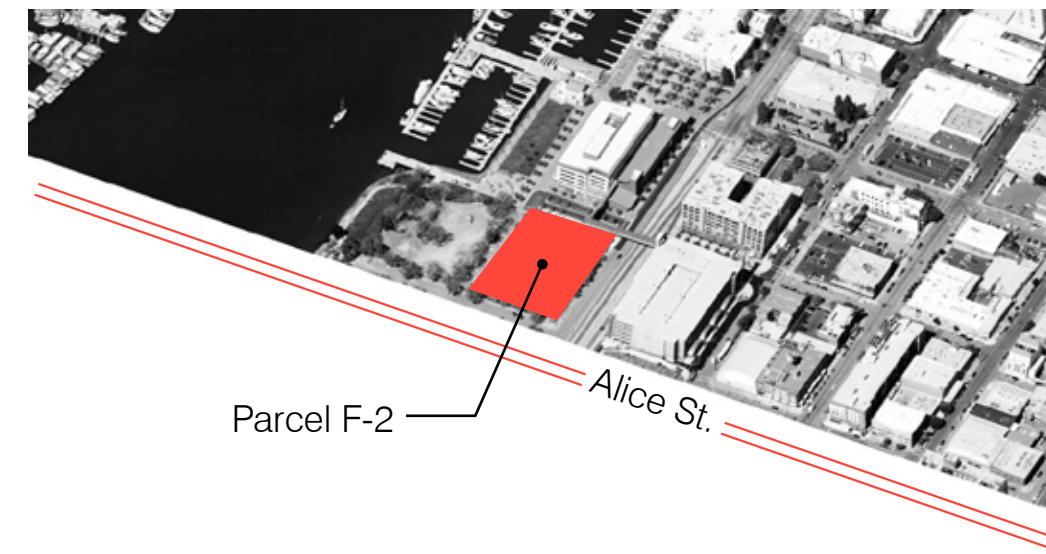
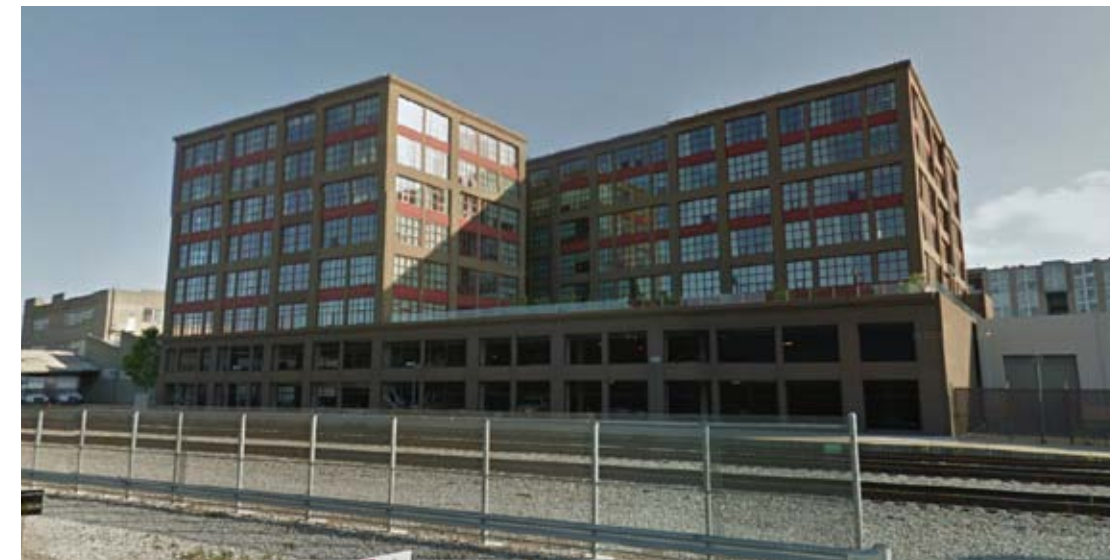
Embarcadero West Panoramic



Harrison Street Panoramic

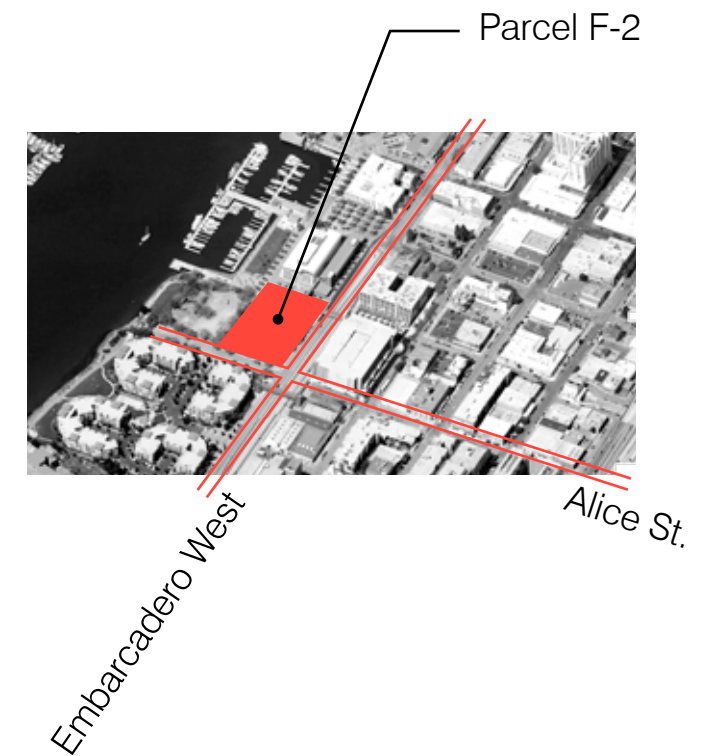


San Francisco Bay Existing Vacant Lot **Parcel F-2** 1st St. Amtrak Existing Building



Parcel F-2 Alice St.

Alice Street Panoramic



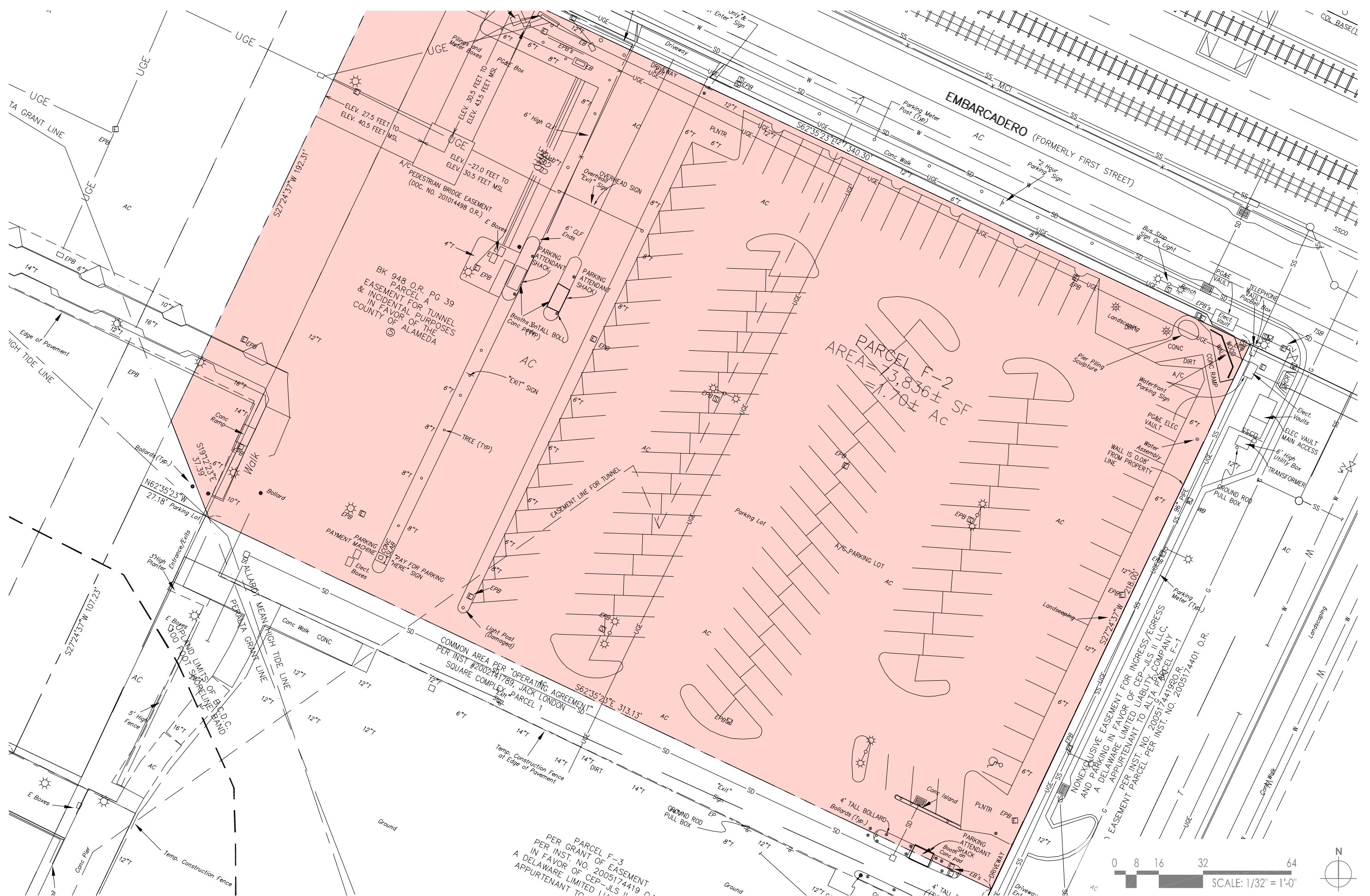
Parcel F-2 Contextual Photos

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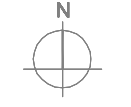
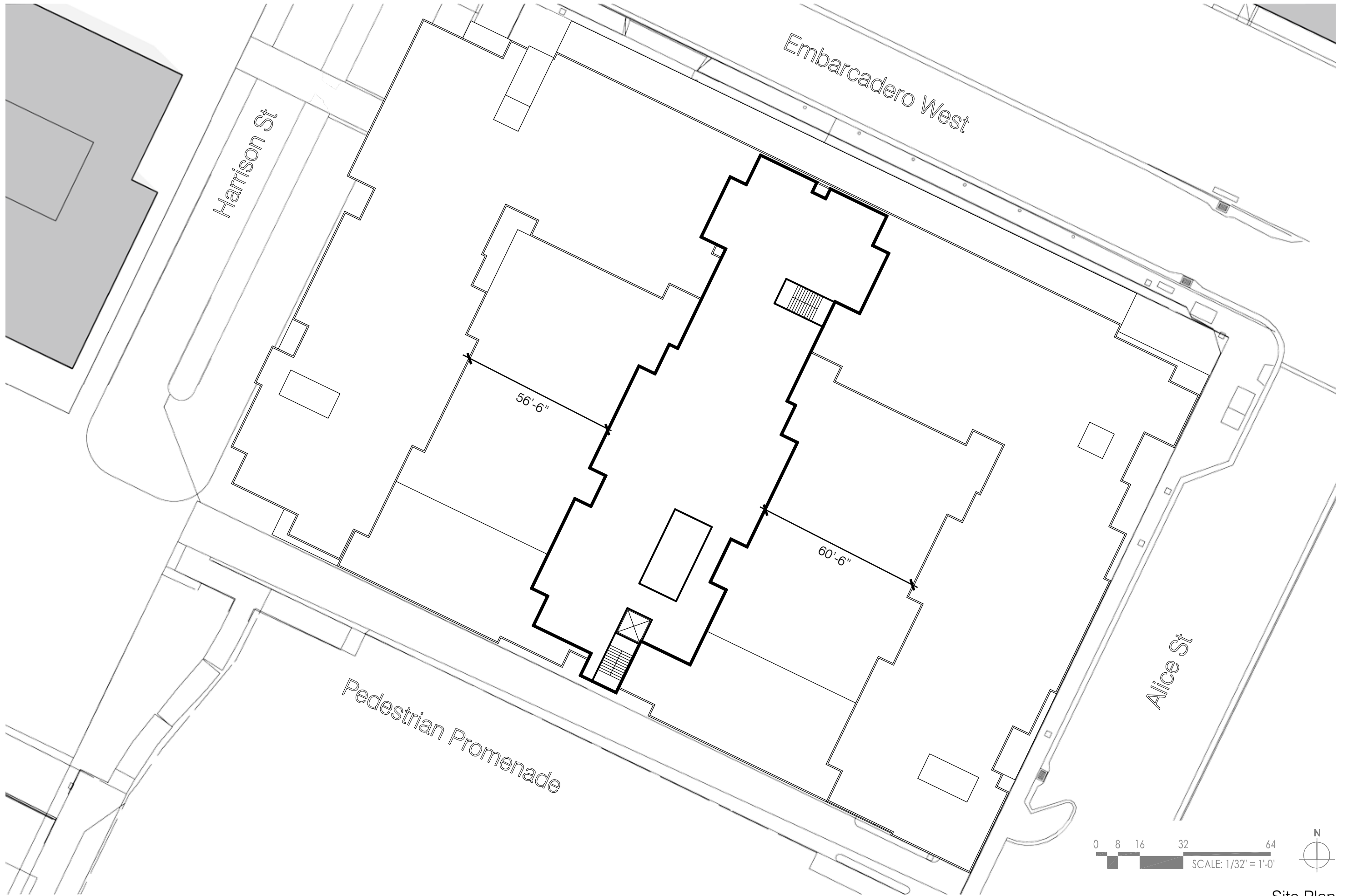
Survey Plan



PER PARCEL F-3
 IN FAVOR OF EASEMENT
 GRANT OF INST. NO. 2005174419
 A DELAWARE LIMITED LIABILITY
 COMPANY TO

NONEXCLUSIVE EASEMENT FOR INGRESS/EGRESS
 AND PARKING IN FAVOR OF CEP-JLS II LLC,
 APPLICABLE LIMITED LIABILITY COMPANY
 APPLICANT TO ALTA SURVEY COMPANY
 PER INST. NO. 2005174419 O.R.
 PARCEL F-1
 EASEMENT PER INST. NO. 2005174401 O.R.

COMMON AREA PER "OPERATING AGREEMENT"
 PER INST. #200241789, JACK LONDON
 SQUARE COMPLEX, PARCEL 1



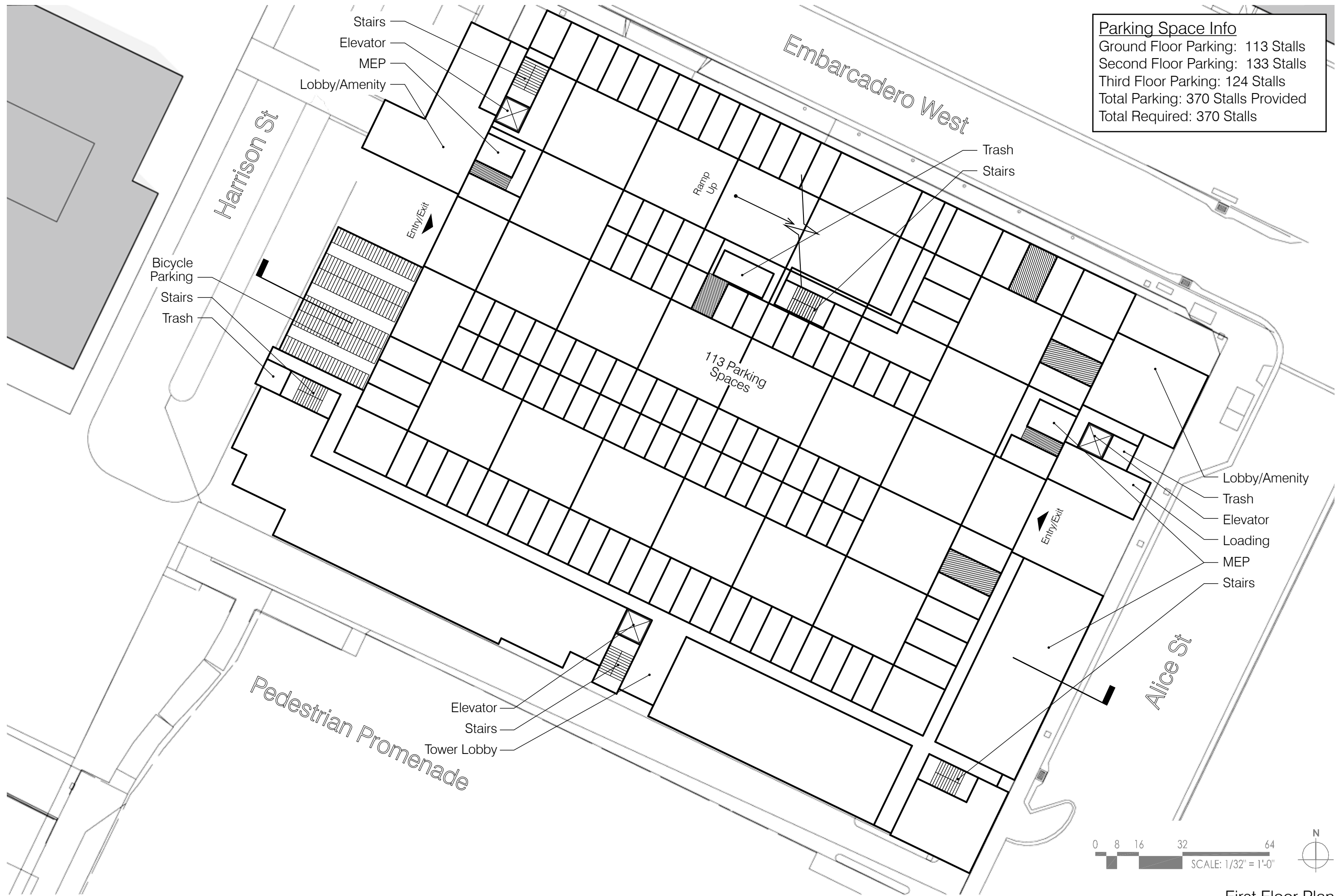
Site Plan

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PARCEL F-2

JACK LONDON SQUARE OAKLAND, CALIFORNIA

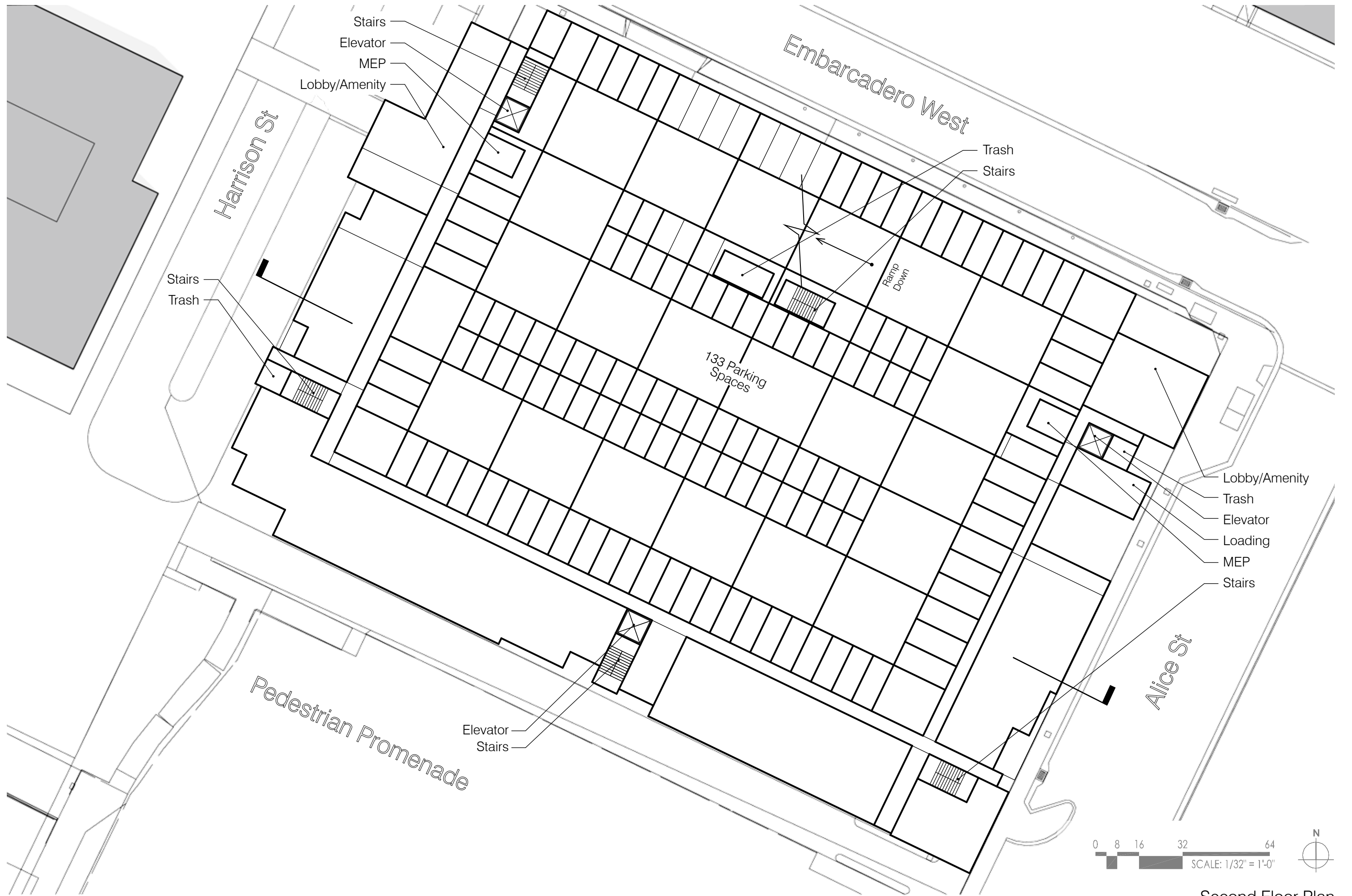




Parking Space Info
 Ground Floor Parking: 113 Stalls
 Second Floor Parking: 133 Stalls
 Third Floor Parking: 124 Stalls
 Total Parking: 370 Stalls Provided
 Total Required: 370 Stalls



First Floor Plan



Stairs
Elevator
MEP
Lobby/Amenity

Stairs
Trash

Trash
Stairs

Ramp
Down

133 Parking
Spaces

Lobby/Amenity
Trash
Elevator
Loading
MEP
Stairs

Elevator
Stairs

Harrison St

Embarcadero West

Alice St

Pedestrian Promenade

0 8 16 32 64
SCALE: 1/32" = 1'-0"



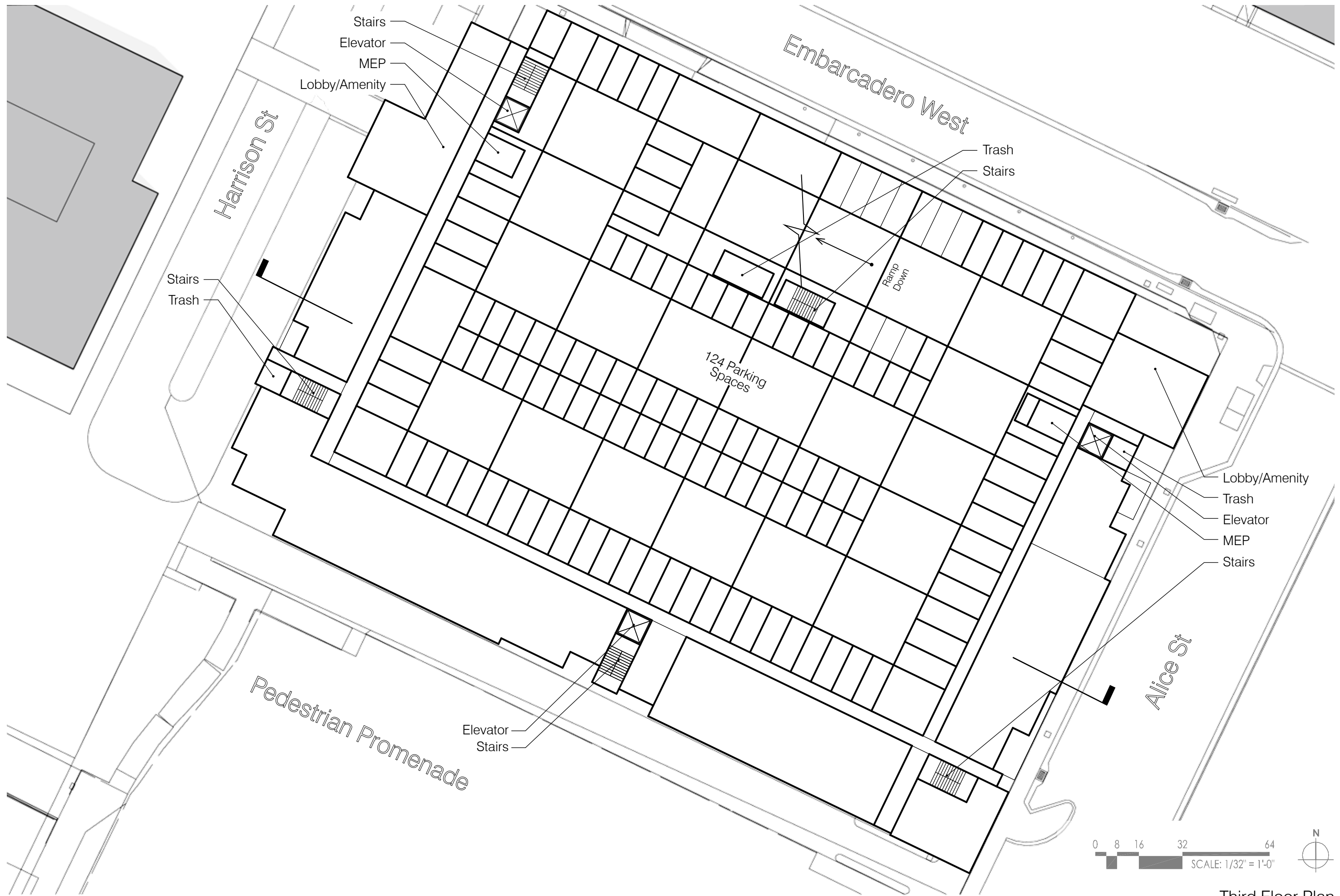
Second Floor Plan

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PARCEL F-2

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OAKLAND, CALIFORNIA





Stairs
Elevator
MEP
Lobby/Amenity

Stairs
Trash

Trash
Stairs

Lobby/Amenity
Trash
Elevator
MEP
Stairs

Elevator
Stairs

124 Parking Spaces

Ramp Down

Harrison St

Embarcadero West

Alice St

Pedestrian Promenade

0 8 16 32 64
SCALE: 1/32" = 1'-0"



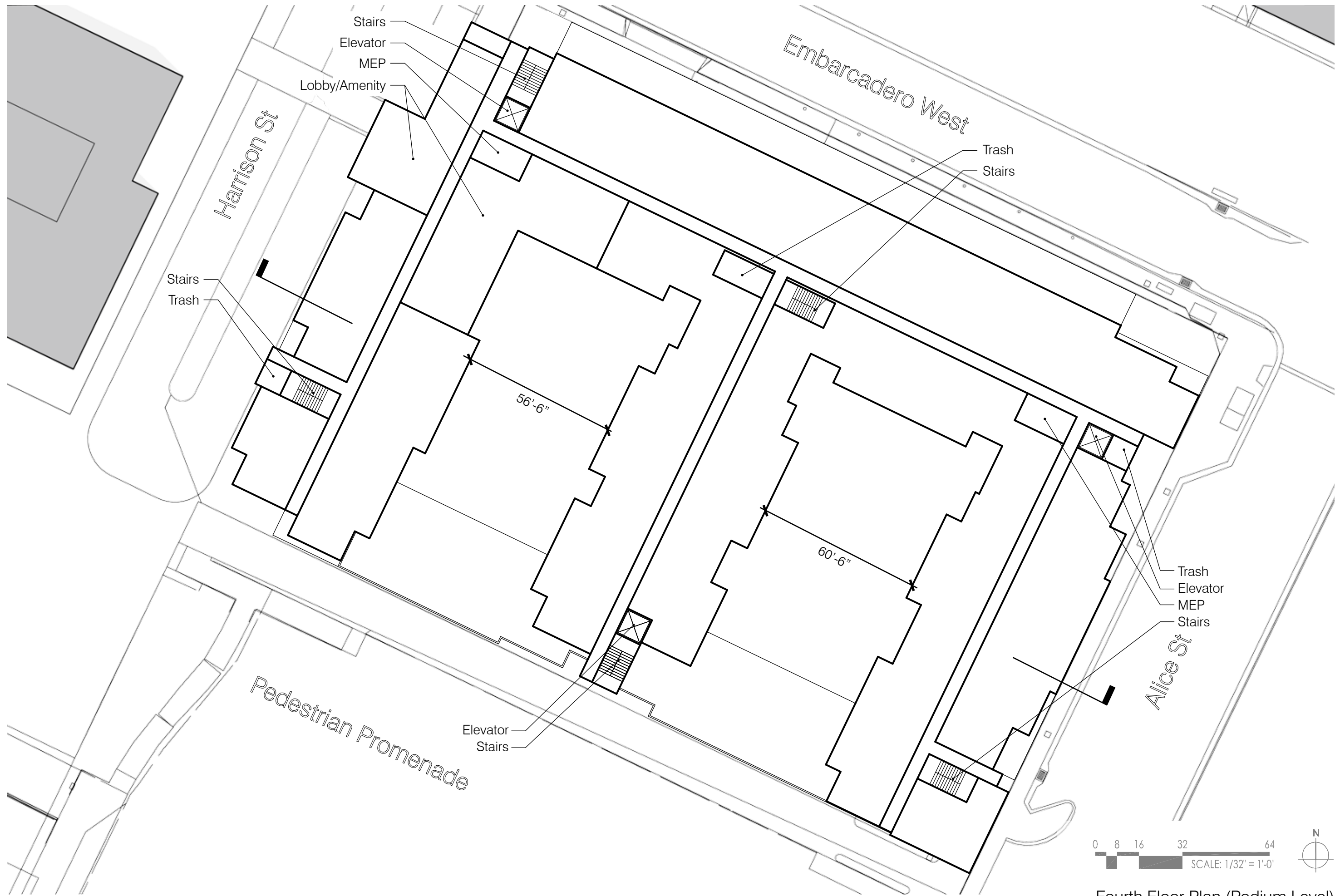
Third Floor Plan

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PARCEL F-2

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Stairs
Elevator
MEP
Lobby/Amenity

Stairs
Trash

Trash
Stairs

Trash
Elevator
MEP
Stairs

Elevator
Stairs

Harrison St

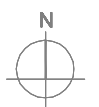
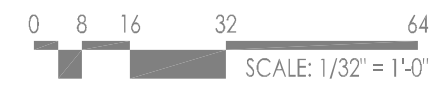
Embarcadero West

Pedestrian Promenade

Alice St

56'-6"

60'-6"



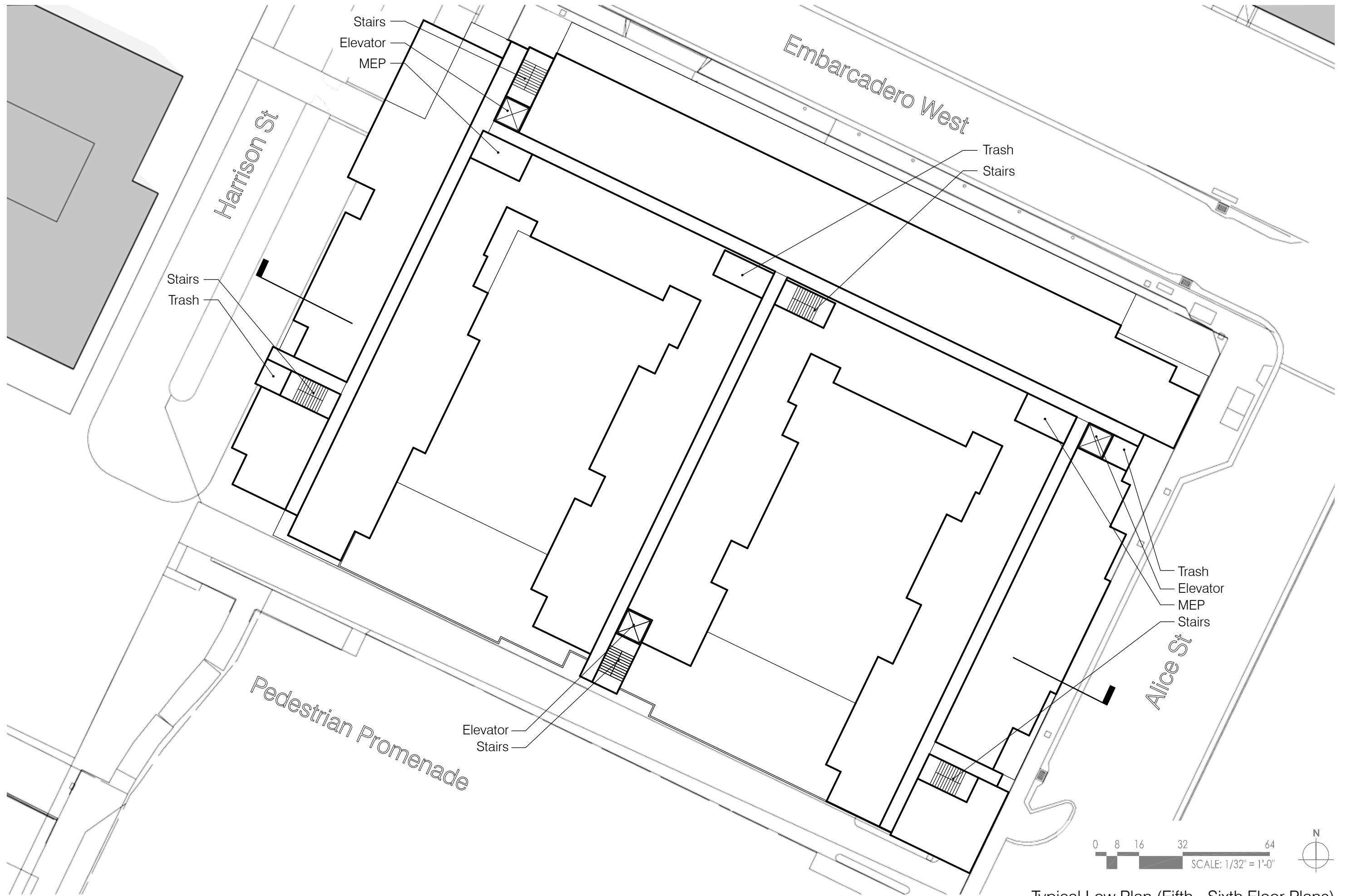
Fourth Floor Plan (Podium Level)

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Harrison St

Embarcadero West

Alice St

Pedestrian Promenade

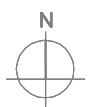
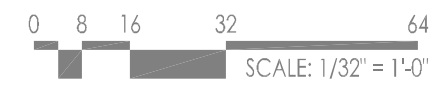
Stairs
Elevator
MEP

Stairs
Trash

Trash
Stairs

Trash
Elevator
MEP
Stairs

Elevator
Stairs



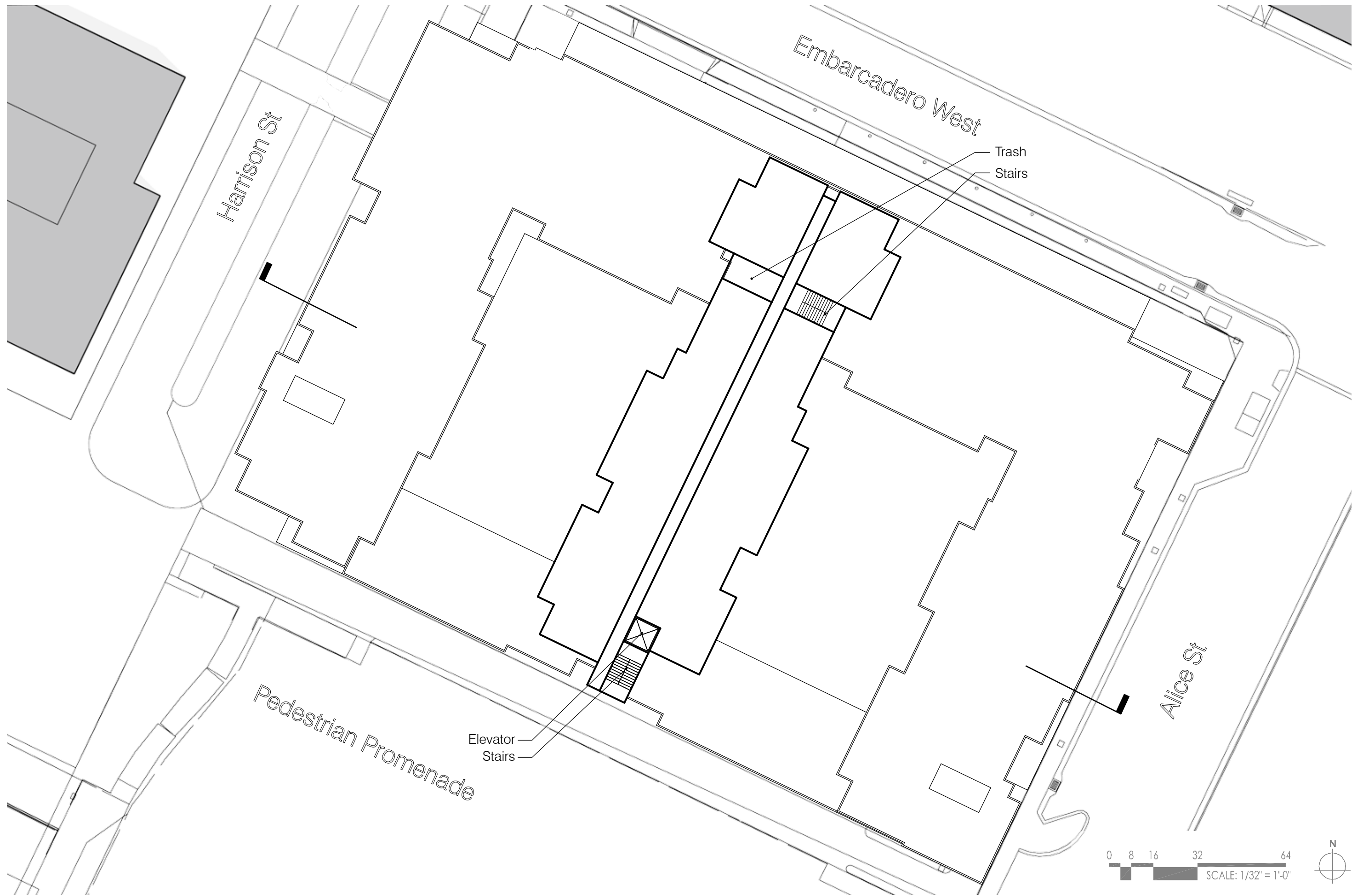
Typical Low Plan (Fifth - Sixth Floor Plans)

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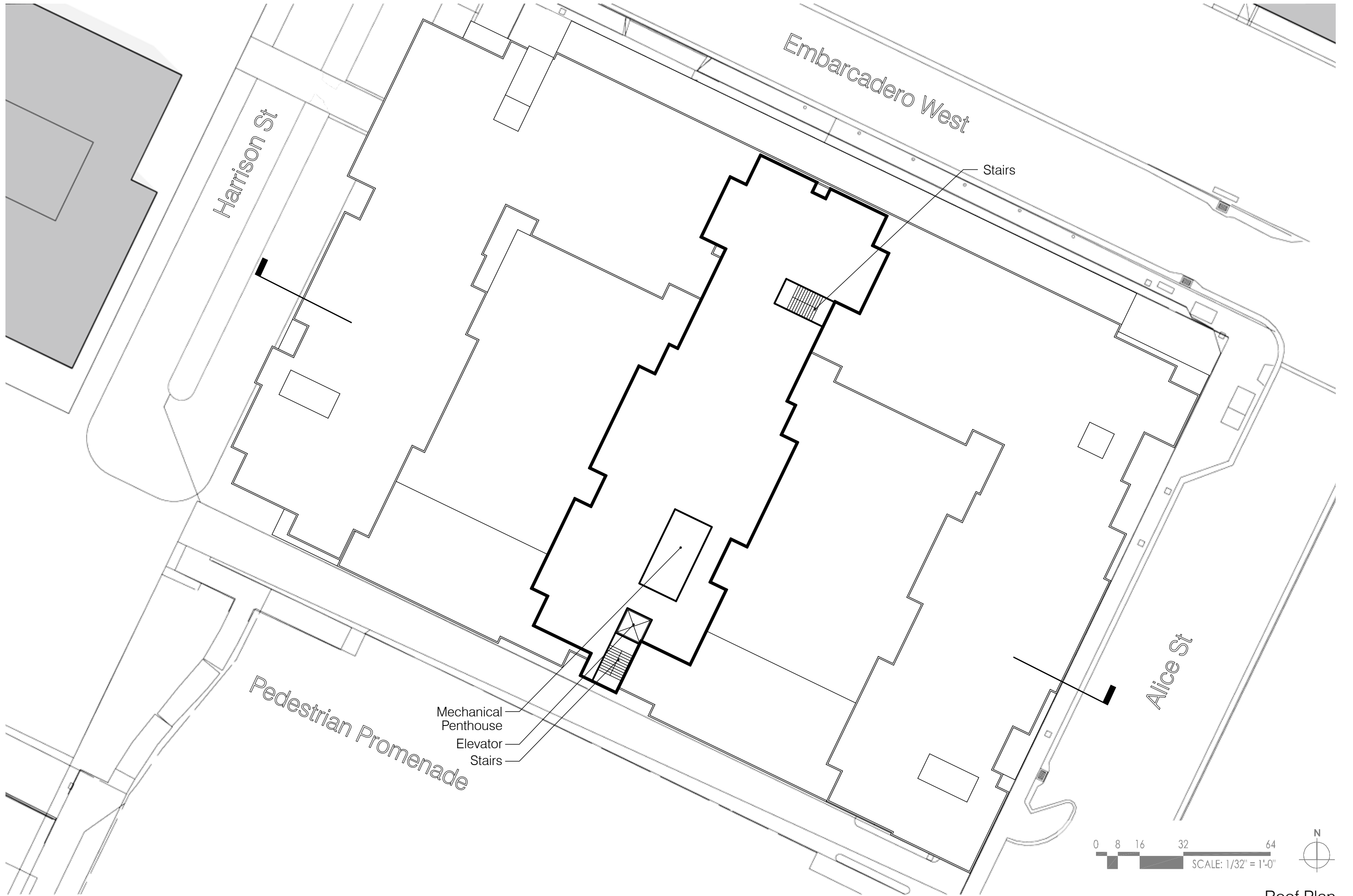
Typical Tower Plan (Seventh - Twenty Sixth Floor Plans)

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Harrison St

Embarcadero West

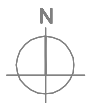
Stairs

Pedestrian Promenade

Mechanical
Penthouse
Elevator
Stairs

Alice St

0 8 16 32 64
SCALE: 1/32" = 1'-0"



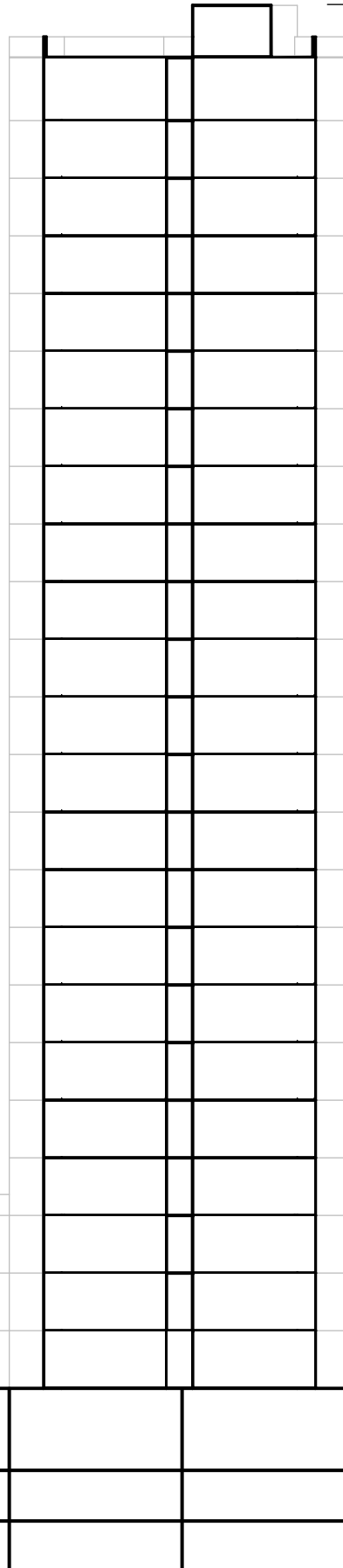
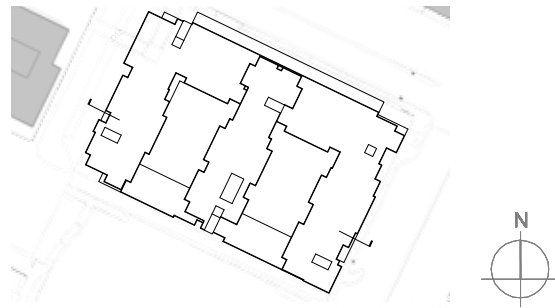
Roof Plan

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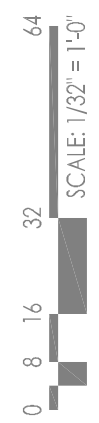
Top of Stair Tower +10' - 0"
Top of Parapet +4' - 0"
Top of Roof +289' - 0"
1 Story at 12' - 0"

22 Stories at 11' - 0"

Garage Height +35' - 0"

1 Story at 15' - 8"

2 Stories at 9' - 8"



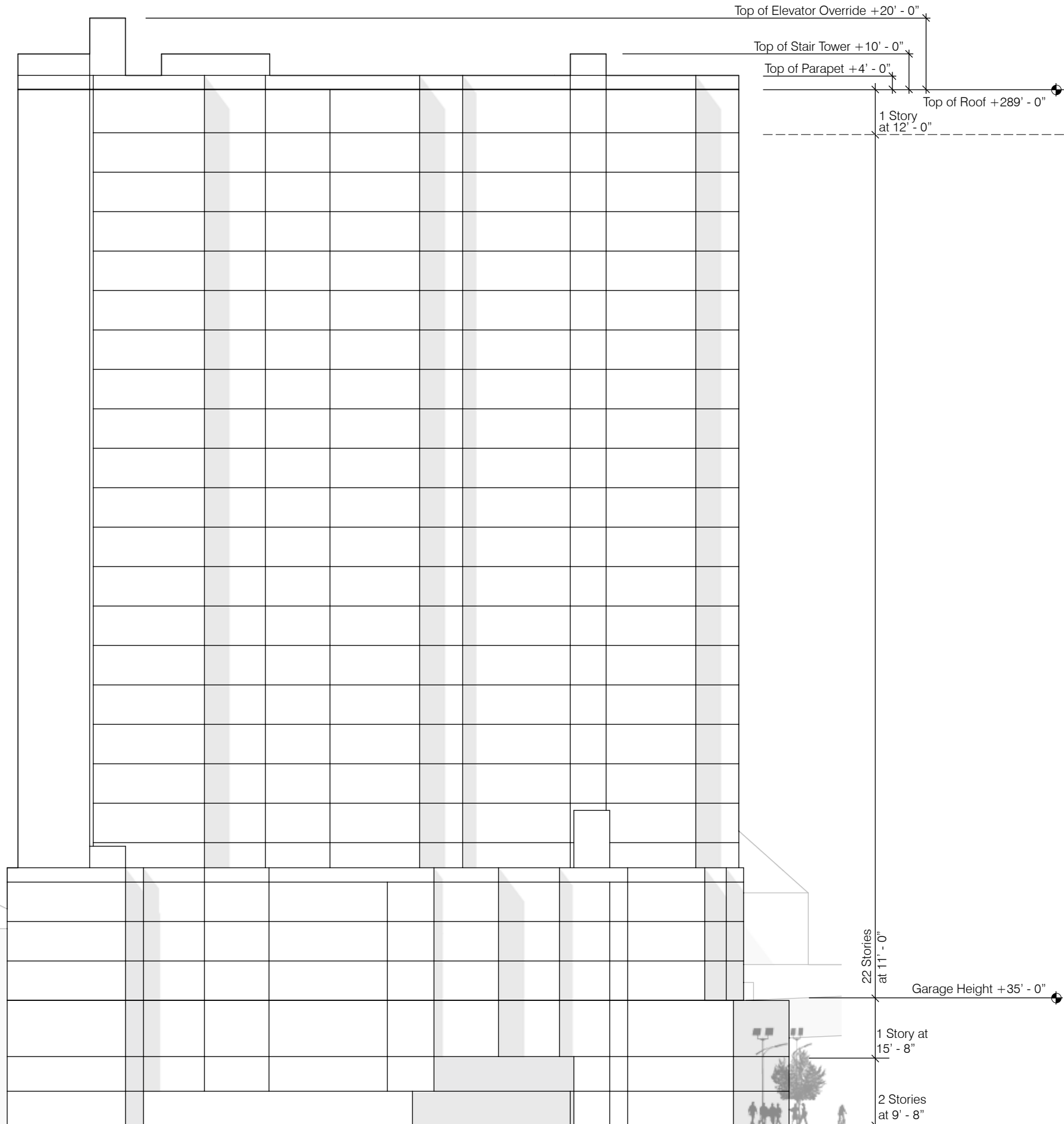
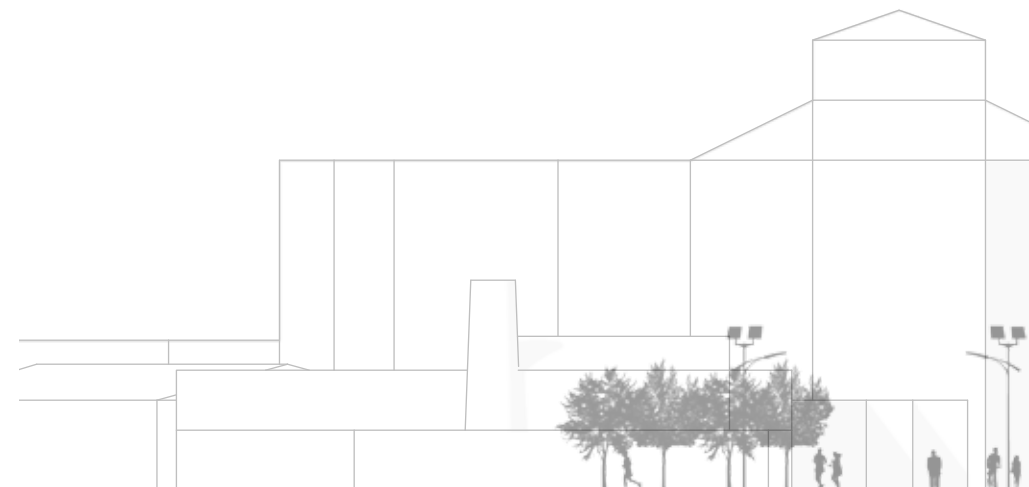
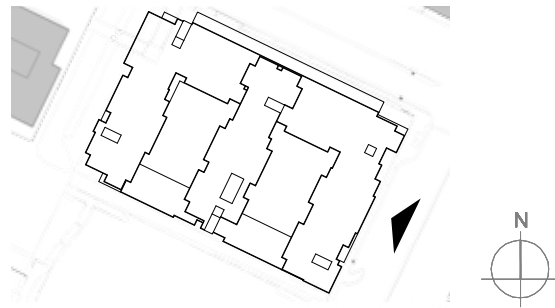
Section



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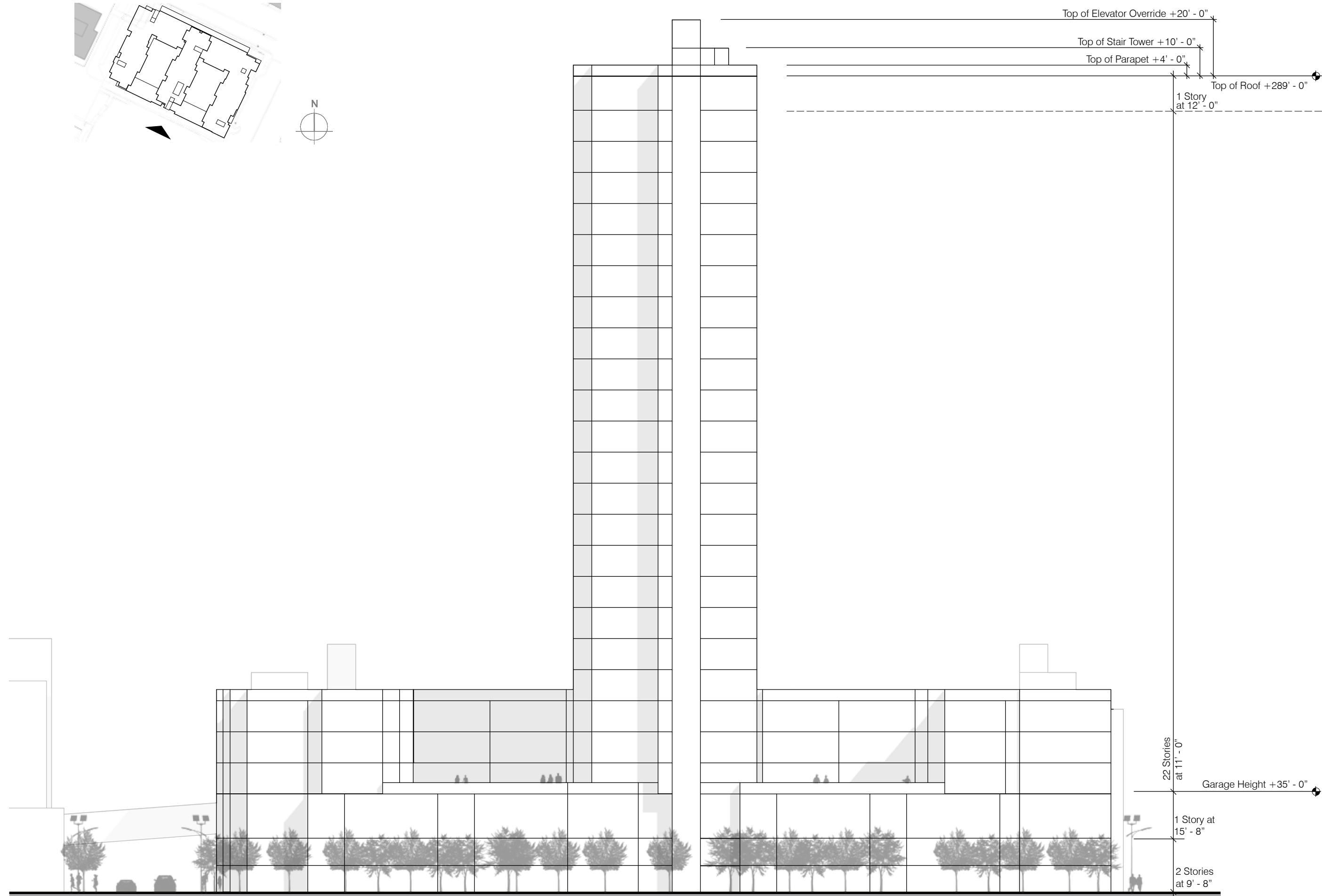
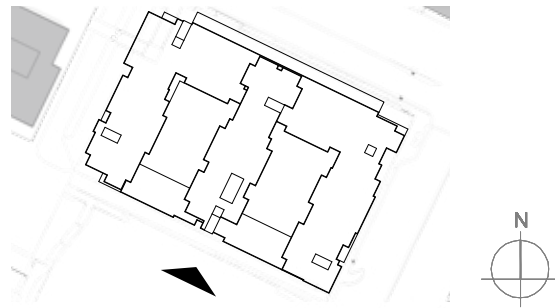
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East Elevation





Top of Elevator Override +20' - 0"

Top of Stair Tower +10' - 0"

Top of Parapet +4' - 0"

Top of Roof +289' - 0"

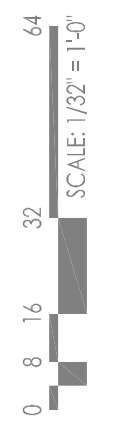
1 Story at 12' - 0"

22 Stories at 11' - 0"

Garage Height +35' - 0"

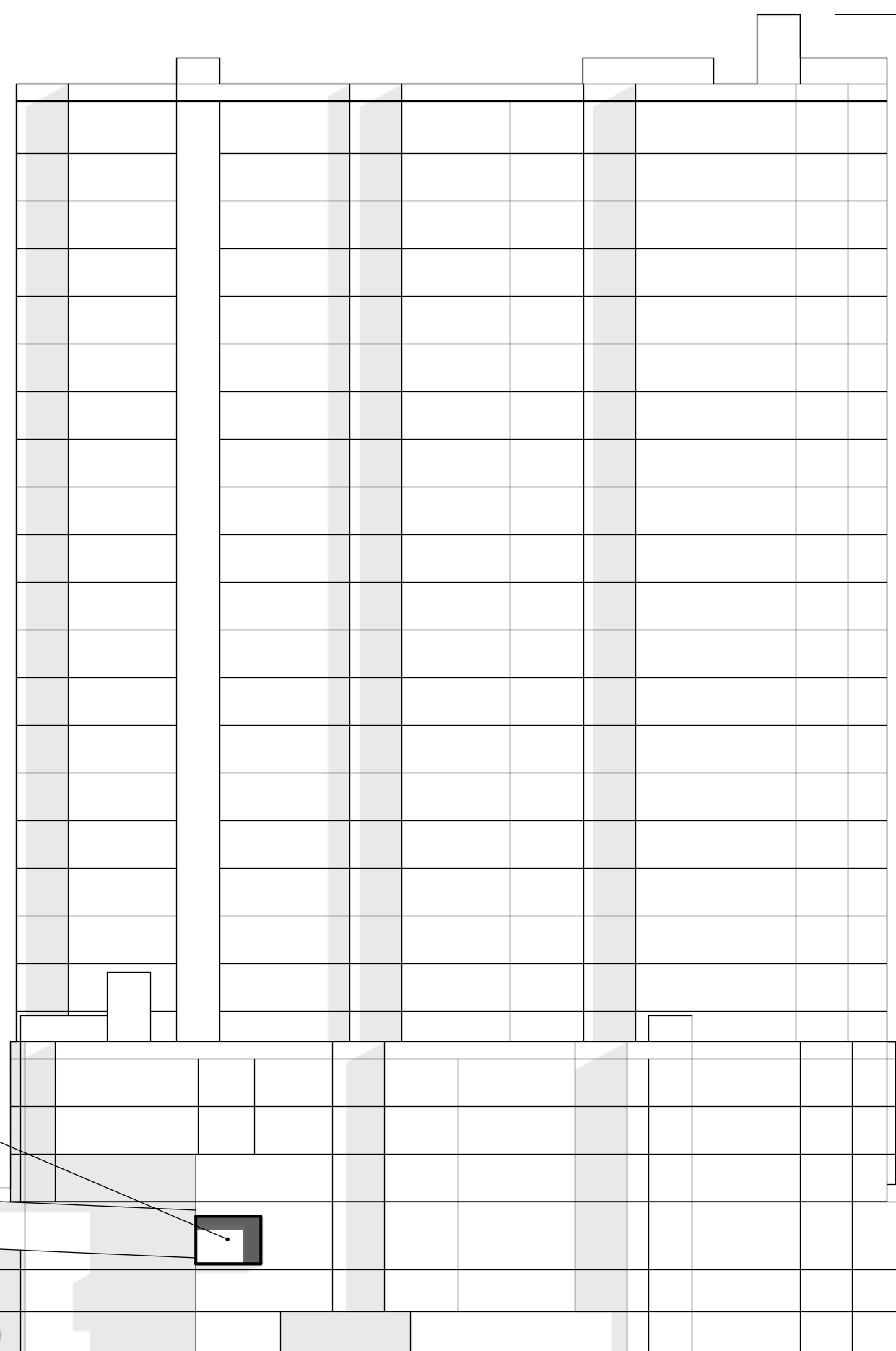
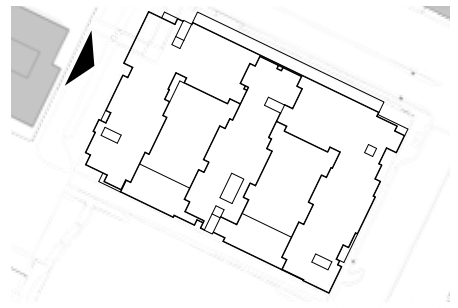
1 Story at 15' - 8"

2 Stories at 9' - 8"



South Elevation





Top of Elevator Override +20' - 0"
 Top of Stair Tower +10' - 0"
 Top of Parapet +4' - 0"
 Top of Roof +289' - 0"
 1 Story at 12' - 0"

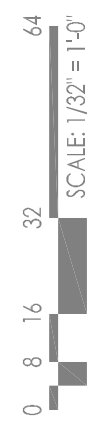
Pedestrian Bridge

22 Stories at 11' - 0"

Garage Height +35' - 0"

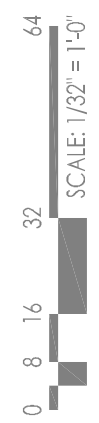
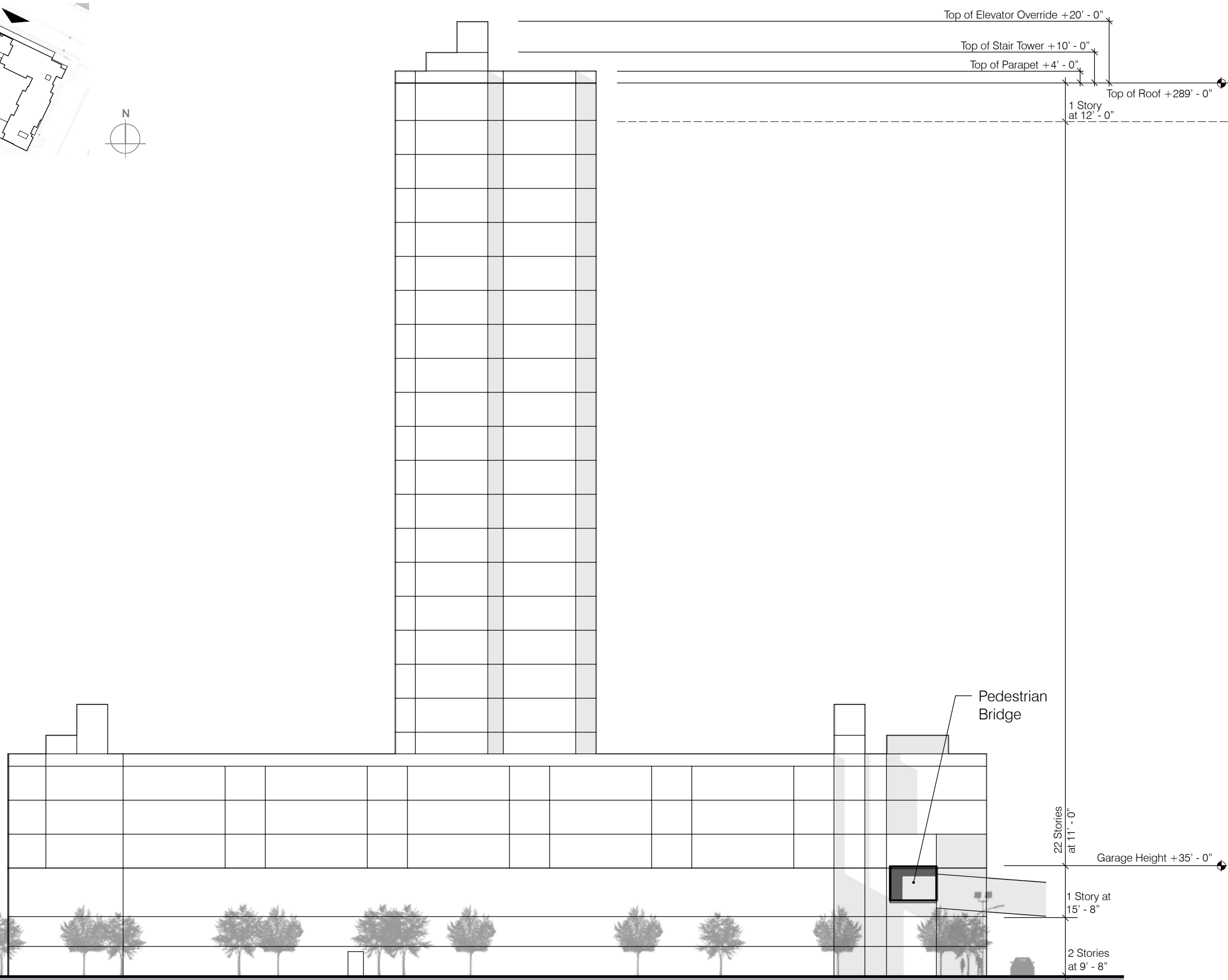
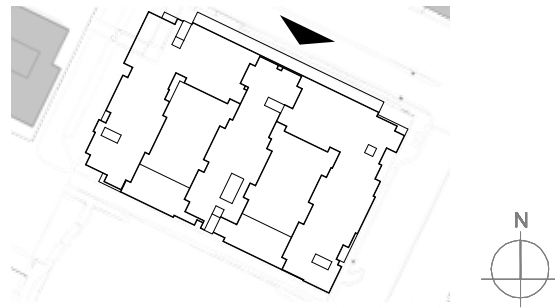
1 Story at 15' - 8"

2 Stories at 9' - 8"



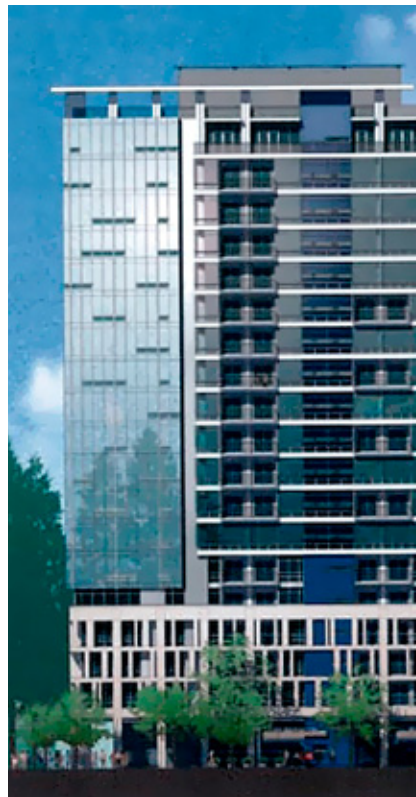
West Elevation



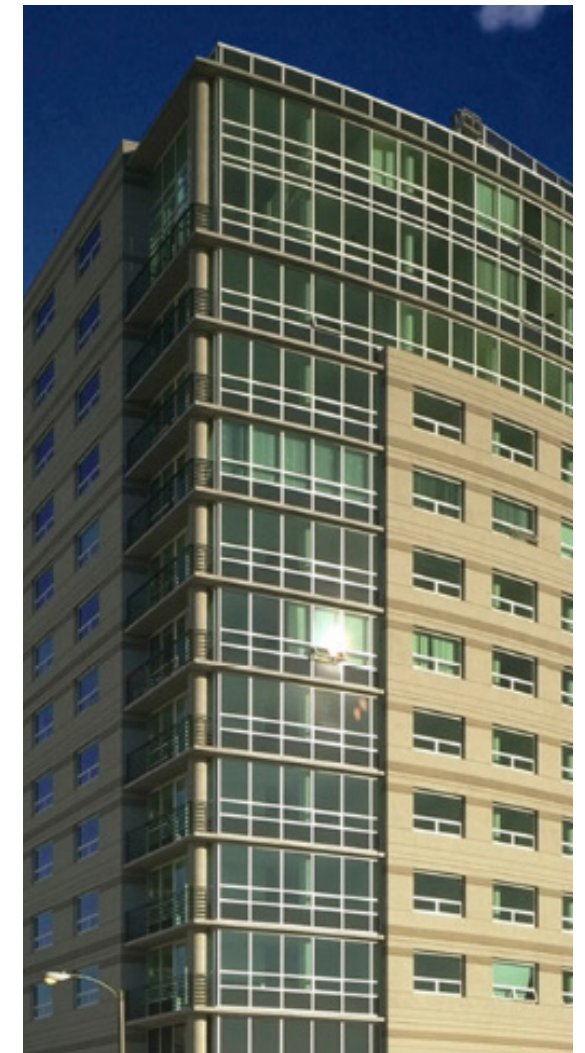
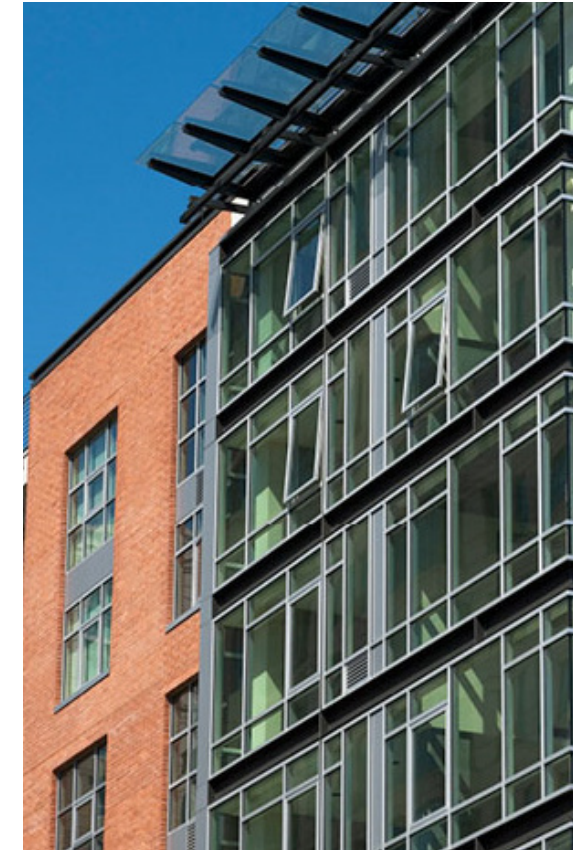
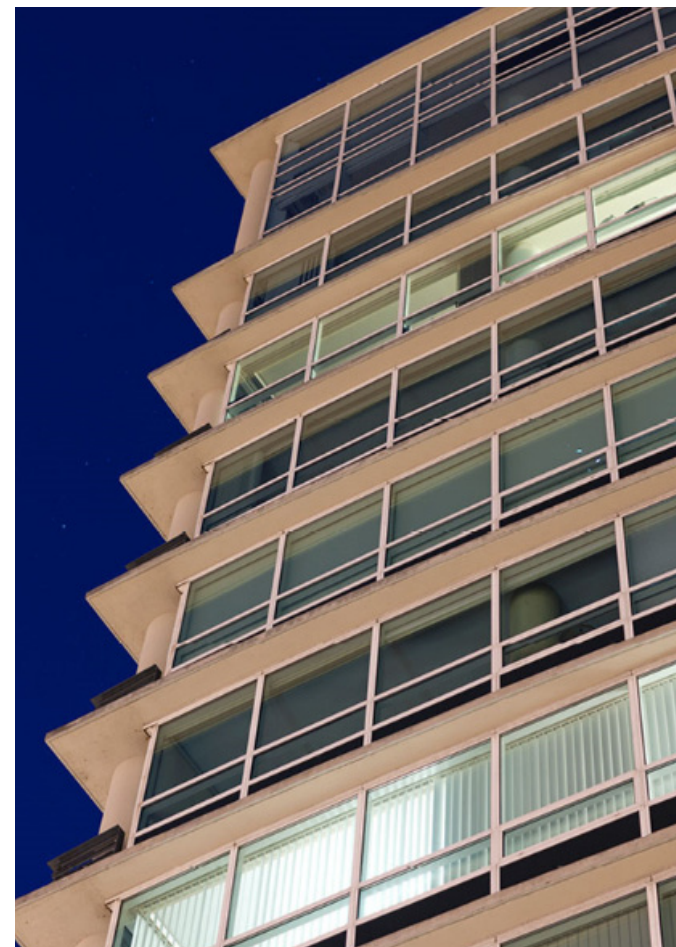
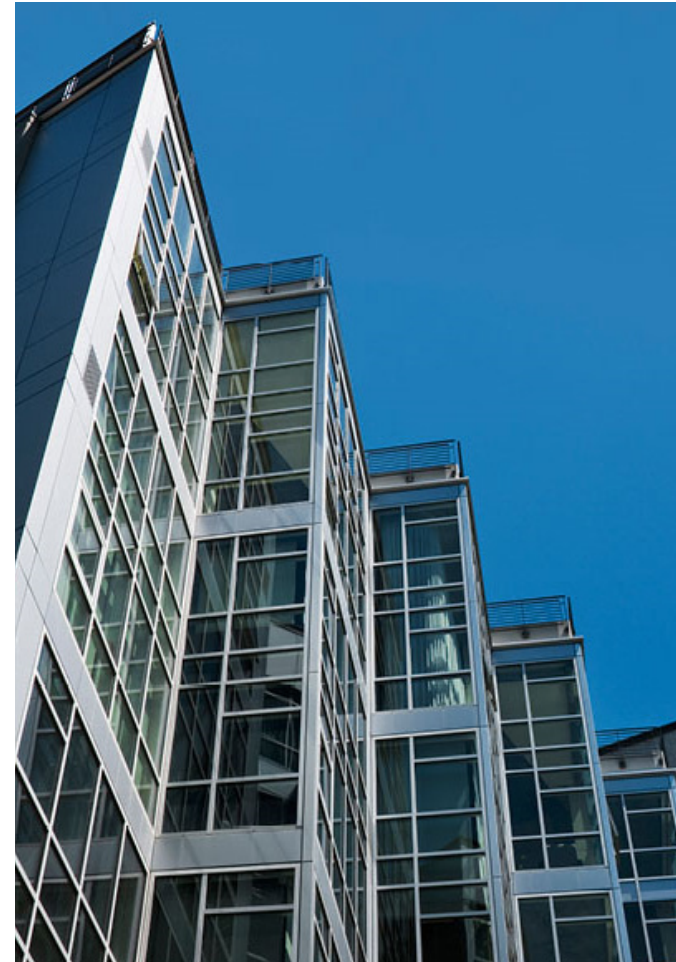
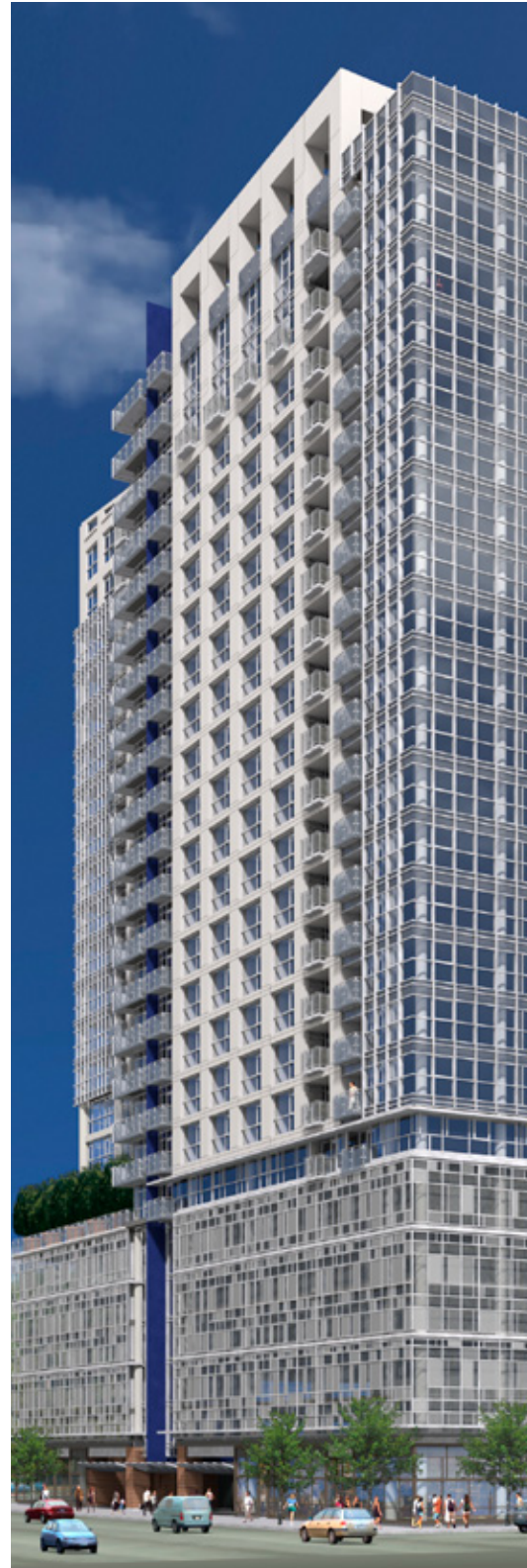


North Elevation





Colors, Finishes and Materials to be selected during FDP Phase



Exterior Design Study





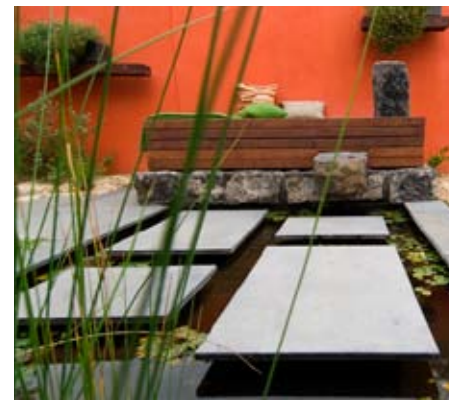
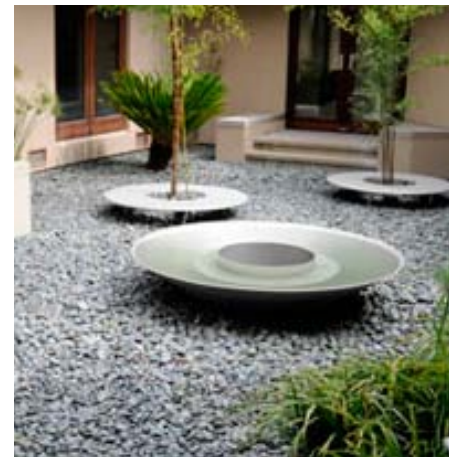
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Existing Landscape and Lighting



Amenity, Landscape and Lighting Study

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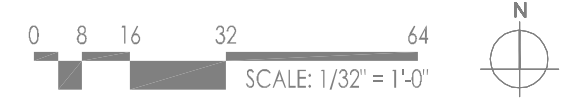
PARCEL F-2

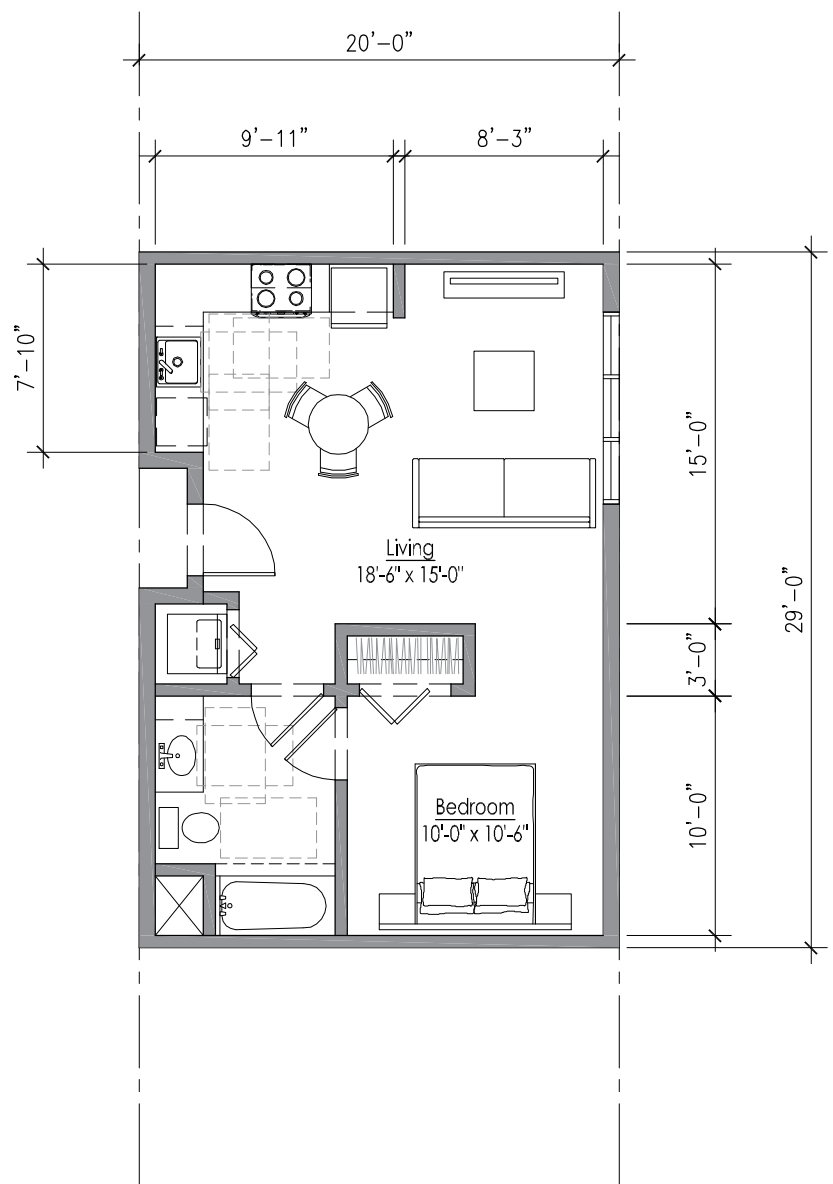
JACK LONDON SQUARE
OAKLAND, CALIFORNIA





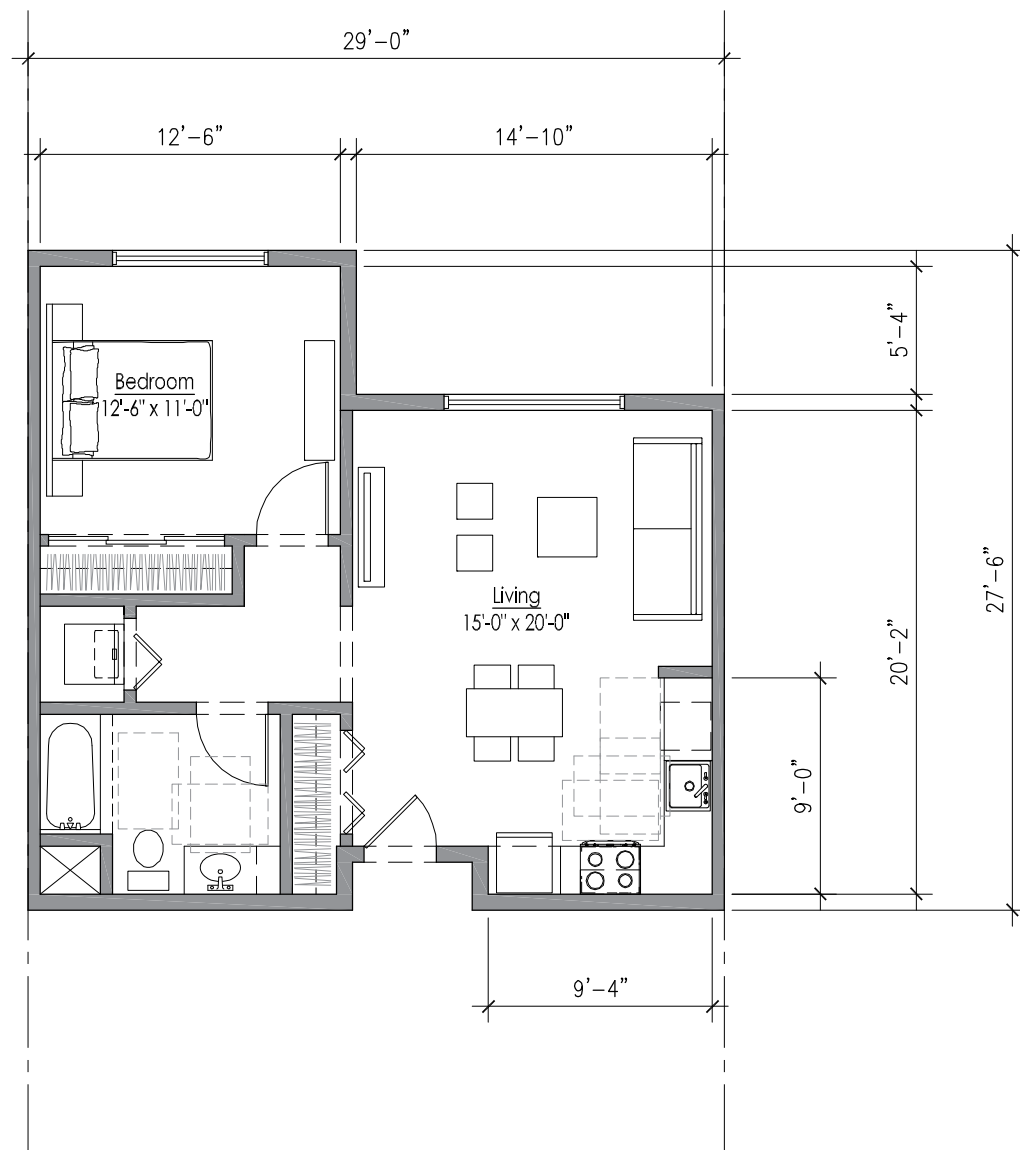
Open Space Calculations
 Required Group Open Space: 55,500 sf
 Provided Podium Courtyard Space: 17,460 sf
 Provided Private Podium Space: 2,910 sf
 Provided Private Balcony Space: 15,000 sf
 Provided At Grade Open Space: 2,245 sf
 Total Space Provided: 17,460 + (2,910 x 2) + (15,000 x 2) + 2,245 = 55,525 sf Total Open Space





Unit A - Junior One Bed/One Bath





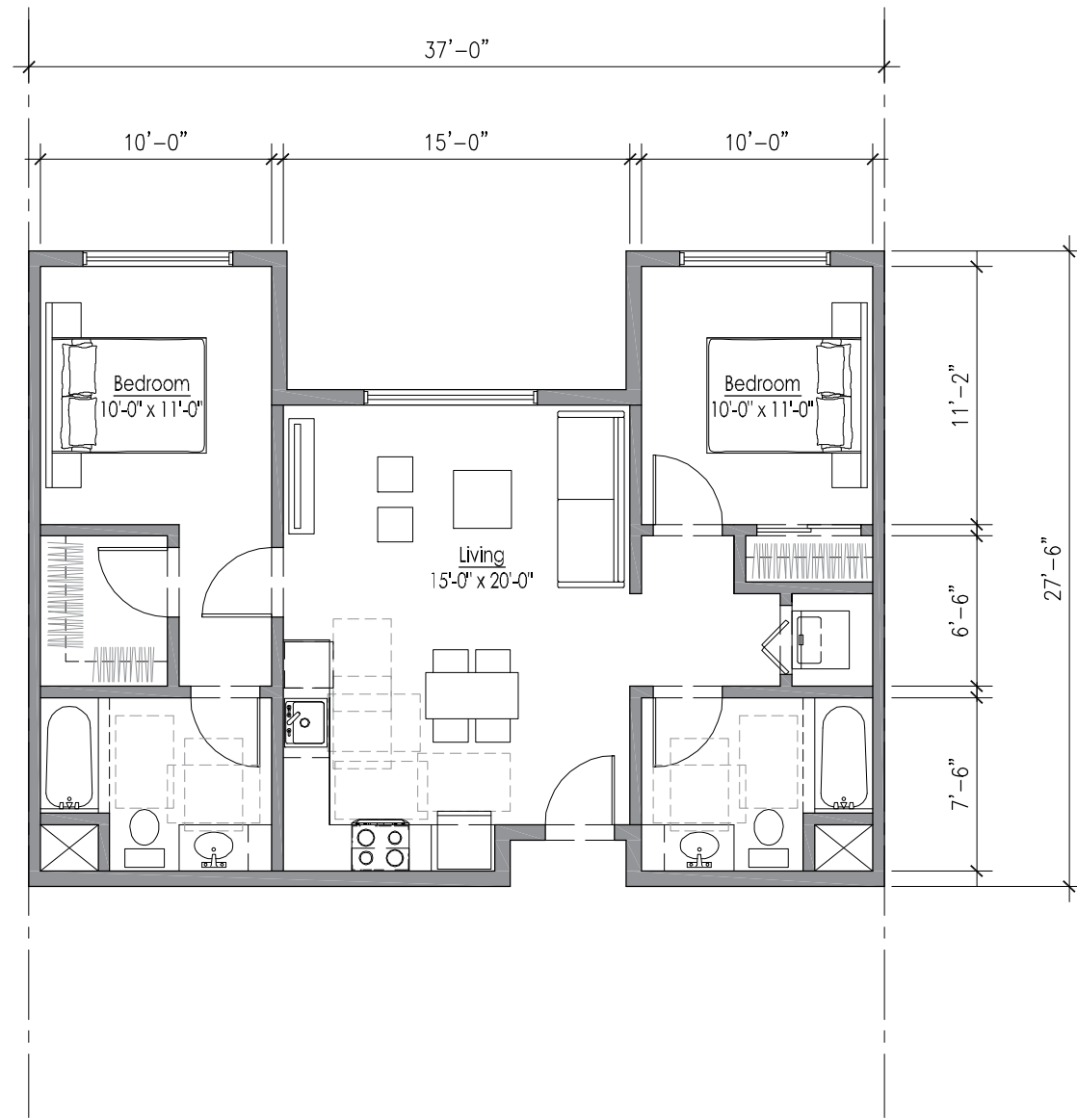
Unit B - One Bed/One Bath



JACK LONDON SQUARE
OAKLAND, CALIFORNIA

PARCEL F-2

21 MAY 2013
PROJECT NO: 47841
2470 MARINER SQUARE LOOP
ALAMEDA, CA 94501
T 510.865.8663 F 510.865.1611
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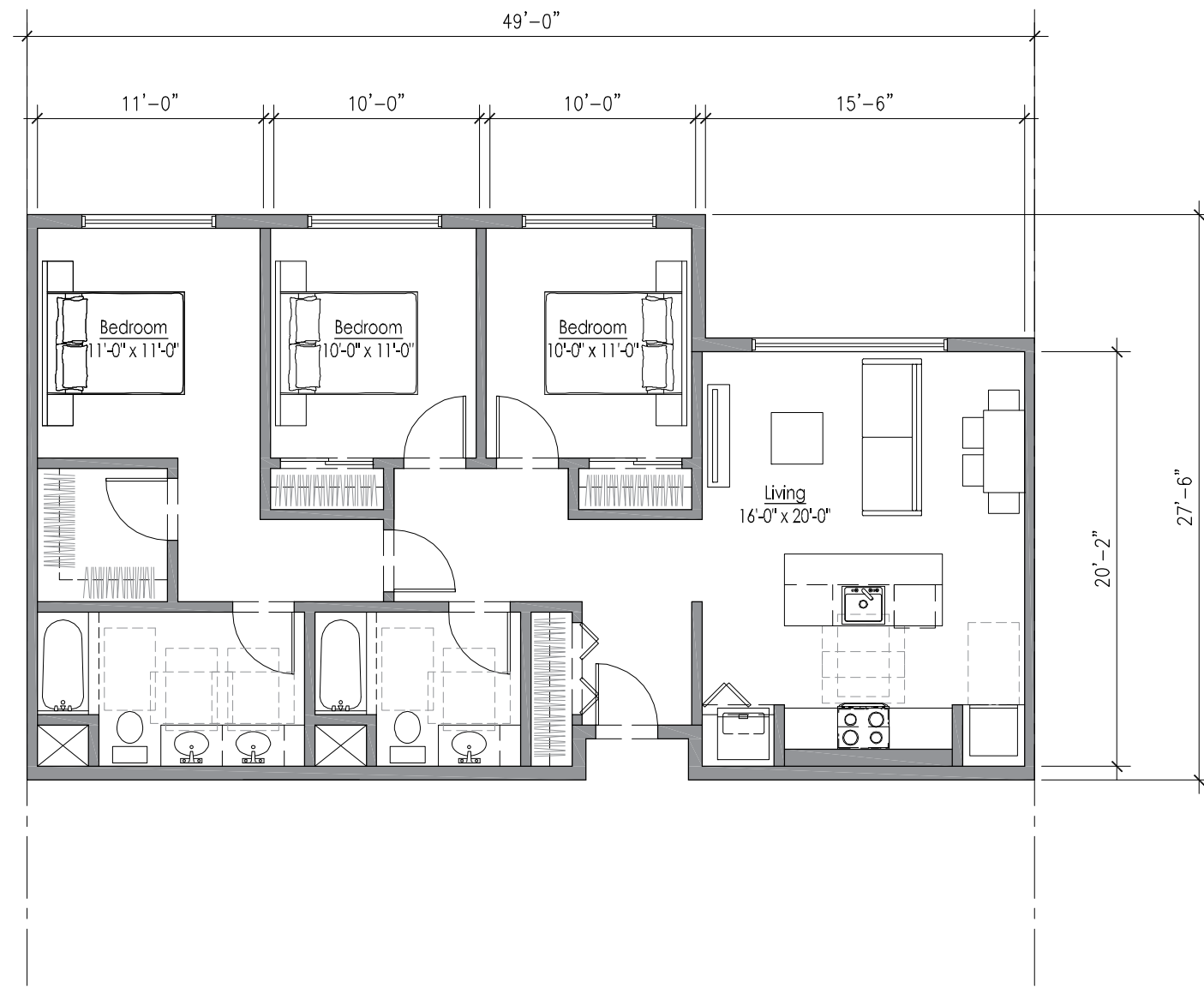
Unit C - Two Bed/Two Bath



JACK LONDON SQUARE
OAKLAND, CALIFORNIA

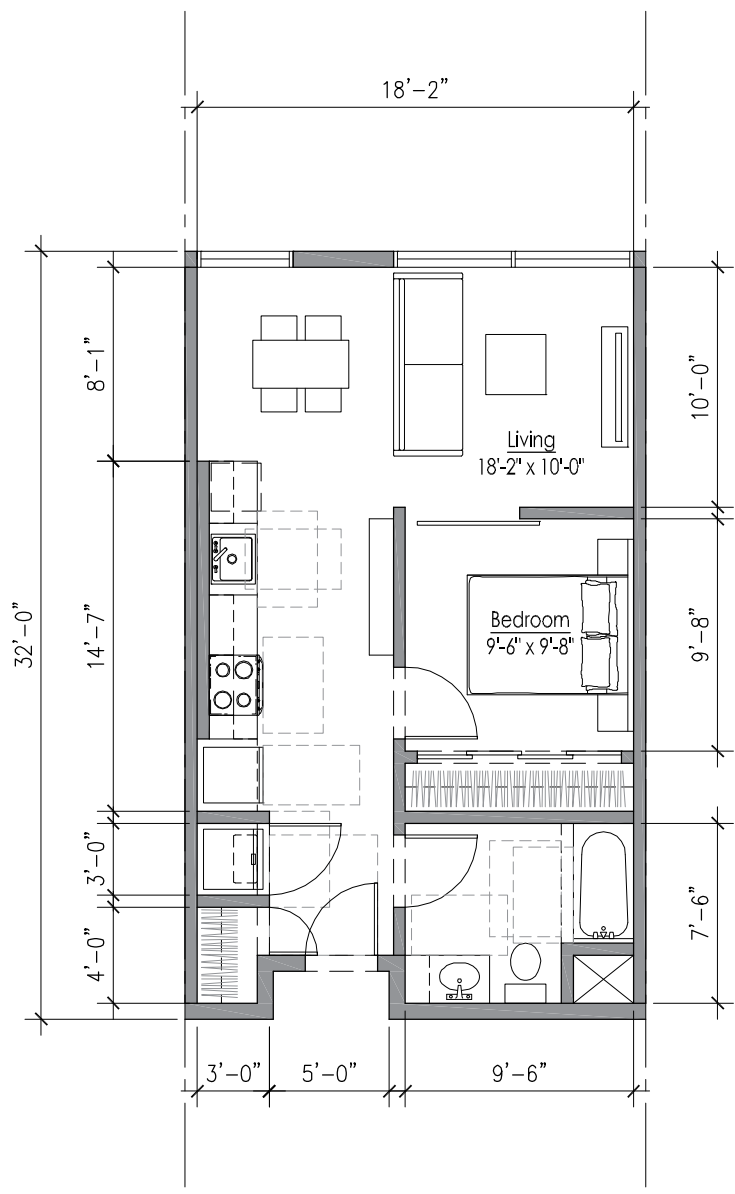
PARCEL F-2

21 MAY 2013
PROJECT NO: 47841
2470 MARINER SQUARE LOOP
ALAMEDA, CA 94501
T 510.865.8663 F 510.865.1611
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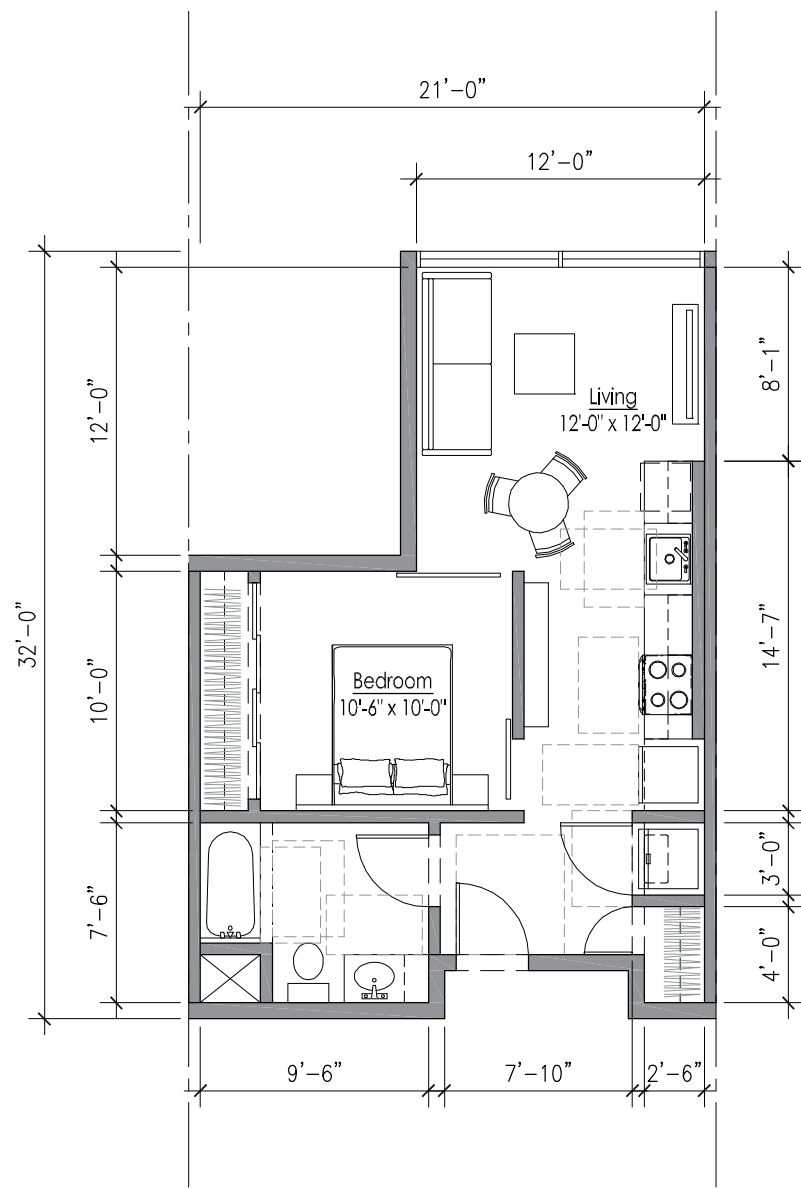
Unit D - Three Bed/Two Bath





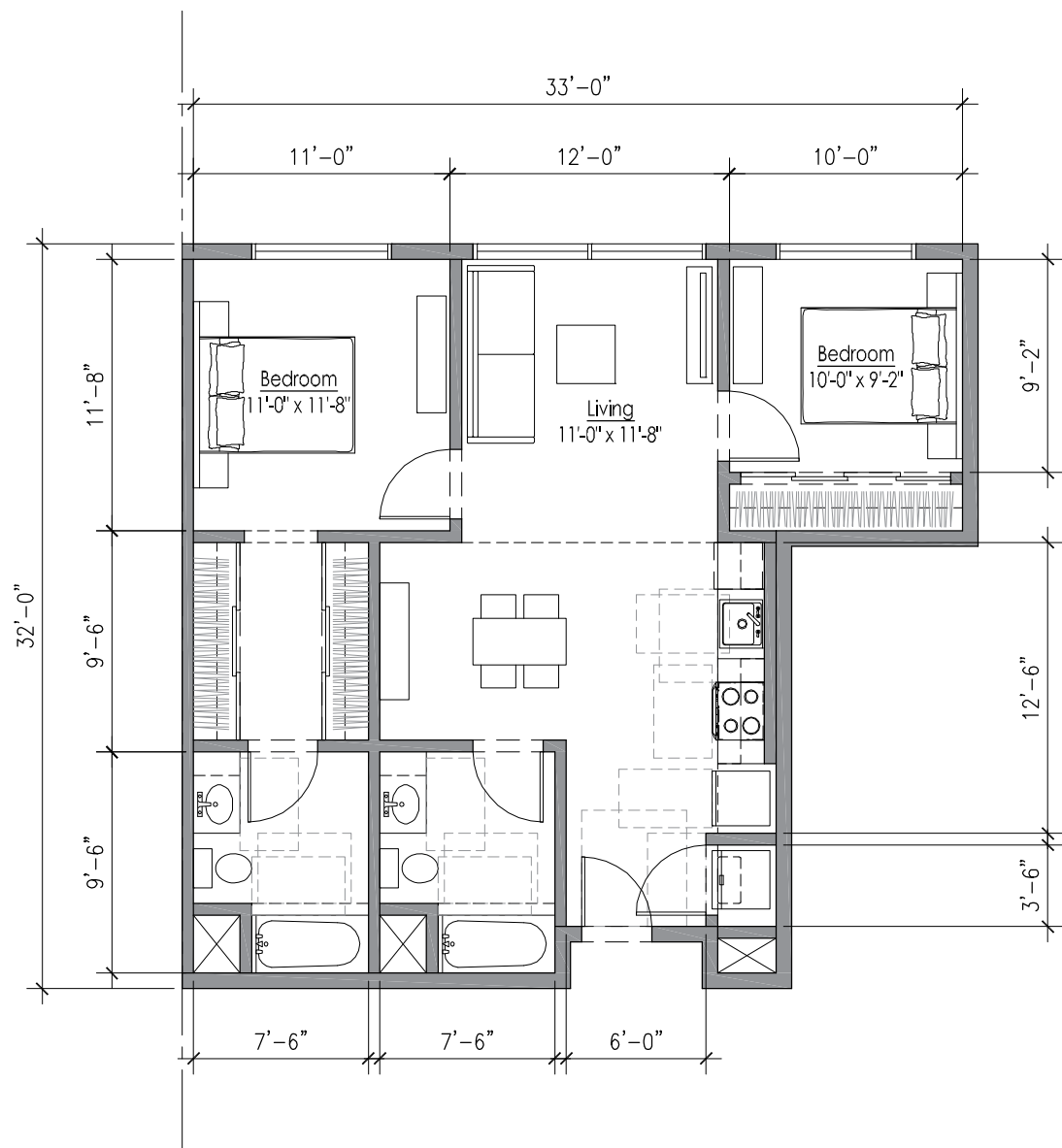
Unit E - Junior One Bed/One Bath





Unit F - Junior One Bed/One Bath





Unit G - Two Bed/Two Bath



JACK LONDON SQUARE
OAKLAND, CALIFORNIA

PARCEL F-2

21 MAY 2013
PROJECT NO: 47841
2470 MARINER SQUARE LOOP
ALAMEDA, CA 94501
T 510.865.8663 F 510.865.1611
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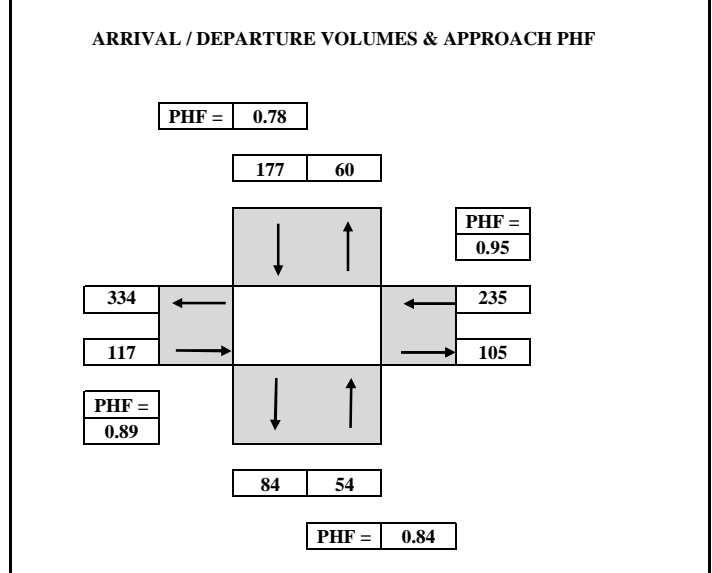
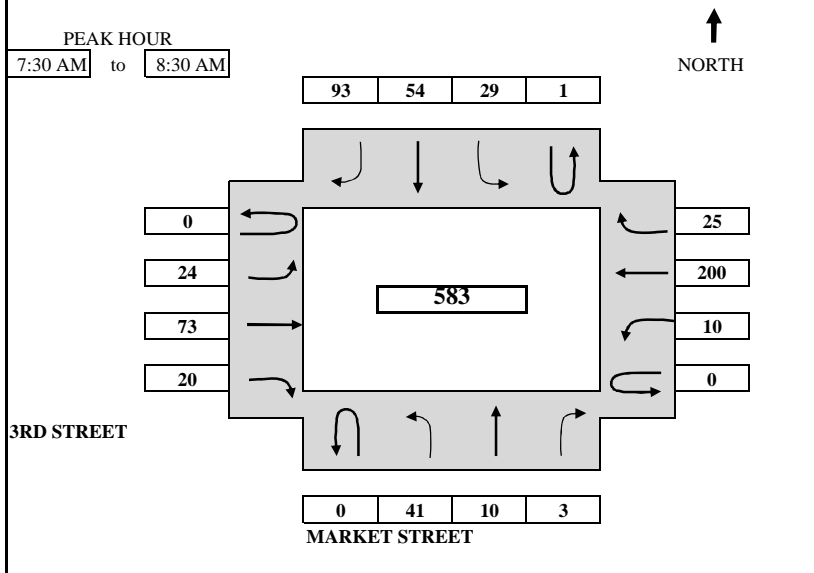
APPENDIX B

Transportation and Circulation

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY	SURVEY DATE:	1/15/2013	DAY:	TUESDAY
N-S APPROACH:	MARKET STREET	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W APPROACH:	3RD STREET	JURISDICTION:	OAKLAND	FILE:	3301002-1AM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
7:00 AM	to	7:15 AM	5	2	1	0	5	7	18	3	21	4	2	45	5				118
7:15 AM	to	7:30 AM	7	2	2	0	11	11	30	3	38	7	3	82	9				205
7:30 AM	to	7:45 AM	18	5	3	1	14	40	54	7	56	13	5	135	14				365
7:45 AM	to	8:00 AM	30	9	3	1	21	46	80	13	66	21	9	187	20				506
8:00 AM	to	8:15 AM	41	11	4	1	33	53	106	20	88	24	12	231	30				654
8:15 AM	to	8:30 AM	48	12	5	1	40	65	123	27	111	27	13	282	34				788
8:30 AM	to	8:45 AM	52	18	7	3	47	74	135	32	131	31	14	330	36				910
8:45 AM	to	9:00 AM	61	21	7	3	55	80	148	35	149	35	16	394	39				1043
TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	5	2	1	0	5	7	18	0	3	21	4	0	2	45	5	118
7:15 AM	to	7:30 AM	0	2	0	1	0	6	4	12	0	0	17	3	0	1	37	4	87
7:30 AM	to	7:45 AM	0	11	3	1	1	3	29	24	0	4	18	6	0	2	53	5	160
7:45 AM	to	8:00 AM	0	12	4	0	0	7	6	26	0	6	10	8	0	4	52	6	141
8:00 AM	to	8:15 AM	0	11	2	1	0	12	7	26	0	7	22	3	0	3	44	10	148
8:15 AM	to	8:30 AM	0	7	1	1	0	7	12	17	0	7	23	3	0	1	51	4	134
8:30 AM	to	8:45 AM	0	4	6	2	2	7	9	12	0	5	20	4	0	1	48	2	122
8:45 AM	to	9:00 AM	0	9	3	0	0	8	6	13	0	3	18	4	0	2	64	3	133
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	30	9	3	1	21	46	80	0	13	66	21	0	9	187	20	506
7:15 AM	to	8:15 AM	0	36	9	3	1	28	46	88	0	17	67	20	0	10	186	25	536
7:30 AM	to	8:30 AM	0	41	10	3	1	29	54	93	0	24	73	20	0	10	200	25	583
7:45 AM	to	8:45 AM	0	34	13	4	2	33	34	81	0	25	75	18	0	9	195	22	545
8:00 AM	to	9:00 AM	0	31	12	4	2	34	34	68	0	22	83	14	0	7	207	19	537
PEAK HOUR SUMMARY																			
7:30 AM	to	8:30 AM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
			0	41	10	3	1	29	54	93	0	24	73	20	0	10	200	25	583
PHF BY MOVEMENT			0.00	0.85	0.63	0.75	0.25	0.60	0.47	0.89	0.00	0.86	0.79	0.63	0.00	0.63	0.94	0.63	OVERALL
PHF BY APPROACH			0.84				0.78				0.89				0.95				0.91

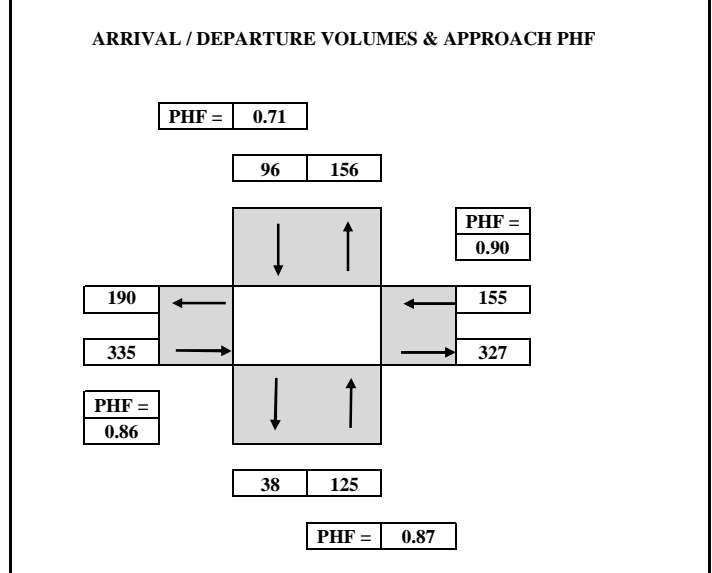
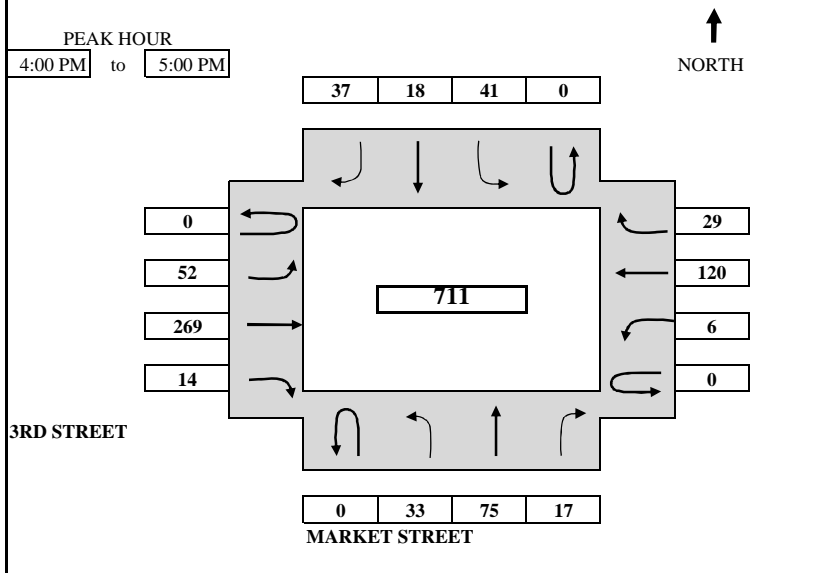
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY	SURVEY DATE:	1/15/2013	DAY:	TUESDAY
N-S APPROACH:	MARKET STREET	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	3RD STREET	JURISDICTION:	OAKLAND	FILE:	3301002-1PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU
SURVEY DATA																		
4:00 PM to 4:15 PM			12	23	1	15	10	9	11	48	7	1	32	7	176			
4:15 PM to 4:30 PM			13	45	4	24	11	16	29	116	9	1	61	12	341			
4:30 PM to 4:45 PM			24	57	12	34	16	25	44	197	10	4	91	22	536			
4:45 PM to 5:00 PM			33	75	17	41	18	37	52	269	14	6	120	29	711			
5:00 PM to 5:15 PM			35	77	20	53	21	44	61	339	15	7	168	36	876			
5:15 PM to 5:30 PM			37	82	23	61	27	50	76	392	16	9	192	45	1010			
5:30 PM to 5:45 PM			38	83	23	70	30	50	87	454	17	11	226	59	1148			
5:45 PM to 6:00 PM			40	87	24	72	34	54	90	503	25	14	262	65	1270			

TOTAL BY PERIOD																		
4:00 PM to 4:15 PM	0	12	23	1	0	15	10	9	0	11	48	7	0	1	32	7	176	
4:15 PM to 4:30 PM	0	1	22	3	0	9	1	7	0	18	68	2	0	0	29	5	165	
4:30 PM to 4:45 PM	0	11	12	8	0	10	5	9	0	15	81	1	0	3	30	10	195	
4:45 PM to 5:00 PM	0	9	18	5	0	7	2	12	0	8	72	4	0	2	29	7	175	
5:00 PM to 5:15 PM	0	2	2	3	0	12	3	7	0	9	70	1	0	1	48	7	165	
5:15 PM to 5:30 PM	0	2	5	3	0	8	6	6	0	15	53	1	0	2	24	9	134	
5:30 PM to 5:45 PM	0	1	1	0	0	9	3	0	0	11	62	1	0	2	34	14	138	
5:45 PM to 6:00 PM	0	2	4	1	0	2	4	4	0	3	49	8	0	3	36	6	122	

HOURLY TOTALS																		
4:00 PM to 5:00 PM	0	33	75	17	0	41	18	37	0	52	269	14	0	6	120	29	711	
4:15 PM to 5:15 PM	0	23	54	19	0	38	11	35	0	50	291	8	0	6	136	29	700	
4:30 PM to 5:30 PM	0	24	37	19	0	37	16	34	0	47	276	7	0	8	131	33	669	
4:45 PM to 5:45 PM	0	14	26	11	0	36	14	25	0	43	257	7	0	7	135	37	612	
5:00 PM to 6:00 PM	0	7	12	7	0	31	16	17	0	38	234	11	0	8	142	36	559	

PEAK HOUR SUMMARY																		
4:00 PM to 5:00 PM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL	
VOLUME	0	33	75	17	0	41	18	37	0	52	269	14	0	6	120	29	711	
PHF BY MOVEMENT	0.00	0.69	0.82	0.53	0.00	0.68	0.45	0.77	0.00	0.72	0.83	0.50	0.00	0.50	0.94	0.73	OVERALL	
PHF BY APPROACH	0.87				0.71				0.86				0.90				0.91	

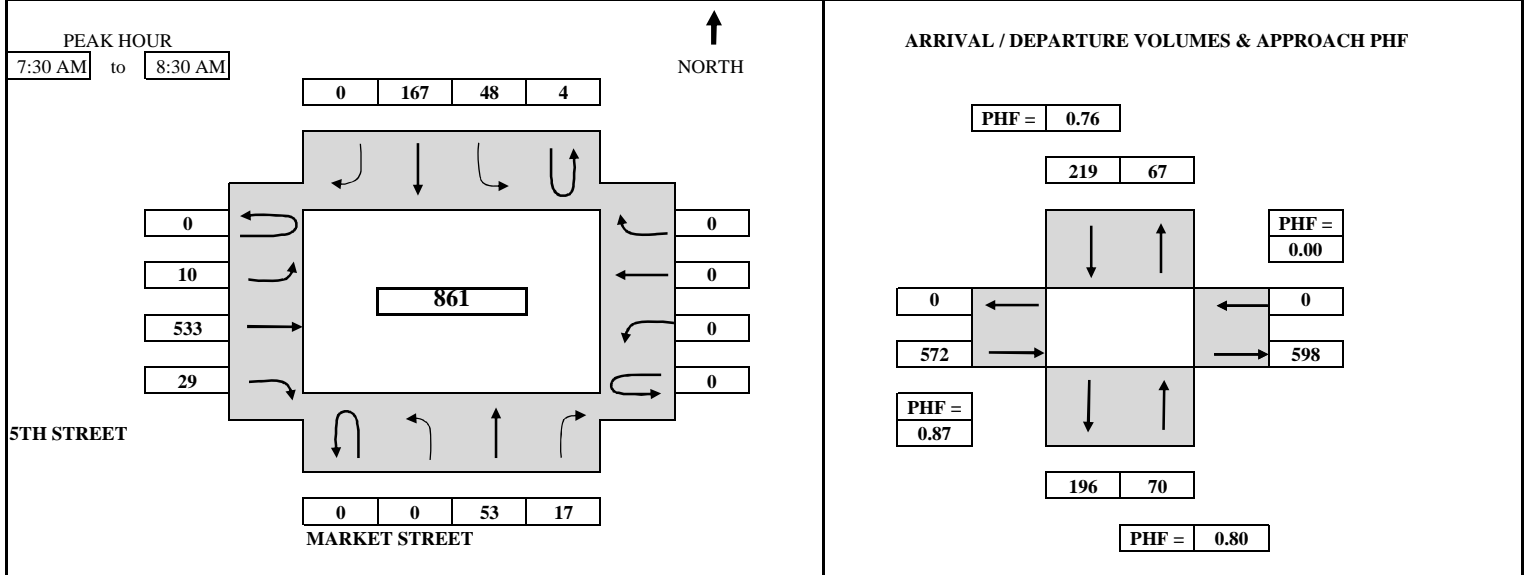
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY	SURVEY DATE:	1/15/2013	DAY:	TUESDAY
N-S APPROACH:	MARKET STREET	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W APPROACH:	5TH STREET	JURISDICTION:	OAKLAND	FILE:	3301002-2AM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL			
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT	
SURVEY DATA																				
7:00 AM	to	7:15 AM			7	4	2	15	43		3	133	10						217	
7:15 AM	to	7:30 AM			13	4	5	27	71		7	242	15						384	
7:30 AM	to	7:45 AM			21	9	5	41	129		9	396	24						634	
7:45 AM	to	8:00 AM			39	13	7	51	166		12	513	33						834	
8:00 AM	to	8:15 AM			55	16	7	65	203		15	624	40						1025	
8:15 AM	to	8:30 AM			66	21	9	75	238		17	775	44						1245	
8:30 AM	to	8:45 AM			78	24	9	88	263		18	882	49						1411	
8:45 AM	to	9:00 AM			88	27	9	93	297		19	1040	58						1631	
TOTAL BY PERIOD																				
7:00 AM	to	7:15 AM	0	0	7	4	2	15	43	0	0	3	133	10	0	0	0	0	217	
7:15 AM	to	7:30 AM	0	0	6	0	3	12	28	0	0	4	109	5	0	0	0	0	167	
7:30 AM	to	7:45 AM	0	0	8	5	0	14	58	0	0	2	154	9	0	0	0	0	250	
7:45 AM	to	8:00 AM	0	0	18	4	2	10	37	0	0	3	117	9	0	0	0	0	200	
8:00 AM	to	8:15 AM	0	0	16	3	0	14	37	0	0	3	111	7	0	0	0	0	191	
8:15 AM	to	8:30 AM	0	0	11	5	2	10	35	0	0	2	151	4	0	0	0	0	220	
8:30 AM	to	8:45 AM	0	0	12	3	0	13	25	0	0	1	107	5	0	0	0	0	166	
8:45 AM	to	9:00 AM	0	0	10	3	0	5	34	0	0	1	158	9	0	0	0	0	220	
HOURLY TOTALS																				
7:00 AM	to	8:00 AM	0	0	39	13	7	51	166	0	0	12	513	33	0	0	0	0	834	
7:15 AM	to	8:15 AM	0	0	48	12	5	50	160	0	0	12	491	30	0	0	0	0	808	
7:30 AM	to	8:30 AM	0	0	53	17	4	48	167	0	0	10	533	29	0	0	0	0	861	
7:45 AM	to	8:45 AM	0	0	57	15	4	47	134	0	0	9	486	25	0	0	0	0	777	
8:00 AM	to	9:00 AM	0	0	49	14	2	42	131	0	0	7	527	25	0	0	0	0	797	
PEAK HOUR SUMMARY																				
7:30 AM	to	8:30 AM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL	
			0	0	53	17	4	48	167	0	0	10	533	29	0	0	0	0	861	
			PHF BY MOVEMENT	0.00	0.00	0.74	0.85	0.50	0.86	0.72	0.00	0.00	0.83	0.87	0.81	0.00	0.00	0.00	0.00	OVERALL
			PHF BY APPROACH	0.80				0.76				0.87				0.00				0.86

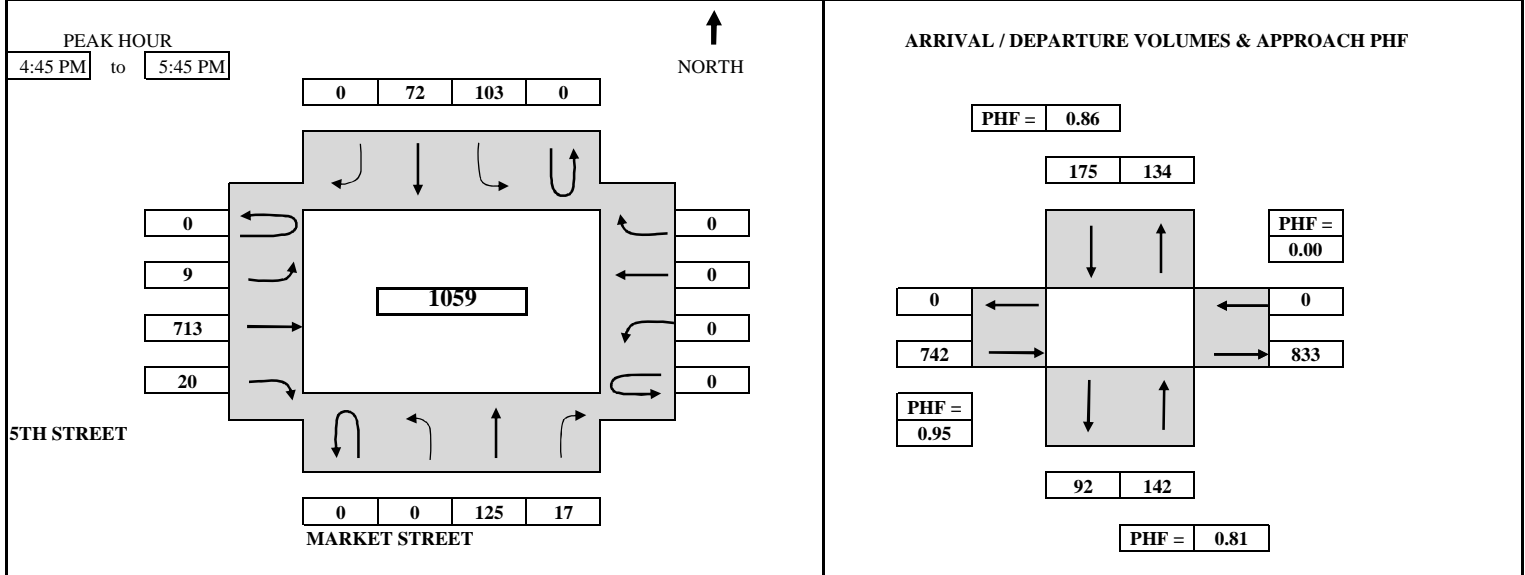
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY	SURVEY DATE:	1/15/2013	DAY:	TUESDAY
N-S APPROACH:	MARKET STREET	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	5TH STREET	JURISDICTION:	OAKLAND	FILE:	3301002-2PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL			
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT	
SURVEY DATA																				
4:00 PM	to	4:15 PM			22	5			16	25			4	110	5				187	
4:15 PM	to	4:30 PM			51	9			47	37			5	206	12				367	
4:30 PM	to	4:45 PM			94	19			82	56			10	348	14				623	
4:45 PM	to	5:00 PM			134	23			110	79			11	526	18				901	
5:00 PM	to	5:15 PM			164	31			141	95			12	712	22				1177	
5:15 PM	to	5:30 PM			188	34			163	111			18	869	31				1414	
5:30 PM	to	5:45 PM			219	36			185	128			19	1061	34				1682	
5:45 PM	to	6:00 PM			233	36			204	135			19	1244	38				1909	
TOTAL BY PERIOD																				
4:00 PM	to	4:15 PM	0	0	22	5	0	0	16	25	0	0	4	110	5	0	0	0	0	187
4:15 PM	to	4:30 PM	0	0	29	4	0	0	31	12	0	0	1	96	7	0	0	0	0	180
4:30 PM	to	4:45 PM	0	0	43	10	0	0	35	19	0	0	5	142	2	0	0	0	0	256
4:45 PM	to	5:00 PM	0	0	40	4	0	0	28	23	0	0	1	178	4	0	0	0	0	278
5:00 PM	to	5:15 PM	0	0	30	8	0	0	31	16	0	0	1	186	4	0	0	0	0	276
5:15 PM	to	5:30 PM	0	0	24	3	0	0	22	16	0	0	6	157	9	0	0	0	0	237
5:30 PM	to	5:45 PM	0	0	31	2	0	0	22	17	0	0	1	192	3	0	0	0	0	268
5:45 PM	to	6:00 PM	0	0	14	0	0	0	19	7	0	0	0	183	4	0	0	0	0	227
HOURLY TOTALS																				
4:00 PM	to	5:00 PM	0	0	134	23	0	0	110	79	0	0	11	526	18	0	0	0	0	901
4:15 PM	to	5:15 PM	0	0	142	26	0	0	125	70	0	0	8	602	17	0	0	0	0	990
4:30 PM	to	5:30 PM	0	0	137	25	0	0	116	74	0	0	13	663	19	0	0	0	0	1047
4:45 PM	to	5:45 PM	0	0	125	17	0	0	103	72	0	0	9	713	20	0	0	0	0	1059
5:00 PM	to	6:00 PM	0	0	99	13	0	0	94	56	0	0	8	718	20	0	0	0	0	1008
PEAK HOUR SUMMARY																				
4:45 PM	to	5:45 PM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL	
			0	0	125	17	0	103	72	0	0	9	713	20	0	0	0	0	0	1059
			PHF BY MOVEMENT	0.00	0.00	0.78	0.53	0.00	0.83	0.78	0.00	0.00	0.38	0.93	0.56	0.00	0.00	0.00	0.00	OVERALL
			PHF BY APPROACH	0.81				0.86				0.95				0.00				0.95

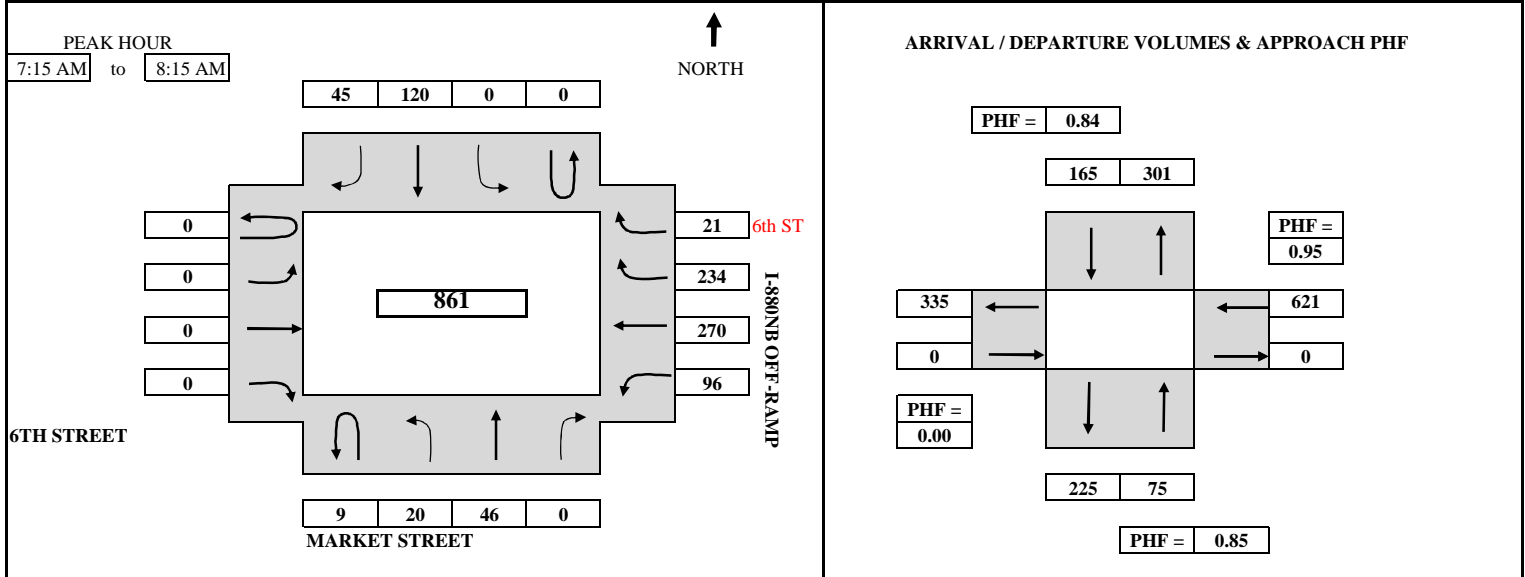
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY (II)	SURVEY DATE: 2/14/2013	DAY: THURSDAY
N-S APPROACH: MARKET STREET	SURVEY TIME: 7:00 AM	TO 9:00 AM
E-W APPROACH: 6TH STREET	JURISDICTION: OAKLAND	FILE: 3302018-1AM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	LEFT	THRU		RIGHT	6th ST
SURVEY DATA																			
7:00 AM	to	7:15 AM	2	3	8			33	4					21	63	56	3	193	
7:15 AM	to	7:30 AM	7	8	18			67	14					48	141	111	7	421	
7:30 AM	to	7:45 AM	9	15	26			93	17					66	214	170	15	625	
7:45 AM	to	8:00 AM	10	18	44			124	35					92	281	231	18	853	
8:00 AM	to	8:15 AM	11	23	54			153	49					117	333	290	24	1054	
8:15 AM	to	8:30 AM	11	27	66			174	56					141	384	347	29	1235	
8:30 AM	to	8:45 AM	12	30	77			206	66					162	450	391	37	1431	
8:45 AM	to	9:00 AM	13	35	87			227	78					182	507	421	46	1596	
TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	2	3	8	0	0	33	4	0	0	0	0	21	63	56	3	193	
7:15 AM	to	7:30 AM	5	5	10	0	0	34	10	0	0	0	0	27	78	55	4	228	
7:30 AM	to	7:45 AM	2	7	8	0	0	26	3	0	0	0	0	18	73	59	8	204	
7:45 AM	to	8:00 AM	1	3	18	0	0	31	18	0	0	0	0	26	67	61	3	228	
8:00 AM	to	8:15 AM	1	5	10	0	0	29	14	0	0	0	0	25	52	59	6	201	
8:15 AM	to	8:30 AM	0	4	12	0	0	21	7	0	0	0	0	24	51	57	5	181	
8:30 AM	to	8:45 AM	1	3	11	0	0	32	10	0	0	0	0	21	66	44	8	196	
8:45 AM	to	9:00 AM	1	5	10	0	0	21	12	0	0	0	0	20	57	30	9	165	
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	10	18	44	0	0	124	35	0	0	0	0	92	281	231	18	853	
7:15 AM	to	8:15 AM	9	20	46	0	0	120	45	0	0	0	0	96	270	234	21	861	
7:30 AM	to	8:30 AM	4	19	48	0	0	107	42	0	0	0	0	93	243	236	22	814	
7:45 AM	to	8:45 AM	3	15	51	0	0	113	49	0	0	0	0	96	236	221	22	806	
8:00 AM	to	9:00 AM	3	17	43	0	0	103	43	0	0	0	0	90	226	190	28	743	
PEAK HOUR SUMMARY																			
7:15 AM	to	8:15 AM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
			9	20	46	0	0	0	120	45	0	0	0	0	96	270	234	21	861
PHF BY MOVEMENT			0.45	0.71	0.64	0.00	0.00	0.00	0.88	0.63	0.00	0.00	0.00	0.00	0.89	0.87	0.96	0.66	OVERALL
PHF BY APPROACH			0.85				0.84				0.00				0.95				0.94

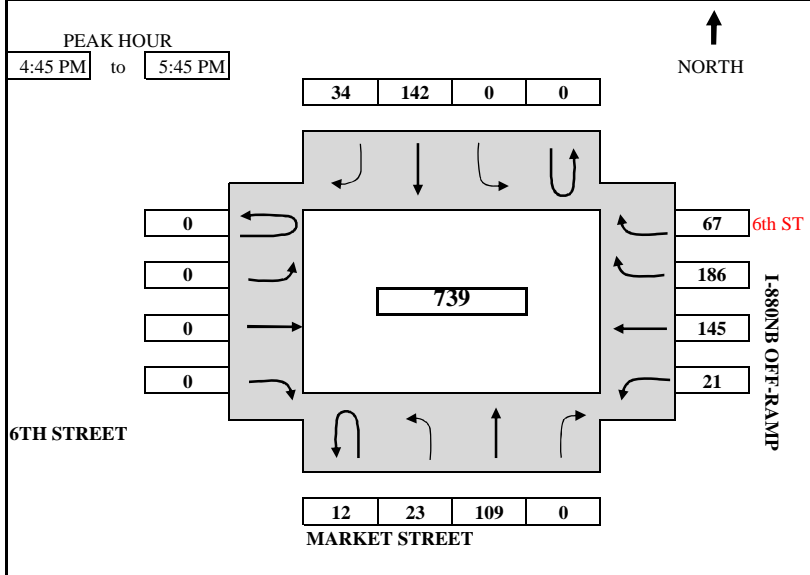
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY (II)	SURVEY DATE:	2/14/2013	DAY:	THURSDAY
N-S APPROACH:	MARKET STREET	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	6TH STREET	JURISDICTION:	OAKLAND	FILE:	3302018-1PM



ARRIVAL / DEPARTURE VOLUMES & APPROACH PHF

PHF = 0.86	176	362	PHF = 0.94
202	←	→	419
0	←	→	0
PHF = 0.00	175	144	PHF = 0.72

TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	LEFT	THRU		RIGHT	6th St
SURVEY DATA																			
4:00 PM	to	4:15 PM	7	10	19			34	12					17	39	40	6	184	
4:15 PM	to	4:30 PM	12	18	44			74	22					25	73	85	18	371	
4:30 PM	to	4:45 PM	15	24	66			95	26					31	106	125	39	527	
4:45 PM	to	5:00 PM	19	30	91			126	32					44	146	160	63	711	
5:00 PM	to	5:15 PM	25	35	130			163	39					46	183	211	74	906	
5:15 PM	to	5:30 PM	27	43	148			197	49					49	222	265	89	1089	
5:30 PM	to	5:45 PM	27	47	175			237	60					52	251	311	106	1266	
5:45 PM	to	6:00 PM	28	51	195			267	66					59	284	358	120	1428	
TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	7	10	19	0	0	34	12	0	0	0	0	17	39	40	6	184	
4:15 PM	to	4:30 PM	5	8	25	0	0	40	10	0	0	0	0	8	34	45	12	187	
4:30 PM	to	4:45 PM	3	6	22	0	0	21	4	0	0	0	0	6	33	40	21	156	
4:45 PM	to	5:00 PM	4	6	25	0	0	31	6	0	0	0	0	13	40	35	24	184	
5:00 PM	to	5:15 PM	6	5	39	0	0	37	7	0	0	0	0	2	37	51	11	195	
5:15 PM	to	5:30 PM	2	8	18	0	0	34	10	0	0	0	0	3	39	54	15	183	
5:30 PM	to	5:45 PM	0	4	27	0	0	40	11	0	0	0	0	3	29	46	17	177	
5:45 PM	to	6:00 PM	1	4	20	0	0	30	6	0	0	0	0	7	33	47	14	162	
HOURLY TOTALS																			
4:00 PM	to	5:00 PM	19	30	91	0	0	126	32	0	0	0	0	44	146	160	63	711	
4:15 PM	to	5:15 PM	18	25	111	0	0	129	27	0	0	0	0	29	144	171	68	722	
4:30 PM	to	5:30 PM	15	25	104	0	0	123	27	0	0	0	0	24	149	180	71	718	
4:45 PM	to	5:45 PM	12	23	109	0	0	142	34	0	0	0	0	21	145	186	67	739	
5:00 PM	to	6:00 PM	9	21	104	0	0	141	34	0	0	0	0	15	138	198	57	717	
PEAK HOUR SUMMARY																			
4:45 PM	to	5:45 PM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
			12	23	109	0	0	0	142	34	0	0	0	0	21	145	186	67	739
PHF BY MOVEMENT			0.50	0.72	0.70	0.00	0.00	0.00	0.89	0.77	0.00	0.00	0.00	0.00	0.40	0.91	0.86	0.70	OVERALL
PHF BY APPROACH			0.72				0.86				0.00				0.94				0.95

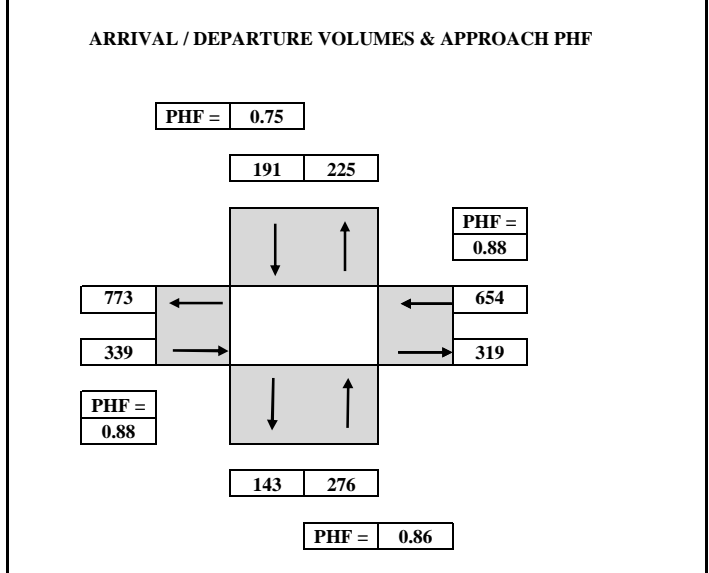
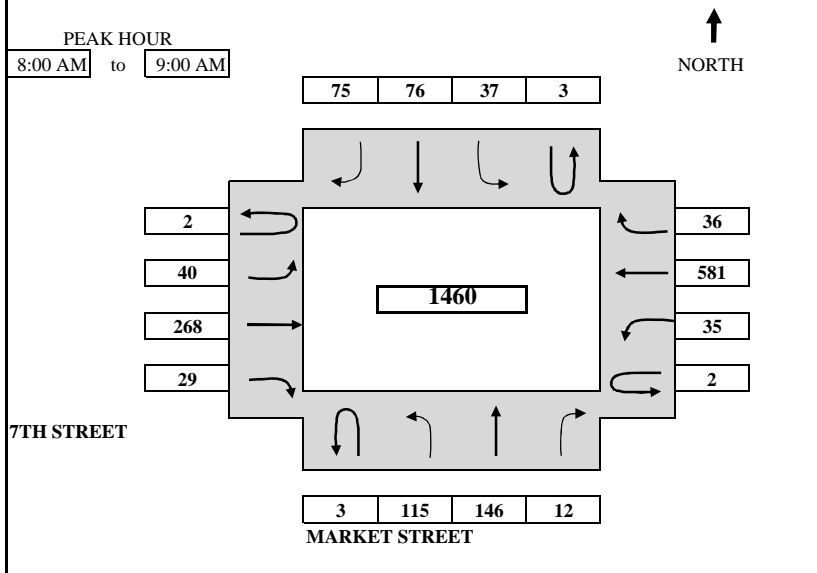
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B. A. Y. M. E. T. R. I. C. S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY	SURVEY DATE:	1/15/2013	DAY:	TUESDAY
N-S APPROACH:	MARKET STREET	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W APPROACH:	7TH STREET	JURISDICTION:	OAKLAND	FILE:	3301002-3AM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
7:00 AM	to	7:15 AM	1	18	43	2	0	7	18	10	2	14	40	5	2	11	89	3	265
7:15 AM	to	7:30 AM	3	42	77	4	0	11	27	23	4	27	79	11	3	20	206	6	543
7:30 AM	to	7:45 AM	5	66	103	10	0	23	51	38	5	40	135	17	4	26	339	12	874
7:45 AM	to	8:00 AM	7	96	145	12	0	38	71	46	5	47	174	26	6	32	456	16	1177
8:00 AM	to	8:15 AM	8	131	185	16	1	48	100	70	6	60	246	36	6	41	608	26	1588
8:15 AM	to	8:30 AM	8	158	216	18	2	57	112	91	6	71	311	43	7	51	774	34	1959
8:30 AM	to	8:45 AM	8	192	256	21	3	68	137	104	6	79	372	49	8	60	909	43	2315
8:45 AM	to	9:00 AM	10	211	291	24	3	75	147	121	7	87	442	55	8	67	1037	52	2637

TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	1	18	43	2	0	7	18	10	2	14	40	5	2	11	89	3	265
7:15 AM	to	7:30 AM	2	24	34	2	0	4	9	13	2	13	39	6	1	9	117	3	278
7:30 AM	to	7:45 AM	2	24	26	6	0	12	24	15	1	13	56	6	1	6	133	6	331
7:45 AM	to	8:00 AM	2	30	42	2	0	15	20	8	0	7	39	9	2	6	117	4	303
8:00 AM	to	8:15 AM	1	35	40	4	1	10	29	24	1	13	72	10	0	9	152	10	411
8:15 AM	to	8:30 AM	0	27	31	2	1	9	12	21	0	11	65	7	1	10	166	8	371
8:30 AM	to	8:45 AM	0	34	40	3	1	11	25	13	0	8	61	6	1	9	135	9	356
8:45 AM	to	9:00 AM	2	19	35	3	0	7	10	17	1	8	70	6	0	7	128	9	322

HOURLY TOTALS																			
7:00 AM	to	8:00 AM	7	96	145	12	0	38	71	46	5	47	174	26	6	32	456	16	1177
7:15 AM	to	8:15 AM	7	113	142	14	1	41	82	60	4	46	206	31	4	30	519	23	1323
7:30 AM	to	8:30 AM	5	116	139	14	2	46	85	68	2	44	232	32	4	31	568	28	1416
7:45 AM	to	8:45 AM	3	126	153	11	3	45	86	66	1	39	237	32	4	34	570	31	1441
8:00 AM	to	9:00 AM	3	115	146	12	3	37	76	75	2	40	268	29	2	35	581	36	1460

PEAK HOUR SUMMARY																			
8:00 AM	to	9:00 AM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
VOLUME			3	115	146	12	3	37	76	75	2	40	268	29	2	35	581	36	1460
PHF BY MOVEMENT			0.38	0.82	0.91	0.75	0.75	0.84	0.66	0.78	0.50	0.77	0.93	0.73	0.50	0.88	0.88	0.90	OVERALL
PHF BY APPROACH			0.86				0.75				0.88				0.88				0.89

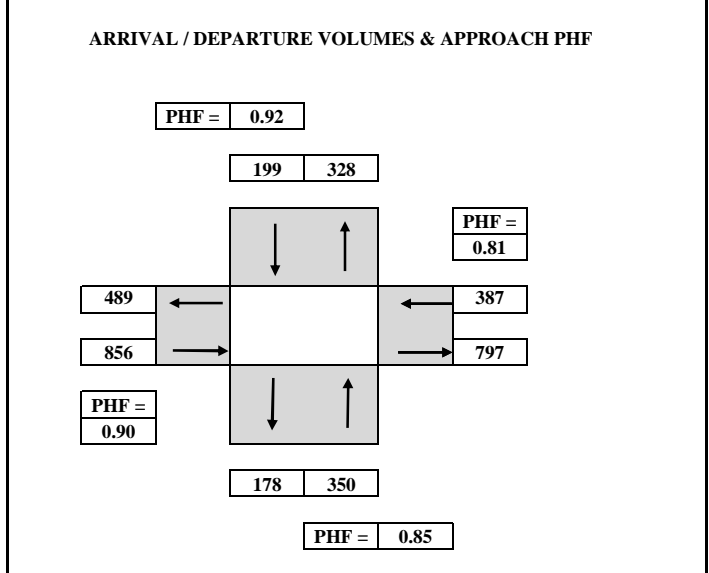
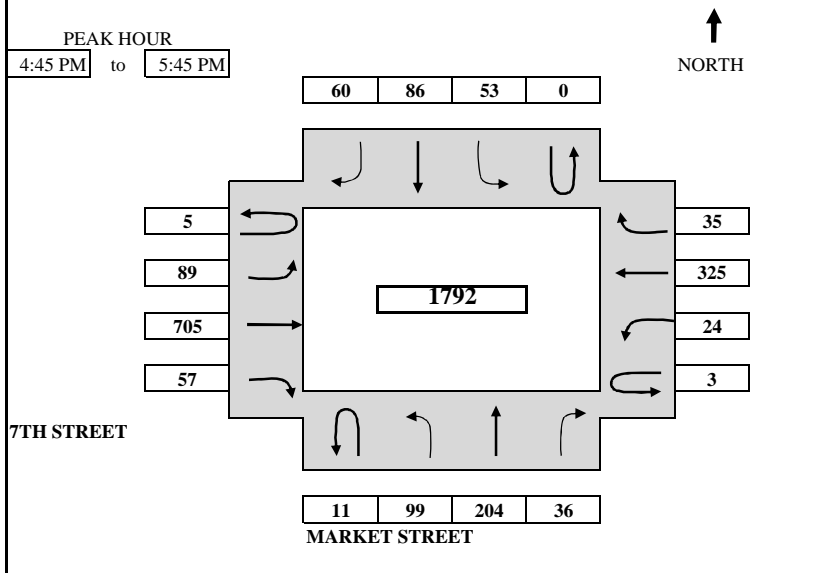
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY	SURVEY DATE:	1/15/2013	DAY:	TUESDAY
N-S APPROACH:	MARKET STREET	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	7TH STREET	JURISDICTION:	OAKLAND	FILE:	3301002-3PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
4:00 PM to 4:15 PM			5	32	53	6	0	12	18	15	1	19	98	18	0	5	56	6	344
4:15 PM to 4:30 PM			7	58	92	14	2	24	38	30	2	39	225	36	2	14	123	15	721
4:30 PM to 4:45 PM			9	75	154	23	3	30	63	43	3	47	332	56	5	19	183	27	1072
4:45 PM to 5:00 PM			9	101	210	36	3	39	88	58	4	71	470	64	7	25	256	38	1479
5:00 PM to 5:15 PM			12	121	262	44	3	56	111	72	4	89	646	80	8	30	336	49	1923
5:15 PM to 5:30 PM			16	143	296	53	3	67	131	86	5	112	843	97	8	39	440	55	2394
5:30 PM to 5:45 PM			20	174	358	59	3	83	149	103	8	136	1037	113	8	43	508	62	2864
5:45 PM to 6:00 PM			23	192	406	63	3	91	155	115	8	159	1214	124	8	48	583	71	3263

TOTAL BY PERIOD																			
4:00 PM to 4:15 PM			5	32	53	6	0	12	18	15	1	19	98	18	0	5	56	6	344
4:15 PM to 4:30 PM			2	26	39	8	2	12	20	15	1	20	127	18	2	9	67	9	377
4:30 PM to 4:45 PM			2	17	62	9	1	6	25	13	1	8	107	20	3	5	60	12	351
4:45 PM to 5:00 PM			0	26	56	13	0	9	25	15	1	24	138	8	2	6	73	11	407
5:00 PM to 5:15 PM			3	20	52	8	0	17	23	14	0	18	176	16	1	5	80	11	444
5:15 PM to 5:30 PM			4	22	34	9	0	11	20	14	1	23	197	17	0	9	104	6	471
5:30 PM to 5:45 PM			4	31	62	6	0	16	18	17	3	24	194	16	0	4	68	7	470
5:45 PM to 6:00 PM			3	18	48	4	0	8	6	12	0	23	177	11	0	5	75	9	399

HOURLY TOTALS																			
4:00 PM to 5:00 PM			9	101	210	36	3	39	88	58	4	71	470	64	7	25	256	38	1479
4:15 PM to 5:15 PM			7	89	209	38	3	44	93	57	3	70	548	62	8	25	280	43	1579
4:30 PM to 5:30 PM			9	85	204	39	1	43	93	56	3	73	618	61	6	25	317	40	1673
4:45 PM to 5:45 PM			11	99	204	36	0	53	86	60	5	89	705	57	3	24	325	35	1792
5:00 PM to 6:00 PM			14	91	196	27	0	52	67	57	4	88	744	60	1	23	327	33	1784

PEAK HOUR SUMMARY																		
4:45 PM to 5:45 PM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL	
VOLUME	11	99	204	36	0	53	86	60	5	89	705	57	3	24	325	35	1792	
PHF BY MOVEMENT	0.69	0.80	0.82	0.69	0.00	0.78	0.86	0.88	0.42	0.93	0.89	0.84	0.38	0.67	0.78	0.80	OVERALL	
PHF BY APPROACH	0.85				0.92				0.90				0.81				0.95	

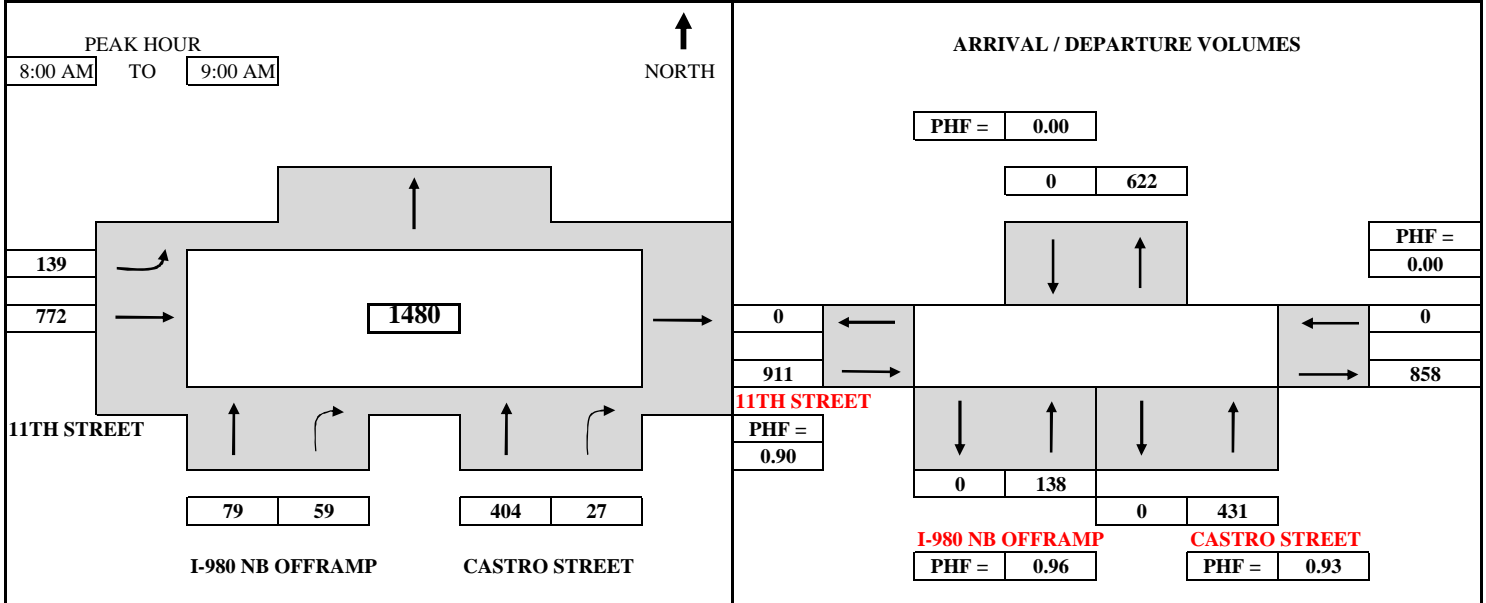
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY (II)	SURVEY DATE: 2/14/2013	DAY: THURSDAY
N-S APPROACH: CASTRO STREET	SURVEY TIME: 7:00 AM	TO 9:00 AM
E-W APPROACH 11TH STREET	JURISDICTION: OAKLAND	FILE: 3302018-2AM



TIME	PERIOD	NB (CASTRO STREET)		NB (I-980 NB OFFRAMP)			EB (11TH STREET)			WB (11TH STREET)			TOTAL
		THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	

SURVEY DATA												
7:00 AM	to	7:15 AM	77	5	17	9	21	123				252
7:15 AM	to	7:30 AM	160	9	33	20	38	284				544
7:30 AM	to	7:45 AM	242	17	47	42	57	451				856
7:45 AM	to	8:00 AM	337	23	68	60	84	634				1206
8:00 AM	to	8:15 AM	419	32	87	77	112	813				1540
8:15 AM	to	8:30 AM	521	39	105	91	155	1024				1935
8:30 AM	to	8:45 AM	630	45	124	106	192	1221				2318
8:45 AM	to	9:00 AM	741	50	147	119	223	1406				2686

TOTAL BY PERIOD														
7:00 AM	to	7:15 AM	0	77	5	0	17	9	21	123	0	0	0	252
7:15 AM	to	7:30 AM	0	83	4	0	16	11	17	161	0	0	0	292
7:30 AM	to	7:45 AM	0	82	8	0	14	22	19	167	0	0	0	312
7:45 AM	to	8:00 AM	0	95	6	0	21	18	27	183	0	0	0	350
8:00 AM	to	8:15 AM	0	82	9	0	19	17	28	179	0	0	0	334
8:15 AM	to	8:30 AM	0	102	7	0	18	14	43	211	0	0	0	395
8:30 AM	to	8:45 AM	0	109	6	0	19	15	37	197	0	0	0	383
8:45 AM	to	9:00 AM	0	111	5	0	23	13	31	185	0	0	0	368

HOURLY TOTALS														
7:00 AM	to	8:00 AM	0	337	23	0	68	60	84	634	0	0	0	1206
7:15 AM	to	8:15 AM	0	342	27	0	70	68	91	690	0	0	0	1288
7:30 AM	to	8:30 AM	0	361	30	0	72	71	117	740	0	0	0	1391
7:45 AM	to	8:45 AM	0	388	28	0	77	64	135	770	0	0	0	1462
8:00 AM	to	9:00 AM	0	404	27	0	79	59	139	772	0	0	0	1480

PEAK HOUR SUMMARY															
8:00 AM	to	9:00 AM	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
VOLUME			0	404	27	0	79	59	139	772	0	0	0	0	1480
PHF BY MOVEMENT			0.00	0.91	0.75	0.00	0.86	0.87	0.81	0.91	0.00	0.00	0.00	0.00	OVERALL
PHF BY APPROACH			0.93			0.96			0.90			0.00			0.94

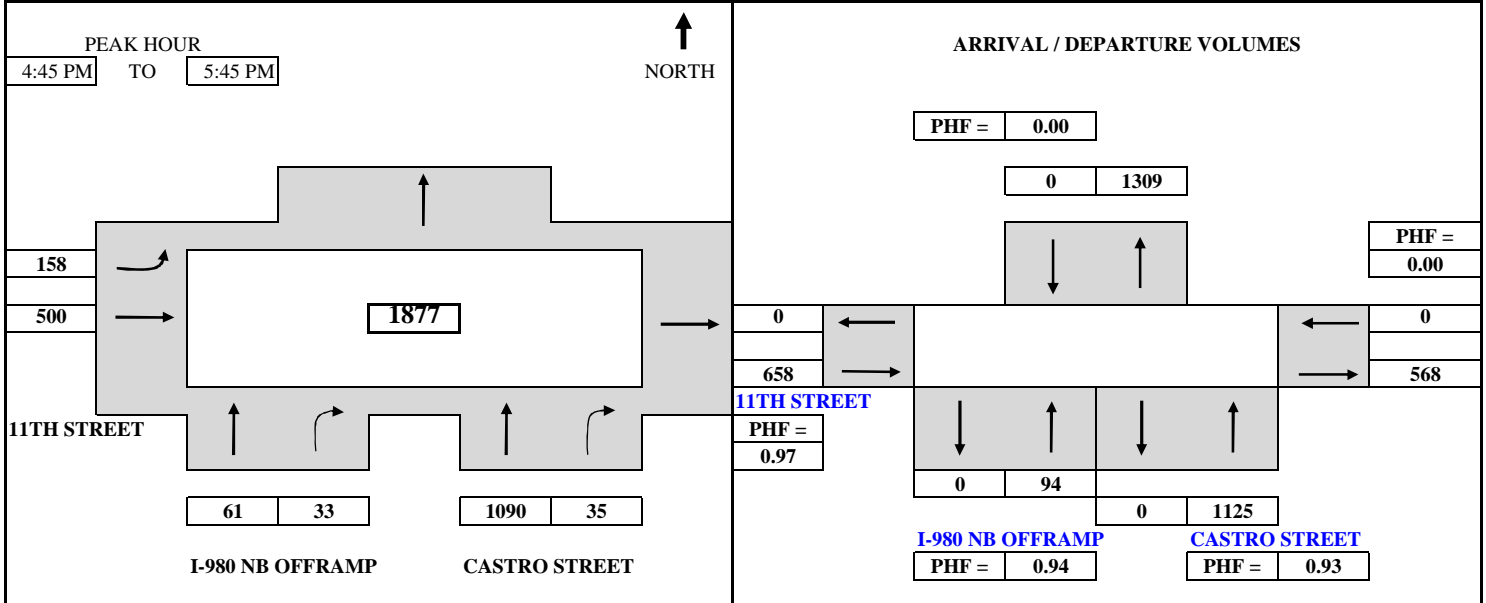
TEL: (510) 232 - 1271

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B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY (II)	SURVEY DATE: 2/14/2013	DAY: THURSDAY
N-S APPROACH: CASTRO STREET	SURVEY TIME: 4:00 PM	TO 6:00 PM
E-W APPROACH 11TH STREET	JURISDICTION: OAKLAND	FILE: 3202018-2PM



TIME	PERIOD	NB (CASTRO STREET)		NB (I-980 NB OFFRAMP)			EB (11TH STREET)			WB (11TH STREET)			TOTAL
		THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
4:00 PM	to 4:15 PM	231	9	0	15	6	36	111					408
4:15 PM	to 4:30 PM	480	17	0	28	13	83	218					839
4:30 PM	to 4:45 PM	706	30	0	39	18	134	321					1248
4:45 PM	to 5:00 PM	960	38	0	54	27	182	442					1703
5:00 PM	to 5:15 PM	1257	44	0	71	35	215	579					2201
5:15 PM	to 5:30 PM	1533	54	0	87	42	250	704					2670
5:30 PM	to 5:45 PM	1796	65	0	100	51	292	821					3125
5:45 PM	to 6:00 PM	1993	74	0	122	57	321	926					3493

TOTAL BY PERIOD													
TIME	PERIOD	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL
4:00 PM	to 4:15 PM	0	231	9	0	15	6	36	111	0	0	0	408
4:15 PM	to 4:30 PM	0	249	8	0	13	7	47	107	0	0	0	431
4:30 PM	to 4:45 PM	0	226	13	0	11	5	51	103	0	0	0	409
4:45 PM	to 5:00 PM	0	254	8	0	15	9	48	121	0	0	0	455
5:00 PM	to 5:15 PM	0	297	6	0	17	8	33	137	0	0	0	498
5:15 PM	to 5:30 PM	0	276	10	0	16	7	35	125	0	0	0	469
5:30 PM	to 5:45 PM	0	263	11	0	13	9	42	117	0	0	0	455
5:45 PM	to 6:00 PM	0	197	9	0	22	6	29	105	0	0	0	368

HOURLY TOTALS													
TIME	PERIOD	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL
4:00 PM	to 5:00 PM	0	960	38	0	54	27	182	442	0	0	0	1703
4:15 PM	to 5:15 PM	0	1026	35	0	56	29	179	468	0	0	0	1793
4:30 PM	to 5:30 PM	0	1053	37	0	59	29	167	486	0	0	0	1831
4:45 PM	to 5:45 PM	0	1090	35	0	61	33	158	500	0	0	0	1877
5:00 PM	to 6:00 PM	0	1033	36	0	68	30	139	484	0	0	0	1790

PEAK HOUR SUMMARY														
TIME	PERIOD	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
4:45 PM	to 5:45 PM	0	1090	35	0	61	33	158	500	0	0	0	0	1877
PHF BY MOVEMENT		0.00	0.92	0.80	0.00	0.90	0.92	0.82	0.91	0.00	0.00	0.00	0.00	OVERALL
PHF BY APPROACH		0.93			0.94			0.97			0.00			0.94

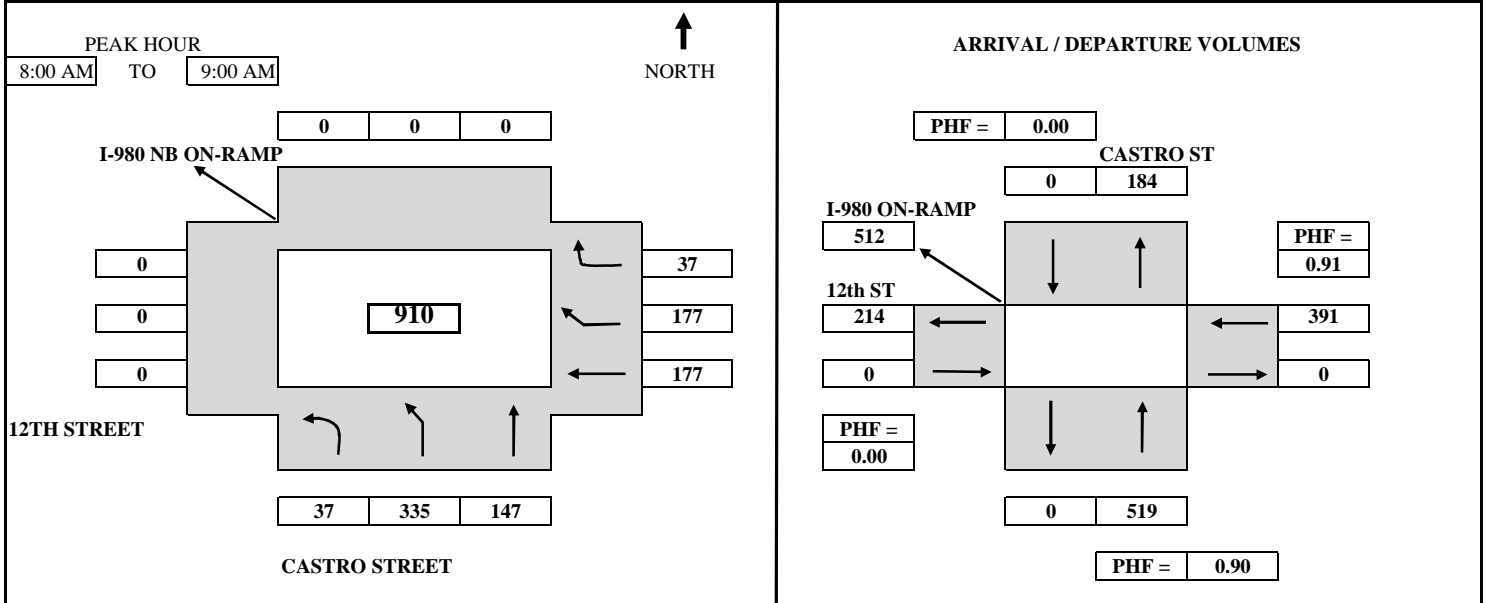
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY	SURVEY DATE: 1/15/2013	DAY: TUESDAY
N-S APPROACH: CASTRO STREET	SURVEY TIME: 7:00 AM	TO 9:00 AM
E-W APPROACH 12TH STREET	JURISDICTION: OAKLAND	FILE: 3301002-4AM



TIME	PERIOD	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL	
		From	To	12th ST	I-980	CASTRO	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	12th ST		I-980
SURVEY DATA															
7:00 AM	to 7:15 AM		2	44	15							15	25	2	103
7:15 AM	to 7:30 AM		10	96	45							35	61	5	252
7:30 AM	to 7:45 AM		14	170	62							51	94	14	405
7:45 AM	to 8:00 AM		21	257	99							79	132	17	605
8:00 AM	to 8:15 AM		25	345	133							120	189	26	838
8:15 AM	to 8:30 AM		38	446	163							166	234	37	1084
8:30 AM	to 8:45 AM		46	522	207							209	268	48	1300
8:45 AM	to 9:00 AM		58	592	246							256	309	54	1515
TOTAL BY PERIOD															
7:00 AM	to 7:15 AM		2	44	15	0	0	0	0	0	0	15	25	2	103
7:15 AM	to 7:30 AM		8	52	30	0	0	0	0	0	0	20	36	3	149
7:30 AM	to 7:45 AM		4	74	17	0	0	0	0	0	0	16	33	9	153
7:45 AM	to 8:00 AM		7	87	37	0	0	0	0	0	0	28	38	3	200
8:00 AM	to 8:15 AM		4	88	34	0	0	0	0	0	0	41	57	9	233
8:15 AM	to 8:30 AM		13	101	30	0	0	0	0	0	0	46	45	11	246
8:30 AM	to 8:45 AM		8	76	44	0	0	0	0	0	0	43	34	11	216
8:45 AM	to 9:00 AM		12	70	39	0	0	0	0	0	0	47	41	6	215
HOURLY TOTALS															
7:00 AM	to 8:00 AM		21	257	99	0	0	0	0	0	0	79	132	17	605
7:15 AM	to 8:15 AM		23	301	118	0	0	0	0	0	0	105	164	24	735
7:30 AM	to 8:30 AM		28	350	118	0	0	0	0	0	0	131	173	32	832
7:45 AM	to 8:45 AM		32	352	145	0	0	0	0	0	0	158	174	34	895
8:00 AM	to 9:00 AM		37	335	147	0	0	0	0	0	0	177	177	37	910
PEAK HOUR SUMMARY															
8:00 AM	to 9:00 AM	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL	
VOLUME		37	335	147	0	0	0	0	0	0	177	177	37	910	
PHF BY MOVEMENT		0.71	0.83	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.94	0.78	0.84	OVERALL	
PHF BY APPROACH		0.90			0.00			0.00			0.91			0.92	

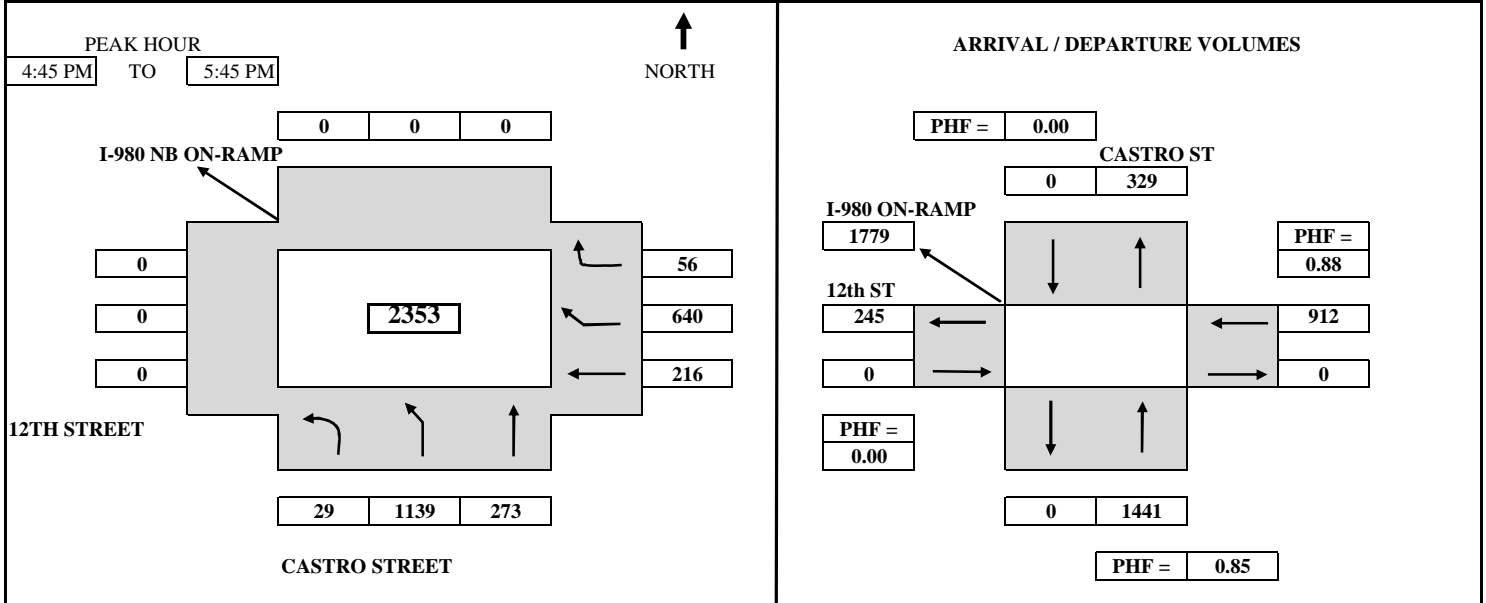
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY	SURVEY DATE: 1/15/2013	DAY: TUESDAY
N-S APPROACH: CASTRO STREET	SURVEY TIME: 4:00 PM	TO 6:00 PM
E-W APPROACH 12TH STREET	JURISDICTION: OAKLAND	FILE: 3301002-4PM



TIME PERIOD		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
From	To	12th ST	I-980	CASTRO	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	12th ST	I-980	CASTRO	
SURVEY DATA														
4:00 PM	to 4:15 PM	10	239	49							39	139	10	486
4:15 PM	to 4:30 PM	17	437	83							79	248	20	884
4:30 PM	to 4:45 PM	25	707	133							134	427	30	1456
4:45 PM	to 5:00 PM	30	950	196							183	553	39	1951
5:00 PM	to 5:15 PM	43	1288	271							249	708	59	2618
5:15 PM	to 5:30 PM	51	1545	338							311	892	72	3209
5:30 PM	to 5:45 PM	54	1846	406							350	1067	86	3809
5:45 PM	to 6:00 PM	64	2053	457							392	1192	91	4249
TOTAL BY PERIOD														
4:00 PM	to 4:15 PM	10	239	49	0	0	0	0	0	0	39	139	10	486
4:15 PM	to 4:30 PM	7	198	34	0	0	0	0	0	0	40	109	10	398
4:30 PM	to 4:45 PM	8	270	50	0	0	0	0	0	0	55	179	10	572
4:45 PM	to 5:00 PM	5	243	63	0	0	0	0	0	0	49	126	9	495
5:00 PM	to 5:15 PM	13	338	75	0	0	0	0	0	0	66	155	20	667
5:15 PM	to 5:30 PM	8	257	67	0	0	0	0	0	0	62	184	13	591
5:30 PM	to 5:45 PM	3	301	68	0	0	0	0	0	0	39	175	14	600
5:45 PM	to 6:00 PM	10	207	51	0	0	0	0	0	0	42	125	5	440
HOURLY TOTALS														
4:00 PM	to 5:00 PM	30	950	196	0	0	0	0	0	0	183	553	39	1951
4:15 PM	to 5:15 PM	33	1049	222	0	0	0	0	0	0	210	569	49	2132
4:30 PM	to 5:30 PM	34	1108	255	0	0	0	0	0	0	232	644	52	2325
4:45 PM	to 5:45 PM	29	1139	273	0	0	0	0	0	0	216	640	56	2353
5:00 PM	to 6:00 PM	34	1103	261	0	0	0	0	0	0	209	639	52	2298
PEAK HOUR SUMMARY														
4:45 PM	to 5:45 PM	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
VOLUME		29	1139	273	0	0	0	0	0	0	216	640	56	2353
PHF BY MOVEMENT		0.56	0.84	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.82	0.87	0.70	OVERALL
PHF BY APPROACH		0.85			0.00			0.00			0.88			0.88

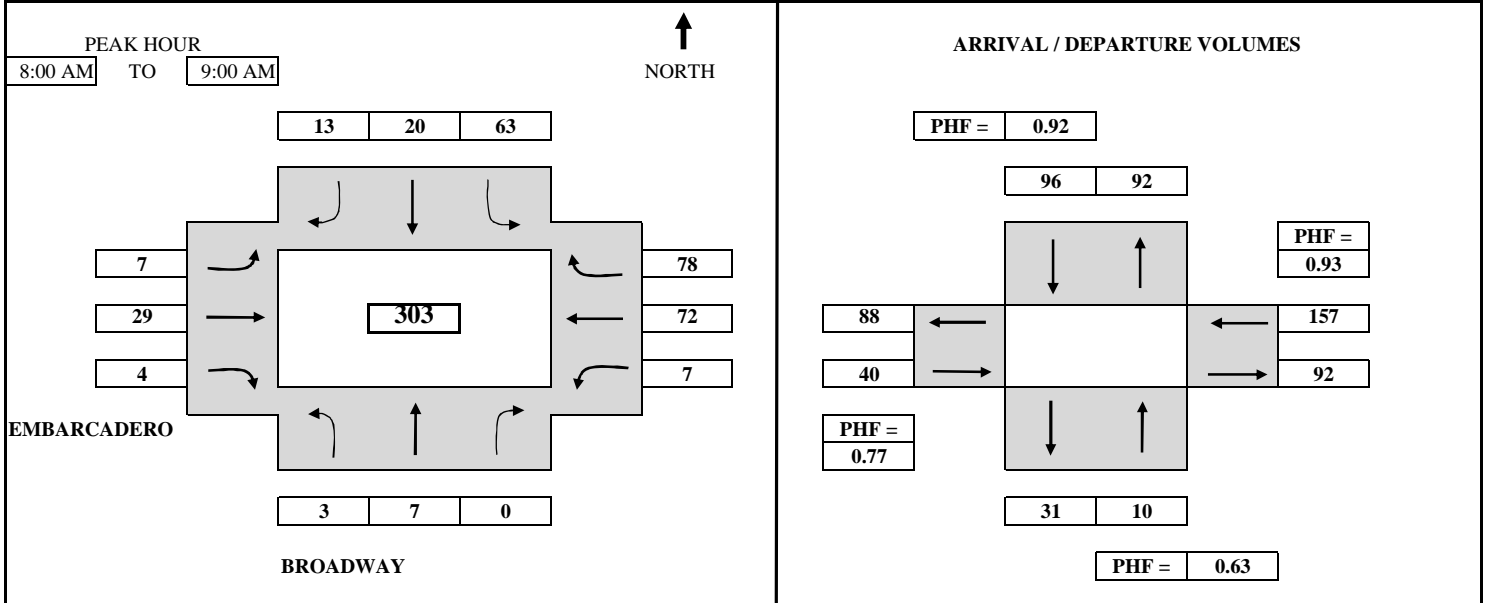
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY	SURVEY DATE: 1/15/2013	DAY: TUESDAY
N-S APPROACH: BROADWAY	SURVEY TIME: 7:00 AM	TO 9:00 AM
E-W APPROACH EMBARCADERO	JURISDICTION: OAKLAND	FILE: 3301002-5AM



TIME	PERIOD	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
SURVEY DATA														
7:00 AM	to 7:15 AM	1	3	2	15	3	2	2	7	0	2	7	8	52
7:15 AM	to 7:30 AM	2	3	2	26	5	7	2	11	1	2	10	23	94
7:30 AM	to 7:45 AM	3	4	2	37	11	14	4	14	5	4	24	38	160
7:45 AM	to 8:00 AM	7	5	2	47	16	14	7	19	7	5	48	53	230
8:00 AM	to 8:15 AM	7	6	2	65	19	16	9	27	10	7	67	74	309
8:15 AM	to 8:30 AM	8	7	2	78	25	20	11	37	10	9	85	94	386
8:30 AM	to 8:45 AM	9	9	2	92	31	24	13	44	11	11	101	110	457
8:45 AM	to 9:00 AM	10	12	2	110	36	27	14	48	11	12	120	131	533
TOTAL BY PERIOD														
7:00 AM	to 7:15 AM	1	3	2	15	3	2	2	7	0	2	7	8	52
7:15 AM	to 7:30 AM	1	0	0	11	2	5	0	4	1	0	3	15	42
7:30 AM	to 7:45 AM	1	1	0	11	6	7	2	3	4	2	14	15	66
7:45 AM	to 8:00 AM	4	1	0	10	5	0	3	5	2	1	24	15	70
8:00 AM	to 8:15 AM	0	1	0	18	3	2	2	8	3	2	19	21	79
8:15 AM	to 8:30 AM	1	1	0	13	6	4	2	10	0	2	18	20	77
8:30 AM	to 8:45 AM	1	2	0	14	6	4	2	7	1	2	16	16	71
8:45 AM	to 9:00 AM	1	3	0	18	5	3	1	4	0	1	19	21	76
HOURLY TOTALS														
7:00 AM	to 8:00 AM	7	5	2	47	16	14	7	19	7	5	48	53	230
7:15 AM	to 8:15 AM	6	3	0	50	16	14	7	20	10	5	60	66	257
7:30 AM	to 8:30 AM	6	4	0	52	20	13	9	26	9	7	75	71	292
7:45 AM	to 8:45 AM	6	5	0	55	20	10	9	30	6	7	77	72	297
8:00 AM	to 9:00 AM	3	7	0	63	20	13	7	29	4	7	72	78	303
PEAK HOUR SUMMARY														
8:00 AM	to 9:00 AM	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
VOLUME		3	7	0	63	20	13	7	29	4	7	72	78	303
PHF BY MOVEMENT		0.75	0.58	0.00	0.88	0.83	0.81	0.88	0.73	0.33	0.88	0.95	0.93	OVERALL
PHF BY APPROACH		0.63			0.92			0.77			0.93			0.96

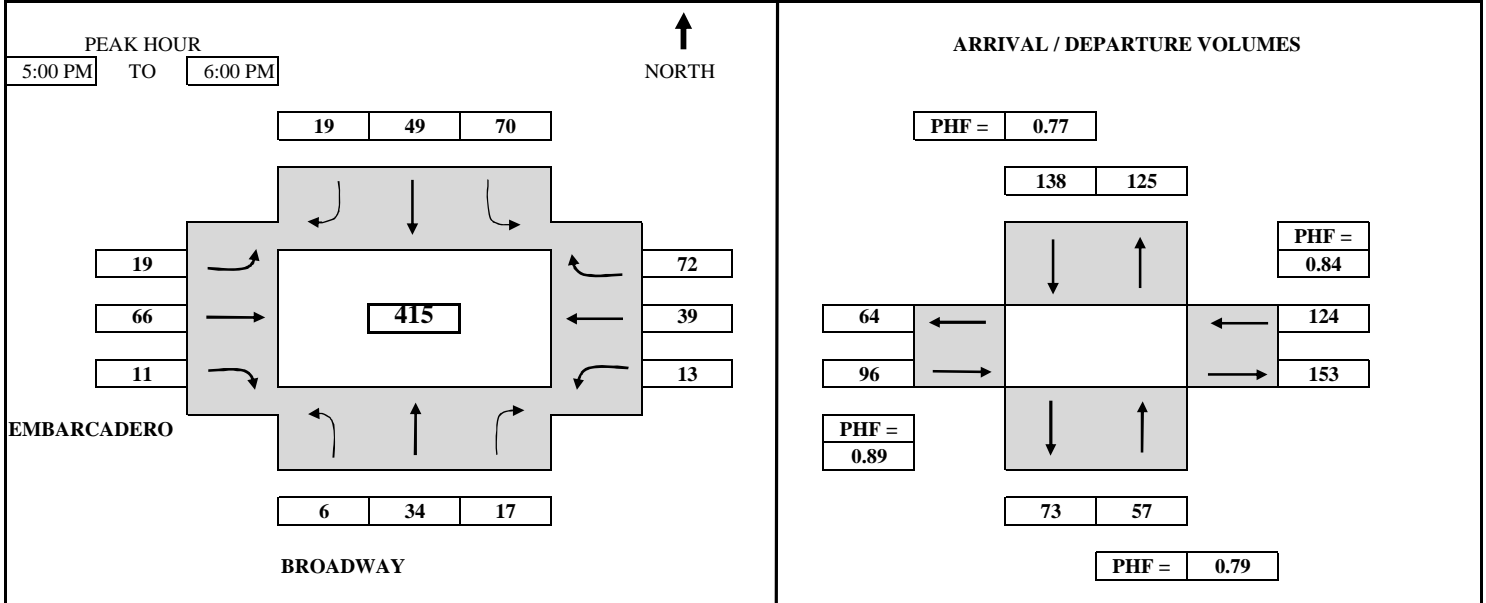
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY	SURVEY DATE: 1/15/2013	DAY: TUESDAY
N-S APPROACH: BROADWAY	SURVEY TIME: 4:00 PM	TO 6:00 PM
E-W APPROACH EMBARCADERO	JURISDICTION: OAKLAND	FILE: 3301002-5PM



TIME	PERIOD	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
SURVEY DATA														
4:00 PM	to 4:15 PM	1	8	1	13	6	1	2	25	2	2	21	20	102
4:15 PM	to 4:30 PM	1	16	1	25	10	5	4	44	3	2	34	34	179
4:30 PM	to 4:45 PM	3	30	2	40	20	11	6	73	5	3	45	50	288
4:45 PM	to 5:00 PM	3	39	3	54	23	14	11	103	8	4	53	65	380
5:00 PM	to 5:15 PM	6	49	8	60	33	14	15	119	10	9	58	82	463
5:15 PM	to 5:30 PM	7	61	12	75	44	23	19	136	11	15	71	100	574
5:30 PM	to 5:45 PM	8	71	17	96	64	27	26	152	15	16	84	119	695
5:45 PM	to 6:00 PM	9	73	20	124	72	33	30	169	19	17	92	137	795

TOTAL BY PERIOD														
4:00 PM	to 4:15 PM	1	8	1	13	6	1	2	25	2	2	21	20	102
4:15 PM	to 4:30 PM	0	8	0	12	4	4	2	19	1	0	13	14	77
4:30 PM	to 4:45 PM	2	14	1	15	10	6	2	29	2	1	11	16	109
4:45 PM	to 5:00 PM	0	9	1	14	3	3	5	30	3	1	8	15	92
5:00 PM	to 5:15 PM	3	10	5	6	10	0	4	16	2	5	5	17	83
5:15 PM	to 5:30 PM	1	12	4	15	11	9	4	17	1	6	13	18	111
5:30 PM	to 5:45 PM	1	10	5	21	20	4	7	16	4	1	13	19	121
5:45 PM	to 6:00 PM	1	2	3	28	8	6	4	17	4	1	8	18	100

HOURLY TOTALS														
4:00 PM	to 5:00 PM	3	39	3	54	23	14	11	103	8	4	53	65	380
4:15 PM	to 5:15 PM	5	41	7	47	27	13	13	94	8	7	37	62	361
4:30 PM	to 5:30 PM	6	45	11	50	34	18	15	92	8	13	37	66	395
4:45 PM	to 5:45 PM	5	41	15	56	44	16	20	79	10	13	39	69	407
5:00 PM	to 6:00 PM	6	34	17	70	49	19	19	66	11	13	39	72	415

PEAK HOUR SUMMARY														
5:00 PM	to 6:00 PM	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
VOLUME		6	34	17	70	49	19	19	66	11	13	39	72	415
PHF BY MOVEMENT		0.50	0.71	0.85	0.63	0.61	0.53	0.68	0.97	0.69	0.54	0.75	0.95	OVERALL
PHF BY APPROACH		0.79			0.77			0.89			0.84			0.86

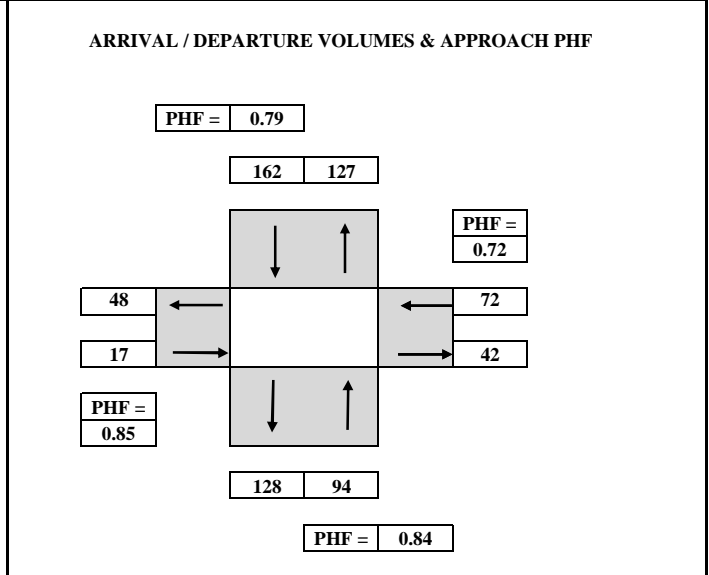
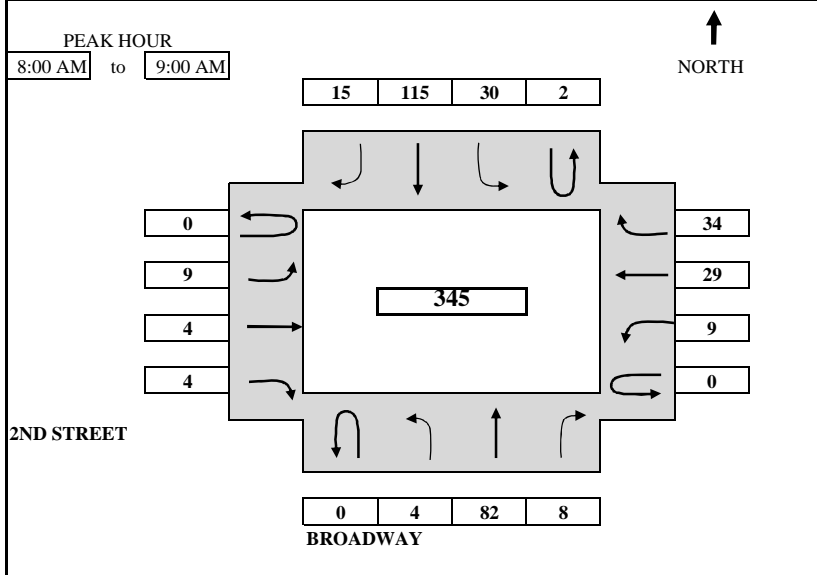
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY (II)	SURVEY DATE: 2/14/2013	DAY: THURSDAY
N-S APPROACH: BROADWAY	SURVEY TIME: 7:00 AM	TO 9:00 AM
E-W APPROACH: 2ND STREET	JURISDICTION: OAKLAND	FILE: 3302018-3AM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL			
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT	
SURVEY DATA																				
7:00 AM	to	7:15 AM	0	10	0	0	8	12	9	1	2	0	1	1	5					49
7:15 AM	to	7:30 AM	0	17	1	0	14	31	13	3	2	4	1	2	11					99
7:30 AM	to	7:45 AM	3	31	2	0	19	51	19	5	4	4	1	10	15					164
7:45 AM	to	8:00 AM	4	48	3	1	24	66	22	8	7	4	1	13	22					223
8:00 AM	to	8:15 AM	4	66	3	1	32	92	27	10	8	6	1	18	29					297
8:15 AM	to	8:30 AM	6	85	4	1	37	112	30	13	9	7	2	26	34					366
8:30 AM	to	8:45 AM	7	107	7	2	43	145	34	15	10	7	7	35	45					464
8:45 AM	to	9:00 AM	8	130	11	3	54	181	37	17	11	8	10	42	56					568

TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	0	10	0	0	8	12	9	0	1	2	0	0	1	1	5	49
7:15 AM	to	7:30 AM	0	0	7	1	0	6	19	4	0	2	0	4	0	0	1	6	50
7:30 AM	to	7:45 AM	0	3	14	1	0	5	20	6	0	2	2	0	0	0	8	4	65
7:45 AM	to	8:00 AM	0	1	17	1	1	5	15	3	0	3	3	0	0	0	3	7	59
8:00 AM	to	8:15 AM	0	0	18	0	0	8	26	5	0	2	1	2	0	0	5	7	74
8:15 AM	to	8:30 AM	0	2	19	1	0	5	20	3	0	3	1	1	0	1	8	5	69
8:30 AM	to	8:45 AM	0	1	22	3	1	6	33	4	0	2	1	0	0	5	9	11	98
8:45 AM	to	9:00 AM	0	1	23	4	1	11	36	3	0	2	1	1	0	3	7	11	104

HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	4	48	3	1	24	66	22	0	8	7	4	0	1	13	22	223
7:15 AM	to	8:15 AM	0	4	56	3	1	24	80	18	0	9	6	6	0	0	17	24	248
7:30 AM	to	8:30 AM	0	6	68	3	1	23	81	17	0	10	7	3	0	1	24	23	267
7:45 AM	to	8:45 AM	0	4	76	5	2	24	94	15	0	10	6	3	0	6	25	30	300
8:00 AM	to	9:00 AM	0	4	82	8	2	30	115	15	0	9	4	4	0	9	29	34	345

PEAK HOUR SUMMARY																			
8:00 AM	to	9:00 AM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
			0	4	82	8	2	30	115	15	0	9	4	4	0	9	29	34	345
PHF BY MOVEMENT			0.00	0.50	0.89	0.50	0.50	0.68	0.80	0.75	0.00	0.75	1.00	0.50	0.00	0.45	0.81	0.77	OVERALL
PHF BY APPROACH			0.84				0.79				0.85				0.72				0.83

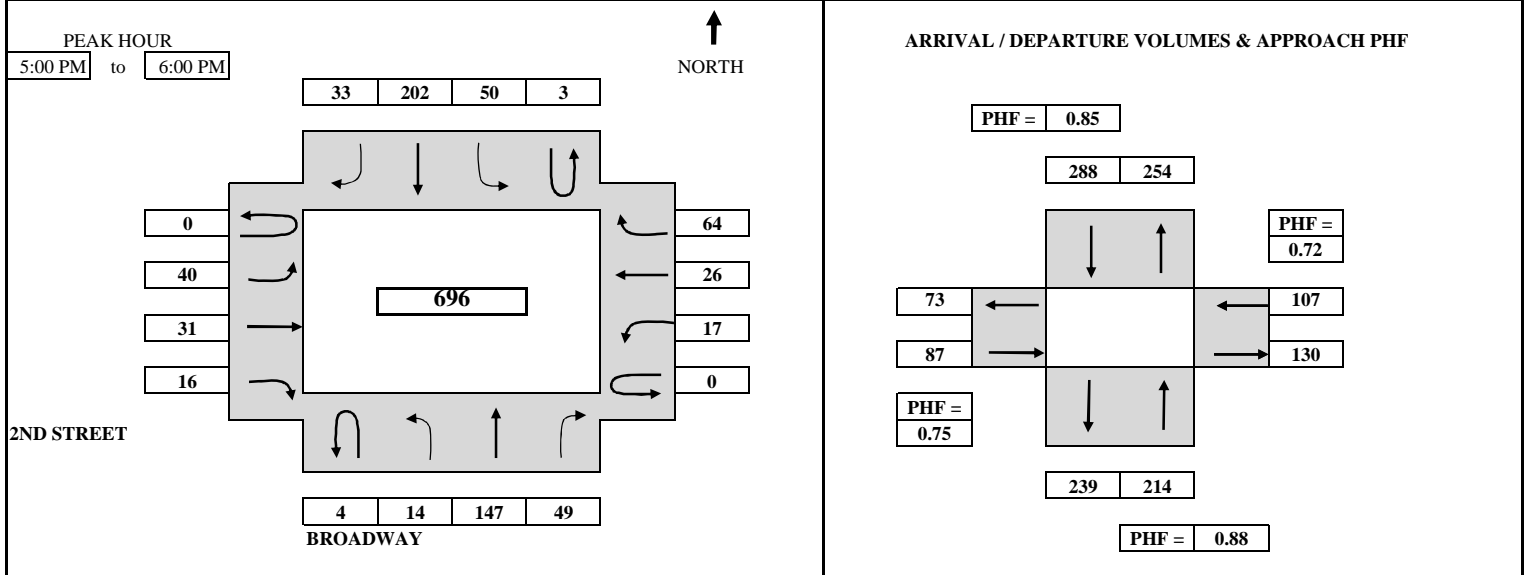
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY (II)	SURVEY DATE:	2/14/2013	DAY:	THURSDAY
N-S APPROACH:	BROADWAY	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	2ND STREET	JURISDICTION:	OAKLAND	FILE:	3302018-3PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL			
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT	
SURVEY DATA																				
4:00 PM	to	4:15 PM	0	1	40	3	0	9	28	4	8	8	0	4	6	6	6	117		
4:15 PM	to	4:30 PM	0	1	57	7	0	20	54	13	18	17	1	5	13	16	16	222		
4:30 PM	to	4:45 PM	0	3	87	12	1	29	95	17	26	25	2	9	17	25	25	348		
4:45 PM	to	5:00 PM	0	6	122	17	1	37	141	22	37	32	3	12	21	34	34	485		
5:00 PM	to	5:15 PM	1	10	164	29	1	47	184	32	50	42	9	16	30	46	46	661		
5:15 PM	to	5:30 PM	2	15	201	38	2	61	232	37	62	53	11	19	34	62	62	829		
5:30 PM	to	5:45 PM	3	18	232	45	4	73	284	43	70	58	17	26	43	83	83	999		
5:45 PM	to	6:00 PM	4	20	269	66	4	87	343	55	77	63	19	29	47	98	98	1181		
TOTAL BY PERIOD																				
4:00 PM	to	4:15 PM	0	1	40	3	0	9	28	4	0	8	8	0	0	4	6	6	117	
4:15 PM	to	4:30 PM	0	0	17	4	0	11	26	9	0	10	9	1	0	1	7	10	105	
4:30 PM	to	4:45 PM	0	2	30	5	1	9	41	4	0	8	8	1	0	4	4	9	126	
4:45 PM	to	5:00 PM	0	3	35	5	0	8	46	5	0	11	7	1	0	3	4	9	137	
5:00 PM	to	5:15 PM	1	4	42	12	0	10	43	10	0	13	10	6	0	4	9	12	176	
5:15 PM	to	5:30 PM	1	5	37	9	1	14	48	5	0	12	11	2	0	3	4	16	168	
5:30 PM	to	5:45 PM	1	3	31	7	2	12	52	6	0	8	5	6	0	7	9	21	170	
5:45 PM	to	6:00 PM	1	2	37	21	0	14	59	12	0	7	5	2	0	3	4	15	182	
HOURLY TOTALS																				
4:00 PM	to	5:00 PM	0	6	122	17	1	37	141	22	0	37	32	3	0	12	21	34	485	
4:15 PM	to	5:15 PM	1	9	124	26	1	38	156	28	0	42	34	9	0	12	24	40	544	
4:30 PM	to	5:30 PM	2	14	144	31	2	41	178	24	0	44	36	10	0	14	21	46	607	
4:45 PM	to	5:45 PM	3	15	145	33	3	44	189	26	0	44	33	15	0	17	26	58	651	
5:00 PM	to	6:00 PM	4	14	147	49	3	50	202	33	0	40	31	16	0	17	26	64	696	
PEAK HOUR SUMMARY																				
5:00 PM	to	6:00 PM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL	
			4	14	147	49	3	50	202	33	0	40	31	16	0	17	26	64	64	696
PHF BY MOVEMENT			1.00	0.70	0.88	0.58	0.38	0.89	0.86	0.69	0.00	0.77	0.70	0.67	0.00	0.61	0.72	0.76	0.76	OVERALL
PHF BY APPROACH			0.88				0.85				0.75				0.72				0.96	

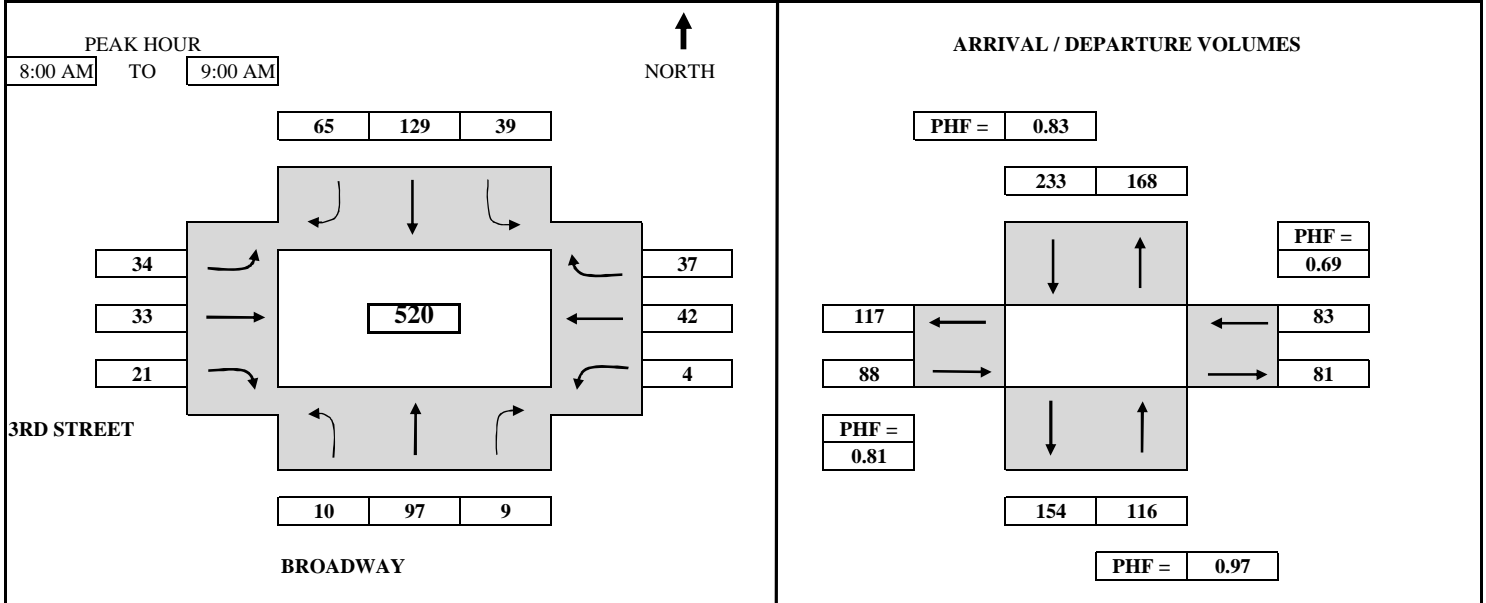
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY	SURVEY DATE: 1/15/2013	DAY: TUESDAY
N-S APPROACH: BROADWAY	SURVEY TIME: 7:00 AM	TO 9:00 AM
E-W APPROACH 3RD STREET	JURISDICTION: OAKLAND	FILE: 3301002-6AM



TIME	PERIOD	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
SURVEY DATA														
7:00 AM	to 7:15 AM	2	16	0	2	26	12	4	1	7	4	5	8	87
7:15 AM	to 7:30 AM	3	32	1	4	49	23	11	5	10	6	9	15	168
7:30 AM	to 7:45 AM	4	51	2	10	77	38	16	8	16	7	19	32	280
7:45 AM	to 8:00 AM	7	74	7	16	108	54	22	13	21	8	28	40	398
8:00 AM	to 8:15 AM	9	99	9	25	131	68	29	17	28	9	35	45	504
8:15 AM	to 8:30 AM	12	122	11	32	169	93	38	28	35	11	47	61	659
8:30 AM	to 8:45 AM	14	148	13	46	199	111	50	34	40	12	62	70	799
8:45 AM	to 9:00 AM	17	171	16	55	237	119	56	46	42	12	70	77	918

TOTAL BY PERIOD														
7:00 AM	to 7:15 AM	2	16	0	2	26	12	4	1	7	4	5	8	87
7:15 AM	to 7:30 AM	1	16	1	2	23	11	7	4	3	2	4	7	81
7:30 AM	to 7:45 AM	1	19	1	6	28	15	5	3	6	1	10	17	112
7:45 AM	to 8:00 AM	3	23	5	6	31	16	6	5	5	1	9	8	118
8:00 AM	to 8:15 AM	2	25	2	9	23	14	7	4	7	1	7	5	106
8:15 AM	to 8:30 AM	3	23	2	7	38	25	9	11	7	2	12	16	155
8:30 AM	to 8:45 AM	2	26	2	14	30	18	12	6	5	1	15	9	140
8:45 AM	to 9:00 AM	3	23	3	9	38	8	6	12	2	0	8	7	119

HOURLY TOTALS														
7:00 AM	to 8:00 AM	7	74	7	16	108	54	22	13	21	8	28	40	398
7:15 AM	to 8:15 AM	7	83	9	23	105	56	25	16	21	5	30	37	417
7:30 AM	to 8:30 AM	9	90	10	28	120	70	27	23	25	5	38	46	491
7:45 AM	to 8:45 AM	10	97	11	36	122	73	34	26	24	5	43	38	519
8:00 AM	to 9:00 AM	10	97	9	39	129	65	34	33	21	4	42	37	520

PEAK HOUR SUMMARY														
8:00 AM	to 9:00 AM	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
VOLUME		10	97	9	39	129	65	34	33	21	4	42	37	520
PHF BY MOVEMENT		0.83	0.93	0.75	0.70	0.85	0.65	0.71	0.69	0.75	0.50	0.70	0.58	OVERALL
PHF BY APPROACH		0.97			0.83			0.81			0.69			0.84

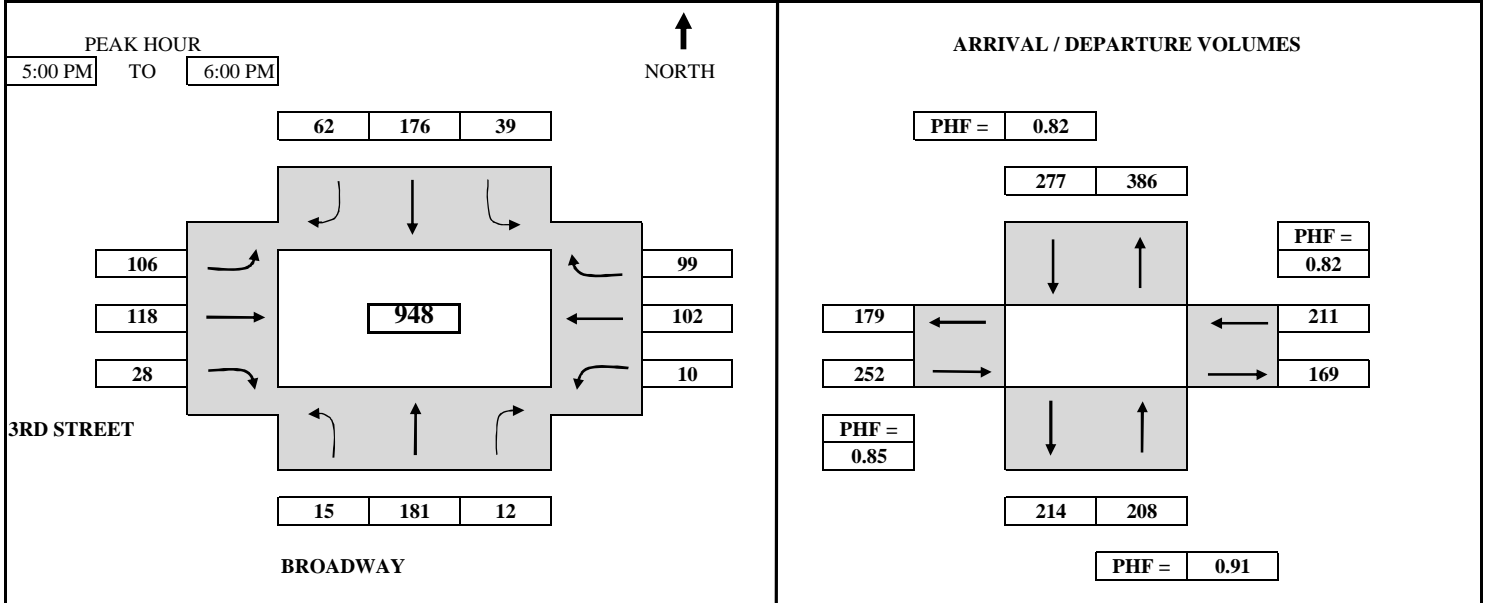
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY	SURVEY DATE: 1/15/2013	DAY: TUESDAY
N-S APPROACH: BROADWAY	SURVEY TIME: 4:00 PM	TO 6:00 PM
E-W APPROACH 3RD STREET	JURISDICTION: OAKLAND	FILE: 3301002-6PM



TIME	PERIOD	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
SURVEY DATA														
4:00 PM	to 4:15 PM	3	47	2	12	30	15	24	23	4	1	29	18	208
4:15 PM	to 4:30 PM	8	91	5	24	60	31	46	46	9	3	52	34	409
4:30 PM	to 4:45 PM	11	137	7	34	103	48	70	73	13	4	77	52	629
4:45 PM	to 5:00 PM	14	179	9	42	127	59	92	102	15	6	95	74	814
5:00 PM	to 5:15 PM	16	229	12	54	152	74	126	131	26	6	119	104	1049
5:15 PM	to 5:30 PM	21	277	14	62	199	90	152	162	35	9	148	126	1295
5:30 PM	to 5:45 PM	25	327	17	70	249	102	181	185	38	13	179	155	1541
5:45 PM	to 6:00 PM	29	360	21	81	303	121	198	220	43	16	197	173	1762
TOTAL BY PERIOD														
4:00 PM	to 4:15 PM	3	47	2	12	30	15	24	23	4	1	29	18	208
4:15 PM	to 4:30 PM	5	44	3	12	30	16	22	23	5	2	23	16	201
4:30 PM	to 4:45 PM	3	46	2	10	43	17	24	27	4	1	25	18	220
4:45 PM	to 5:00 PM	3	42	2	8	24	11	22	29	2	2	18	22	185
5:00 PM	to 5:15 PM	2	50	3	12	25	15	34	29	11	0	24	30	235
5:15 PM	to 5:30 PM	5	48	2	8	47	16	26	31	9	3	29	22	246
5:30 PM	to 5:45 PM	4	50	3	8	50	12	29	23	3	4	31	29	246
5:45 PM	to 6:00 PM	4	33	4	11	54	19	17	35	5	3	18	18	221
HOURLY TOTALS														
4:00 PM	to 5:00 PM	14	179	9	42	127	59	92	102	15	6	95	74	814
4:15 PM	to 5:15 PM	13	182	10	42	122	59	102	108	22	5	90	86	841
4:30 PM	to 5:30 PM	13	186	9	38	139	59	106	116	26	6	96	92	886
4:45 PM	to 5:45 PM	14	190	10	36	146	54	111	112	25	9	102	103	912
5:00 PM	to 6:00 PM	15	181	12	39	176	62	106	118	28	10	102	99	948
PEAK HOUR SUMMARY														
5:00 PM	to 6:00 PM	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
VOLUME		15	181	12	39	176	62	106	118	28	10	102	99	948
PHF BY MOVEMENT		0.75	0.91	0.75	0.81	0.81	0.82	0.78	0.84	0.64	0.63	0.82	0.83	OVERALL
PHF BY APPROACH		0.91			0.82			0.85			0.82			0.96

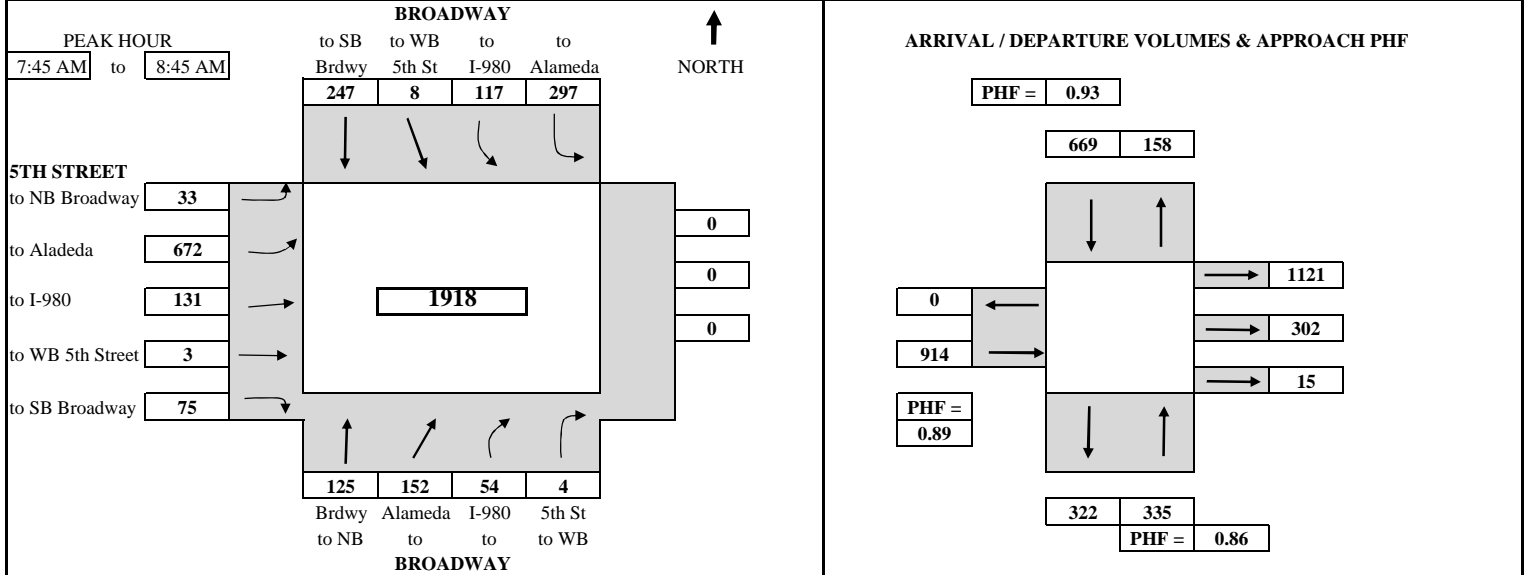
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B. A. Y. M. E. T. R. I. C. S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY	SURVEY DATE:	1/15/2013	DAY:	TUESDAY
N-S APPROACH:	BROADWAY	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W APPROACH:	5TH STREET	JURISDICTION:	OAKLAND	FILE:	3301002-7AM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND					TOTAL		
	From	To	NB BDY	ALADA	I-980	5th ST	ALADA	I-980	5th ST	SB BDY	NB BDY	ALADA	I-980		5th ST	SB BDY
SURVEY DATA																
7:00 AM to 7:15 AM			13	19	10	2	58	29	2	34	7	107	19	0	6	306
7:15 AM to 7:30 AM			36	43	22	3	131	46	2	77	15	248	40	1	18	682
7:30 AM to 7:45 AM			65	75	33	3	193	67	3	149	21	417	70	2	35	1133
7:45 AM to 8:00 AM			79	116	48	4	282	96	6	196	31	621	93	2	56	1630
8:00 AM to 8:15 AM			113	150	56	4	352	121	8	249	38	786	127	4	70	2078
8:15 AM to 8:30 AM			150	193	71	6	428	148	9	317	48	951	163	4	96	2584
8:30 AM to 8:45 AM			190	227	87	7	490	184	11	396	54	1089	201	5	110	3051
8:45 AM to 9:00 AM			224	259	101	8	554	219	12	468	65	1251	239	7	130	3537

TOTAL BY PERIOD																			
7:00 AM to 7:15 AM			13	19	10	2	58	29	2	34	7	107	19	0	6	0	0	0	306
7:15 AM to 7:30 AM			23	24	12	1	73	17	0	43	8	141	21	1	12	0	0	0	376
7:30 AM to 7:45 AM			29	32	11	0	62	21	1	72	6	169	30	1	17	0	0	0	451
7:45 AM to 8:00 AM			14	41	15	1	89	29	3	47	10	204	23	0	21	0	0	0	497
8:00 AM to 8:15 AM			34	34	8	0	70	25	2	53	7	165	34	2	14	0	0	0	448
8:15 AM to 8:30 AM			37	43	15	2	76	27	1	68	10	165	36	0	26	0	0	0	506
8:30 AM to 8:45 AM			40	34	16	1	62	36	2	79	6	138	38	1	14	0	0	0	467
8:45 AM to 9:00 AM			34	32	14	1	64	35	1	72	11	162	38	2	20	0	0	0	486

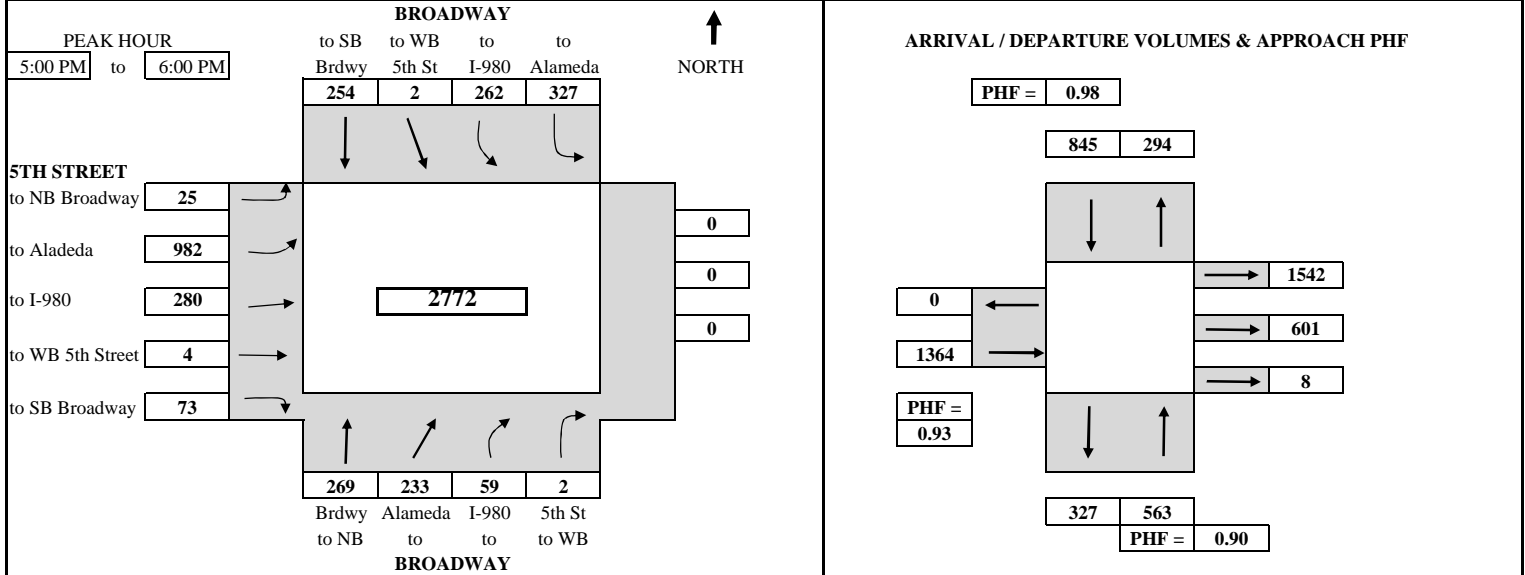
HOURLY TOTALS																			
7:00 AM to 8:00 AM			79	116	48	4	282	96	6	196	31	621	93	2	56	0	0	0	1630
7:15 AM to 8:15 AM			100	131	46	2	294	92	6	215	31	679	108	4	64	0	0	0	1772
7:30 AM to 8:30 AM			114	150	49	3	297	102	7	240	33	703	123	3	78	0	0	0	1902
7:45 AM to 8:45 AM			125	152	54	4	297	117	8	247	33	672	131	3	75	0	0	0	1918
8:00 AM to 9:00 AM			145	143	53	4	272	123	6	272	34	630	146	5	74	0	0	0	1907

PEAK HOUR SUMMARY																	
7:45 AM to 8:45 AM	BRDWY	ALADA	I-980	5th ST	ALADA	I-980	5th ST	BRDWY	SB BDY	ALADA	I-980	5th ST	NB BDY	LEFT	THRU	RIGHT	TOTAL
VOLUME	125	152	54	4	297	117	8	247	33	672	131	3	75	0	0	0	1918
PHF BY MOVEMENT	0.78	0.88	0.84	0.50	0.83	0.81	0.67	0.78	0.83	0.82	0.86	0.38	0.72	0.00	0.00	0.00	OVERALL
PHF BY APPROACH	0.86				0.93				0.89				0.00			0.95	

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY	SURVEY DATE:	1/15/2013	DAY:	TUESDAY
N-S APPROACH:	BROADWAY	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	5TH STREET	JURISDICTION:	OAKLAND	FILE:	3301002-7PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND					TOTAL		
	From	To	NB BDY	ALADA	I-980	5th ST	ALADA	I-980	5th ST	SB BDY	NB BDY	ALADA	I-980		5th ST	SB BDY
SURVEY DATA																
4:00 PM to 4:15 PM			61	46	17	4	59	64	1	56	8	168	74	2	18	578
4:15 PM to 4:30 PM			129	92	31	6	127	132	3	111	17	363	143	4	31	1189
4:30 PM to 4:45 PM			184	144	46	7	193	209	3	172	21	552	228	5	46	1810
4:45 PM to 5:00 PM			245	197	60	7	273	272	3	227	31	765	293	7	55	2435
5:00 PM to 5:15 PM			328	244	86	7	351	349	3	280	42	1003	391	8	73	3165
5:15 PM to 5:30 PM			387	299	95	8	435	408	3	343	49	1261	450	10	88	3836
5:30 PM to 5:45 PM			449	373	113	9	517	469	5	414	51	1503	520	11	102	4536
5:45 PM to 6:00 PM			514	430	119	9	600	534	5	481	56	1747	573	11	128	5207

TOTAL BY PERIOD																			
4:00 PM to 4:15 PM			61	46	17	4	59	64	1	56	8	168	74	2	18	0	0	0	578
4:15 PM to 4:30 PM			68	46	14	2	68	68	2	55	9	195	69	2	13	0	0	0	611
4:30 PM to 4:45 PM			55	52	15	1	66	77	0	61	4	189	85	1	15	0	0	0	621
4:45 PM to 5:00 PM			61	53	14	0	80	63	0	55	10	213	65	2	9	0	0	0	625
5:00 PM to 5:15 PM			83	47	26	0	78	77	0	53	11	238	98	1	18	0	0	0	730
5:15 PM to 5:30 PM			59	55	9	1	84	59	0	63	7	258	59	2	15	0	0	0	671
5:30 PM to 5:45 PM			62	74	18	1	82	61	2	71	2	242	70	1	14	0	0	0	700
5:45 PM to 6:00 PM			65	57	6	0	83	65	0	67	5	244	53	0	26	0	0	0	671

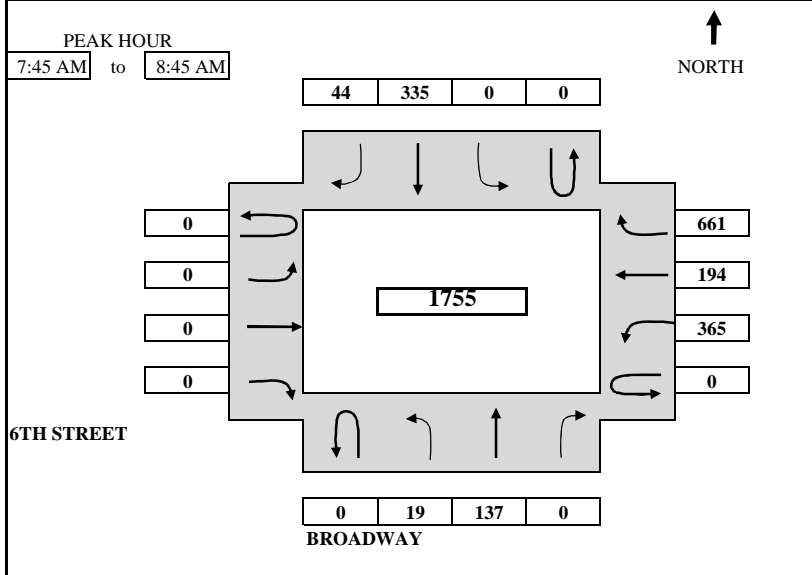
HOURLY TOTALS																			
4:00 PM to 5:00 PM			245	197	60	7	273	272	3	227	31	765	293	7	55	0	0	0	2435
4:15 PM to 5:15 PM			267	198	69	3	292	285	2	224	34	835	317	6	55	0	0	0	2587
4:30 PM to 5:30 PM			258	207	64	2	308	276	0	232	32	898	307	6	57	0	0	0	2647
4:45 PM to 5:45 PM			265	229	67	2	324	260	2	242	30	951	292	6	56	0	0	0	2726
5:00 PM to 6:00 PM			269	233	59	2	327	262	2	254	25	982	280	4	73	0	0	0	2772

PEAK HOUR SUMMARY																	
5:00 PM to 6:00 PM	BRDWY	ALADA	I-980	5th ST	ALADA	I-980	5th ST	BRDWY	SB BDY	ALADA	I-980	5th ST	NB BDY	LEFT	THRU	RIGHT	TOTAL
VOLUME	269	233	59	2	327	262	2	254	25	982	280	4	73	0	0	0	2772
PHF BY MOVEMENT	0.81	0.79	0.57	0.50	0.97	0.85	0.25	0.89	0.57	0.95	0.71	0.50	0.70	0.00	0.00	0.00	OVERALL
PHF BY APPROACH	0.90				0.98				0.93					0.00			0.95

B. A. Y. M. E. T. R. I. C. S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY (II)	SURVEY DATE:	2/14/2013	DAY:	THURSDAY
N-S APPROACH:	BROADWAY	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W APPROACH:	6TH STREET	JURISDICTION:	OAKLAND	FILE:	3302018-4AM



ARRIVAL / DEPARTURE VOLUMES & APPROACH PHF

PHF = 0.77	
379	798
257	1220
0	0
PHF = 0.00	
700	156
PHF = 0.78	

TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU
SURVEY DATA																		
7:00 AM to 7:15 AM			4	20			43	4						60	40	102		273
7:15 AM to 7:30 AM			4	44			100	7						150	75	248		628
7:30 AM to 7:45 AM			9	76			159	20						238	107	410		1019
7:45 AM to 8:00 AM			15	110			236	26						344	152	577		1460
8:00 AM to 8:15 AM			19	143			317	35						441	205	741		1901
8:15 AM to 8:30 AM			24	167			392	43						513	248	905		2292
8:30 AM to 8:45 AM			28	213			494	64						603	301	1071		2774
8:45 AM to 9:00 AM			31	247			569	76						695	354	1210		3182

TOTAL BY PERIOD																		
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	TOTAL	
7:00 AM to 7:15 AM	0	4	20	0	0	0	43	4	0	0	0	0	0	60	40	102	273	
7:15 AM to 7:30 AM	0	0	24	0	0	0	57	3	0	0	0	0	0	90	35	146	355	
7:30 AM to 7:45 AM	0	5	32	0	0	0	59	13	0	0	0	0	0	88	32	162	391	
7:45 AM to 8:00 AM	0	6	34	0	0	0	77	6	0	0	0	0	0	106	45	167	441	
8:00 AM to 8:15 AM	0	4	33	0	0	0	81	9	0	0	0	0	0	97	53	164	441	
8:15 AM to 8:30 AM	0	5	24	0	0	0	75	8	0	0	0	0	0	72	43	164	391	
8:30 AM to 8:45 AM	0	4	46	0	0	0	102	21	0	0	0	0	0	90	53	166	482	
8:45 AM to 9:00 AM	0	3	34	0	0	0	75	12	0	0	0	0	0	92	53	139	408	

HOURLY TOTALS																		
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	TOTAL	
7:00 AM to 8:00 AM	0	15	110	0	0	0	236	26	0	0	0	0	0	344	152	577	1460	
7:15 AM to 8:15 AM	0	15	123	0	0	0	274	31	0	0	0	0	0	381	165	639	1628	
7:30 AM to 8:30 AM	0	20	123	0	0	0	292	36	0	0	0	0	0	363	173	657	1664	
7:45 AM to 8:45 AM	0	19	137	0	0	0	335	44	0	0	0	0	0	365	194	661	1755	
8:00 AM to 9:00 AM	0	16	137	0	0	0	333	50	0	0	0	0	0	351	202	633	1722	

PEAK HOUR SUMMARY																		
TIME PERIOD	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL	
7:45 AM to 8:45 AM	0	19	137	0	0	0	335	44	0	0	0	0	0	365	194	661	1755	
PHF BY MOVEMENT	0.00	0.79	0.74	0.00	0.00	0.00	0.82	0.52	0.00	0.00	0.00	0.00	0.00	0.86	0.92	0.99	OVERALL	
PHF BY APPROACH	0.78				0.77				0.00				0.96				0.91	

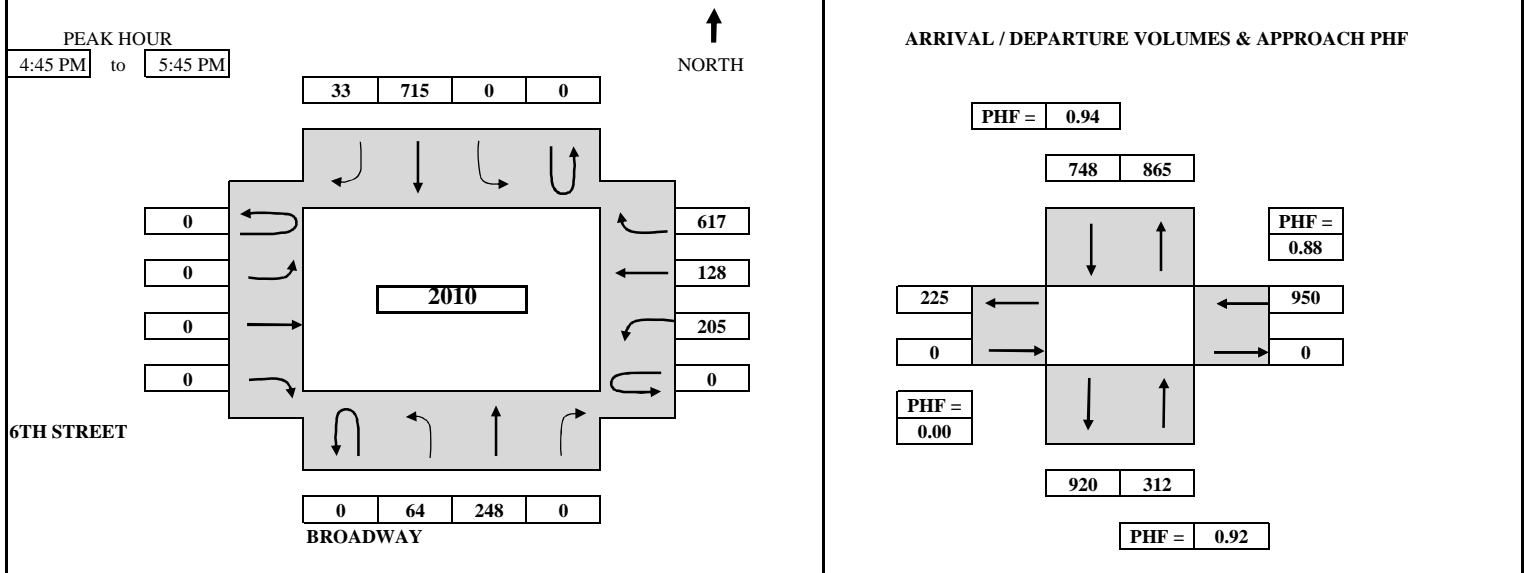
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY (II)	SURVEY DATE:	2/14/2013	DAY:	THURSDAY
N-S APPROACH:	BROADWAY	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	6TH STREET	JURISDICTION:	OAKLAND	FILE:	3302018-4PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
4:00 PM	to	4:15 PM	14	65			150	6					63	22	115				435
4:15 PM	to	4:30 PM	23	119			302	19					127	51	224				865
4:30 PM	to	4:45 PM	39	205			481	32					193	84	326				1360
4:45 PM	to	5:00 PM	60	269			643	40					262	110	502				1886
5:00 PM	to	5:15 PM	75	329			823	47					301	139	615				2329
5:15 PM	to	5:30 PM	93	384			1011	58					347	172	763				2828
5:30 PM	to	5:45 PM	103	453			1196	65					398	212	943				3370
5:45 PM	to	6:00 PM	119	505			1370	67					443	249	1086				3839

TOTAL BY PERIOD																			
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	TOTAL		
4:00 PM to 4:15 PM	0	14	65	0	0	0	150	6	0	0	0	0	0	63	22	115	435		
4:15 PM to 4:30 PM	0	9	54	0	0	0	152	13	0	0	0	0	0	64	29	109	430		
4:30 PM to 4:45 PM	0	16	86	0	0	0	179	13	0	0	0	0	0	66	33	102	495		
4:45 PM to 5:00 PM	0	21	64	0	0	0	162	8	0	0	0	0	0	69	26	176	526		
5:00 PM to 5:15 PM	0	15	60	0	0	0	180	7	0	0	0	0	0	39	29	113	443		
5:15 PM to 5:30 PM	0	18	55	0	0	0	188	11	0	0	0	0	0	46	33	148	499		
5:30 PM to 5:45 PM	0	10	69	0	0	0	185	7	0	0	0	0	0	51	40	180	542		
5:45 PM to 6:00 PM	0	16	52	0	0	0	174	2	0	0	0	0	0	45	37	143	469		

HOURLY TOTALS																			
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	TOTAL		
4:00 PM to 5:00 PM	0	60	269	0	0	0	643	40	0	0	0	0	0	262	110	502	1886		
4:15 PM to 5:15 PM	0	61	264	0	0	0	673	41	0	0	0	0	0	238	117	500	1894		
4:30 PM to 5:30 PM	0	70	265	0	0	0	709	39	0	0	0	0	0	220	121	539	1963		
4:45 PM to 5:45 PM	0	64	248	0	0	0	715	33	0	0	0	0	0	205	128	617	2010		
5:00 PM to 6:00 PM	0	59	236	0	0	0	727	27	0	0	0	0	0	181	139	584	1953		

PEAK HOUR SUMMARY																			
TIME PERIOD	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL		
4:45 PM to 5:45 PM	0	64	248	0	0	0	715	33	0	0	0	0	0	205	128	617	2010		
PHF BY MOVEMENT	0.00	0.76	0.90	0.00	0.00	0.00	0.95	0.75	0.00	0.00	0.00	0.00	0.00	0.74	0.80	0.86	OVERALL		
PHF BY APPROACH	0.92				0.94				0.00				0.88				0.93		

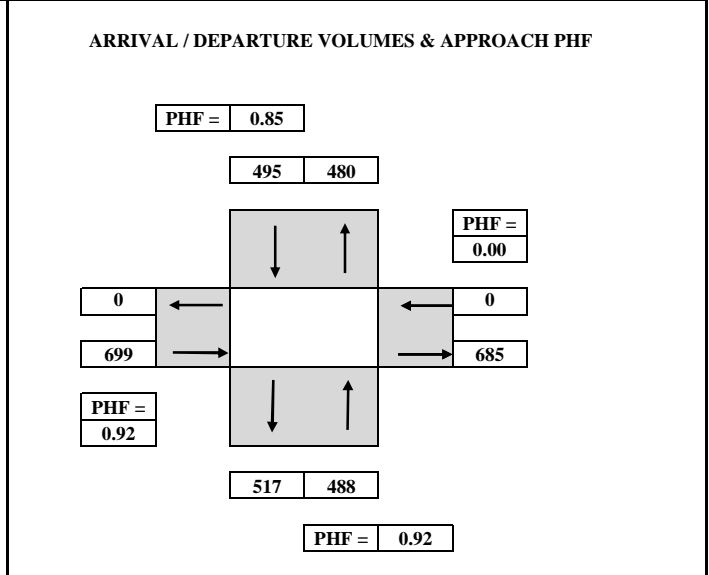
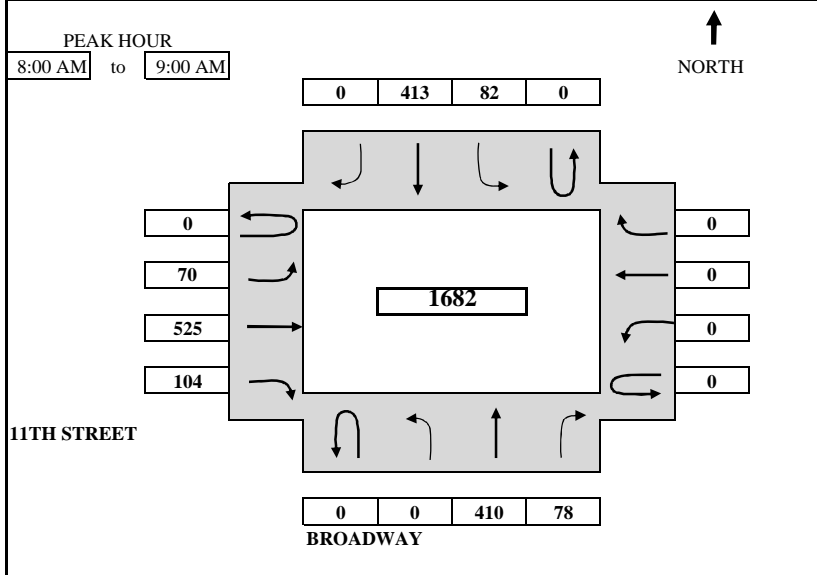
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY (II)	SURVEY DATE: 2/14/2013	DAY: THURSDAY
N-S APPROACH: BROADWAY	SURVEY TIME: 7:00 AM	TO 9:00 AM
E-W APPROACH: 11TH STREET	JURISDICTION: OAKLAND	FILE: 3302018-5AM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
7:00 AM	to	7:15 AM			50	17			7	35			14	72	15				210
7:15 AM	to	7:30 AM			120	30			18	84			28	162	28				470
7:30 AM	to	7:45 AM			205	54			24	162			45	262	50				802
7:45 AM	to	8:00 AM			299	75			45	245			59	385	69				1177
8:00 AM	to	8:15 AM			392	91			66	331			79	536	88				1583
8:15 AM	to	8:30 AM			502	113			79	422			95	669	115				1995
8:30 AM	to	8:45 AM			611	137			100	547			110	804	140				2449
8:45 AM	to	9:00 AM			709	153			127	658			129	910	173				2859

TOTAL BY PERIOD																		
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	TOTAL	
7:00 AM to 7:15 AM	0	0	50	17	0	7	35	0	0	14	72	15	0	0	0	0	210	
7:15 AM to 7:30 AM	0	0	70	13	0	11	49	0	0	14	90	13	0	0	0	0	260	
7:30 AM to 7:45 AM	0	0	85	24	0	6	78	0	0	17	100	22	0	0	0	0	332	
7:45 AM to 8:00 AM	0	0	94	21	0	21	83	0	0	14	123	19	0	0	0	0	375	
8:00 AM to 8:15 AM	0	0	93	16	0	21	86	0	0	20	151	19	0	0	0	0	406	
8:15 AM to 8:30 AM	0	0	110	22	0	13	91	0	0	16	133	27	0	0	0	0	412	
8:30 AM to 8:45 AM	0	0	109	24	0	21	125	0	0	15	135	25	0	0	0	0	454	
8:45 AM to 9:00 AM	0	0	98	16	0	27	111	0	0	19	106	33	0	0	0	0	410	

HOURLY TOTALS																		
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	TOTAL	
7:00 AM to 8:00 AM	0	0	299	75	0	45	245	0	0	59	385	69	0	0	0	0	1177	
7:15 AM to 8:15 AM	0	0	342	74	0	59	296	0	0	65	464	73	0	0	0	0	1373	
7:30 AM to 8:30 AM	0	0	382	83	0	61	338	0	0	67	507	87	0	0	0	0	1525	
7:45 AM to 8:45 AM	0	0	406	83	0	76	385	0	0	65	542	90	0	0	0	0	1647	
8:00 AM to 9:00 AM	0	0	410	78	0	82	413	0	0	70	525	104	0	0	0	0	1682	

PEAK HOUR SUMMARY																		
TIME PERIOD	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL	
8:00 AM to 9:00 AM	0	0	410	78	0	82	413	0	0	70	525	104	0	0	0	0	1682	
PHF BY MOVEMENT	0.00	0.00	0.93	0.81	0.00	0.76	0.83	0.00	0.00	0.88	0.87	0.79	0.00	0.00	0.00	0.00	OVERALL	
PHF BY APPROACH	0.92				0.85				0.92				0.00				0.93	

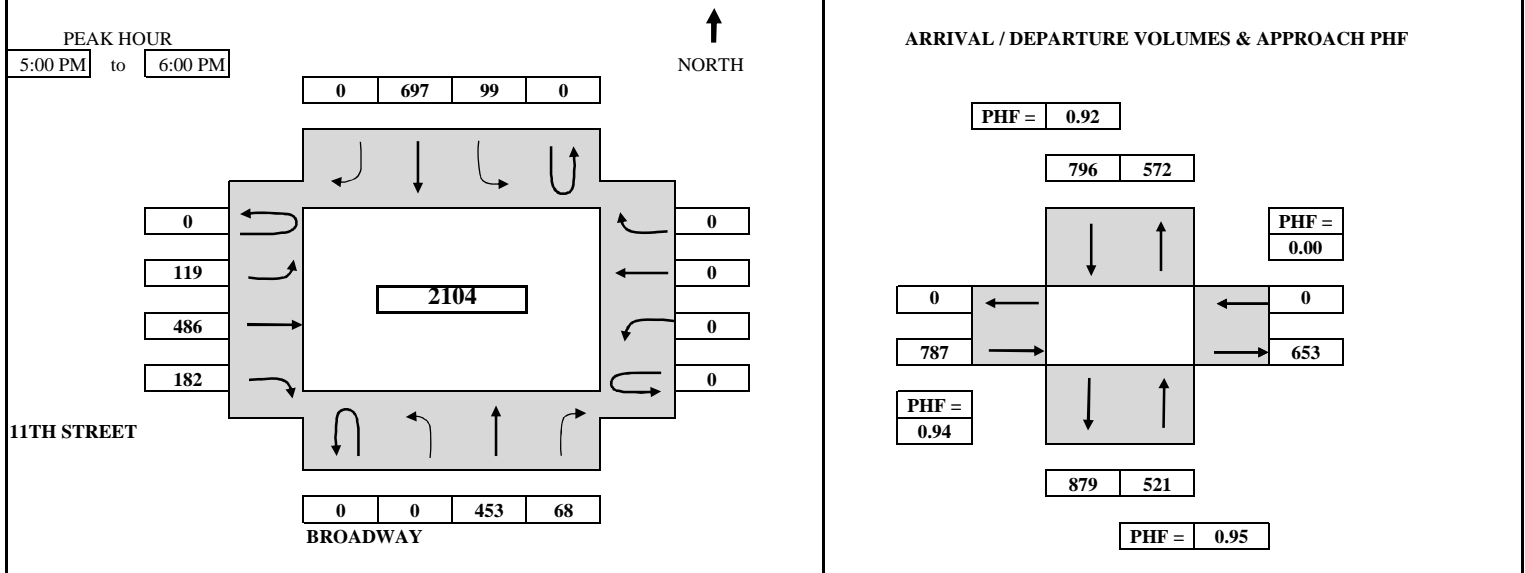
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY (II)	SURVEY DATE: 2/14/2013	DAY: THURSDAY
N-S APPROACH: BROADWAY	SURVEY TIME: 4:00 PM	TO 6:00 PM
E-W APPROACH: 11TH STREET	JURISDICTION: OAKLAND	FILE: 3302018-5PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL			
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT	
SURVEY DATA																				
4:00 PM	to	4:15 PM			98	12			21	150			24	90	34					429
4:15 PM	to	4:30 PM			199	21			50	298			47	171	76					862
4:30 PM	to	4:45 PM			320	38			72	478			78	249	115					1350
4:45 PM	to	5:00 PM			437	56			100	635			106	354	157					1845
5:00 PM	to	5:15 PM			556	73			130	822			134	487	202					2404
5:15 PM	to	5:30 PM			659	99			149	997			159	598	247					2908
5:30 PM	to	5:45 PM			787	108			176	1169			194	721	298					3453
5:45 PM	to	6:00 PM			890	124			199	1332			225	840	339					3949
TOTAL BY PERIOD																				
4:00 PM	to	4:15 PM	0	0	98	12	0	0	21	150	0	0	24	90	34	0	0	0	0	429
4:15 PM	to	4:30 PM	0	0	101	9	0	0	29	148	0	0	23	81	42	0	0	0	0	433
4:30 PM	to	4:45 PM	0	0	121	17	0	0	22	180	0	0	31	78	39	0	0	0	0	488
4:45 PM	to	5:00 PM	0	0	117	18	0	0	28	157	0	0	28	105	42	0	0	0	0	495
5:00 PM	to	5:15 PM	0	0	119	17	0	0	30	187	0	0	28	133	45	0	0	0	0	559
5:15 PM	to	5:30 PM	0	0	103	26	0	0	19	175	0	0	25	111	45	0	0	0	0	504
5:30 PM	to	5:45 PM	0	0	128	9	0	0	27	172	0	0	35	123	51	0	0	0	0	545
5:45 PM	to	6:00 PM	0	0	103	16	0	0	23	163	0	0	31	119	41	0	0	0	0	496
HOURLY TOTALS																				
4:00 PM	to	5:00 PM	0	0	437	56	0	0	100	635	0	0	106	354	157	0	0	0	0	1845
4:15 PM	to	5:15 PM	0	0	458	61	0	0	109	672	0	0	110	397	168	0	0	0	0	1975
4:30 PM	to	5:30 PM	0	0	460	78	0	0	99	699	0	0	112	427	171	0	0	0	0	2046
4:45 PM	to	5:45 PM	0	0	467	70	0	0	104	691	0	0	116	472	183	0	0	0	0	2103
5:00 PM	to	6:00 PM	0	0	453	68	0	0	99	697	0	0	119	486	182	0	0	0	0	2104
PEAK HOUR SUMMARY																				
5:00 PM	to	6:00 PM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL	
			0	0	453	68	0	99	697	0	0	119	486	182	0	0	0	0	0	2104
			PHF BY MOVEMENT	0.00	0.00	0.88	0.65	0.00	0.83	0.93	0.00	0.00	0.85	0.91	0.89	0.00	0.00	0.00	0.00	OVERALL
			PHF BY APPROACH	0.95				0.92				0.94				0.00				0.94

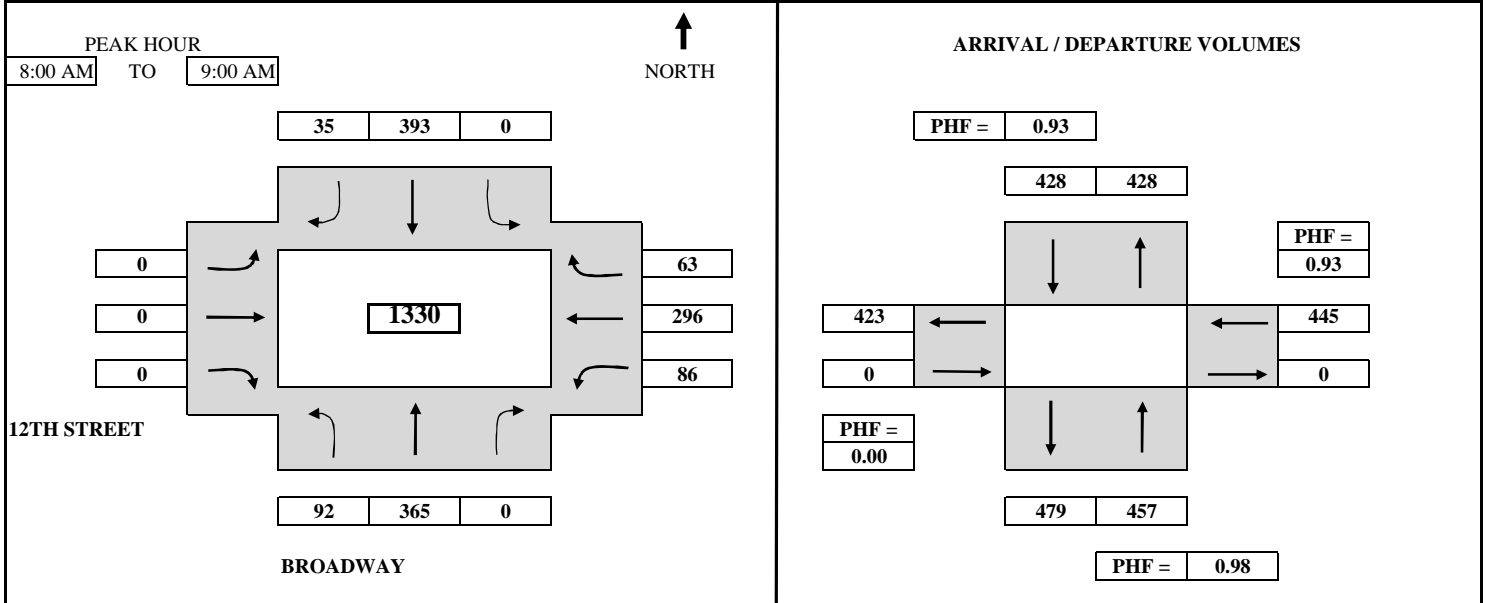
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY	SURVEY DATE: 1/15/2013	DAY: TUESDAY
N-S APPROACH: BROADWAY	SURVEY TIME: 7:00 AM	TO 9:00 AM
E-W APPROACH 12TH STREET	JURISDICTION: OAKLAND	FILE: 3301002-8AM



TIME	PERIOD	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
SURVEY DATA														
7:00 AM	to 7:15 AM	19	51		43	9				11	37	14	184	
7:15 AM	to 7:30 AM	40	102		95	17				25	72	28	379	
7:30 AM	to 7:45 AM	63	179		156	22				40	129	47	636	
7:45 AM	to 8:00 AM	92	265		235	33				51	198	62	936	
8:00 AM	to 8:15 AM	119	354		328	40				68	272	78	1259	
8:15 AM	to 8:30 AM	142	448		427	49				89	353	95	1603	
8:30 AM	to 8:45 AM	163	537		531	60				108	430	112	1941	
8:45 AM	to 9:00 AM	184	630		628	68				137	494	125	2266	
TOTAL BY PERIOD														
7:00 AM	to 7:15 AM	19	51	0	0	43	9	0	0	0	11	37	14	184
7:15 AM	to 7:30 AM	21	51	0	0	52	8	0	0	0	14	35	14	195
7:30 AM	to 7:45 AM	23	77	0	0	61	5	0	0	0	15	57	19	257
7:45 AM	to 8:00 AM	29	86	0	0	79	11	0	0	0	11	69	15	300
8:00 AM	to 8:15 AM	27	89	0	0	93	7	0	0	0	17	74	16	323
8:15 AM	to 8:30 AM	23	94	0	0	99	9	0	0	0	21	81	17	344
8:30 AM	to 8:45 AM	21	89	0	0	104	11	0	0	0	19	77	17	338
8:45 AM	to 9:00 AM	21	93	0	0	97	8	0	0	0	29	64	13	325
HOURLY TOTALS														
7:00 AM	to 8:00 AM	92	265	0	0	235	33	0	0	0	51	198	62	936
7:15 AM	to 8:15 AM	100	303	0	0	285	31	0	0	0	57	235	64	1075
7:30 AM	to 8:30 AM	102	346	0	0	332	32	0	0	0	64	281	67	1224
7:45 AM	to 8:45 AM	100	358	0	0	375	38	0	0	0	68	301	65	1305
8:00 AM	to 9:00 AM	92	365	0	0	393	35	0	0	0	86	296	63	1330
PEAK HOUR SUMMARY														
8:00 AM	to 9:00 AM	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
VOLUME		92	365	0	0	393	35	0	0	0	86	296	63	1330
PHF BY MOVEMENT		0.85	0.97	0.00	0.00	0.94	0.80	0.00	0.00	0.00	0.74	0.91	0.93	OVERALL
PHF BY APPROACH		0.98			0.93			0.00			0.93			0.97

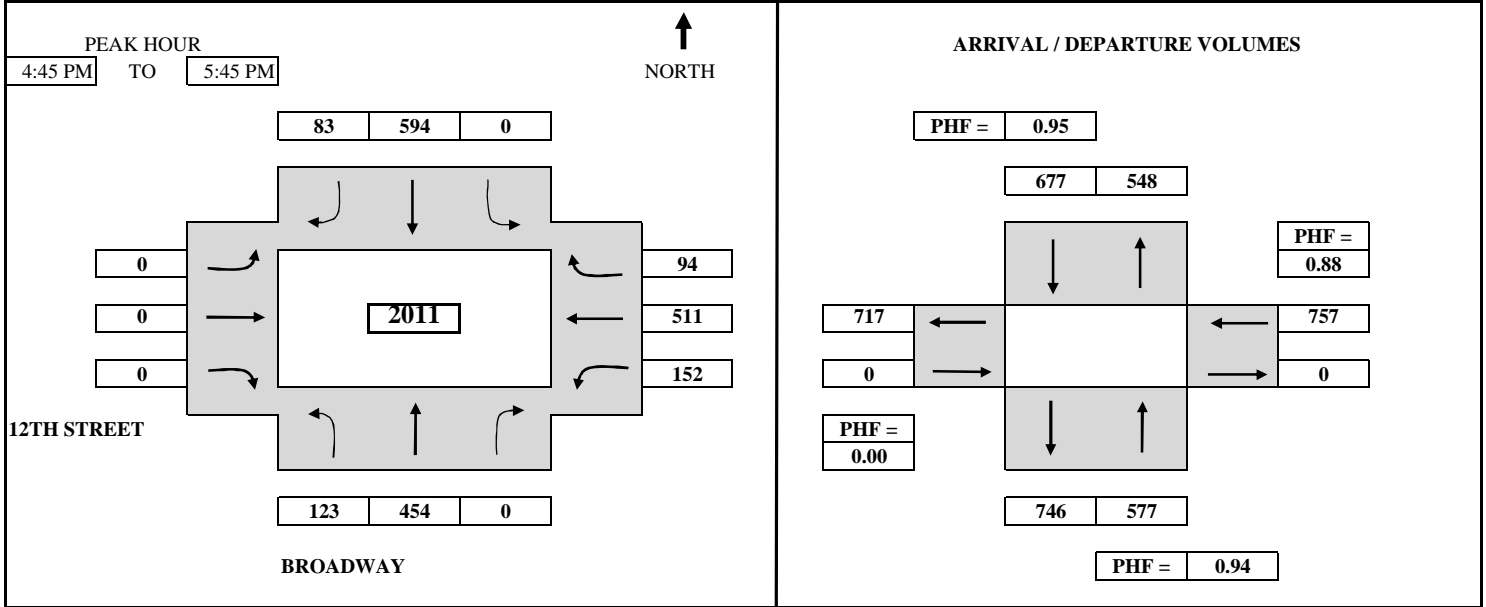
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY	SURVEY DATE: 1/15/2013	DAY: TUESDAY
N-S APPROACH: BROADWAY	SURVEY TIME: 4:00 PM	TO 6:00 PM
E-W APPROACH 12TH STREET	JURISDICTION: OAKLAND	FILE: 3301002-8PM



TIME	PERIOD	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
SURVEY DATA														
4:00 PM	to 4:15 PM	13	108		139	7				35	99	17	418	
4:15 PM	to 4:30 PM	30	219		284	16				68	196	36	849	
4:30 PM	to 4:45 PM	51	336		435	27				91	317	57	1314	
4:45 PM	to 5:00 PM	73	442		597	44				119	431	80	1786	
5:00 PM	to 5:15 PM	108	554		734	62				175	563	108	2304	
5:15 PM	to 5:30 PM	147	669		877	85				214	707	134	2833	
5:30 PM	to 5:45 PM	174	790		1029	110				243	828	151	3325	
5:45 PM	to 6:00 PM	199	894		1155	128				276	932	166	3750	

TOTAL BY PERIOD														
4:00 PM	to 4:15 PM	13	108	0	0	139	7	0	0	0	35	99	17	418
4:15 PM	to 4:30 PM	17	111	0	0	145	9	0	0	0	33	97	19	431
4:30 PM	to 4:45 PM	21	117	0	0	151	11	0	0	0	23	121	21	465
4:45 PM	to 5:00 PM	22	106	0	0	162	17	0	0	0	28	114	23	472
5:00 PM	to 5:15 PM	35	112	0	0	137	18	0	0	0	56	132	28	518
5:15 PM	to 5:30 PM	39	115	0	0	143	23	0	0	0	39	144	26	529
5:30 PM	to 5:45 PM	27	121	0	0	152	25	0	0	0	29	121	17	492
5:45 PM	to 6:00 PM	25	104	0	0	126	18	0	0	0	33	104	15	425

HOURLY TOTALS														
4:00 PM	to 5:00 PM	73	442	0	0	597	44	0	0	0	119	431	80	1786
4:15 PM	to 5:15 PM	95	446	0	0	595	55	0	0	0	140	464	91	1886
4:30 PM	to 5:30 PM	117	450	0	0	593	69	0	0	0	146	511	98	1984
4:45 PM	to 5:45 PM	123	454	0	0	594	83	0	0	0	152	511	94	2011
5:00 PM	to 6:00 PM	126	452	0	0	558	84	0	0	0	157	501	86	1964

PEAK HOUR SUMMARY														
4:45 PM	to 5:45 PM	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
VOLUME		123	454	0	0	594	83	0	0	0	152	511	94	2011
PHF BY MOVEMENT		0.79	0.94	0.00	0.00	0.92	0.83	0.00	0.00	0.00	0.68	0.89	0.84	OVERALL
PHF BY APPROACH		0.94			0.95			0.00			0.88			0.95

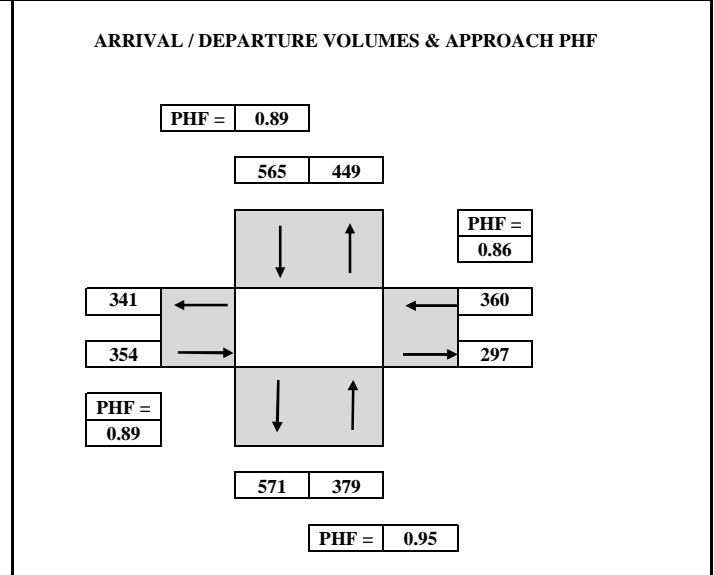
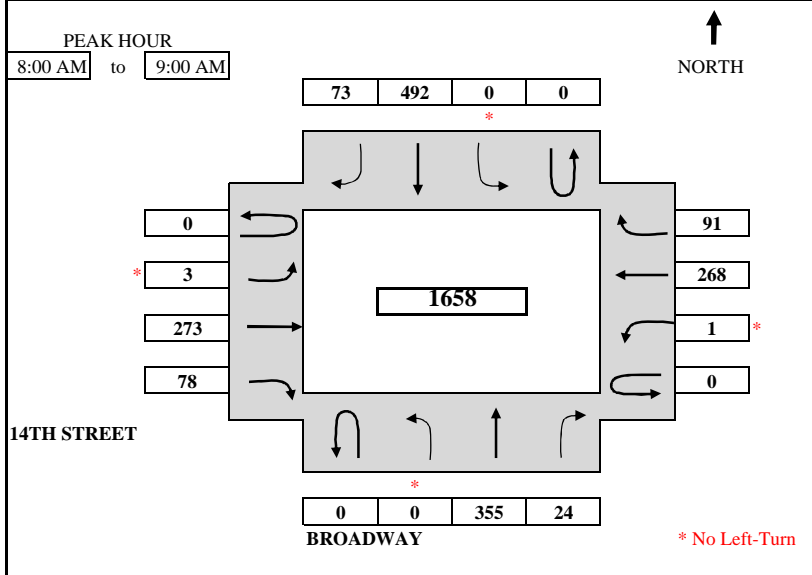
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY (II)	SURVEY DATE:	2/14/2013	DAY:	THURSDAY
N-S APPROACH:	BROADWAY	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W APPROACH:	14TH STREET	JURISDICTION:	OAKLAND	FILE:	3302018-6AM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL				
	From	To	U-TURN	LEFT*	THRU	RIGHT	U-TURN	LEFT*	THRU	RIGHT	U-TURN	LEFT*	THRU	RIGHT	U-TURN	LEFT*		THRU	RIGHT		
SURVEY DATA																					
7:00 AM	to	7:15 AM			44	5			0	36	3			0	22	13		0	39	4	166
7:15 AM	to	7:30 AM			114	9			2	95	10			0	50	28		0	79	10	397
7:30 AM	to	7:45 AM			198	13			2	171	19			0	101	39		0	116	25	684
7:45 AM	to	8:00 AM			288	16			2	270	35			1	154	55		0	160	42	1023
8:00 AM	to	8:15 AM			379	25			2	391	47			2	208	74		0	225	64	1417
8:15 AM	to	8:30 AM			472	31			2	510	58			4	277	91		0	290	83	1818
8:30 AM	to	8:45 AM			566	34			2	630	82			4	349	112		1	350	106	2236
8:45 AM	to	9:00 AM			643	40			2	762	108			4	427	133		1	428	133	2681
TOTAL BY PERIOD																					
7:00 AM	to	7:15 AM	0	0	44	5	0	0	36	3	0	0	22	13	0	0	39	4			166
7:15 AM	to	7:30 AM	0	0	70	4	0	2	59	7	0	0	28	15	0	0	40	6			231
7:30 AM	to	7:45 AM	0	0	84	4	0	0	76	9	0	0	51	11	0	0	37	15			287
7:45 AM	to	8:00 AM	0	0	90	3	0	0	99	16	0	1	53	16	0	0	44	17			339
8:00 AM	to	8:15 AM	0	0	91	9	0	0	121	12	0	1	54	19	0	0	65	22			394
8:15 AM	to	8:30 AM	0	0	93	6	0	0	119	11	0	2	69	17	0	0	65	19			401
8:30 AM	to	8:45 AM	0	0	94	3	0	0	120	24	0	0	72	21	0	1	60	23			418
8:45 AM	to	9:00 AM	0	0	77	6	0	0	132	26	0	0	78	21	0	0	78	27			445
HOURLY TOTALS																					
7:00 AM	to	8:00 AM	0	0	288	16	0	2	270	35	0	1	154	55	0	0	160	42			1023
7:15 AM	to	8:15 AM	0	0	335	20	0	2	355	44	0	2	186	61	0	0	186	60			1251
7:30 AM	to	8:30 AM	0	0	358	22	0	0	415	48	0	4	227	63	0	0	211	73			1421
7:45 AM	to	8:45 AM	0	0	368	21	0	0	459	63	0	4	248	73	0	1	234	81			1552
8:00 AM	to	9:00 AM	0	0	355	24	0	0	492	73	0	3	273	78	0	1	268	91			1658
PEAK HOUR SUMMARY																					
8:00 AM	to	9:00 AM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL		
			0	0	355	24	0	0	492	73	0	3	273	78	0	1	268	91	1658		
PHF BY MOVEMENT			0.00	0.00	0.94	0.67	0.00	0.00	0.93	0.70	0.00	0.38	0.88	0.93	0.00	0.25	0.86	0.84	OVERALL		
PHF BY APPROACH			0.95				0.89				0.89				0.86				0.93		

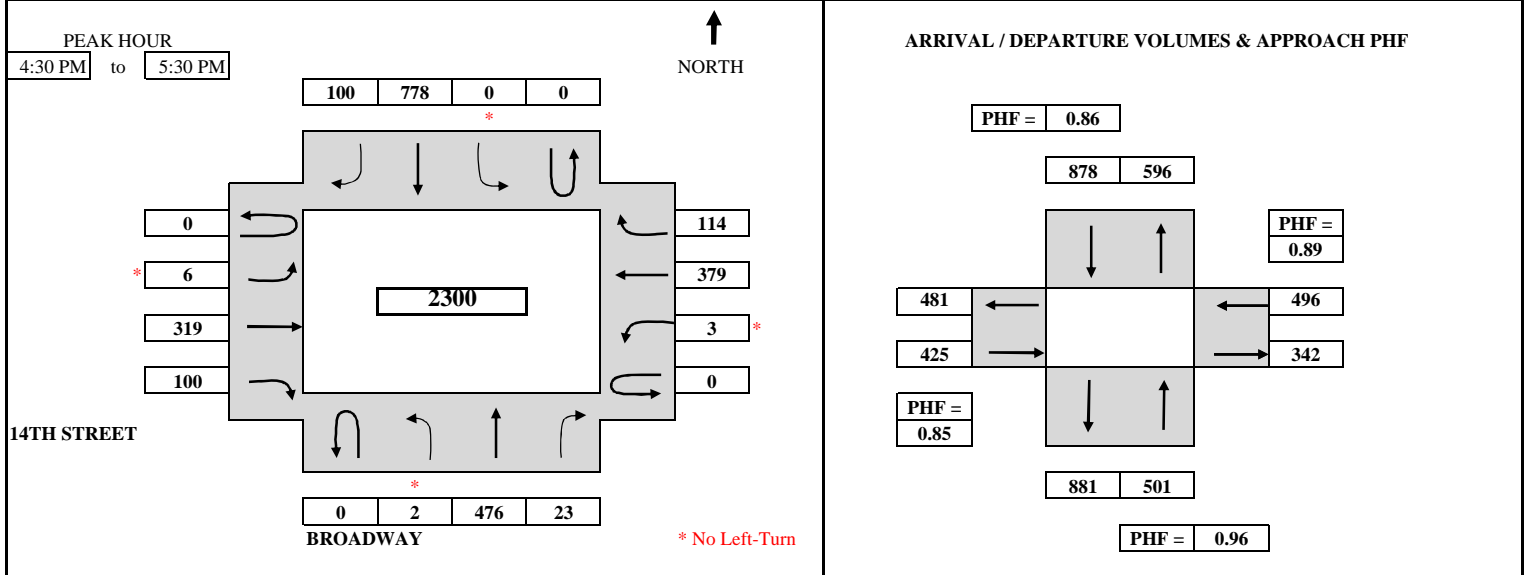
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY (II)	SURVEY DATE:	2/14/2013	DAY:	THURSDAY
N-S APPROACH:	BROADWAY	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	14TH STREET	JURISDICTION:	OAKLAND	FILE:	3302018-6PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL			
	From	To	U-TURN	LEFT*	THRU	RIGHT	U-TURN	LEFT*	THRU	RIGHT	U-TURN	LEFT*	THRU	RIGHT	U-TURN	LEFT*		THRU	RIGHT	
SURVEY DATA																				
4:00 PM	to	4:15 PM	1	123	6			171	13			2	75	25			0	80	19	515
4:15 PM	to	4:30 PM	1	212	12			346	41			3	147	52			1	171	43	1029
4:30 PM	to	4:45 PM	1	326	16			550	59			4	206	80			3	264	72	1581
4:45 PM	to	5:00 PM	1	443	22			729	82			6	276	102			3	350	96	2110
5:00 PM	to	5:15 PM	3	567	26			902	109			6	370	133			3	442	126	2687
5:15 PM	to	5:30 PM	3	688	35			1124	141			9	466	152			4	550	157	3329
5:30 PM	to	5:45 PM	3	798	44			1298	152			9	524	174			7	631	175	3815
5:45 PM	to	6:00 PM	3	894	53			1465	166			10	607	203			8	704	191	4304

TOTAL BY PERIOD																			
TIME PERIOD	U-TURN	LEFT*	THRU	RIGHT	U-TURN	LEFT*	THRU	RIGHT	U-TURN	LEFT*	THRU	RIGHT	U-TURN	LEFT*	THRU	RIGHT	TOTAL		
4:00 PM to 4:15 PM	0	1	123	6	0	0	171	13	0	2	75	25	0	0	80	19	515		
4:15 PM to 4:30 PM	0	0	89	6	0	0	175	28	0	1	72	27	0	1	91	24	514		
4:30 PM to 4:45 PM	0	0	114	4	0	0	204	18	0	1	59	28	0	2	93	29	552		
4:45 PM to 5:00 PM	0	0	117	6	0	0	179	23	0	2	70	22	0	0	86	24	529		
5:00 PM to 5:15 PM	0	2	124	4	0	0	173	27	0	0	94	31	0	0	92	30	577		
5:15 PM to 5:30 PM	0	0	121	9	0	0	222	32	0	3	96	19	0	1	108	31	642		
5:30 PM to 5:45 PM	0	0	110	9	0	0	174	11	0	0	58	22	0	3	81	18	486		
5:45 PM to 6:00 PM	0	0	96	9	0	0	167	14	0	1	83	29	0	1	73	16	489		

HOURLY TOTALS																			
TIME PERIOD	U-TURN	LEFT*	THRU	RIGHT	U-TURN	LEFT*	THRU	RIGHT	U-TURN	LEFT*	THRU	RIGHT	U-TURN	LEFT*	THRU	RIGHT	TOTAL		
4:00 PM to 5:00 PM	0	1	443	22	0	0	729	82	0	6	276	102	0	3	350	96	2110		
4:15 PM to 5:15 PM	0	2	444	20	0	0	731	96	0	4	295	108	0	3	362	107	2172		
4:30 PM to 5:30 PM	0	2	476	23	0	0	778	100	0	6	319	100	0	3	379	114	2300		
4:45 PM to 5:45 PM	0	2	472	28	0	0	748	93	0	5	318	94	0	4	367	103	2234		
5:00 PM to 6:00 PM	0	2	451	31	0	0	736	84	0	4	331	101	0	5	354	95	2194		

PEAK HOUR SUMMARY																			
TIME PERIOD	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL		
4:30 PM to 5:30 PM	0	2	476	23	0	0	778	100	0	6	319	100	0	3	379	114	2300		
PHF BY MOVEMENT	0.00	0.25	0.96	0.64	0.00	0.00	0.88	0.78	0.00	0.50	0.83	0.81	0.00	0.38	0.88	0.92	OVERALL		
PHF BY APPROACH	0.96				0.86				0.85				0.89				0.90		

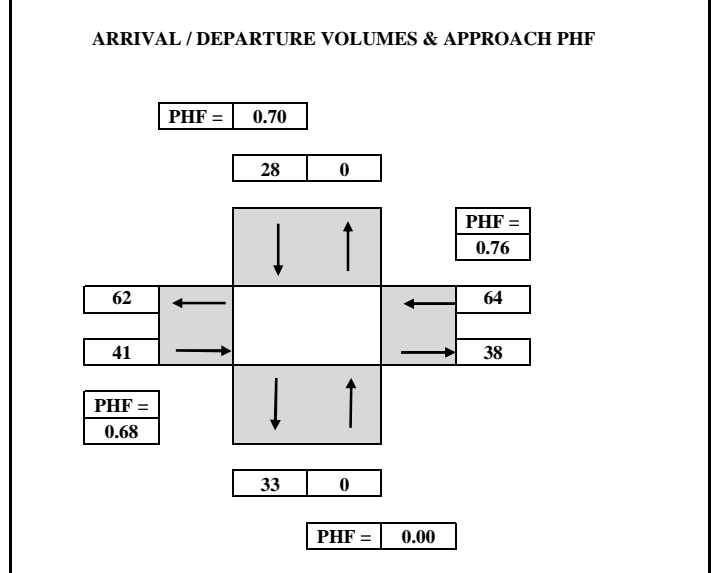
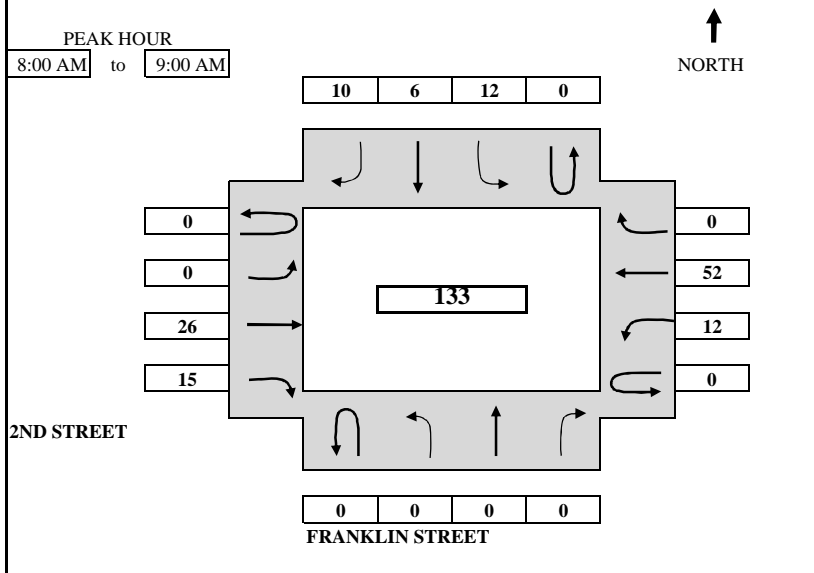
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B. A. Y. M. E. T. R. I. C. S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY (II)	SURVEY DATE:	2/14/2013	DAY:	THURSDAY
N-S APPROACH:	FRANKLIN STREET	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W APPROACH:	2ND STREET	JURISDICTION:	OAKLAND	FILE:	3302018-7AM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
7:00 AM	to	7:15 AM					2	0	2		2	1	3		2	2			14
7:15 AM	to	7:30 AM					5	1	3		3	8	4		2	8			34
7:30 AM	to	7:45 AM					9	2	4		3	14	5		5	16			58
7:45 AM	to	8:00 AM					13	2	9		3	22	9		10	26			94
8:00 AM	to	8:15 AM					16	3	11		3	28	12		11	33			117
8:15 AM	to	8:30 AM					17	7	13		3	31	16		11	48			146
8:30 AM	to	8:45 AM					19	8	15		3	37	20		16	63			181
8:45 AM	to	9:00 AM					25	8	19		3	48	24		22	78			227
TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	0	0	0	0	2	0	2	0	2	1	3	0	2	2	0	14
7:15 AM	to	7:30 AM	0	0	0	0	0	3	1	1	0	1	7	1	0	0	6	0	20
7:30 AM	to	7:45 AM	0	0	0	0	0	4	1	1	0	0	6	1	0	3	8	0	24
7:45 AM	to	8:00 AM	0	0	0	0	0	4	0	5	0	0	8	4	0	5	10	0	36
8:00 AM	to	8:15 AM	0	0	0	0	0	3	1	2	0	0	6	3	0	1	7	0	23
8:15 AM	to	8:30 AM	0	0	0	0	0	1	4	2	0	0	3	4	0	0	15	0	29
8:30 AM	to	8:45 AM	0	0	0	0	0	2	1	2	0	0	6	4	0	5	15	0	35
8:45 AM	to	9:00 AM	0	0	0	0	0	6	0	4	0	0	11	4	0	6	15	0	46
HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	0	0	0	0	13	2	9	0	3	22	9	0	10	26	0	94
7:15 AM	to	8:15 AM	0	0	0	0	0	14	3	9	0	1	27	9	0	9	31	0	103
7:30 AM	to	8:30 AM	0	0	0	0	0	12	6	10	0	0	23	12	0	9	40	0	112
7:45 AM	to	8:45 AM	0	0	0	0	0	10	6	11	0	0	23	15	0	11	47	0	123
8:00 AM	to	9:00 AM	0	0	0	0	0	12	6	10	0	0	26	15	0	12	52	0	133
PEAK HOUR SUMMARY																			
8:00 AM	to	9:00 AM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
		VOLUME	0	0	0	0	0	12	6	10	0	0	26	15	0	12	52	0	133
		PHF BY MOVEMENT	0.00	0.00	0.00	0.00	0.00	0.50	0.38	0.63	0.00	0.00	0.59	0.94	0.00	0.50	0.87	0.00	OVERALL
		PHF BY APPROACH	0.00				0.70				0.68				0.76				0.72

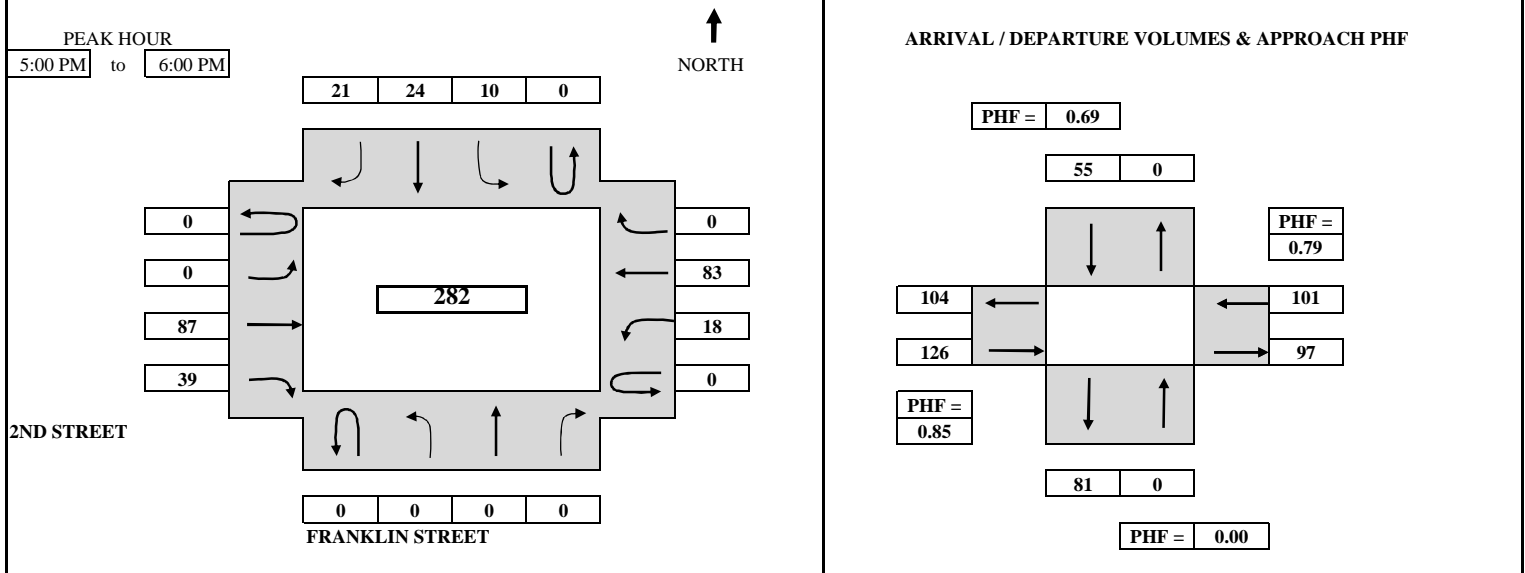
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY (II)	SURVEY DATE:	2/14/2013	DAY:	THURSDAY
N-S APPROACH:	FRANKLIN STREET	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	2ND STREET	JURISDICTION:	OAKLAND	FILE:	3302018-7PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
4:00 PM	to	4:15 PM					1	4	0			13	7		1	12			38
4:15 PM	to	4:30 PM					3	7	3			24	15		8	34			94
4:30 PM	to	4:45 PM					9	13	10			38	26		14	47			157
4:45 PM	to	5:00 PM					10	21	13			48	36		14	55			197
5:00 PM	to	5:15 PM					10	26	15			67	45		23	78			264
5:15 PM	to	5:30 PM					11	38	21			97	51		25	103			346
5:30 PM	to	5:45 PM					16	43	31			114	59		31	126			420
5:45 PM	to	6:00 PM					20	45	34			135	75		32	138			479

TOTAL BY PERIOD																			
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	TOTAL		
4:00 PM to 4:15 PM	0	0	0	0	0	1	4	0	0	0	13	7	0	1	12	0	38		
4:15 PM to 4:30 PM	0	0	0	0	0	2	3	3	0	0	11	8	0	7	22	0	56		
4:30 PM to 4:45 PM	0	0	0	0	0	6	6	7	0	0	14	11	0	6	13	0	63		
4:45 PM to 5:00 PM	0	0	0	0	0	1	8	3	0	0	10	10	0	0	8	0	40		
5:00 PM to 5:15 PM	0	0	0	0	0	0	5	2	0	0	19	9	0	9	23	0	67		
5:15 PM to 5:30 PM	0	0	0	0	0	1	12	6	0	0	30	6	0	2	25	0	82		
5:30 PM to 5:45 PM	0	0	0	0	0	5	5	10	0	0	17	8	0	6	23	0	74		
5:45 PM to 6:00 PM	0	0	0	0	0	4	2	3	0	0	21	16	0	1	12	0	59		

HOURLY TOTALS																			
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	TOTAL		
4:00 PM to 5:00 PM	0	0	0	0	0	10	21	13	0	0	48	36	0	14	55	0	197		
4:15 PM to 5:15 PM	0	0	0	0	0	9	22	15	0	0	54	38	0	22	66	0	226		
4:30 PM to 5:30 PM	0	0	0	0	0	8	31	18	0	0	73	36	0	17	69	0	252		
4:45 PM to 5:45 PM	0	0	0	0	0	7	30	21	0	0	76	33	0	17	79	0	263		
5:00 PM to 6:00 PM	0	0	0	0	0	10	24	21	0	0	87	39	0	18	83	0	282		

PEAK HOUR SUMMARY																			
TIME PERIOD	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL		
5:00 PM to 6:00 PM	0	0	0	0	0	10	24	21	0	0	87	39	0	18	83	0	282		
PHF BY MOVEMENT	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.53	0.00	0.00	0.73	0.61	0.00	0.50	0.83	0.00	OVERALL		
PHF BY APPROACH	0.00				0.69				0.85				0.79				0.86		

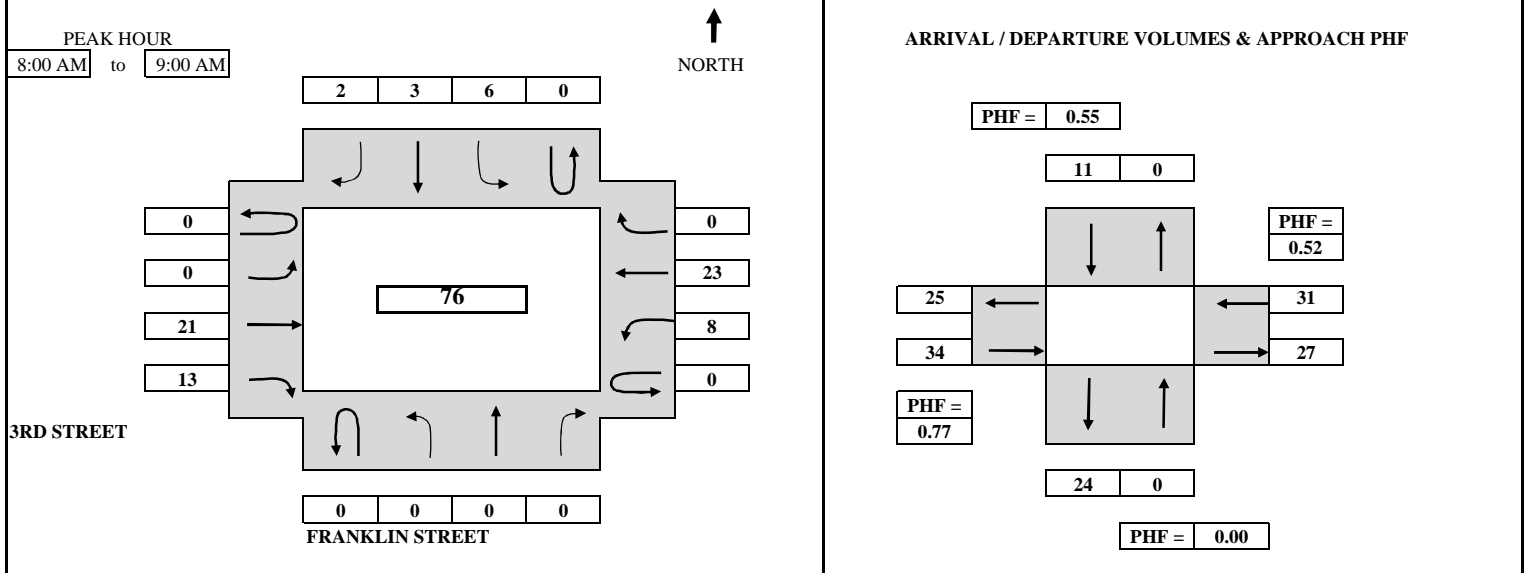
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B. A. Y. M. E. T. R. I. C. S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY (II)	SURVEY DATE: 2/14/2013	DAY: THURSDAY
N-S APPROACH: FRANKLIN STREET	SURVEY TIME: 7:00 AM	TO 9:00 AM
E-W APPROACH: 3RD STREET	JURISDICTION: OAKLAND	FILE: 3302018-8AM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
7:00 AM to 7:15 AM							1	0	0		4	1		2	1				9
7:15 AM to 7:30 AM							2	0	0		8	2		3	2				17
7:30 AM to 7:45 AM							2	0	0		10	5		4	7				28
7:45 AM to 8:00 AM							3	0	2		14	8		9	15				51
8:00 AM to 8:15 AM							3	0	2		19	10		11	17				62
8:15 AM to 8:30 AM							5	0	3		25	11		14	20				78
8:30 AM to 8:45 AM							8	1	4		29	18		14	26				100
8:45 AM to 9:00 AM							9	3	4		35	21		17	38				127
TOTAL BY PERIOD																			
7:00 AM to 7:15 AM	0	0	0	0	0	0	1	0	0	0	0	4	1	0	2	1	0	0	9
7:15 AM to 7:30 AM	0	0	0	0	0	0	1	0	0	0	0	4	1	0	1	1	0	0	8
7:30 AM to 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	2	3	0	1	5	0	0	11
7:45 AM to 8:00 AM	0	0	0	0	0	0	1	0	2	0	0	4	3	0	5	8	0	0	23
8:00 AM to 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	5	2	0	2	2	0	0	11
8:15 AM to 8:30 AM	0	0	0	0	0	0	2	0	1	0	0	6	1	0	3	3	0	0	16
8:30 AM to 8:45 AM	0	0	0	0	0	0	3	1	1	0	0	4	7	0	0	6	0	0	22
8:45 AM to 9:00 AM	0	0	0	0	0	0	1	2	0	0	0	6	3	0	3	12	0	0	27
HOURLY TOTALS																			
7:00 AM to 8:00 AM	0	0	0	0	0	0	3	0	2	0	0	14	8	0	9	15	0	0	51
7:15 AM to 8:15 AM	0	0	0	0	0	0	2	0	2	0	0	15	9	0	9	16	0	0	53
7:30 AM to 8:30 AM	0	0	0	0	0	0	3	0	3	0	0	17	9	0	11	18	0	0	61
7:45 AM to 8:45 AM	0	0	0	0	0	0	6	1	4	0	0	19	13	0	10	19	0	0	72
8:00 AM to 9:00 AM	0	0	0	0	0	0	6	3	2	0	0	21	13	0	8	23	0	0	76
PEAK HOUR SUMMARY																			
8:00 AM to 9:00 AM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR			TOTAL
VOLUME	0	0	0	0	0	6	3	2	0	0	21	13	0	8	23	0			76
PHF BY MOVEMENT	0.00	0.00	0.00	0.00	0.00	0.50	0.38	0.50	0.00	0.00	0.88	0.46	0.00	0.67	0.48	0.00			OVERALL
PHF BY APPROACH	0.00				0.55				0.77				0.52						0.70

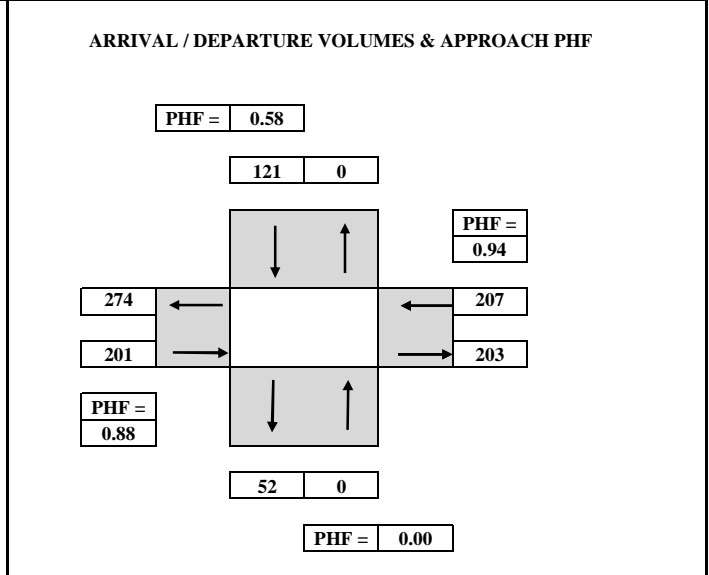
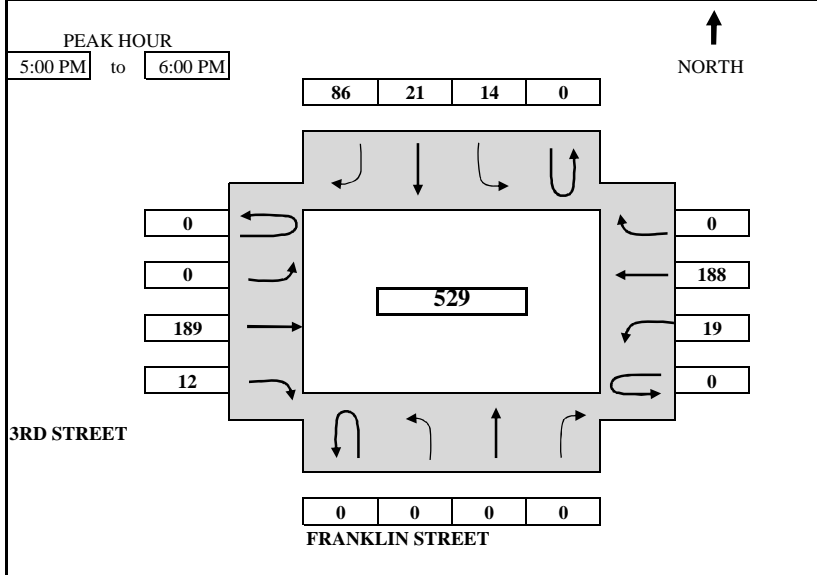
TEL: (510) 232 - 1271

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B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY (II)	SURVEY DATE:	2/14/2013	DAY:	THURSDAY
N-S APPROACH:	FRANKLIN STREET	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	3RD STREET	JURISDICTION:	OAKLAND	FILE:	3302018-8PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
4:00 PM	to	4:15 PM					0	3	1			15	3		0	17			39
4:15 PM	to	4:30 PM					1	8	1			26	4		1	27			68
4:30 PM	to	4:45 PM					2	18	7			71	15		4	66			183
4:45 PM	to	5:00 PM					3	23	8			104	18		5	103			264
5:00 PM	to	5:15 PM					4	26	22			155	19		9	154			389
5:15 PM	to	5:30 PM					8	31	58			205	26		16	199			543
5:30 PM	to	5:45 PM					17	41	91			258	28		22	248			705
5:45 PM	to	6:00 PM					17	44	94			293	30		24	291			793

TOTAL BY PERIOD																			
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	TOTAL		
4:00 PM to 4:15 PM	0	0	0	0	0	0	3	1	0	0	15	3	0	0	17	0	39		
4:15 PM to 4:30 PM	0	0	0	0	0	1	5	0	0	0	11	1	0	1	10	0	29		
4:30 PM to 4:45 PM	0	0	0	0	0	1	10	6	0	0	45	11	0	3	39	0	115		
4:45 PM to 5:00 PM	0	0	0	0	0	1	5	1	0	0	33	3	0	1	37	0	81		
5:00 PM to 5:15 PM	0	0	0	0	0	1	3	14	0	0	51	1	0	4	51	0	125		
5:15 PM to 5:30 PM	0	0	0	0	0	4	5	36	0	0	50	7	0	7	45	0	154		
5:30 PM to 5:45 PM	0	0	0	0	0	9	10	33	0	0	53	2	0	6	49	0	162		
5:45 PM to 6:00 PM	0	0	0	0	0	0	3	3	0	0	35	2	0	2	43	0	88		

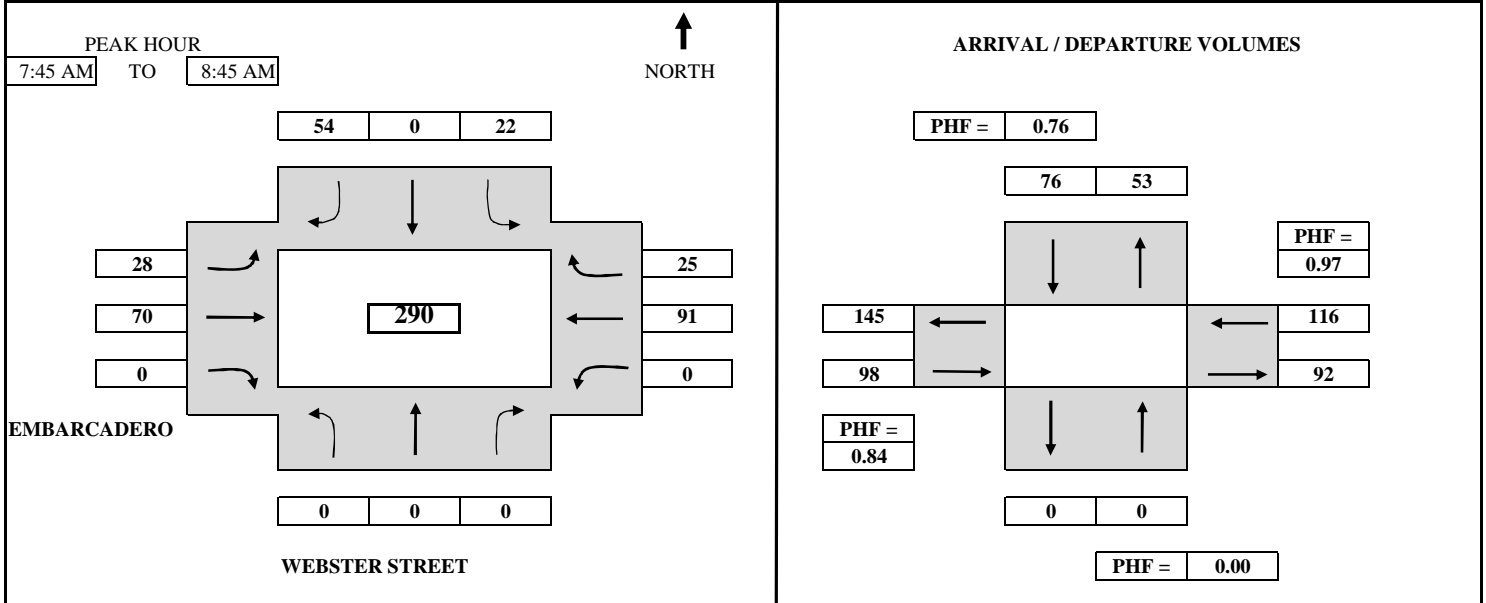
HOURLY TOTALS																			
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	TOTAL		
4:00 PM to 5:00 PM	0	0	0	0	0	3	23	8	0	0	104	18	0	5	103	0	264		
4:15 PM to 5:15 PM	0	0	0	0	0	4	23	21	0	0	140	16	0	9	137	0	350		
4:30 PM to 5:30 PM	0	0	0	0	0	7	23	57	0	0	179	22	0	15	172	0	475		
4:45 PM to 5:45 PM	0	0	0	0	0	15	23	84	0	0	187	13	0	18	182	0	522		
5:00 PM to 6:00 PM	0	0	0	0	0	14	21	86	0	0	189	12	0	19	188	0	529		

PEAK HOUR SUMMARY																			
TIME PERIOD	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL		
5:00 PM to 6:00 PM	0	0	0	0	0	14	21	86	0	0	189	12	0	19	188	0	529		
PHF BY MOVEMENT	0.00	0.00	0.00	0.00	0.00	0.39	0.53	0.60	0.00	0.00	0.89	0.43	0.00	0.68	0.92	0.00	OVERALL		
PHF BY APPROACH	0.00				0.58				0.88				0.94				0.82		

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY	SURVEY DATE: 1/15/2013	DAY: TUESDAY
N-S APPROACH: WEBSTER STREET	SURVEY TIME: 7:00 AM	TO 9:00 AM
E-W APPROACH: EMBARCADERO	JURISDICTION: OAKLAND	FILE: 3301002-9AM



TIME	PERIOD	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
SURVEY DATA														
7:00 AM	to 7:15 AM				3		8	7	14			5	1	38
7:15 AM	to 7:30 AM				6		11	16	22			17	2	74
7:30 AM	to 7:45 AM				8		22	24	33			38	5	130
7:45 AM	to 8:00 AM				12		38	29	43			63	10	195
8:00 AM	to 8:15 AM				16		47	35	62			87	15	262
8:15 AM	to 8:30 AM				25		63	40	86			108	21	343
8:30 AM	to 8:45 AM				30		76	52	103			129	30	420
8:45 AM	to 9:00 AM				32		85	60	116			156	34	483
TOTAL BY PERIOD														
7:00 AM	to 7:15 AM	0	0	0	3	0	8	7	14	0	0	5	1	38
7:15 AM	to 7:30 AM	0	0	0	3	0	3	9	8	0	0	12	1	36
7:30 AM	to 7:45 AM	0	0	0	2	0	11	8	11	0	0	21	3	56
7:45 AM	to 8:00 AM	0	0	0	4	0	16	5	10	0	0	25	5	65
8:00 AM	to 8:15 AM	0	0	0	4	0	9	6	19	0	0	24	5	67
8:15 AM	to 8:30 AM	0	0	0	9	0	16	5	24	0	0	21	6	81
8:30 AM	to 8:45 AM	0	0	0	5	0	13	12	17	0	0	21	9	77
8:45 AM	to 9:00 AM	0	0	0	2	0	9	8	13	0	0	27	4	63
HOURLY TOTALS														
7:00 AM	to 8:00 AM	0	0	0	12	0	38	29	43	0	0	63	10	195
7:15 AM	to 8:15 AM	0	0	0	13	0	39	28	48	0	0	82	14	224
7:30 AM	to 8:30 AM	0	0	0	19	0	52	24	64	0	0	91	19	269
7:45 AM	to 8:45 AM	0	0	0	22	0	54	28	70	0	0	91	25	290
8:00 AM	to 9:00 AM	0	0	0	20	0	47	31	73	0	0	93	24	288
PEAK HOUR SUMMARY														
7:45 AM	to 8:45 AM	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
VOLUME		0	0	0	22	0	54	28	70	0	0	91	25	290
PHF BY MOVEMENT		0.00	0.00	0.00	0.61	0.00	0.84	0.58	0.73	0.00	0.00	0.91	0.69	OVERALL
PHF BY APPROACH		0.00			0.76			0.84			0.97			0.90

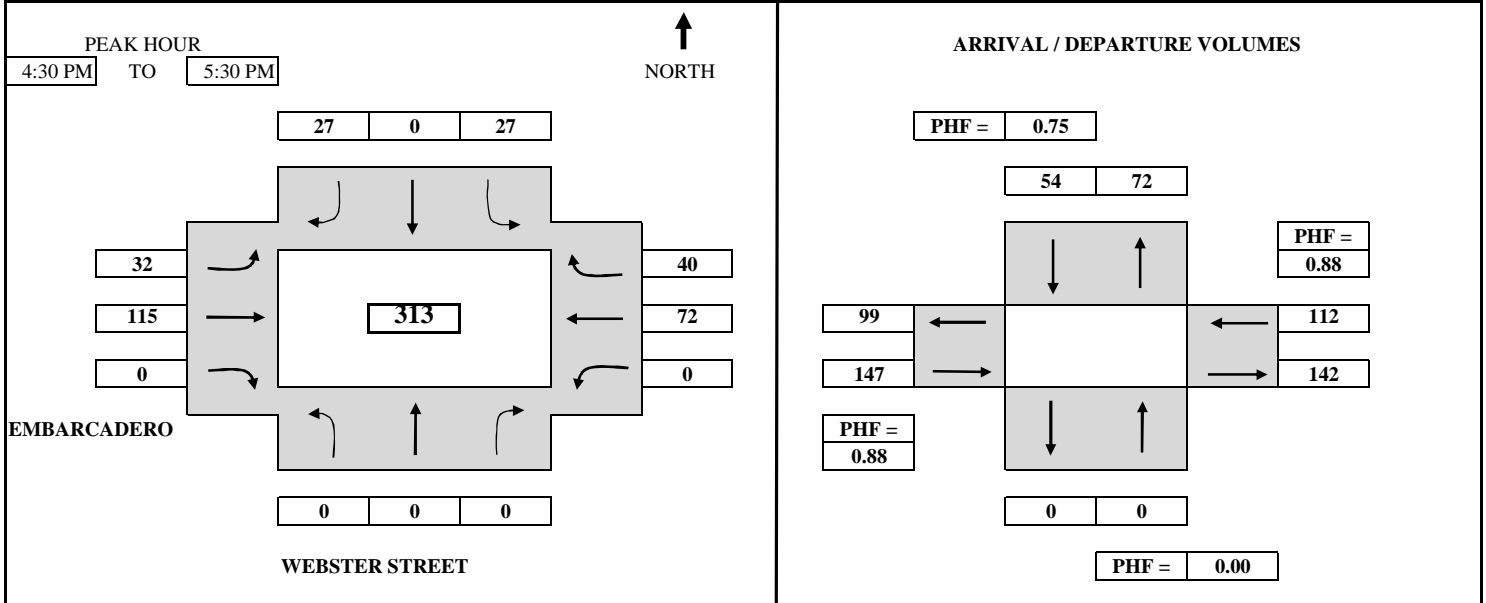
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY	SURVEY DATE: 1/15/2013	DAY: TUESDAY
N-S APPROACH: WEBSTER STREET	SURVEY TIME: 4:00 PM	TO 6:00 PM
E-W APPROACH: EMBARCADERO	JURISDICTION: OAKLAND	FILE: 3301002-9PM

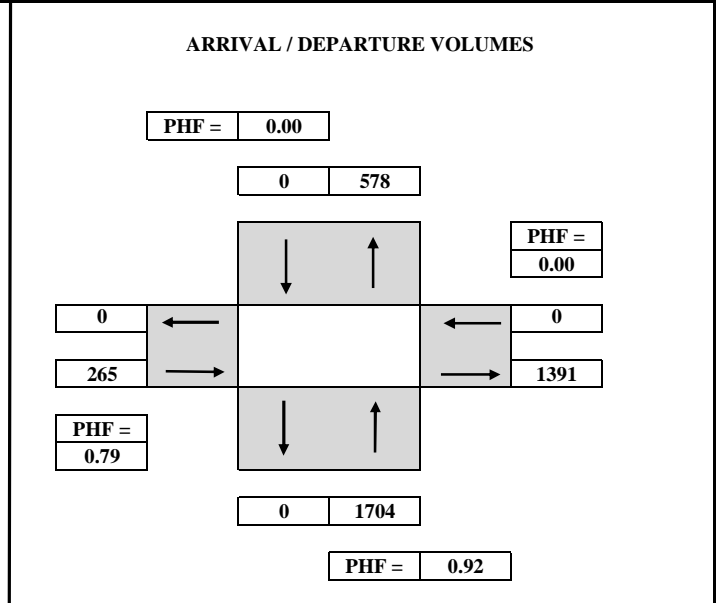
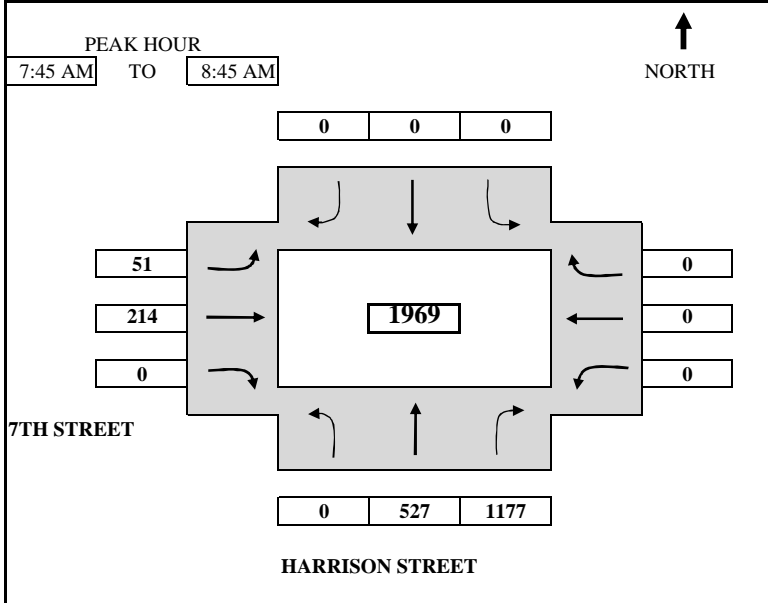


TIME	PERIOD	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
SURVEY DATA														
4:00 PM	to 4:15 PM				7	6		12	28			16	7	76
4:15 PM	to 4:30 PM				12	13		16	57			33	16	147
4:30 PM	to 4:45 PM				15	17		24	91			52	26	225
4:45 PM	to 5:00 PM				26	24		30	125			65	34	304
5:00 PM	to 5:15 PM				33	28		39	146			87	44	377
5:15 PM	to 5:30 PM				39	40		48	172			105	56	460
5:30 PM	to 5:45 PM				42	44		57	199			124	64	530
5:45 PM	to 6:00 PM				48	50		63	229			142	71	603
TOTAL BY PERIOD														
4:00 PM	to 4:15 PM	0	0	0	7	6		12	28	0	0	16	7	76
4:15 PM	to 4:30 PM	0	0	0	5	7		4	29	0	0	17	9	71
4:30 PM	to 4:45 PM	0	0	0	3	4		8	34	0	0	19	10	78
4:45 PM	to 5:00 PM	0	0	0	11	7		6	34	0	0	13	8	79
5:00 PM	to 5:15 PM	0	0	0	7	4		9	21	0	0	22	10	73
5:15 PM	to 5:30 PM	0	0	0	6	12		9	26	0	0	18	12	83
5:30 PM	to 5:45 PM	0	0	0	3	4		9	27	0	0	19	8	70
5:45 PM	to 6:00 PM	0	0	0	6	6		6	30	0	0	18	7	73
HOURLY TOTALS														
4:00 PM	to 5:00 PM	0	0	0	26	24		30	125	0	0	65	34	304
4:15 PM	to 5:15 PM	0	0	0	26	22		27	118	0	0	71	37	301
4:30 PM	to 5:30 PM	0	0	0	27	27		32	115	0	0	72	40	313
4:45 PM	to 5:45 PM	0	0	0	27	27		33	108	0	0	72	38	305
5:00 PM	to 6:00 PM	0	0	0	22	26		33	104	0	0	77	37	299
PEAK HOUR SUMMARY														
4:30 PM	to 5:30 PM	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
VOLUME		0	0	0	27	0	27	32	115	0	0	72	40	313
PHF BY MOVEMENT		0.00	0.00	0.00	0.61	0.00	0.56	0.89	0.85	0.00	0.00	0.82	0.83	OVERALL
PHF BY APPROACH		0.00			0.75			0.88			0.88			0.94

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY	SURVEY DATE: 1/15/2013	DAY: TUESDAY
N-S APPROACH: HARRISON STREET	SURVEY TIME: 7:00 AM	TO 9:00 AM
E-W APPROACH 7TH STREET	JURISDICTION: OAKLAND	FILE: 3301002-10AM



TIME	PERIOD	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
7:00 AM	to 7:15 AM		69	321				3	27					420
7:15 AM	to 7:30 AM		154	658				8	58					878
7:30 AM	to 7:45 AM		233	965				16	94					1308
7:45 AM	to 8:00 AM		330	1333				27	129					1819
8:00 AM	to 8:15 AM		448	1607				43	192					2290
8:15 AM	to 8:30 AM		584	1865				58	261					2768
8:30 AM	to 8:45 AM		760	2142				67	308					3277
8:45 AM	to 9:00 AM		905	2451				71	359					3786

TOTAL BY PERIOD														
TIME	PERIOD	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
7:00 AM	to 7:15 AM	0	69	321	0	0	0	3	27	0	0	0	0	420
7:15 AM	to 7:30 AM	0	85	337	0	0	0	5	31	0	0	0	0	458
7:30 AM	to 7:45 AM	0	79	307	0	0	0	8	36	0	0	0	0	430
7:45 AM	to 8:00 AM	0	97	368	0	0	0	11	35	0	0	0	0	511
8:00 AM	to 8:15 AM	0	118	274	0	0	0	16	63	0	0	0	0	471
8:15 AM	to 8:30 AM	0	136	258	0	0	0	15	69	0	0	0	0	478
8:30 AM	to 8:45 AM	0	176	277	0	0	0	9	47	0	0	0	0	509
8:45 AM	to 9:00 AM	0	145	309	0	0	0	4	51	0	0	0	0	509

HOURLY TOTALS														
TIME	PERIOD	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
7:00 AM	to 8:00 AM	0	330	1333	0	0	0	27	129	0	0	0	0	1819
7:15 AM	to 8:15 AM	0	379	1286	0	0	0	40	165	0	0	0	0	1870
7:30 AM	to 8:30 AM	0	430	1207	0	0	0	50	203	0	0	0	0	1890
7:45 AM	to 8:45 AM	0	527	1177	0	0	0	51	214	0	0	0	0	1969
8:00 AM	to 9:00 AM	0	575	1118	0	0	0	44	230	0	0	0	0	1967

PEAK HOUR SUMMARY														
TIME	PERIOD	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
7:45 AM	to 8:45 AM	0	527	1177	0	0	0	51	214	0	0	0	0	1969
PHF BY MOVEMENT		0.00	0.75	0.80	0.00	0.00	0.00	0.80	0.78	0.00	0.00	0.00	0.00	OVERALL
PHF BY APPROACH		0.92			0.00			0.79			0.00			0.96

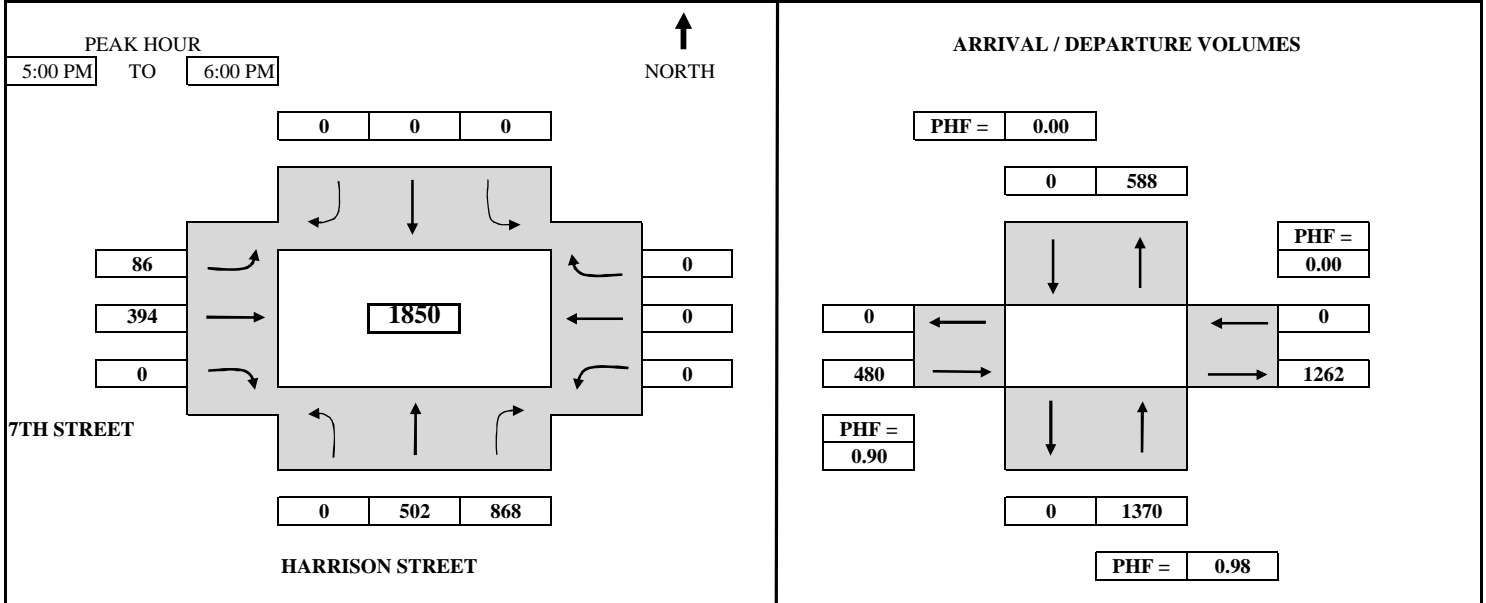
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY	SURVEY DATE: 1/15/2013	DAY: TUESDAY
N-S APPROACH: HARRISON STREET	SURVEY TIME: 4:00 PM	TO 6:00 PM
E-W APPROACH: 7TH STREET	JURISDICTION: OAKLAND	FILE: 3301002-10PM



TIME	PERIOD	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
SURVEY DATA														
4:00 PM	to 4:15 PM		97	199				29	103					428
4:15 PM	to 4:30 PM		228	403				58	222					911
4:30 PM	to 4:45 PM		342	577				85	316					1320
4:45 PM	to 5:00 PM		449	746				111	415					1721
5:00 PM	to 5:15 PM		572	959				132	527					2190
5:15 PM	to 5:30 PM		706	1175				155	628					2664
5:30 PM	to 5:45 PM		838	1380				174	725					3117
5:45 PM	to 6:00 PM		951	1614				197	809					3571
TOTAL BY PERIOD														
4:00 PM	to 4:15 PM	0	97	199	0	0	0	29	103	0	0	0	0	428
4:15 PM	to 4:30 PM	0	131	204	0	0	0	29	119	0	0	0	0	483
4:30 PM	to 4:45 PM	0	114	174	0	0	0	27	94	0	0	0	0	409
4:45 PM	to 5:00 PM	0	107	169	0	0	0	26	99	0	0	0	0	401
5:00 PM	to 5:15 PM	0	123	213	0	0	0	21	112	0	0	0	0	469
5:15 PM	to 5:30 PM	0	134	216	0	0	0	23	101	0	0	0	0	474
5:30 PM	to 5:45 PM	0	132	205	0	0	0	19	97	0	0	0	0	453
5:45 PM	to 6:00 PM	0	113	234	0	0	0	23	84	0	0	0	0	454
HOURLY TOTALS														
4:00 PM	to 5:00 PM	0	449	746	0	0	0	111	415	0	0	0	0	1721
4:15 PM	to 5:15 PM	0	475	760	0	0	0	103	424	0	0	0	0	1762
4:30 PM	to 5:30 PM	0	478	772	0	0	0	97	406	0	0	0	0	1753
4:45 PM	to 5:45 PM	0	496	803	0	0	0	89	409	0	0	0	0	1797
5:00 PM	to 6:00 PM	0	502	868	0	0	0	86	394	0	0	0	0	1850
PEAK HOUR SUMMARY														
5:00 PM	to 6:00 PM	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
VOLUME		0	502	868	0	0	0	86	394	0	0	0	0	1850
PHF BY MOVEMENT		0.00	0.94	0.93	0.00	0.00	0.00	0.93	0.88	0.00	0.00	0.00	0.00	OVERALL
PHF BY APPROACH		0.98			0.00			0.90			0.00			0.98

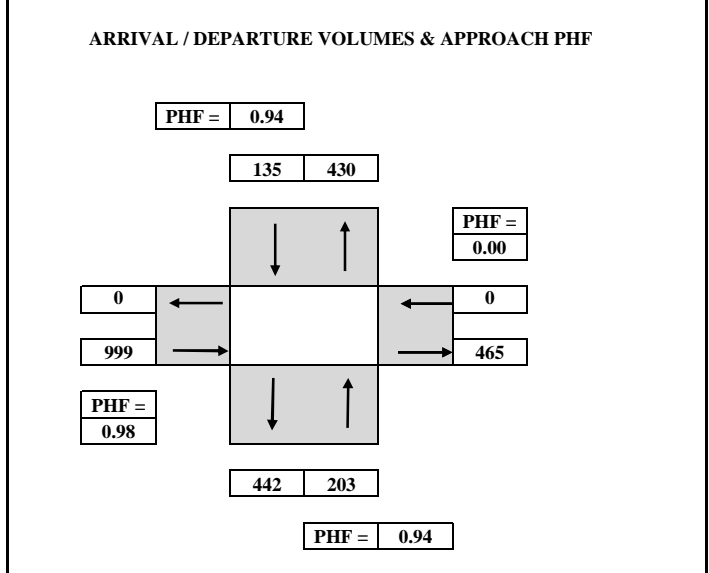
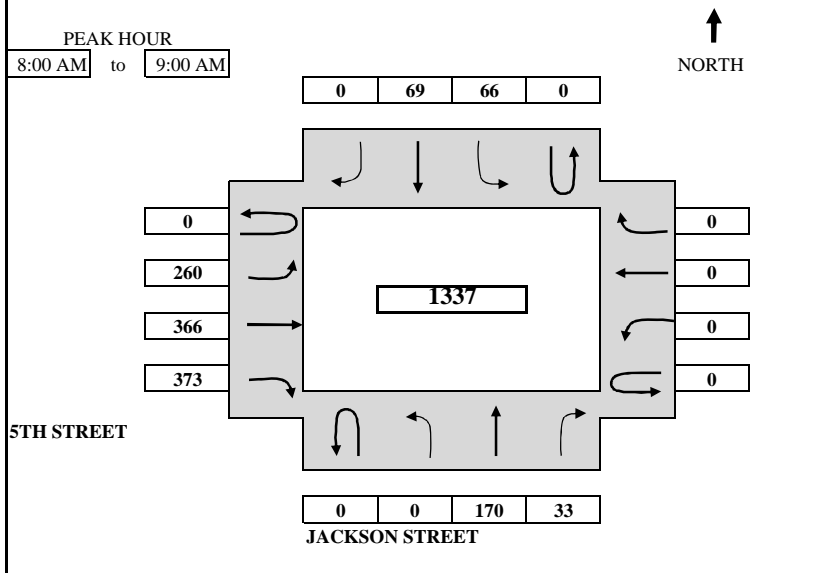
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B. A. Y. M. E. T. R. I. C. S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY (II)	SURVEY DATE:	2/13/2013	DAY:	WEDNESDAY
N-S APPROACH:	JACKSON STREET	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W APPROACH:	5TH STREET	JURISDICTION:	OAKLAND	FILE:	3302018-9AM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL			
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT	
SURVEY DATA																				
7:00 AM	to	7:15 AM			33	5			17	10			49	51	79					244
7:15 AM	to	7:30 AM			68	11			36	20			110	98	154					497
7:30 AM	to	7:45 AM			107	19			54	29			169	171	232					781
7:45 AM	to	8:00 AM			158	26			79	44			233	255	321					1116
8:00 AM	to	8:15 AM			201	35			100	57			302	346	412					1453
8:15 AM	to	8:30 AM			236	44			117	75			364	433	505					1774
8:30 AM	to	8:45 AM			283	51			130	92			426	526	602					2110
8:45 AM	to	9:00 AM			328	59			145	113			493	621	694					2453
TOTAL BY PERIOD																				
7:00 AM	to	7:15 AM	0	0	33	5	0	0	17	10	0	0	49	51	79	0	0	0	0	244
7:15 AM	to	7:30 AM	0	0	35	6	0	0	19	10	0	0	61	47	75	0	0	0	0	253
7:30 AM	to	7:45 AM	0	0	39	8	0	0	18	9	0	0	59	73	78	0	0	0	0	284
7:45 AM	to	8:00 AM	0	0	51	7	0	0	25	15	0	0	64	84	89	0	0	0	0	335
8:00 AM	to	8:15 AM	0	0	43	9	0	0	21	13	0	0	69	91	91	0	0	0	0	337
8:15 AM	to	8:30 AM	0	0	35	9	0	0	17	18	0	0	62	87	93	0	0	0	0	321
8:30 AM	to	8:45 AM	0	0	47	7	0	0	13	17	0	0	62	93	97	0	0	0	0	336
8:45 AM	to	9:00 AM	0	0	45	8	0	0	15	21	0	0	67	95	92	0	0	0	0	343
HOURLY TOTALS																				
7:00 AM	to	8:00 AM	0	0	158	26	0	0	79	44	0	0	233	255	321	0	0	0	0	1116
7:15 AM	to	8:15 AM	0	0	168	30	0	0	83	47	0	0	253	295	333	0	0	0	0	1209
7:30 AM	to	8:30 AM	0	0	168	33	0	0	81	55	0	0	254	335	351	0	0	0	0	1277
7:45 AM	to	8:45 AM	0	0	176	32	0	0	76	63	0	0	257	355	370	0	0	0	0	1329
8:00 AM	to	9:00 AM	0	0	170	33	0	0	66	69	0	0	260	366	373	0	0	0	0	1337
PEAK HOUR SUMMARY																				
8:00 AM	to	9:00 AM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL	
			0	0	170	33	0	66	69	0	0	260	366	373	0	0	0	0	0	1337
PHF BY MOVEMENT			0.00	0.00	0.90	0.92	0.00	0.79	0.82	0.00	0.00	0.94	0.96	0.96	0.00	0.00	0.00	0.00	0.00	OVERALL
PHF BY APPROACH			0.94				0.94				0.98				0.00				0.97	

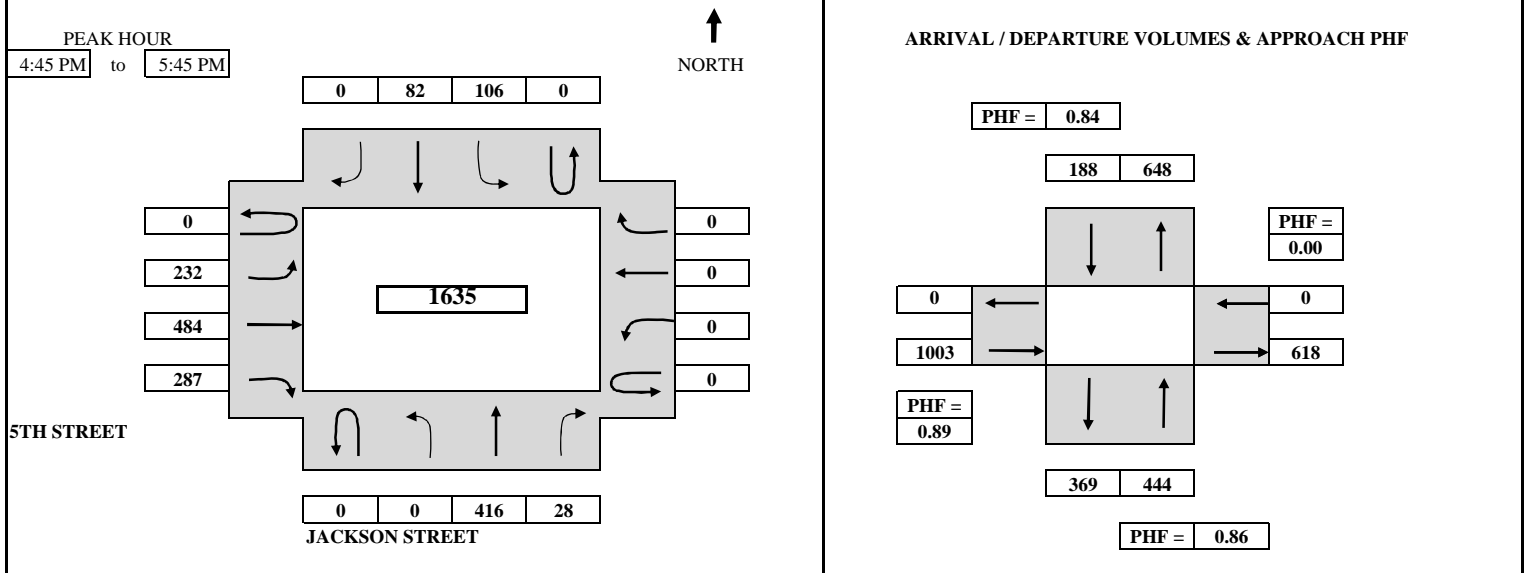
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY (II)	SURVEY DATE:	2/13/2013	DAY:	WEDNESDAY
N-S APPROACH:	JACKSON STREET	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	5TH STREET	JURISDICTION:	OAKLAND	FILE:	3302018-9PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL			
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT	
SURVEY DATA																				
4:00 PM	to	4:15 PM			67	7			37	19			45	89	71					335
4:15 PM	to	4:30 PM			128	16			68	34			97	180	148					671
4:30 PM	to	4:45 PM			204	23			97	55			162	282	222					1045
4:45 PM	to	5:00 PM			287	29			130	78			235	403	311					1473
5:00 PM	to	5:15 PM			385	38			151	95			294	540	378					1881
5:15 PM	to	5:30 PM			496	46			178	114			335	651	442					2262
5:30 PM	to	5:45 PM			620	51			203	137			394	766	509					2680
5:45 PM	to	6:00 PM			726	54			225	154			451	873	569					3052

TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	0	67	7	0	37	19	0	0	45	89	71	0	0	0	0	335
4:15 PM	to	4:30 PM	0	0	61	9	0	31	15	0	0	52	91	77	0	0	0	0	336
4:30 PM	to	4:45 PM	0	0	76	7	0	29	21	0	0	65	102	74	0	0	0	0	374
4:45 PM	to	5:00 PM	0	0	83	6	0	33	23	0	0	73	121	89	0	0	0	0	428
5:00 PM	to	5:15 PM	0	0	98	9	0	21	17	0	0	59	137	67	0	0	0	0	408
5:15 PM	to	5:30 PM	0	0	111	8	0	27	19	0	0	41	111	64	0	0	0	0	381
5:30 PM	to	5:45 PM	0	0	124	5	0	25	23	0	0	59	115	67	0	0	0	0	418
5:45 PM	to	6:00 PM	0	0	106	3	0	22	17	0	0	57	107	60	0	0	0	0	372

HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	0	287	29	0	130	78	0	0	235	403	311	0	0	0	0	1473
4:15 PM	to	5:15 PM	0	0	318	31	0	114	76	0	0	249	451	307	0	0	0	0	1546
4:30 PM	to	5:30 PM	0	0	368	30	0	110	80	0	0	238	471	294	0	0	0	0	1591
4:45 PM	to	5:45 PM	0	0	416	28	0	106	82	0	0	232	484	287	0	0	0	0	1635
5:00 PM	to	6:00 PM	0	0	439	25	0	95	76	0	0	216	470	258	0	0	0	0	1579

PEAK HOUR SUMMARY																			
4:45 PM	to	5:45 PM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
			0	0	416	28	0	106	82	0	0	232	484	287	0	0	0	0	1635
PHF BY MOVEMENT			0.00	0.00	0.84	0.78	0.00	0.80	0.89	0.00	0.00	0.79	0.88	0.81	0.00	0.00	0.00	0.00	OVERALL
PHF BY APPROACH			0.86				0.84				0.89				0.00				0.96

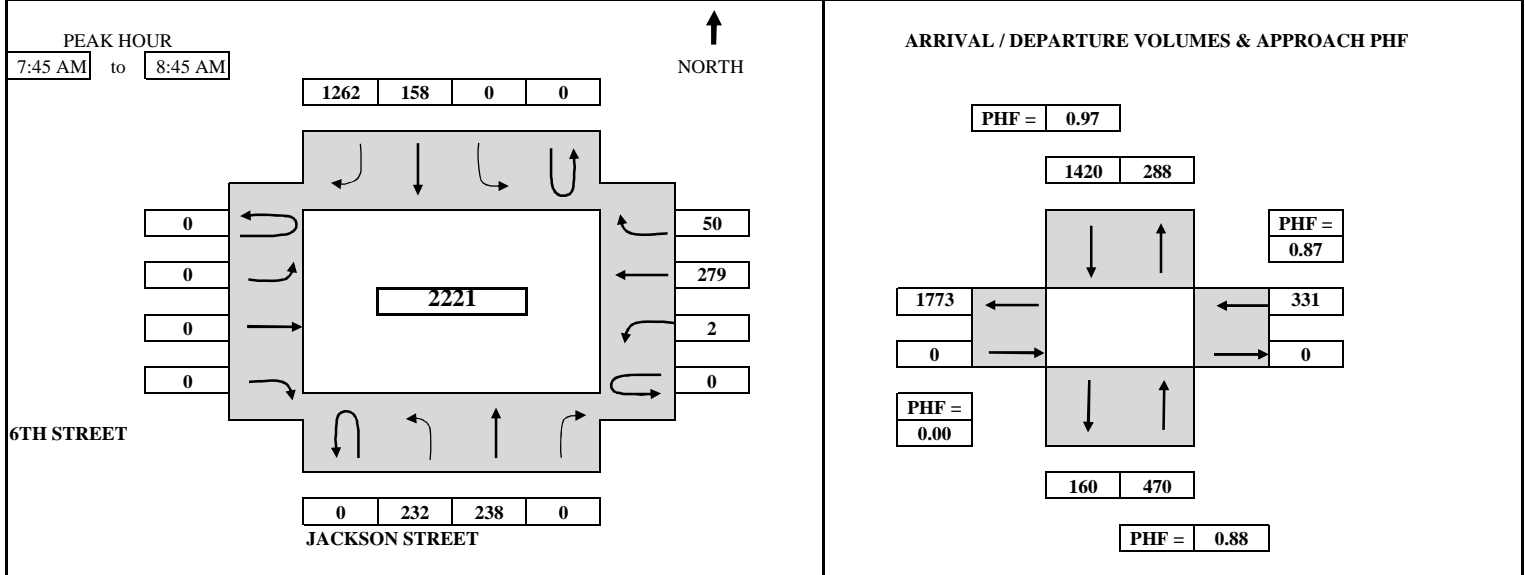
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B. A. Y. M. E. T. R. I. C. S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY (II)	SURVEY DATE:	2/13/2013	DAY:	WEDNESDAY
N-S APPROACH:	JACKSON STREET	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W APPROACH:	6TH STREET	JURISDICTION:	OAKLAND	FILE:	3302018-10AM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL	
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU
SURVEY DATA																		
7:00 AM	to	7:15 AM	55	30			21	262						3	65	4		440
7:15 AM	to	7:30 AM	112	51			44	579						5	127	11		929
7:30 AM	to	7:45 AM	175	104			80	886						6	196	25		1472
7:45 AM	to	8:00 AM	244	165			113	1197						6	258	35		2018
8:00 AM	to	8:15 AM	299	243			160	1506						7	320	51		2586
8:15 AM	to	8:30 AM	358	297			201	1819						8	397	68		3148
8:30 AM	to	8:45 AM	407	342			238	2148						8	475	75		3693
8:45 AM	to	9:00 AM	460	396			277	2429						8	558	83		4211

TOTAL BY PERIOD																			
7:00 AM	to	7:15 AM	0	55	30	0	0	0	21	262	0	0	0	0	0	3	65	4	440
7:15 AM	to	7:30 AM	0	57	21	0	0	0	23	317	0	0	0	0	0	2	62	7	489
7:30 AM	to	7:45 AM	0	63	53	0	0	0	36	307	0	0	0	0	1	69	14	543	
7:45 AM	to	8:00 AM	0	69	61	0	0	0	33	311	0	0	0	0	0	62	10	546	
8:00 AM	to	8:15 AM	0	55	78	0	0	0	47	309	0	0	0	0	1	62	16	568	
8:15 AM	to	8:30 AM	0	59	54	0	0	0	41	313	0	0	0	0	1	77	17	562	
8:30 AM	to	8:45 AM	0	49	45	0	0	0	37	329	0	0	0	0	0	78	7	545	
8:45 AM	to	9:00 AM	0	53	54	0	0	0	39	281	0	0	0	0	0	83	8	518	

HOURLY TOTALS																			
7:00 AM	to	8:00 AM	0	244	165	0	0	0	113	1197	0	0	0	0	0	6	258	35	2018
7:15 AM	to	8:15 AM	0	244	213	0	0	0	139	1244	0	0	0	0	0	4	255	47	2146
7:30 AM	to	8:30 AM	0	246	246	0	0	0	157	1240	0	0	0	0	3	270	57	2219	
7:45 AM	to	8:45 AM	0	232	238	0	0	0	158	1262	0	0	0	0	2	279	50	2221	
8:00 AM	to	9:00 AM	0	216	231	0	0	0	164	1232	0	0	0	0	2	300	48	2193	

PEAK HOUR SUMMARY																			
7:45 AM	to	8:45 AM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
VOLUME			0	232	238	0	0	0	158	1262	0	0	0	0	0	2	279	50	2221
PHF BY MOVEMENT			0.00	0.84	0.76	0.00	0.00	0.00	0.84	0.96	0.00	0.00	0.00	0.00	0.00	0.50	0.89	0.74	OVERALL
PHF BY APPROACH			0.88				0.97				0.00				0.87				0.98

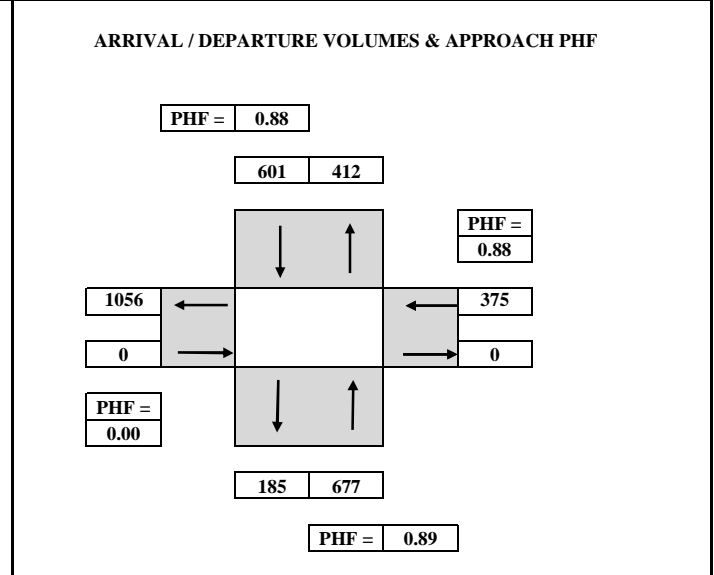
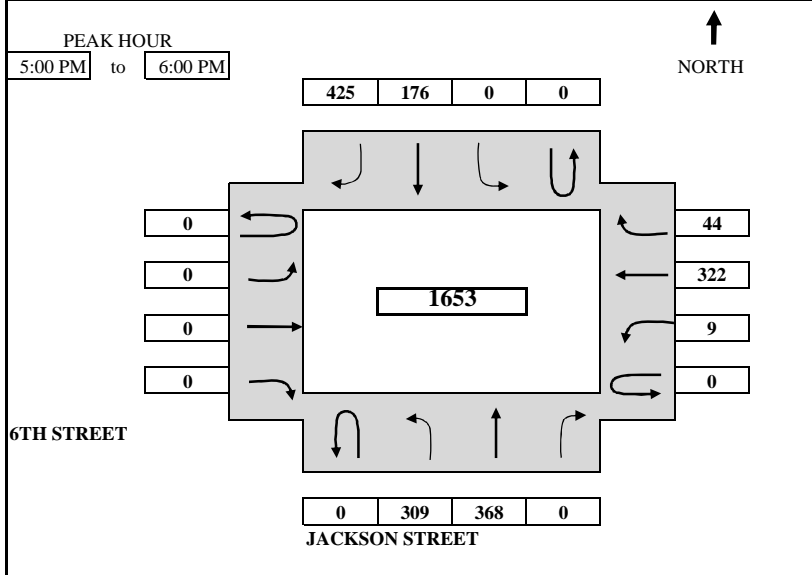
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY (II)	SURVEY DATE:	2/13/2013	DAY:	WEDNESDAY
N-S APPROACH:	JACKSON STREET	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	6TH STREET	JURISDICTION:	OAKLAND	FILE:	3302018-10PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
4:00 PM	to	4:15 PM	67	53			57	119						3	87	7			393
4:15 PM	to	4:30 PM	136	100			116	229						5	158	18			762
4:30 PM	to	4:45 PM	219	166			167	336						6	243	27			1164
4:45 PM	to	5:00 PM	283	247			210	438						8	320	38			1544
5:00 PM	to	5:15 PM	361	333			243	529						10	403	48			1927
5:15 PM	to	5:30 PM	438	427			286	626						13	487	59			2336
5:30 PM	to	5:45 PM	521	534			345	734						15	579	71			2799
5:45 PM	to	6:00 PM	592	615			386	863						17	642	82			3197

TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	67	53	0	0	0	57	119	0	0	0	0	0	3	87	7	393
4:15 PM	to	4:30 PM	0	69	47	0	0	0	59	110	0	0	0	0	0	2	71	11	369
4:30 PM	to	4:45 PM	0	83	66	0	0	0	51	107	0	0	0	0	1	85	9		402
4:45 PM	to	5:00 PM	0	64	81	0	0	0	43	102	0	0	0	0	2	77	11		380
5:00 PM	to	5:15 PM	0	78	86	0	0	0	33	91	0	0	0	0	2	83	10		383
5:15 PM	to	5:30 PM	0	77	94	0	0	0	43	97	0	0	0	0	3	84	11		409
5:30 PM	to	5:45 PM	0	83	107	0	0	0	59	108	0	0	0	0	2	92	12		463
5:45 PM	to	6:00 PM	0	71	81	0	0	0	41	129	0	0	0	0	2	63	11		398

HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	283	247	0	0	0	210	438	0	0	0	0	0	8	320	38	1544
4:15 PM	to	5:15 PM	0	294	280	0	0	0	186	410	0	0	0	0	7	316	41		1534
4:30 PM	to	5:30 PM	0	302	327	0	0	0	170	397	0	0	0	0	8	329	41		1574
4:45 PM	to	5:45 PM	0	302	368	0	0	0	178	398	0	0	0	0	9	336	44		1635
5:00 PM	to	6:00 PM	0	309	368	0	0	0	176	425	0	0	0	0	9	322	44		1653

PEAK HOUR SUMMARY																			
5:00 PM	to	6:00 PM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
			0	309	368	0	0	0	176	425	0	0	0	0	0	9	322	44	1653
PHF BY MOVEMENT			0.00	0.93	0.86	0.00	0.00	0.00	0.75	0.82	0.00	0.00	0.00	0.00	0.00	0.75	0.88	0.92	OVERALL
PHF BY APPROACH			0.89				0.88				0.00				0.88				0.89

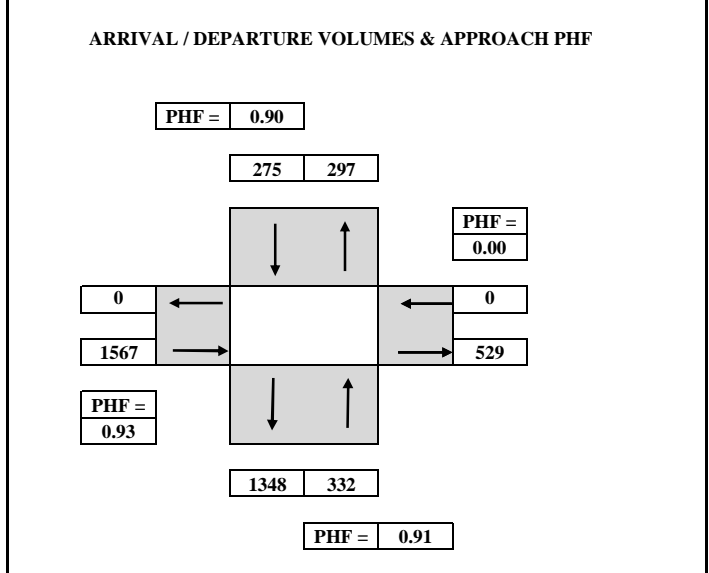
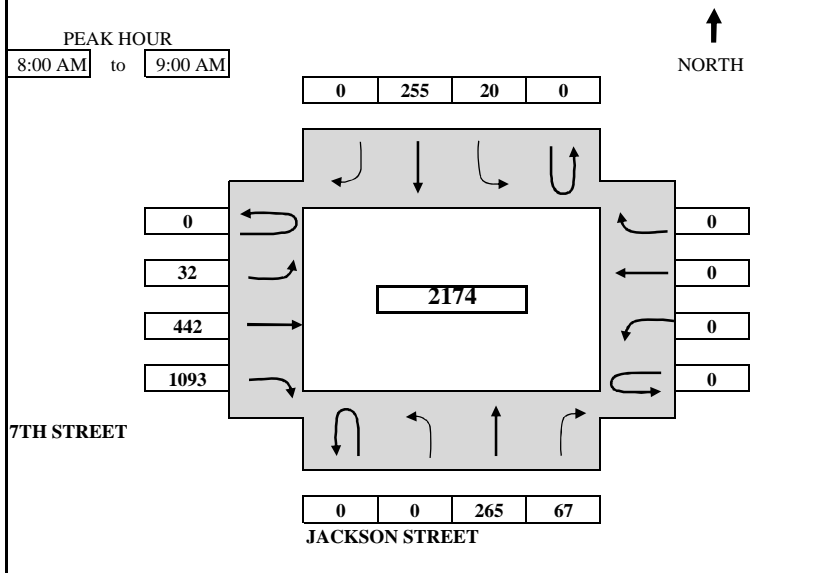
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY (II)	SURVEY DATE:	2/13/2013	DAY:	WEDNESDAY
N-S APPROACH:	JACKSON STREET	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W APPROACH:	7TH STREET	JURISDICTION:	OAKLAND	FILE:	3302018-11AM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
7:00 AM	to	7:15 AM			23	6			3	36			4	99	266				437
7:15 AM	to	7:30 AM			57	22			7	75			7	211	545				924
7:30 AM	to	7:45 AM			98	33			14	130			14	341	852				1482
7:45 AM	to	8:00 AM			134	53			20	180			20	442	1133				1982
8:00 AM	to	8:15 AM			185	72			24	237			27	548	1411				2504
8:15 AM	to	8:30 AM			258	88			31	306			37	642	1669				3031
8:30 AM	to	8:45 AM			327	101			36	365			47	778	1946				3600
8:45 AM	to	9:00 AM			399	120			40	435			52	884	2226				4156

TOTAL BY PERIOD																		
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	TOTAL	
7:00 AM to 7:15 AM	0	0	23	6	0	3	36	0	0	4	99	266	0	0	0	0	437	
7:15 AM to 7:30 AM	0	0	34	16	0	4	39	0	0	3	112	279	0	0	0	0	487	
7:30 AM to 7:45 AM	0	0	41	11	0	7	55	0	0	7	130	307	0	0	0	0	558	
7:45 AM to 8:00 AM	0	0	36	20	0	6	50	0	0	6	101	281	0	0	0	0	500	
8:00 AM to 8:15 AM	0	0	51	19	0	4	57	0	0	7	106	278	0	0	0	0	522	
8:15 AM to 8:30 AM	0	0	73	16	0	7	69	0	0	10	94	258	0	0	0	0	527	
8:30 AM to 8:45 AM	0	0	69	13	0	5	59	0	0	10	136	277	0	0	0	0	569	
8:45 AM to 9:00 AM	0	0	72	19	0	4	70	0	0	5	106	280	0	0	0	0	556	

HOURLY TOTALS																		
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	TOTAL	
7:00 AM to 8:00 AM	0	0	134	53	0	20	180	0	0	20	442	1133	0	0	0	0	1982	
7:15 AM to 8:15 AM	0	0	162	66	0	21	201	0	0	23	449	1145	0	0	0	0	2067	
7:30 AM to 8:30 AM	0	0	201	66	0	24	231	0	0	30	431	1124	0	0	0	0	2107	
7:45 AM to 8:45 AM	0	0	229	68	0	22	235	0	0	33	437	1094	0	0	0	0	2118	
8:00 AM to 9:00 AM	0	0	265	67	0	20	255	0	0	32	442	1093	0	0	0	0	2174	

PEAK HOUR SUMMARY																		
TIME PERIOD	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL	
8:00 AM to 9:00 AM	0	0	265	67	0	20	255	0	0	32	442	1093	0	0	0	0	2174	
PHF BY MOVEMENT	0.00	0.00	0.91	0.88	0.00	0.71	0.91	0.00	0.00	0.80	0.81	0.98	0.00	0.00	0.00	0.00	OVERALL	
PHF BY APPROACH	0.91				0.90				0.93				0.00				0.96	

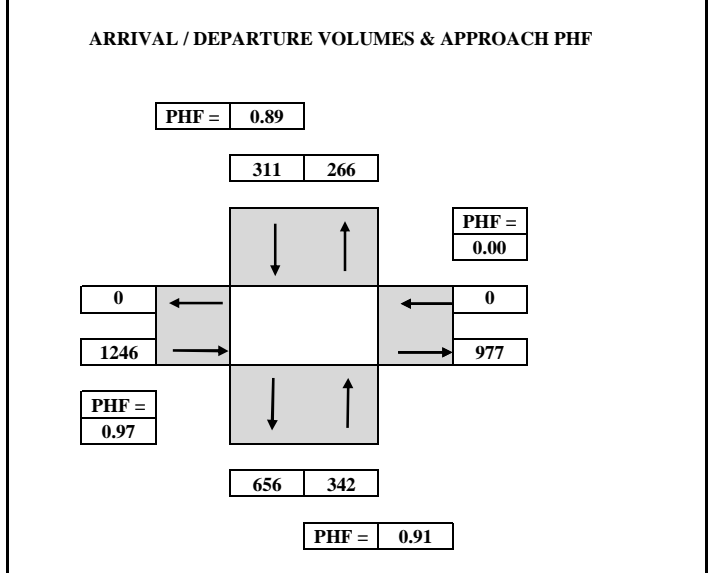
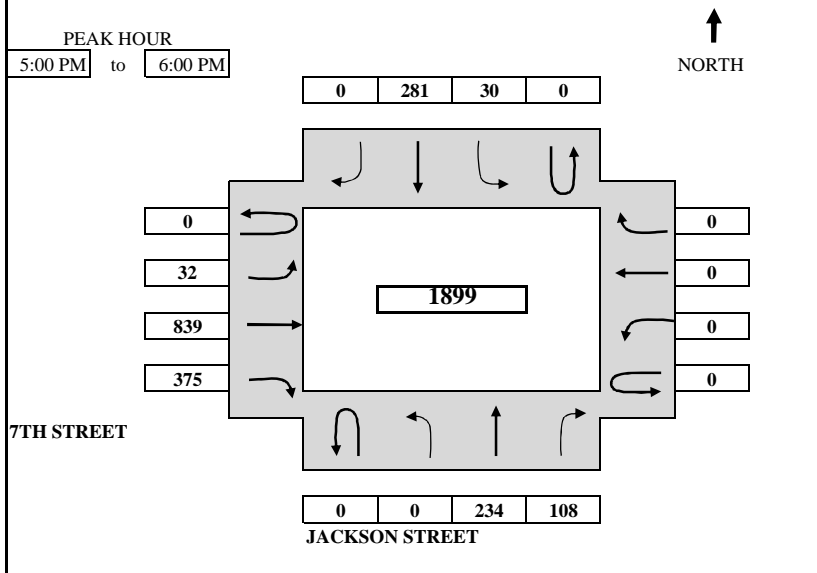
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY (II)	SURVEY DATE:	2/13/2013	DAY:	WEDNESDAY
N-S APPROACH:	JACKSON STREET	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	7TH STREET	JURISDICTION:	OAKLAND	FILE:	3302018-11PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
4:00 PM	to	4:15 PM			37	23			9	70			7	186	93				425
4:15 PM	to	4:30 PM			80	55			20	139			14	393	182				883
4:30 PM	to	4:45 PM			131	82			25	209			16	561	271				1295
4:45 PM	to	5:00 PM			189	103			32	280			23	723	356				1706
5:00 PM	to	5:15 PM			250	132			42	354			27	962	433				2200
5:15 PM	to	5:30 PM			305	155			51	432			39	1176	521				2679
5:30 PM	to	5:45 PM			368	186			56	502			48	1368	622				3150
5:45 PM	to	6:00 PM			423	211			62	561			55	1562	731				3605

TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	0	37	23	0	9	70	0	0	7	186	93	0	0	0	0	425
4:15 PM	to	4:30 PM	0	0	43	32	0	11	69	0	0	7	207	89	0	0	0	0	458
4:30 PM	to	4:45 PM	0	0	51	27	0	5	70	0	0	2	168	89	0	0	0	0	412
4:45 PM	to	5:00 PM	0	0	58	21	0	7	71	0	0	7	162	85	0	0	0	0	411
5:00 PM	to	5:15 PM	0	0	61	29	0	10	74	0	0	4	239	77	0	0	0	0	494
5:15 PM	to	5:30 PM	0	0	55	23	0	9	78	0	0	12	214	88	0	0	0	0	479
5:30 PM	to	5:45 PM	0	0	63	31	0	5	70	0	0	9	192	101	0	0	0	0	471
5:45 PM	to	6:00 PM	0	0	55	25	0	6	59	0	0	7	194	109	0	0	0	0	455

HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	0	189	103	0	32	280	0	0	23	723	356	0	0	0	0	1706
4:15 PM	to	5:15 PM	0	0	213	109	0	33	284	0	0	20	776	340	0	0	0	0	1775
4:30 PM	to	5:30 PM	0	0	225	100	0	31	293	0	0	25	783	339	0	0	0	0	1796
4:45 PM	to	5:45 PM	0	0	237	104	0	31	293	0	0	32	807	351	0	0	0	0	1855
5:00 PM	to	6:00 PM	0	0	234	108	0	30	281	0	0	32	839	375	0	0	0	0	1899

PEAK HOUR SUMMARY																				
5:00 PM	to	6:00 PM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL	
			0	0	234	108	0	30	281	0	0	32	839	375	0	0	0	0	1899	
			PHF BY MOVEMENT	0.00	0.00	0.93	0.87	0.00	0.75	0.90	0.00	0.00	0.67	0.88	0.86	0.00	0.00	0.00	0.00	OVERALL
			PHF BY APPROACH	0.91				0.89				0.97				0.00				0.96

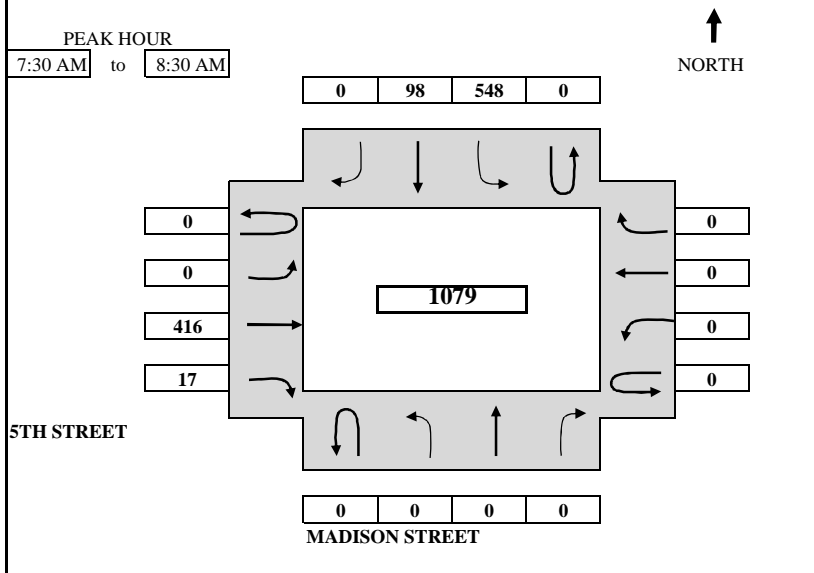
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B. A. Y. M. E. T. R. I. C. S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY (II)	SURVEY DATE:	2/13/2013	DAY:	WEDNESDAY
N-S APPROACH:	MADISON STREET	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W APPROACH:	5TH STREET	JURISDICTION:	OAKLAND	FILE:	3302018-12AM



ARRIVAL / DEPARTURE VOLUMES & APPROACH PHF

PHF = 0.89	
646	0
0	PHF = 0.00
0	0
433	964
PHF = 0.95	PHF = 0.00
115	0
PHF = 0.00	

TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL			
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT	
SURVEY DATA																				
7:00 AM	to	7:15 AM					97	17			61	7							182	
7:15 AM	to	7:30 AM					230	38			128	10							406	
7:30 AM	to	7:45 AM					391	59			221	14							685	
7:45 AM	to	8:00 AM					528	79			324	19							950	
8:00 AM	to	8:15 AM					657	106			435	22							1220	
8:15 AM	to	8:30 AM					778	136			544	27							1485	
8:30 AM	to	8:45 AM					897	165			658	29							1749	
8:45 AM	to	9:00 AM					1020	198			774	32							2024	
TOTAL BY PERIOD																				
7:00 AM	to	7:15 AM	0	0	0	0	0	97	17	0	0	0	61	7	0	0	0	0	182	
7:15 AM	to	7:30 AM	0	0	0	0	0	133	21	0	0	0	67	3	0	0	0	0	224	
7:30 AM	to	7:45 AM	0	0	0	0	0	161	21	0	0	0	93	4	0	0	0	0	279	
7:45 AM	to	8:00 AM	0	0	0	0	0	137	20	0	0	0	103	5	0	0	0	0	265	
8:00 AM	to	8:15 AM	0	0	0	0	0	129	27	0	0	0	111	3	0	0	0	0	270	
8:15 AM	to	8:30 AM	0	0	0	0	0	121	30	0	0	0	109	5	0	0	0	0	265	
8:30 AM	to	8:45 AM	0	0	0	0	0	119	29	0	0	0	114	2	0	0	0	0	264	
8:45 AM	to	9:00 AM	0	0	0	0	0	123	33	0	0	0	116	3	0	0	0	0	275	
HOURLY TOTALS																				
7:00 AM	to	8:00 AM	0	0	0	0	0	528	79	0	0	0	324	19	0	0	0	0	950	
7:15 AM	to	8:15 AM	0	0	0	0	0	560	89	0	0	0	374	15	0	0	0	0	1038	
7:30 AM	to	8:30 AM	0	0	0	0	0	548	98	0	0	0	416	17	0	0	0	0	1079	
7:45 AM	to	8:45 AM	0	0	0	0	0	506	106	0	0	0	437	15	0	0	0	0	1064	
8:00 AM	to	9:00 AM	0	0	0	0	0	492	119	0	0	0	450	13	0	0	0	0	1074	
PEAK HOUR SUMMARY																				
7:30 AM	to	8:30 AM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL	
			0	0	0	0	0	548	98	0	0	0	416	17	0	0	0	0	1079	
			PHF BY MOVEMENT	0.00	0.00	0.00	0.00	0.85	0.82	0.00	0.00	0.00	0.94	0.85	0.00	0.00	0.00	0.00	0.00	OVERALL
			PHF BY APPROACH	0.00				0.89				0.95				0.00				0.97

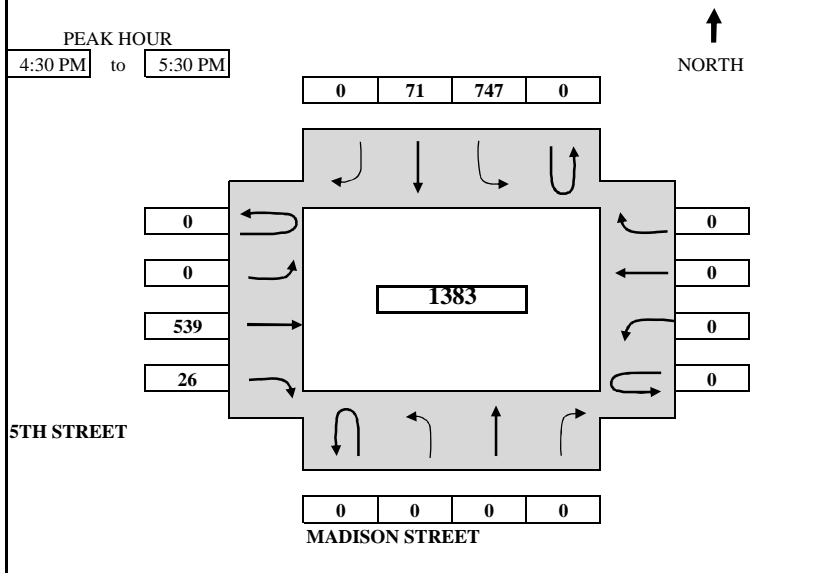
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY (II)	SURVEY DATE:	2/13/2013	DAY:	WEDNESDAY
N-S APPROACH:	MADISON STREET	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	5TH STREET	JURISDICTION:	OAKLAND	FILE:	3302018-12PM



ARRIVAL / DEPARTURE VOLUMES & APPROACH PHF

PHF = 0.94	818 0	PHF = 0.00
0 0	↓ ↑	0 0
565 0	← →	1286 0
PHF = 0.97	↓ ↑	97 0
	PHF = 0.00	

TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
4:00 PM	to	4:15 PM					169	25			113	5							312
4:15 PM	to	4:30 PM					326	48			242	11							627
4:30 PM	to	4:45 PM					505	69			377	17							968
4:45 PM	to	5:00 PM					680	86			515	25							1306
5:00 PM	to	5:15 PM					874	101			644	32							1651
5:15 PM	to	5:30 PM					1073	119			781	37							2010
5:30 PM	to	5:45 PM					1246	138			916	50							2350
5:45 PM	to	6:00 PM					1412	150			1045	63							2670

TOTAL BY PERIOD																					
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	TOTAL
4:00 PM to 4:15 PM	0	0	0	0	0	169	25	0	0	0	113	5	0	0	0	0	0	0	0	0	312
4:15 PM to 4:30 PM	0	0	0	0	0	157	23	0	0	0	129	6	0	0	0	0	0	0	0	0	315
4:30 PM to 4:45 PM	0	0	0	0	0	179	21	0	0	0	135	6	0	0	0	0	0	0	0	0	341
4:45 PM to 5:00 PM	0	0	0	0	0	175	17	0	0	0	138	8	0	0	0	0	0	0	0	0	338
5:00 PM to 5:15 PM	0	0	0	0	0	194	15	0	0	0	129	7	0	0	0	0	0	0	0	0	345
5:15 PM to 5:30 PM	0	0	0	0	0	199	18	0	0	0	137	5	0	0	0	0	0	0	0	0	359
5:30 PM to 5:45 PM	0	0	0	0	0	173	19	0	0	0	135	13	0	0	0	0	0	0	0	0	340
5:45 PM to 6:00 PM	0	0	0	0	0	166	12	0	0	0	129	13	0	0	0	0	0	0	0	0	320

HOURLY TOTALS																					
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	TOTAL
4:00 PM to 5:00 PM	0	0	0	0	0	680	86	0	0	0	515	25	0	0	0	0	0	0	0	0	1306
4:15 PM to 5:15 PM	0	0	0	0	0	705	76	0	0	0	531	27	0	0	0	0	0	0	0	0	1339
4:30 PM to 5:30 PM	0	0	0	0	0	747	71	0	0	0	539	26	0	0	0	0	0	0	0	0	1383
4:45 PM to 5:45 PM	0	0	0	0	0	741	69	0	0	0	539	33	0	0	0	0	0	0	0	0	1382
5:00 PM to 6:00 PM	0	0	0	0	0	732	64	0	0	0	530	38	0	0	0	0	0	0	0	0	1364

PEAK HOUR SUMMARY																			
TIME PERIOD	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL		
4:30 PM to 5:30 PM	0	0	0	0	0	747	71	0	0	0	539	26	0	0	0	0	1383		
PHF BY MOVEMENT	0.00	0.00	0.00	0.00	0.00	0.94	0.85	0.00	0.00	0.00	0.98	0.81	0.00	0.00	0.00	0.00	OVERALL		
PHF BY APPROACH	0.00				0.94				0.97				0.00				0.96		

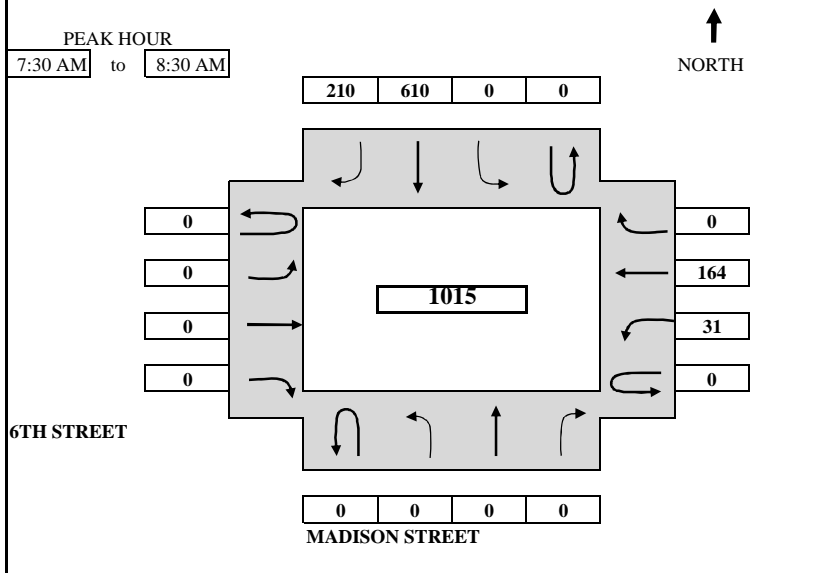
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B. A. Y. M. E. T. R. I. C. S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY (II)	SURVEY DATE:	2/13/2013	DAY:	WEDNESDAY
N-S APPROACH:	MADISON STREET	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W APPROACH:	6TH STREET	JURISDICTION:	OAKLAND	FILE:	3302018-13AM



ARRIVAL / DEPARTURE VOLUMES & APPROACH PHF

PHF = 0.93	
820	0
PHF = 0.96	
374	195
0	0
PHF = 0.00	
641	0
PHF = 0.00	

TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL			
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT	
SURVEY DATA																				
7:00 AM	to	7:15 AM					121	57							9	29				216
7:15 AM	to	7:30 AM					262	100							16	72				450
7:30 AM	to	7:45 AM					430	153							25	111				719
7:45 AM	to	8:00 AM					587	204							35	152				978
8:00 AM	to	8:15 AM					733	252							40	197				1222
8:15 AM	to	8:30 AM					872	310							47	236				1465
8:30 AM	to	8:45 AM					1020	357							54	273				1704
8:45 AM	to	9:00 AM					1153	418							62	308				1941

TOTAL BY PERIOD																			
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	TOTAL		
7:00 AM to 7:15 AM	0	0	0	0	0	0	121	57	0	0	0	0	0	9	29	0	216		
7:15 AM to 7:30 AM	0	0	0	0	0	0	141	43	0	0	0	0	0	7	43	0	234		
7:30 AM to 7:45 AM	0	0	0	0	0	0	168	53	0	0	0	0	0	9	39	0	269		
7:45 AM to 8:00 AM	0	0	0	0	0	0	157	51	0	0	0	0	0	10	41	0	259		
8:00 AM to 8:15 AM	0	0	0	0	0	0	146	48	0	0	0	0	0	5	45	0	244		
8:15 AM to 8:30 AM	0	0	0	0	0	0	139	58	0	0	0	0	0	7	39	0	243		
8:30 AM to 8:45 AM	0	0	0	0	0	0	148	47	0	0	0	0	0	7	37	0	239		
8:45 AM to 9:00 AM	0	0	0	0	0	0	133	61	0	0	0	0	0	8	35	0	237		

HOURLY TOTALS																			
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	TOTAL		
7:00 AM to 8:00 AM	0	0	0	0	0	0	587	204	0	0	0	0	0	35	152	0	978		
7:15 AM to 8:15 AM	0	0	0	0	0	0	612	195	0	0	0	0	0	31	168	0	1006		
7:30 AM to 8:30 AM	0	0	0	0	0	0	610	210	0	0	0	0	0	31	164	0	1015		
7:45 AM to 8:45 AM	0	0	0	0	0	0	590	204	0	0	0	0	0	29	162	0	985		
8:00 AM to 9:00 AM	0	0	0	0	0	0	566	214	0	0	0	0	0	27	156	0	963		

PEAK HOUR SUMMARY																			
TIME PERIOD	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL		
7:30 AM to 8:30 AM	0	0	0	0	0	0	610	210	0	0	0	0	0	31	164	0	1015		
PHF BY MOVEMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.91	0.91	0.00	0.00	0.00	0.00	0.00	0.78	0.91	0.00	OVERALL		
PHF BY APPROACH	0.00				0.93				0.00				0.96				0.94		

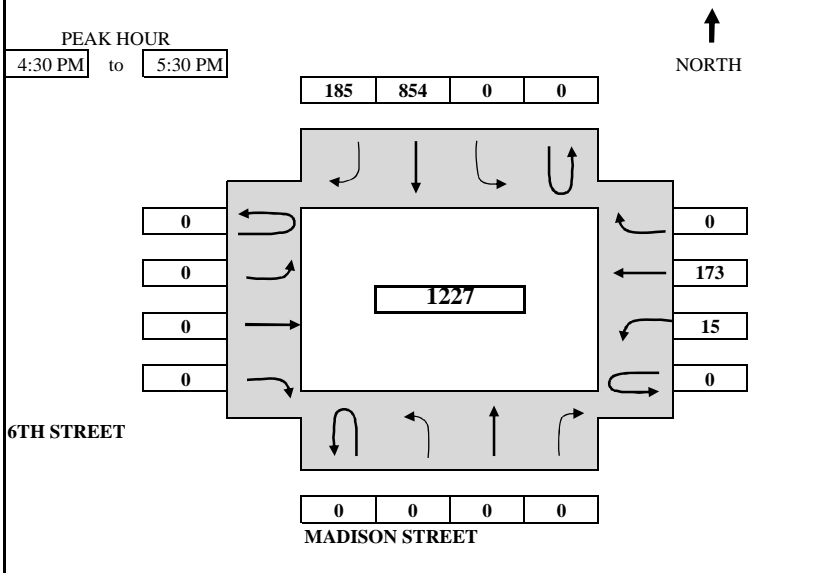
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY (II)	SURVEY DATE: 2/13/2013	DAY: WEDNESDAY
N-S APPROACH: MADISON STREET	SURVEY TIME: 4:00 PM	TO 6:00 PM
E-W APPROACH: 6TH STREET	JURISDICTION: OAKLAND	FILE: 3302018-13PM



ARRIVAL / DEPARTURE VOLUMES & APPROACH PHF

PHF = 0.94		1039		0	
PHF = 0.81		358		188	
PHF = 0.00		0		0	
PHF = 0.00		869		0	

TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
4:00 PM	to	4:15 PM					188	38							2	36			264
4:15 PM	to	4:30 PM					347	85							3	81			516
4:30 PM	to	4:45 PM					558	116							5	122			801
4:45 PM	to	5:00 PM					766	160							7	169			1102
5:00 PM	to	5:15 PM					986	215							14	220			1435
5:15 PM	to	5:30 PM					1201	270							18	254			1743
5:30 PM	to	5:45 PM					1378	309							21	302			2010
5:45 PM	to	6:00 PM					1559	358							26	353			2296

TOTAL BY PERIOD																			
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	TOTAL		
4:00 PM to 4:15 PM	0	0	0	0	0	0	188	38	0	0	0	0	0	2	36	0	264		
4:15 PM to 4:30 PM	0	0	0	0	0	0	159	47	0	0	0	0	0	1	45	0	252		
4:30 PM to 4:45 PM	0	0	0	0	0	0	211	31	0	0	0	0	0	2	41	0	285		
4:45 PM to 5:00 PM	0	0	0	0	0	0	208	44	0	0	0	0	0	2	47	0	301		
5:00 PM to 5:15 PM	0	0	0	0	0	0	220	55	0	0	0	0	0	7	51	0	333		
5:15 PM to 5:30 PM	0	0	0	0	0	0	215	55	0	0	0	0	0	4	34	0	308		
5:30 PM to 5:45 PM	0	0	0	0	0	0	177	39	0	0	0	0	0	3	48	0	267		
5:45 PM to 6:00 PM	0	0	0	0	0	0	181	49	0	0	0	0	0	5	51	0	286		

HOURLY TOTALS																			
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	TOTAL		
4:00 PM to 5:00 PM	0	0	0	0	0	0	766	160	0	0	0	0	0	7	169	0	1102		
4:15 PM to 5:15 PM	0	0	0	0	0	0	798	177	0	0	0	0	0	12	184	0	1171		
4:30 PM to 5:30 PM	0	0	0	0	0	0	854	185	0	0	0	0	0	15	173	0	1227		
4:45 PM to 5:45 PM	0	0	0	0	0	0	820	193	0	0	0	0	0	16	180	0	1209		
5:00 PM to 6:00 PM	0	0	0	0	0	0	793	198	0	0	0	0	0	19	184	0	1194		

PEAK HOUR SUMMARY																			
TIME PERIOD	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL		
4:30 PM to 5:30 PM	0	0	0	0	0	0	854	185	0	0	0	0	0	15	173	0	1227		
PHF BY MOVEMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.97	0.84	0.00	0.00	0.00	0.00	0.00	0.54	0.85	0.00	OVERALL		
PHF BY APPROACH	0.00				0.94				0.00				0.81				0.92		

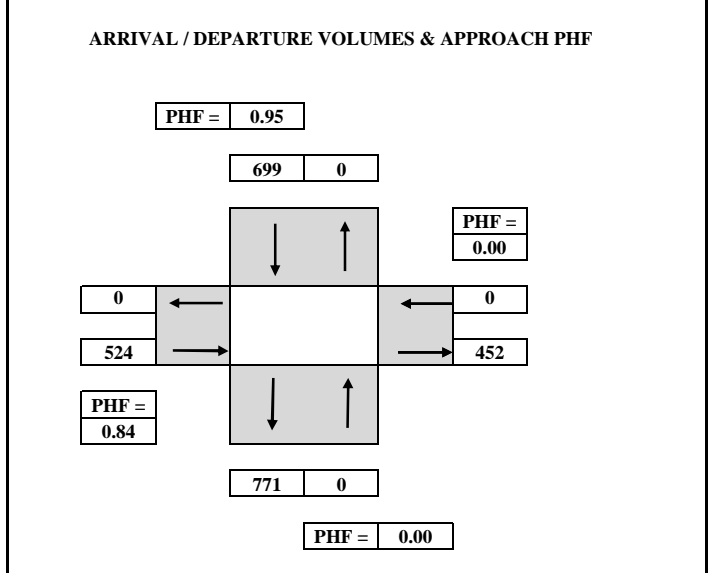
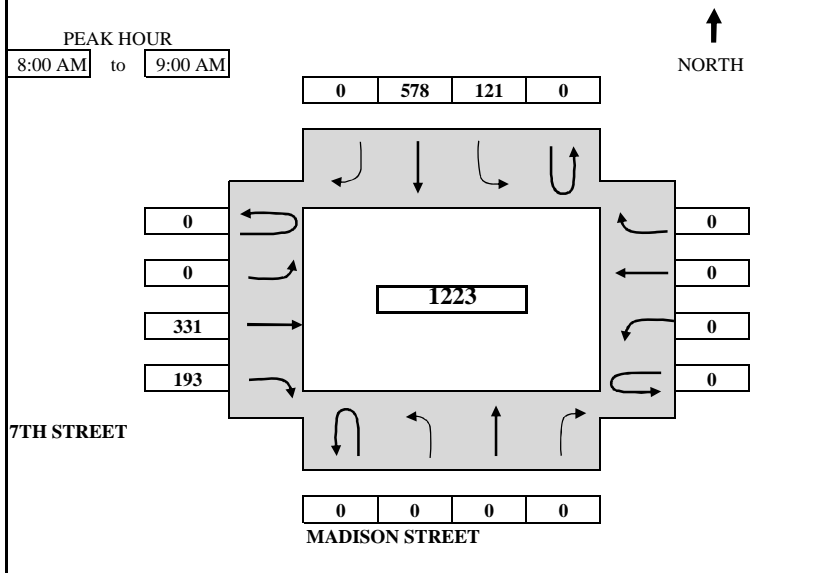
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY (II)	SURVEY DATE:	2/13/2013	DAY:	WEDNESDAY
N-S APPROACH:	MADISON STREET	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W APPROACH:	7TH STREET	JURISDICTION:	OAKLAND	FILE:	3302018-14AM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL			
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT	
SURVEY DATA																				
7:00 AM to 7:15 AM					15	117				42	67								241	
7:15 AM to 7:30 AM					35	231				101	149								516	
7:30 AM to 7:45 AM					59	349				169	221								798	
7:45 AM to 8:00 AM					82	478				239	284								1083	
8:00 AM to 8:15 AM					115	629				315	341								1400	
8:15 AM to 8:30 AM					153	764				377	383								1677	
8:30 AM to 8:45 AM					181	899				481	435								1996	
8:45 AM to 9:00 AM					203	1056				570	477								2306	
TOTAL BY PERIOD																				
7:00 AM to 7:15 AM	0	0	0	0	0	15	117	0	0	0	42	67	0	0	0	0	0	0	241	
7:15 AM to 7:30 AM	0	0	0	0	0	20	114	0	0	0	59	82	0	0	0	0	0	0	275	
7:30 AM to 7:45 AM	0	0	0	0	0	24	118	0	0	0	68	72	0	0	0	0	0	0	282	
7:45 AM to 8:00 AM	0	0	0	0	0	23	129	0	0	0	70	63	0	0	0	0	0	0	285	
8:00 AM to 8:15 AM	0	0	0	0	0	33	151	0	0	0	76	57	0	0	0	0	0	0	317	
8:15 AM to 8:30 AM	0	0	0	0	0	38	135	0	0	0	62	42	0	0	0	0	0	0	277	
8:30 AM to 8:45 AM	0	0	0	0	0	28	135	0	0	0	104	52	0	0	0	0	0	0	319	
8:45 AM to 9:00 AM	0	0	0	0	0	22	157	0	0	0	89	42	0	0	0	0	0	0	310	
HOURLY TOTALS																				
7:00 AM to 8:00 AM	0	0	0	0	0	82	478	0	0	0	239	284	0	0	0	0	0	0	1083	
7:15 AM to 8:15 AM	0	0	0	0	0	100	512	0	0	0	273	274	0	0	0	0	0	0	1159	
7:30 AM to 8:30 AM	0	0	0	0	0	118	533	0	0	0	276	234	0	0	0	0	0	0	1161	
7:45 AM to 8:45 AM	0	0	0	0	0	122	550	0	0	0	312	214	0	0	0	0	0	0	1198	
8:00 AM to 9:00 AM	0	0	0	0	0	121	578	0	0	0	331	193	0	0	0	0	0	0	1223	
PEAK HOUR SUMMARY																				
8:00 AM to 9:00 AM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR			TOTAL	
VOLUME	0	0	0	0	0	121	578	0	0	0	331	193	0	0	0	0			1223	
PHF BY MOVEMENT	0.00	0.00	0.00	0.00	0.00	0.80	0.92	0.00	0.00	0.00	0.80	0.85	0.00	0.00	0.00	0.00			OVERALL	
PHF BY APPROACH	0.00				0.95				0.84				0.00							0.96

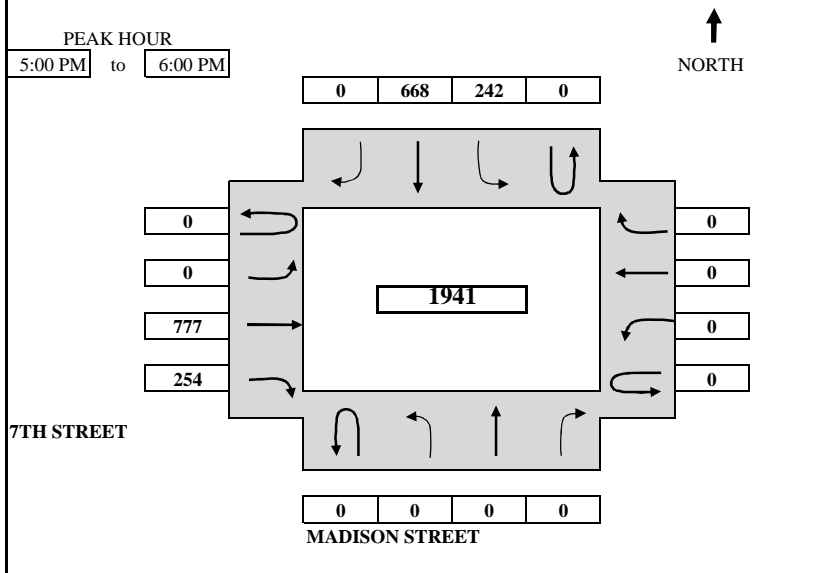
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY (II)	SURVEY DATE:	2/13/2013	DAY:	WEDNESDAY
N-S APPROACH:	MADISON STREET	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	7TH STREET	JURISDICTION:	OAKLAND	FILE:	3302018-14PM



ARRIVAL / DEPARTURE VOLUMES & APPROACH PHF

PHF = 0.91	
910	0
PHF = 0.00	
0	0
1031	1019
PHF = 0.98	
922	0
PHF = 0.00	

TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
4:00 PM	to	4:15 PM					33	169			137	79							418
4:15 PM	to	4:30 PM					69	331			261	141							802
4:30 PM	to	4:45 PM					117	516			404	233							1270
4:45 PM	to	5:00 PM					155	677			546	302							1680
5:00 PM	to	5:15 PM					229	849			733	362							2173
5:15 PM	to	5:30 PM					291	1019			924	432							2666
5:30 PM	to	5:45 PM					355	1206			1126	494							3181
5:45 PM	to	6:00 PM					397	1345			1323	556							3621

TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	0	0	0	0	33	169	0	0	0	137	79	0	0	0	0	418
4:15 PM	to	4:30 PM	0	0	0	0	0	36	162	0	0	0	124	62	0	0	0	0	384
4:30 PM	to	4:45 PM	0	0	0	0	0	48	185	0	0	0	143	92	0	0	0	0	468
4:45 PM	to	5:00 PM	0	0	0	0	0	38	161	0	0	0	142	69	0	0	0	0	410
5:00 PM	to	5:15 PM	0	0	0	0	0	74	172	0	0	0	187	60	0	0	0	0	493
5:15 PM	to	5:30 PM	0	0	0	0	0	62	170	0	0	0	191	70	0	0	0	0	493
5:30 PM	to	5:45 PM	0	0	0	0	0	64	187	0	0	0	202	62	0	0	0	0	515
5:45 PM	to	6:00 PM	0	0	0	0	0	42	139	0	0	0	197	62	0	0	0	0	440

HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	0	0	0	0	155	677	0	0	0	546	302	0	0	0	0	1680
4:15 PM	to	5:15 PM	0	0	0	0	0	196	680	0	0	0	596	283	0	0	0	0	1755
4:30 PM	to	5:30 PM	0	0	0	0	0	222	688	0	0	0	663	291	0	0	0	0	1864
4:45 PM	to	5:45 PM	0	0	0	0	0	238	690	0	0	0	722	261	0	0	0	0	1911
5:00 PM	to	6:00 PM	0	0	0	0	0	242	668	0	0	0	777	254	0	0	0	0	1941

PEAK HOUR SUMMARY																			
5:00 PM	to	6:00 PM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
			0	0	0	0	0	242	668	0	0	0	777	254	0	0	0	0	1941
PHF BY MOVEMENT			0.00	0.00	0.00	0.00	0.00	0.82	0.89	0.00	0.00	0.00	0.96	0.91	0.00	0.00	0.00	0.00	OVERALL
PHF BY APPROACH			0.00				0.91				0.98				0.00				0.94

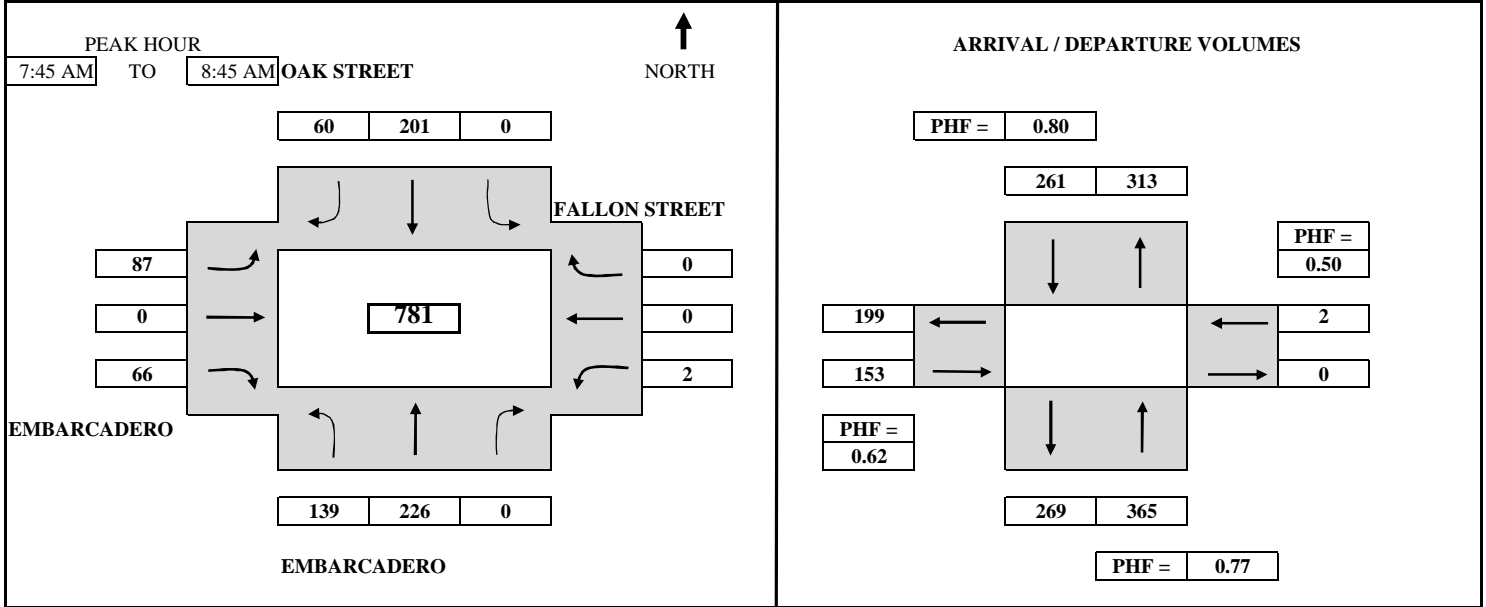
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY	SURVEY DATE: 1/15/2013	DAY: TUESDAY
N-S APPROACH: OAK STREET	SURVEY TIME: 7:00 AM	TO 9:00 AM
E-W APPROACH EMBARCADERO	JURISDICTION: OAKLAND	FILE: 3301002-11AM



TIME	PERIOD	NORTHBOUND			SOUTHBOUND			EASTBOUND			WB (FALLON STREET)			TOTAL
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
SURVEY DATA														
7:00 AM	to 7:15 AM	7	20		19	6		8	7		0	0		67
7:15 AM	to 7:30 AM	13	44		47	13		14	12		1	0		144
7:30 AM	to 7:45 AM	30	101		63	29		29	21		1	1		275
7:45 AM	to 8:00 AM	82	121		86	53		70	42		2	1		457
8:00 AM	to 8:15 AM	116	172		130	68		92	64		3	1		646
8:15 AM	to 8:30 AM	153	253		187	84		108	80		3	1		869
8:30 AM	to 8:45 AM	169	327		264	89		116	87		3	1		1056
8:45 AM	to 9:00 AM	181	407		321	96		120	94		3	1		1223

TOTAL BY PERIOD														
TIME	PERIOD	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL
7:00 AM	to 7:15 AM	7	20	0	0	19	6	8	0	7	0	0	0	67
7:15 AM	to 7:30 AM	6	24	0	0	28	7	6	0	5	1	0	0	77
7:30 AM	to 7:45 AM	17	57	0	0	16	16	15	0	9	0	0	1	131
7:45 AM	to 8:00 AM	52	20	0	0	23	24	41	0	21	1	0	0	182
8:00 AM	to 8:15 AM	34	51	0	0	44	15	22	0	22	1	0	0	189
8:15 AM	to 8:30 AM	37	81	0	0	57	16	16	0	16	0	0	0	223
8:30 AM	to 8:45 AM	16	74	0	0	77	5	8	0	7	0	0	0	187
8:45 AM	to 9:00 AM	12	80	0	0	57	7	4	0	7	0	0	0	167

HOURLY TOTALS														
TIME	PERIOD	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL
7:00 AM	to 8:00 AM	82	121	0	0	86	53	70	0	42	2	0	1	457
7:15 AM	to 8:15 AM	109	152	0	0	111	62	84	0	57	3	0	1	579
7:30 AM	to 8:30 AM	140	209	0	0	140	71	94	0	68	2	0	1	725
7:45 AM	to 8:45 AM	139	226	0	0	201	60	87	0	66	2	0	0	781
8:00 AM	to 9:00 AM	99	286	0	0	235	43	50	0	52	1	0	0	766

PEAK HOUR SUMMARY														
TIME	PERIOD	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
7:45 AM	to 8:45 AM													
VOLUME		139	226	0	0	201	60	87	0	66	2	0	0	781
PHF BY MOVEMENT		0.67	0.70	0.00	0.00	0.65	0.63	0.53	0.00	0.75	0.50	0.00	0.00	OVERALL
PHF BY APPROACH		0.77			0.80			0.62			0.50			0.88

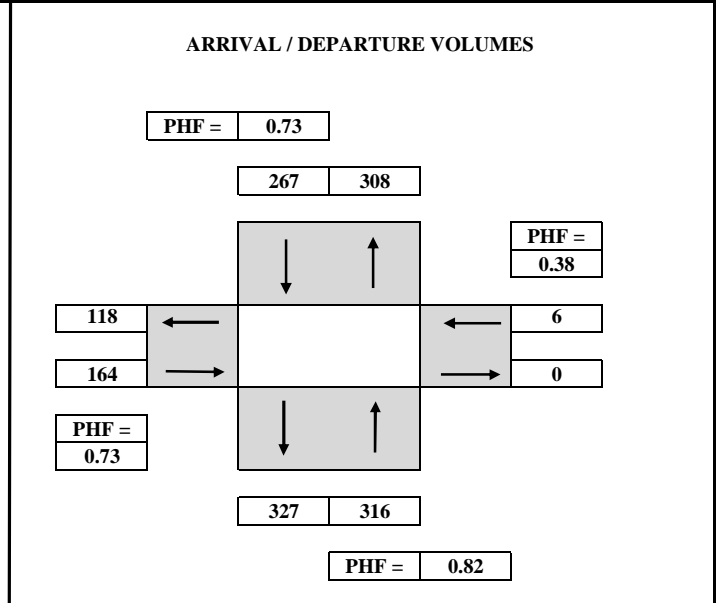
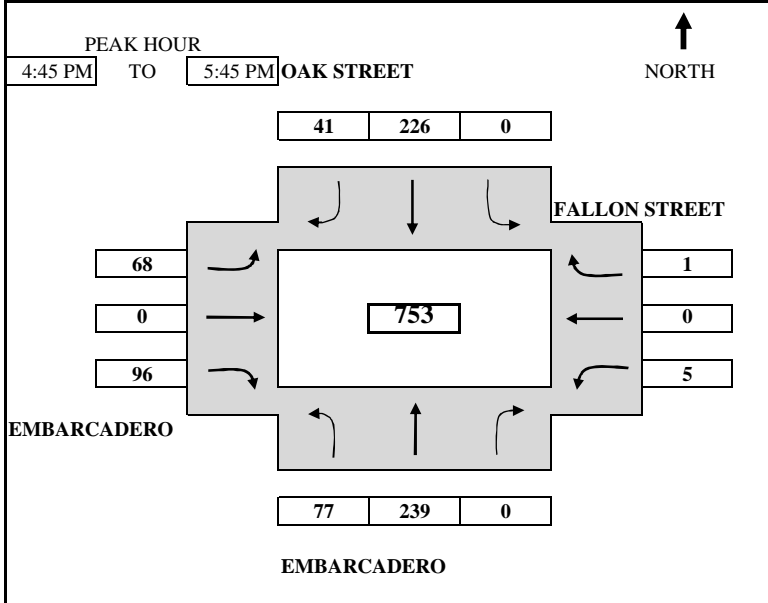
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY	SURVEY DATE: 1/15/2013	DAY: TUESDAY
N-S APPROACH: OAK STREET	SURVEY TIME: 4:00 PM	TO 6:00 PM
E-W APPROACH EMBARCADERO	JURISDICTION: OAKLAND	FILE: 3301002-11PM



TIME	PERIOD	NORTHBOUND			SOUTHBOUND			EASTBOUND			WB (FALLON STREET)			TOTAL
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
SURVEY DATA														
4:00 PM	to 4:15 PM	23	74		31	11		14	29		0	0		182
4:15 PM	to 4:30 PM	37	124		59	20		35	50		3	0		328
4:30 PM	to 4:45 PM	55	178		109	28		44	85		3	0		502
4:45 PM	to 5:00 PM	71	234		148	38		60	125		3	0		679
5:00 PM	to 5:15 PM	93	274		196	49		74	144		3	0		833
5:15 PM	to 5:30 PM	112	341		253	59		91	168		7	0		1031
5:30 PM	to 5:45 PM	132	417		335	69		112	181		8	1		1255
5:45 PM	to 6:00 PM	148	461		381	76		125	192		8	1		1392

TOTAL BY PERIOD														
4:00 PM	to 4:15 PM	23	74	0	0	31	11	14	0	29	0	0	0	182
4:15 PM	to 4:30 PM	14	50	0	0	28	9	21	0	21	3	0	0	146
4:30 PM	to 4:45 PM	18	54	0	0	50	8	9	0	35	0	0	0	174
4:45 PM	to 5:00 PM	16	56	0	0	39	10	16	0	40	0	0	0	177
5:00 PM	to 5:15 PM	22	40	0	0	48	11	14	0	19	0	0	0	154
5:15 PM	to 5:30 PM	19	67	0	0	57	10	17	0	24	4	0	0	198
5:30 PM	to 5:45 PM	20	76	0	0	82	10	21	0	13	1	0	1	224
5:45 PM	to 6:00 PM	16	44	0	0	46	7	13	0	11	0	0	0	137

HOURLY TOTALS														
4:00 PM	to 5:00 PM	71	234	0	0	148	38	60	0	125	3	0	0	679
4:15 PM	to 5:15 PM	70	200	0	0	165	38	60	0	115	3	0	0	651
4:30 PM	to 5:30 PM	75	217	0	0	194	39	56	0	118	4	0	0	703
4:45 PM	to 5:45 PM	77	239	0	0	226	41	68	0	96	5	0	1	753
5:00 PM	to 6:00 PM	77	227	0	0	233	38	65	0	67	5	0	1	713

PEAK HOUR SUMMARY														
4:45 PM	to 5:45 PM	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
VOLUME		77	239	0	0	226	41	68	0	96	5	0	1	753
PHF BY MOVEMENT		0.88	0.79	0.00	0.00	0.69	0.93	0.81	0.00	0.60	0.31	0.00	0.25	OVERALL
PHF BY APPROACH		0.82			0.73			0.73			0.38			0.84

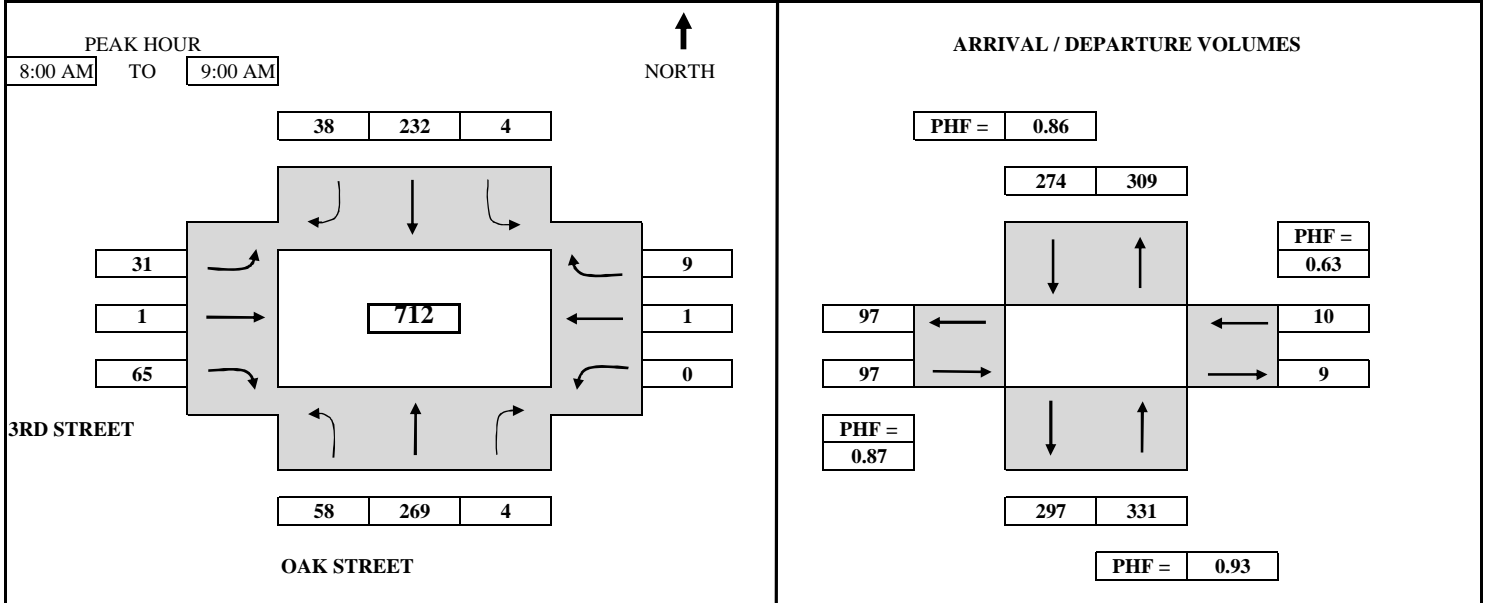
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY	SURVEY DATE: 1/15/2013	DAY: TUESDAY
N-S APPROACH: OAK STREET	SURVEY TIME: 7:00 AM	TO 9:00 AM
E-W APPROACH: 3RD STREET	JURISDICTION: OAKLAND	FILE: 3301002-12AM



TIME	PERIOD	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
SURVEY DATA														
7:00 AM	to 7:15 AM	1	28	0	2	23	4	4	1	3	1	0	4	71
7:15 AM	to 7:30 AM	10	58	0	3	59	16	7	4	7	1	0	8	173
7:30 AM	to 7:45 AM	16	127	1	6	89	31	13	4	17	1	2	9	316
7:45 AM	to 8:00 AM	25	178	2	6	107	40	15	4	24	1	2	9	413
8:00 AM	to 8:15 AM	38	235	4	6	158	46	20	5	42	1	2	11	568
8:15 AM	to 8:30 AM	53	307	5	8	216	58	26	5	59	1	2	15	755
8:30 AM	to 8:45 AM	66	376	5	9	283	70	37	5	76	1	2	17	947
8:45 AM	to 9:00 AM	83	447	6	10	339	78	46	5	89	1	3	18	1125

TOTAL BY PERIOD														
TIME	PERIOD	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL
7:00 AM	to 7:15 AM	1	28	0	2	23	4	4	1	3	1	0	4	71
7:15 AM	to 7:30 AM	9	30	0	1	36	12	3	3	4	0	0	4	102
7:30 AM	to 7:45 AM	6	69	1	3	30	15	6	0	10	0	2	1	143
7:45 AM	to 8:00 AM	9	51	1	0	18	9	2	0	7	0	0	0	97
8:00 AM	to 8:15 AM	13	57	2	0	51	6	5	1	18	0	0	2	155
8:15 AM	to 8:30 AM	15	72	1	2	58	12	6	0	17	0	0	4	187
8:30 AM	to 8:45 AM	13	69	0	1	67	12	11	0	17	0	0	2	192
8:45 AM	to 9:00 AM	17	71	1	1	56	8	9	0	13	0	1	1	178

HOURLY TOTALS														
TIME	PERIOD	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL
7:00 AM	to 8:00 AM	25	178	2	6	107	40	15	4	24	1	2	9	413
7:15 AM	to 8:15 AM	37	207	4	4	135	42	16	4	39	0	2	7	497
7:30 AM	to 8:30 AM	43	249	5	5	157	42	19	1	52	0	2	7	582
7:45 AM	to 8:45 AM	50	249	4	3	194	39	24	1	59	0	0	8	631
8:00 AM	to 9:00 AM	58	269	4	4	232	38	31	1	65	0	1	9	712

PEAK HOUR SUMMARY														
TIME	PERIOD	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
8:00 AM	to 9:00 AM	58	269	4	4	232	38	31	1	65	0	1	9	712
PHF BY MOVEMENT		0.85	0.93	0.50	0.50	0.87	0.79	0.70	0.25	0.90	0.00	0.25	0.56	OVERALL
PHF BY APPROACH		0.93			0.86			0.87			0.63			0.93

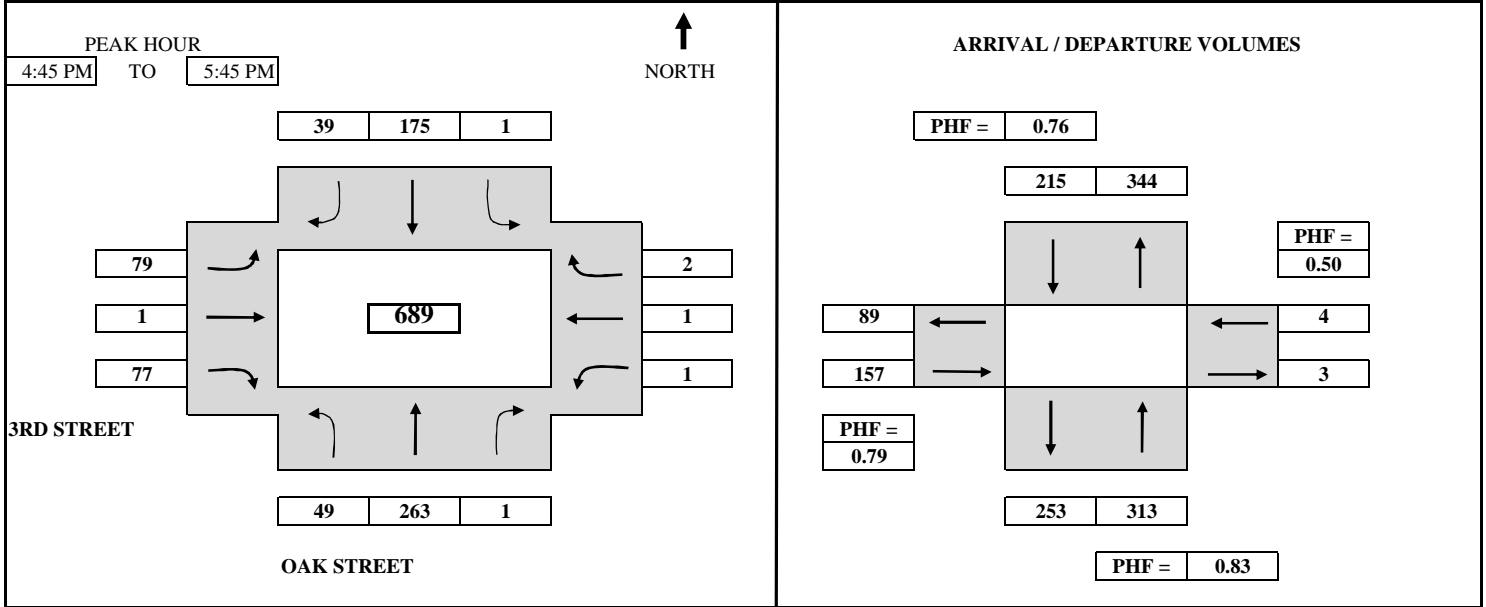
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY	SURVEY DATE: 1/15/2013	DAY: TUESDAY
N-S APPROACH: OAK STREET	SURVEY TIME: 4:00 PM	TO 6:00 PM
E-W APPROACH: 3RD STREET	JURISDICTION: OAKLAND	FILE: 3301002-12PM



TIME	PERIOD	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
SURVEY DATA														
4:00 PM	to 4:15 PM	16	71	0	0	32	9	11	0	11	0	0	1	151
4:15 PM	to 4:30 PM	25	137	0	0	50	14	28	1	25	0	0	1	281
4:30 PM	to 4:45 PM	36	189	0	0	80	31	45	1	45	0	0	1	428
4:45 PM	to 5:00 PM	42	254	0	0	118	44	57	2	63	1	0	1	582
5:00 PM	to 5:15 PM	48	304	0	0	152	51	81	2	83	1	1	2	725
5:15 PM	to 5:30 PM	64	381	1	1	193	61	95	2	101	1	1	3	904
5:30 PM	to 5:45 PM	85	452	1	1	255	70	124	2	122	1	1	3	1117
5:45 PM	to 6:00 PM	93	508	1	1	288	77	137	2	140	1	1	3	1252

TOTAL BY PERIOD														
4:00 PM	to 4:15 PM	16	71	0	0	32	9	11	0	11	0	0	1	151
4:15 PM	to 4:30 PM	9	66	0	0	18	5	17	1	14	0	0	0	130
4:30 PM	to 4:45 PM	11	52	0	0	30	17	17	0	20	0	0	0	147
4:45 PM	to 5:00 PM	6	65	0	0	38	13	12	1	18	1	0	0	154
5:00 PM	to 5:15 PM	6	50	0	0	34	7	24	0	20	0	1	1	143
5:15 PM	to 5:30 PM	16	77	1	1	41	10	14	0	18	0	0	1	179
5:30 PM	to 5:45 PM	21	71	0	0	62	9	29	0	21	0	0	0	213
5:45 PM	to 6:00 PM	8	56	0	0	33	7	13	0	18	0	0	0	135

HOURLY TOTALS														
4:00 PM	to 5:00 PM	42	254	0	0	118	44	57	2	63	1	0	1	582
4:15 PM	to 5:15 PM	32	233	0	0	120	42	70	2	72	1	1	1	574
4:30 PM	to 5:30 PM	39	244	1	1	143	47	67	1	76	1	1	2	623
4:45 PM	to 5:45 PM	49	263	1	1	175	39	79	1	77	1	1	2	689
5:00 PM	to 6:00 PM	51	254	1	1	170	33	80	0	77	0	1	2	670

PEAK HOUR SUMMARY														
4:45 PM	to 5:45 PM	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
VOLUME		49	263	1	1	175	39	79	1	77	1	1	2	689
PHF BY MOVEMENT		0.58	0.85	0.25	0.25	0.71	0.75	0.68	0.25	0.92	0.25	0.25	0.50	OVERALL
PHF BY APPROACH		0.83			0.76			0.79			0.50			0.81

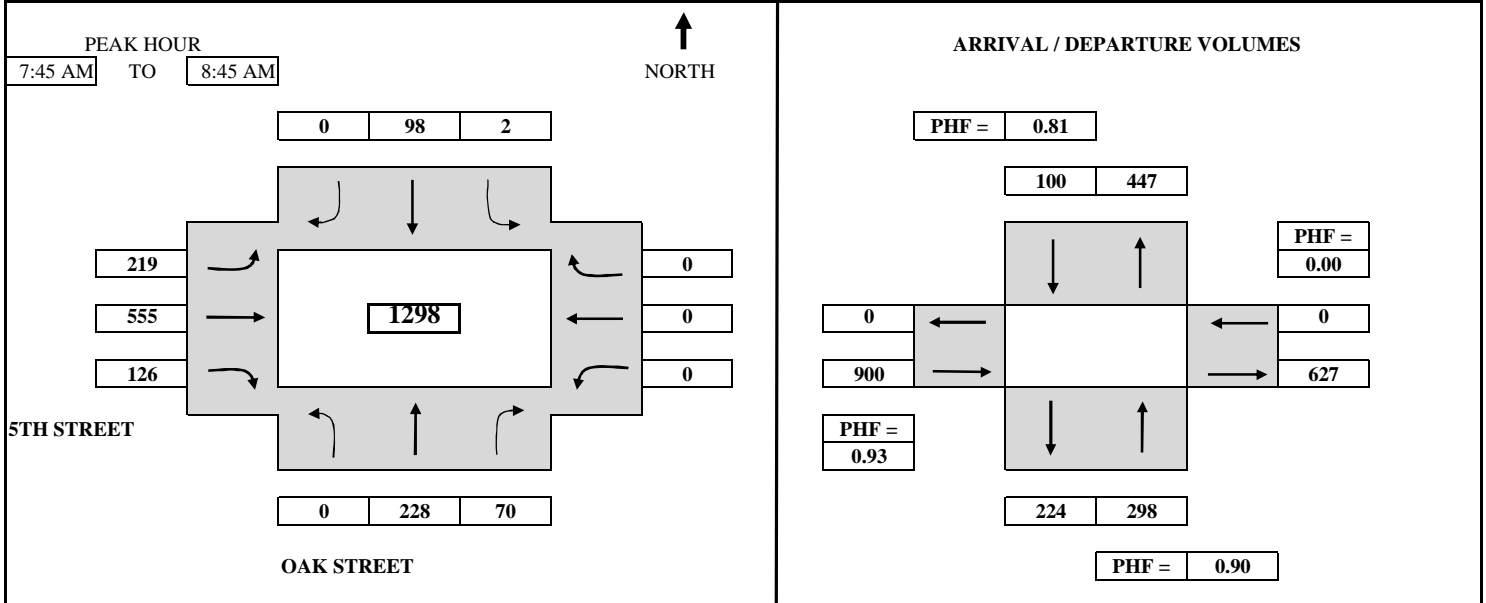
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY	SURVEY DATE: 1/15/2013	DAY: TUESDAY
N-S APPROACH: OAK STREET	SURVEY TIME: 7:00 AM	TO 9:00 AM
E-W APPROACH 5TH STREET	JURISDICTION: OAKLAND	FILE: 3301002-13AM



TIME	PERIOD	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
SURVEY DATA														
7:00 AM	to 7:15 AM	32	11	0	33	27	108	17					228	
7:15 AM	to 7:30 AM	76	24	0	54	58	227	38					477	
7:30 AM	to 7:45 AM	135	36	1	72	105	374	66					789	
7:45 AM	to 8:00 AM	191	50	2	92	156	511	90					1092	
8:00 AM	to 8:15 AM	239	69	2	113	205	660	119					1407	
8:15 AM	to 8:30 AM	296	90	3	139	267	803	155					1753	
8:30 AM	to 8:45 AM	363	106	3	170	324	929	192					2087	
8:45 AM	to 9:00 AM	429	124	3	188	379	1034	227					2384	

TOTAL BY PERIOD														
TIME	PERIOD	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL
7:00 AM	to 7:15 AM	0	32	11	0	33	0	27	108	17	0	0	0	228
7:15 AM	to 7:30 AM	0	44	13	0	21	0	31	119	21	0	0	0	249
7:30 AM	to 7:45 AM	0	59	12	1	18	0	47	147	28	0	0	0	312
7:45 AM	to 8:00 AM	0	56	14	1	20	0	51	137	24	0	0	0	303
8:00 AM	to 8:15 AM	0	48	19	0	21	0	49	149	29	0	0	0	315
8:15 AM	to 8:30 AM	0	57	21	1	26	0	62	143	36	0	0	0	346
8:30 AM	to 8:45 AM	0	67	16	0	31	0	57	126	37	0	0	0	334
8:45 AM	to 9:00 AM	0	66	18	0	18	0	55	105	35	0	0	0	297

HOURLY TOTALS														
TIME	PERIOD	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	TOTAL
7:00 AM	to 8:00 AM	0	191	50	2	92	0	156	511	90	0	0	0	1092
7:15 AM	to 8:15 AM	0	207	58	2	80	0	178	552	102	0	0	0	1179
7:30 AM	to 8:30 AM	0	220	66	3	85	0	209	576	117	0	0	0	1276
7:45 AM	to 8:45 AM	0	228	70	2	98	0	219	555	126	0	0	0	1298
8:00 AM	to 9:00 AM	0	238	74	1	96	0	223	523	137	0	0	0	1292

PEAK HOUR SUMMARY														
TIME	PERIOD	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
7:45 AM	to 8:45 AM	0	228	70	2	98	0	219	555	126	0	0	0	1298
VOLUME		0	228	70	2	98	0	219	555	126	0	0	0	1298
PHF BY MOVEMENT		0.00	0.85	0.83	0.50	0.79	0.00	0.88	0.93	0.85	0.00	0.00	0.00	OVERALL
PHF BY APPROACH		0.90			0.81			0.93			0.00			0.94

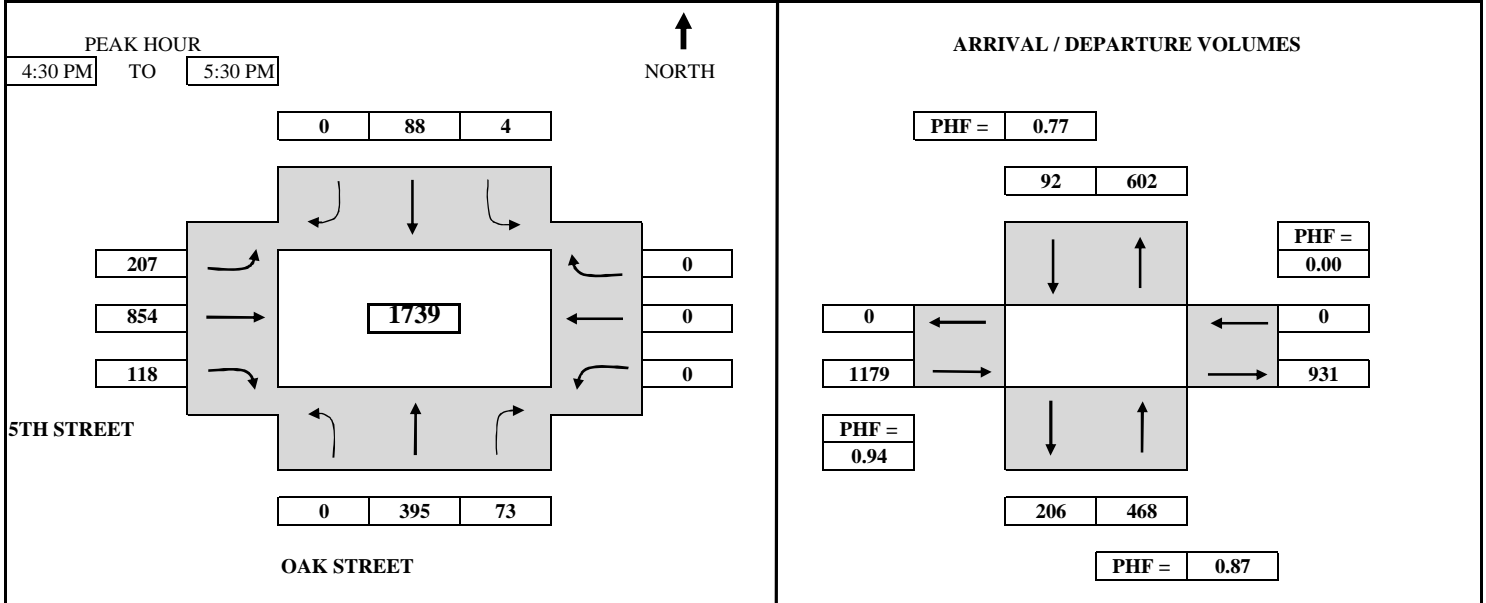
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY	SURVEY DATE: 1/15/2013	DAY: TUESDAY
N-S APPROACH: OAK STREET	SURVEY TIME: 4:00 PM	TO 6:00 PM
E-W APPROACH: 5TH STREET	JURISDICTION: OAKLAND	FILE: 3301002-13PM



TIME	PERIOD	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
SURVEY DATA														
4:00 PM	to 4:15 PM	81	18	1	15	37	231	25					408	
4:15 PM	to 4:30 PM	157	37	3	29	76	465	46					813	
4:30 PM	to 4:45 PM	240	52	5	47	119	684	77					1224	
4:45 PM	to 5:00 PM	344	68	5	69	164	888	102					1640	
5:00 PM	to 5:15 PM	455	92	6	88	216	1101	135					2093	
5:15 PM	to 5:30 PM	552	110	7	117	283	1319	164					2552	
5:30 PM	to 5:45 PM	626	125	9	142	339	1511	198					2950	
5:45 PM	to 6:00 PM	695	139	9	162	390	1689	225					3309	
TOTAL BY PERIOD														
4:00 PM	to 4:15 PM	0	81	18	1	15	0	37	231	25	0	0	0	408
4:15 PM	to 4:30 PM	0	76	19	2	14	0	39	234	21	0	0	0	405
4:30 PM	to 4:45 PM	0	83	15	2	18	0	43	219	31	0	0	0	411
4:45 PM	to 5:00 PM	0	104	16	0	22	0	45	204	25	0	0	0	416
5:00 PM	to 5:15 PM	0	111	24	1	19	0	52	213	33	0	0	0	453
5:15 PM	to 5:30 PM	0	97	18	1	29	0	67	218	29	0	0	0	459
5:30 PM	to 5:45 PM	0	74	15	2	25	0	56	192	34	0	0	0	398
5:45 PM	to 6:00 PM	0	69	14	0	20	0	51	178	27	0	0	0	359
HOURLY TOTALS														
4:00 PM	to 5:00 PM	0	344	68	5	69	0	164	888	102	0	0	0	1640
4:15 PM	to 5:15 PM	0	374	74	5	73	0	179	870	110	0	0	0	1685
4:30 PM	to 5:30 PM	0	395	73	4	88	0	207	854	118	0	0	0	1739
4:45 PM	to 5:45 PM	0	386	73	4	95	0	220	827	121	0	0	0	1726
5:00 PM	to 6:00 PM	0	351	71	4	93	0	226	801	123	0	0	0	1669
PEAK HOUR SUMMARY														
4:30 PM	to 5:30 PM	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
VOLUME		0	395	73	4	88	0	207	854	118	0	0	0	1739
PHF BY MOVEMENT		0.00	0.89	0.76	0.50	0.76	0.00	0.77	0.97	0.89	0.00	0.00	0.00	OVERALL
PHF BY APPROACH		0.87			0.77			0.94			0.00			0.95

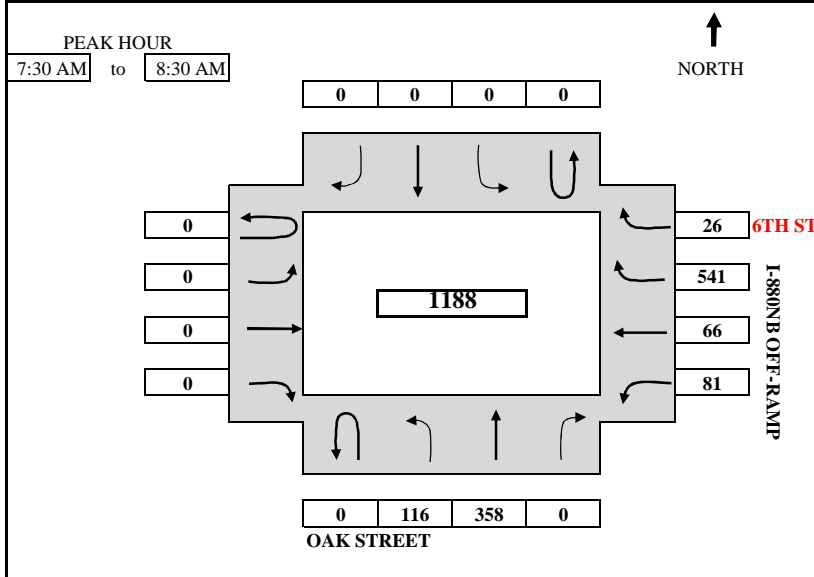
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY (II)	SURVEY DATE:	2/13/2013	DAY:	WEDNESDAY
N-S APPROACH:	OAK STREET	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W APPROACH:	6TH STREET	JURISDICTION:	OAKLAND	FILE:	3302018-15AM



ARRIVAL / DEPARTURE VOLUMES & APPROACH PHF

PHF = 0.00		0		925	
PHF = 0.87		182		714	
PHF = 0.00		0		0	
PHF = 0.99		81		474	

TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				(6th St) WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	RIGHT	LEFT		THRU	RIGHT
SURVEY DATA																			
7:00 AM	to	7:15 AM	21	47											5	29	13	92	207
7:15 AM	to	7:30 AM	58	130											8	52	24	223	495
7:30 AM	to	7:45 AM	99	209											10	71	39	392	820
7:45 AM	to	8:00 AM	128	297											17	91	54	529	1116
8:00 AM	to	8:15 AM	153	391											23	110	71	643	1391
8:15 AM	to	8:30 AM	174	488											34	133	90	764	1683
8:30 AM	to	8:45 AM	200	599											43	164	104	891	2001
8:45 AM	to	9:00 AM	217	702											47	184	116	993	2259

TOTAL BY PERIOD																				
7:00 AM	to	7:15 AM	0	21	47	0	0	0	0	0	0	0	0	0	0	5	29	13	92	207
7:15 AM	to	7:30 AM	0	37	83	0	0	0	0	0	0	0	0	0	0	3	23	11	131	288
7:30 AM	to	7:45 AM	0	41	79	0	0	0	0	0	0	0	0	0	0	2	19	15	169	325
7:45 AM	to	8:00 AM	0	29	88	0	0	0	0	0	0	0	0	0	0	7	20	15	137	296
8:00 AM	to	8:15 AM	0	25	94	0	0	0	0	0	0	0	0	0	0	6	19	17	114	275
8:15 AM	to	8:30 AM	0	21	97	0	0	0	0	0	0	0	0	0	0	11	23	19	121	292
8:30 AM	to	8:45 AM	0	26	111	0	0	0	0	0	0	0	0	0	0	9	31	14	127	318
8:45 AM	to	9:00 AM	0	17	103	0	0	0	0	0	0	0	0	0	0	4	20	12	102	258

HOURLY TOTALS																				
7:00 AM	to	8:00 AM	0	128	297	0	0	0	0	0	0	0	0	0	0	17	91	54	529	1116
7:15 AM	to	8:15 AM	0	132	344	0	0	0	0	0	0	0	0	0	0	18	81	58	551	1184
7:30 AM	to	8:30 AM	0	116	358	0	0	0	0	0	0	0	0	0	0	26	81	66	541	1188
7:45 AM	to	8:45 AM	0	101	390	0	0	0	0	0	0	0	0	0	0	33	93	65	499	1181
8:00 AM	to	9:00 AM	0	89	405	0	0	0	0	0	0	0	0	0	0	30	93	62	464	1143

PEAK HOUR SUMMARY																			
7:30 AM	to	8:30 AM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
			0	116	358	0	0	0	0	0	0	0	0	0	26	81	66	541	1188
PHF BY MOVEMENT			0.00	0.71	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59	0.88	0.87	0.80	OVERALL
PHF BY APPROACH			0.99				0.00				0.00				0.87				0.91

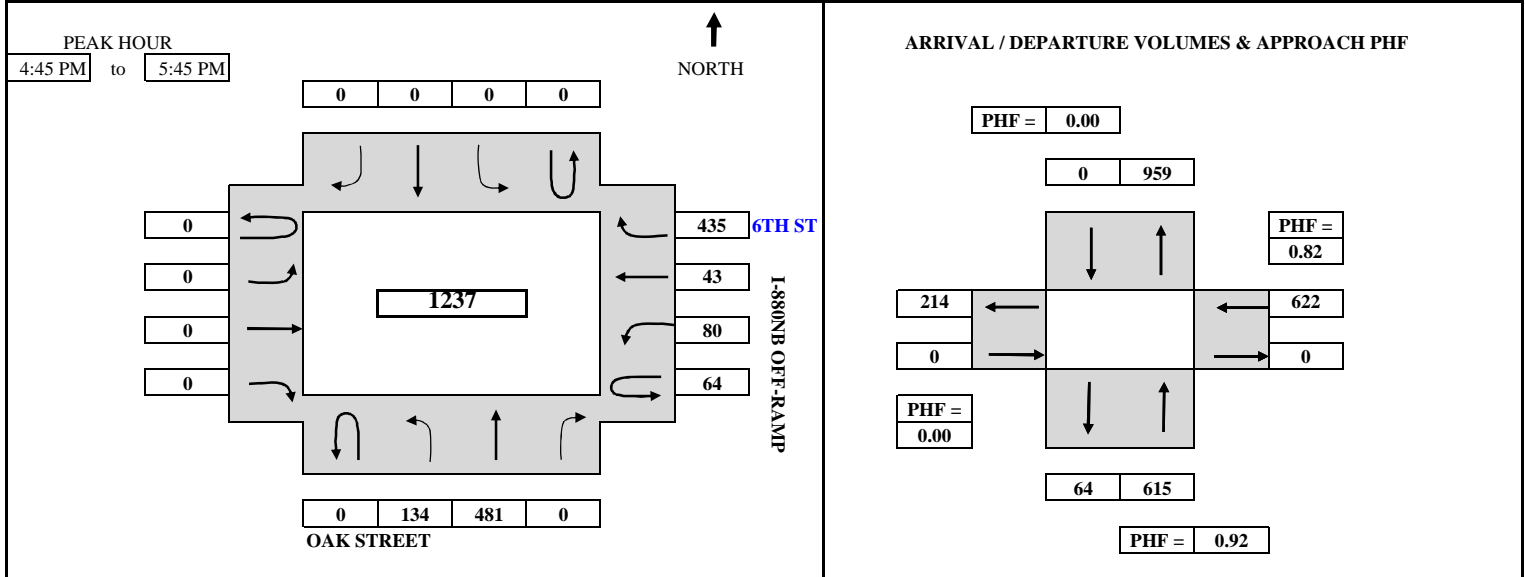
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY (II)	SURVEY DATE:	2/13/2013	DAY:	WEDNESDAY
N-S APPROACH:	OAK STREET	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	6TH STREET	JURISDICTION:	OAKLAND	FILE:	3302018-15PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				(6th St) WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	RIGHT	LEFT		THRU	RIGHT
SURVEY DATA																			
4:00 PM	to	4:15 PM		41	69										9	18	10	87	234
4:15 PM	to	4:30 PM		76	152										18	35	16	158	455
4:30 PM	to	4:45 PM		112	241										25	56	27	239	700
4:45 PM	to	5:00 PM		145	362										47	80	38	341	1013
5:00 PM	to	5:15 PM		184	477										63	93	48	440	1305
5:15 PM	to	5:30 PM		216	613										75	118	61	579	1662
5:30 PM	to	5:45 PM		246	722										89	136	70	674	1937
5:45 PM	to	6:00 PM		275	823										98	157	79	791	2223

TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	41	69	0	0	0	0	0	0	0	0	0	9	18	10	87	234
4:15 PM	to	4:30 PM	0	35	83	0	0	0	0	0	0	0	0	0	9	17	6	71	221
4:30 PM	to	4:45 PM	0	36	89	0	0	0	0	0	0	0	0	0	7	21	11	81	245
4:45 PM	to	5:00 PM	0	33	121	0	0	0	0	0	0	0	0	0	22	24	11	102	313
5:00 PM	to	5:15 PM	0	39	115	0	0	0	0	0	0	0	0	0	16	13	10	99	292
5:15 PM	to	5:30 PM	0	32	136	0	0	0	0	0	0	0	0	0	12	25	13	139	357
5:30 PM	to	5:45 PM	0	30	109	0	0	0	0	0	0	0	0	0	14	18	9	95	275
5:45 PM	to	6:00 PM	0	29	101	0	0	0	0	0	0	0	0	0	9	21	9	117	286

HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	145	362	0	0	0	0	0	0	0	0	0	47	80	38	341	1013
4:15 PM	to	5:15 PM	0	143	408	0	0	0	0	0	0	0	0	0	54	75	38	353	1071
4:30 PM	to	5:30 PM	0	140	461	0	0	0	0	0	0	0	0	0	57	83	45	421	1207
4:45 PM	to	5:45 PM	0	134	481	0	0	0	0	0	0	0	0	0	64	80	43	435	1237
5:00 PM	to	6:00 PM	0	130	461	0	0	0	0	0	0	0	0	0	51	77	41	450	1210

PEAK HOUR SUMMARY																			
4:45 PM	to	5:45 PM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
			0	134	481	0	0	0	0	0	0	0	0	0	64	80	43	435	1237
PHF BY MOVEMENT			0.00	0.86	0.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73	0.80	0.83	0.78	OVERALL
PHF BY APPROACH			0.92				0.00				0.00				0.82				0.87

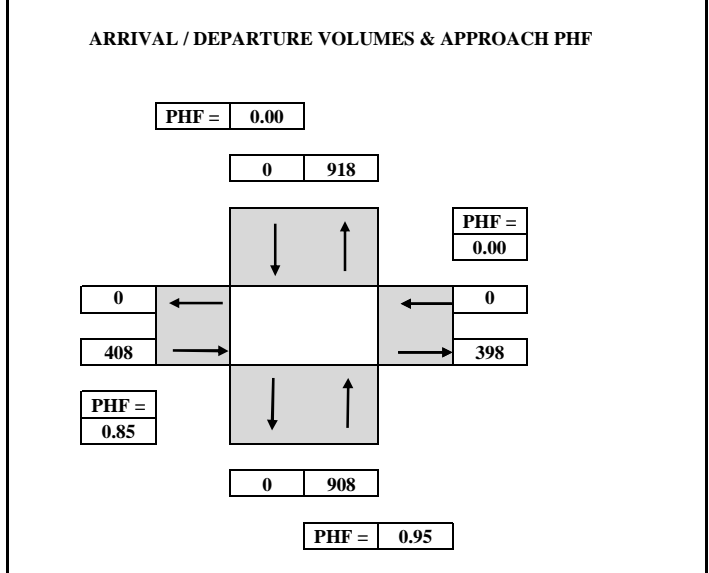
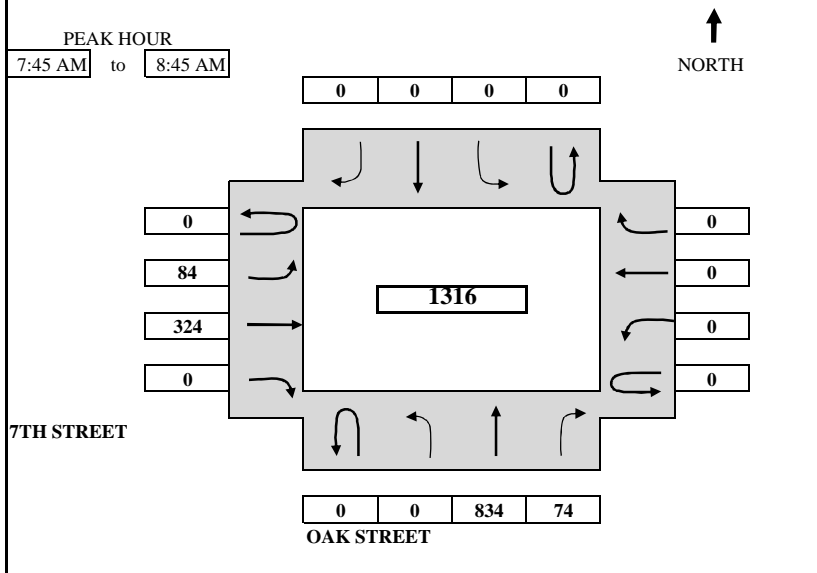
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY (II)	SURVEY DATE: 2/13/2013	DAY: WEDNESDAY
N-S APPROACH: OAK STREET	SURVEY TIME: 7:00 AM	TO 9:00 AM
E-W APPROACH: 7TH STREET	JURISDICTION: OAKLAND	FILE: 3302018-16AM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL			
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT	
SURVEY DATA																				
7:00 AM	to	7:15 AM			145	13					13	43							214	
7:15 AM	to	7:30 AM			324	28					28	104							484	
7:30 AM	to	7:45 AM			553	44					49	181							827	
7:45 AM	to	8:00 AM			770	61					66	250							1147	
8:00 AM	to	8:15 AM			973	75					89	327							1464	
8:15 AM	to	8:30 AM			1168	98					108	410							1784	
8:30 AM	to	8:45 AM			1387	118					133	505							2143	
8:45 AM	to	9:00 AM			1570	143					152	592							2457	
TOTAL BY PERIOD																				
7:00 AM	to	7:15 AM	0	0	145	13	0	0	0	0	0	13	43	0	0	0	0	0	214	
7:15 AM	to	7:30 AM	0	0	179	15	0	0	0	0	0	15	61	0	0	0	0	0	270	
7:30 AM	to	7:45 AM	0	0	229	16	0	0	0	0	0	21	77	0	0	0	0	0	343	
7:45 AM	to	8:00 AM	0	0	217	17	0	0	0	0	0	17	69	0	0	0	0	0	320	
8:00 AM	to	8:15 AM	0	0	203	14	0	0	0	0	0	23	77	0	0	0	0	0	317	
8:15 AM	to	8:30 AM	0	0	195	23	0	0	0	0	0	19	83	0	0	0	0	0	320	
8:30 AM	to	8:45 AM	0	0	219	20	0	0	0	0	0	25	95	0	0	0	0	0	359	
8:45 AM	to	9:00 AM	0	0	183	25	0	0	0	0	0	19	87	0	0	0	0	0	314	
HOURLY TOTALS																				
7:00 AM	to	8:00 AM	0	0	770	61	0	0	0	0	0	66	250	0	0	0	0	0	1147	
7:15 AM	to	8:15 AM	0	0	828	62	0	0	0	0	0	76	284	0	0	0	0	0	1250	
7:30 AM	to	8:30 AM	0	0	844	70	0	0	0	0	0	80	306	0	0	0	0	0	1300	
7:45 AM	to	8:45 AM	0	0	834	74	0	0	0	0	0	84	324	0	0	0	0	0	1316	
8:00 AM	to	9:00 AM	0	0	800	82	0	0	0	0	0	86	342	0	0	0	0	0	1310	
PEAK HOUR SUMMARY																				
7:45 AM	to	8:45 AM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL	
			0	0	834	74	0	0	0	0	0	84	324	0	0	0	0	0	1316	
			PHF BY MOVEMENT	0.00	0.00	0.95	0.80	0.00	0.00	0.00	0.00	0.84	0.85	0.00	0.00	0.00	0.00	0.00	0.00	OVERALL
			PHF BY APPROACH	0.95				0.00				0.85				0.00				0.92

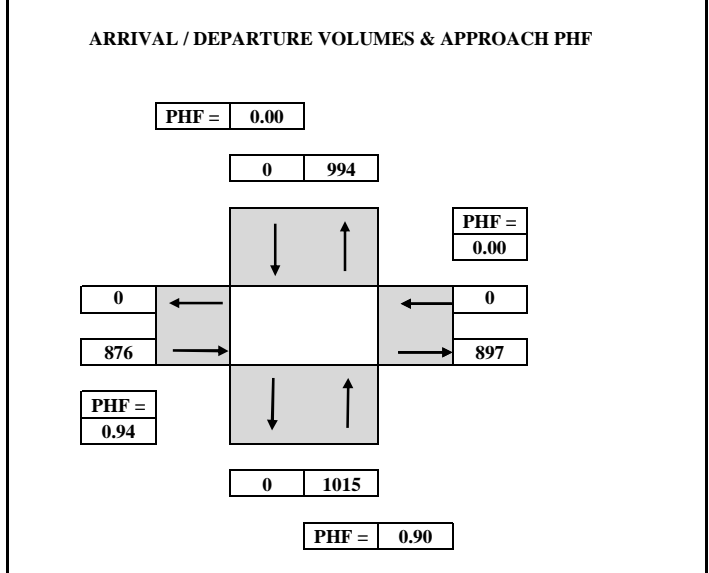
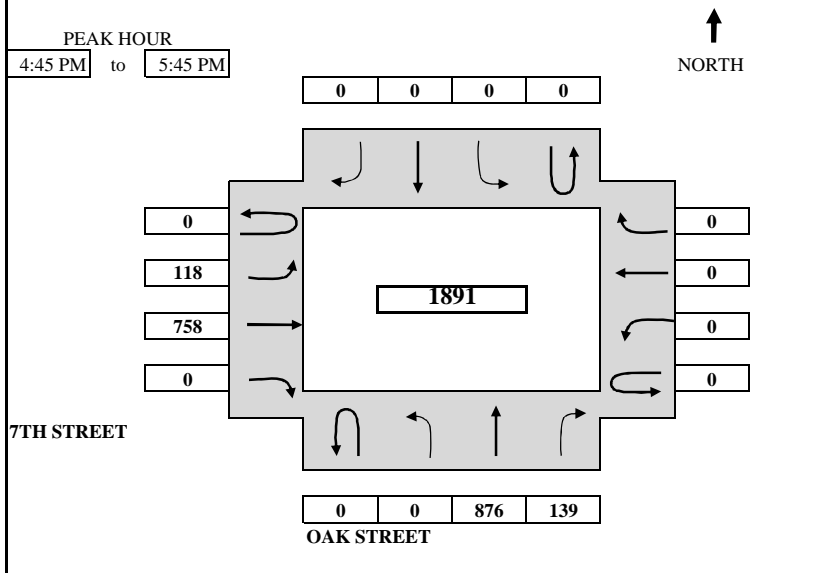
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY (II)	SURVEY DATE: 2/13/2013	DAY: WEDNESDAY
N-S APPROACH: OAK STREET	SURVEY TIME: 4:00 PM	TO 6:00 PM
E-W APPROACH: 7TH STREET	JURISDICTION: OAKLAND	FILE: 3302018-16PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
4:00 PM to 4:15 PM				156	19					27	141								343
4:15 PM to 4:30 PM				305	45					53	280								683
4:30 PM to 4:45 PM				481	73					84	433								1071
4:45 PM to 5:00 PM				692	104					111	607								1514
5:00 PM to 5:15 PM				925	136					136	803								2000
5:15 PM to 5:30 PM				1170	173					165	996								2504
5:30 PM to 5:45 PM				1357	212					202	1191								2962
5:45 PM to 6:00 PM				1538	249					229	1363								3379

TOTAL BY PERIOD																					
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	TOTAL
4:00 PM to 4:15 PM	0	0	156	19	0	0	0	0	0	27	141	0	0	0	0	0	0	0	0	0	343
4:15 PM to 4:30 PM	0	0	149	26	0	0	0	0	0	26	139	0	0	0	0	0	0	0	0	0	340
4:30 PM to 4:45 PM	0	0	176	28	0	0	0	0	0	31	153	0	0	0	0	0	0	0	0	0	388
4:45 PM to 5:00 PM	0	0	211	31	0	0	0	0	0	27	174	0	0	0	0	0	0	0	0	0	443
5:00 PM to 5:15 PM	0	0	233	32	0	0	0	0	0	25	196	0	0	0	0	0	0	0	0	0	486
5:15 PM to 5:30 PM	0	0	245	37	0	0	0	0	0	29	193	0	0	0	0	0	0	0	0	0	504
5:30 PM to 5:45 PM	0	0	187	39	0	0	0	0	0	37	195	0	0	0	0	0	0	0	0	0	458
5:45 PM to 6:00 PM	0	0	181	37	0	0	0	0	0	27	172	0	0	0	0	0	0	0	0	0	417

HOURLY TOTALS																					
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	TOTAL
4:00 PM to 5:00 PM	0	0	692	104	0	0	0	0	0	111	607	0	0	0	0	0	0	0	0	0	1514
4:15 PM to 5:15 PM	0	0	769	117	0	0	0	0	0	109	662	0	0	0	0	0	0	0	0	0	1657
4:30 PM to 5:30 PM	0	0	865	128	0	0	0	0	0	112	716	0	0	0	0	0	0	0	0	0	1821
4:45 PM to 5:45 PM	0	0	876	139	0	0	0	0	0	118	758	0	0	0	0	0	0	0	0	0	1891
5:00 PM to 6:00 PM	0	0	846	145	0	0	0	0	0	118	756	0	0	0	0	0	0	0	0	0	1865

PEAK HOUR SUMMARY																		
TIME PERIOD	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL	
4:45 PM to 5:45 PM	0	0	876	139	0	0	0	0	0	118	758	0	0	0	0	0	1891	
PHF BY MOVEMENT	0.00	0.00	0.89	0.89	0.00	0.00	0.00	0.00	0.00	0.80	0.97	0.00	0.00	0.00	0.00	0.00	OVERALL	
PHF BY APPROACH	0.90				0.00				0.94				0.00				0.94	

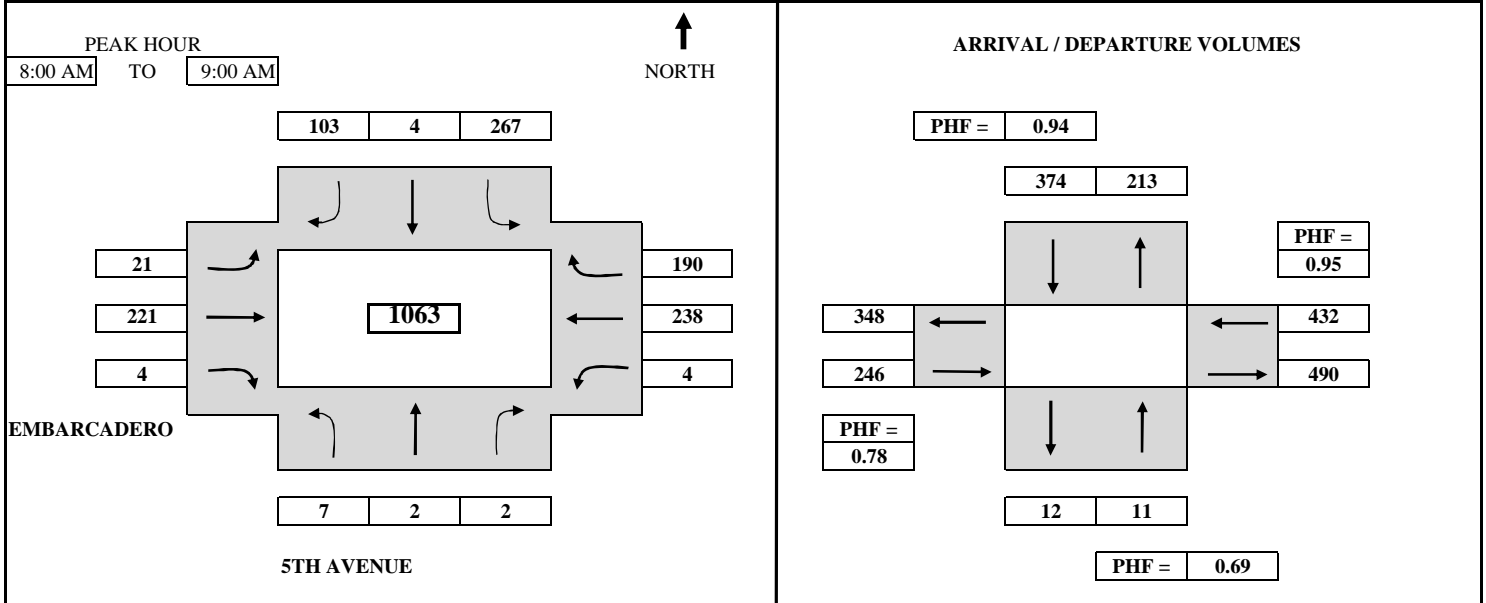
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY	SURVEY DATE: 1/15/2013	DAY: TUESDAY
N-S APPROACH: 5TH AVENUE	SURVEY TIME: 7:00 AM	TO 9:00 AM
E-W APPROACH: EMBARCADERO	JURISDICTION: OAKLAND	FILE: 3301002-14AM



TIME	PERIOD	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
SURVEY DATA														
7:00 AM	to 7:15 AM	0	0	0	47	0	15	1	28	0	0	16	26	133
7:15 AM	to 7:30 AM	1	0	0	98	0	28	5	46	0	0	47	61	286
7:30 AM	to 7:45 AM	3	0	1	169	0	37	7	71	0	0	82	107	477
7:45 AM	to 8:00 AM	3	0	1	241	0	54	10	90	0	0	120	156	675
8:00 AM	to 8:15 AM	3	1	2	306	2	76	18	152	0	1	175	207	943
8:15 AM	to 8:30 AM	4	1	2	378	2	104	24	224	1	2	239	255	1236
8:30 AM	to 8:45 AM	6	2	3	446	2	134	26	275	2	2	301	307	1506
8:45 AM	to 9:00 AM	10	2	3	508	4	157	31	311	4	4	358	346	1738

TOTAL BY PERIOD														
7:00 AM	to 7:15 AM	0	0	0	47	0	15	1	28	0	0	16	26	133
7:15 AM	to 7:30 AM	1	0	0	51	0	13	4	18	0	0	31	35	153
7:30 AM	to 7:45 AM	2	0	1	71	0	9	2	25	0	0	35	46	191
7:45 AM	to 8:00 AM	0	0	0	72	0	17	3	19	0	0	38	49	198
8:00 AM	to 8:15 AM	0	1	1	65	2	22	8	62	0	1	55	51	268
8:15 AM	to 8:30 AM	1	0	0	72	0	28	6	72	1	1	64	48	293
8:30 AM	to 8:45 AM	2	1	1	68	0	30	2	51	1	0	62	52	270
8:45 AM	to 9:00 AM	4	0	0	62	2	23	5	36	2	2	57	39	232

HOURLY TOTALS														
7:00 AM	to 8:00 AM	3	0	1	241	0	54	10	90	0	0	120	156	675
7:15 AM	to 8:15 AM	3	1	2	259	2	61	17	124	0	1	159	181	810
7:30 AM	to 8:30 AM	3	1	2	280	2	76	19	178	1	2	192	194	950
7:45 AM	to 8:45 AM	3	2	2	277	2	97	19	204	2	2	219	200	1029
8:00 AM	to 9:00 AM	7	2	2	267	4	103	21	221	4	4	238	190	1063

PEAK HOUR SUMMARY														
8:00 AM	to 9:00 AM	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
VOLUME		7	2	2	267	4	103	21	221	4	4	238	190	1063
PHF BY MOVEMENT		0.44	0.50	0.50	0.93	0.50	0.86	0.66	0.77	0.50	0.50	0.93	0.91	OVERALL
PHF BY APPROACH		0.69			0.94			0.78			0.95			0.91

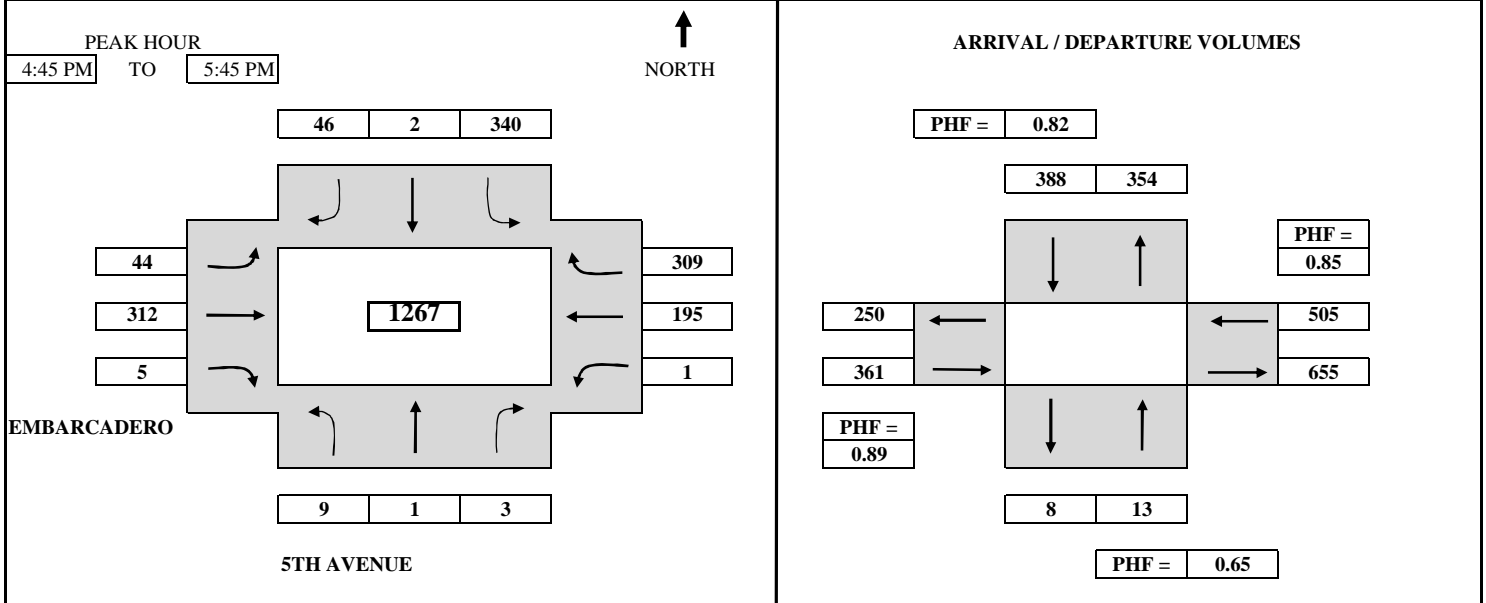
TEL: (510) 232 - 1271

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B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY	SURVEY DATE: 1/15/2013	DAY: TUESDAY
N-S APPROACH: 5TH AVENUE	SURVEY TIME: 4:00 PM	TO 6:00 PM
E-W APPROACH: EMBARCADERO	JURISDICTION: OAKLAND	FILE: 3301002-14PM



TIME	PERIOD	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
SURVEY DATA														
4:00 PM	to 4:15 PM	1	1	0	59	1	22	9	46	0	1	49	61	250
4:15 PM	to 4:30 PM	2	3	3	121	1	36	12	94	1	1	101	140	515
4:30 PM	to 4:45 PM	2	4	4	185	1	50	27	164	2	1	145	217	802
4:45 PM	to 5:00 PM	3	4	4	252	2	58	35	234	3	1	198	282	1076
5:00 PM	to 5:15 PM	3	5	6	355	3	73	50	300	4	2	245	368	1414
5:15 PM	to 5:30 PM	7	5	7	440	3	81	56	391	6	2	302	460	1760
5:30 PM	to 5:45 PM	11	5	7	525	3	96	71	476	7	2	340	526	2069
5:45 PM	to 6:00 PM	11	5	8	586	3	107	79	539	8	2	381	593	2322
TOTAL BY PERIOD														
4:00 PM	to 4:15 PM	1	1	0	59	1	22	9	46	0	1	49	61	250
4:15 PM	to 4:30 PM	1	2	3	62	0	14	3	48	1	0	52	79	265
4:30 PM	to 4:45 PM	0	1	1	64	0	14	15	70	1	0	44	77	287
4:45 PM	to 5:00 PM	1	0	0	67	1	8	8	70	1	0	53	65	274
5:00 PM	to 5:15 PM	0	1	2	103	1	15	15	66	1	1	47	86	338
5:15 PM	to 5:30 PM	4	0	1	85	0	8	6	91	2	0	57	92	346
5:30 PM	to 5:45 PM	4	0	0	85	0	15	15	85	1	0	38	66	309
5:45 PM	to 6:00 PM	0	0	1	61	0	11	8	63	1	0	41	67	253
HOURLY TOTALS														
4:00 PM	to 5:00 PM	3	4	4	252	2	58	35	234	3	1	198	282	1076
4:15 PM	to 5:15 PM	2	4	6	296	2	51	41	254	4	1	196	307	1164
4:30 PM	to 5:30 PM	5	2	4	319	2	45	44	297	5	1	201	320	1245
4:45 PM	to 5:45 PM	9	1	3	340	2	46	44	312	5	1	195	309	1267
5:00 PM	to 6:00 PM	8	1	4	334	1	49	44	305	5	1	183	311	1246
PEAK HOUR SUMMARY														
4:45 PM	to 5:45 PM	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
VOLUME		9	1	3	340	2	46	44	312	5	1	195	309	1267
PHF BY MOVEMENT		0.56	0.25	0.38	0.83	0.50	0.77	0.73	0.86	0.63	0.25	0.86	0.84	OVERALL
PHF BY APPROACH		0.65			0.82			0.89			0.85			0.92

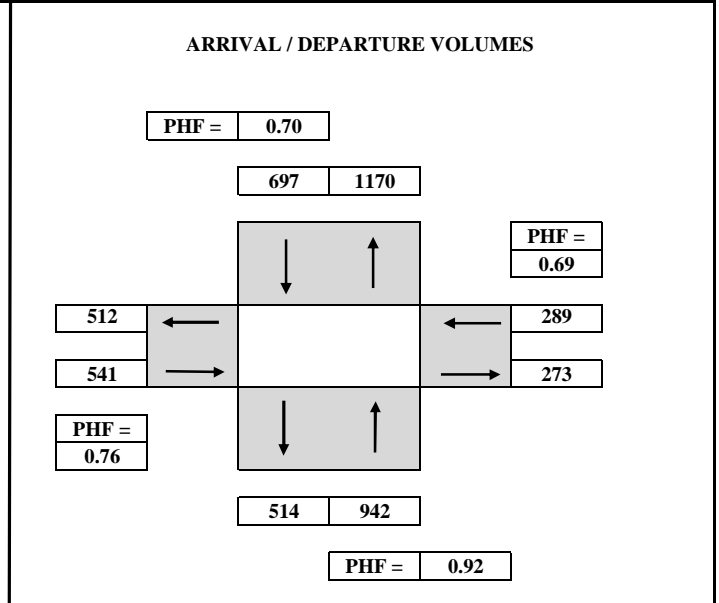
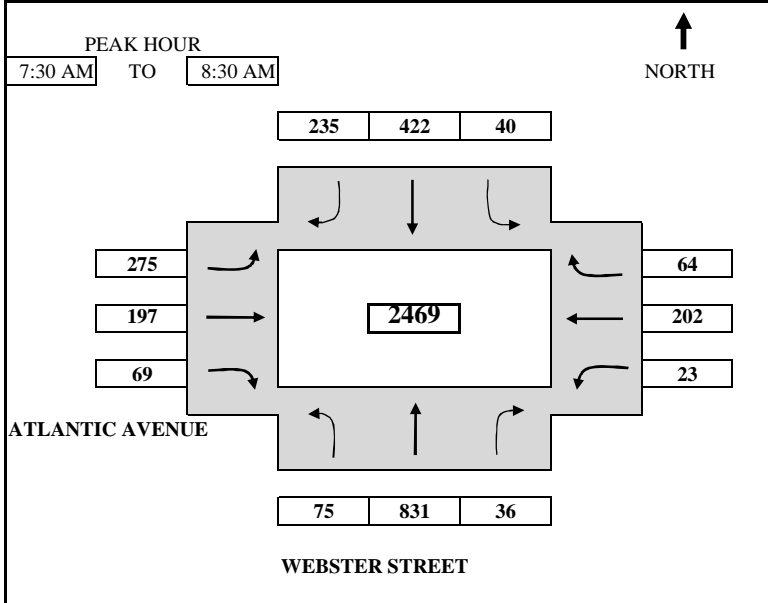
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY	SURVEY DATE: 1/15/2013	DAY: TUESDAY
N-S APPROACH: WEBSTER STREET	SURVEY TIME: 7:00 AM	TO 9:00 AM
E-W APPROACH ATLANTIC AVENUE	JURISDICTION: OAKLAND	FILE: 3301002-15AM



TIME	PERIOD	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
SURVEY DATA														
7:00 AM	to 7:15 AM	9	145	4	9	45	30	55	0	4	1	24	15	341
7:15 AM	to 7:30 AM	12	287	8	18	114	66	122	18	10	4	43	29	731
7:30 AM	to 7:45 AM	21	493	18	31	211	117	168	45	21	6	74	45	1250
7:45 AM	to 8:00 AM	46	713	29	39	365	205	262	99	52	17	155	57	2039
8:00 AM	to 8:15 AM	73	923	40	48	464	258	333	161	64	18	208	69	2659
8:15 AM	to 8:30 AM	87	1118	44	58	536	301	397	215	79	27	245	93	3200
8:30 AM	to 8:45 AM	113	1295	56	72	593	328	450	249	89	36	278	103	3662
8:45 AM	to 9:00 AM	123	1449	63	84	681	377	489	289	99	42	315	118	4129

TOTAL BY PERIOD														
7:00 AM	to 7:15 AM	9	145	4	9	45	30	55	0	4	1	24	15	341
7:15 AM	to 7:30 AM	3	142	4	9	69	36	67	18	6	3	19	14	390
7:30 AM	to 7:45 AM	9	206	10	13	97	51	46	27	11	2	31	16	519
7:45 AM	to 8:00 AM	25	220	11	8	154	88	94	54	31	11	81	12	789
8:00 AM	to 8:15 AM	27	210	11	9	99	53	71	62	12	1	53	12	620
8:15 AM	to 8:30 AM	14	195	4	10	72	43	64	54	15	9	37	24	541
8:30 AM	to 8:45 AM	26	177	12	14	57	27	53	34	10	9	33	10	462
8:45 AM	to 9:00 AM	10	154	7	12	88	49	39	40	10	6	37	15	467

HOURLY TOTALS														
7:00 AM	to 8:00 AM	46	713	29	39	365	205	262	99	52	17	155	57	2039
7:15 AM	to 8:15 AM	64	778	36	39	419	228	278	161	60	17	184	54	2318
7:30 AM	to 8:30 AM	75	831	36	40	422	235	275	197	69	23	202	64	2469
7:45 AM	to 8:45 AM	92	802	38	41	382	211	282	204	68	30	204	58	2412
8:00 AM	to 9:00 AM	77	736	34	45	316	172	227	190	47	25	160	61	2090

PEAK HOUR SUMMARY														
7:30 AM	to 8:30 AM	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
VOLUME		75	831	36	40	422	235	275	197	69	23	202	64	2469
PHF BY MOVEMENT		0.69	0.94	0.82	0.77	0.69	0.67	0.73	0.79	0.56	0.52	0.62	0.67	OVERALL
PHF BY APPROACH		0.92			0.70			0.76			0.69			0.78

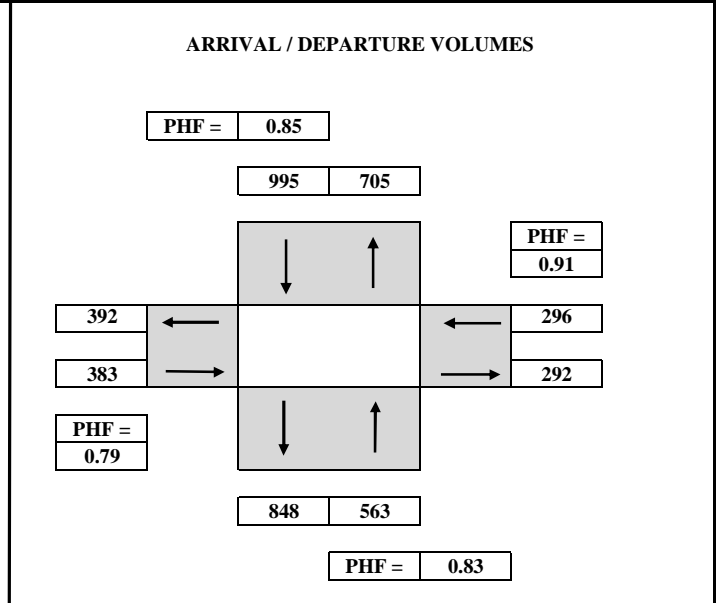
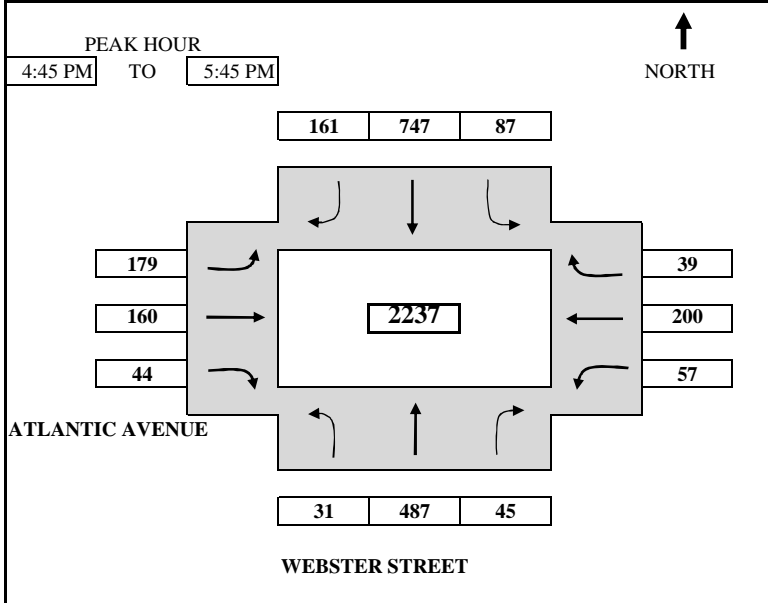
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT: JACK LONDON SQUARE STUDY	SURVEY DATE: 1/15/2013	DAY: TUESDAY
N-S APPROACH: WEBSTER STREET	SURVEY TIME: 4:00 PM	TO 6:00 PM
E-W APPROACH ATLANTIC AVENUE	JURISDICTION: OAKLAND	FILE: 3301002-15PM



TIME	PERIOD	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			TOTAL
		LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	LEFT	THRU	RIGHT	
SURVEY DATA														
4:00 PM	to 4:15 PM	16	96	8	14	113	26	52	35	13	10	35	12	430
4:15 PM	to 4:30 PM	29	218	18	44	262	63	102	67	35	26	65	22	951
4:30 PM	to 4:45 PM	36	331	31	65	415	101	158	109	45	38	108	34	1471
4:45 PM	to 5:00 PM	43	455	39	93	596	143	224	148	61	52	162	42	2058
5:00 PM	to 5:15 PM	57	569	48	106	739	170	258	176	69	65	203	51	2511
5:15 PM	to 5:30 PM	62	669	60	125	943	217	298	220	80	77	256	62	3069
5:30 PM	to 5:45 PM	67	818	76	152	1162	262	337	269	89	95	308	73	3708
5:45 PM	to 6:00 PM	78	926	86	172	1338	300	387	336	96	108	355	83	4265

TOTAL BY PERIOD														
4:00 PM	to 4:15 PM	16	96	8	14	113	26	52	35	13	10	35	12	430
4:15 PM	to 4:30 PM	13	122	10	30	149	37	50	32	22	16	30	10	521
4:30 PM	to 4:45 PM	7	113	13	21	153	38	56	42	10	12	43	12	520
4:45 PM	to 5:00 PM	7	124	8	28	181	42	66	39	16	14	54	8	587
5:00 PM	to 5:15 PM	14	114	9	13	143	27	34	28	8	13	41	9	453
5:15 PM	to 5:30 PM	5	100	12	19	204	47	40	44	11	12	53	11	558
5:30 PM	to 5:45 PM	5	149	16	27	219	45	39	49	9	18	52	11	639
5:45 PM	to 6:00 PM	11	108	10	20	176	38	50	67	7	13	47	10	557

HOURLY TOTALS														
4:00 PM	to 5:00 PM	43	455	39	93	596	143	224	148	61	52	162	42	2058
4:15 PM	to 5:15 PM	41	473	40	92	626	144	206	141	56	55	168	39	2081
4:30 PM	to 5:30 PM	33	451	42	81	681	154	196	153	45	51	191	40	2118
4:45 PM	to 5:45 PM	31	487	45	87	747	161	179	160	44	57	200	39	2237
5:00 PM	to 6:00 PM	35	471	47	79	742	157	163	188	35	56	193	41	2207

PEAK HOUR SUMMARY														
4:45 PM	to 5:45 PM	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
VOLUME		31	487	45	87	747	161	179	160	44	57	200	39	2237
PHF BY MOVEMENT		0.55	0.82	0.70	0.78	0.85	0.86	0.68	0.82	0.69	0.79	0.93	0.89	OVERALL
PHF BY APPROACH		0.83			0.85			0.79			0.91			0.88

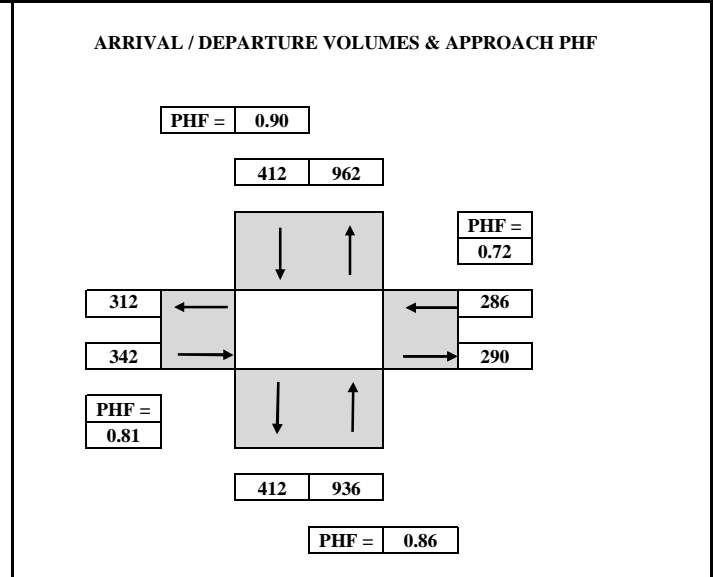
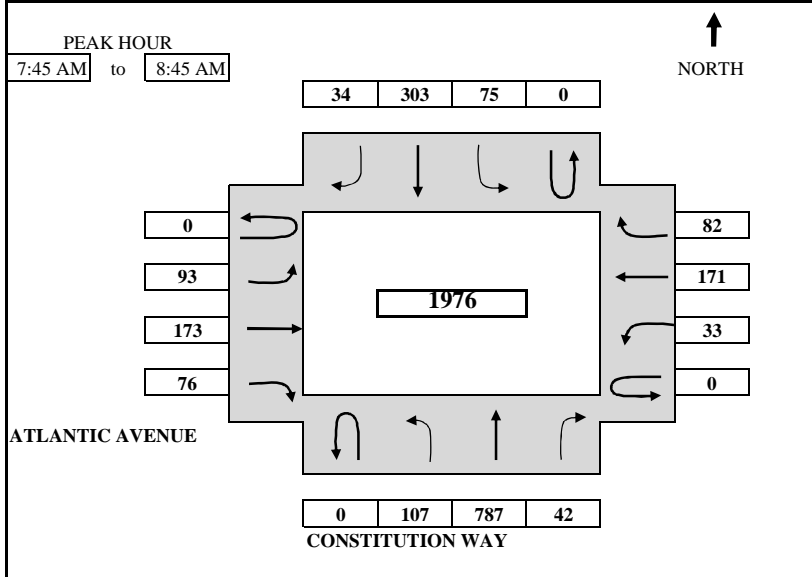
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY (II)	SURVEY DATE:	2/14/2013	DAY:	THURSDAY
N-S APPROACH:	CONSTITUTION WAY	SURVEY TIME:	7:00 AM	TO	9:00 AM
E-W APPROACH:	ATLANTIC AVENUE	JURISDICTION:	ALAMEDA	FILE:	3302018-17AM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
7:00 AM	to	7:15 AM	9	122	2	16	45	8	9	11	5	0	18	17					262
7:15 AM	to	7:30 AM	20	269	2	25	99	19	20	18	13	6	27	33					551
7:30 AM	to	7:45 AM	32	449	8	33	178	32	32	36	23	15	46	56					940
7:45 AM	to	8:00 AM	68	642	12	49	237	40	52	74	39	28	105	84					1430
8:00 AM	to	8:15 AM	97	875	21	70	323	48	83	120	67	35	145	105					1989
8:15 AM	to	8:30 AM	115	1069	37	91	398	59	107	164	85	42	183	122					2472
8:30 AM	to	8:45 AM	139	1236	50	108	481	66	125	209	99	48	217	138					2916
8:45 AM	to	9:00 AM	186	1407	66	124	563	76	141	247	107	55	252	155					3379

TOTAL BY PERIOD																			
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	TOTAL		
7:00 AM to 7:15 AM	0	9	122	2	0	16	45	8	0	9	11	5	0	0	18	17	262		
7:15 AM to 7:30 AM	0	11	147	0	0	9	54	11	0	11	7	8	0	6	9	16	289		
7:30 AM to 7:45 AM	0	12	180	6	0	8	79	13	0	12	18	10	0	9	19	23	389		
7:45 AM to 8:00 AM	0	36	193	4	0	16	59	8	0	20	38	16	0	13	59	28	490		
8:00 AM to 8:15 AM	0	29	233	9	0	21	86	8	0	31	46	28	0	7	40	21	559		
8:15 AM to 8:30 AM	0	18	194	16	0	21	75	11	0	24	44	18	0	7	38	17	483		
8:30 AM to 8:45 AM	0	24	167	13	0	17	83	7	0	18	45	14	0	6	34	16	444		
8:45 AM to 9:00 AM	0	47	171	16	0	16	82	10	0	16	38	8	0	7	35	17	463		

HOURLY TOTALS																			
TIME PERIOD	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	TOTAL		
7:00 AM to 8:00 AM	0	68	642	12	0	49	237	40	0	52	74	39	0	28	105	84	1430		
7:15 AM to 8:15 AM	0	88	753	19	0	54	278	40	0	74	109	62	0	35	127	88	1727		
7:30 AM to 8:30 AM	0	95	800	35	0	66	299	40	0	87	146	72	0	36	156	89	1921		
7:45 AM to 8:45 AM	0	107	787	42	0	75	303	34	0	93	173	76	0	33	171	82	1976		
8:00 AM to 9:00 AM	0	118	765	54	0	75	326	36	0	89	173	68	0	27	147	71	1949		

PEAK HOUR SUMMARY																	
TIME PERIOD	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
7:45 AM to 8:45 AM	0	107	787	42	0	75	303	34	0	93	173	76	0	33	171	82	1976
PHF BY MOVEMENT	0.00	0.74	0.84	0.66	0.00	0.89	0.88	0.77	0.00	0.75	0.94	0.68	0.00	0.63	0.72	0.73	OVERALL
PHF BY APPROACH	0.86				0.90				0.81				0.72				0.88

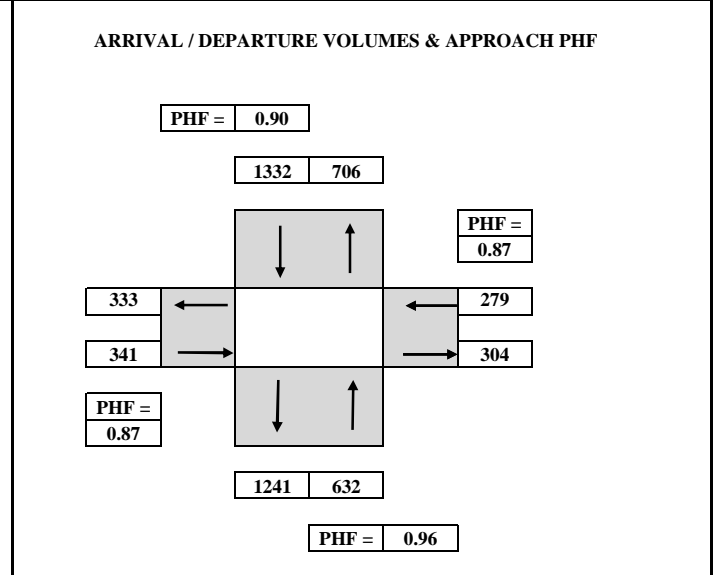
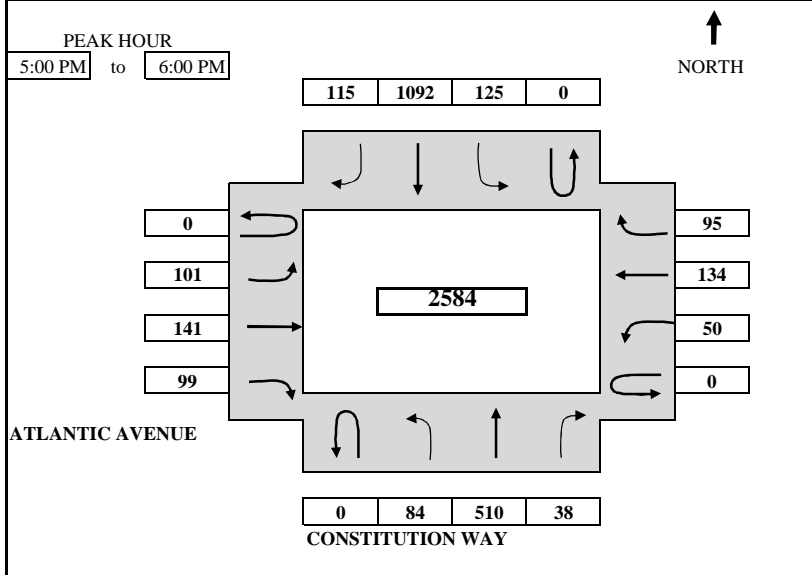
TEL: (510) 232 - 1271

FAX: (510) 232 - 1272

B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	JACK LONDON SQUARE STUDY (II)	SURVEY DATE:	2/14/2013	DAY:	THURSDAY
N-S APPROACH:	CONSTITUTION WAY	SURVEY TIME:	4:00 PM	TO	6:00 PM
E-W APPROACH:	ATLANTIC AVENUE	JURISDICTION:	ALAMEDA	FILE:	3302018-17PM



TIME PERIOD	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL		
	From	To	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT	THRU	RIGHT	U-TURN	LEFT		THRU	RIGHT
SURVEY DATA																			
4:00 PM	to	4:15 PM	14	98	4	13	176	25	20	20	15	10	29	22					446
4:15 PM	to	4:30 PM	33	214	13	34	389	46	47	62	31	22	46	50					987
4:30 PM	to	4:45 PM	49	339	15	60	604	68	69	98	57	30	63	73					1525
4:45 PM	to	5:00 PM	60	445	20	73	869	85	87	126	75	41	86	97					2064
5:00 PM	to	5:15 PM	77	571	28	100	1133	111	104	160	101	53	122	129					2689
5:15 PM	to	5:30 PM	90	707	36	135	1405	142	132	194	116	62	145	153					3317
5:30 PM	to	5:45 PM	118	826	49	168	1654	169	169	229	142	79	179	178					3960
5:45 PM	to	6:00 PM	144	955	58	198	1961	200	188	267	174	91	220	192					4648

TOTAL BY PERIOD																			
4:00 PM	to	4:15 PM	0	14	98	4	0	13	176	25	0	20	20	15	0	10	29	22	446
4:15 PM	to	4:30 PM	0	19	116	9	0	21	213	21	0	27	42	16	0	12	17	28	541
4:30 PM	to	4:45 PM	0	16	125	2	0	26	215	22	0	22	36	26	0	8	17	23	538
4:45 PM	to	5:00 PM	0	11	106	5	0	13	265	17	0	18	28	18	0	11	23	24	539
5:00 PM	to	5:15 PM	0	17	126	8	0	27	264	26	0	17	34	26	0	12	36	32	625
5:15 PM	to	5:30 PM	0	13	136	8	0	35	272	31	0	28	34	15	0	9	23	24	628
5:30 PM	to	5:45 PM	0	28	119	13	0	33	249	27	0	37	35	26	0	17	34	25	643
5:45 PM	to	6:00 PM	0	26	129	9	0	30	307	31	0	19	38	32	0	12	41	14	688

HOURLY TOTALS																			
4:00 PM	to	5:00 PM	0	60	445	20	0	73	869	85	0	87	126	75	0	41	86	97	2064
4:15 PM	to	5:15 PM	0	63	473	24	0	87	957	86	0	84	140	86	0	43	93	107	2243
4:30 PM	to	5:30 PM	0	57	493	23	0	101	1016	96	0	85	132	85	0	40	99	103	2330
4:45 PM	to	5:45 PM	0	69	487	34	0	108	1050	101	0	100	131	85	0	49	116	105	2435
5:00 PM	to	6:00 PM	0	84	510	38	0	125	1092	115	0	101	141	99	0	50	134	95	2584

PEAK HOUR SUMMARY																			
5:00 PM	to	6:00 PM	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	TOTAL
			0	84	510	38	0	125	1092	115	0	101	141	99	0	50	134	95	2584
PHF BY MOVEMENT			0.00	0.75	0.94	0.73	0.00	0.89	0.89	0.93	0.00	0.68	0.93	0.77	0.00	0.74	0.82	0.74	OVERALL
PHF BY APPROACH			0.96				0.90				0.87				0.87				0.94

TEL: (510) 232 - 1271

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Intersection	Existing AM											
	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
1 Market / 3rd	41	10	3	30	54	93	24	73	20	10	200	25
2 Market / 5th	0	53	17	52	167	0	10	533	29	0	0	0
3 Market / 6th	29	46	0	0	120	45	0	0	0	96	270	255
4 Market / 7th	118	146	12	40	76	75	42	268	29	37	581	36
5 Castro / 11th	0	404	27	0	79	59	139	772	0	0	0	0
6 Castro / 12th	37	482	0	0	0	0	0	0	0	0	177	214
7 Broadway / Embarcadero	3	7	0	63	20	13	7	29	4	7	72	78
8 Broadway / 2nd	4	82	8	32	115	15	9	4	4	9	29	34
9 Broadway / 3rd	10	97	9	39	129	65	34	33	21	4	42	37
10 Broadway / 5th	0	125	210	422	247	0	705	134	75	0	0	0
11 Broadway / 6th	19	137	0	0	335	44	0	0	0	365	194	661
12 Broadway / 11th	0	410	78	82	413	0	70	525	104	0	0	0
13 Broadway / 12th	92	365	0	0	393	35	0	0	0	86	296	63
14 Broadway / 14th	0	355	24	0	492	73	3	273	78	1	268	91
15 Franklin / 2nd	0	0	0	12	6	10	0	26	15	12	52	0
16 Franklin / 3rd	0	0	0	6	3	2	0	21	13	8	23	0
17 Webster / Embarcadero	91	25	0	0	22	54	28	0	70	0	0	0
18 Harrison / 7th	0	527	1,177	0	0	0	51	214	0	0	0	0
19 Jackson / 5th	0	170	33	66	69	0	260	366	373	0	0	0
20 Jackson / 6th	232	238	0	0	158	1,262	0	0	0	2	279	50
21 Jackson / 7th	0	265	67	20	255	0	32	442	1,093	0	0	0
22 Madison / 5th	0	0	0	548	98	0	0	416	17	0	0	0
23 Madison / 6th	0	0	0	0	610	210	0	0	0	31	164	0
24 Madison / 7th	0	0	0	121	578	0	0	331	193	0	0	0
25 Oak / Embarcadero	139	226	0	0	201	60	87	0	66	2	0	0
26 Oak / 3rd	58	269	4	4	232	38	31	1	65	0	1	9
27 Oak / 5th	0	228	70	2	98	0	219	555	126	0	0	0
28 Oak / 6th	116	358	0	0	0	0	0	0	0	81	66	567
29 Oak / 7th	0	834	74	0	0	0	84	324	0	0	0	0
30 5th / Embarcadero	7	2	2	267	4	103	21	221	4	4	238	190
31 Webster / Atlantic	75	831	36	40	422	235	275	197	69	23	202	64
32 Constitution / Atlantic	107	787	42	75	303	34	93	173	76	33	171	82

Intersection	Existing PM											
	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
33	75	17	41	18	37	52	269	14	6	120	29	
0	125	17	103	72	0	9	713	20	0	0	0	
35	109	0	0	142	34	0	0	0	0	21	145	253
110	204	36	53	86	60	94	705	57	27	325	35	
0	1,090	35	0	61	33	158	500	0	0	0	0	
29	1,412	0	0	0	0	0	0	0	0	0	216	696
6	34	17	70	49	19	19	66	11	13	39	72	
18	147	49	53	202	33	40	31	16	17	26	64	
15	181	12	39	176	62	106	118	28	10	102	99	
0	269	294	591	254	0	1,007	284	73	0	0	0	
64	248	0	0	715	33	0	0	0	205	128	617	
0	453	68	99	697	0	119	486	182	0	0	0	
123	454	0	0	594	83	0	0	0	152	511	94	
2	476	23	0	778	100	6	319	100	3	379	114	
0	0	0	10	24	21	0	87	39	18	83	0	
0	0	0	14	21	86	0	189	12	19	188	0	
72	40	0	0	27	27	32	0	115	0	0	0	
0	502	868	0	0	0	86	394	0	0	0	0	
0	416	28	106	82	0	232	484	287	0	0	0	
309	368	0	0	176	425	0	0	0	9	322	44	
0	234	108	30	281	0	32	839	375	0	0	0	
0	0	0	747	71	0	0	539	26	0	0	0	
0	0	0	0	854	185	0	0	0	15	173	0	
0	0	0	242	668	0	0	777	254	0	0	0	
77	239	0	0	226	41	68	0	96	5	0	1	
49	263	1	1	175	39	79	1	77	1	1	2	
0	395	73	4	88	0	207	854	118	0	0	0	
134	481	0	0	0	0	0	0	0	64	80	478	
0	876	139	0	0	0	118	758	0	0	0	0	
9	1	3	340	2	46	44	312	5	1	195	309	
31	487	45	87	747	161	179	160	44	57	200	39	
84	510	38	125	1,092	115	101	141	99	50	134	95	

Intersection	Existing plus Residential Project AM											
	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
1 Market / 3rd	45	32	7	32	77	93	24	74	25	15	201	56
2 Market / 5th	0	102	21	52	187	0	10	549	34	0	0	0
3 Market / 6th	34	90	0	0	135	45	0	0	0	101	270	260
4 Market / 7th	158	151	17	40	81	75	42	268	34	42	581	36
5 Castro / 11th	0	412	27	0	79	59	139	772	0	0	0	0
6 Castro / 12th	37	490	0	0	0	0	0	0	0	0	177	214
7 Broadway / Embarcadero	13	54	0	73	69	13	8	70	51	7	125	99
8 Broadway / 2nd	4	150	8	32	175	15	9	4	4	9	29	34
9 Broadway / 3rd	22	153	9	40	189	65	34	38	21	4	45	46
10 Broadway / 5th	0	149	250	422	308	0	705	136	75	0	0	0
11 Broadway / 6th	24	156	0	0	355	44	0	0	0	406	198	661
12 Broadway / 11th	0	424	83	82	428	0	70	525	109	0	0	0
13 Broadway / 12th	97	374	0	0	403	35	0	0	0	91	296	63
14 Broadway / 14th	0	360	29	0	497	73	3	273	83	1	268	91
15 Franklin / 2nd	0	0	0	12	13	10	0	26	15	12	52	0
16 Franklin / 3rd	0	0	0	6	3	2	0	28	13	15	35	0
17 Webster / Embarcadero	168	70	0	0	64	100	62	0	124	0	0	0
18 Harrison / 7th	0	533	1,197	0	0	0	51	214	0	0	0	0
19 Jackson / 5th	0	217	33	66	89	0	260	366	418	0	0	0
20 Jackson / 6th	279	238	0	0	178	1,262	0	0	0	2	279	50
21 Jackson / 7th	0	265	67	20	255	0	32	442	1,113	0	0	0
22 Madison / 5th	0	0	0	548	127	0	0	416	17	0	0	0
23 Madison / 6th	0	0	0	0	639	210	0	0	0	31	164	0
24 Madison / 7th	0	0	0	121	607	0	0	331	193	0	0	0
25 Oak / Embarcadero	165	227	0	0	201	127	192	0	75	2	0	0
26 Oak / 3rd	58	381	4	4	289	52	57	1	65	0	1	9
27 Oak / 5th	0	263	173	2	168	0	219	555	126	0	0	0
28 Oak / 6th	116	393	0	0	0	0	0	0	0	151	66	567
29 Oak / 7th	0	850	93	0	0	0	84	324	0	0	0	0
30 5th / Embarcadero	7	2	2	267	4	103	21	231	4	4	264	190
31 Webster / Atlantic	75	836	36	40	442	235	275	197	69	23	202	64
32 Constitution / Atlantic	107	808	42	75	307	34	93	173	76	33	171	82

Intersection	Existing plus Residential Project PM											
	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
41	116	25	46	59	37	52	273	22	14	125	91	
0	220	25	103	109	0	9	730	29	0	0	0	
44	195	0	0	170	34	0	0	0	30	145	265	
189	213	45	53	95	60	94	705	66	36	325	35	
0	1,114	35	0	61	33	158	500	0	0	0	0	
29	1,436	0	0	0	0	0	0	0	0	216	696	
30	146	17	93	100	20	22	163	60	13	124	105	
18	295	49	53	278	33	40	31	16	17	26	64	
45	299	12	43	252	62	106	135	28	10	120	116	
0	318	382	591	334	0	1,007	296	73	0	0	0	
76	285	0	0	752	34	0	0	0	248	139	617	
0	482	77	99	726	0	119	486	191	0	0	0	
132	474	0	0	613	83	0	0	0	161	511	94	
2	486	32	0	788	100	6	319	109	3	379	114	
0	0	0	10	32	21	0	87	39	18	83	0	
0	0	0	14	21	86	0	210	12	27	223	0	
192	111	0	0	125	76	112	0	242	0	0	0	
0	510	908	0	0	0	86	394	0	0	0	0	
0	505	28	106	122	0	232	484	380	0	0	0	
398	368	0	0	216	425	0	0	0	9	322	44	
0	234	108	30	281	0	32	839	415	0	0	0	
0	0	0	747	132	0	0	539	26	0	0	0	
0	0	0	0	915	185	0	0	0	15	173	0	
0	0	0	242	729	0	0	777	254	0	0	0	
132	241	0	0	228	198	235	0	113	5	0	1	
49	466	1	1	314	53	141	1	77	1	1	2	
0	464	269	4	241	0	207	854	118	0	0	0	
134	550	0	0	0	0	0	0	0	217	80	478	
0	908	176	0	0	0	118	758	0	0	0	0	
9	1	3	340	2	46	44	332	5	1	252	309	
31	493	45	87	787	161	179	160	44	57	200	39	
84	553	38	125	1,101	115	101	141	99	50	134	95	

Intersection	Existing plus Commercial Project AM											
	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
1 Market / 3rd	43	21	5	31	90	93	24	74	27	17	201	41
2 Market / 5th	0	78	19	52	197	0	10	559	36	0	0	0
3 Market / 6th	31	69	0	0	142	45	0	0	0	103	270	258
4 Market / 7th	139	148	14	40	83	75	42	268	36	44	581	36
5 Castro / 11th	0	410	27	0	79	59	139	772	0	0	0	0
6 Castro / 12th	37	488	0	0	0	0	0	0	0	0	177	214
7 Broadway / Embarcadero	10	39	0	78	98	13	7	93	79	7	96	87
8 Broadway / 2nd	4	123	8	32	209	15	9	4	4	9	29	34
9 Broadway / 3rd	18	130	9	40	223	65	34	38	21	4	45	41
10 Broadway / 5th	0	138	234	422	342	0	705	136	75	0	0	0
11 Broadway / 6th	22	147	0	0	365	44	0	0	0	430	198	661
12 Broadway / 11th	0	418	80	82	436	0	70	525	112	0	0	0
13 Broadway / 12th	94	370	0	0	408	35	0	0	0	94	296	63
14 Broadway / 14th	0	358	26	0	500	73	3	273	86	1	268	91
15 Franklin / 2nd	0	0	0	12	18	10	0	26	15	12	52	0
16 Franklin / 3rd	0	0	0	6	3	2	0	27	13	20	30	0
17 Webster / Embarcadero	130	45	0	0	87	127	51	0	151	0	0	0
18 Harrison / 7th	0	536	1,207	0	0	0	51	214	0	0	0	0
19 Jackson / 5th	0	194	33	66	99	0	260	366	441	0	0	0
20 Jackson / 6th	256	238	0	0	188	1,262	0	0	0	2	279	50
21 Jackson / 7th	0	265	67	20	255	0	32	442	1,123	0	0	0
22 Madison / 5th	0	0	0	548	142	0	0	416	17	0	0	0
23 Madison / 6th	0	0	0	0	654	210	0	0	0	31	164	0
24 Madison / 7th	0	0	0	121	622	0	0	331	193	0	0	0
25 Oak / Embarcadero	179	227	0	0	201	164	134	0	71	2	0	0
26 Oak / 3rd	58	322	4	4	314	60	49	1	65	0	1	9
27 Oak / 5th	0	247	122	2	202	0	219	555	126	0	0	0
28 Oak / 6th	116	377	0	0	0	0	0	0	0	185	66	567
29 Oak / 7th	0	843	84	0	0	0	84	324	0	0	0	0
30 5th / Embarcadero	7	2	2	267	4	103	21	226	4	4	279	190
31 Webster / Atlantic	75	840	36	40	432	235	275	197	69	23	202	64
32 Constitution / Atlantic	107	817	42	75	306	34	93	173	76	33	171	82

Intersection	Existing plus Commercial Project PM											
	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
44	132	28	45	57	37	52	273	22	14	124	105	
0	246	28	103	107	0	9	738	29	0	0	0	
47	218	0	0	168	34	0	0	0	30	145	274	
215	216	48	53	95	60	94	705	66	36	325	35	
0	1,128	35	0	61	33	158	500	0	0	0	0	
29	1,450	0	0	0	0	0	0	0	0	216	696	
49	238	17	88	126	20	22	139	84	13	134	109	
18	391	49	53	297	33	40	31	16	17	26	64	
69	371	12	43	271	62	106	133	28	10	118	117	
0	340	430	591	353	0	1,007	295	73	0	0	0	
85	298	0	0	750	34	0	0	0	269	138	617	
0	491	80	99	724	0	119	486	191	0	0	0	
135	480	0	0	612	83	0	0	0	161	511	94	
2	489	35	0	788	100	6	319	109	3	379	114	
0	0	0	10	35	21	0	87	39	18	83	0	
0	0	0	14	21	86	0	208	12	30	222	0	
209	120	0	0	101	99	179	0	217	0	0	0	
0	512	903	0	0	0	86	394	0	0	0	0	
0	526	28	106	117	0	232	484	368	0	0	0	
419	368	0	0	211	425	0	0	0	9	322	44	
0	234	108	30	281	0	32	839	410	0	0	0	
0	0	0	747	124	0	0	539	26	0	0	0	
0	0	0	0	907	185	0	0	0	15	173	0	
0	0	0	242	721	0	0	777	254	0	0	0	
122	241	0	0	228	159	256	0	120	5	0	1	
49	484	1	1	283	60	193	1	77	1	1	2	
0	487	316	4	218	0	207	854	118	0	0	0	
134	573	0	0	0	0	0	0	0	194	80	478	
0	919	189	0	0	0	118	758	0	0	0	0	
9	1	3	340	2	46	44	338	5	1	242	309	
31	495	45	87	794	161	179	160	44	57	200	39	
84	547	38	125	1,109	115	101	141	99	50	134	95	

Intersection	Cumulative AM											
	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
1 Market / 3rd	47	11	3	31	56	96	24	73	20	13	267	33
2 Market / 5th	0	61	20	63	201	0	4	187	10	0	0	0
3 Market / 6th	35	55	0	0	166	62	0	0	0	92	259	245
4 Market / 7th	137	170	14	50	95	94	53	339	37	48	749	46
5 Castro / 11th	0	471	31	0	92	69	159	883	0	0	0	0
6 Castro / 12th	43	559	0	0	0	0	0	0	0	0	239	289
7 Broadway / Embarcadero	3	7	0	320	102	66	7	30	4	8	85	92
8 Broadway / 2nd	16	337	33	103	369	48	6	2	2	7	22	26
9 Broadway / 3rd	34	326	30	101	333	168	34	33	21	5	51	45
10 Broadway / 5th	0	305	513	548	320	0	931	177	99	0	0	0
11 Broadway / 6th	64	463	0	0	354	46	0	0	0	294	156	533
12 Broadway / 11th	0	410	78	105	529	0	84	632	125	0	0	0
13 Broadway / 12th	93	367	0	0	471	42	0	0	0	145	500	106
14 Broadway / 14th	0	362	24	0	642	95	3	278	79	1	327	111
15 Franklin / 2nd	0	0	0	14	7	12	0	26	15	5	21	0
16 Franklin / 3rd	0	0	0	7	3	2	0	21	13	8	23	0
17 Webster / Embarcadero	118	32	0	0	12	28	41	0	103	0	0	0
18 Harrison / 7th	0	607	1,356	0	0	0	165	691	0	0	0	0
19 Jackson / 5th	0	212	41	66	69	0	311	438	446	0	0	0
20 Jackson / 6th	274	281	0	0	176	1,408	0	0	0	2	311	56
21 Jackson / 7th	0	354	90	28	356	0	38	529	1,308	0	0	0
22 Madison / 5th	0	0	0	589	105	0	0	547	22	0	0	0
23 Madison / 6th	0	0	0	0	709	244	0	0	0	34	180	0
24 Madison / 7th	0	0	0	142	678	0	0	435	254	0	0	0
25 Oak / Embarcadero	356	578	0	0	325	97	92	0	70	2	0	0
26 Oak / 3rd	153	709	11	9	514	84	45	1	94	0	1	9
27 Oak / 5th	0	589	181	3	155	0	269	682	155	0	0	0
28 Oak / 6th	150	463	0	0	0	0	0	0	0	75	61	527
29 Oak / 7th	0	932	83	0	0	0	108	416	0	0	0	0
30 5th / Embarcadero	75	45	56	390	16	137	70	421	19	20	623	436
31 Webster / Atlantic	77	857	37	58	617	344	269	193	68	38	334	106
32 Constitution / Atlantic	119	876	47	125	507	57	152	283	124	65	338	162

Intersection	Cumulative PM											
	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
1 Market / 3rd	42	97	22	45	20	40	53	273	14	8	161	39
2 Market / 5th	0	176	24	105	73	0	6	471	13	0	0	0
3 Market / 6th	50	156	0	0	146	35	0	0	0	23	156	272
4 Market / 7th	137	254	45	66	107	74	132	991	80	35	424	46
5 Castro / 11th	0	1,360	44	0	76	41	194	613	0	0	0	0
6 Castro / 12th	36	1,745	0	0	0	0	0	0	0	0	249	802
7 Broadway / Embarcadero	6	34	17	310	217	84	24	82	14	12	35	64
8 Broadway / 2nd	59	484	161	135	515	84	26	20	10	13	20	49
9 Broadway / 3rd	23	274	18	102	459	162	106	118	28	10	102	99
10 Broadway / 5th	0	408	446	879	378	0	1,162	328	84	0	0	0
11 Broadway / 6th	91	352	0	0	867	40	0	0	0	263	164	791
12 Broadway / 11th	0	453	68	127	895	0	199	813	305	0	0	0
13 Broadway / 12th	124	458	0	0	783	109	0	0	0	206	692	127
14 Broadway / 14th	2	556	27	0	988	127	6	328	103	5	582	175
15 Franklin / 2nd	0	0	0	9	21	18	0	87	39	18	83	0
16 Franklin / 3rd	0	0	0	12	18	74	0	189	12	19	188	0
17 Webster / Embarcadero	97	54	0	0	14	14	23	0	83	0	0	0
18 Harrison / 7th	0	678	1,172	0	0	0	334	1,529	0	0	0	0
19 Jackson / 5th	0	581	39	106	82	0	298	622	369	0	0	0
20 Jackson / 6th	364	434	0	0	213	514	0	0	0	11	389	53
21 Jackson / 7th	0	313	144	36	338	0	41	1,079	482	0	0	0
22 Madison / 5th	0	0	0	931	89	0	0	725	35	0	0	0
23 Madison / 6th	0	0	0	0	1,047	227	0	0	0	18	210	0
24 Madison / 7th	0	0	0	309	852	0	0	1,045	342	0	0	0
25 Oak / Embarcadero	218	677	0	0	734	133	42	0	59	5	0	1
26 Oak / 3rd	136	732	3	5	847	189	79	1	77	1	1	2
27 Oak / 5th	0	825	153	6	131	0	246	1,016	140	0	0	0
28 Oak / 6th	163	586	0	0	0	0	0	0	0	68	85	506
29 Oak / 7th	0	1,017	161	0	0	0	161	1,035	0	0	0	0
30 5th / Embarcadero	39	19	27	750	40	97	74	859	57	56	687	623
31 Webster / Atlantic	33	526	49	89	768	166	242	216	59	166	581	113
32 Constitution / Atlantic	87	529	39	130	1,133	119	321	448	315	89	240	170

Intersection	Cumulative plus Residential Project AM											
	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
1 Market / 3rd	51	33	7	33	79	96	24	74	25	18	268	64
2 Market / 5th	0	110	24	63	221	0	4	203	15	0	0	0
3 Market / 6th	40	99	0	0	181	62	0	0	0	97	259	250
4 Market / 7th	177	175	19	50	100	94	53	339	42	53	749	46
5 Castro / 11th	0	479	31	0	92	69	159	883	0	0	0	0
6 Castro / 12th	43	567	0	0	0	0	0	0	0	0	239	289
7 Broadway / Embarcadero	13	54	0	330	151	66	8	71	51	8	138	113
8 Broadway / 2nd	16	405	33	103	429	48	6	2	2	7	22	26
9 Broadway / 3rd	46	382	30	102	393	168	34	38	21	5	54	54
10 Broadway / 5th	0	329	553	548	381	0	931	179	99	0	0	0
11 Broadway / 6th	69	482	0	0	374	46	0	0	0	335	160	533
12 Broadway / 11th	0	424	83	105	544	0	84	632	130	0	0	0
13 Broadway / 12th	98	376	0	0	481	42	0	0	0	150	500	106
14 Broadway / 14th	0	367	29	0	647	95	3	278	84	1	327	111
15 Franklin / 2nd	0	0	0	14	14	12	0	26	15	5	21	0
16 Franklin / 3rd	0	0	0	7	3	2	0	28	13	15	35	0
17 Webster / Embarcadero	195	77	0	0	54	74	75	0	157	0	0	0
18 Harrison / 7th	0	613	1,376	0	0	0	165	691	0	0	0	0
19 Jackson / 5th	0	259	41	66	89	0	311	438	491	0	0	0
20 Jackson / 6th	321	281	0	0	196	1,408	0	0	0	2	311	56
21 Jackson / 7th	0	354	90	28	356	0	38	529	1,328	0	0	0
22 Madison / 5th	0	0	0	589	134	0	0	547	22	0	0	0
23 Madison / 6th	0	0	0	0	738	244	0	0	0	34	180	0
24 Madison / 7th	0	0	0	142	707	0	0	435	254	0	0	0
25 Oak / Embarcadero	382	579	0	0	325	164	197	0	79	2	0	0
26 Oak / 3rd	153	821	11	9	571	98	71	1	94	0	1	9
27 Oak / 5th	0	624	284	3	225	0	269	682	155	0	0	0
28 Oak / 6th	150	498	0	0	0	0	0	0	0	145	61	527
29 Oak / 7th	0	948	102	0	0	0	108	416	0	0	0	0
30 5th / Embarcadero	75	45	56	390	16	137	70	431	19	20	649	436
31 Webster / Atlantic	77	862	37	58	637	344	269	193	68	38	334	106
32 Constitution / Atlantic	119	897	47	125	511	57	152	283	124	65	338	162

Intersection	Cumulative plus Residential Project PM											
	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
1 Market / 3rd	50	138	30	50	61	40	53	277	22	16	166	101
2 Market / 5th	0	271	32	105	110	0	6	488	22	0	0	0
3 Market / 6th	59	242	0	0	174	35	0	0	0	32	156	284
4 Market / 7th	216	263	54	66	116	74	132	991	89	44	424	46
5 Castro / 11th	0	1,384	44	0	76	41	194	613	0	0	0	0
6 Castro / 12th	36	1,769	0	0	0	0	0	0	0	0	249	802
7 Broadway / Embarcadero	30	146	17	333	268	85	27	179	63	12	120	97
8 Broadway / 2nd	59	632	161	135	591	84	26	20	10	13	20	49
9 Broadway / 3rd	53	392	18	106	535	162	106	135	28	10	120	116
10 Broadway / 5th	0	457	534	879	458	0	1,162	340	84	0	0	0
11 Broadway / 6th	103	389	0	0	904	41	0	0	0	306	175	791
12 Broadway / 11th	0	482	77	127	924	0	199	813	314	0	0	0
13 Broadway / 12th	133	478	0	0	802	109	0	0	0	215	692	127
14 Broadway / 14th	2	566	36	0	998	127	6	328	112	5	582	175
15 Franklin / 2nd	0	0	0	9	29	18	0	87	39	18	83	0
16 Franklin / 3rd	0	0	0	12	18	74	0	210	12	27	223	0
17 Webster / Embarcadero	217	125	0	0	112	63	103	0	210	0	0	0
18 Harrison / 7th	0	686	1,212	0	0	0	334	1,529	0	0	0	0
19 Jackson / 5th	0	670	39	106	122	0	298	622	462	0	0	0
20 Jackson / 6th	453	434	0	0	253	514	0	0	0	11	389	53
21 Jackson / 7th	0	313	144	36	338	0	41	1,079	522	0	0	0
22 Madison / 5th	0	0	0	931	150	0	0	725	35	0	0	0
23 Madison / 6th	0	0	0	0	1,108	227	0	0	0	18	210	0
24 Madison / 7th	0	0	0	309	913	0	0	1,045	342	0	0	0
25 Oak / Embarcadero	273	679	0	0	736	290	209	0	76	5	0	1
26 Oak / 3rd	136	935	3	5	986	203	141	1	77	1	1	2
27 Oak / 5th	0	894	349	6	284	0	246	1,016	140	0	0	0
28 Oak / 6th	163	655	0	0	0	0	0	0	0	221	85	506
29 Oak / 7th	0	1,049	198	0	0	0	161	1,035	0	0	0	0
30 5th / Embarcadero	39	19	27	750	40	97	74	879	57	56	744	623
31 Webster / Atlantic	33	532	49	89	808	166	242	216	59	166	581	113
32 Constitution / Atlantic	87	572	39	130	1,142	119	321	448	315	89	240	170

Intersection	Cumulative plus Commercial Project AM											
	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
1 Market / 3rd	49	22	5	32	92	96	24	74	27	20	268	49
2 Market / 5th	0	86	22	63	231	0	4	213	17	0	0	0
3 Market / 6th	37	78	0	0	188	62	0	0	0	99	259	248
4 Market / 7th	158	172	16	50	102	94	53	339	44	55	749	46
5 Castro / 11th	0	477	31	0	92	69	159	883	0	0	0	0
6 Castro / 12th	43	565	0	0	0	0	0	0	0	0	239	289
7 Broadway / Embarcadero	10	39	0	335	180	66	7	94	79	8	109	101
8 Broadway / 2nd	16	378	33	103	463	48	6	2	2	7	22	26
9 Broadway / 3rd	42	359	30	102	427	168	34	38	21	5	54	49
10 Broadway / 5th	0	318	537	548	415	0	931	179	99	0	0	0
11 Broadway / 6th	67	473	0	0	384	46	0	0	0	359	160	533
12 Broadway / 11th	0	418	80	105	552	0	84	632	133	0	0	0
13 Broadway / 12th	95	372	0	0	486	42	0	0	0	153	500	106
14 Broadway / 14th	0	365	26	0	650	95	3	278	87	1	327	111
15 Franklin / 2nd	0	0	0	14	19	12	0	26	15	5	21	0
16 Franklin / 3rd	0	0	0	7	3	2	0	27	13	20	30	0
17 Webster / Embarcadero	157	52	0	0	77	101	64	0	184	0	0	0
18 Harrison / 7th	0	616	1,386	0	0	0	165	691	0	0	0	0
19 Jackson / 5th	0	236	41	66	99	0	311	438	514	0	0	0
20 Jackson / 6th	298	281	0	0	206	1,408	0	0	0	2	311	56
21 Jackson / 7th	0	354	90	28	356	0	38	529	1,338	0	0	0
22 Madison / 5th	0	0	0	589	149	0	0	547	22	0	0	0
23 Madison / 6th	0	0	0	0	753	244	0	0	0	34	180	0
24 Madison / 7th	0	0	0	142	722	0	0	435	254	0	0	0
25 Oak / Embarcadero	396	579	0	0	325	201	139	0	75	2	0	0
26 Oak / 3rd	153	762	11	9	596	106	63	1	94	0	1	9
27 Oak / 5th	0	608	233	3	259	0	269	682	155	0	0	0
28 Oak / 6th	150	482	0	0	0	0	0	0	0	179	61	527
29 Oak / 7th	0	941	93	0	0	0	108	416	0	0	0	0
30 5th / Embarcadero	75	45	56	390	16	137	70	426	19	20	664	436
31 Webster / Atlantic	77	866	37	58	627	344	269	193	68	38	334	106
32 Constitution / Atlantic	119	906	47	125	510	57	152	283	124	65	338	162

Intersection	Cumulative plus Commercial Project PM											
	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
53	154	33	49	59	40	53	277	22	16	165	115	
0	297	35	105	108	0	6	496	22	0	0	0	
62	265	0	0	172	35	0	0	0	32	156	293	
242	266	57	66	116	74	132	991	89	44	424	46	
0	1,398	44	0	76	41	194	613	0	0	0	0	
36	1,783	0	0	0	0	0	0	0	0	249	802	
49	238	17	328	294	85	27	155	87	12	130	101	
59	728	161	135	610	84	26	20	10	13	20	49	
77	464	18	106	554	162	106	133	28	10	118	117	
0	479	582	879	477	0	1,162	339	84	0	0	0	
112	402	0	0	902	41	0	0	0	327	174	791	
0	491	80	127	922	0	199	813	314	0	0	0	
136	484	0	0	801	109	0	0	0	215	692	127	
2	569	39	0	998	127	6	328	112	5	582	175	
0	0	0	9	32	18	0	87	39	18	83	0	
0	0	0	12	18	74	0	208	12	30	222	0	
234	134	0	0	88	86	170	0	185	0	0	0	
0	688	1,207	0	0	0	334	1,529	0	0	0	0	
0	691	39	106	117	0	298	622	450	0	0	0	
474	434	0	0	248	514	0	0	0	11	389	53	
0	313	144	36	338	0	41	1,079	517	0	0	0	
0	0	0	931	142	0	0	725	35	0	0	0	
0	0	0	0	1,100	227	0	0	0	18	210	0	
0	0	0	309	905	0	0	1,045	342	0	0	0	
263	679	0	0	736	251	230	0	83	5	0	1	
136	953	3	5	955	210	193	1	77	1	1	2	
0	917	396	6	261	0	246	1,016	140	0	0	0	
163	678	0	0	0	0	0	0	0	198	85	506	
0	1,060	211	0	0	0	161	1,035	0	0	0	0	
39	19	27	750	40	97	74	885	57	56	734	623	
33	534	49	89	815	166	242	216	59	166	581	113	
87	566	39	130	1,150	119	321	448	315	89	240	170	


















Level Of Service Computation Report

Existing Conditions
AM Peak Hour

HCM Unsignalized Intersection Capacity Analysis

1: Market Street & 3rd Street

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	24	73	20	10	200	25	41	10	3	30	54	93
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	24	73	20	10	200	25	41	10	3	30	54	93
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	225			93			371	376	46	325	374	112
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	225			93			371	376	46	325	374	112
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			91	98	100	95	90	90
cM capacity (veh/h)	1341			1499			457	540	1013	583	542	919
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2	SB 3				
Volume Total	60	56	110	125	54	30	36	111				
Volume Left	24	0	10	0	41	30	0	0				
Volume Right	0	20	0	25	3	0	0	93				
cSH	1341	1700	1499	1700	486	583	542	826				
Volume to Capacity	0.02	0.03	0.01	0.07	0.11	0.05	0.07	0.13				
Queue Length 95th (ft)	1	0	1	0	9	4	5	12				
Control Delay (s)	3.2	0.0	0.7	0.0	13.3	11.5	12.1	10.0				
Lane LOS	A		A		B	B	B	B				
Approach Delay (s)	1.6		0.3		13.3	10.7						
Approach LOS					B	B						
Intersection Summary												
Average Delay			4.9									
Intersection Capacity Utilization			31.1%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Market Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑↑		↘	↑↑↑	
Volume (vph)	10	533	29	0	0	0	0	53	17	52	167	0
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		0.91						0.95		1.00	0.91	
Frt		0.99						0.96		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		5042						3410		1770	5085	
Flt Permitted		1.00						1.00		0.71	1.00	
Satd. Flow (perm)		5042						3410		1321	5085	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	533	29	0	0	0	0	53	17	52	167	0
RTOR Reduction (vph)	0	8	0	0	0	0	0	12	0	0	0	0
Lane Group Flow (vph)	0	564	0	0	0	0	0	58	0	52	167	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		43.0						24.0		24.0	24.0	
Effective Green, g (s)		43.0						24.0		24.0	24.0	
Actuated g/C Ratio		0.57						0.32		0.32	0.32	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		2890						1091		422	1627	
v/s Ratio Prot								0.02			0.03	
v/s Ratio Perm		0.11								c0.04		
v/c Ratio		0.20						0.05		0.12	0.10	
Uniform Delay, d1		7.7						17.6		18.1	17.9	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		0.2						0.1		0.6	0.1	
Delay (s)		7.8						17.7		18.7	18.1	
Level of Service		A						B		B	B	
Approach Delay (s)		7.8			0.0			17.7			18.2	
Approach LOS		A			A			B			B	

Intersection Summary

HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	27.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations					↑↑	↑		↓	↑↑			↑↑↓
Volume (vph)	0	0	0	96	270	255	9	20	46	0	0	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0	4.0			4.0
Lane Util. Factor					0.95	1.00		1.00	0.95			0.91
Frt					1.00	0.85		1.00	1.00			0.96
Flt Protected					0.99	1.00		0.95	1.00			1.00
Satd. Flow (prot)					3493	1583		1770	3539			4877
Flt Permitted					0.99	1.00		0.64	1.00			1.00
Satd. Flow (perm)					3493	1583		1198	3539			4877
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	96	270	255	9	20	46	0	0	120
RTOR Reduction (vph)	0	0	0	0	0	97	0	0	0	0	0	32
Lane Group Flow (vph)	0	0	0	0	366	158	0	29	46	0	0	134
Turn Type				Perm	NA	Perm	Perm	Perm	NA			NA
Protected Phases					8				2			6
Permitted Phases				8		8	2	2				
Actuated Green, G (s)					62.0	62.0		30.0	30.0			30.0
Effective Green, g (s)					62.0	62.0		30.0	30.0			30.0
Actuated g/C Ratio					0.62	0.62		0.30	0.30			0.30
Clearance Time (s)					4.0	4.0		4.0	4.0			4.0
Lane Grp Cap (vph)					2165	981		359	1061			1463
v/s Ratio Prot									0.01			c0.03
v/s Ratio Perm					0.10	0.10		0.02				
v/c Ratio					0.17	0.16		0.08	0.04			0.09
Uniform Delay, d1					8.1	8.0		25.1	24.8			25.2
Progression Factor					1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2					0.2	0.4		0.4	0.1			0.1
Delay (s)					8.2	8.4		25.5	24.9			25.3
Level of Service					A	A		C	C			C
Approach Delay (s)		0.0			8.3				25.2			25.3
Approach LOS		A			A				C			C

Intersection Summary

HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.14		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	27.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

7/24/2013



Movement	SBR
Line Configurations	
Volume (vph)	45
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Fr	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	45
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

4: Market Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↖↗		↖	↗↖↗		↖	↗↖		↖	↗↖↗	
Volume (vph)	42	268	29	37	581	36	118	146	12	40	76	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.91	
Frt	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5011		1770	5041		1770	3499		1770	4706	
Flt Permitted	0.33	1.00		0.56	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	609	5011		1049	5041		1770	3499		1770	4706	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	42	268	29	37	581	36	118	146	12	40	76	75
RTOR Reduction (vph)	0	16	0	0	9	0	0	7	0	0	66	0
Lane Group Flow (vph)	42	281	0	37	608	0	118	151	0	40	85	0
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4			8								
Actuated Green, G (s)	22.0	22.0		22.0	22.0		36.0	36.0		10.0	10.0	
Effective Green, g (s)	22.0	22.0		22.0	22.0		36.0	36.0		10.0	10.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.45	0.45		0.12	0.12	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	167	1378		288	1386		796	1574		221	588	
v/s Ratio Prot		0.06			c0.12		c0.07	0.04		c0.02	0.02	
v/s Ratio Perm	0.07			0.04								
v/c Ratio	0.25	0.20		0.13	0.44		0.15	0.10		0.18	0.15	
Uniform Delay, d1	22.6	22.3		21.8	23.9		13.0	12.6		31.3	31.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.6	0.3		0.9	1.0		0.4	0.1		1.8	0.5	
Delay (s)	26.2	22.6		22.7	24.9		13.4	12.8		33.1	31.7	
Level of Service	C	C		C	C		B	B		C	C	
Approach Delay (s)		23.0			24.8			13.0			32.0	
Approach LOS		C			C			B			C	

Intersection Summary

HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	38.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: Castro Street & 11th Street

7/24/2013



Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Volume (vph)	139	772	404	27	79	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	0.81	0.81	0.91		0.97	
Frt	1.00	1.00	0.99		0.94	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1433	6030	5038		3288	
Flt Permitted	0.95	1.00	1.00		0.97	
Satd. Flow (perm)	1433	6030	5038		3288	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	139	772	404	27	79	59
RTOR Reduction (vph)	90	53	10	0	0	0
Lane Group Flow (vph)	35	733	421	0	138	0
Turn Type	Split	NA	NA		NA	
Protected Phases	4	4	2		8	
Permitted Phases						
Actuated Green, G (s)	21.0	21.0	21.0		21.0	
Effective Green, g (s)	21.0	21.0	21.0		21.0	
Actuated g/C Ratio	0.28	0.28	0.28		0.28	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Lane Grp Cap (vph)	401	1688	1410		920	
v/s Ratio Prot	0.02	c0.12	c0.08		c0.04	
v/s Ratio Perm						
v/c Ratio	0.09	0.43	0.30		0.15	
Uniform Delay, d1	19.9	22.1	21.2		20.3	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.8	0.5		0.3	
Delay (s)	20.4	22.9	21.8		20.6	
Level of Service	C	C	C		C	
Approach Delay (s)		22.6	21.8		20.6	
Approach LOS		C	C		C	

Intersection Summary

HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	33.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

6: Castro Street & 12th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑	↑	↑↑↑↑				
Volume (vph)	0	0	0	0	177	214	37	482	0	0	0	0
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					0.91	0.91	0.81	0.81				
Frt					0.95	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	1.00				
Satd. Flow (prot)					3216	1441	1433	6033				
Flt Permitted					1.00	1.00	0.95	1.00				
Satd. Flow (perm)					3216	1441	1433	6033				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	177	214	37	482	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	61	81	15	7	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	208	41	18	479	0	0	0	0
Turn Type					NA	Perm	Perm	NA				
Protected Phases					8			2				
Permitted Phases						8	2					
Actuated Green, G (s)					25.0	25.0	42.0	42.0				
Effective Green, g (s)					25.0	25.0	42.0	42.0				
Actuated g/C Ratio					0.33	0.33	0.56	0.56				
Clearance Time (s)					4.0	4.0	4.0	4.0				
Lane Grp Cap (vph)					1072	480	802	3378				
v/s Ratio Prot					c0.06							
v/s Ratio Perm						0.03	0.01	0.08				
v/c Ratio					0.19	0.08	0.02	0.14				
Uniform Delay, d1					17.8	17.2	7.4	7.9				
Progression Factor					1.00	1.00	0.30	0.45				
Incremental Delay, d2					0.4	0.3	0.1	0.1				
Delay (s)					18.2	17.5	2.3	3.6				
Level of Service					B	B	A	A				
Approach Delay (s)		0.0			18.0			3.5			0.0	
Approach LOS		A			B			A			A	

Intersection Summary

HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.16		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	22.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 7: Broadway & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	7	29	4	7	72	78	3	7	0	63	20	13
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	7	29	4	7	72	78	3	7	0	63	20	13

















Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	40	157	7	4	73	23
Volume Left (vph)	7	7	3	0	63	0
Volume Right (vph)	4	78	0	0	0	13
Hadj (s)	0.01	-0.26	0.26	0.03	0.47	-0.36
Departure Headway (s)	4.3	4.0	5.3	5.1	5.4	4.6
Degree Utilization, x	0.05	0.17	0.01	0.00	0.11	0.03
Capacity (veh/h)	802	885	647	674	635	749
Control Delay (s)	7.6	7.8	7.1	6.9	7.9	6.5
Approach Delay (s)	7.6	7.8	7.1		7.5	
Approach LOS	A	A	A		A	

Intersection Summary	
Delay	7.7
Level of Service	A
Intersection Capacity Utilization	26.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

8: Broadway & 2nd Street

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	9	4	4	9	29	34	4	82	8	32	115	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	9	4	4	9	29	34	4	82	8	32	115	15
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											288	
pX, platoon unblocked												
vC, conflicting volume	284	284	65	222	288	45	130			90		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	284	284	65	222	288	45	130			90		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	99	100	99	95	97	100			98		
cM capacity (veh/h)	591	608	986	696	606	1015	1453			1503		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	17	72	45	49	90	72						
Volume Left	9	9	4	0	32	0						
Volume Right	4	34	0	8	0	15						
cSH	657	763	1453	1700	1503	1700						
Volume to Capacity	0.03	0.09	0.00	0.03	0.02	0.04						
Queue Length 95th (ft)	2	8	0	0	2	0						
Control Delay (s)	10.6	10.2	0.7	0.0	2.8	0.0						
Lane LOS	B	B	A		A							
Approach Delay (s)	10.6	10.2	0.3		1.5							
Approach LOS	B	B										
Intersection Summary												
Average Delay			3.5									
Intersection Capacity Utilization			19.2%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

9: Broadway & 3rd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	34	33	21	4	42	37	10	97	9	39	129	65
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			0.95			0.95	
Frt		0.97			0.94			0.99			0.96	
Flt Protected		0.98			1.00			1.00			0.99	
Satd. Flow (prot)		1769			1746			3483			3363	
Flt Permitted		0.89			0.99			0.93			0.91	
Satd. Flow (perm)		1610			1736			3269			3073	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	34	33	21	4	42	37	10	97	9	39	129	65
RTOR Reduction (vph)	0	14	0	0	25	0	0	4	0	0	31	0
Lane Group Flow (vph)	0	74	0	0	58	0	0	112	0	0	202	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		18.0			18.0			29.0			29.0	
Effective Green, g (s)		18.0			18.0			29.0			29.0	
Actuated g/C Ratio		0.33			0.33			0.53			0.53	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		526			568			1723			1620	
v/s Ratio Prot												
v/s Ratio Perm		c0.05			0.03			0.03			c0.07	
v/c Ratio		0.14			0.10			0.06			0.12	
Uniform Delay, d1		13.0			12.9			6.4			6.6	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.6			0.4			0.1			0.2	
Delay (s)		13.6			13.2			6.4			6.7	
Level of Service		B			B			A			A	
Approach Delay (s)		13.6			13.2			6.4			6.7	
Approach LOS		B			B			A			A	

Intersection Summary

HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.13		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	29.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

10: Broadway & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	705	134	75	0	0	0	0	125	210	422	247	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0		
Lane Util. Factor	0.91	0.91	1.00					0.95	1.00	0.97	1.00		
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00		
Flt Protected	0.95	0.97	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1610	3272	1583					3539	1583	3433	1863		
Flt Permitted	0.95	0.97	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1610	3272	1583					3539	1583	3433	1863		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	705	134	75	0	0	0	0	125	210	422	247	0	
RTOR Reduction (vph)	0	0	54	0	0	0	0	0	151	0	0	0	
Lane Group Flow (vph)	352	487	21	0	0	0	0	125	59	422	247	0	
Turn Type	Split	NA	Prot					NA	Prot	Split	NA		
Protected Phases	4	4	4					2	2	6	6		
Permitted Phases													
Actuated Green, G (s)	21.0	21.0	21.0					21.0	21.0	21.0	21.0		
Effective Green, g (s)	21.0	21.0	21.0					21.0	21.0	21.0	21.0		
Actuated g/C Ratio	0.28	0.28	0.28					0.28	0.28	0.28	0.28		
Clearance Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0		
Lane Grp Cap (vph)	450	916	443					990	443	961	521		
v/s Ratio Prot	c0.22	0.15	0.01					0.04	c0.04	0.12	c0.13		
v/s Ratio Perm													
v/c Ratio	0.78	0.53	0.05					0.13	0.13	0.44	0.47		
Uniform Delay, d1	24.9	22.8	19.7					20.2	20.2	22.2	22.4		
Progression Factor	0.87	0.86	0.76					1.00	1.00	1.11	1.12		
Incremental Delay, d2	12.7	2.2	0.2					0.3	0.6	1.3	2.8		
Delay (s)	34.4	21.8	15.2					20.4	20.8	25.9	27.9		
Level of Service	C	C	B					C	C	C	C		
Approach Delay (s)		26.1			0.0			20.7			26.7		
Approach LOS		C			A			C			C		
Intersection Summary													
HCM 2000 Control Delay			25.4									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.46										
Actuated Cycle Length (s)			75.0									Sum of lost time (s)	12.0
Intersection Capacity Utilization			66.4%									ICU Level of Service	C
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

11: Broadway & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations				↙	↕	↗	↙	↕			↕	↗	
Volume (vph)	0	0	0	365	194	661	19	137	0	0	335	44	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0		
Lane Util. Factor				1.00	0.91	0.91	1.00	0.95			0.91		
Frt				1.00	0.91	0.85	1.00	1.00			0.98		
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00		
Satd. Flow (prot)				1770	3070	1441	1770	3539			4997		
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00		
Satd. Flow (perm)				1770	3070	1441	1770	3539			4997		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	0	0	0	365	194	661	19	137	0	0	335	44	
RTOR Reduction (vph)	0	0	0	0	225	224	0	0	0	0	22	0	
Lane Group Flow (vph)	0	0	0	365	300	106	19	137	0	0	357	0	
Turn Type				Split	NA	Prot	Prot	NA			NA		
Protected Phases				8	8	8	5	2			6		
Permitted Phases													
Actuated Green, G (s)				24.0	24.0	24.0	9.0	43.0			30.0		
Effective Green, g (s)				24.0	24.0	24.0	9.0	43.0			30.0		
Actuated g/C Ratio				0.32	0.32	0.32	0.12	0.57			0.40		
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0		
Lane Grp Cap (vph)				566	982	461	212	2029			1998		
v/s Ratio Prot				c0.21	0.10	0.07	c0.01	0.04			c0.07		
v/s Ratio Perm													
v/c Ratio				0.64	0.31	0.23	0.09	0.07			0.18		
Uniform Delay, d1				21.8	19.2	18.7	29.4	7.1			14.5		
Progression Factor				1.00	1.00	1.00	0.61	0.16			1.00		
Incremental Delay, d2				5.6	0.8	1.2	0.7	0.1			0.2		
Delay (s)				27.4	20.0	19.9	18.6	1.2			14.7		
Level of Service				C	C	B	B	A			B		
Approach Delay (s)		0.0			22.2			3.3			14.7		
Approach LOS		A			C			A			B		
Intersection Summary													
HCM 2000 Control Delay			18.9		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			0.34										
Actuated Cycle Length (s)			75.0		Sum of lost time (s)						12.0		
Intersection Capacity Utilization			66.4%		ICU Level of Service						C		
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

12: Broadway & 11th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		←↑↑↑						↑↑		↘	↑↑	
Volume (vph)	70	525	104	0	0	0	0	410	78	82	413	0
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		0.86						0.95		1.00	0.95	
Frt		0.98						0.98		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		6234						3454		1770	3539	
Flt Permitted		1.00						1.00		0.34	1.00	
Satd. Flow (perm)		6234						3454		638	3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	70	525	104	0	0	0	0	410	78	82	413	0
RTOR Reduction (vph)	0	53	0	0	0	0	0	26	0	0	0	0
Lane Group Flow (vph)	0	646		0	0	0	0	462		82	413	
Turn Type	Split	NA						NA		pm+pt	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases										6		
Actuated Green, G (s)		20.0						20.0		32.0	32.0	
Effective Green, g (s)		20.0						20.0		32.0	32.0	
Actuated g/C Ratio		0.33						0.33		0.53	0.53	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		2078						1151		491	1887	
v/s Ratio Prot		c0.10						c0.13		0.02	c0.12	
v/s Ratio Perm										0.07		
v/c Ratio		0.31						0.40		0.17	0.22	
Uniform Delay, d1		14.9						15.4		7.3	7.4	
Progression Factor		1.00						1.00		0.84	0.75	
Incremental Delay, d2		0.4						1.0		0.7	0.3	
Delay (s)		15.3						16.4		6.8	5.8	
Level of Service		B						B		A	A	
Approach Delay (s)		15.3			0.0			16.4			6.0	
Approach LOS		B			A			B			A	

Intersection Summary

HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	38.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: Broadway & 12th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←↑↑↑		↑	↑↑			↑↑↑	
Volume (vph)	0	0	0	86	296	63	92	365	0	0	393	35
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					0.91		1.00	0.95			0.91	
Flt					0.98		1.00	1.00			0.99	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					4930		1770	3539			5023	
Flt Permitted					0.99		0.41	1.00			1.00	
Satd. Flow (perm)					4930		766	3539			5023	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	86	296	63	92	365	0	0	393	35
RTOR Reduction (vph)	0	0	0	0	38	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	0	0	0	407	0	92	365	0	0	411	0
Turn Type				Split	NA		pm+pt	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases							2					
Actuated Green, G (s)					20.0		32.0	32.0			20.0	
Effective Green, g (s)					20.0		32.0	32.0			20.0	
Actuated g/C Ratio					0.33		0.53	0.53			0.33	
Clearance Time (s)					4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)					1643		542	1887			1674	
v/s Ratio Prot					c0.08		0.02	c0.10			c0.08	
v/s Ratio Perm							0.07					
v/c Ratio					0.25		0.17	0.19			0.25	
Uniform Delay, d1					14.5		7.0	7.3			14.5	
Progression Factor					1.00		0.61	0.60			1.83	
Incremental Delay, d2					0.4		0.6	0.2			0.3	
Delay (s)					14.9		5.0	4.6			27.0	
Level of Service					B		A	A			C	
Approach Delay (s)		0.0			14.9			4.6			27.0	
Approach LOS		A			B			A			C	

Intersection Summary

HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	38.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: Broadway & 14th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↑			↑↑	
Volume (vph)	3	273	78	1	268	91	0	355	24	0	492	73
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			0.95			0.95			0.95	
Frt		0.97			0.96			0.99			0.98	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		3421			3405			3506			3471	
Flt Permitted		0.95			0.95			1.00			1.00	
Satd. Flow (perm)		3261			3250			3506			3471	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	273	78	1	268	91	0	355	24	0	492	73
RTOR Reduction (vph)	0	43	0	0	50	0	0	8	0	0	20	0
Lane Group Flow (vph)	0	311	0	0	310	0	0	371	0	0	545	0
Turn Type	Perm	NA		Perm	NA			NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8								
Actuated Green, G (s)		27.0			27.0			25.0			25.0	
Effective Green, g (s)		27.0			27.0			25.0			25.0	
Actuated g/C Ratio		0.45			0.45			0.42			0.42	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		1467			1462			1460			1446	
v/s Ratio Prot								0.11			c0.16	
v/s Ratio Perm		c0.10			0.10							
v/c Ratio		0.21			0.21			0.25			0.38	
Uniform Delay, d1		10.0			10.0			11.4			12.1	
Progression Factor		1.00			1.00			1.90			1.00	
Incremental Delay, d2		0.3			0.3			0.4			0.8	
Delay (s)		10.4			10.4			22.1			12.9	
Level of Service		B			B			C			B	
Approach Delay (s)		10.4			10.4			22.1			12.9	
Approach LOS		B			B			C			B	

Intersection Summary

















HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

15: Franklin Street & 2nd Street

















7/24/2013

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (veh/h)	0	26	15	12	52	0	0	0	0	12	6	10	
Sign Control		Free			Free			Stop			Stop		
Grade		0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	0	26	15	12	52	0	0	0	0	12	6	10	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None					None							
Median storage (veh)													
Upstream signal (ft)	384												
pX, platoon unblocked													
vC, conflicting volume	52			41				122	110	34	110	117	52
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	52			41				122	110	34	110	117	52
tC, single (s)	4.1			4.1				7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)													
tF (s)	2.2			2.2				3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99				100	100	100	99	99	99
cM capacity (veh/h)	1554			1568				834	775	1040	864	767	1016
Direction, Lane #													
	EB 1	WB 1	SB 1	SB 2									
Volume Total	41	64	15	13									
Volume Left	0	12	12	0									
Volume Right	15	0	0	10									
cSH	1700	1568	843	945									
Volume to Capacity	0.02	0.01	0.02	0.01									
Queue Length 95th (ft)	0	1	1	1									
Control Delay (s)	0.0	1.4	9.3	8.9									
Lane LOS		A	A	A									
Approach Delay (s)	0.0	1.4	9.1										
Approach LOS			A										
Intersection Summary													
Average Delay			2.6										
Intersection Capacity Utilization			20.1%	ICU Level of Service	A								
Analysis Period (min)	15												

HCM Unsignalized Intersection Capacity Analysis

16: Franklin Street & 3rd Street

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	21	13	8	23	0	0	0	0	6	3	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	21	13	8	23	0	0	0	0	6	3	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		367			383							
pX, platoon unblocked												
vC, conflicting volume	23			34			70	66	28	66	73	23
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	23			34			70	66	28	66	73	23
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	99	100	100
cM capacity (veh/h)	1592			1578			914	820	1048	923	813	1054
Direction, Lane #	EB 1	WB 1	SB 1	SB 2								
Volume Total	34	31	8	4								
Volume Left	0	8	6	0								
Volume Right	13	0	0	2								
cSH	1700	1578	899	935								
Volume to Capacity	0.02	0.01	0.01	0.00								
Queue Length 95th (ft)	0	0	1	0								
Control Delay (s)	0.0	1.9	9.0	8.9								
Lane LOS		A	A	A								
Approach Delay (s)	0.0	1.9	9.0									
Approach LOS			A									
Intersection Summary												
Average Delay			2.1									
Intersection Capacity Utilization			18.2%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

17: Webster Street & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	28	70	91	25	22	54
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	28	70	91	25	22	54
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	385					
pX, platoon unblocked						
vC, conflicting volume	0		121	56	126	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		121	56	126	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	98		88	97	97	95
cM capacity (veh/h)	1623		783	821	751	1085

Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2
Volume Total	28	70	116	22	54
Volume Left	28	0	91	0	0
Volume Right	0	70	0	0	54
cSH	1623	1700	791	751	1085
Volume to Capacity	0.02	0.04	0.15	0.03	0.05
Queue Length 95th (ft)	1	0	13	2	4
Control Delay (s)	7.3	0.0	10.3	9.9	8.5
Lane LOS	A		B	A	A
Approach Delay (s)	2.1		10.3	8.9	
Approach LOS			B	A	

Intersection Summary					
Average Delay			7.2		
Intersection Capacity Utilization			23.0%	ICU Level of Service	A
Analysis Period (min)			15		

HCM Signalized Intersection Capacity Analysis

18: Harrison Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑↑↑	↑↑			
Volume (vph)	51	214	0	0	0	0	0	527	1177	0	0	0
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			
Lane Util. Factor		0.91						0.91	0.88			
Frt		1.00						1.00	0.85			
Flt Protected		0.99						1.00	1.00			
Satd. Flow (prot)		5037						5085	2787			
Flt Permitted		0.99						1.00	1.00			
Satd. Flow (perm)		5037						5085	2787			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	51	214	0	0	0	0	0	527	1177	0	0	0
RTOR Reduction (vph)	0	33	0	0	0	0	0	0	473	0	0	0
Lane Group Flow (vph)	0	232	0	0	0	0	0	527	704	0	0	0
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Actuated Green, G (s)		16.0						21.0	21.0			
Effective Green, g (s)		16.0						21.0	21.0			
Actuated g/C Ratio		0.36						0.47	0.47			
Clearance Time (s)		4.0						4.0	4.0			
Lane Grp Cap (vph)		1790						2373	1300			
v/s Ratio Prot								0.10				
v/s Ratio Perm		0.05							c0.25			
v/c Ratio		0.13						0.22	0.54			
Uniform Delay, d1		9.8						7.1	8.6			
Progression Factor		1.00						1.00	1.00			
Incremental Delay, d2		0.1						0.2	1.6			
Delay (s)		9.9						7.4	10.2			
Level of Service		A						A	B			
Approach Delay (s)		9.9			0.0			9.3			0.0	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

19: Jackson Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔						↔		↔↕	↕	
Volume (vph)	260	366	373	0	0	0	0	170	33	66	69	0
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		0.91						1.00		1.00	1.00	
Frt		0.94						0.98		1.00	1.00	
Flt Protected		0.99						1.00		0.95	1.00	
Satd. Flow (prot)		4739						1822		1770	1863	
Flt Permitted		0.99						1.00		0.63	1.00	
Satd. Flow (perm)		4739						1822		1174	1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	260	366	373	0	0	0	0	170	33	66	69	0
RTOR Reduction (vph)	0	239	0	0	0	0	0	15	0	0	0	0
Lane Group Flow (vph)	0	760	0	0	0	0	0	188	0	66	69	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		13.0						24.0		24.0	24.0	
Effective Green, g (s)		13.0						24.0		24.0	24.0	
Actuated g/C Ratio		0.29						0.53		0.53	0.53	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		1369						971		626	993	
v/s Ratio Prot								c0.10			0.04	
v/s Ratio Perm		0.16								0.06		
v/c Ratio		0.56						0.19		0.11	0.07	
Uniform Delay, d1		13.6						5.5		5.2	5.1	
Progression Factor		1.00						1.00		0.34	0.35	
Incremental Delay, d2		1.6						0.4		0.3	0.1	
Delay (s)		15.2						5.9		2.1	1.9	
Level of Service		B						A		A	A	
Approach Delay (s)		15.2			0.0			5.9			2.0	
Approach LOS		B			A			A			A	

Intersection Summary

HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

20: Jackson Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↗	↖	↖	↗			↗	↖
Volume (vph)	0	0	0	2	279	50	232	238	0	0	158	1262
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1770	1863	1583	1770	1863			1863	1583
Flt Permitted				0.95	1.00	1.00	0.66	1.00			1.00	1.00
Satd. Flow (perm)				1770	1863	1583	1223	1863			1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	2	279	50	232	238	0	0	158	1262
RTOR Reduction (vph)	0	0	0	0	0	38	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	2	279	12	232	238	0	0	158	1262
Turn Type				Split	NA	Perm	Perm	NA			NA	Free
Protected Phases				8	8			2			6	
Permitted Phases						8	2					Free
Actuated Green, G (s)				11.0	11.0	11.0	26.0	26.0			26.0	45.0
Effective Green, g (s)				11.0	11.0	11.0	26.0	26.0			26.0	45.0
Actuated g/C Ratio				0.24	0.24	0.24	0.58	0.58			0.58	1.00
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)				432	455	386	706	1076			1076	1583
v/s Ratio Prot				0.00	0.15			0.13			0.08	
v/s Ratio Perm						0.01	0.19					c0.80
v/c Ratio				0.00	0.61	0.03	0.33	0.22			0.15	0.80
Uniform Delay, d1				12.9	15.1	12.9	5.0	4.6			4.4	0.0
Progression Factor				0.72	0.71	0.71	1.13	1.10			1.52	1.00
Incremental Delay, d2				0.0	6.0	0.2	1.1	0.4			0.3	3.8
Delay (s)				9.2	16.7	9.4	6.8	5.5			6.9	3.8
Level of Service				A	B	A	A	A			A	A
Approach Delay (s)		0.0			15.5			6.1			4.1	
Approach LOS		A			B			A			A	

Intersection Summary

HCM 2000 Control Delay	6.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

21: Jackson Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔	↔					↔			↔↕	
Volume (vph)	32	442	1093	0	0	0	0	265	67	20	255	0
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		0.86	0.86					1.00			1.00	
Frt		0.92	0.85					0.97			1.00	
Flt Protected		1.00	1.00					1.00			1.00	
Satd. Flow (prot)		4413	1362					1812			1856	
Flt Permitted		1.00	1.00					1.00			0.96	
Satd. Flow (perm)		4413	1362					1812			1797	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	32	442	1093	0	0	0	0	265	67	20	255	0
RTOR Reduction (vph)	0	230	230	0	0	0	0	20	0	0	0	0
Lane Group Flow (vph)	0	791	316	0	0	0	0	312	0	0	275	0
Turn Type	Split	NA	Perm					NA		Perm	NA	
Protected Phases	4	4						2			6	
Permitted Phases			4							6		
Actuated Green, G (s)		21.0	21.0					16.0			16.0	
Effective Green, g (s)		21.0	21.0					16.0			16.0	
Actuated g/C Ratio		0.47	0.47					0.36			0.36	
Clearance Time (s)		4.0	4.0					4.0			4.0	
Lane Grp Cap (vph)		2059	635					644			638	
v/s Ratio Prot		0.18						c0.17				
v/s Ratio Perm			c0.23								0.15	
v/c Ratio		0.38	0.50					0.48			0.43	
Uniform Delay, d1		7.8	8.3					11.3			11.0	
Progression Factor		1.00	1.00					0.57			1.00	
Incremental Delay, d2		0.5	2.8					2.6			2.1	
Delay (s)		8.3	11.1					9.0			13.2	
Level of Service		A	B					A			B	
Approach Delay (s)		9.3			0.0			9.0			13.2	
Approach LOS		A			A			A			B	

Intersection Summary

HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

22: Madison Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑								↘	↙↑	
Volume (vph)	0	416	17	0	0	0	0	0	0	548	98	0
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	
Lane Util. Factor		0.91								0.91	0.91	
Frt		0.99								1.00	1.00	
Flt Protected		1.00								0.95	0.96	
Satd. Flow (prot)		5055								1610	3270	
Flt Permitted		1.00								0.95	0.96	
Satd. Flow (perm)		5055								1610	3270	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	416	17	0	0	0	0	0	0	548	98	0
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	0	119	119	0
Lane Group Flow (vph)	0	424	0	0	0	0	0	0	0	155	253	0
Turn Type		NA								Perm	NA	
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0								22.0	22.0	
Effective Green, g (s)		16.0								22.0	22.0	
Actuated g/C Ratio		0.35								0.48	0.48	
Clearance Time (s)		4.0								4.0	4.0	
Lane Grp Cap (vph)		1758								770	1563	
v/s Ratio Prot		c0.08										
v/s Ratio Perm										c0.10	0.08	
v/c Ratio		0.24								0.20	0.16	
Uniform Delay, d1		10.7								6.9	6.8	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.3								0.6	0.2	
Delay (s)		11.0								7.5	7.0	
Level of Service		B								A	A	
Approach Delay (s)		11.0			0.0			0.0			7.2	
Approach LOS		B			A			A			A	

Intersection Summary

HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	46.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	27.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

23: Madison Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑						↑↑↑	
Volume (vph)	0	0	0	31	164	0	0	0	0	0	610	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0						4.0	
Lane Util. Factor					0.91						0.91	
Frt					1.00						0.96	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					5045						4890	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					5045						4890	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	31	164	0	0	0	0	0	610	210
RTOR Reduction (vph)	0	0	0	0	21	0	0	0	0	0	107	0
Lane Group Flow (vph)	0	0	0	0	174	0	0	0	0	0	713	0
Turn Type				Split	NA						NA	
Protected Phases				8	8						6	
Permitted Phases												
Actuated Green, G (s)					15.0						22.0	
Effective Green, g (s)					15.0						22.0	
Actuated g/C Ratio					0.33						0.49	
Clearance Time (s)					4.0						4.0	
Lane Grp Cap (vph)					1681						2390	
v/s Ratio Prot					c0.03						c0.15	
v/s Ratio Perm												
v/c Ratio					0.10						0.30	
Uniform Delay, d1					10.4						6.9	
Progression Factor					1.16						0.59	
Incremental Delay, d2					0.1						0.3	
Delay (s)					12.1						4.4	
Level of Service					B						A	
Approach Delay (s)		0.0			12.1			0.0			4.4	
Approach LOS		A			B			A			A	

Intersection Summary

HCM 2000 Control Delay	5.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	27.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

24: Madison Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑									↑↑↑	
Volume (vph)	0	331	193	0	0	0	0	0	0	121	578	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									4.0	
Lane Util. Factor		0.86									0.91	
Frt		0.94									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		6054									5042	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		6054									5042	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	331	193	0	0	0	0	0	0	121	578	0
RTOR Reduction (vph)	0	124	0	0	0	0	0	0	0	0	65	0
Lane Group Flow (vph)	0	400	0	0	0	0	0	0	0	0	634	0
Turn Type		NA								Perm		NA
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0									21.0	
Effective Green, g (s)		16.0									21.0	
Actuated g/C Ratio		0.36									0.47	
Clearance Time (s)		4.0									4.0	
Lane Grp Cap (vph)		2152									2352	
v/s Ratio Prot		c0.07										
v/s Ratio Perm											0.13	
v/c Ratio		0.19									0.27	
Uniform Delay, d1		10.0									7.3	
Progression Factor		0.61									1.00	
Incremental Delay, d2		0.2									0.3	
Delay (s)		6.3									7.6	
Level of Service		A									A	
Approach Delay (s)		6.3			0.0			0.0			7.6	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	7.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	28.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

25: Oak Street & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	87	0	66	2	0	0	139	226	0	0	201	60
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	87	0	66	2	0	0	139	226	0	0	201	60
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											563	
pX, platoon unblocked												
vC, conflicting volume	622	735	130	670	765	113	261			226		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	622	735	130	670	765	113	261			226		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	74	100	93	99	100	100	89			100		
cM capacity (veh/h)	341	308	895	291	296	918	1300			1340		

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	87	66	139	113	113	134	127
Volume Left	87	0	139	0	0	0	0
Volume Right	0	66	0	0	0	0	60
cSH	341	895	1300	1700	1700	1700	1700
Volume to Capacity	0.26	0.07	0.11	0.07	0.07	0.08	0.07
Queue Length 95th (ft)	25	6	9	0	0	0	0
Control Delay (s)	19.2	9.3	8.1	0.0	0.0	0.0	0.0
Lane LOS	C	A	A				
Approach Delay (s)	14.9		3.1			0.0	
Approach LOS	B						

Intersection Summary	
Average Delay	Err
Intersection Capacity Utilization	Err% ICU Level of Service H
Analysis Period (min)	15

HCM Signalized Intersection Capacity Analysis

26: Oak Street & 3rd Street

7/24/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	31	65	58	269	232	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.91		1.00	1.00	1.00	0.85
Flt Protected	0.98		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1666		1770	1863	1863	1583
Flt Permitted	0.98		0.61	1.00	1.00	1.00
Satd. Flow (perm)	1666		1144	1863	1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	31	65	58	269	232	38
RTOR Reduction (vph)	38	0	0	0	0	23
Lane Group Flow (vph)	58	0	58	269	232	15
Turn Type	NA		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Actuated Green, G (s)	19.0		18.0	18.0	18.0	18.0
Effective Green, g (s)	19.0		18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.42		0.40	0.40	0.40	0.40
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	703		457	745	745	633
v/s Ratio Prot	c0.04			c0.14	0.12	
v/s Ratio Perm			0.05			0.01
v/c Ratio	0.08		0.13	0.36	0.31	0.02
Uniform Delay, d1	7.8		8.5	9.5	9.3	8.2
Progression Factor	1.00		1.00	1.00	0.74	0.65
Incremental Delay, d2	0.2		0.6	1.4	1.1	0.1
Delay (s)	8.0		9.1	10.8	7.9	5.4
Level of Service	A		A	B	A	A
Approach Delay (s)	8.0			10.5	7.5	
Approach LOS	A			B	A	

Intersection Summary

HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	31.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

27: Oak Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔						↕↔↔			↕	
Volume (vph)	219	555	126	0	0	0	0	228	70	2	98	0
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	
Lane Util. Factor		0.91						0.95			1.00	
Frt		0.98						0.96			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4919						3415			1861	
Flt Permitted		0.99						1.00			0.99	
Satd. Flow (perm)		4919						3415			1851	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	219	555	126	0	0	0	0	228	70	2	98	0
RTOR Reduction (vph)	0	50	0	0	0	0	0	47	0	0	0	0
Lane Group Flow (vph)	0	850		0	0	0	0	251	0	0	100	0
Turn Type	Split	NA						NA		Perm	NA	
Protected Phases	4	4						2			6	
Permitted Phases										6		
Actuated Green, G (s)		22.0						15.0			15.0	
Effective Green, g (s)		22.0						15.0			15.0	
Actuated g/C Ratio		0.49						0.33			0.33	
Clearance Time (s)		4.0						4.0			4.0	
Lane Grp Cap (vph)		2404						1138			617	
v/s Ratio Prot		c0.17						c0.07				
v/s Ratio Perm											0.05	
v/c Ratio		0.35						0.22			0.16	
Uniform Delay, d1		7.1						10.8			10.6	
Progression Factor		1.00						1.71			1.17	
Incremental Delay, d2		0.4						0.4			0.6	
Delay (s)		7.5						18.9			12.9	
Level of Service		A						B			B	
Approach Delay (s)		7.5			0.0			18.9			12.9	
Approach LOS		A			A			B			B	

Intersection Summary

HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	33.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: Oak Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔	↗		↔				
Volume (vph)	0	0	0	81	66	567	116	358	0	0	0	0
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				
Lane Util. Factor					0.91	0.91		0.95				
Frt					0.90	0.85		1.00				
Flt Protected					0.99	1.00		0.99				
Satd. Flow (prot)					3027	1441		3496				
Flt Permitted					0.99	1.00		0.99				
Satd. Flow (perm)					3027	1441		3496				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	81	66	567	116	358	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	137	137	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	294	146	0	474	0	0	0	0
Turn Type				Split	NA	Perm	Split	NA				
Protected Phases				8	8		2	2				
Permitted Phases						8						
Actuated Green, G (s)					22.0	22.0		15.0				
Effective Green, g (s)					22.0	22.0		15.0				
Actuated g/C Ratio					0.49	0.49		0.33				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					1479	704		1165				
v/s Ratio Prot					0.10			c0.14				
v/s Ratio Perm						c0.10						
v/c Ratio					0.20	0.21		0.41				
Uniform Delay, d1					6.5	6.5		11.6				
Progression Factor					1.00	1.00		1.07				
Incremental Delay, d2					0.3	0.7		1.0				
Delay (s)					6.8	7.2		13.5				
Level of Service					A	A		B				
Approach Delay (s)		0.0			7.0			13.5			0.0	
Approach LOS		A			A			B			A	

Intersection Summary

HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	43.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: Oak Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		←↑↑↑						↑↑↑				
Volume (vph)	84	324	0	0	0	0	0	834	74	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.86						0.91				
Frt		1.00						0.99				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6343						5023				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6343						5023				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	84	324	0	0	0	0	0	834	74	0	0	0
RTOR Reduction (vph)	0	39	0	0	0	0	0	23	0	0	0	0
Lane Group Flow (vph)	0	369	0	0	0	0	0	885	0	0	0	0
Turn Type	Perm	NA						NA				
Protected Phases		4						2				
Permitted Phases	4											
Actuated Green, G (s)		19.0						18.0				
Effective Green, g (s)		19.0						18.0				
Actuated g/C Ratio		0.42						0.40				
Clearance Time (s)		4.0						4.0				
Lane Grp Cap (vph)		2678						2009				
v/s Ratio Prot								c0.18				
v/s Ratio Perm		0.06										
v/c Ratio		0.14						0.44				
Uniform Delay, d1		8.0						9.8				
Progression Factor		0.92						0.68				
Incremental Delay, d2		0.1						0.7				
Delay (s)		7.4						7.4				
Level of Service		A						A				
Approach Delay (s)		7.4			0.0			7.4			0.0	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

30: 5th Avenue & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	21	221	4	4	238	190	7	2	2	267	4	103
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	21	221	4	4	238	190	7	2	2	267	4	103

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	246	242	190	11	374
Volume Left (vph)	21	4	0	7	267
Volume Right (vph)	4	0	190	2	103
Hadj (s)	0.04	0.04	-0.67	0.05	0.01
Departure Headway (s)	5.8	6.1	5.4	6.5	5.6
Degree Utilization, x	0.40	0.41	0.28	0.02	0.58
Capacity (veh/h)	580	563	636	456	608
Control Delay (s)	12.7	12.1	9.3	9.6	16.3
Approach Delay (s)	12.7	10.8		9.6	16.3
Approach LOS	B	B		A	C

Intersection Summary

Delay	13.2
Level of Service	B
Intersection Capacity Utilization	62.0%
ICU Level of Service	B
Analysis Period (min)	15

HCM Signalized Intersection Capacity Analysis

31: Webster Street & Atlantic Avenue

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	197	69	23	202	64	75	831	36	40	422	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3411		1770	3517		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3411		1770	3517		1770	3539	1583
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)	299	214	75	25	220	70	82	903	39	43	459	255
RTOR Reduction (vph)	0	0	52	0	33	0	0	2	0	0	0	215
Lane Group Flow (vph)	299	214	23	25	257	0	82	940	0	43	459	40
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	Over
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									
Actuated Green, G (s)	11.7	22.4	22.4	2.7	13.4		7.1	28.1		4.5	25.5	11.7
Effective Green, g (s)	11.7	22.4	22.4	2.7	13.4		7.1	28.1		4.5	25.5	11.7
Actuated g/C Ratio	0.16	0.30	0.30	0.04	0.18		0.10	0.38		0.06	0.35	0.16
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	544	1075	481	64	620		170	1340		108	1224	251
v/s Ratio Prot	c0.09	0.06		0.01	c0.08		c0.05	c0.27		0.02	0.13	0.03
v/s Ratio Perm			0.01									
v/c Ratio	0.55	0.20	0.05	0.39	0.41		0.48	0.70		0.40	0.38	0.16
Uniform Delay, d1	28.6	19.0	18.1	34.7	26.7		31.6	19.3		33.3	18.1	26.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.1	0.1	0.0	3.9	0.5		2.2	3.1		2.4	0.9	0.3
Delay (s)	29.7	19.1	18.2	38.6	27.1		33.7	22.3		35.7	19.0	27.1
Level of Service	C	B	B	D	C		C	C		D	B	C
Approach Delay (s)		24.4			28.0			23.2			22.7	
Approach LOS		C			C			C			C	

Intersection Summary

HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	73.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	56.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

32: Constitution Way & Atlantic Avenue

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	93	173	76	33	171	82	107	787	42	75	303	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.95		1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3377		1770	3367		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3377		1770	3367		3433	3539	1583	3433	3539	1583
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)	101	188	83	36	186	89	116	855	46	82	329	37
RTOR Reduction (vph)	0	50	0	0	62	0	0	0	28	0	0	23
Lane Group Flow (vph)	101	221	0	36	213	0	116	855	18	82	329	14
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	7.4	15.7		2.9	11.2		6.0	26.0	26.0	5.4	25.4	25.4
Effective Green, g (s)	7.4	15.7		2.9	11.2		6.0	26.0	26.0	5.4	25.4	25.4
Actuated g/C Ratio	0.11	0.24		0.04	0.17		0.09	0.39	0.39	0.08	0.38	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	198	803		77	571		312	1394	623	280	1361	609
v/s Ratio Prot	c0.06	0.07		0.02	c0.06		c0.03	c0.24		0.02	0.09	
v/s Ratio Perm									0.01			0.01
v/c Ratio	0.51	0.27		0.47	0.37		0.37	0.61	0.03	0.29	0.24	0.02
Uniform Delay, d1	27.6	20.5		30.8	24.3		28.2	16.0	12.3	28.5	13.8	12.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	0.2		4.4	0.4		0.7	2.0	0.1	0.6	0.4	0.1
Delay (s)	29.8	20.7		35.2	24.7		29.0	18.0	12.3	29.1	14.2	12.7
Level of Service	C	C		D	C		C	B	B	C	B	B
Approach Delay (s)		23.2			25.9			19.0			16.8	
Approach LOS		C			C			B			B	

Intersection Summary

HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	66.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			


















Level Of Service Computation Report

Existing Conditions
PM Peak Hour

HCM Unsignalized Intersection Capacity Analysis

1: Market Street & 3rd Street

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	52	269	14	6	120	29	33	75	17	41	18	37
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	52	269	14	6	120	29	33	75	17	41	18	37
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	149			283			498	541	142	440	534	74
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	149			283			498	541	142	440	534	74
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			100			92	82	98	90	96	96
cM capacity (veh/h)	1430			1276			411	428	880	412	433	972
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2	SB 3				
Volume Total	186	148	66	89	125	41	12	43				
Volume Left	52	0	6	0	33	41	0	0				
Volume Right	0	14	0	29	17	0	0	37				
cSH	1430	1700	1276	1700	455	412	433	828				
Volume to Capacity	0.04	0.09	0.00	0.05	0.27	0.10	0.03	0.05				
Queue Length 95th (ft)	3	0	0	0	28	8	2	4				
Control Delay (s)	2.3	0.0	0.7	0.0	15.9	14.7	13.6	9.6				
Lane LOS	A		A		C	B	B	A				
Approach Delay (s)	1.3		0.3		15.9	12.3						
Approach LOS					C	B						
Intersection Summary												
Average Delay			5.1									
Intersection Capacity Utilization			37.3%		ICU Level of Service			A				
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Market Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑↑		↘	↑↑↑	
Volume (vph)	9	713	20	0	0	0	0	125	17	103	72	0
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		0.91						0.95		1.00	0.91	
Frt		1.00						0.98		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		5062						3476		1770	5085	
Flt Permitted		1.00						1.00		0.66	1.00	
Satd. Flow (perm)		5062						3476		1233	5085	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	9	713	20	0	0	0	0	125	17	103	72	0
RTOR Reduction (vph)	0	4	0	0	0	0	0	12	0	0	0	0
Lane Group Flow (vph)	0	738	0	0	0	0	0	130	0	103	72	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		43.0						24.0		24.0	24.0	
Effective Green, g (s)		43.0						24.0		24.0	24.0	
Actuated g/C Ratio		0.57						0.32		0.32	0.32	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		2902						1112		394	1627	
v/s Ratio Prot								0.04			0.01	
v/s Ratio Perm		0.15								c0.08		
v/c Ratio		0.25						0.12		0.26	0.04	
Uniform Delay, d1		8.0						18.0		18.9	17.6	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		0.2						0.2		1.6	0.1	
Delay (s)		8.2						18.2		20.5	17.6	
Level of Service		A						B		C	B	
Approach Delay (s)		8.2			0.0			18.2			19.3	
Approach LOS		A			A			B			B	

Intersection Summary

HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations					↑↑	↑		↓	↑↑			↑↑↓
Volume (vph)	0	0	0	21	145	253	12	23	109	0	0	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0	4.0			4.0
Lane Util. Factor					0.95	1.00		1.00	0.95			0.91
Frt					1.00	0.85		1.00	1.00			0.97
Flt Protected					0.99	1.00		0.95	1.00			1.00
Satd. Flow (prot)					3517	1583		1770	3539			4938
Flt Permitted					0.99	1.00		0.64	1.00			1.00
Satd. Flow (perm)					3517	1583		1185	3539			4938
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	21	145	253	12	23	109	0	0	142
RTOR Reduction (vph)	0	0	0	0	0	96	0	0	0	0	0	24
Lane Group Flow (vph)	0	0	0	0	166	157	0	35	109	0	0	152
Turn Type				Perm	NA	Perm	Perm	Perm	NA			NA
Protected Phases					8				2			6
Permitted Phases				8		8	2	2				
Actuated Green, G (s)					62.0	62.0		30.0	30.0			30.0
Effective Green, g (s)					62.0	62.0		30.0	30.0			30.0
Actuated g/C Ratio					0.62	0.62		0.30	0.30			0.30
Clearance Time (s)					4.0	4.0		4.0	4.0			4.0
Lane Grp Cap (vph)					2180	981		355	1061			1481
v/s Ratio Prot									0.03			c0.03
v/s Ratio Perm					0.05	c0.10		0.03				
v/c Ratio					0.08	0.16		0.10	0.10			0.10
Uniform Delay, d1					7.6	8.0		25.2	25.3			25.3
Progression Factor					1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2					0.1	0.3		0.6	0.2			0.1
Delay (s)					7.6	8.4		25.8	25.5			25.4
Level of Service					A	A		C	C			C
Approach Delay (s)		0.0			8.1			25.6				25.4
Approach LOS		A			A			C				C

Intersection Summary

HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.14		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

7/24/2013



Movement	SBR
Line Configurations	
Volume (vph)	34
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Fr	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	34
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

4: Market Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖		↖	↖↖		↖	↖↖↖	
Volume (vph)	94	705	57	27	325	35	110	204	36	53	86	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.91	
Frt	1.00	0.99		1.00	0.99		1.00	0.98		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5028		1770	5011		1770	3460		1770	4772	
Flt Permitted	0.51	1.00		0.24	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	958	5028		456	5011		1770	3460		1770	4772	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	94	705	57	27	325	35	110	204	36	53	86	60
RTOR Reduction (vph)	0	12	0	0	16	0	0	18	0	0	53	0
Lane Group Flow (vph)	94	750	0	27	344	0	110	222	0	53	94	0
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4			8								
Actuated Green, G (s)	22.0	22.0		22.0	22.0		36.0	36.0		10.0	10.0	
Effective Green, g (s)	22.0	22.0		22.0	22.0		36.0	36.0		10.0	10.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.45	0.45		0.12	0.12	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	263	1382		125	1378		796	1557		221	596	
v/s Ratio Prot		c0.15			0.07		0.06	c0.06		c0.03	0.02	
v/s Ratio Perm	0.10			0.06								
v/c Ratio	0.36	0.54		0.22	0.25		0.14	0.14		0.24	0.16	
Uniform Delay, d1	23.3	24.7		22.4	22.6		12.9	12.9		31.6	31.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.8	1.5		3.9	0.4		0.4	0.2		2.6	0.6	
Delay (s)	27.1	26.3		26.3	23.0		13.3	13.1		34.1	31.8	
Level of Service	C	C		C	C		B	B		C	C	
Approach Delay (s)		26.3			23.2			13.2			32.4	
Approach LOS		C			C			B			C	

Intersection Summary

HCM 2000 Control Delay	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	41.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: Castro Street & 11th Street

7/24/2013



Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Volume (vph)	158	500	1090	35	61	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	0.81	0.81	0.91		0.97	
Frt	1.00	1.00	1.00		0.95	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1433	6017	5062		3316	
Flt Permitted	0.95	1.00	1.00		0.97	
Satd. Flow (perm)	1433	6017	5062		3316	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	158	500	1090	35	61	33
RTOR Reduction (vph)	91	53	4	0	0	0
Lane Group Flow (vph)	35	479	1121	0	94	0
Turn Type	Split	NA	NA		NA	
Protected Phases	4	4	2		8	
Permitted Phases						
Actuated Green, G (s)	21.0	21.0	21.0		21.0	
Effective Green, g (s)	21.0	21.0	21.0		21.0	
Actuated g/C Ratio	0.28	0.28	0.28		0.28	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Lane Grp Cap (vph)	401	1684	1417		928	
v/s Ratio Prot	0.02	c0.08	c0.22		c0.03	
v/s Ratio Perm						
v/c Ratio	0.09	0.28	0.79		0.10	
Uniform Delay, d1	19.9	21.1	25.0		20.0	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.4	4.6		0.2	
Delay (s)	20.4	21.5	29.6		20.2	
Level of Service	C	C	C		C	
Approach Delay (s)		21.3	29.6		20.2	
Approach LOS		C	C		C	

Intersection Summary

HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	42.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

6: Castro Street & 12th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑	↑	↑↑↑↑				
Volume (vph)	0	0	0	0	216	696	29	1412	0	0	0	0
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					0.91	0.91	0.81	0.81				
Frt					0.91	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	1.00				
Satd. Flow (prot)					3076	1441	1433	6035				
Flt Permitted					1.00	1.00	0.95	1.00				
Satd. Flow (perm)					3076	1441	1433	6035				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	216	696	29	1412	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	24	24	11	7	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	540	324	15	1408	0	0	0	0
Turn Type					NA	Perm	Perm	NA				
Protected Phases					8			2				
Permitted Phases						8	2					
Actuated Green, G (s)					25.0	25.0	42.0	42.0				
Effective Green, g (s)					25.0	25.0	42.0	42.0				
Actuated g/C Ratio					0.33	0.33	0.56	0.56				
Clearance Time (s)					4.0	4.0	4.0	4.0				
Lane Grp Cap (vph)					1025	480	802	3379				
v/s Ratio Prot					0.18							
v/s Ratio Perm						c0.22	0.01	0.23				
v/c Ratio					0.53	0.68	0.02	0.42				
Uniform Delay, d1					20.2	21.5	7.3	9.5				
Progression Factor					1.00	1.00	0.03	0.22				
Incremental Delay, d2					1.9	7.4	0.0	0.3				
Delay (s)					22.2	28.9	0.3	2.4				
Level of Service					C	C	A	A				
Approach Delay (s)		0.0			24.7			2.4			0.0	
Approach LOS		A			C			A			A	

Intersection Summary

HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

7: Broadway & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	19	66	11	13	39	72	6	34	17	70	49	19
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	19	66	11	13	39	72	6	34	17	70	49	19

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	96	124	23	34	95	44
Volume Left (vph)	19	13	6	0	70	0
Volume Right (vph)	11	72	0	17	0	19
Hadj (s)	0.00	-0.29	0.16	-0.32	0.40	-0.27
Departure Headway (s)	4.5	4.2	5.3	4.8	5.5	4.8
Degree Utilization, x	0.12	0.14	0.03	0.05	0.14	0.06
Capacity (veh/h)	759	808	641	702	626	714
Control Delay (s)	8.1	7.9	7.3	6.9	8.2	6.9
Approach Delay (s)	8.1	7.9	7.0		7.8	
Approach LOS	A	A	A		A	

Intersection Summary

Delay	7.8
Level of Service	A
Intersection Capacity Utilization	26.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

8: Broadway & 2nd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Volume (veh/h)	40	31	16	17	26	64	18	147	49	53	202	33
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	40	31	16	17	26	64	18	147	49	53	202	33
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											288	
pX, platoon unblocked												
vC, conflicting volume	511	556	118	446	548	98	235			196		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	511	556	118	446	548	98	235			196		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	89	93	98	96	94	93	99			96		
cM capacity (veh/h)	380	415	912	441	419	939	1329			1374		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	87	107	92	122	154	134
Volume Left	40	17	18	0	53	0
Volume Right	16	64	0	49	0	33
cSH	441	634	1329	1700	1374	1700
Volume to Capacity	0.20	0.17	0.01	0.07	0.04	0.08
Queue Length 95th (ft)	18	15	1	0	3	0
Control Delay (s)	15.2	11.8	1.6	0.0	2.9	0.0
Lane LOS	C	B	A		A	
Approach Delay (s)	15.2	11.8	0.7		1.5	
Approach LOS	C	B				

Intersection Summary		
Average Delay		4.6
Intersection Capacity Utilization	35.5%	ICU Level of Service
Analysis Period (min)		15
		A

HCM Signalized Intersection Capacity Analysis

9: Broadway & 3rd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Volume (vph)	106	118	28	10	102	99	15	181	12	39	176	62
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			0.95			0.95	
Frt		0.98			0.94			0.99			0.97	
Flt Protected		0.98			1.00			1.00			0.99	
Satd. Flow (prot)		1797			1741			3496			3396	
Flt Permitted		0.81			0.98			0.93			0.90	
Satd. Flow (perm)		1488			1716			3271			3085	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	106	118	28	10	102	99	15	181	12	39	176	62
RTOR Reduction (vph)	0	8	0	0	58	0	0	6	0	0	29	0
Lane Group Flow (vph)	0	244	0	0	153	0	0	202	0	0	248	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		18.0			18.0			29.0			29.0	
Effective Green, g (s)		18.0			18.0			29.0			29.0	
Actuated g/C Ratio		0.33			0.33			0.53			0.53	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		486			561			1724			1626	
v/s Ratio Prot												
v/s Ratio Perm		c0.16			0.09			0.06			c0.08	
v/c Ratio		0.50			0.27			0.12			0.15	
Uniform Delay, d1		14.9			13.7			6.6			6.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		3.7			1.2			0.1			0.2	
Delay (s)		18.6			14.9			6.7			6.9	
Level of Service		B			B			A			A	
Approach Delay (s)		18.6			14.9			6.7			6.9	
Approach LOS		B			B			A			A	

Intersection Summary

HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

10: Broadway & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1007	284	73	0	0	0	0	269	294	591	254	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.91	0.91	1.00					0.95	1.00	0.97	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3285	1583					3539	1583	3433	1863	
Flt Permitted	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1610	3285	1583					3539	1583	3433	1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1007	284	73	0	0	0	0	269	294	591	254	0
RTOR Reduction (vph)	0	0	53	0	0	0	0	0	128	0	0	0
Lane Group Flow (vph)	503	788	20	0	0	0	0	269	166	591	254	0
Turn Type	Split	NA	Prot					NA	Prot	Split	NA	
Protected Phases	4	4	4					2	2	6	6	
Permitted Phases												
Actuated Green, G (s)	21.0	21.0	21.0					21.0	21.0	21.0	21.0	
Effective Green, g (s)	21.0	21.0	21.0					21.0	21.0	21.0	21.0	
Actuated g/C Ratio	0.28	0.28	0.28					0.28	0.28	0.28	0.28	
Clearance Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	450	919	443					990	443	961	521	
v/s Ratio Prot	c0.31	0.24	0.01					0.08	c0.10	c0.17	0.14	
v/s Ratio Perm												
v/c Ratio	1.12	1.07dl	0.05					0.27	0.37	0.61	0.49	
Uniform Delay, d1	27.0	25.6	19.7					21.0	21.7	23.5	22.5	
Progression Factor	0.90	0.90	0.75					1.00	1.00	0.74	0.74	
Incremental Delay, d2	78.5	10.1	0.2					0.7	2.4	2.8	3.1	
Delay (s)	102.8	33.1	14.9					21.7	24.1	20.2	19.8	
Level of Service	F	C	B					C	C	C	B	
Approach Delay (s)		57.8			0.0			23.0			20.1	
Approach LOS		E			A			C			C	

Intersection Summary

HCM 2000 Control Delay	39.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.5%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

11: Broadway & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕	↗	↙	↕			↕	↗
Volume (vph)	0	0	0	205	128	617	64	248	0	0	715	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Util. Factor				1.00	0.91	0.91	1.00	0.95			0.91	
Frt				1.00	0.89	0.85	1.00	1.00			0.99	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3031	1441	1770	3539			5052	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3031	1441	1770	3539			5052	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	205	128	617	64	248	0	0	715	33
RTOR Reduction (vph)	0	0	0	0	210	209	0	0	0	0	7	0
Lane Group Flow (vph)	0	0	0	205	227	99	64	248	0	0	741	0
Turn Type				Split	NA	Prot	Prot	NA			NA	
Protected Phases				8	8	8	5	2			6	
Permitted Phases												
Actuated Green, G (s)				24.0	24.0	24.0	9.0	43.0			30.0	
Effective Green, g (s)				24.0	24.0	24.0	9.0	43.0			30.0	
Actuated g/C Ratio				0.32	0.32	0.32	0.12	0.57			0.40	
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)				566	969	461	212	2029			2020	
v/s Ratio Prot				c0.12	0.07	0.07	c0.04	0.07			c0.15	
v/s Ratio Perm												
v/c Ratio				0.36	0.23	0.21	0.30	0.12			0.37	
Uniform Delay, d1				19.6	18.7	18.6	30.1	7.3			15.8	
Progression Factor				1.00	1.00	1.00	0.85	0.11			1.00	
Incremental Delay, d2				1.8	0.6	1.1	1.9	0.1			0.5	
Delay (s)				21.4	19.3	19.7	27.6	0.9			16.3	
Level of Service				C	B	B	C	A			B	
Approach Delay (s)		0.0			19.9			6.4			16.3	
Approach LOS		A			B			A			B	

Intersection Summary

HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

12: Broadway & 11th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		←↑↑↑						↑↑		↘	↑↑	
Volume (vph)	119	486	182	0	0	0	0	453	68	99	697	0
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		0.86						0.95		1.00	0.95	
Frt		0.97						0.98		1.00	1.00	
Flt Protected		0.99						1.00		0.95	1.00	
Satd. Flow (prot)		6139						3470		1770	3539	
Flt Permitted		0.99						1.00		0.32	1.00	
Satd. Flow (perm)		6139						3470		599	3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	119	486	182	0	0	0	0	453	68	99	697	0
RTOR Reduction (vph)	0	90	0	0	0	0	0	20	0	0	0	0
Lane Group Flow (vph)	0	697		0	0	0	0	501		99	697	
Turn Type	Split	NA						NA		pm+pt	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases										6		
Actuated Green, G (s)		20.0						20.0		32.0	32.0	
Effective Green, g (s)		20.0						20.0		32.0	32.0	
Actuated g/C Ratio		0.33						0.33		0.53	0.53	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		2046						1156		475	1887	
v/s Ratio Prot		c0.11						c0.14		0.03	c0.20	
v/s Ratio Perm										0.08		
v/c Ratio		0.34						0.43		0.21	0.37	
Uniform Delay, d1		15.0						15.6		7.4	8.1	
Progression Factor		1.00						1.00		0.70	0.64	
Incremental Delay, d2		0.5						1.2		0.9	0.5	
Delay (s)		15.5						16.8		6.2	5.7	
Level of Service		B						B		A	A	
Approach Delay (s)		15.5			0.0			16.8			5.8	
Approach LOS		B			A			B			A	

Intersection Summary

HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: Broadway & 12th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←↑↑↑		↑	↑↑			↑↑↑	
Volume (vph)	0	0	0	152	511	94	123	454	0	0	594	83
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					0.91		1.00	0.95			0.91	
Flt					0.98		1.00	1.00			0.98	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					4941		1770	3539			4992	
Flt Permitted					0.99		0.28	1.00			1.00	
Satd. Flow (perm)					4941		523	3539			4992	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	152	511	94	123	454	0	0	594	83
RTOR Reduction (vph)	0	0	0	0	31	0	0	0	0	0	30	0
Lane Group Flow (vph)	0	0	0	0	726	0	123	454	0	0	647	0
Turn Type				Split	NA		pm+pt	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases							2					
Actuated Green, G (s)					20.0		32.0	32.0			20.0	
Effective Green, g (s)					20.0		32.0	32.0			20.0	
Actuated g/C Ratio					0.33		0.53	0.53			0.33	
Clearance Time (s)					4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)					1647		445	1887			1664	
v/s Ratio Prot					c0.15		c0.04	0.13			c0.13	
v/s Ratio Perm							0.11					
v/c Ratio					0.44		0.28	0.24			0.39	
Uniform Delay, d1					15.6		7.4	7.5			15.3	
Progression Factor					1.00		1.12	0.66			1.93	
Incremental Delay, d2					0.9		1.4	0.3			0.6	
Delay (s)					16.5		9.7	5.2			30.2	
Level of Service					B		A	A			C	
Approach Delay (s)		0.0			16.5			6.2			30.2	
Approach LOS		A			B			A			C	

Intersection Summary

HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: Broadway & 14th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↑			↑↑	
Volume (vph)	6	319	100	3	379	114	2	476	23	0	778	100
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			0.95			0.95			0.95	
Frt		0.96			0.97			0.99			0.98	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		3412			3416			3514			3479	
Flt Permitted		0.95			0.95			0.95			1.00	
Satd. Flow (perm)		3241			3258			3349			3479	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	6	319	100	3	379	114	2	476	23	0	778	100
RTOR Reduction (vph)	0	48	0	0	47	0	0	6	0	0	16	0
Lane Group Flow (vph)	0	377	0	0	449	0	0	495	0	0	862	0
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2					
Actuated Green, G (s)		27.0			27.0			25.0			25.0	
Effective Green, g (s)		27.0			27.0			25.0			25.0	
Actuated g/C Ratio		0.45			0.45			0.42			0.42	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		1458			1466			1395			1449	
v/s Ratio Prot											c0.25	
v/s Ratio Perm		0.12			c0.14			0.15				
v/c Ratio		0.26			0.31			0.35			0.59	
Uniform Delay, d1		10.3			10.5			12.0			13.6	
Progression Factor		1.00			1.00			1.74			1.00	
Incremental Delay, d2		0.4			0.5			0.7			1.8	
Delay (s)		10.7			11.1			21.6			15.4	
Level of Service		B			B			C			B	
Approach Delay (s)		10.7			11.1			21.6			15.4	
Approach LOS		B			B			C			B	

Intersection Summary

















HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

15: Franklin Street & 2nd Street

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	87	39	18	83	0	0	0	0	10	24	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	87	39	18	83	0	0	0	0	10	24	21
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					384							
pX, platoon unblocked												
vC, conflicting volume	83			126			258	226	106	226	245	83
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	83			126			258	226	106	226	245	83
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	99	96	98
cM capacity (veh/h)	1514			1460			654	665	948	723	649	976
Direction, Lane #	EB 1	WB 1	SB 1	SB 2								
Volume Total	126	101	22	33								
Volume Left	0	18	10	0								
Volume Right	39	0	0	21								
cSH	1700	1460	681	825								
Volume to Capacity	0.07	0.01	0.03	0.04								
Queue Length 95th (ft)	0	1	3	3								
Control Delay (s)	0.0	1.4	10.5	9.5								
Lane LOS		A	B	A								
Approach Delay (s)	0.0	1.4	9.9									
Approach LOS			A									
Intersection Summary												
Average Delay			2.4									
Intersection Capacity Utilization			25.7%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

16: Franklin Street & 3rd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔	
Volume (veh/h)	0	189	12	19	188	0	0	0	0	14	21	86
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	189	12	19	188	0	0	0	0	14	21	86
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		367			383							
pX, platoon unblocked												
vC, conflicting volume	188			201			518	421	195	421	427	188
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	188			201			518	421	195	421	427	188
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	97	96	90
cM capacity (veh/h)	1386			1371			404	517	846	537	513	854

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	201	207	24	96
Volume Left	0	19	14	0
Volume Right	12	0	0	86
cSH	1700	1371	526	796
Volume to Capacity	0.12	0.01	0.05	0.12
Queue Length 95th (ft)	0	1	4	10
Control Delay (s)	0.0	0.8	12.2	10.1
Lane LOS		A	B	B
Approach Delay (s)	0.0	0.8	10.6	
Approach LOS			B	

Intersection Summary			
Average Delay		2.7	
Intersection Capacity Utilization	35.4%		ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis

17: Webster Street & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	32	115	72	40	27	27
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	32	115	72	40	27	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	385					
pX, platoon unblocked						
vC, conflicting volume	0		104	64	179	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		104	64	179	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	98		91	95	96	98
cM capacity (veh/h)	1623		816	810	701	1085

Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2
Volume Total	32	115	112	27	27
Volume Left	32	0	72	0	0
Volume Right	0	115	0	0	27
cSH	1623	1700	814	701	1085
Volume to Capacity	0.02	0.07	0.14	0.04	0.02
Queue Length 95th (ft)	2	0	12	3	2
Control Delay (s)	7.3	0.0	10.1	10.3	8.4
Lane LOS	A		B	B	A
Approach Delay (s)	1.6		10.1	9.4	
Approach LOS			B	A	

Intersection Summary					
Average Delay			6.0		
Intersection Capacity Utilization	22.8%		ICU Level of Service	A	
Analysis Period (min)	15				

HCM Signalized Intersection Capacity Analysis

18: Harrison Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑↑↑	↑↑			
Volume (vph)	86	394	0	0	0	0	0	502	868	0	0	0
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			
Lane Util. Factor		0.91						0.91	0.88			
Frt		1.00						1.00	0.85			
Flt Protected		0.99						1.00	1.00			
Satd. Flow (prot)		5040						5085	2787			
Flt Permitted		0.99						1.00	1.00			
Satd. Flow (perm)		5040						5085	2787			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	86	394	0	0	0	0	0	502	868	0	0	0
RTOR Reduction (vph)	0	55	0	0	0	0	0	0	242	0	0	0
Lane Group Flow (vph)	0	425	0	0	0	0	0	502	626	0	0	0
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Actuated Green, G (s)		16.0						21.0	21.0			
Effective Green, g (s)		16.0						21.0	21.0			
Actuated g/C Ratio		0.36						0.47	0.47			
Clearance Time (s)		4.0						4.0	4.0			
Lane Grp Cap (vph)		1792						2373	1300			
v/s Ratio Prot								0.10				
v/s Ratio Perm		0.08							c0.22			
v/c Ratio		0.24						0.21	0.48			
Uniform Delay, d1		10.2						7.1	8.3			
Progression Factor		1.00						1.00	1.00			
Incremental Delay, d2		0.3						0.2	1.3			
Delay (s)		10.5						7.3	9.5			
Level of Service		B						A	A			
Approach Delay (s)		10.5			0.0			8.7			0.0	
Approach LOS		B			A			A			A	

Intersection Summary

HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

19: Jackson Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔						↔		↔↕	↕	
Volume (vph)	232	484	287	0	0	0	0	416	28	106	82	0
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		0.91						1.00		1.00	1.00	
Frt		0.96						0.99		1.00	1.00	
Flt Protected		0.99						1.00		0.95	1.00	
Satd. Flow (prot)		4811						1847		1770	1863	
Flt Permitted		0.99						1.00		0.45	1.00	
Satd. Flow (perm)		4811						1847		829	1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	232	484	287	0	0	0	0	416	28	106	82	0
RTOR Reduction (vph)	0	161	0	0	0	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	842	0	0	0	0	0	438	0	106	82	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		13.0						24.0		24.0	24.0	
Effective Green, g (s)		13.0						24.0		24.0	24.0	
Actuated g/C Ratio		0.29						0.53		0.53	0.53	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		1389						985		442	993	
v/s Ratio Prot								c0.24			0.04	
v/s Ratio Perm		0.18								0.13		
v/c Ratio		0.61						0.45		0.24	0.08	
Uniform Delay, d1		13.8						6.4		5.6	5.1	
Progression Factor		1.00						1.00		0.42	0.43	
Incremental Delay, d2		2.0						1.5		1.3	0.2	
Delay (s)		15.8						7.9		3.6	2.4	
Level of Service		B						A		A	A	
Approach Delay (s)		15.8			0.0			7.9			3.1	
Approach LOS		B			A			A			A	

Intersection Summary

HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

20: Jackson Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↗	↖	↖	↗			↗	↖
Volume (vph)	0	0	0	9	322	44	309	368	0	0	176	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1770	1863	1583	1770	1863			1863	1583
Flt Permitted				0.95	1.00	1.00	0.65	1.00			1.00	1.00
Satd. Flow (perm)				1770	1863	1583	1204	1863			1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	9	322	44	309	368	0	0	176	425
RTOR Reduction (vph)	0	0	0	0	0	33	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	9	322	11	309	368	0	0	176	425
Turn Type				Split	NA	Perm	Perm	NA			NA	Free
Protected Phases				8	8			2			6	
Permitted Phases						8	2					Free
Actuated Green, G (s)				11.0	11.0	11.0	26.0	26.0			26.0	45.0
Effective Green, g (s)				11.0	11.0	11.0	26.0	26.0			26.0	45.0
Actuated g/C Ratio				0.24	0.24	0.24	0.58	0.58			0.58	1.00
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)				432	455	386	695	1076			1076	1583
v/s Ratio Prot				0.01	c0.17			0.20			0.09	
v/s Ratio Perm						0.01	c0.26					0.27
v/c Ratio				0.02	0.71	0.03	0.44	0.34			0.16	0.27
Uniform Delay, d1				12.9	15.5	12.9	5.4	5.0			4.4	0.0
Progression Factor				0.67	0.68	0.64	0.72	0.75			1.00	1.00
Incremental Delay, d2				0.1	8.8	0.1	1.8	0.8			0.3	0.4
Delay (s)				8.7	19.3	8.4	5.7	4.5			4.7	0.4
Level of Service				A	B	A	A	A			A	A
Approach Delay (s)		0.0			17.8			5.0			1.7	
Approach LOS		A			B			A			A	

Intersection Summary

HCM 2000 Control Delay	6.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

21: Jackson Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔	↔					↔			↔↕	
Volume (vph)	32	839	375	0	0	0	0	234	108	30	281	0
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		0.86	0.86					1.00			1.00	
Frt		0.98	0.85					0.96			1.00	
Flt Protected		1.00	1.00					1.00			1.00	
Satd. Flow (prot)		4725	1362					1783			1854	
Flt Permitted		1.00	1.00					1.00			0.95	
Satd. Flow (perm)		4725	1362					1783			1764	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	32	839	375	0	0	0	0	234	108	30	281	0
RTOR Reduction (vph)	0	28	148	0	0	0	0	37	0	0	0	0
Lane Group Flow (vph)	0	941	129	0	0	0	0	305	0	0	311	0
Turn Type	Split	NA	Perm					NA		Perm	NA	
Protected Phases	4	4						2			6	
Permitted Phases			4							6		
Actuated Green, G (s)		21.0	21.0					16.0			16.0	
Effective Green, g (s)		21.0	21.0					16.0			16.0	
Actuated g/C Ratio		0.47	0.47					0.36			0.36	
Clearance Time (s)		4.0	4.0					4.0			4.0	
Lane Grp Cap (vph)		2205	635					633			627	
v/s Ratio Prot		c0.20						0.17				
v/s Ratio Perm			0.09								c0.18	
v/c Ratio		0.43	0.20					0.48			0.50	
Uniform Delay, d1		8.0	7.1					11.3			11.3	
Progression Factor		1.00	1.00					0.88			1.00	
Incremental Delay, d2		0.6	0.7					2.5			2.8	
Delay (s)		8.6	7.8					12.5			14.1	
Level of Service		A	A					B			B	
Approach Delay (s)		8.4			0.0			12.5			14.1	
Approach LOS		A			A			B			B	

Intersection Summary

HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

22: Madison Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑								↘	↙↑	
Volume (vph)	0	539	26	0	0	0	0	0	0	747	71	0
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	
Lane Util. Factor		0.91								0.91	0.91	
Frt		0.99								1.00	1.00	
Flt Protected		1.00								0.95	0.96	
Satd. Flow (prot)		5050								1610	3253	
Flt Permitted		1.00								0.95	0.96	
Satd. Flow (perm)		5050								1610	3253	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	539	26	0	0	0	0	0	0	747	71	0
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	74	74	0
Lane Group Flow (vph)	0	554	0	0	0	0	0	0	0	299	371	0
Turn Type		NA								Perm	NA	
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0								22.0	22.0	
Effective Green, g (s)		16.0								22.0	22.0	
Actuated g/C Ratio		0.35								0.48	0.48	
Clearance Time (s)		4.0								4.0	4.0	
Lane Grp Cap (vph)		1756								770	1555	
v/s Ratio Prot		c0.11										
v/s Ratio Perm										c0.19	0.11	
v/c Ratio		0.32								0.39	0.24	
Uniform Delay, d1		11.0								7.7	7.1	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.5								1.5	0.4	
Delay (s)		11.5								9.2	7.4	
Level of Service		B								A	A	
Approach Delay (s)		11.5			0.0			0.0			8.2	
Approach LOS		B			A			A			A	

Intersection Summary

HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	46.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	33.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

23: Madison Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑						↑↑↑	
Volume (vph)	0	0	0	15	173	0	0	0	0	0	854	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0						4.0	
Lane Util. Factor					0.91						0.91	
Frt					1.00						0.97	
Flt Protected					1.00						1.00	
Satd. Flow (prot)					5065						4949	
Flt Permitted					1.00						1.00	
Satd. Flow (perm)					5065						4949	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	15	173	0	0	0	0	0	854	185
RTOR Reduction (vph)	0	0	0	0	16	0	0	0	0	0	76	0
Lane Group Flow (vph)	0	0	0	0	172	0	0	0	0	0	963	0
Turn Type				Split	NA						NA	
Protected Phases				8	8						6	
Permitted Phases												
Actuated Green, G (s)					15.0						22.0	
Effective Green, g (s)					15.0						22.0	
Actuated g/C Ratio					0.33						0.49	
Clearance Time (s)					4.0						4.0	
Lane Grp Cap (vph)					1688						2419	
v/s Ratio Prot					c0.03						c0.19	
v/s Ratio Perm												
v/c Ratio					0.10						0.40	
Uniform Delay, d1					10.4						7.3	
Progression Factor					1.01						0.61	
Incremental Delay, d2					0.1						0.5	
Delay (s)					10.6						4.9	
Level of Service					B						A	
Approach Delay (s)		0.0			10.6			0.0			4.9	
Approach LOS		A			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			5.8		HCM 2000 Level of Service					A		
HCM 2000 Volume to Capacity ratio			0.28									
Actuated Cycle Length (s)			45.0		Sum of lost time (s)					8.0		
Intersection Capacity Utilization			33.5%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

24: Madison Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑									↑↑↑	
Volume (vph)	0	777	254	0	0	0	0	0	0	242	668	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									4.0	
Lane Util. Factor		0.86									0.91	
Frt		0.96									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		6171									5019	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		6171									5019	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	777	254	0	0	0	0	0	0	242	668	0
RTOR Reduction (vph)	0	107	0	0	0	0	0	0	0	0	31	0
Lane Group Flow (vph)	0	924	0	0	0	0	0	0	0	0	879	0
Turn Type		NA								Perm	NA	
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0									21.0	
Effective Green, g (s)		16.0									21.0	
Actuated g/C Ratio		0.36									0.47	
Clearance Time (s)		4.0									4.0	
Lane Grp Cap (vph)		2194									2342	
v/s Ratio Prot		c0.15										
v/s Ratio Perm											0.18	
v/c Ratio		0.42									0.38	
Uniform Delay, d1		11.0									7.8	
Progression Factor		0.49									1.00	
Incremental Delay, d2		0.6									0.5	
Delay (s)		6.0									8.2	
Level of Service		A									A	
Approach Delay (s)		6.0			0.0			0.0			8.2	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	7.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	40.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

25: Oak Street & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖		↗				↖	↕			↕	↗
Volume (veh/h)	68	0	96	5	0	1	77	239	0	0	226	41
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	68	0	96	5	0	1	77	239	0	0	226	41
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											563	
pX, platoon unblocked												
vC, conflicting volume	521	640	134	602	660	120	267			239		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	521	640	134	602	660	120	267			239		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	84	100	89	98	100	100	94			100		
cM capacity (veh/h)	418	369	891	327	359	910	1294			1325		

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	68	96	77	120	120	151	116
Volume Left	68	0	77	0	0	0	0
Volume Right	0	96	0	0	0	0	41
cSH	418	891	1294	1700	1700	1700	1700
Volume to Capacity	0.16	0.11	0.06	0.07	0.07	0.09	0.07
Queue Length 95th (ft)	14	9	5	0	0	0	0
Control Delay (s)	15.3	9.5	8.0	0.0	0.0	0.0	0.0
Lane LOS	C	A	A				
Approach Delay (s)	11.9		1.9			0.0	
Approach LOS	B						

Intersection Summary	
Average Delay	Err
Intersection Capacity Utilization	Err% ICU Level of Service H
Analysis Period (min)	15

HCM Signalized Intersection Capacity Analysis

26: Oak Street & 3rd Street

7/24/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	79	77	49	263	175	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.93		1.00	1.00	1.00	0.85
Flt Protected	0.98		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1696		1770	1863	1863	1583
Flt Permitted	0.98		0.65	1.00	1.00	1.00
Satd. Flow (perm)	1696		1205	1863	1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	79	77	49	263	175	39
RTOR Reduction (vph)	44	0	0	0	0	23
Lane Group Flow (vph)	112	0	49	263	175	16
Turn Type	NA		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Actuated Green, G (s)	19.0		18.0	18.0	18.0	18.0
Effective Green, g (s)	19.0		18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.42		0.40	0.40	0.40	0.40
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	716		482	745	745	633
v/s Ratio Prot	c0.07			c0.14	0.09	
v/s Ratio Perm			0.04			0.01
v/c Ratio	0.16		0.10	0.35	0.23	0.02
Uniform Delay, d1	8.0		8.4	9.4	8.9	8.2
Progression Factor	1.00		1.00	1.00	0.65	0.68
Incremental Delay, d2	0.5		0.4	1.3	0.7	0.1
Delay (s)	8.5		8.9	10.7	6.5	5.6
Level of Service	A		A	B	A	A
Approach Delay (s)	8.5			10.4	6.3	
Approach LOS	A			B	A	

Intersection Summary

HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	31.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

27: Oak Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔						↕↔			↕	
Volume (vph)	207	854	118	0	0	0	0	395	73	4	88	0
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	
Lane Util. Factor		0.91						0.95			1.00	
Frt		0.98						0.98			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4965						3456			1859	
Flt Permitted		0.99						1.00			0.98	
Satd. Flow (perm)		4965						3456			1824	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	207	854	118	0	0	0	0	395	73	4	88	0
RTOR Reduction (vph)	0	30	0	0	0	0	0	34	0	0	0	0
Lane Group Flow (vph)	0	1149	0	0	0	0	0	434	0	0	92	0
Turn Type	Split	NA						NA		Perm	NA	
Protected Phases	4	4						2			6	
Permitted Phases										6		
Actuated Green, G (s)		22.0						15.0			15.0	
Effective Green, g (s)		22.0						15.0			15.0	
Actuated g/C Ratio		0.49						0.33			0.33	
Clearance Time (s)		4.0						4.0			4.0	
Lane Grp Cap (vph)		2427						1152			608	
v/s Ratio Prot		c0.23						c0.13				
v/s Ratio Perm											0.05	
v/c Ratio		0.47						0.38			0.15	
Uniform Delay, d1		7.6						11.4			10.5	
Progression Factor		1.00						1.31			1.19	
Incremental Delay, d2		0.7						0.9			0.5	
Delay (s)		8.3						15.9			13.1	
Level of Service		A						B			B	
Approach Delay (s)		8.3			0.0			15.9			13.1	
Approach LOS		A			A			B			B	

Intersection Summary

HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: Oak Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔	↗		↔				
Volume (vph)	0	0	0	64	80	478	134	481	0	0	0	0
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				
Lane Util. Factor					0.91	0.91		0.95				
Frt					0.91	0.85		1.00				
Flt Protected					0.99	1.00		0.99				
Satd. Flow (prot)					3047	1441		3501				
Flt Permitted					0.99	1.00		0.99				
Satd. Flow (perm)					3047	1441		3501				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	64	80	478	134	481	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	84	84	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	299	155	0	615	0	0	0	0
Turn Type				Split	NA	Perm	Split	NA				
Protected Phases				8	8		2	2				
Permitted Phases						8						
Actuated Green, G (s)					22.0	22.0		15.0				
Effective Green, g (s)					22.0	22.0		15.0				
Actuated g/C Ratio					0.49	0.49		0.33				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					1489	704		1167				
v/s Ratio Prot					0.10			c0.18				
v/s Ratio Perm						c0.11						
v/c Ratio					0.20	0.22		0.53				
Uniform Delay, d1					6.5	6.6		12.1				
Progression Factor					1.00	1.00		0.81				
Incremental Delay, d2					0.3	0.7		1.6				
Delay (s)					6.8	7.3		11.4				
Level of Service					A	A		B				
Approach Delay (s)		0.0			7.0			11.4			0.0	
Approach LOS		A			A			B			A	

Intersection Summary

HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: Oak Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		←↑↑↑						↑↑↑				
Volume (vph)	118	758	0	0	0	0	0	876	139	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.86						0.91				
Frt		1.00						0.98				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6365						4981				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6365						4981				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	118	758	0	0	0	0	0	876	139	0	0	0
RTOR Reduction (vph)	0	34	0	0	0	0	0	48	0	0	0	0
Lane Group Flow (vph)	0	842	0	0	0	0	0	967	0	0	0	0
Turn Type	Perm	NA						NA				
Protected Phases		4						2				
Permitted Phases	4											
Actuated Green, G (s)		19.0						18.0				
Effective Green, g (s)		19.0						18.0				
Actuated g/C Ratio		0.42						0.40				
Clearance Time (s)		4.0						4.0				
Lane Grp Cap (vph)		2687						1992				
v/s Ratio Prot								c0.19				
v/s Ratio Perm		0.13										
v/c Ratio		0.31						0.49				
Uniform Delay, d1		8.7						10.1				
Progression Factor		1.03						0.66				
Incremental Delay, d2		0.3						0.8				
Delay (s)		9.2						7.4				
Level of Service		A						A				
Approach Delay (s)		9.2				0.0		7.4				0.0
Approach LOS		A				A		A				A


















Intersection Summary

HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 30: 5th Avenue & 1st Street / Embarcadero

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	44	312	5	1	195	309	9	1	3	340	2	46
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	44	312	5	1	195	309	9	1	3	340	2	46
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1							
Volume Total (vph)	361	196	309	13	388							
Volume Left (vph)	44	1	0	9	340							
Volume Right (vph)	5	0	309	3	46							
Hadj (s)	0.05	0.04	-0.67	0.03	0.14							
Departure Headway (s)	6.2	6.5	5.8	7.4	6.3							
Degree Utilization, x	0.62	0.36	0.50	0.03	0.68							
Capacity (veh/h)	557	528	594	389	388							
Control Delay (s)	18.8	11.9	13.3	10.6	21.4							
Approach Delay (s)	18.8	12.8		10.6	21.4							
Approach LOS	C	B		B	C							
Intersection Summary												
Delay			17.1									
Level of Service			C									
Intersection Capacity Utilization			66.7%		ICU Level of Service							C
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

31: Webster Street & Atlantic Avenue

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	179	160	44	57	200	39	31	487	45	87	747	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3453		1770	3494		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3453		1770	3494		1770	3539	1583
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)	195	174	48	62	217	42	34	529	49	95	812	175
RTOR Reduction (vph)	0	0	37	0	17	0	0	6	0	0	0	152
Lane Group Flow (vph)	195	174	11	62	242	0	34	572	0	95	812	23
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	Over
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									
Actuated Green, G (s)	9.3	16.3	16.3	5.0	12.0		2.9	26.1		7.4	30.6	9.3
Effective Green, g (s)	9.3	16.3	16.3	5.0	12.0		2.9	26.1		7.4	30.6	9.3
Actuated g/C Ratio	0.13	0.23	0.23	0.07	0.17		0.04	0.37		0.10	0.43	0.13
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	450	814	364	125	585		72	1288		185	1529	207
v/s Ratio Prot	c0.06	0.05		0.04	c0.07		0.02	0.16		c0.05	c0.23	0.01
v/s Ratio Perm			0.01									
v/c Ratio	0.43	0.21	0.03	0.50	0.41		0.47	0.44		0.51	0.53	0.11
Uniform Delay, d1	28.3	22.1	21.1	31.7	26.3		33.2	16.9		30.0	14.8	27.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.7	0.1	0.0	3.1	0.5		4.8	1.1		2.4	1.3	0.2
Delay (s)	29.0	22.2	21.2	34.8	26.7		38.0	18.0		32.4	16.1	27.3
Level of Service	C	C	C	C	C		D	B		C	B	C
Approach Delay (s)		25.3			28.3			19.1			19.4	
Approach LOS		C			C			B			B	

Intersection Summary

HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	70.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

32: Constitution Way & Atlantic Avenue

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	101	141	99	50	134	95	84	510	38	125	1092	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.94		1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3320		1770	3320		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3320		1770	3320		3433	3539	1583	3433	3539	1583
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)	110	153	108	54	146	103	91	554	41	136	1187	125
RTOR Reduction (vph)	0	87	0	0	88	0	0	0	25	0	0	62
Lane Group Flow (vph)	110	174	0	54	161	0	91	554	16	136	1187	63
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	7.6	12.4		4.6	9.4		5.6	25.5	25.5	6.3	26.2	26.2
Effective Green, g (s)	7.6	12.4		4.6	9.4		5.6	25.5	25.5	6.3	26.2	26.2
Actuated g/C Ratio	0.12	0.19		0.07	0.15		0.09	0.39	0.39	0.10	0.40	0.40
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	207	635		125	481		296	1392	622	333	1430	640
v/s Ratio Prot	c0.06	c0.05		0.03	0.05		0.03	0.16		c0.04	c0.34	
v/s Ratio Perm									0.01			0.04
v/c Ratio	0.53	0.27		0.43	0.33		0.31	0.40	0.03	0.41	0.83	0.10
Uniform Delay, d1	26.9	22.4		28.8	24.9		27.8	14.1	12.0	27.5	17.3	12.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	0.2		2.4	0.4		0.6	0.9	0.1	0.8	5.7	0.3
Delay (s)	29.5	22.6		31.2	25.3		28.4	15.0	12.1	28.3	23.0	12.3
Level of Service	C	C		C	C		C	B	B	C	C	B
Approach Delay (s)		24.6			26.4			16.6			22.6	
Approach LOS		C			C			B			C	

Intersection Summary

HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	64.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			


















Level Of Service Computation Report

Existing plus Project (Maximum Residential Scenario) Conditions
AM Peak Hour

HCM Unsignalized Intersection Capacity Analysis

1: Market Street & 3rd Street

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	24	74	25	15	201	56	45	32	7	32	77	93
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	24	74	25	15	201	56	45	32	7	32	77	93
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	257			99			396	422	50	367	406	128
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	257			99			396	422	50	367	406	128
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			89	94	99	94	85	90
cM capacity (veh/h)	1305			1492			418	507	1008	522	518	898
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2	SB 3				
Volume Total	61	62	116	156	84	32	51	119				
Volume Left	24	0	15	0	45	32	0	0				
Volume Right	0	25	0	56	7	0	0	93				
cSH	1305	1700	1492	1700	473	522	518	775				
Volume to Capacity	0.02	0.04	0.01	0.09	0.18	0.06	0.10	0.15				
Queue Length 95th (ft)	1	0	1	0	16	5	8	13				
Control Delay (s)	3.2	0.0	1.0	0.0	14.3	12.3	12.7	10.5				
Lane LOS	A		A		B	B	B	B				
Approach Delay (s)	1.6		0.4		14.3	11.3						
Approach LOS					B	B						
Intersection Summary												
Average Delay			5.6									
Intersection Capacity Utilization			34.4%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Market Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑↑		↘	↑↑↑	
Volume (vph)	10	549	34	0	0	0	0	102	21	52	187	0
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		0.91						0.95		1.00	0.91	
Frt		0.99						0.97		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		5037						3449		1770	5085	
Flt Permitted		1.00						1.00		0.67	1.00	
Satd. Flow (perm)		5037						3449		1256	5085	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	549	34	0	0	0	0	102	21	52	187	0
RTOR Reduction (vph)	0	9	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	0	584	0	0	0	0	0	109	0	52	187	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		43.0						24.0		24.0	24.0	
Effective Green, g (s)		43.0						24.0		24.0	24.0	
Actuated g/C Ratio		0.57						0.32		0.32	0.32	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		2887						1103		401	1627	
v/s Ratio Prot								0.03			0.04	
v/s Ratio Perm		0.12								c0.04		
v/c Ratio		0.20						0.10		0.13	0.11	
Uniform Delay, d1		7.7						17.9		18.1	18.0	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		0.2						0.2		0.7	0.1	
Delay (s)		7.9						18.1		18.8	18.1	
Level of Service		A						B		B	B	
Approach Delay (s)		7.9			0.0			18.1			18.3	
Approach LOS		A			A			B			B	

Intersection Summary

HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.18		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	28.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations					↑↑	↑		↓	↑↑			↑↑↓
Volume (vph)	0	0	0	101	270	260	9	25	90	0	0	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0	4.0			4.0
Lane Util. Factor					0.95	1.00		1.00	0.95			0.91
Frt					1.00	0.85		1.00	1.00			0.96
Flt Protected					0.99	1.00		0.95	1.00			1.00
Satd. Flow (prot)					3492	1583		1770	3539			4895
Flt Permitted					0.99	1.00		0.63	1.00			1.00
Satd. Flow (perm)					3492	1583		1180	3539			4895
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	101	270	260	9	25	90	0	0	135
RTOR Reduction (vph)	0	0	0	0	0	99	0	0	0	0	0	32
Lane Group Flow (vph)	0	0	0	0	371	161	0	34	90	0	0	149
Turn Type				Perm	NA	Perm	Perm	Perm	NA			NA
Protected Phases					8				2			6
Permitted Phases				8		8	2	2				
Actuated Green, G (s)					62.0	62.0		30.0	30.0			30.0
Effective Green, g (s)					62.0	62.0		30.0	30.0			30.0
Actuated g/C Ratio					0.62	0.62		0.30	0.30			0.30
Clearance Time (s)					4.0	4.0		4.0	4.0			4.0
Lane Grp Cap (vph)					2165	981		354	1061			1468
v/s Ratio Prot									0.03			c0.03
v/s Ratio Perm					0.11	0.10		0.03				
v/c Ratio					0.17	0.16		0.10	0.08			0.10
Uniform Delay, d1					8.1	8.0		25.2	25.1			25.3
Progression Factor					1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2					0.2	0.4		0.5	0.2			0.1
Delay (s)					8.3	8.4		25.8	25.3			25.4
Level of Service					A	A		C	C			C
Approach Delay (s)		0.0			8.3				25.4			25.4
Approach LOS		A			A				C			C

Intersection Summary

HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.15		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	28.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

7/24/2013



Movement	SBR
Line Configurations	
Volume (vph)	45
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Fr	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	45
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

4: Market Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↖↗		↖	↗↖↗		↖	↗↖		↖	↗↖↗	
Volume (vph)	42	268	34	42	581	36	158	151	17	40	81	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.91	
Frt	1.00	0.98		1.00	0.99		1.00	0.98		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4999		1770	5041		1770	3485		1770	4719	
Flt Permitted	0.33	1.00		0.56	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	609	4999		1044	5041		1770	3485		1770	4719	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	42	268	34	42	581	36	158	151	17	40	81	75
RTOR Reduction (vph)	0	20	0	0	9	0	0	9	0	0	66	0
Lane Group Flow (vph)	42	282	0	42	608	0	158	159	0	40	90	0
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4			8								
Actuated Green, G (s)	22.0	22.0		22.0	22.0		36.0	36.0		10.0	10.0	
Effective Green, g (s)	22.0	22.0		22.0	22.0		36.0	36.0		10.0	10.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.45	0.45		0.12	0.12	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	167	1374		287	1386		796	1568		221	589	
v/s Ratio Prot		0.06			c0.12		c0.09	0.05		c0.02	0.02	
v/s Ratio Perm	0.07			0.04								
v/c Ratio	0.25	0.21		0.15	0.44		0.20	0.10		0.18	0.15	
Uniform Delay, d1	22.6	22.3		21.9	23.9		13.3	12.7		31.3	31.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.6	0.3		1.1	1.0		0.6	0.1		1.8	0.6	
Delay (s)	26.2	22.6		23.0	24.9		13.8	12.8		33.1	31.8	
Level of Service	C	C		C	C		B	B		C	C	
Approach Delay (s)		23.1			24.8			13.3			32.1	
Approach LOS		C			C			B			C	

Intersection Summary

HCM 2000 Control Delay	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: Castro Street & 11th Street

7/24/2013



Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Volume (vph)	139	772	412	27	79	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	0.81	0.81	0.91		0.97	
Frt	1.00	1.00	0.99		0.94	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1433	6030	5038		3288	
Flt Permitted	0.95	1.00	1.00		0.97	
Satd. Flow (perm)	1433	6030	5038		3288	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	139	772	412	27	79	59
RTOR Reduction (vph)	90	53	9	0	0	0
Lane Group Flow (vph)	35	733	430	0	138	0
Turn Type	Split	NA	NA		NA	
Protected Phases	4	4	2		8	
Permitted Phases						
Actuated Green, G (s)	21.0	21.0	21.0		21.0	
Effective Green, g (s)	21.0	21.0	21.0		21.0	
Actuated g/C Ratio	0.28	0.28	0.28		0.28	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Lane Grp Cap (vph)	401	1688	1410		920	
v/s Ratio Prot	0.02	c0.12	c0.09		c0.04	
v/s Ratio Perm						
v/c Ratio	0.09	0.43	0.30		0.15	
Uniform Delay, d1	19.9	22.1	21.3		20.3	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.8	0.6		0.3	
Delay (s)	20.4	22.9	21.8		20.6	
Level of Service	C	C	C		C	
Approach Delay (s)		22.6	21.8		20.6	
Approach LOS		C	C		C	

Intersection Summary

HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	33.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

6: Castro Street & 12th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑	↑	↑↑↑↑				
Volume (vph)	0	0	0	0	177	214	37	490	0	0	0	0
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					0.91	0.91	0.81	0.81				
Frt					0.95	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	1.00				
Satd. Flow (prot)					3216	1441	1433	6033				
Flt Permitted					1.00	1.00	0.95	1.00				
Satd. Flow (perm)					3216	1441	1433	6033				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	177	214	37	490	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	61	81	15	7	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	208	41	18	487	0	0	0	0
Turn Type					NA	Perm	Perm	NA				
Protected Phases					8			2				
Permitted Phases						8	2					
Actuated Green, G (s)					25.0	25.0	42.0	42.0				
Effective Green, g (s)					25.0	25.0	42.0	42.0				
Actuated g/C Ratio					0.33	0.33	0.56	0.56				
Clearance Time (s)					4.0	4.0	4.0	4.0				
Lane Grp Cap (vph)					1072	480	802	3378				
v/s Ratio Prot					c0.06							
v/s Ratio Perm						0.03	0.01	0.08				
v/c Ratio					0.19	0.08	0.02	0.14				
Uniform Delay, d1					17.8	17.2	7.4	7.9				
Progression Factor					1.00	1.00	0.30	0.44				
Incremental Delay, d2					0.4	0.3	0.1	0.1				
Delay (s)					18.2	17.5	2.2	3.6				
Level of Service					B	B	A	A				
Approach Delay (s)		0.0			18.0			3.5			0.0	
Approach LOS		A			B			A			A	

Intersection Summary

HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.16		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	22.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 7: Broadway & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	8	70	51	7	125	99	13	54	0	73	69	13
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	8	70	51	7	125	99	13	54	0	73	69	13

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	129	231	40	27	108	48
Volume Left (vph)	8	7	13	0	73	0
Volume Right (vph)	51	99	0	0	0	13
Hadj (s)	-0.19	-0.22	0.20	0.03	0.37	-0.16
Departure Headway (s)	4.6	4.4	5.7	5.6	5.8	5.3
Degree Utilization, x	0.16	0.28	0.06	0.04	0.17	0.07
Capacity (veh/h)	734	770	580	596	581	638
Control Delay (s)	8.5	9.2	7.9	7.6	8.8	7.5
Approach Delay (s)	8.5	9.2	7.8		8.4	
Approach LOS	A	A	A		A	

Intersection Summary	
Delay	8.7
Level of Service	A
Intersection Capacity Utilization	32.1%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

8: Broadway & 2nd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↕			↕	
Volume (veh/h)	9	4	4	9	29	34	4	150	8	32	175	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	9	4	4	9	29	34	4	150	8	32	175	15
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											288	
pX, platoon unblocked												
vC, conflicting volume	378	412	95	320	416	79	190			158		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	378	412	95	320	416	79	190			158		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	99	100	98	94	96	100			98		
cM capacity (veh/h)	502	515	943	592	512	965	1381			1419		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	17	72	79	83	120	102
Volume Left	9	9	4	0	32	0
Volume Right	4	34	0	8	0	15
cSH	568	673	1381	1700	1419	1700
Volume to Capacity	0.03	0.11	0.00	0.05	0.02	0.06
Queue Length 95th (ft)	2	9	0	0	2	0
Control Delay (s)	11.5	11.0	0.4	0.0	2.2	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	11.5	11.0	0.2		1.2	
Approach LOS	B	B				

Intersection Summary		
Average Delay		2.7
Intersection Capacity Utilization	24.9%	ICU Level of Service
Analysis Period (min)		15
		A

HCM Signalized Intersection Capacity Analysis

9: Broadway & 3rd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	34	38	21	4	45	46	22	153	9	40	189	65
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			0.95			0.95	
Frt		0.97			0.93			0.99			0.97	
Flt Protected		0.98			1.00			0.99			0.99	
Satd. Flow (prot)		1774			1737			3492			3399	
Flt Permitted		0.89			0.99			0.91			0.91	
Satd. Flow (perm)		1616			1728			3204			3099	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	34	38	21	4	45	46	22	153	9	40	189	65
RTOR Reduction (vph)	0	14	0	0	31	0	0	4	0	0	31	0
Lane Group Flow (vph)	0	79	0	0	64	0	0	180	0	0	263	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		18.0			18.0			29.0			29.0	
Effective Green, g (s)		18.0			18.0			29.0			29.0	
Actuated g/C Ratio		0.33			0.33			0.53			0.53	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		528			565			1689			1634	
v/s Ratio Prot												
v/s Ratio Perm		c0.05			0.04			0.06			c0.08	
v/c Ratio		0.15			0.11			0.11			0.16	
Uniform Delay, d1		13.1			12.9			6.5			6.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.6			0.4			0.1			0.2	
Delay (s)		13.7			13.3			6.6			6.9	
Level of Service		B			B			A			A	
Approach Delay (s)		13.7			13.3			6.6			6.9	
Approach LOS		B			B			A			A	

Intersection Summary

HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.16		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

10: Broadway & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	705	136	75	0	0	0	0	149	250	422	308	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.91	0.91	1.00					0.95	1.00	0.97	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3272	1583					3539	1583	3433	1863	
Flt Permitted	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1610	3272	1583					3539	1583	3433	1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	705	136	75	0	0	0	0	149	250	422	308	0
RTOR Reduction (vph)	0	0	54	0	0	0	0	0	180	0	0	0
Lane Group Flow (vph)	352	489	21	0	0	0	0	149	70	422	308	0
Turn Type	Split	NA	Prot					NA	Prot	Split	NA	
Protected Phases	4	4	4					2	2	6	6	
Permitted Phases												
Actuated Green, G (s)	21.0	21.0	21.0					21.0	21.0	21.0	21.0	
Effective Green, g (s)	21.0	21.0	21.0					21.0	21.0	21.0	21.0	
Actuated g/C Ratio	0.28	0.28	0.28					0.28	0.28	0.28	0.28	
Clearance Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	450	916	443					990	443	961	521	
v/s Ratio Prot	c0.22	0.15	0.01					0.04	c0.04	0.12	c0.17	
v/s Ratio Perm												
v/c Ratio	0.78	0.53	0.05					0.15	0.16	0.44	0.59	
Uniform Delay, d1	24.9	22.9	19.7					20.3	20.3	22.2	23.3	
Progression Factor	0.87	0.86	0.76					1.00	1.00	1.16	1.15	
Incremental Delay, d2	12.7	2.2	0.2					0.3	0.8	1.3	4.4	
Delay (s)	34.4	21.8	15.1					20.6	21.1	26.9	31.1	
Level of Service	C	C	B					C	C	C	C	
Approach Delay (s)		26.1			0.0			20.9			28.7	
Approach LOS		C			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			26.0			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			75.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			69.3%			ICU Level of Service			C			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

11: Broadway & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕	↗	↙	↕			↕	↗
Volume (vph)	0	0	0	406	198	661	24	156	0	0	355	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Util. Factor				1.00	0.91	0.91	1.00	0.95			0.91	
Frt				1.00	0.91	0.85	1.00	1.00			0.98	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3072	1441	1770	3539			5001	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3072	1441	1770	3539			5001	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	406	198	661	24	156	0	0	355	44
RTOR Reduction (vph)	0	0	0	0	225	224	0	0	0	0	21	0
Lane Group Flow (vph)	0	0	0	406	304	106	24	156	0	0	378	0
Turn Type				Split	NA	Prot	Prot	NA			NA	
Protected Phases				8	8	8	5	2			6	
Permitted Phases												
Actuated Green, G (s)				24.0	24.0	24.0	9.0	43.0			30.0	
Effective Green, g (s)				24.0	24.0	24.0	9.0	43.0			30.0	
Actuated g/C Ratio				0.32	0.32	0.32	0.12	0.57			0.40	
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)				566	983	461	212	2029			2000	
v/s Ratio Prot				c0.23	0.10	0.07	c0.01	0.04			c0.08	
v/s Ratio Perm												
v/c Ratio				0.72	0.31	0.23	0.11	0.08			0.19	
Uniform Delay, d1				22.5	19.2	18.7	29.4	7.1			14.6	
Progression Factor				1.00	1.00	1.00	0.63	0.15			1.00	
Incremental Delay, d2				7.6	0.8	1.2	0.9	0.1			0.2	
Delay (s)				30.1	20.1	19.9	19.6	1.2			14.8	
Level of Service				C	C	B	B	A			B	
Approach Delay (s)		0.0			23.2			3.6			14.8	
Approach LOS		A			C			A			B	

Intersection Summary

HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

12: Broadway & 11th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		←↑↑↑						↑↑		↘	↑↑	
Volume (vph)	70	525	109	0	0	0	0	424	83	82	428	0
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		0.86						0.95		1.00	0.95	
Frt		0.98						0.98		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		6228						3452		1770	3539	
Flt Permitted		1.00						1.00		0.33	1.00	
Satd. Flow (perm)		6228						3452		616	3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	70	525	109	0	0	0	0	424	83	82	428	0
RTOR Reduction (vph)	0	55	0	0	0	0	0	27	0	0	0	0
Lane Group Flow (vph)	0	649		0	0	0	0	480		82	428	
Turn Type	Split	NA						NA		pm+pt	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases										6		
Actuated Green, G (s)		20.0						20.0		32.0	32.0	
Effective Green, g (s)		20.0						20.0		32.0	32.0	
Actuated g/C Ratio		0.33						0.33		0.53	0.53	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		2076						1150		482	1887	
v/s Ratio Prot		c0.10						c0.14		0.02	c0.12	
v/s Ratio Perm										0.07		
v/c Ratio		0.31						0.42		0.17	0.23	
Uniform Delay, d1		14.9						15.5		7.3	7.4	
Progression Factor		1.00						1.00		0.85	0.75	
Incremental Delay, d2		0.4						1.1		0.7	0.3	
Delay (s)		15.3						16.6		6.9	5.9	
Level of Service		B						B		A	A	
Approach Delay (s)		15.3			0.0			16.6			6.0	
Approach LOS		B			A			B			A	

Intersection Summary

HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	39.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: Broadway & 12th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←↑↑↑		↑	↑↑			↑↑↑	
Volume (vph)	0	0	0	91	296	63	97	374	0	0	403	35
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					0.91		1.00	0.95			0.91	
Flt					0.98		1.00	1.00			0.99	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					4929		1770	3539			5024	
Flt Permitted					0.99		0.41	1.00			1.00	
Satd. Flow (perm)					4929		758	3539			5024	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	91	296	63	97	374	0	0	403	35
RTOR Reduction (vph)	0	0	0	0	37	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	0	0	0	413	0	97	374	0	0	421	0
Turn Type				Split	NA		pm+pt	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases							2					
Actuated Green, G (s)					20.0		32.0	32.0			20.0	
Effective Green, g (s)					20.0		32.0	32.0			20.0	
Actuated g/C Ratio					0.33		0.53	0.53			0.33	
Clearance Time (s)					4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)					1643		539	1887			1674	
v/s Ratio Prot					c0.08		0.02	c0.11			c0.08	
v/s Ratio Perm							0.07					
v/c Ratio					0.25		0.18	0.20			0.25	
Uniform Delay, d1					14.6		7.1	7.3			14.6	
Progression Factor					1.00		0.61	0.59			1.83	
Incremental Delay, d2					0.4		0.7	0.2			0.3	
Delay (s)					14.9		5.0	4.5			26.9	
Level of Service					B		A	A			C	
Approach Delay (s)		0.0			14.9			4.6			26.9	
Approach LOS		A			B			A			C	

Intersection Summary

HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	39.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: Broadway & 14th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↑			↑↑	
Volume (vph)	3	273	83	1	268	91	0	360	29	0	497	73
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			0.95			0.95			0.95	
Frt		0.97			0.96			0.99			0.98	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		3415			3405			3500			3471	
Flt Permitted		0.95			0.95			1.00			1.00	
Satd. Flow (perm)		3256			3250			3500			3471	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	273	83	1	268	91	0	360	29	0	497	73
RTOR Reduction (vph)	0	46	0	0	50	0	0	10	0	0	19	0
Lane Group Flow (vph)	0	313	0	0	310	0	0	379	0	0	551	0
Turn Type	Perm	NA		Perm	NA			NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8								
Actuated Green, G (s)		27.0			27.0			25.0			25.0	
Effective Green, g (s)		27.0			27.0			25.0			25.0	
Actuated g/C Ratio		0.45			0.45			0.42			0.42	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		1465			1462			1458			1446	
v/s Ratio Prot								0.11			c0.16	
v/s Ratio Perm		c0.10			0.10							
v/c Ratio		0.21			0.21			0.26			0.38	
Uniform Delay, d1		10.0			10.0			11.4			12.1	
Progression Factor		1.00			1.00			1.91			1.00	
Incremental Delay, d2		0.3			0.3			0.4			0.8	
Delay (s)		10.4			10.4			22.3			12.9	
Level of Service		B			B			C			B	
Approach Delay (s)		10.4			10.4			22.3			12.9	
Approach LOS		B			B			C			B	

Intersection Summary

















HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	35.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

15: Franklin Street & 2nd Street

7/24/2013

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (veh/h)	0	26	15	12	52	0	0	0	0	12	13	10	
Sign Control		Free			Free			Stop			Stop		
Grade		0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	0	26	15	12	52	0	0	0	0	12	13	10	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None					None							
Median storage (veh)													
Upstream signal (ft)	384												
pX, platoon unblocked													
vC, conflicting volume	52			41				126	110	34	110	117	52
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	52			41				126	110	34	110	117	52
tC, single (s)	4.1			4.1				7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)													
tF (s)	2.2			2.2				3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99				100	100	100	99	98	99
cM capacity (veh/h)	1554			1568				824	775	1040	864	767	1016
Direction, Lane #	EB 1	WB 1	SB 1	SB 2									
Volume Total	41	64	18	16									
Volume Left	0	12	12	0									
Volume Right	15	0	0	10									
cSH	1700	1568	827	901									
Volume to Capacity	0.02	0.01	0.02	0.02									
Queue Length 95th (ft)	0	1	2	1									
Control Delay (s)	0.0	1.4	9.5	9.1									
Lane LOS		A	A	A									
Approach Delay (s)	0.0	1.4	9.3										
Approach LOS			A										
Intersection Summary													
Average Delay			3.0										
Intersection Capacity Utilization			20.1%	ICU Level of Service	A								
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis

16: Franklin Street & 3rd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔	
Volume (veh/h)	0	28	13	15	35	0	0	0	0	6	3	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	28	13	15	35	0	0	0	0	6	3	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		367			383							
pX, platoon unblocked												
vC, conflicting volume	35			41			103	100	34	100	106	35
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	35			41			103	100	34	100	106	35
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	99	100	100
cM capacity (veh/h)	1576			1568			867	783	1039	876	777	1038
Direction, Lane #												
	EB 1	WB 1	SB 1	SB 2								
Volume Total	41	50	8	4								
Volume Left	0	15	6	0								
Volume Right	13	0	0	2								
cSH	1700	1568	854	907								
Volume to Capacity	0.02	0.01	0.01	0.00								
Queue Length 95th (ft)	0	1	1	0								
Control Delay (s)	0.0	2.2	9.3	9.0								
Lane LOS		A	A	A								
Approach Delay (s)	0.0	2.2	9.2									
Approach LOS			A									
Intersection Summary												
Average Delay			2.1									
Intersection Capacity Utilization			19.3%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 17: Webster Street & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	62	124	168	70	64	100
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	62	124	168	70	64	100
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	385					
pX, platoon unblocked						
vC, conflicting volume	0		256	124	248	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		256	124	248	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	96		70	91	90	91
cM capacity (veh/h)	1623		567	737	630	1085
Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2	
Volume Total	62	124	238	64	100	
Volume Left	62	0	168	0	0	
Volume Right	0	124	0	0	100	
cSH	1623	1700	608	630	1085	
Volume to Capacity	0.04	0.07	0.39	0.10	0.09	
Queue Length 95th (ft)	3	0	46	8	8	
Control Delay (s)	7.3	0.0	14.7	11.4	8.7	
Lane LOS	A		B	B	A	
Approach Delay (s)	2.4		14.7	9.7		
Approach LOS			B	A		
Intersection Summary						
Average Delay			9.4			
Intersection Capacity Utilization			29.8%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

18: Harrison Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑↑↑	↑↑			
Volume (vph)	51	214	0	0	0	0	0	533	1197	0	0	0
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			
Lane Util. Factor		0.91						0.91	0.88			
Frt		1.00						1.00	0.85			
Flt Protected		0.99						1.00	1.00			
Satd. Flow (prot)		5037						5085	2787			
Flt Permitted		0.99						1.00	1.00			
Satd. Flow (perm)		5037						5085	2787			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	51	214	0	0	0	0	0	533	1197	0	0	0
RTOR Reduction (vph)	0	33	0	0	0	0	0	0	473	0	0	0
Lane Group Flow (vph)	0	232	0	0	0	0	0	533	724	0	0	0
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Actuated Green, G (s)		16.0						21.0	21.0			
Effective Green, g (s)		16.0						21.0	21.0			
Actuated g/C Ratio		0.36						0.47	0.47			
Clearance Time (s)		4.0						4.0	4.0			
Lane Grp Cap (vph)		1790						2373	1300			
v/s Ratio Prot								0.10				
v/s Ratio Perm		0.05							c0.26			
v/c Ratio		0.13						0.22	0.56			
Uniform Delay, d1		9.8						7.1	8.6			
Progression Factor		1.00						1.00	1.00			
Incremental Delay, d2		0.1						0.2	1.7			
Delay (s)		9.9						7.4	10.4			
Level of Service		A						A	B			
Approach Delay (s)		9.9			0.0			9.5			0.0	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

19: Jackson Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔						↔		↔↕	↕	
Volume (vph)	260	366	418	0	0	0	0	217	33	66	89	0
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		0.91						1.00		1.00	1.00	
Frt		0.94						0.98		1.00	1.00	
Flt Protected		0.99						1.00		0.95	1.00	
Satd. Flow (prot)		4721						1830		1770	1863	
Flt Permitted		0.99						1.00		0.60	1.00	
Satd. Flow (perm)		4721						1830		1125	1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	260	366	418	0	0	0	0	217	33	66	89	0
RTOR Reduction (vph)	0	267	0	0	0	0	0	12	0	0	0	0
Lane Group Flow (vph)	0	777	0	0	0	0	0	238	0	66	89	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		13.0						24.0		24.0	24.0	
Effective Green, g (s)		13.0						24.0		24.0	24.0	
Actuated g/C Ratio		0.29						0.53		0.53	0.53	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		1363						976		600	993	
v/s Ratio Prot								c0.13			0.05	
v/s Ratio Perm		0.16								0.06		
v/c Ratio		0.57						0.24		0.11	0.09	
Uniform Delay, d1		13.6						5.6		5.2	5.1	
Progression Factor		1.00						1.00		0.33	0.34	
Incremental Delay, d2		1.7						0.6		0.4	0.2	
Delay (s)		15.4						6.2		2.1	1.9	
Level of Service		B						A		A	A	
Approach Delay (s)		15.4			0.0			6.2			2.0	
Approach LOS		B			A			A			A	

Intersection Summary

HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

20: Jackson Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↗	↗	↖	↗			↗	↖
Volume (vph)	0	0	0	2	279	50	279	238	0	0	178	1262
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1770	1863	1583	1770	1863			1863	1583
Flt Permitted				0.95	1.00	1.00	0.64	1.00			1.00	1.00
Satd. Flow (perm)				1770	1863	1583	1201	1863			1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	2	279	50	279	238	0	0	178	1262
RTOR Reduction (vph)	0	0	0	0	0	38	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	2	279	12	279	238	0	0	178	1262
Turn Type				Split	NA	Perm	Perm	NA			NA	Free
Protected Phases				8	8			2			6	
Permitted Phases						8	2					Free
Actuated Green, G (s)				11.0	11.0	11.0	26.0	26.0			26.0	45.0
Effective Green, g (s)				11.0	11.0	11.0	26.0	26.0			26.0	45.0
Actuated g/C Ratio				0.24	0.24	0.24	0.58	0.58			0.58	1.00
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)				432	455	386	693	1076			1076	1583
v/s Ratio Prot				0.00	0.15			0.13			0.10	
v/s Ratio Perm						0.01	0.23					c0.80
v/c Ratio				0.00	0.61	0.03	0.40	0.22			0.17	0.80
Uniform Delay, d1				12.9	15.1	12.9	5.2	4.6			4.4	0.0
Progression Factor				0.72	0.71	0.71	1.02	1.00			1.52	1.00
Incremental Delay, d2				0.0	6.0	0.1	1.6	0.4			0.3	3.8
Delay (s)				9.3	16.7	9.3	6.9	5.0			7.1	3.8
Level of Service				A	B	A	A	A			A	A
Approach Delay (s)		0.0			15.5			6.1			4.2	
Approach LOS		A			B			A			A	

Intersection Summary

HCM 2000 Control Delay	6.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

21: Jackson Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔	↔					↔			↔↕	
Volume (vph)	32	442	1113	0	0	0	0	265	67	20	255	0
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		0.86	0.86					1.00			1.00	
Frt		0.92	0.85					0.97			1.00	
Flt Protected		1.00	1.00					1.00			1.00	
Satd. Flow (prot)		4410	1362					1812			1856	
Flt Permitted		1.00	1.00					1.00			0.96	
Satd. Flow (perm)		4410	1362					1812			1797	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	32	442	1113	0	0	0	0	265	67	20	255	0
RTOR Reduction (vph)	0	230	230	0	0	0	0	20	0	0	0	0
Lane Group Flow (vph)	0	801	326	0	0	0	0	312	0	0	275	0
Turn Type	Split	NA	Perm					NA		Perm	NA	
Protected Phases	4	4						2			6	
Permitted Phases			4							6		
Actuated Green, G (s)		21.0	21.0					16.0			16.0	
Effective Green, g (s)		21.0	21.0					16.0			16.0	
Actuated g/C Ratio		0.47	0.47					0.36			0.36	
Clearance Time (s)		4.0	4.0					4.0			4.0	
Lane Grp Cap (vph)		2058	635					644			638	
v/s Ratio Prot		0.18						c0.17				
v/s Ratio Perm			c0.24								0.15	
v/c Ratio		0.39	0.51					0.48			0.43	
Uniform Delay, d1		7.8	8.4					11.3			11.0	
Progression Factor		1.00	1.00					0.64			1.00	
Incremental Delay, d2		0.6	2.9					2.6			2.1	
Delay (s)		8.4	11.4					9.8			13.2	
Level of Service		A	B					A			B	
Approach Delay (s)		9.4			0.0			9.8			13.2	
Approach LOS		A			A			A			B	

Intersection Summary

HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

22: Madison Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑								↘	↙↑	
Volume (vph)	0	416	17	0	0	0	0	0	0	548	127	0
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	
Lane Util. Factor		0.91								0.91	0.91	
Frt		0.99								1.00	1.00	
Flt Protected		1.00								0.95	0.97	
Satd. Flow (prot)		5055								1610	3278	
Flt Permitted		1.00								0.95	0.97	
Satd. Flow (perm)		5055								1610	3278	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	416	17	0	0	0	0	0	0	548	127	0
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	0	119	119	0
Lane Group Flow (vph)	0	424	0	0	0	0	0	0	0	155	282	0
Turn Type		NA								Perm	NA	
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0								22.0	22.0	
Effective Green, g (s)		16.0								22.0	22.0	
Actuated g/C Ratio		0.35								0.48	0.48	
Clearance Time (s)		4.0								4.0	4.0	
Lane Grp Cap (vph)		1758								770	1567	
v/s Ratio Prot		c0.08										
v/s Ratio Perm										c0.10	0.09	
v/c Ratio		0.24								0.20	0.18	
Uniform Delay, d1		10.7								6.9	6.8	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.3								0.6	0.3	
Delay (s)		11.0								7.5	7.1	
Level of Service		B								A	A	
Approach Delay (s)		11.0			0.0			0.0			7.3	
Approach LOS		B			A			A			A	

Intersection Summary

HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	46.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	28.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

23: Madison Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑						↑↑↑	
Volume (vph)	0	0	0	31	164	0	0	0	0	0	639	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0						4.0	
Lane Util. Factor					0.91						0.91	
Frt					1.00						0.96	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					5045						4897	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					5045						4897	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	31	164	0	0	0	0	0	639	210
RTOR Reduction (vph)	0	0	0	0	21	0	0	0	0	0	107	0
Lane Group Flow (vph)	0	0	0	0	174	0	0	0	0	0	742	0
Turn Type				Split	NA						NA	
Protected Phases				8	8						6	
Permitted Phases												
Actuated Green, G (s)					15.0						22.0	
Effective Green, g (s)					15.0						22.0	
Actuated g/C Ratio					0.33						0.49	
Clearance Time (s)					4.0						4.0	
Lane Grp Cap (vph)					1681						2394	
v/s Ratio Prot					c0.03						c0.15	
v/s Ratio Perm												
v/c Ratio					0.10						0.31	
Uniform Delay, d1					10.4						6.9	
Progression Factor					1.10						0.58	
Incremental Delay, d2					0.1						0.3	
Delay (s)					11.6						4.3	
Level of Service					B						A	
Approach Delay (s)		0.0			11.6			0.0			4.3	
Approach LOS		A			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			5.7		HCM 2000 Level of Service					A		
HCM 2000 Volume to Capacity ratio			0.23									
Actuated Cycle Length (s)			45.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			28.0%		ICU Level of Service				A			
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

24: Madison Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑									↑↑↑↑	
Volume (vph)	0	331	193	0	0	0	0	0	0	121	607	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									4.0	
Lane Util. Factor		0.86									0.91	
Frt		0.94									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		6054									5043	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		6054									5043	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	331	193	0	0	0	0	0	0	121	607	0
RTOR Reduction (vph)	0	124	0	0	0	0	0	0	0	0	65	0
Lane Group Flow (vph)	0	400	0	0	0	0	0	0	0	0	663	0
Turn Type		NA								Perm		NA
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0									21.0	
Effective Green, g (s)		16.0									21.0	
Actuated g/C Ratio		0.36									0.47	
Clearance Time (s)		4.0									4.0	
Lane Grp Cap (vph)		2152									2353	
v/s Ratio Prot		c0.07									0.13	
v/s Ratio Perm											0.28	
v/c Ratio		0.19									0.28	
Uniform Delay, d1		10.0									7.4	
Progression Factor		0.61									1.00	
Incremental Delay, d2		0.2									0.3	
Delay (s)		6.3									7.7	
Level of Service		A									A	
Approach Delay (s)		6.3				0.0		0.0			7.7	
Approach LOS		A				A		A			A	

Intersection Summary

HCM 2000 Control Delay	7.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	28.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

25: Oak Street & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	192	0	75	2	0	0	165	227	0	0	201	127
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	192	0	75	2	0	0	165	227	0	0	201	127
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)											563	
pX, platoon unblocked												
vC, conflicting volume	708	822	164	732	885	114	328				227	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	708	822	164	732	885	114	328				227	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	33	100	91	99	100	100	87				100	
cM capacity (veh/h)	289	266	852	253	244	918	1228				1339	

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	192	75	165	114	114	134	194
Volume Left	192	0	165	0	0	0	0
Volume Right	0	75	0	0	0	0	127
cSH	289	852	1228	1700	1700	1700	1700
Volume to Capacity	0.67	0.09	0.13	0.07	0.07	0.08	0.11
Queue Length 95th (ft)	109	7	12	0	0	0	0
Control Delay (s)	39.2	9.6	8.4	0.0	0.0	0.0	0.0
Lane LOS	E	A	A				
Approach Delay (s)	30.9		3.5			0.0	
Approach LOS	D						

Intersection Summary		
Average Delay		Err
Intersection Capacity Utilization	Err%	ICU Level of Service
Analysis Period (min)	15	H

HCM Signalized Intersection Capacity Analysis

26: Oak Street & 3rd Street

7/24/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	57	65	58	381	289	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.93		1.00	1.00	1.00	0.85
Flt Protected	0.98		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1689		1770	1863	1863	1583
Flt Permitted	0.98		0.55	1.00	1.00	1.00
Satd. Flow (perm)	1689		1016	1863	1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	57	65	58	381	289	52
RTOR Reduction (vph)	38	0	0	0	0	31
Lane Group Flow (vph)	84	0	58	381	289	21
Turn Type	NA		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Actuated Green, G (s)	19.0		18.0	18.0	18.0	18.0
Effective Green, g (s)	19.0		18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.42		0.40	0.40	0.40	0.40
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	713		406	745	745	633
v/s Ratio Prot	c0.05			c0.20	0.16	
v/s Ratio Perm			0.06			0.01
v/c Ratio	0.12		0.14	0.51	0.39	0.03
Uniform Delay, d1	7.9		8.6	10.2	9.6	8.2
Progression Factor	1.00		1.00	1.00	0.71	0.83
Incremental Delay, d2	0.3		0.7	2.5	1.5	0.1
Delay (s)	8.2		9.3	12.7	8.3	6.9
Level of Service	A		A	B	A	A
Approach Delay (s)	8.2			12.2	8.1	
Approach LOS	A			B	A	

Intersection Summary

HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

27: Oak Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑↑			↑	
Volume (vph)	219	555	126	0	0	0	0	263	173	2	168	0
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	
Lane Util. Factor		0.91						0.95			1.00	
Frt		0.98						0.94			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4919						3329			1862	
Flt Permitted		0.99						1.00			1.00	
Satd. Flow (perm)		4919						3329			1854	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	219	555	126	0	0	0	0	263	173	2	168	0
RTOR Reduction (vph)	0	50	0	0	0	0	0	115	0	0	0	0
Lane Group Flow (vph)	0	850	0	0	0	0	0	321	0	0	170	0
Turn Type	Split	NA						NA		Perm	NA	
Protected Phases	4	4						2			6	
Permitted Phases										6		
Actuated Green, G (s)		22.0						15.0			15.0	
Effective Green, g (s)		22.0						15.0			15.0	
Actuated g/C Ratio		0.49						0.33			0.33	
Clearance Time (s)		4.0						4.0			4.0	
Lane Grp Cap (vph)		2404						1109			618	
v/s Ratio Prot		c0.17						c0.10				
v/s Ratio Perm											0.09	
v/c Ratio		0.35						0.29			0.28	
Uniform Delay, d1		7.1						11.1			11.0	
Progression Factor		1.00						2.06			1.22	
Incremental Delay, d2		0.4						0.6			1.1	
Delay (s)		7.5						23.4			14.5	
Level of Service		A						C			B	
Approach Delay (s)		7.5			0.0			23.4			14.5	
Approach LOS		A			A			C			B	

Intersection Summary

HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: Oak Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔	↗		↕				
Volume (vph)	0	0	0	151	66	567	116	393	0	0	0	0
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				
Lane Util. Factor					0.91	0.91		0.95				
Frt					0.91	0.85		1.00				
Flt Protected					0.99	1.00		0.99				
Satd. Flow (prot)					3056	1441		3499				
Flt Permitted					0.99	1.00		0.99				
Satd. Flow (perm)					3056	1441		3499				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	151	66	567	116	393	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	120	120	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	381	163	0	509	0	0	0	0
Turn Type				Split	NA	Perm	Split	NA				
Protected Phases				8	8		2	2				
Permitted Phases						8						
Actuated Green, G (s)					22.0	22.0		15.0				
Effective Green, g (s)					22.0	22.0		15.0				
Actuated g/C Ratio					0.49	0.49		0.33				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					1494	704		1166				
v/s Ratio Prot					c0.12			c0.15				
v/s Ratio Perm						0.11						
v/c Ratio					0.26	0.23		0.44				
Uniform Delay, d1					6.7	6.6		11.7				
Progression Factor					1.00	1.00		1.00				
Incremental Delay, d2					0.4	0.8		1.1				
Delay (s)					7.1	7.4		12.9				
Level of Service					A	A		B				
Approach Delay (s)		0.0			7.2			12.9			0.0	
Approach LOS		A			A			B			A	

Intersection Summary

HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: Oak Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		←↑↑↑						↑↑↑				
Volume (vph)	84	324	0	0	0	0	0	850	93	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.86						0.91				
Frt		1.00						0.99				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6343						5010				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6343						5010				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	84	324	0	0	0	0	0	850	93	0	0	0
RTOR Reduction (vph)	0	37	0	0	0	0	0	29	0	0	0	0
Lane Group Flow (vph)	0	371	0	0	0	0	0	914	0	0	0	0
Turn Type	Perm	NA						NA				
Protected Phases		4						2				
Permitted Phases	4											
Actuated Green, G (s)		19.0						18.0				
Effective Green, g (s)		19.0						18.0				
Actuated g/C Ratio		0.42						0.40				
Clearance Time (s)		4.0						4.0				
Lane Grp Cap (vph)		2678						2004				
v/s Ratio Prot								c0.18				
v/s Ratio Perm		0.06										
v/c Ratio		0.14						0.46				
Uniform Delay, d1		8.0						9.9				
Progression Factor		0.93						0.70				
Incremental Delay, d2		0.1						0.7				
Delay (s)		7.5						7.7				
Level of Service		A						A				
Approach Delay (s)		7.5			0.0			7.7			0.0	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

30: 5th Avenue & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	21	231	4	4	264	190	7	2	2	267	4	103
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	21	231	4	4	264	190	7	2	2	267	4	103

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	256	268	190	11	374
Volume Left (vph)	21	4	0	7	267
Volume Right (vph)	4	0	190	2	103
Hadj (s)	0.04	0.04	-0.67	0.05	0.01
Departure Headway (s)	5.9	6.1	5.4	6.6	5.7
Degree Utilization, x	0.42	0.46	0.29	0.02	0.59
Capacity (veh/h)	575	562	633	444	598
Control Delay (s)	13.1	13.0	9.4	9.8	16.7
Approach Delay (s)	13.1	11.5		9.8	16.7
Approach LOS	B	B		A	C

Intersection Summary

Delay	13.6
Level of Service	B
Intersection Capacity Utilization	62.7%
ICU Level of Service	B
Analysis Period (min)	15

HCM Signalized Intersection Capacity Analysis

31: Webster Street & Atlantic Avenue

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	197	69	23	202	64	75	836	36	40	442	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3411		1770	3517		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3411		1770	3517		1770	3539	1583
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)	299	214	75	25	220	70	82	909	39	43	480	255
RTOR Reduction (vph)	0	0	52	0	33	0	0	2	0	0	0	215
Lane Group Flow (vph)	299	214	23	25	257	0	82	946	0	43	480	40
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	Over
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									
Actuated Green, G (s)	11.7	22.4	22.4	2.7	13.4		7.1	28.1		4.5	25.5	11.7
Effective Green, g (s)	11.7	22.4	22.4	2.7	13.4		7.1	28.1		4.5	25.5	11.7
Actuated g/C Ratio	0.16	0.30	0.30	0.04	0.18		0.10	0.38		0.06	0.35	0.16
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	544	1075	481	64	620		170	1340		108	1224	251
v/s Ratio Prot	c0.09	0.06		0.01	c0.08		c0.05	c0.27		0.02	0.14	0.03
v/s Ratio Perm			0.01									
v/c Ratio	0.55	0.20	0.05	0.39	0.41		0.48	0.71		0.40	0.39	0.16
Uniform Delay, d1	28.6	19.0	18.1	34.7	26.7		31.6	19.3		33.3	18.2	26.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.1	0.1	0.0	3.9	0.5		2.2	3.1		2.4	0.9	0.3
Delay (s)	29.7	19.1	18.2	38.6	27.1		33.7	22.4		35.7	19.2	27.1
Level of Service	C	B	B	D	C		C	C		D	B	C
Approach Delay (s)		24.4			28.0			23.3			22.7	
Approach LOS		C			C			C			C	

Intersection Summary

HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	73.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

32: Constitution Way & Atlantic Avenue

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	93	173	76	33	171	82	107	808	42	75	307	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.95		1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3377		1770	3367		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3377		1770	3367		3433	3539	1583	3433	3539	1583
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)	101	188	83	36	186	89	116	878	46	82	334	37
RTOR Reduction (vph)	0	50	0	0	62	0	0	0	28	0	0	23
Lane Group Flow (vph)	101	221	0	36	213	0	116	878	18	82	334	14
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	7.4	15.7		2.9	11.2		6.0	26.0	26.0	5.4	25.4	25.4
Effective Green, g (s)	7.4	15.7		2.9	11.2		6.0	26.0	26.0	5.4	25.4	25.4
Actuated g/C Ratio	0.11	0.24		0.04	0.17		0.09	0.39	0.39	0.08	0.38	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	198	803		77	571		312	1394	623	280	1361	609
v/s Ratio Prot	c0.06	0.07		0.02	c0.06		c0.03	c0.25		0.02	0.09	
v/s Ratio Perm									0.01			0.01
v/c Ratio	0.51	0.27		0.47	0.37		0.37	0.63	0.03	0.29	0.25	0.02
Uniform Delay, d1	27.6	20.5		30.8	24.3		28.2	16.1	12.3	28.5	13.8	12.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	0.2		4.4	0.4		0.7	2.2	0.1	0.6	0.4	0.1
Delay (s)	29.8	20.7		35.2	24.7		29.0	18.3	12.3	29.1	14.2	12.7
Level of Service	C	C		D	C		C	B	B	C	B	B
Approach Delay (s)		23.2			25.9			19.2			16.8	
Approach LOS		C			C			B			B	

Intersection Summary

HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	66.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	51.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			


















Level Of Service Computation Report

Existing plus Project (Maximum Residential Scenario) Conditions
PM Peak Hour

HCM Unsignalized Intersection Capacity Analysis

1: Market Street & 3rd Street

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	52	273	22	14	125	91	41	116	25	46	59	37
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	52	273	22	14	125	91	41	116	25	46	59	37
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	216			295			545	632	148	522	598	108
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	216			295			545	632	148	522	598	108
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			99			88	69	97	85	85	96
cM capacity (veh/h)	1351			1263			345	377	873	312	394	925
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2	SB 3				
Volume Total	188	158	76	154	182	46	39	57				
Volume Left	52	0	14	0	41	46	0	0				
Volume Right	0	22	0	91	25	0	0	37				
cSH	1351	1700	1263	1700	400	312	394	630				
Volume to Capacity	0.04	0.09	0.01	0.09	0.46	0.15	0.10	0.09				
Queue Length 95th (ft)	3	0	1	0	58	13	8	7				
Control Delay (s)	2.4	0.0	1.5	0.0	21.3	18.5	15.1	11.3				
Lane LOS	A		A		C	C	C	B				
Approach Delay (s)	1.3		0.5		21.3	14.7						
Approach LOS					C	B						
Intersection Summary												
Average Delay			7.3									
Intersection Capacity Utilization			43.1%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Market Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑↑		↘	↑↑↑	
Volume (vph)	9	730	29	0	0	0	0	220	25	103	109	0
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		0.91						0.95		1.00	0.91	
Frt		0.99						0.98		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		5054						3485		1770	5085	
Flt Permitted		1.00						1.00		0.60	1.00	
Satd. Flow (perm)		5054						3485		1117	5085	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	9	730	29	0	0	0	0	220	25	103	109	0
RTOR Reduction (vph)	0	6	0	0	0	0	0	12	0	0	0	0
Lane Group Flow (vph)	0	762	0	0	0	0	0	233	0	103	109	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		43.0						24.0		24.0	24.0	
Effective Green, g (s)		43.0						24.0		24.0	24.0	
Actuated g/C Ratio		0.57						0.32		0.32	0.32	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		2897						1115		357	1627	
v/s Ratio Prot								0.07			0.02	
v/s Ratio Perm		0.15								c0.09		
v/c Ratio		0.26						0.21		0.29	0.07	
Uniform Delay, d1		8.0						18.6		19.1	17.7	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		0.2						0.4		2.0	0.1	
Delay (s)		8.3						19.0		21.1	17.8	
Level of Service		A						B		C	B	
Approach Delay (s)		8.3			0.0			19.0			19.4	
Approach LOS		A			A			B			B	

Intersection Summary

HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations					↑↑	↑		↓	↑↑			↑↑↓
Volume (vph)	0	0	0	30	145	265	12	32	195	0	0	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0	4.0			4.0
Lane Util. Factor					0.95	1.00		1.00	0.95			0.91
Frt					1.00	0.85		1.00	1.00			0.97
Flt Protected					0.99	1.00		0.95	1.00			1.00
Satd. Flow (prot)					3509	1583		1770	3539			4958
Flt Permitted					0.99	1.00		0.62	1.00			1.00
Satd. Flow (perm)					3509	1583		1152	3539			4958
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	30	145	265	12	32	195	0	0	170
RTOR Reduction (vph)	0	0	0	0	0	101	0	0	0	0	0	24
Lane Group Flow (vph)	0	0	0	0	175	164	0	44	195	0	0	180
Turn Type				Perm	NA	Perm	Perm	Perm	NA			NA
Protected Phases					8				2			6
Permitted Phases				8		8	2	2				
Actuated Green, G (s)					62.0	62.0		30.0	30.0			30.0
Effective Green, g (s)					62.0	62.0		30.0	30.0			30.0
Actuated g/C Ratio					0.62	0.62		0.30	0.30			0.30
Clearance Time (s)					4.0	4.0		4.0	4.0			4.0
Lane Grp Cap (vph)					2175	981		345	1061			1487
v/s Ratio Prot									c0.06			0.04
v/s Ratio Perm					0.05	c0.10		0.04				
v/c Ratio					0.08	0.17		0.13	0.18			0.12
Uniform Delay, d1					7.6	8.1		25.5	25.9			25.4
Progression Factor					1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2					0.1	0.4		0.8	0.4			0.2
Delay (s)					7.7	8.4		26.2	26.3			25.6
Level of Service					A	A		C	C			C
Approach Delay (s)		0.0			8.1				26.3			25.6
Approach LOS		A			A				C			C

Intersection Summary

HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

7/24/2013



Movement	SBR
Line Configurations	
Volume (vph)	34
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Fr	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	34
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

4: Market Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↶↶↶		↶	↶↶↶		↶	↶↶		↶	↶↶↶	
Volume (vph)	94	705	66	36	325	35	189	213	45	53	95	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.91	
Frt	1.00	0.99		1.00	0.99		1.00	0.97		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5020		1770	5011		1770	3447		1770	4790	
Flt Permitted	0.51	1.00		0.24	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	958	5020		448	5011		1770	3447		1770	4790	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	94	705	66	36	325	35	189	213	45	53	95	60
RTOR Reduction (vph)	0	14	0	0	16	0	0	22	0	0	53	0
Lane Group Flow (vph)	94	757	0	36	344	0	189	236	0	53	103	0
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4			8								
Actuated Green, G (s)	22.0	22.0		22.0	22.0		36.0	36.0		10.0	10.0	
Effective Green, g (s)	22.0	22.0		22.0	22.0		36.0	36.0		10.0	10.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.45	0.45		0.12	0.12	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	263	1380		123	1378		796	1551		221	598	
v/s Ratio Prot		c0.15			0.07		c0.11	0.07		c0.03	0.02	
v/s Ratio Perm	0.10			0.08								
v/c Ratio	0.36	0.55		0.29	0.25		0.24	0.15		0.24	0.17	
Uniform Delay, d1	23.3	24.8		22.9	22.6		13.5	13.0		31.6	31.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.8	1.6		5.9	0.4		0.7	0.2		2.6	0.6	
Delay (s)	27.1	26.3		28.8	23.0		14.3	13.2		34.1	31.9	
Level of Service	C	C		C	C		B	B		C	C	
Approach Delay (s)		26.4			23.5			13.6			32.5	
Approach LOS		C			C			B			C	

Intersection Summary

HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	45.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: Castro Street & 11th Street

7/24/2013



Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Volume (vph)	158	500	1114	35	61	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	0.81	0.81	0.91		0.97	
Frt	1.00	1.00	1.00		0.95	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1433	6017	5062		3316	
Flt Permitted	0.95	1.00	1.00		0.97	
Satd. Flow (perm)	1433	6017	5062		3316	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	158	500	1114	35	61	33
RTOR Reduction (vph)	91	53	4	0	0	0
Lane Group Flow (vph)	35	479	1145	0	94	0
Turn Type	Split	NA	NA		NA	
Protected Phases	4	4	2		8	
Permitted Phases						
Actuated Green, G (s)	21.0	21.0	21.0		21.0	
Effective Green, g (s)	21.0	21.0	21.0		21.0	
Actuated g/C Ratio	0.28	0.28	0.28		0.28	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Lane Grp Cap (vph)	401	1684	1417		928	
v/s Ratio Prot	0.02	c0.08	c0.23		c0.03	
v/s Ratio Perm						
v/c Ratio	0.09	0.28	0.81		0.10	
Uniform Delay, d1	19.9	21.1	25.1		20.0	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.4	5.0		0.2	
Delay (s)	20.4	21.5	30.2		20.2	
Level of Service	C	C	C		C	
Approach Delay (s)		21.3	30.2		20.2	
Approach LOS		C	C		C	

Intersection Summary

HCM 2000 Control Delay	26.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

6: Castro Street & 12th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑	↑	↑↑↑↑				
Volume (vph)	0	0	0	0	216	696	29	1436	0	0	0	0
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					0.91	0.91	0.81	0.81				
Frt					0.91	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	1.00				
Satd. Flow (prot)					3076	1441	1433	6035				
Flt Permitted					1.00	1.00	0.95	1.00				
Satd. Flow (perm)					3076	1441	1433	6035				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	216	696	29	1436	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	23	23	11	7	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	541	325	15	1432	0	0	0	0
Turn Type					NA	Perm	Perm	NA				
Protected Phases					8			2				
Permitted Phases						8	2					
Actuated Green, G (s)					25.0	25.0	42.0	42.0				
Effective Green, g (s)					25.0	25.0	42.0	42.0				
Actuated g/C Ratio					0.33	0.33	0.56	0.56				
Clearance Time (s)					4.0	4.0	4.0	4.0				
Lane Grp Cap (vph)					1025	480	802	3379				
v/s Ratio Prot					0.18							
v/s Ratio Perm						c0.23	0.01	0.24				
v/c Ratio					0.53	0.68	0.02	0.42				
Uniform Delay, d1					20.2	21.5	7.3	9.5				
Progression Factor					1.00	1.00	0.03	0.22				
Incremental Delay, d2					1.9	7.5	0.0	0.3				
Delay (s)					22.2	29.0	0.2	2.4				
Level of Service					C	C	A	A				
Approach Delay (s)		0.0			24.8			2.3			0.0	
Approach LOS		A			C			A			A	

Intersection Summary

HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 7: Broadway & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	22	163	60	13	124	105	30	146	17	93	100	20
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	22	163	60	13	124	105	30	146	17	93	100	20

















Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	245	242	103	90	143	70
Volume Left (vph)	22	13	30	0	93	0
Volume Right (vph)	60	105	0	17	0	20
Hadj (s)	-0.09	-0.22	0.18	-0.10	0.36	-0.17
Departure Headway (s)	5.3	5.2	6.4	6.1	6.5	6.0
Degree Utilization, x	0.36	0.35	0.18	0.15	0.26	0.12
Capacity (veh/h)	627	639	520	541	511	553
Control Delay (s)	11.4	11.1	9.6	9.0	10.6	8.6
Approach Delay (s)	11.4	11.1	9.3		9.9	
Approach LOS	B	B	A		A	

Intersection Summary	
Delay	10.5
Level of Service	B
Intersection Capacity Utilization	41.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

8: Broadway & 2nd Street

7/24/2013

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (veh/h)	40	31	16	17	26	64	18	295	49	53	278	33	
Sign Control		Stop			Stop			Free			Free		
Grade		0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	40	31	16	17	26	64	18	295	49	53	278	33	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type							None						
Median storage (veh)													
Upstream signal (ft)												288	
pX, platoon unblocked													
vC, conflicting volume	661	780	156	632	772	172	311					344	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	661	780	156	632	772	172	311					344	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1					4.1	
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2					2.2	
p0 queue free %	86	90	98	95	92	92	99					96	
cM capacity (veh/h)	288	306	862	316	310	842	1246					1212	
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2							
Volume Total	87	107	166	196	192	172							
Volume Left	40	17	18	0	53	0							
Volume Right	16	64	0	49	0	33							
cSH	336	500	1246	1700	1212	1700							
Volume to Capacity	0.26	0.21	0.01	0.12	0.04	0.10							
Queue Length 95th (ft)	25	20	1	0	3	0							
Control Delay (s)	19.4	14.1	1.0	0.0	2.5	0.0							
Lane LOS	C	B	A		A								
Approach Delay (s)	19.4	14.1	0.4		1.3								
Approach LOS	C	B											
Intersection Summary													
Average Delay			4.2										
Intersection Capacity Utilization			41.7%	ICU Level of Service	A								
Analysis Period (min)			15										

HCM Signalized Intersection Capacity Analysis

9: Broadway & 3rd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	106	135	28	10	120	116	45	299	12	43	252	62
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			0.95			0.95	
Frt		0.99			0.94			0.99			0.97	
Flt Protected		0.98			1.00			0.99			0.99	
Satd. Flow (prot)		1801			1741			3499			3426	
Flt Permitted		0.79			0.99			0.88			0.89	
Satd. Flow (perm)		1456			1719			3115			3064	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	106	135	28	10	120	116	45	299	12	43	252	62
RTOR Reduction (vph)	0	7	0	0	59	0	0	4	0	0	29	0
Lane Group Flow (vph)	0	262		0	187		0	352		0	328	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		18.0			18.0			29.0			29.0	
Effective Green, g (s)		18.0			18.0			29.0			29.0	
Actuated g/C Ratio		0.33			0.33			0.53			0.53	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		476			562			1642			1615	
v/s Ratio Prot												
v/s Ratio Perm		c0.18			0.11			c0.11			0.11	
v/c Ratio		0.55			0.33			0.21			0.20	
Uniform Delay, d1		15.2			14.0			6.9			6.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		4.5			1.6			0.3			0.3	
Delay (s)		19.7			15.6			7.2			7.2	
Level of Service		B			B			A			A	
Approach Delay (s)		19.7			15.6			7.2			7.2	
Approach LOS		B			B			A			A	

Intersection Summary

HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

10: Broadway & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1007	296	73	0	0	0	0	318	382	591	334	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.91	0.91	1.00					0.95	1.00	0.97	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3287	1583					3539	1583	3433	1863	
Flt Permitted	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1610	3287	1583					3539	1583	3433	1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1007	296	73	0	0	0	0	318	382	591	334	0
RTOR Reduction (vph)	0	0	53	0	0	0	0	0	122	0	0	0
Lane Group Flow (vph)	503	800	20	0	0	0	0	318	260	591	334	0
Turn Type	Split	NA	Prot					NA	Prot	Split	NA	
Protected Phases	4	4	4					2	2	6	6	
Permitted Phases												
Actuated Green, G (s)	21.0	21.0	21.0					21.0	21.0	21.0	21.0	
Effective Green, g (s)	21.0	21.0	21.0					21.0	21.0	21.0	21.0	
Actuated g/C Ratio	0.28	0.28	0.28					0.28	0.28	0.28	0.28	
Clearance Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	450	920	443					990	443	961	521	
v/s Ratio Prot	c0.31	0.24	0.01					0.09	c0.16	0.17	c0.18	
v/s Ratio Perm												
v/c Ratio	1.12	1.07dl	0.05					0.32	0.59	0.61	0.64	
Uniform Delay, d1	27.0	25.7	19.7					21.4	23.3	23.5	23.7	
Progression Factor	0.90	0.90	0.74					1.00	1.00	0.79	0.80	
Incremental Delay, d2	78.5	10.9	0.2					0.9	5.6	2.7	5.6	
Delay (s)	102.8	34.0	14.8					22.2	28.8	21.2	24.5	
Level of Service	F	C	B					C	C	C	C	
Approach Delay (s)		58.1			0.0			25.8			22.4	
Approach LOS		E			A			C			C	

Intersection Summary

HCM 2000 Control Delay	39.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		
dl Defacto Left Lane. Recode with 1 though lane as a left lane.			
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

11: Broadway & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕	↗	↙	↕			↕	↗
Volume (vph)	0	0	0	248	139	617	76	285	0	0	752	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Util. Factor				1.00	0.91	0.91	1.00	0.95			0.91	
Frt				1.00	0.90	0.85	1.00	1.00			0.99	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3039	1441	1770	3539			5052	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3039	1441	1770	3539			5052	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	248	139	617	76	285	0	0	752	34
RTOR Reduction (vph)	0	0	0	0	210	209	0	0	0	0	7	0
Lane Group Flow (vph)	0	0	0	248	238	99	76	285	0	0	779	0
Turn Type				Split	NA	Prot	Prot	NA			NA	
Protected Phases				8	8	8	5	2			6	
Permitted Phases												
Actuated Green, G (s)				24.0	24.0	24.0	9.0	43.0			30.0	
Effective Green, g (s)				24.0	24.0	24.0	9.0	43.0			30.0	
Actuated g/C Ratio				0.32	0.32	0.32	0.12	0.57			0.40	
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)				566	972	461	212	2029			2020	
v/s Ratio Prot				c0.14	0.08	0.07	c0.04	0.08			c0.15	
v/s Ratio Perm												
v/c Ratio				0.44	0.24	0.21	0.36	0.14			0.39	
Uniform Delay, d1				20.2	18.8	18.6	30.3	7.4			16.0	
Progression Factor				1.00	1.00	1.00	0.88	0.11			1.00	
Incremental Delay, d2				2.5	0.6	1.1	2.5	0.1			0.6	
Delay (s)				22.6	19.4	19.7	29.3	0.9			16.5	
Level of Service				C	B	B	C	A			B	
Approach Delay (s)		0.0			20.3			6.9			16.5	
Approach LOS		A			C			A			B	

Intersection Summary

HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

12: Broadway & 11th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		←↑↑↑						↑↑		↘	↑↑	
Volume (vph)	119	486	191	0	0	0	0	482	77	99	726	0
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		0.86						0.95		1.00	0.95	
Frt		0.96						0.98		1.00	1.00	
Flt Protected		0.99						1.00		0.95	1.00	
Satd. Flow (prot)		6131						3466		1770	3539	
Flt Permitted		0.99						1.00		0.30	1.00	
Satd. Flow (perm)		6131						3466		556	3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	119	486	191	0	0	0	0	482	77	99	726	0
RTOR Reduction (vph)	0	95	0	0	0	0	0	21	0	0	0	0
Lane Group Flow (vph)	0	701		0	0	0	0	538		99	726	
Turn Type	Split	NA						NA		pm+pt	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases										6		
Actuated Green, G (s)		20.0						20.0		32.0	32.0	
Effective Green, g (s)		20.0						20.0		32.0	32.0	
Actuated g/C Ratio		0.33						0.33		0.53	0.53	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		2043						1155		458	1887	
v/s Ratio Prot		c0.11						c0.16		0.03	c0.21	
v/s Ratio Perm										0.09		
v/c Ratio		0.34						0.47		0.22	0.38	
Uniform Delay, d1		15.1						15.8		7.5	8.2	
Progression Factor		1.00						1.00		0.78	0.64	
Incremental Delay, d2		0.5						1.3		1.0	0.6	
Delay (s)		15.5						17.1		6.9	5.8	
Level of Service		B						B		A	A	
Approach Delay (s)		15.5			0.0			17.1			5.9	
Approach LOS		B			A			B			A	

Intersection Summary

HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	46.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: Broadway & 12th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←↑↑↑		↑	↑↑			↑↑↑	
Volume (vph)	0	0	0	161	511	94	132	474	0	0	613	83
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					0.91		1.00	0.95			0.91	
Flt					0.98		1.00	1.00			0.98	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					4940		1770	3539			4994	
Flt Permitted					0.99		0.27	1.00			1.00	
Satd. Flow (perm)					4940		507	3539			4994	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	161	511	94	132	474	0	0	613	83
RTOR Reduction (vph)	0	0	0	0	30	0	0	0	0	0	29	0
Lane Group Flow (vph)	0	0	0	0	736	0	132	474	0	0	667	0
Turn Type				Split	NA		pm+pt	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases							2					
Actuated Green, G (s)					20.0		32.0	32.0			20.0	
Effective Green, g (s)					20.0		32.0	32.0			20.0	
Actuated g/C Ratio					0.33		0.53	0.53			0.33	
Clearance Time (s)					4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)					1646		438	1887			1664	
v/s Ratio Prot					c0.15		c0.04	0.13			c0.13	
v/s Ratio Perm							0.12					
v/c Ratio					0.45		0.30	0.25			0.40	
Uniform Delay, d1					15.7		7.5	7.5			15.4	
Progression Factor					1.00		1.25	0.64			1.92	
Incremental Delay, d2					0.9		1.6	0.3			0.6	
Delay (s)					16.6		11.0	5.1			30.1	
Level of Service					B		B	A			C	
Approach Delay (s)		0.0			16.6			6.4			30.1	
Approach LOS		A			B			A			C	

Intersection Summary

HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	46.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: Broadway & 14th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↑			↑↑	
Volume (vph)	6	319	109	3	379	114	2	486	32	0	788	100
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			0.95			0.95			0.95	
Frt		0.96			0.97			0.99			0.98	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		3404			3416			3506			3479	
Flt Permitted		0.95			0.95			0.95			1.00	
Satd. Flow (perm)		3234			3257			3341			3479	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	6	319	109	3	379	114	2	486	32	0	788	100
RTOR Reduction (vph)	0	48	0	0	47	0	0	8	0	0	16	0
Lane Group Flow (vph)	0	386	0	0	449	0	0	512	0	0	872	0
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2					
Actuated Green, G (s)		27.0			27.0			25.0			25.0	
Effective Green, g (s)		27.0			27.0			25.0			25.0	
Actuated g/C Ratio		0.45			0.45			0.42			0.42	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		1455			1465			1392			1449	
v/s Ratio Prot											c0.25	
v/s Ratio Perm		0.12			c0.14			0.15				
v/c Ratio		0.27			0.31			0.37			0.60	
Uniform Delay, d1		10.3			10.5			12.1			13.6	
Progression Factor		1.00			1.00			1.77			1.00	
Incremental Delay, d2		0.4			0.5			0.7			1.9	
Delay (s)		10.7			11.1			22.0			15.5	
Level of Service		B			B			C			B	
Approach Delay (s)		10.7			11.1			22.0			15.5	
Approach LOS		B			B			C			B	

Intersection Summary

















HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

15: Franklin Street & 2nd Street

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	87	39	18	83	0	0	0	0	10	32	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	87	39	18	83	0	0	0	0	10	32	21
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					384							
pX, platoon unblocked												
vC, conflicting volume	83			126			262	226	106	226	245	83
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	83			126			262	226	106	226	245	83
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	99	95	98
cM capacity (veh/h)	1514			1460			644	665	948	723	649	976
Direction, Lane #	EB 1	WB 1	SB 1	SB 2								
Volume Total	126	101	26	37								
Volume Left	0	18	10	0								
Volume Right	39	0	0	21								
cSH	1700	1460	676	802								
Volume to Capacity	0.07	0.01	0.04	0.05								
Queue Length 95th (ft)	0	1	3	4								
Control Delay (s)	0.0	1.4	10.5	9.7								
Lane LOS		A	B	A								
Approach Delay (s)	0.0	1.4	10.1									
Approach LOS			B									
Intersection Summary												
Average Delay			2.7									
Intersection Capacity Utilization			25.7%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

16: Franklin Street & 3rd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	210	12	27	223	0	0	0	0	14	21	86
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	210	12	27	223	0	0	0	0	14	21	86
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		367			383							
pX, platoon unblocked												
vC, conflicting volume	223			222			590	493	216	493	499	223
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	223			222			590	493	216	493	499	223
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			100	100	100	97	95	89
cM capacity (veh/h)	1346			1347			357	467	824	479	464	817
Direction, Lane #												
	EB 1	WB 1	SB 1	SB 2								
Volume Total	222	250	24	96								
Volume Left	0	27	14	0								
Volume Right	12	0	0	86								
cSH	1700	1347	472	754								
Volume to Capacity	0.13	0.02	0.05	0.13								
Queue Length 95th (ft)	0	2	4	11								
Control Delay (s)	0.0	1.0	13.0	10.5								
Lane LOS		A	B	B								
Approach Delay (s)	0.0	1.0	11.0									
Approach LOS			B									
Intersection Summary												
Average Delay			2.7									
Intersection Capacity Utilization			38.8%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 17: Webster Street & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	112	242	192	111	125	76
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	112	242	192	111	125	76
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	385					
pX, platoon unblocked						
vC, conflicting volume	0		362	224	466	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		362	224	466	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	93		54	82	73	93
cM capacity (veh/h)	1623		414	628	460	1085

Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2
Volume Total	112	242	303	125	76
Volume Left	112	0	192	0	0
Volume Right	0	242	0	0	76
cSH	1623	1700	473	460	1085
Volume to Capacity	0.07	0.14	0.64	0.27	0.07
Queue Length 95th (ft)	6	0	111	27	6
Control Delay (s)	7.4	0.0	25.2	15.7	8.6
Lane LOS	A		D	C	A
Approach Delay (s)	2.3		25.2	13.0	
Approach LOS			D	B	

Intersection Summary					
Average Delay			12.9		
Intersection Capacity Utilization			39.3%	ICU Level of Service	A
Analysis Period (min)			15		

HCM Signalized Intersection Capacity Analysis

18: Harrison Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑↑						↑↑↑	↑↑				
Volume (vph)	86	394	0	0	0	0	0	510	908	0	0	0	
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				
Lane Util. Factor		0.91						0.91	0.88				
Frt		1.00						1.00	0.85				
Flt Protected		0.99						1.00	1.00				
Satd. Flow (prot)		5040						5085	2787				
Flt Permitted		0.99						1.00	1.00				
Satd. Flow (perm)		5040						5085	2787				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	86	394	0	0	0	0	0	510	908	0	0	0	
RTOR Reduction (vph)	0	55	0	0	0	0	0	0	242	0	0	0	
Lane Group Flow (vph)	0	425	0	0	0	0	0	510	666	0	0	0	
Turn Type	Perm	NA						NA	Perm				
Protected Phases		4						2					
Permitted Phases	4								2				
Actuated Green, G (s)		16.0						21.0	21.0				
Effective Green, g (s)		16.0						21.0	21.0				
Actuated g/C Ratio		0.36						0.47	0.47				
Clearance Time (s)		4.0						4.0	4.0				
Lane Grp Cap (vph)		1792						2373	1300				
v/s Ratio Prot								0.10					
v/s Ratio Perm		0.08							c0.24				
v/c Ratio		0.24						0.21	0.51				
Uniform Delay, d1		10.2						7.1	8.4				
Progression Factor		1.00						1.00	1.00				
Incremental Delay, d2		0.3						0.2	1.4				
Delay (s)		10.5						7.3	9.9				
Level of Service		B						A	A				
Approach Delay (s)		10.5			0.0			8.9			0.0		
Approach LOS		B			A			A			A		
Intersection Summary													
HCM 2000 Control Delay			9.3		HCM 2000 Level of Service					A			
HCM 2000 Volume to Capacity ratio			0.39										
Actuated Cycle Length (s)			45.0		Sum of lost time (s)					8.0			
Intersection Capacity Utilization			77.4%		ICU Level of Service					D			
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

19: Jackson Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔						↔		↔↕	↕	
Volume (vph)	232	484	380	0	0	0	0	505	28	106	122	0
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		0.91						1.00		1.00	1.00	
Frt		0.95						0.99		1.00	1.00	
Flt Protected		0.99						1.00		0.95	1.00	
Satd. Flow (prot)		4770						1850		1770	1863	
Flt Permitted		0.99						1.00		0.37	1.00	
Satd. Flow (perm)		4770						1850		693	1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	232	484	380	0	0	0	0	505	28	106	122	0
RTOR Reduction (vph)	0	213	0	0	0	0	0	5	0	0	0	0
Lane Group Flow (vph)	0	883	0	0	0	0	0	528	0	106	122	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		13.0						24.0		24.0	24.0	
Effective Green, g (s)		13.0						24.0		24.0	24.0	
Actuated g/C Ratio		0.29						0.53		0.53	0.53	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		1378						986		369	993	
v/s Ratio Prot								c0.29			0.07	
v/s Ratio Perm		0.19								0.15		
v/c Ratio		0.64						0.54		0.29	0.12	
Uniform Delay, d1		14.0						6.9		5.8	5.2	
Progression Factor		1.00						1.00		0.40	0.41	
Incremental Delay, d2		2.3						2.1		1.9	0.3	
Delay (s)		16.3						8.9		4.2	2.4	
Level of Service		B						A		A	A	
Approach Delay (s)		16.3			0.0			8.9			3.2	
Approach LOS		B			A			A			A	

Intersection Summary

HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

20: Jackson Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↗	↖	↖	↗			↗	↖
Volume (vph)	0	0	0	9	322	44	398	368	0	0	216	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1770	1863	1583	1770	1863			1863	1583
Flt Permitted				0.95	1.00	1.00	0.62	1.00			1.00	1.00
Satd. Flow (perm)				1770	1863	1583	1161	1863			1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	9	322	44	398	368	0	0	216	425
RTOR Reduction (vph)	0	0	0	0	0	33	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	9	322	11	398	368	0	0	216	425
Turn Type				Split	NA	Perm	Perm	NA			NA	Free
Protected Phases				8	8			2			6	
Permitted Phases						8	2					Free
Actuated Green, G (s)				11.0	11.0	11.0	26.0	26.0			26.0	45.0
Effective Green, g (s)				11.0	11.0	11.0	26.0	26.0			26.0	45.0
Actuated g/C Ratio				0.24	0.24	0.24	0.58	0.58			0.58	1.00
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)				432	455	386	670	1076			1076	1583
v/s Ratio Prot				0.01	c0.17			0.20			0.12	
v/s Ratio Perm						0.01	c0.34					0.27
v/c Ratio				0.02	0.71	0.03	0.59	0.34			0.20	0.27
Uniform Delay, d1				12.9	15.5	12.9	6.1	5.0			4.5	0.0
Progression Factor				0.70	0.69	0.64	0.62	0.67			1.05	1.00
Incremental Delay, d2				0.1	8.8	0.1	3.2	0.7			0.4	0.4
Delay (s)				9.1	19.4	8.5	7.0	4.1			5.2	0.4
Level of Service				A	B	A	A	A			A	A
Approach Delay (s)		0.0			17.9			5.6			2.0	
Approach LOS		A			B			A			A	

Intersection Summary

HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

21: Jackson Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔	↔					↔			↔	
Volume (vph)	32	839	415	0	0	0	0	234	108	30	281	0
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		0.86	0.86					1.00			1.00	
Frt		0.98	0.85					0.96			1.00	
Flt Protected		1.00	1.00					1.00			1.00	
Satd. Flow (prot)		4708	1362					1783			1854	
Flt Permitted		1.00	1.00					1.00			0.95	
Satd. Flow (perm)		4708	1362					1783			1764	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	32	839	415	0	0	0	0	234	108	30	281	0
RTOR Reduction (vph)	0	38	155	0	0	0	0	37	0	0	0	0
Lane Group Flow (vph)	0	958	135	0	0	0	0	305	0	0	311	0
Turn Type	Split	NA	Perm					NA		Perm	NA	
Protected Phases	4	4						2			6	
Permitted Phases			4							6		
Actuated Green, G (s)		21.0	21.0					16.0			16.0	
Effective Green, g (s)		21.0	21.0					16.0			16.0	
Actuated g/C Ratio		0.47	0.47					0.36			0.36	
Clearance Time (s)		4.0	4.0					4.0			4.0	
Lane Grp Cap (vph)		2197	635					633			627	
v/s Ratio Prot		c0.20						0.17				
v/s Ratio Perm			0.10								c0.18	
v/c Ratio		0.44	0.21					0.48			0.50	
Uniform Delay, d1		8.0	7.1					11.3			11.3	
Progression Factor		1.00	1.00					1.01			1.00	
Incremental Delay, d2		0.6	0.8					2.5			2.8	
Delay (s)		8.7	7.9					13.9			14.1	
Level of Service		A	A					B			B	
Approach Delay (s)		8.5			0.0			13.9			14.1	
Approach LOS		A			A			B			B	

Intersection Summary

HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

22: Madison Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑								↘	↙↑	
Volume (vph)	0	539	26	0	0	0	0	0	0	747	132	0
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	
Lane Util. Factor		0.91								0.91	0.91	
Frt		0.99								1.00	1.00	
Flt Protected		1.00								0.95	0.96	
Satd. Flow (prot)		5050								1610	3269	
Flt Permitted		1.00								0.95	0.96	
Satd. Flow (perm)		5050								1610	3269	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	539	26	0	0	0	0	0	0	747	132	0
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	74	74	0
Lane Group Flow (vph)	0	554	0	0	0	0	0	0	0	299	432	0
Turn Type		NA								Perm	NA	
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0								22.0	22.0	
Effective Green, g (s)		16.0								22.0	22.0	
Actuated g/C Ratio		0.35								0.48	0.48	
Clearance Time (s)		4.0								4.0	4.0	
Lane Grp Cap (vph)		1756								770	1563	
v/s Ratio Prot		c0.11										
v/s Ratio Perm										c0.19	0.13	
v/c Ratio		0.32								0.39	0.28	
Uniform Delay, d1		11.0								7.7	7.2	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.5								1.5	0.4	
Delay (s)		11.5								9.2	7.7	
Level of Service		B								A	A	
Approach Delay (s)		11.5			0.0			0.0			8.3	
Approach LOS		B			A			A			A	

Intersection Summary

HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	46.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

23: Madison Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑						↑↑↑	
Volume (vph)	0	0	0	15	173	0	0	0	0	0	915	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0						4.0	
Lane Util. Factor					0.91						0.91	
Frt					1.00						0.97	
Flt Protected					1.00						1.00	
Satd. Flow (prot)					5065						4957	
Flt Permitted					1.00						1.00	
Satd. Flow (perm)					5065						4957	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	15	173	0	0	0	0	0	915	185
RTOR Reduction (vph)	0	0	0	0	16	0	0	0	0	0	68	0
Lane Group Flow (vph)	0	0	0	0	172	0	0	0	0	0	1032	0
Turn Type				Split	NA						NA	
Protected Phases				8	8						6	
Permitted Phases												
Actuated Green, G (s)					15.0						22.0	
Effective Green, g (s)					15.0						22.0	
Actuated g/C Ratio					0.33						0.49	
Clearance Time (s)					4.0						4.0	
Lane Grp Cap (vph)					1688						2423	
v/s Ratio Prot					c0.03						c0.21	
v/s Ratio Perm												
v/c Ratio					0.10						0.43	
Uniform Delay, d1					10.4						7.4	
Progression Factor					0.92						0.59	
Incremental Delay, d2					0.1						0.5	
Delay (s)					9.7						4.9	
Level of Service					A						A	
Approach Delay (s)		0.0			9.7			0.0			4.9	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	5.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

24: Madison Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑									↑↑↑	
Volume (vph)	0	777	254	0	0	0	0	0	0	242	729	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									4.0	
Lane Util. Factor		0.86									0.91	
Frt		0.96									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		6171									5023	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		6171									5023	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	777	254	0	0	0	0	0	0	242	729	0
RTOR Reduction (vph)	0	90	0	0	0	0	0	0	0	0	31	0
Lane Group Flow (vph)	0	941	0	0	0	0	0	0	0	0	940	0
Turn Type		NA									Perm	NA
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0									21.0	
Effective Green, g (s)		16.0									21.0	
Actuated g/C Ratio		0.36									0.47	
Clearance Time (s)		4.0									4.0	
Lane Grp Cap (vph)		2194									2344	
v/s Ratio Prot		c0.15										
v/s Ratio Perm											0.19	
v/c Ratio		0.43									0.40	
Uniform Delay, d1		11.0									7.9	
Progression Factor		0.51									1.00	
Incremental Delay, d2		0.6									0.5	
Delay (s)		6.2									8.4	
Level of Service		A									A	
Approach Delay (s)		6.2			0.0			0.0			8.4	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	7.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

25: Oak Street & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	235	0	113	5	0	1	132	241	0	0	228	198
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	235	0	113	5	0	1	132	241	0	0	228	198
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)											563	
pX, platoon unblocked												
vC, conflicting volume	712	832	213	732	931	120	426			241		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	712	832	213	732	931	120	426			241		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	19	100	86	98	100	100	88			100		
cM capacity (veh/h)	290	268	792	241	234	908	1130			1323		

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	235	113	132	120	120	152	274
Volume Left	235	0	132	0	0	0	0
Volume Right	0	113	0	0	0	0	198
cSH	290	792	1130	1700	1700	1700	1700
Volume to Capacity	0.81	0.14	0.12	0.07	0.07	0.09	0.16
Queue Length 95th (ft)	164	12	10	0	0	0	0
Control Delay (s)	54.2	10.3	8.6	0.0	0.0	0.0	0.0
Lane LOS	F	B	A				
Approach Delay (s)	39.9	3.0		0.0			
Approach LOS	E						

Intersection Summary		
Average Delay		Err
Intersection Capacity Utilization	Err%	ICU Level of Service
Analysis Period (min)	15	H

HCM Signalized Intersection Capacity Analysis

26: Oak Street & 3rd Street

7/24/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	141	77	49	466	314	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.95		1.00	1.00	1.00	0.85
Flt Protected	0.97		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1718		1770	1863	1863	1583
Flt Permitted	0.97		0.52	1.00	1.00	1.00
Satd. Flow (perm)	1718		961	1863	1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	141	77	49	466	314	53
RTOR Reduction (vph)	44	0	0	0	0	32
Lane Group Flow (vph)	174	0	49	466	314	21
Turn Type	NA		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Actuated Green, G (s)	19.0		18.0	18.0	18.0	18.0
Effective Green, g (s)	19.0		18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.42		0.40	0.40	0.40	0.40
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	725		384	745	745	633
v/s Ratio Prot	c0.10			c0.25	0.17	
v/s Ratio Perm			0.05			0.01
v/c Ratio	0.24		0.13	0.63	0.42	0.03
Uniform Delay, d1	8.4		8.5	10.8	9.7	8.2
Progression Factor	1.00		1.00	1.00	0.79	1.22
Incremental Delay, d2	0.8		0.7	3.9	1.6	0.1
Delay (s)	9.1		9.2	14.7	9.3	10.1
Level of Service	A		A	B	A	B
Approach Delay (s)	9.1			14.2	9.4	
Approach LOS	A			B	A	

Intersection Summary

HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

27: Oak Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔						↕↔			↕	
Volume (vph)	207	854	118	0	0	0	0	464	269	4	241	0
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	
Lane Util. Factor		0.91						0.95			1.00	
Frt		0.98						0.94			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4965						3344			1861	
Flt Permitted		0.99						1.00			0.99	
Satd. Flow (perm)		4965						3344			1840	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	207	854	118	0	0	0	0	464	269	4	241	0
RTOR Reduction (vph)	0	30	0	0	0	0	0	72	0	0	0	0
Lane Group Flow (vph)	0	1149	0	0	0	0	0	661	0	0	245	0
Turn Type	Split	NA						NA		Perm		NA
Protected Phases	4	4						2				6
Permitted Phases										6		
Actuated Green, G (s)		22.0						15.0			15.0	
Effective Green, g (s)		22.0						15.0			15.0	
Actuated g/C Ratio		0.49						0.33			0.33	
Clearance Time (s)		4.0						4.0			4.0	
Lane Grp Cap (vph)		2427						1114			613	
v/s Ratio Prot		c0.23						c0.20				
v/s Ratio Perm											0.13	
v/c Ratio		0.47						0.59			0.40	
Uniform Delay, d1		7.6						12.5			11.5	
Progression Factor		1.00						1.51			1.28	
Incremental Delay, d2		0.7						2.1			1.9	
Delay (s)		8.3						20.9			16.7	
Level of Service		A						C			B	
Approach Delay (s)		8.3			0.0			20.9			16.7	
Approach LOS		A			A			C			B	

Intersection Summary

HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: Oak Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔	↗		↕				
Volume (vph)	0	0	0	217	80	478	134	550	0	0	0	0
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				
Lane Util. Factor					0.91	0.91		0.95				
Frt					0.93	0.85		1.00				
Flt Protected					0.98	1.00		0.99				
Satd. Flow (prot)					3105	1441		3505				
Flt Permitted					0.98	1.00		0.99				
Satd. Flow (perm)					3105	1441		3505				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	217	80	478	134	550	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	63	63	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	463	186	0	684	0	0	0	0
Turn Type				Split	NA	Perm	Split	NA				
Protected Phases				8	8		2	2				
Permitted Phases						8						
Actuated Green, G (s)					22.0	22.0		15.0				
Effective Green, g (s)					22.0	22.0		15.0				
Actuated g/C Ratio					0.49	0.49		0.33				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					1518	704		1168				
v/s Ratio Prot					c0.15			c0.20				
v/s Ratio Perm						0.13						
v/c Ratio					0.31	0.26		0.59				
Uniform Delay, d1					6.9	6.8		12.4				
Progression Factor					1.00	1.00		0.78				
Incremental Delay, d2					0.5	0.9		1.8				
Delay (s)					7.4	7.7		11.5				
Level of Service					A	A		B				
Approach Delay (s)		0.0			7.5			11.5			0.0	
Approach LOS		A			A			B			A	

Intersection Summary

HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: Oak Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4111						4111				
Volume (vph)	118	758	0	0	0	0	0	908	176	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.86						0.91				
Frt		1.00						0.98				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6365						4961				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6365						4961				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	118	758	0	0	0	0	0	908	176	0	0	0
RTOR Reduction (vph)	0	30	0	0	0	0	0	61	0	0	0	0
Lane Group Flow (vph)	0	846			0	0	0	1023			0	0
Turn Type	Perm	NA						NA				
Protected Phases		4						2				
Permitted Phases	4											
Actuated Green, G (s)		19.0						18.0				
Effective Green, g (s)		19.0						18.0				
Actuated g/C Ratio		0.42						0.40				
Clearance Time (s)		4.0						4.0				
Lane Grp Cap (vph)		2687						1984				
v/s Ratio Prot								c0.21				
v/s Ratio Perm		0.13										
v/c Ratio		0.31						0.52				
Uniform Delay, d1		8.7						10.2				
Progression Factor		1.01						0.77				
Incremental Delay, d2		0.3						0.9				
Delay (s)		9.1						8.7				
Level of Service		A						A				
Approach Delay (s)		9.1				0.0		8.7			0.0	
Approach LOS		A				A		A			A	

Intersection Summary

HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

30: 5th Avenue & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	44	332	5	1	252	309	9	1	3	340	2	46
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	44	332	5	1	252	309	9	1	3	340	2	46

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	381	253	309	13	388
Volume Left (vph)	44	1	0	9	340
Volume Right (vph)	5	0	309	3	46
Hadj (s)	0.05	0.04	-0.67	0.03	0.14
Departure Headway (s)	6.3	6.6	5.9	7.6	6.4
Degree Utilization, x	0.67	0.47	0.51	0.03	0.69
Capacity (veh/h)	381	520	588	378	388
Control Delay (s)	20.9	14.1	13.7	10.8	22.7
Approach Delay (s)	20.9	13.9		10.8	22.7
Approach LOS	C	B		B	C

Intersection Summary	
Delay	18.4
Level of Service	C
Intersection Capacity Utilization	70.7%
ICU Level of Service	C
Analysis Period (min)	15

HCM Signalized Intersection Capacity Analysis

31: Webster Street & Atlantic Avenue

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	179	160	44	57	200	39	31	493	45	87	787	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3453		1770	3495		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3453		1770	3495		1770	3539	1583
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)	195	174	48	62	217	42	34	536	49	95	855	175
RTOR Reduction (vph)	0	0	37	0	17	0	0	6	0	0	0	152
Lane Group Flow (vph)	195	174	11	62	242	0	34	579	0	95	855	23
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	Over
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									
Actuated Green, G (s)	9.3	16.3	16.3	5.0	12.0		2.9	26.1		7.4	30.6	9.3
Effective Green, g (s)	9.3	16.3	16.3	5.0	12.0		2.9	26.1		7.4	30.6	9.3
Actuated g/C Ratio	0.13	0.23	0.23	0.07	0.17		0.04	0.37		0.10	0.43	0.13
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	450	814	364	125	585		72	1288		185	1529	207
v/s Ratio Prot	c0.06	0.05		0.04	c0.07		0.02	0.17		c0.05	c0.24	0.01
v/s Ratio Perm			0.01									
v/c Ratio	0.43	0.21	0.03	0.50	0.41		0.47	0.45		0.51	0.56	0.11
Uniform Delay, d1	28.3	22.1	21.1	31.7	26.3		33.2	16.9		30.0	15.1	27.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.7	0.1	0.0	3.1	0.5		4.8	1.1		2.4	1.5	0.2
Delay (s)	29.0	22.2	21.2	34.8	26.7		38.0	18.1		32.4	16.5	27.3
Level of Service	C	C	C	C	C		D	B		C	B	C
Approach Delay (s)		25.3			28.3			19.1			19.6	
Approach LOS		C			C			B			B	

Intersection Summary		
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.52	
Actuated Cycle Length (s)	70.8	Sum of lost time (s) 16.0
Intersection Capacity Utilization	50.3%	ICU Level of Service A
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis

32: Constitution Way & Atlantic Avenue

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	101	141	99	50	134	95	84	553	38	125	1101	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.94		1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3320		1770	3320		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3320		1770	3320		3433	3539	1583	3433	3539	1583
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)	110	153	108	54	146	103	91	601	41	136	1197	125
RTOR Reduction (vph)	0	87	0	0	88	0	0	0	25	0	0	61
Lane Group Flow (vph)	110	174	0	54	161	0	91	601	16	136	1197	64
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	7.6	12.4		4.6	9.4		5.6	25.5	25.5	6.3	26.2	26.2
Effective Green, g (s)	7.6	12.4		4.6	9.4		5.6	25.5	25.5	6.3	26.2	26.2
Actuated g/C Ratio	0.12	0.19		0.07	0.15		0.09	0.39	0.39	0.10	0.40	0.40
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	207	635		125	481		296	1392	622	333	1430	640
v/s Ratio Prot	c0.06	c0.05		0.03	0.05		0.03	0.17		c0.04	c0.34	
v/s Ratio Perm									0.01			0.04
v/c Ratio	0.53	0.27		0.43	0.33		0.31	0.43	0.03	0.41	0.84	0.10
Uniform Delay, d1	26.9	22.4		28.8	24.9		27.8	14.4	12.0	27.5	17.4	12.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	0.2		2.4	0.4		0.6	1.0	0.1	0.8	6.0	0.3
Delay (s)	29.5	22.6		31.2	25.3		28.4	15.3	12.1	28.3	23.4	12.3
Level of Service	C	C		C	C		C	B	B	C	C	B
Approach Delay (s)		24.6			26.4			16.8			22.9	
Approach LOS		C			C			B			C	

Intersection Summary

HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	64.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			


















Level Of Service Computation Report

Existing plus Project (Maximum Commercial Scenario) Conditions
AM Peak Hour

HCM Unsignalized Intersection Capacity Analysis

1: Market Street & 3rd Street

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	24	74	27	17	201	41	43	21	5	31	90	93
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	24	74	27	17	201	41	43	21	5	31	90	93
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	242			101			408	412	50	356	404	121
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	242			101			408	412	50	356	404	121
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			89	96	100	94	83	90
cM capacity (veh/h)	1322			1489			401	513	1007	542	518	908
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2	SB 3				
Volume Total	61	64	118	142	69	31	60	123				
Volume Left	24	0	17	0	43	31	0	0				
Volume Right	0	27	0	41	5	0	0	93				
cSH	1322	1700	1489	1700	451	542	518	767				
Volume to Capacity	0.02	0.04	0.01	0.08	0.15	0.06	0.12	0.16				
Queue Length 95th (ft)	1	0	1	0	13	5	10	14				
Control Delay (s)	3.1	0.0	1.2	0.0	14.4	12.1	12.9	10.6				
Lane LOS	A		A		B	B	B	B				
Approach Delay (s)	1.5		0.5		14.4	11.4						
Approach LOS					B	B						
Intersection Summary												
Average Delay			5.7									
Intersection Capacity Utilization			33.6%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Market Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔↔						↔↔		↔	↔↔↔	
Volume (vph)	10	559	36	0	0	0	0	78	19	52	197	0
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		0.91						0.95		1.00	0.91	
Frt		0.99						0.97		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		5036						3435		1770	5085	
Flt Permitted		1.00						1.00		0.69	1.00	
Satd. Flow (perm)		5036						3435		1287	5085	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	559	36	0	0	0	0	78	19	52	197	0
RTOR Reduction (vph)	0	9	0	0	0	0	0	13	0	0	0	0
Lane Group Flow (vph)	0	596	0	0	0	0	0	84	0	52	197	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		43.0						24.0		24.0	24.0	
Effective Green, g (s)		43.0						24.0		24.0	24.0	
Actuated g/C Ratio		0.57						0.32		0.32	0.32	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		2887						1099		411	1627	
v/s Ratio Prot								0.02			0.04	
v/s Ratio Perm		0.12								c0.04		
v/c Ratio		0.21						0.08		0.13	0.12	
Uniform Delay, d1		7.7						17.8		18.1	18.0	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		0.2						0.1		0.6	0.2	
Delay (s)		7.9						17.9		18.7	18.2	
Level of Service		A						B		B	B	
Approach Delay (s)		7.9			0.0			17.9			18.3	
Approach LOS		A			A			B			B	

Intersection Summary

HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.18		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	28.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations					↑↑	↑		↓	↑↑			↑↑↓
Volume (vph)	0	0	0	103	270	258	9	22	69	0	0	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0	4.0			4.0
Lane Util. Factor					0.95	1.00		1.00	0.95			0.91
Frt					1.00	0.85		1.00	1.00			0.96
Flt Protected					0.99	1.00		0.95	1.00			1.00
Satd. Flow (prot)					3491	1583		1770	3539			4902
Flt Permitted					0.99	1.00		0.63	1.00			1.00
Satd. Flow (perm)					3491	1583		1172	3539			4902
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	103	270	258	9	22	69	0	0	142
RTOR Reduction (vph)	0	0	0	0	0	98	0	0	0	0	0	32
Lane Group Flow (vph)	0	0	0	0	373	160	0	31	69	0	0	156
Turn Type				Perm	NA	Perm	Perm	Perm	NA			NA
Protected Phases					8				2			6
Permitted Phases				8		8	2	2				
Actuated Green, G (s)					62.0	62.0		30.0	30.0			30.0
Effective Green, g (s)					62.0	62.0		30.0	30.0			30.0
Actuated g/C Ratio					0.62	0.62		0.30	0.30			0.30
Clearance Time (s)					4.0	4.0		4.0	4.0			4.0
Lane Grp Cap (vph)					2164	981		351	1061			1470
v/s Ratio Prot									0.02			c0.03
v/s Ratio Perm					0.11	0.10		0.03				
v/c Ratio					0.17	0.16		0.09	0.07			0.11
Uniform Delay, d1					8.1	8.0		25.2	25.0			25.3
Progression Factor					1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2					0.2	0.4		0.5	0.1			0.1
Delay (s)					8.3	8.4		25.7	25.1			25.4
Level of Service					A	A		C	C			C
Approach Delay (s)		0.0			8.3				25.3			25.4
Approach LOS		A			A				C			C

Intersection Summary

HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.15		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	28.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

7/24/2013



Movement	SBR
Line Configurations	
Volume (vph)	45
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Fr	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	45
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

4: Market Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↖↗		↖	↗↖↗		↖	↗↖		↖	↗↖↗	
Volume (vph)	42	268	36	44	581	36	139	148	14	40	83	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.91	
Frt	1.00	0.98		1.00	0.99		1.00	0.99		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4995		1770	5041		1770	3493		1770	4723	
Flt Permitted	0.33	1.00		0.56	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	609	4995		1042	5041		1770	3493		1770	4723	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	42	268	36	44	581	36	139	148	14	40	83	75
RTOR Reduction (vph)	0	22	0	0	9	0	0	8	0	0	66	0
Lane Group Flow (vph)	42	282	0	44	608	0	139	154	0	40	92	0
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4			8								
Actuated Green, G (s)	22.0	22.0		22.0	22.0		36.0	36.0		10.0	10.0	
Effective Green, g (s)	22.0	22.0		22.0	22.0		36.0	36.0		10.0	10.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.45	0.45		0.12	0.12	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	167	1373		286	1386		796	1571		221	590	
v/s Ratio Prot		0.06			c0.12		c0.08	0.04		c0.02	0.02	
v/s Ratio Perm	0.07			0.04								
v/c Ratio	0.25	0.21		0.15	0.44		0.17	0.10		0.18	0.16	
Uniform Delay, d1	22.6	22.3		22.0	23.9		13.1	12.7		31.3	31.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.6	0.3		1.1	1.0		0.5	0.1		1.8	0.6	
Delay (s)	26.2	22.6		23.1	24.9		13.6	12.8		33.1	31.8	
Level of Service	C	C		C	C		B	B		C	C	
Approach Delay (s)		23.1			24.8			13.2			32.1	
Approach LOS		C			C			B			C	

Intersection Summary

HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	39.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: Castro Street & 11th Street

7/24/2013



Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Volume (vph)	139	772	410	27	79	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	0.81	0.81	0.91		0.97	
Frt	1.00	1.00	0.99		0.94	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1433	6030	5038		3288	
Flt Permitted	0.95	1.00	1.00		0.97	
Satd. Flow (perm)	1433	6030	5038		3288	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	139	772	410	27	79	59
RTOR Reduction (vph)	90	53	10	0	0	0
Lane Group Flow (vph)	35	733	427	0	138	0
Turn Type	Split	NA	NA		NA	
Protected Phases	4	4	2		8	
Permitted Phases						
Actuated Green, G (s)	21.0	21.0	21.0		21.0	
Effective Green, g (s)	21.0	21.0	21.0		21.0	
Actuated g/C Ratio	0.28	0.28	0.28		0.28	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Lane Grp Cap (vph)	401	1688	1410		920	
v/s Ratio Prot	0.02	c0.12	c0.08		c0.04	
v/s Ratio Perm						
v/c Ratio	0.09	0.43	0.30		0.15	
Uniform Delay, d1	19.9	22.1	21.2		20.3	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.8	0.6		0.3	
Delay (s)	20.4	22.9	21.8		20.6	
Level of Service	C	C	C		C	
Approach Delay (s)		22.6	21.8		20.6	
Approach LOS		C	C		C	

Intersection Summary

HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	33.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

6: Castro Street & 12th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑	↑	↑↑↑↑				
Volume (vph)	0	0	0	0	177	214	37	488	0	0	0	0
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					0.91	0.91	0.81	0.81				
Frt					0.95	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	1.00				
Satd. Flow (prot)					3216	1441	1433	6033				
Flt Permitted					1.00	1.00	0.95	1.00				
Satd. Flow (perm)					3216	1441	1433	6033				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	177	214	37	488	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	61	81	15	7	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	208	41	18	485	0	0	0	0
Turn Type					NA	Perm	Perm	NA				
Protected Phases					8			2				
Permitted Phases						8	2					
Actuated Green, G (s)					25.0	25.0	42.0	42.0				
Effective Green, g (s)					25.0	25.0	42.0	42.0				
Actuated g/C Ratio					0.33	0.33	0.56	0.56				
Clearance Time (s)					4.0	4.0	4.0	4.0				
Lane Grp Cap (vph)					1072	480	802	3378				
v/s Ratio Prot					c0.06							
v/s Ratio Perm						0.03	0.01	0.08				
v/c Ratio					0.19	0.08	0.02	0.14				
Uniform Delay, d1					17.8	17.2	7.4	7.9				
Progression Factor					1.00	1.00	0.30	0.44				
Incremental Delay, d2					0.4	0.3	0.1	0.1				
Delay (s)					18.2	17.5	2.2	3.6				
Level of Service					B	B	A	A				
Approach Delay (s)		0.0			18.0			3.5			0.0	
Approach LOS		A			B			A			A	

Intersection Summary

HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.16		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	22.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 7: Broadway & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	7	93	79	7	96	87	10	39	0	78	98	13
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	7	93	79	7	96	87	10	39	0	78	98	13

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	179	190	30	20	127	62
Volume Left (vph)	7	7	10	0	78	0
Volume Right (vph)	79	87	0	0	0	13
Hadj (s)	-0.22	-0.23	0.20	0.03	0.34	-0.11
Departure Headway (s)	4.5	4.5	5.8	5.7	5.8	5.3
Degree Utilization, x	0.23	0.24	0.05	0.03	0.20	0.09
Capacity (veh/h)	745	751	569	583	585	635
Control Delay (s)	8.9	8.9	7.9	7.6	9.1	7.7
Approach Delay (s)	8.9	8.9	7.8		8.6	
Approach LOS	A	A	A		A	

Intersection Summary						
Delay			8.7			
Level of Service			A			
Intersection Capacity Utilization			30.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

8: Broadway & 2nd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	9	4	4	9	29	34	4	123	8	32	209	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	9	4	4	9	29	34	4	123	8	32	209	15
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											288	
pX, platoon unblocked												
vC, conflicting volume	398	420	112	310	423	66	224			131		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	398	420	112	310	423	66	224			131		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	99	100	99	94	97	100			98		
cM capacity (veh/h)	486	510	920	602	508	985	1342			1452		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	17	72	66	70	136	120
Volume Left	9	9	4	0	32	0
Volume Right	4	34	0	8	0	15
cSH	553	676	1342	1700	1452	1700
Volume to Capacity	0.03	0.11	0.00	0.04	0.02	0.07
Queue Length 95th (ft)	2	9	0	0	2	0
Control Delay (s)	11.7	11.0	0.5	0.0	1.9	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	11.7	11.0	0.2		1.0	
Approach LOS	B	B				

Intersection Summary		
Average Delay		2.7
Intersection Capacity Utilization	25.1%	ICU Level of Service
Analysis Period (min)		15
		A

HCM Signalized Intersection Capacity Analysis

9: Broadway & 3rd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	34	38	21	4	45	41	18	130	9	40	223	65
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			0.95			0.95	
Frt		0.97			0.94			0.99			0.97	
Flt Protected		0.98			1.00			0.99			0.99	
Satd. Flow (prot)		1774			1744			3489			3413	
Flt Permitted		0.90			0.99			0.91			0.91	
Satd. Flow (perm)		1618			1734			3209			3135	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	34	38	21	4	45	41	18	130	9	40	223	65
RTOR Reduction (vph)	0	14	0	0	28	0	0	4	0	0	31	0
Lane Group Flow (vph)	0	79	0	0	62	0	0	153	0	0	297	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		18.0			18.0			29.0			29.0	
Effective Green, g (s)		18.0			18.0			29.0			29.0	
Actuated g/C Ratio		0.33			0.33			0.53			0.53	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		529			567			1692			1653	
v/s Ratio Prot												
v/s Ratio Perm		c0.05			0.04			0.05			c0.09	
v/c Ratio		0.15			0.11			0.09			0.18	
Uniform Delay, d1		13.1			12.9			6.5			6.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.6			0.4			0.1			0.2	
Delay (s)		13.7			13.3			6.6			7.0	
Level of Service		B			B			A			A	
Approach Delay (s)		13.7			13.3			6.6			7.0	
Approach LOS		B			B			A			A	

Intersection Summary

HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	35.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

10: Broadway & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	705	136	75	0	0	0	0	138	234	422	342	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.91	0.91	1.00					0.95	1.00	0.97	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3272	1583					3539	1583	3433	1863	
Flt Permitted	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1610	3272	1583					3539	1583	3433	1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	705	136	75	0	0	0	0	138	234	422	342	0
RTOR Reduction (vph)	0	0	54	0	0	0	0	0	168	0	0	0
Lane Group Flow (vph)	352	489	21	0	0	0	0	138	66	422	342	0
Turn Type	Split	NA	Prot					NA	Prot	Split	NA	
Protected Phases	4	4	4					2	2	6	6	
Permitted Phases												
Actuated Green, G (s)	21.0	21.0	21.0					21.0	21.0	21.0	21.0	
Effective Green, g (s)	21.0	21.0	21.0					21.0	21.0	21.0	21.0	
Actuated g/C Ratio	0.28	0.28	0.28					0.28	0.28	0.28	0.28	
Clearance Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	450	916	443					990	443	961	521	
v/s Ratio Prot	c0.22	0.15	0.01					0.04	c0.04	0.12	c0.18	
v/s Ratio Perm												
v/c Ratio	0.78	0.53	0.05					0.14	0.15	0.44	0.66	
Uniform Delay, d1	24.9	22.9	19.7					20.2	20.3	22.2	23.8	
Progression Factor	0.87	0.85	0.74					1.00	1.00	1.18	1.16	
Incremental Delay, d2	12.7	2.2	0.2					0.3	0.7	1.3	5.6	
Delay (s)	34.2	21.7	14.8					20.5	21.0	27.4	33.2	
Level of Service	C	C	B					C	C	C	C	
Approach Delay (s)		26.0			0.0			20.8			30.0	
Approach LOS		C			A			C			C	

Intersection Summary

HCM 2000 Control Delay	26.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

11: Broadway & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations				↙	↕	↗	↙	↕			↕	↗	
Volume (vph)	0	0	0	430	198	661	22	147	0	0	365	44	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0		
Lane Util. Factor				1.00	0.91	0.91	1.00	0.95			0.91		
Frt				1.00	0.91	0.85	1.00	1.00			0.98		
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00		
Satd. Flow (prot)				1770	3072	1441	1770	3539			5003		
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00		
Satd. Flow (perm)				1770	3072	1441	1770	3539			5003		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	0	0	0	430	198	661	22	147	0	0	365	44	
RTOR Reduction (vph)	0	0	0	0	225	224	0	0	0	0	20	0	
Lane Group Flow (vph)	0	0	0	430	304	106	22	147	0	0	389	0	
Turn Type				Split	NA	Prot	Prot	NA			NA		
Protected Phases				8	8	8	5	2			6		
Permitted Phases													
Actuated Green, G (s)				24.0	24.0	24.0	9.0	43.0			30.0		
Effective Green, g (s)				24.0	24.0	24.0	9.0	43.0			30.0		
Actuated g/C Ratio				0.32	0.32	0.32	0.12	0.57			0.40		
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0		
Lane Grp Cap (vph)				566	983	461	212	2029			2001		
v/s Ratio Prot				c0.24	0.10	0.07	c0.01	0.04			c0.08		
v/s Ratio Perm													
v/c Ratio				0.76	0.31	0.23	0.10	0.07			0.19		
Uniform Delay, d1				22.9	19.2	18.7	29.4	7.1			14.6		
Progression Factor				1.00	1.00	1.00	0.62	0.16			1.00		
Incremental Delay, d2				9.3	0.8	1.2	0.8	0.1			0.2		
Delay (s)				32.2	20.1	19.9	19.0	1.2			14.9		
Level of Service				C	C	B	B	A			B		
Approach Delay (s)		0.0			24.1			3.5			14.9		
Approach LOS		A			C			A			B		
Intersection Summary													
HCM 2000 Control Delay			20.2		HCM 2000 Level of Service						C		
HCM 2000 Volume to Capacity ratio			0.40										
Actuated Cycle Length (s)			75.0		Sum of lost time (s)						12.0		
Intersection Capacity Utilization			68.5%		ICU Level of Service						C		
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

12: Broadway & 11th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		←↑↑↑						↑↑		↘	↑↑	
Volume (vph)	70	525	112	0	0	0	0	418	80	82	436	0
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		0.86						0.95		1.00	0.95	
Frt		0.98						0.98		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		6225						3454		1770	3539	
Flt Permitted		1.00						1.00		0.34	1.00	
Satd. Flow (perm)		6225						3454		626	3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	70	525	112	0	0	0	0	418	80	82	436	0
RTOR Reduction (vph)	0	57	0	0	0	0	0	27	0	0	0	0
Lane Group Flow (vph)	0	650		0	0	0	0	471	0	82	436	
Turn Type	Split	NA						NA		pm+pt	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases										6		
Actuated Green, G (s)		20.0						20.0		32.0	32.0	
Effective Green, g (s)		20.0						20.0		32.0	32.0	
Actuated g/C Ratio		0.33						0.33		0.53	0.53	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		2075						1151		486	1887	
v/s Ratio Prot		c0.10						c0.14		0.02	c0.12	
v/s Ratio Perm										0.07		
v/c Ratio		0.31						0.41		0.17	0.23	
Uniform Delay, d1		14.9						15.4		7.3	7.5	
Progression Factor		1.00						1.00		0.84	0.75	
Incremental Delay, d2		0.4						1.1		0.7	0.3	
Delay (s)		15.3						16.5		6.9	5.9	
Level of Service		B						B		A	A	
Approach Delay (s)		15.3			0.0			16.5			6.0	
Approach LOS		B			A			B			A	

Intersection Summary

HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	39.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: Broadway & 12th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←↑↑↑		↑	↑↑			↑↑↑	
Volume (vph)	0	0	0	94	296	63	94	370	0	0	408	35
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					0.91		1.00	0.95			0.91	
Flt					0.98		1.00	1.00			0.99	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					4928		1770	3539			5025	
Flt Permitted					0.99		0.41	1.00			1.00	
Satd. Flow (perm)					4928		754	3539			5025	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	94	296	63	94	370	0	0	408	35
RTOR Reduction (vph)	0	0	0	0	37	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	0	0	0	416	0	94	370	0	0	426	0
Turn Type				Split	NA		pm+pt	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases							2					
Actuated Green, G (s)					20.0		32.0	32.0			20.0	
Effective Green, g (s)					20.0		32.0	32.0			20.0	
Actuated g/C Ratio					0.33		0.53	0.53			0.33	
Clearance Time (s)					4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)					1642		537	1887			1675	
v/s Ratio Prot					c0.08		0.02	c0.10			c0.08	
v/s Ratio Perm							0.07					
v/c Ratio					0.25		0.18	0.20			0.25	
Uniform Delay, d1					14.6		7.0	7.3			14.6	
Progression Factor					1.00		0.61	0.59			1.82	
Incremental Delay, d2					0.4		0.7	0.2			0.3	
Delay (s)					14.9		5.0	4.5			26.9	
Level of Service					B		A	A			C	
Approach Delay (s)		0.0			14.9			4.6			26.9	
Approach LOS		A			B			A			C	

Intersection Summary

HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	39.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: Broadway & 14th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↑			↑↑	
Volume (vph)	3	273	86	1	268	91	0	358	26	0	500	73
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			0.95			0.95			0.95	
Frt		0.96			0.96			0.99			0.98	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		3412			3405			3503			3472	
Flt Permitted		0.95			0.95			1.00			1.00	
Satd. Flow (perm)		3253			3250			3503			3472	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	273	86	1	268	91	0	358	26	0	500	73
RTOR Reduction (vph)	0	47	0	0	50	0	0	9	0	0	19	0
Lane Group Flow (vph)	0	315	0	0	310	0	0	375	0	0	554	0
Turn Type	Perm	NA		Perm	NA			NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8								
Actuated Green, G (s)		27.0			27.0			25.0			25.0	
Effective Green, g (s)		27.0			27.0			25.0			25.0	
Actuated g/C Ratio		0.45			0.45			0.42			0.42	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		1463			1462			1459			1446	
v/s Ratio Prot								0.11			c0.16	
v/s Ratio Perm		c0.10			0.10							
v/c Ratio		0.22			0.21			0.26			0.38	
Uniform Delay, d1		10.0			10.0			11.4			12.1	
Progression Factor		1.00			1.00			1.91			1.00	
Incremental Delay, d2		0.3			0.3			0.4			0.8	
Delay (s)		10.4			10.4			22.2			12.9	
Level of Service		B			B			C			B	
Approach Delay (s)		10.4			10.4			22.2			12.9	
Approach LOS		B			B			C			B	

Intersection Summary

















HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	35.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

15: Franklin Street & 2nd Street

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	26	15	12	52	0	0	0	0	12	18	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	26	15	12	52	0	0	0	0	12	18	10
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					384							
pX, platoon unblocked												
vC, conflicting volume	52			41			128	110	34	110	117	52
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	52			41			128	110	34	110	117	52
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	99	98	99
cM capacity (veh/h)	1554			1568			816	775	1040	864	767	1016
Direction, Lane #	EB 1	WB 1	SB 1	SB 2								
Volume Total	41	64	21	19								
Volume Left	0	12	12	0								
Volume Right	15	0	0	10								
cSH	1700	1568	820	881								
Volume to Capacity	0.02	0.01	0.03	0.02								
Queue Length 95th (ft)	0	1	2	2								
Control Delay (s)	0.0	1.4	9.5	9.2								
Lane LOS		A	A	A								
Approach Delay (s)	0.0	1.4	9.4									
Approach LOS			A									
Intersection Summary												
Average Delay			3.2									
Intersection Capacity Utilization			20.1%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

16: Franklin Street & 3rd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔	
Volume (veh/h)	0	27	13	20	30	0	0	0	0	6	3	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	27	13	20	30	0	0	0	0	6	3	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		367			383							
pX, platoon unblocked												
vC, conflicting volume	30			40			107	104	34	104	110	30
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	30			40			107	104	34	104	110	30
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	99	100	100
cM capacity (veh/h)	1583			1570			859	777	1040	868	770	1044

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	40	50	8	4
Volume Left	0	20	6	0
Volume Right	13	0	0	2
cSH	1700	1570	847	906
Volume to Capacity	0.02	0.01	0.01	0.00
Queue Length 95th (ft)	0	1	1	0
Control Delay (s)	0.0	3.0	9.3	9.0
Lane LOS		A	A	A
Approach Delay (s)	0.0	3.0	9.2	
Approach LOS			A	

Intersection Summary			
Average Delay		2.5	
Intersection Capacity Utilization	19.4%		ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis

17: Webster Street & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	51	151	130	45	87	127
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	51	151	130	45	87	127
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	385					
pX, platoon unblocked						
vC, conflicting volume	0		272	102	253	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		272	102	253	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	97		75	94	86	88
cM capacity (veh/h)	1623		524	763	630	1085
Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2	
Volume Total	51	151	175	87	127	
Volume Left	51	0	130	0	0	
Volume Right	0	151	0	0	127	
cSH	1623	1700	570	630	1085	
Volume to Capacity	0.03	0.09	0.31	0.14	0.12	
Queue Length 95th (ft)	2	0	32	12	10	
Control Delay (s)	7.3	0.0	14.1	11.6	8.8	
Lane LOS	A		B	B	A	
Approach Delay (s)	1.8		14.1	9.9		
Approach LOS			B	A		
Intersection Summary						
Average Delay			8.4			
Intersection Capacity Utilization			26.2%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

18: Harrison Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑↑↑	↑↑			
Volume (vph)	51	214	0	0	0	0	0	536	1207	0	0	0
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			
Lane Util. Factor		0.91						0.91	0.88			
Frt		1.00						1.00	0.85			
Flt Protected		0.99						1.00	1.00			
Satd. Flow (prot)		5037						5085	2787			
Flt Permitted		0.99						1.00	1.00			
Satd. Flow (perm)		5037						5085	2787			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	51	214	0	0	0	0	0	536	1207	0	0	0
RTOR Reduction (vph)	0	33	0	0	0	0	0	0	473	0	0	0
Lane Group Flow (vph)	0	232	0	0	0	0	0	536	734	0	0	0
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Actuated Green, G (s)		16.0						21.0	21.0			
Effective Green, g (s)		16.0						21.0	21.0			
Actuated g/C Ratio		0.36						0.47	0.47			
Clearance Time (s)		4.0						4.0	4.0			
Lane Grp Cap (vph)		1790						2373	1300			
v/s Ratio Prot								0.11				
v/s Ratio Perm		0.05							c0.26			
v/c Ratio		0.13						0.23	0.56			
Uniform Delay, d1		9.8						7.2	8.7			
Progression Factor		1.00						1.00	1.00			
Incremental Delay, d2		0.1						0.2	1.8			
Delay (s)		9.9						7.4	10.5			
Level of Service		A						A	B			
Approach Delay (s)		9.9			0.0			9.5			0.0	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

19: Jackson Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔						↔		↔↕	↕	
Volume (vph)	260	366	441	0	0	0	0	194	33	66	99	0
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		0.91						1.00		1.00	1.00	
Frt		0.94						0.98		1.00	1.00	
Flt Protected		0.99						1.00		0.95	1.00	
Satd. Flow (prot)		4713						1826		1770	1863	
Flt Permitted		0.99						1.00		0.62	1.00	
Satd. Flow (perm)		4713						1826		1149	1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	260	366	441	0	0	0	0	194	33	66	99	0
RTOR Reduction (vph)	0	282	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	0	785	0	0	0	0	0	213	0	66	99	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		13.0						24.0		24.0	24.0	
Effective Green, g (s)		13.0						24.0		24.0	24.0	
Actuated g/C Ratio		0.29						0.53		0.53	0.53	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		1361						973		612	993	
v/s Ratio Prot								c0.12			0.05	
v/s Ratio Perm		0.17								0.06		
v/c Ratio		0.58						0.22		0.11	0.10	
Uniform Delay, d1		13.7						5.5		5.2	5.2	
Progression Factor		1.00						1.00		0.33	0.34	
Incremental Delay, d2		1.8						0.5		0.4	0.2	
Delay (s)		15.4						6.1		2.1	1.9	
Level of Service		B						A		A	A	
Approach Delay (s)		15.4			0.0			6.1			2.0	
Approach LOS		B			A			A			A	

Intersection Summary

HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

20: Jackson Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↗	↖	↖	↗			↗	↖
Volume (vph)	0	0	0	2	279	50	256	238	0	0	188	1262
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1770	1863	1583	1770	1863			1863	1583
Flt Permitted				0.95	1.00	1.00	0.64	1.00			1.00	1.00
Satd. Flow (perm)				1770	1863	1583	1191	1863			1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	2	279	50	256	238	0	0	188	1262
RTOR Reduction (vph)	0	0	0	0	0	38	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	2	279	12	256	238	0	0	188	1262
Turn Type				Split	NA	Perm	Perm	NA			NA	Free
Protected Phases				8	8			2			6	
Permitted Phases						8	2					Free
Actuated Green, G (s)				11.0	11.0	11.0	26.0	26.0			26.0	45.0
Effective Green, g (s)				11.0	11.0	11.0	26.0	26.0			26.0	45.0
Actuated g/C Ratio				0.24	0.24	0.24	0.58	0.58			0.58	1.00
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)				432	455	386	688	1076			1076	1583
v/s Ratio Prot				0.00	0.15			0.13			0.10	
v/s Ratio Perm						0.01	0.22					c0.80
v/c Ratio				0.00	0.61	0.03	0.37	0.22			0.17	0.80
Uniform Delay, d1				12.9	15.1	12.9	5.1	4.6			4.5	0.0
Progression Factor				0.73	0.71	0.70	1.06	1.03			1.53	1.00
Incremental Delay, d2				0.0	6.0	0.1	1.4	0.4			0.3	3.8
Delay (s)				9.4	16.7	9.3	6.8	5.2			7.1	3.8
Level of Service				A	B	A	A	A			A	A
Approach Delay (s)		0.0			15.5			6.0			4.2	
Approach LOS		A			B			A			A	

Intersection Summary

HCM 2000 Control Delay	6.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

21: Jackson Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔	↔					↔			↔↕	
Volume (vph)	32	442	1123	0	0	0	0	265	67	20	255	0
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		0.86	0.86					1.00			1.00	
Frt		0.92	0.85					0.97			1.00	
Flt Protected		1.00	1.00					1.00			1.00	
Satd. Flow (prot)		4408	1362					1812			1856	
Flt Permitted		1.00	1.00					1.00			0.96	
Satd. Flow (perm)		4408	1362					1812			1797	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	32	442	1123	0	0	0	0	265	67	20	255	0
RTOR Reduction (vph)	0	230	230	0	0	0	0	20	0	0	0	0
Lane Group Flow (vph)	0	806	331	0	0	0	0	312	0	0	275	0
Turn Type	Split	NA	Perm					NA		Perm	NA	
Protected Phases	4	4						2			6	
Permitted Phases			4							6		
Actuated Green, G (s)		21.0	21.0					16.0			16.0	
Effective Green, g (s)		21.0	21.0					16.0			16.0	
Actuated g/C Ratio		0.47	0.47					0.36			0.36	
Clearance Time (s)		4.0	4.0					4.0			4.0	
Lane Grp Cap (vph)		2057	635					644			638	
v/s Ratio Prot		0.18						c0.17				
v/s Ratio Perm			c0.24								0.15	
v/c Ratio		0.39	0.52					0.48			0.43	
Uniform Delay, d1		7.8	8.5					11.3			11.0	
Progression Factor		1.00	1.00					0.61			1.00	
Incremental Delay, d2		0.6	3.0					2.6			2.1	
Delay (s)		8.4	11.5					9.5			13.2	
Level of Service		A	B					A			B	
Approach Delay (s)		9.5			0.0			9.5			13.2	
Approach LOS		A			A			A			B	

Intersection Summary

HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

22: Madison Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑								↘	↙↑	
Volume (vph)	0	416	17	0	0	0	0	0	0	548	142	0
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	
Lane Util. Factor		0.91								0.91	0.91	
Frt		0.99								1.00	1.00	
Flt Protected		1.00								0.95	0.97	
Satd. Flow (prot)		5055								1610	3282	
Flt Permitted		1.00								0.95	0.97	
Satd. Flow (perm)		5055								1610	3282	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	416	17	0	0	0	0	0	0	548	142	0
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	0	119	119	0
Lane Group Flow (vph)	0	424	0	0	0	0	0	0	0	155	297	0
Turn Type		NA								Perm	NA	
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0								22.0	22.0	
Effective Green, g (s)		16.0								22.0	22.0	
Actuated g/C Ratio		0.35								0.48	0.48	
Clearance Time (s)		4.0								4.0	4.0	
Lane Grp Cap (vph)		1758								770	1569	
v/s Ratio Prot		c0.08										
v/s Ratio Perm										c0.10	0.09	
v/c Ratio		0.24								0.20	0.19	
Uniform Delay, d1		10.7								6.9	6.9	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.3								0.6	0.3	
Delay (s)		11.0								7.5	7.2	
Level of Service		B								A	A	
Approach Delay (s)		11.0			0.0			0.0			7.3	
Approach LOS		B			A			A			A	

Intersection Summary

HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	46.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	28.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

23: Madison Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑						↑↑↑	
Volume (vph)	0	0	0	31	164	0	0	0	0	0	654	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0						4.0	
Lane Util. Factor					0.91						0.91	
Frt					1.00						0.96	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					5045						4900	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					5045						4900	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	31	164	0	0	0	0	0	654	210
RTOR Reduction (vph)	0	0	0	0	21	0	0	0	0	0	107	0
Lane Group Flow (vph)	0	0	0	0	174	0	0	0	0	0	757	0
Turn Type				Split	NA						NA	
Protected Phases				8	8						6	
Permitted Phases												
Actuated Green, G (s)					15.0						22.0	
Effective Green, g (s)					15.0						22.0	
Actuated g/C Ratio					0.33						0.49	
Clearance Time (s)					4.0						4.0	
Lane Grp Cap (vph)					1681						2395	
v/s Ratio Prot					c0.03						c0.15	
v/s Ratio Perm												
v/c Ratio					0.10						0.32	
Uniform Delay, d1					10.4						7.0	
Progression Factor					1.12						0.57	
Incremental Delay, d2					0.1						0.3	
Delay (s)					11.7						4.3	
Level of Service					B						A	
Approach Delay (s)		0.0			11.7			0.0			4.3	
Approach LOS		A			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			5.7		HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio			0.23									
Actuated Cycle Length (s)			45.0		Sum of lost time (s)			8.0				
Intersection Capacity Utilization			28.3%		ICU Level of Service			A				
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

24: Madison Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑									↑↑↑	
Volume (vph)	0	331	193	0	0	0	0	0	0	121	622	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									4.0	
Lane Util. Factor		0.86									0.91	
Frt		0.94									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		6054									5044	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		6054									5044	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	331	193	0	0	0	0	0	0	121	622	0
RTOR Reduction (vph)	0	122	0	0	0	0	0	0	0	0	64	0
Lane Group Flow (vph)	0	402	0	0	0	0	0	0	0	0	679	0
Turn Type		NA								Perm		NA
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0									21.0	
Effective Green, g (s)		16.0									21.0	
Actuated g/C Ratio		0.36									0.47	
Clearance Time (s)		4.0									4.0	
Lane Grp Cap (vph)		2152									2353	
v/s Ratio Prot		c0.07										
v/s Ratio Perm											0.13	
v/c Ratio		0.19									0.29	
Uniform Delay, d1		10.0									7.4	
Progression Factor		0.61									1.00	
Incremental Delay, d2		0.2									0.3	
Delay (s)		6.3									7.7	
Level of Service		A									A	
Approach Delay (s)		6.3				0.0		0.0			7.7	
Approach LOS		A				A		A			A	

Intersection Summary




















HCM 2000 Control Delay	7.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	29.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

25: Oak Street & 1st Street / Embarcadero

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Volume (veh/h)	134	0	71	2	0	0	179	227	0	0	201	164
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	134	0	71	2	0	0	179	227	0	0	201	164
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											563	
pX, platoon unblocked												
vC, conflicting volume	754	868	182	756	950	114	365			227		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	754	868	182	756	950	114	365			227		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	49	100	91	99	100	100	85			100		
cM capacity (veh/h)	263	246	829	240	220	918	1190			1339		
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2					
Volume Total	134	71	179	114	114	134	231					
Volume Left	134	0	179	0	0	0	0					
Volume Right	0	71	0	0	0	0	164					
cSH	263	829	1190	1700	1700	1700	1700					
Volume to Capacity	0.51	0.09	0.15	0.07	0.07	0.08	0.14					
Queue Length 95th (ft)	67	7	13	0	0	0	0					
Control Delay (s)	32.0	9.8	8.6	0.0	0.0	0.0	0.0					
Lane LOS	D	A	A									
Approach Delay (s)	24.3		3.8			0.0						
Approach LOS	C											
Intersection Summary												
Average Delay			Err									
Intersection Capacity Utilization			Err%		ICU Level of Service				H			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

26: Oak Street & 3rd Street

7/24/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	49	65	58	322	314	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.92		1.00	1.00	1.00	0.85
Flt Protected	0.98		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1683		1770	1863	1863	1583
Flt Permitted	0.98		0.52	1.00	1.00	1.00
Satd. Flow (perm)	1683		961	1863	1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	49	65	58	322	314	60
RTOR Reduction (vph)	38	0	0	0	0	36
Lane Group Flow (vph)	76	0	58	322	314	24
Turn Type	NA		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Actuated Green, G (s)	19.0		18.0	18.0	18.0	18.0
Effective Green, g (s)	19.0		18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.42		0.40	0.40	0.40	0.40
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	710		384	745	745	633
v/s Ratio Prot	c0.05			c0.17	0.17	
v/s Ratio Perm			0.06			0.02
v/c Ratio	0.11		0.15	0.43	0.42	0.04
Uniform Delay, d1	7.9		8.6	9.8	9.7	8.2
Progression Factor	1.00		1.00	1.00	0.77	0.99
Incremental Delay, d2	0.3		0.8	1.8	1.7	0.1
Delay (s)	8.2		9.5	11.6	9.2	8.2
Level of Service	A		A	B	A	A
Approach Delay (s)	8.2			11.3	9.0	
Approach LOS	A			B	A	

Intersection Summary

HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

27: Oak Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔						↕↔↔			↔↕	
Volume (vph)	219	555	126	0	0	0	0	247	122	2	202	0
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	
Lane Util. Factor		0.91						0.95			1.00	
Frt		0.98						0.95			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4919						3364			1862	
Flt Permitted		0.99						1.00			1.00	
Satd. Flow (perm)		4919						3364			1856	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	219	555	126	0	0	0	0	247	122	2	202	0
RTOR Reduction (vph)	0	50	0	0	0	0	0	81	0	0	0	0
Lane Group Flow (vph)	0	850		0	0	0	0	288		0	204	0
Turn Type	Split	NA						NA		Perm		NA
Protected Phases	4	4						2				6
Permitted Phases										6		
Actuated Green, G (s)		22.0						15.0				15.0
Effective Green, g (s)		22.0						15.0				15.0
Actuated g/C Ratio		0.49						0.33				0.33
Clearance Time (s)		4.0						4.0				4.0
Lane Grp Cap (vph)		2404						1121				618
v/s Ratio Prot		c0.17						0.09				
v/s Ratio Perm												c0.11
v/c Ratio		0.35						0.26				0.33
Uniform Delay, d1		7.1						10.9				11.2
Progression Factor		1.00						1.89				1.22
Incremental Delay, d2		0.4						0.5				1.4
Delay (s)		7.5						21.1				15.1
Level of Service		A						C				B
Approach Delay (s)		7.5			0.0			21.1				15.1
Approach LOS		A			A			C				B

Intersection Summary

HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	36.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: Oak Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔	↗		↔				
Volume (vph)	0	0	0	185	66	567	116	377	0	0	0	0
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				
Lane Util. Factor					0.91	0.91		0.95				
Frt					0.92	0.85		1.00				
Flt Protected					0.98	1.00		0.99				
Satd. Flow (prot)					3067	1441		3498				
Flt Permitted					0.98	1.00		0.99				
Satd. Flow (perm)					3067	1441		3498				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	185	66	567	116	377	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	128	128	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	407	155	0	493	0	0	0	0
Turn Type				Split	NA	Perm	Split	NA				
Protected Phases				8	8		2	2				
Permitted Phases						8						
Actuated Green, G (s)					22.0	22.0		15.0				
Effective Green, g (s)					22.0	22.0		15.0				
Actuated g/C Ratio					0.49	0.49		0.33				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					1499	704		1166				
v/s Ratio Prot					c0.13			c0.14				
v/s Ratio Perm						0.11						
v/c Ratio					0.27	0.22		0.42				
Uniform Delay, d1					6.8	6.6		11.6				
Progression Factor					1.00	1.00		1.04				
Incremental Delay, d2					0.4	0.7		1.1				
Delay (s)					7.2	7.3		13.1				
Level of Service					A	A		B				
Approach Delay (s)		0.0			7.3			13.1			0.0	
Approach LOS		A			A			B			A	

Intersection Summary

HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: Oak Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		←↑↑↑						↑↑↑				
Volume (vph)	84	324	0	0	0	0	0	843	84	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.86						0.91				
Frt		1.00						0.99				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6343						5016				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6343						5016				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	84	324	0	0	0	0	0	843	84	0	0	0
RTOR Reduction (vph)	0	38	0	0	0	0	0	26	0	0	0	0
Lane Group Flow (vph)	0	370	0	0	0	0	0	901	0	0	0	0
Turn Type	Perm	NA						NA				
Protected Phases		4						2				
Permitted Phases	4											
Actuated Green, G (s)		19.0						18.0				
Effective Green, g (s)		19.0						18.0				
Actuated g/C Ratio		0.42						0.40				
Clearance Time (s)		4.0						4.0				
Lane Grp Cap (vph)		2678						2006				
v/s Ratio Prot								c0.18				
v/s Ratio Perm		0.06										
v/c Ratio		0.14						0.45				
Uniform Delay, d1		8.0						9.9				
Progression Factor		0.93						0.70				
Incremental Delay, d2		0.1						0.7				
Delay (s)		7.5						7.6				
Level of Service		A						A				
Approach Delay (s)		7.5				0.0		7.6			0.0	
Approach LOS		A				A		A			A	

Intersection Summary

HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 30: 5th Avenue & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	21	226	4	4	279	190	7	2	2	267	4	103
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	21	226	4	4	279	190	7	2	2	267	4	103

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	251	283	190	11	374
Volume Left (vph)	21	4	0	7	267
Volume Right (vph)	4	0	190	2	103
Hadj (s)	0.04	0.04	-0.67	0.05	0.01
Departure Headway (s)	5.9	6.1	5.4	6.7	5.7
Degree Utilization, x	0.41	0.48	0.29	0.02	0.60
Capacity (veh/h)	572	563	634	442	596
Control Delay (s)	13.0	13.5	9.4	9.8	16.8
Approach Delay (s)	13.0	11.8		9.8	16.8
Approach LOS	B	B		A	C

Intersection Summary	
Delay	13.8
Level of Service	B
Intersection Capacity Utilization	62.5%
ICU Level of Service	B
Analysis Period (min)	15

HCM Signalized Intersection Capacity Analysis

31: Webster Street & Atlantic Avenue

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	197	69	23	202	64	75	840	36	40	432	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3411		1770	3517		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3411		1770	3517		1770	3539	1583
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)	299	214	75	25	220	70	82	913	39	43	470	255
RTOR Reduction (vph)	0	0	52	0	33	0	0	2	0	0	0	215
Lane Group Flow (vph)	299	214	23	25	257	0	82	950	0	43	470	40
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	Over
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									
Actuated Green, G (s)	11.7	22.4	22.4	2.7	13.4		7.1	28.1		4.5	25.5	11.7
Effective Green, g (s)	11.7	22.4	22.4	2.7	13.4		7.1	28.1		4.5	25.5	11.7
Actuated g/C Ratio	0.16	0.30	0.30	0.04	0.18		0.10	0.38		0.06	0.35	0.16
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	544	1075	481	64	620		170	1340		108	1224	251
v/s Ratio Prot	c0.09	0.06		0.01	c0.08		c0.05	c0.27		0.02	0.13	0.03
v/s Ratio Perm			0.01									
v/c Ratio	0.55	0.20	0.05	0.39	0.41		0.48	0.71		0.40	0.38	0.16
Uniform Delay, d1	28.6	19.0	18.1	34.7	26.7		31.6	19.3		33.3	18.2	26.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.1	0.1	0.0	3.9	0.5		2.2	3.2		2.4	0.9	0.3
Delay (s)	29.7	19.1	18.2	38.6	27.1		33.7	22.5		35.7	19.1	27.1
Level of Service	C	B	B	D	C		C	C		D	B	C
Approach Delay (s)		24.4			28.0			23.4			22.7	
Approach LOS		C			C			C			C	

Intersection Summary

HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	73.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

32: Constitution Way & Atlantic Avenue

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	93	173	76	33	171	82	107	817	42	75	306	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.95		1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3377		1770	3367		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3377		1770	3367		3433	3539	1583	3433	3539	1583
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)	101	188	83	36	186	89	116	888	46	82	333	37
RTOR Reduction (vph)	0	50	0	0	62	0	0	0	28	0	0	23
Lane Group Flow (vph)	101	221	0	36	213	0	116	888	18	82	333	14
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	7.4	15.7		2.9	11.2		6.0	26.0	26.0	5.4	25.4	25.4
Effective Green, g (s)	7.4	15.7		2.9	11.2		6.0	26.0	26.0	5.4	25.4	25.4
Actuated g/C Ratio	0.11	0.24		0.04	0.17		0.09	0.39	0.39	0.08	0.38	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	198	803		77	571		312	1394	623	280	1361	609
v/s Ratio Prot	c0.06	0.07		0.02	c0.06		c0.03	c0.25		0.02	0.09	
v/s Ratio Perm									0.01			0.01
v/c Ratio	0.51	0.27		0.47	0.37		0.37	0.64	0.03	0.29	0.24	0.02
Uniform Delay, d1	27.6	20.5		30.8	24.3		28.2	16.2	12.3	28.5	13.8	12.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	0.2		4.4	0.4		0.7	2.2	0.1	0.6	0.4	0.1
Delay (s)	29.8	20.7		35.2	24.7		29.0	18.4	12.3	29.1	14.2	12.7
Level of Service	C	C		D	C		C	B	B	C	B	B
Approach Delay (s)		23.2			25.9			19.3			16.8	
Approach LOS		C			C			B			B	

Intersection Summary

HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	66.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Level Of Service Computation Report

Existing plus Project (Maximum Commercial Scenario) Conditions
PM Peak Hour

HCM Unsignalized Intersection Capacity Analysis

1: Market Street & 3rd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕		↙	↕↕	
Volume (veh/h)	52	273	22	14	124	105	44	132	28	45	57	37
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	52	273	22	14	124	105	44	132	28	45	57	37
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	229			295			544	645	148	539	604	114
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	229			295			544	645	148	539	604	114
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			99			87	64	97	84	85	96
cM capacity (veh/h)	1336			1263			347	370	873	287	391	916
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2	SB 3				
Volume Total	188	158	76	167	204	45	38	56				
Volume Left	52	0	14	0	44	45	0	0				
Volume Right	0	22	0	105	28	0	0	37				
cSH	1336	1700	1263	1700	396	287	391	629				
Volume to Capacity	0.04	0.09	0.01	0.10	0.52	0.16	0.10	0.09				
Queue Length 95th (ft)	3	0	1	0	71	14	8	7				
Control Delay (s)	2.4	0.0	1.5	0.0	23.4	19.9	15.2	11.3				
Lane LOS	A		A		C	C	C	B				
Approach Delay (s)	1.3		0.5		23.4	15.1						
Approach LOS					C	C						
Intersection Summary												
Average Delay			8.0									
Intersection Capacity Utilization			44.7%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Market Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑↑		↘	↑↑↑	
Volume (vph)	9	738	29	0	0	0	0	246	28	103	107	0
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		0.91						0.95		1.00	0.91	
Frt		0.99						0.98		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		5054						3485		1770	5085	
Flt Permitted		1.00						1.00		0.57	1.00	
Satd. Flow (perm)		5054						3485		1066	5085	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	9	738	29	0	0	0	0	246	28	103	107	0
RTOR Reduction (vph)	0	6	0	0	0	0	0	12	0	0	0	0
Lane Group Flow (vph)	0	770	0	0	0	0	0	262	0	103	107	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		43.0						24.0		24.0	24.0	
Effective Green, g (s)		43.0						24.0		24.0	24.0	
Actuated g/C Ratio		0.57						0.32		0.32	0.32	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		2897						1115		341	1627	
v/s Ratio Prot								0.08			0.02	
v/s Ratio Perm		0.15								c0.10		
v/c Ratio		0.27						0.24		0.30	0.07	
Uniform Delay, d1		8.1						18.8		19.2	17.7	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		0.2						0.5		2.3	0.1	
Delay (s)		8.3						19.2		21.5	17.8	
Level of Service		A						B		C	B	
Approach Delay (s)		8.3			0.0			19.2			19.6	
Approach LOS		A			A			B			B	

Intersection Summary

HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations					↑↑	↑		↓	↑↑			↑↑↓
Volume (vph)	0	0	0	30	145	274	12	35	218	0	0	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0	4.0			4.0
Lane Util. Factor					0.95	1.00		1.00	0.95			0.91
Frt					1.00	0.85		1.00	1.00			0.97
Flt Protected					0.99	1.00		0.95	1.00			1.00
Satd. Flow (prot)					3509	1583		1770	3539			4957
Flt Permitted					0.99	1.00		0.62	1.00			1.00
Satd. Flow (perm)					3509	1583		1154	3539			4957
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	30	145	274	12	35	218	0	0	168
RTOR Reduction (vph)	0	0	0	0	0	104	0	0	0	0	0	24
Lane Group Flow (vph)	0	0	0	0	175	170	0	47	218	0	0	178
Turn Type				Perm	NA	Perm	Perm	Perm	NA			NA
Protected Phases					8				2			6
Permitted Phases				8		8	2	2				
Actuated Green, G (s)					62.0	62.0		30.0	30.0			30.0
Effective Green, g (s)					62.0	62.0		30.0	30.0			30.0
Actuated g/C Ratio					0.62	0.62		0.30	0.30			0.30
Clearance Time (s)					4.0	4.0		4.0	4.0			4.0
Lane Grp Cap (vph)					2175	981		346	1061			1487
v/s Ratio Prot									c0.06			0.04
v/s Ratio Perm					0.05	c0.11		0.04				
v/c Ratio					0.08	0.17		0.14	0.21			0.12
Uniform Delay, d1					7.6	8.1		25.5	26.1			25.4
Progression Factor					1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2					0.1	0.4		0.8	0.4			0.2
Delay (s)					7.7	8.5		26.4	26.5			25.6
Level of Service					A	A		C	C			C
Approach Delay (s)		0.0			8.2				26.5			25.6
Approach LOS		A			A				C			C

Intersection Summary

HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.18		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

7/24/2013



Movement	SBR
Line Configurations	
Volume (vph)	34
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Fr	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	34
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

4: Market Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↶↶↶		↶	↶↶↶		↶	↶↶		↶	↶↶↶	
Volume (vph)	94	705	66	36	325	35	215	216	48	53	95	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.91	
Frt	1.00	0.99		1.00	0.99		1.00	0.97		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5020		1770	5011		1770	3443		1770	4790	
Flt Permitted	0.51	1.00		0.24	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	958	5020		448	5011		1770	3443		1770	4790	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	94	705	66	36	325	35	215	216	48	53	95	60
RTOR Reduction (vph)	0	14	0	0	16	0	0	24	0	0	53	0
Lane Group Flow (vph)	94	757	0	36	344	0	215	240	0	53	103	0
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4			8								
Actuated Green, G (s)	22.0	22.0		22.0	22.0		36.0	36.0		10.0	10.0	
Effective Green, g (s)	22.0	22.0		22.0	22.0		36.0	36.0		10.0	10.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.45	0.45		0.12	0.12	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	263	1380		123	1378		796	1549		221	598	
v/s Ratio Prot		c0.15			0.07		c0.12	0.07		c0.03	0.02	
v/s Ratio Perm	0.10			0.08								
v/c Ratio	0.36	0.55		0.29	0.25		0.27	0.16		0.24	0.17	
Uniform Delay, d1	23.3	24.8		22.9	22.6		13.8	13.0		31.6	31.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.8	1.6		5.9	0.4		0.8	0.2		2.6	0.6	
Delay (s)	27.1	26.3		28.8	23.0		14.6	13.2		34.1	31.9	
Level of Service	C	C		C	C		B	B		C	C	
Approach Delay (s)		26.4			23.5			13.8			32.5	
Approach LOS		C			C			B			C	

Intersection Summary

HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: Castro Street & 11th Street

7/24/2013



Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Volume (vph)	158	500	1128	35	61	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	0.81	0.81	0.91		0.97	
Frt	1.00	1.00	1.00		0.95	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1433	6017	5062		3316	
Flt Permitted	0.95	1.00	1.00		0.97	
Satd. Flow (perm)	1433	6017	5062		3316	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	158	500	1128	35	61	33
RTOR Reduction (vph)	91	53	4	0	0	0
Lane Group Flow (vph)	35	479	1159	0	94	0
Turn Type	Split	NA	NA		NA	
Protected Phases	4	4	2		8	
Permitted Phases						
Actuated Green, G (s)	21.0	21.0	21.0		21.0	
Effective Green, g (s)	21.0	21.0	21.0		21.0	
Actuated g/C Ratio	0.28	0.28	0.28		0.28	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Lane Grp Cap (vph)	401	1684	1417		928	
v/s Ratio Prot	0.02	c0.08	c0.23		c0.03	
v/s Ratio Perm						
v/c Ratio	0.09	0.28	0.82		0.10	
Uniform Delay, d1	19.9	21.1	25.2		20.0	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.4	5.3		0.2	
Delay (s)	20.4	21.5	30.6		20.2	
Level of Service	C	C	C		C	
Approach Delay (s)		21.3	30.6		20.2	
Approach LOS		C	C		C	

Intersection Summary

HCM 2000 Control Delay	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

6: Castro Street & 12th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑	↑	↑↑↑↑				
Volume (vph)	0	0	0	0	216	696	29	1450	0	0	0	0
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					0.91	0.91	0.81	0.81				
Frt					0.91	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	1.00				
Satd. Flow (prot)					3076	1441	1433	6035				
Flt Permitted					1.00	1.00	0.95	1.00				
Satd. Flow (perm)					3076	1441	1433	6035				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	216	696	29	1450	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	22	22	11	7	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	542	326	15	1446	0	0	0	0
Turn Type					NA	Perm	Perm	NA				
Protected Phases					8			2				
Permitted Phases						8	2					
Actuated Green, G (s)					25.0	25.0	42.0	42.0				
Effective Green, g (s)					25.0	25.0	42.0	42.0				
Actuated g/C Ratio					0.33	0.33	0.56	0.56				
Clearance Time (s)					4.0	4.0	4.0	4.0				
Lane Grp Cap (vph)					1025	480	802	3379				
v/s Ratio Prot					0.18							
v/s Ratio Perm						c0.23	0.01	0.24				
v/c Ratio					0.53	0.68	0.02	0.43				
Uniform Delay, d1					20.2	21.5	7.3	9.5				
Progression Factor					1.00	1.00	0.02	0.21				
Incremental Delay, d2					2.0	7.5	0.0	0.3				
Delay (s)					22.2	29.1	0.2	2.3				
Level of Service					C	C	A	A				
Approach Delay (s)		0.0			24.8			2.3			0.0	
Approach LOS		A			C			A			A	

Intersection Summary

HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

7: Broadway & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	22	139	84	13	134	109	49	238	17	88	126	20
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	22	139	84	13	134	109	49	238	17	88	126	20

















Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	245	256	168	136	151	83
Volume Left (vph)	22	13	49	0	88	0
Volume Right (vph)	84	109	0	17	0	20
Hadj (s)	-0.15	-0.21	0.18	-0.05	0.33	-0.13
Departure Headway (s)	5.7	5.7	6.6	6.4	6.8	6.4
Degree Utilization, x	0.39	0.40	0.31	0.24	0.29	0.15
Capacity (veh/h)	578	587	502	527	486	518
Control Delay (s)	12.4	12.5	11.3	10.1	11.4	9.3
Approach Delay (s)	12.4	12.5	10.8		10.6	
Approach LOS	B	B	B		B	

Intersection Summary	
Delay	11.5
Level of Service	B
Intersection Capacity Utilization	45.7%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

8: Broadway & 2nd Street

7/24/2013

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (veh/h)	40	31	16	17	26	64	18	391	49	53	297	33	
Sign Control		Stop			Stop			Free			Free		
Grade		0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	40	31	16	17	26	64	18	391	49	53	297	33	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type							None						
Median storage (veh)													
Upstream signal (ft)												288	
pX, platoon unblocked													
vC, conflicting volume	728	896	165	738	888	220	330					440	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	728	896	165	738	888	220	330					440	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1					4.1	
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2					2.2	
p0 queue free %	84	88	98	93	90	92	99					95	
cM capacity (veh/h)	252	261	850	261	264	784	1226					1116	
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2							
Volume Total	87	107	214	244	202	182							
Volume Left	40	17	18	0	53	0							
Volume Right	16	64	0	49	0	33							
cSH	294	436	1226	1700	1116	1700							
Volume to Capacity	0.30	0.25	0.01	0.14	0.05	0.11							
Queue Length 95th (ft)	30	24	1	0	4	0							
Control Delay (s)	22.3	15.9	0.8	0.0	2.5	0.0							
Lane LOS	C	C	A		A								
Approach Delay (s)	22.3	15.9	0.4		1.3								
Approach LOS	C	C											
Intersection Summary													
Average Delay			4.2										
Intersection Capacity Utilization			44.9%	ICU Level of Service	A								
Analysis Period (min)			15										

HCM Signalized Intersection Capacity Analysis

9: Broadway & 3rd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	106	133	28	10	118	117	69	371	12	43	271	62
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			0.95			0.95	
Frt		0.99			0.94			1.00			0.98	
Flt Protected		0.98			1.00			0.99			0.99	
Satd. Flow (prot)		1801			1739			3498			3432	
Flt Permitted		0.79			0.99			0.85			0.88	
Satd. Flow (perm)		1456			1717			3010			3038	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	106	133	28	10	118	117	69	371	12	43	271	62
RTOR Reduction (vph)	0	7	0	0	60	0	0	3	0	0	29	0
Lane Group Flow (vph)	0	260		0	185		0	449		0	347	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		18.0			18.0			29.0			29.0	
Effective Green, g (s)		18.0			18.0			29.0			29.0	
Actuated g/C Ratio		0.33			0.33			0.53			0.53	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		476			561			1587			1601	
v/s Ratio Prot												
v/s Ratio Perm		c0.18			0.11			c0.15			0.11	
v/c Ratio		0.55			0.33			0.28			0.22	
Uniform Delay, d1		15.1			14.0			7.2			6.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		4.4			1.6			0.4			0.3	
Delay (s)		19.6			15.5			7.7			7.2	
Level of Service		B			B			A			A	
Approach Delay (s)		19.6			15.5			7.7			7.2	
Approach LOS		B			B			A			A	

Intersection Summary

HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

10: Broadway & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1007	295	73	0	0	0	0	340	430	591	353	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.91	0.91	1.00					0.95	1.00	0.97	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3287	1583					3539	1583	3433	1863	
Flt Permitted	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1610	3287	1583					3539	1583	3433	1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1007	295	73	0	0	0	0	340	430	591	353	0
RTOR Reduction (vph)	0	0	53	0	0	0	0	0	123	0	0	0
Lane Group Flow (vph)	503	799	20	0	0	0	0	340	307	591	353	0
Turn Type	Split	NA	Prot					NA	Prot	Split	NA	
Protected Phases	4	4	4					2	2	6	6	
Permitted Phases												
Actuated Green, G (s)	21.0	21.0	21.0					21.0	21.0	21.0	21.0	
Effective Green, g (s)	21.0	21.0	21.0					21.0	21.0	21.0	21.0	
Actuated g/C Ratio	0.28	0.28	0.28					0.28	0.28	0.28	0.28	
Clearance Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	450	920	443					990	443	961	521	
v/s Ratio Prot	c0.31	0.24	0.01					0.10	c0.19	0.17	c0.19	
v/s Ratio Perm												
v/c Ratio	1.12	1.07dl	0.05					0.34	0.69	0.61	0.68	
Uniform Delay, d1	27.0	25.7	19.7					21.5	24.1	23.5	24.0	
Progression Factor	0.90	0.90	0.74					1.00	1.00	0.81	0.83	
Incremental Delay, d2	78.5	10.8	0.2					0.9	8.6	2.7	6.5	
Delay (s)	102.8	33.9	14.7					22.5	32.7	21.8	26.2	
Level of Service	F	C	B					C	C	C	C	
Approach Delay (s)		58.1			0.0			28.2			23.5	
Approach LOS		E			A			C			C	

Intersection Summary

HCM 2000 Control Delay	40.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

11: Broadway & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕	↗	↙	↕			↕	↗
Volume (vph)	0	0	0	269	138	617	85	298	0	0	750	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Util. Factor				1.00	0.91	0.91	1.00	0.95			0.91	
Frt				1.00	0.90	0.85	1.00	1.00			0.99	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3039	1441	1770	3539			5052	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3039	1441	1770	3539			5052	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	269	138	617	85	298	0	0	750	34
RTOR Reduction (vph)	0	0	0	0	210	209	0	0	0	0	7	0
Lane Group Flow (vph)	0	0	0	269	237	99	85	298	0	0	777	0
Turn Type				Split	NA	Prot	Prot	NA			NA	
Protected Phases				8	8	8	5	2			6	
Permitted Phases												
Actuated Green, G (s)				24.0	24.0	24.0	9.0	43.0			30.0	
Effective Green, g (s)				24.0	24.0	24.0	9.0	43.0			30.0	
Actuated g/C Ratio				0.32	0.32	0.32	0.12	0.57			0.40	
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)				566	972	461	212	2029			2020	
v/s Ratio Prot				c0.15	0.08	0.07	c0.05	0.08			c0.15	
v/s Ratio Perm												
v/c Ratio				0.48	0.24	0.21	0.40	0.15			0.38	
Uniform Delay, d1				20.5	18.8	18.6	30.5	7.5			16.0	
Progression Factor				1.00	1.00	1.00	0.89	0.11			1.00	
Incremental Delay, d2				2.8	0.6	1.1	3.0	0.1			0.6	
Delay (s)				23.3	19.4	19.7	30.2	0.9			16.5	
Level of Service				C	B	B	C	A			B	
Approach Delay (s)		0.0			20.5			7.4			16.5	
Approach LOS		A			C			A			B	

Intersection Summary

HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

12: Broadway & 11th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		←↑↑↑						↑↑			↘	↑↑
Volume (vph)	119	486	191	0	0	0	0	491	80	99	724	0
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		0.86						0.95		1.00	0.95	
Frt		0.96						0.98		1.00	1.00	
Flt Protected		0.99						1.00		0.95	1.00	
Satd. Flow (prot)		6131						3465		1770	3539	
Flt Permitted		0.99						1.00		0.29	1.00	
Satd. Flow (perm)		6131						3465		543	3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	119	486	191	0	0	0	0	491	80	99	724	0
RTOR Reduction (vph)	0	95	0	0	0	0	0	22	0	0	0	0
Lane Group Flow (vph)	0	701	0	0	0	0	0	549	0	99	724	0
Turn Type	Split	NA						NA		pm+pt	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases										6		
Actuated Green, G (s)		20.0						20.0		32.0	32.0	
Effective Green, g (s)		20.0						20.0		32.0	32.0	
Actuated g/C Ratio		0.33						0.33		0.53	0.53	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		2043						1155		453	1887	
v/s Ratio Prot		c0.11						c0.16		0.03	c0.20	
v/s Ratio Perm										0.09		
v/c Ratio		0.34						0.48		0.22	0.38	
Uniform Delay, d1		15.1						15.8		7.5	8.2	
Progression Factor		1.00						1.00		0.81	0.64	
Incremental Delay, d2		0.5						1.4		1.0	0.6	
Delay (s)		15.5						17.2		7.2	5.8	
Level of Service		B						B		A	A	
Approach Delay (s)		15.5				0.0		17.2			6.0	
Approach LOS		B				A		B			A	

Intersection Summary

HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: Broadway & 12th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←↑↑↑		↑	↑↑			↑↑↑	
Volume (vph)	0	0	0	161	511	94	135	480	0	0	612	83
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					0.91		1.00	0.95			0.91	
Flt					0.98		1.00	1.00			0.98	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					4940		1770	3539			4994	
Flt Permitted					0.99		0.27	1.00			1.00	
Satd. Flow (perm)					4940		508	3539			4994	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	161	511	94	135	480	0	0	612	83
RTOR Reduction (vph)	0	0	0	0	30	0	0	0	0	0	29	0
Lane Group Flow (vph)	0	0	0	0	736	0	135	480	0	0	666	0
Turn Type				Split	NA		pm+pt	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases							2					
Actuated Green, G (s)					20.0		32.0	32.0			20.0	
Effective Green, g (s)					20.0		32.0	32.0			20.0	
Actuated g/C Ratio					0.33		0.53	0.53			0.33	
Clearance Time (s)					4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)					1646		439	1887			1664	
v/s Ratio Prot					c0.15		c0.04	0.14			c0.13	
v/s Ratio Perm							0.12					
v/c Ratio					0.45		0.31	0.25			0.40	
Uniform Delay, d1					15.7		7.5	7.6			15.4	
Progression Factor					1.00		1.26	0.63			1.92	
Incremental Delay, d2					0.9		1.6	0.3			0.6	
Delay (s)					16.6		11.1	5.1			30.1	
Level of Service					B		B	A			C	
Approach Delay (s)		0.0			16.6			6.4			30.1	
Approach LOS		A			B			A			C	

Intersection Summary

HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: Broadway & 14th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↑			↑↑	
Volume (vph)	6	319	109	3	379	114	2	489	35	0	788	100
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			0.95			0.95			0.95	
Frt		0.96			0.97			0.99			0.98	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		3404			3416			3503			3479	
Flt Permitted		0.95			0.95			0.95			1.00	
Satd. Flow (perm)		3234			3257			3339			3479	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	6	319	109	3	379	114	2	489	35	0	788	100
RTOR Reduction (vph)	0	48	0	0	47	0	0	9	0	0	16	0
Lane Group Flow (vph)	0	386	0	0	449	0	0	517	0	0	872	0
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2					
Actuated Green, G (s)		27.0			27.0			25.0			25.0	
Effective Green, g (s)		27.0			27.0			25.0			25.0	
Actuated g/C Ratio		0.45			0.45			0.42			0.42	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		1455			1465			1391			1449	
v/s Ratio Prot											c0.25	
v/s Ratio Perm		0.12			c0.14			0.15				
v/c Ratio		0.27			0.31			0.37			0.60	
Uniform Delay, d1		10.3			10.5			12.1			13.6	
Progression Factor		1.00			1.00			1.77			1.00	
Incremental Delay, d2		0.4			0.5			0.7			1.9	
Delay (s)		10.7			11.1			22.1			15.5	
Level of Service		B			B			C			B	
Approach Delay (s)		10.7			11.1			22.1			15.5	
Approach LOS		B			B			C			B	

Intersection Summary

















HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

15: Franklin Street & 2nd Street

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											 	
Volume (veh/h)	0	87	39	18	83	0	0	0	0	10	35	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	87	39	18	83	0	0	0	0	10	35	21
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					384							
pX, platoon unblocked												
vC, conflicting volume	83			126			264	226	106	226	245	83
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	83			126			264	226	106	226	245	83
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	99	95	98
cM capacity (veh/h)	1514			1460			640	665	948	723	649	976
Direction, Lane #	EB 1	WB 1	SB 1	SB 2								
Volume Total	126	101	28	38								
Volume Left	0	18	10	0								
Volume Right	39	0	0	21								
cSH	1700	1460	674	794								
Volume to Capacity	0.07	0.01	0.04	0.05								
Queue Length 95th (ft)	0	1	3	4								
Control Delay (s)	0.0	1.4	10.6	9.8								
Lane LOS		A	B	A								
Approach Delay (s)	0.0	1.4	10.1									
Approach LOS			B									
Intersection Summary												
Average Delay			2.8									
Intersection Capacity Utilization			25.7%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

16: Franklin Street & 3rd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	208	12	30	222	0	0	0	0	14	21	86
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	208	12	30	222	0	0	0	0	14	21	86
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		367			383							
pX, platoon unblocked												
vC, conflicting volume	222			220			592	496	214	496	502	222
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	222			220			592	496	214	496	502	222
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			100	100	100	97	95	89
cM capacity (veh/h)	1347			1349			355	465	826	476	461	818

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	220	252	24	96
Volume Left	0	30	14	0
Volume Right	12	0	0	86
cSH	1700	1349	469	754
Volume to Capacity	0.13	0.02	0.05	0.13
Queue Length 95th (ft)	0	2	4	11
Control Delay (s)	0.0	1.1	13.1	10.5
Lane LOS		A	B	B
Approach Delay (s)	0.0	1.1	11.0	
Approach LOS			B	

Intersection Summary			
Average Delay		2.7	
Intersection Capacity Utilization	38.8%		ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 17: Webster Street & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	179	217	209	120	101	99
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	179	217	209	120	101	99
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	385					
pX, platoon unblocked						
vC, conflicting volume	0		508	358	575	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		508	358	575	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	89		34	76	74	91
cM capacity (veh/h)	1623		316	506	381	1085

Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2
Volume Total	179	217	329	101	99
Volume Left	179	0	209	0	0
Volume Right	0	217	0	0	99
cSH	1623	1700	366	381	1085
Volume to Capacity	0.11	0.13	0.90	0.26	0.09
Queue Length 95th (ft)	9	0	226	26	8
Control Delay (s)	7.5	0.0	59.0	17.8	8.7
Lane LOS	A		F	C	A
Approach Delay (s)	3.4		59.0	13.3	
Approach LOS			F	B	

Intersection Summary			
Average Delay		25.3	
Intersection Capacity Utilization		41.1%	ICU Level of Service A
Analysis Period (min)		15	

HCM Signalized Intersection Capacity Analysis

18: Harrison Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑↑						↑↑↑	↑↑				
Volume (vph)	86	394	0	0	0	0	0	512	903	0	0	0	
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				
Lane Util. Factor		0.91						0.91	0.88				
Frt		1.00						1.00	0.85				
Flt Protected		0.99						1.00	1.00				
Satd. Flow (prot)		5040						5085	2787				
Flt Permitted		0.99						1.00	1.00				
Satd. Flow (perm)		5040						5085	2787				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	86	394	0	0	0	0	0	512	903	0	0	0	
RTOR Reduction (vph)	0	55	0	0	0	0	0	0	242	0	0	0	
Lane Group Flow (vph)	0	425	0	0	0	0	0	512	661	0	0	0	
Turn Type	Perm	NA						NA	Perm				
Protected Phases		4						2					
Permitted Phases	4								2				
Actuated Green, G (s)		16.0						21.0	21.0				
Effective Green, g (s)		16.0						21.0	21.0				
Actuated g/C Ratio		0.36						0.47	0.47				
Clearance Time (s)		4.0						4.0	4.0				
Lane Grp Cap (vph)		1792						2373	1300				
v/s Ratio Prot								0.10					
v/s Ratio Perm		0.08							c0.24				
v/c Ratio		0.24						0.22	0.51				
Uniform Delay, d1		10.2						7.1	8.4				
Progression Factor		1.00						1.00	1.00				
Incremental Delay, d2		0.3						0.2	1.4				
Delay (s)		10.5						7.3	9.8				
Level of Service		B						A	A				
Approach Delay (s)		10.5			0.0			8.9			0.0		
Approach LOS		B			A			A			A		
Intersection Summary													
HCM 2000 Control Delay			9.3									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.39										
Actuated Cycle Length (s)			45.0									Sum of lost time (s)	8.0
Intersection Capacity Utilization			77.3%									ICU Level of Service	D
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

19: Jackson Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔↔						↔		↔	↔	
Volume (vph)	232	484	368	0	0	0	0	526	28	106	117	0
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		0.91						1.00		1.00	1.00	
Frt		0.95						0.99		1.00	1.00	
Flt Protected		0.99						1.00		0.95	1.00	
Satd. Flow (prot)		4775						1850		1770	1863	
Flt Permitted		0.99						1.00		0.36	1.00	
Satd. Flow (perm)		4775						1850		662	1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	232	484	368	0	0	0	0	526	28	106	117	0
RTOR Reduction (vph)	0	206	0	0	0	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	878	0	0	0	0	0	550	0	106	117	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		13.0						24.0		24.0	24.0	
Effective Green, g (s)		13.0						24.0		24.0	24.0	
Actuated g/C Ratio		0.29						0.53		0.53	0.53	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		1379						986		353	993	
v/s Ratio Prot								c0.30			0.06	
v/s Ratio Perm		0.18								0.16		
v/c Ratio		0.64						0.56		0.30	0.12	
Uniform Delay, d1		13.9						7.0		5.8	5.2	
Progression Factor		1.00						1.00		0.40	0.41	
Incremental Delay, d2		2.3						2.3		2.2	0.2	
Delay (s)		16.2						9.2		4.5	2.4	
Level of Service		B						A		A	A	
Approach Delay (s)		16.2			0.0			9.2			3.4	
Approach LOS		B			A			A			A	

Intersection Summary

HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

20: Jackson Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↗	↖	↖	↗			↗	↖
Volume (vph)	0	0	0	9	322	44	419	368	0	0	211	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1770	1863	1583	1770	1863			1863	1583
Flt Permitted				0.95	1.00	1.00	0.63	1.00			1.00	1.00
Satd. Flow (perm)				1770	1863	1583	1166	1863			1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	9	322	44	419	368	0	0	211	425
RTOR Reduction (vph)	0	0	0	0	0	33	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	9	322	11	419	368	0	0	211	425
Turn Type				Split	NA	Perm	Perm	NA			NA	Free
Protected Phases				8	8			2			6	
Permitted Phases						8	2					Free
Actuated Green, G (s)				11.0	11.0	11.0	26.0	26.0			26.0	45.0
Effective Green, g (s)				11.0	11.0	11.0	26.0	26.0			26.0	45.0
Actuated g/C Ratio				0.24	0.24	0.24	0.58	0.58			0.58	1.00
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)				432	455	386	673	1076			1076	1583
v/s Ratio Prot				0.01	c0.17			0.20			0.11	
v/s Ratio Perm						0.01	c0.36					0.27
v/c Ratio				0.02	0.71	0.03	0.62	0.34			0.20	0.27
Uniform Delay, d1				12.9	15.5	12.9	6.3	5.0			4.5	0.0
Progression Factor				0.70	0.69	0.65	0.61	0.66			1.05	1.00
Incremental Delay, d2				0.1	8.8	0.1	3.6	0.7			0.4	0.4
Delay (s)				9.1	19.5	8.5	7.4	4.0			5.1	0.4
Level of Service				A	B	A	A	A			A	A
Approach Delay (s)		0.0			17.9			5.8			2.0	
Approach LOS		A			B			A			A	

Intersection Summary

HCM 2000 Control Delay	7.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

21: Jackson Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔	↔					↔			↔	
Volume (vph)	32	839	410	0	0	0	0	234	108	30	281	0
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		0.86	0.86					1.00			1.00	
Frt		0.98	0.85					0.96			1.00	
Flt Protected		1.00	1.00					1.00			1.00	
Satd. Flow (prot)		4709	1362					1783			1854	
Flt Permitted		1.00	1.00					1.00			0.95	
Satd. Flow (perm)		4709	1362					1783			1764	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	32	839	410	0	0	0	0	234	108	30	281	0
RTOR Reduction (vph)	0	37	153	0	0	0	0	37	0	0	0	0
Lane Group Flow (vph)	0	957	134	0	0	0	0	305	0	0	311	0
Turn Type	Split	NA	Perm					NA		Perm	NA	
Protected Phases	4	4						2			6	
Permitted Phases			4							6		
Actuated Green, G (s)		21.0	21.0					16.0			16.0	
Effective Green, g (s)		21.0	21.0					16.0			16.0	
Actuated g/C Ratio		0.47	0.47					0.36			0.36	
Clearance Time (s)		4.0	4.0					4.0			4.0	
Lane Grp Cap (vph)		2197	635					633			627	
v/s Ratio Prot		c0.20						0.17				
v/s Ratio Perm			0.10								c0.18	
v/c Ratio		0.44	0.21					0.48			0.50	
Uniform Delay, d1		8.0	7.1					11.3			11.3	
Progression Factor		1.00	1.00					1.03			1.00	
Incremental Delay, d2		0.6	0.8					2.5			2.8	
Delay (s)		8.7	7.9					14.2			14.1	
Level of Service		A	A					B			B	
Approach Delay (s)		8.5			0.0			14.2			14.1	
Approach LOS		A			A			B			B	

Intersection Summary

HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

22: Madison Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑								↘	↙↑	
Volume (vph)	0	539	26	0	0	0	0	0	0	747	124	0
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	
Lane Util. Factor		0.91								0.91	0.91	
Frt		0.99								1.00	1.00	
Flt Protected		1.00								0.95	0.96	
Satd. Flow (prot)		5050								1610	3268	
Flt Permitted		1.00								0.95	0.96	
Satd. Flow (perm)		5050								1610	3268	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	539	26	0	0	0	0	0	0	747	124	0
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	74	74	0
Lane Group Flow (vph)	0	554	0	0	0	0	0	0	0	299	424	0
Turn Type		NA								Perm	NA	
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0								22.0	22.0	
Effective Green, g (s)		16.0								22.0	22.0	
Actuated g/C Ratio		0.35								0.48	0.48	
Clearance Time (s)		4.0								4.0	4.0	
Lane Grp Cap (vph)		1756								770	1562	
v/s Ratio Prot		c0.11										
v/s Ratio Perm										c0.19	0.13	
v/c Ratio		0.32								0.39	0.27	
Uniform Delay, d1		11.0								7.7	7.2	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.5								1.5	0.4	
Delay (s)		11.5								9.2	7.6	
Level of Service		B								A	A	
Approach Delay (s)		11.5			0.0			0.0			8.3	
Approach LOS		B			A			A			A	

Intersection Summary

HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	46.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

23: Madison Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑						↑↑↑	
Volume (vph)	0	0	0	15	173	0	0	0	0	0	907	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0						4.0	
Lane Util. Factor					0.91						0.91	
Frt					1.00						0.97	
Flt Protected					1.00						1.00	
Satd. Flow (prot)					5065						4956	
Flt Permitted					1.00						1.00	
Satd. Flow (perm)					5065						4956	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	15	173	0	0	0	0	0	907	185
RTOR Reduction (vph)	0	0	0	0	16	0	0	0	0	0	69	0
Lane Group Flow (vph)	0	0	0	0	172	0	0	0	0	0	1023	0
Turn Type				Split	NA						NA	
Protected Phases				8	8						6	
Permitted Phases												
Actuated Green, G (s)					15.0						22.0	
Effective Green, g (s)					15.0						22.0	
Actuated g/C Ratio					0.33						0.49	
Clearance Time (s)					4.0						4.0	
Lane Grp Cap (vph)					1688						2422	
v/s Ratio Prot					c0.03						c0.21	
v/s Ratio Perm												
v/c Ratio					0.10						0.42	
Uniform Delay, d1					10.4						7.4	
Progression Factor					0.91						0.60	
Incremental Delay, d2					0.1						0.5	
Delay (s)					9.5						4.9	
Level of Service					A						A	
Approach Delay (s)		0.0			9.5			0.0			4.9	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	5.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

24: Madison Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑									↑↑↑	
Volume (vph)	0	777	254	0	0	0	0	0	0	242	721	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									4.0	
Lane Util. Factor		0.86									0.91	
Frt		0.96									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		6171									5022	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		6171									5022	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	777	254	0	0	0	0	0	0	242	721	0
RTOR Reduction (vph)	0	92	0	0	0	0	0	0	0	0	31	0
Lane Group Flow (vph)	0	939	0	0	0	0	0	0	0	0	932	0
Turn Type		NA								Perm		NA
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0									21.0	
Effective Green, g (s)		16.0									21.0	
Actuated g/C Ratio		0.36									0.47	
Clearance Time (s)		4.0									4.0	
Lane Grp Cap (vph)		2194									2343	
v/s Ratio Prot		c0.15										
v/s Ratio Perm											0.19	
v/c Ratio		0.43									0.40	
Uniform Delay, d1		11.0									7.9	
Progression Factor		0.51									1.00	
Incremental Delay, d2		0.6									0.5	
Delay (s)		6.2									8.4	
Level of Service		A									A	
Approach Delay (s)		6.2				0.0		0.0			8.4	
Approach LOS		A				A		A			A	

Intersection Summary




















HCM 2000 Control Delay	7.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

25: Oak Street & 1st Street / Embarcadero

7/24/2013

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations								 			 		
Volume (veh/h)	256	0	120	5	0	1	122	241	0	0	228	159	
Sign Control		Stop			Stop			Free			Free		
Grade		0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	256	0	120	5	0	1	122	241	0	0	228	159	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type								None			None		
Median storage (veh)													
Upstream signal (ft)											563		
pX, platoon unblocked													
vC, conflicting volume	673	792	194	719	872	120	387			241			
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	673	792	194	719	872	120	387			241			
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1			
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2			
p0 queue free %	18	100	85	98	100	100	90			100			
cM capacity (veh/h)	313	286	815	248	257	908	1168			1323			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2						
Volume Total	256	120	122	120	120	152	235						
Volume Left	256	0	122	0	0	0	0						
Volume Right	0	120	0	0	0	0	159						
cSH	313	815	1168	1700	1700	1700	1700						
Volume to Capacity	0.82	0.15	0.10	0.07	0.07	0.09	0.14						
Queue Length 95th (ft)	171	13	9	0	0	0	0						
Control Delay (s)	52.3	10.2	8.4	0.0	0.0	0.0	0.0						
Lane LOS	F	B	A										
Approach Delay (s)	38.8		2.8					0.0					
Approach LOS	E												
Intersection Summary													
Average Delay			Err										
Intersection Capacity Utilization			Err%		ICU Level of Service				H				
Analysis Period (min)			15										

HCM Signalized Intersection Capacity Analysis

26: Oak Street & 3rd Street

7/24/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	193	77	49	484	283	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.96		1.00	1.00	1.00	0.85
Flt Protected	0.97		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1729		1770	1863	1863	1583
Flt Permitted	0.97		0.55	1.00	1.00	1.00
Satd. Flow (perm)	1729		1029	1863	1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	193	77	49	484	283	60
RTOR Reduction (vph)	32	0	0	0	0	36
Lane Group Flow (vph)	238	0	49	484	283	24
Turn Type	NA		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Actuated Green, G (s)	19.0		18.0	18.0	18.0	18.0
Effective Green, g (s)	19.0		18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.42		0.40	0.40	0.40	0.40
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	730		411	745	745	633
v/s Ratio Prot	c0.14			c0.26	0.15	
v/s Ratio Perm			0.05			0.02
v/c Ratio	0.33		0.12	0.65	0.38	0.04
Uniform Delay, d1	8.7		8.5	10.9	9.6	8.2
Progression Factor	1.00		1.00	1.00	0.74	1.08
Incremental Delay, d2	1.2		0.6	4.4	1.4	0.1
Delay (s)	9.9		9.1	15.3	8.5	9.0
Level of Service	A		A	B	A	A
Approach Delay (s)	9.9			14.7	8.6	
Approach LOS	A			B	A	

Intersection Summary

HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

27: Oak Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔						↕↔↔			↕	
Volume (vph)	207	854	118	0	0	0	0	487	316	4	218	0
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	
Lane Util. Factor		0.91						0.95			1.00	
Frt		0.98						0.94			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4965						3330			1861	
Flt Permitted		0.99						1.00			0.99	
Satd. Flow (perm)		4965						3330			1835	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	207	854	118	0	0	0	0	487	316	4	218	0
RTOR Reduction (vph)	0	30	0	0	0	0	0	72	0	0	0	0
Lane Group Flow (vph)	0	1149	0	0	0	0	0	731	0	0	222	0
Turn Type	Split	NA						NA		Perm		NA
Protected Phases	4	4						2		6		6
Permitted Phases										6		
Actuated Green, G (s)		22.0						15.0		15.0		
Effective Green, g (s)		22.0						15.0		15.0		
Actuated g/C Ratio		0.49						0.33		0.33		
Clearance Time (s)		4.0						4.0		4.0		
Lane Grp Cap (vph)		2427						1110		611		
v/s Ratio Prot		c0.23						c0.22				
v/s Ratio Perm												0.12
v/c Ratio		0.47						0.66				0.36
Uniform Delay, d1		7.6						12.8				11.4
Progression Factor		1.00						1.44				1.29
Incremental Delay, d2		0.7						2.7				1.6
Delay (s)		8.3						21.2				16.3
Level of Service		A						C				B
Approach Delay (s)		8.3			0.0			21.2				16.3
Approach LOS		A			A			C				B

Intersection Summary

HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: Oak Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔	↔		↔				
Volume (vph)	0	0	0	194	80	478	134	573	0	0	0	0
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				
Lane Util. Factor					0.91	0.91		0.95				
Frt					0.93	0.85		1.00				
Flt Protected					0.98	1.00		0.99				
Satd. Flow (prot)					3095	1441		3506				
Flt Permitted					0.98	1.00		0.99				
Satd. Flow (perm)					3095	1441		3506				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	194	80	478	134	573	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	57	57	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	456	182	0	707	0	0	0	0
Turn Type				Split	NA	Perm	Split	NA				
Protected Phases				8	8		2	2				
Permitted Phases						8						
Actuated Green, G (s)					22.0	22.0		15.0				
Effective Green, g (s)					22.0	22.0		15.0				
Actuated g/C Ratio					0.49	0.49		0.33				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					1513	704		1168				
v/s Ratio Prot					c0.15			c0.20				
v/s Ratio Perm						0.13						
v/c Ratio					0.30	0.26		0.61				
Uniform Delay, d1					6.9	6.7		12.5				
Progression Factor					1.00	1.00		0.81				
Incremental Delay, d2					0.5	0.9		1.9				
Delay (s)					7.4	7.6		12.0				
Level of Service					A	A		B				
Approach Delay (s)		0.0			7.5			12.0			0.0	
Approach LOS		A			A			B			A	

Intersection Summary

HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: Oak Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		←↑↑↑						↑↑↑				
Volume (vph)	118	758	0	0	0	0	0	919	189	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.86						0.91				
Frt		1.00						0.97				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6365						4955				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6365						4955				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	118	758	0	0	0	0	0	919	189	0	0	0
RTOR Reduction (vph)	0	29	0	0	0	0	0	61	0	0	0	0
Lane Group Flow (vph)	0	847	0	0	0	0	0	1047	0	0	0	0
Turn Type	Perm	NA						NA				
Protected Phases		4						2				
Permitted Phases	4											
Actuated Green, G (s)		19.0						18.0				
Effective Green, g (s)		19.0						18.0				
Actuated g/C Ratio		0.42						0.40				
Clearance Time (s)		4.0						4.0				
Lane Grp Cap (vph)		2687						1982				
v/s Ratio Prot								c0.21				
v/s Ratio Perm		0.13										
v/c Ratio		0.32						0.53				
Uniform Delay, d1		8.7						10.3				
Progression Factor		1.02						0.79				
Incremental Delay, d2		0.3						0.9				
Delay (s)		9.1						9.0				
Level of Service		A						A				
Approach Delay (s)		9.1			0.0			9.0			0.0	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

30: 5th Avenue & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	44	338	5	1	242	309	9	1	3	340	2	46
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	44	338	5	1	242	309	9	1	3	340	2	46

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	387	243	309	13	388
Volume Left (vph)	44	1	0	9	340
Volume Right (vph)	5	0	309	3	46
Hadj (s)	0.05	0.04	-0.67	0.03	0.14
Departure Headway (s)	6.3	6.6	5.9	7.6	6.4
Degree Utilization, x	0.68	0.45	0.51	0.03	0.69
Capacity (veh/h)	387	518	586	379	388
Control Delay (s)	21.4	13.7	13.7	10.8	22.8
Approach Delay (s)	21.4	13.7		10.8	22.8
Approach LOS	C	B		B	C

Intersection Summary

Delay	18.5
Level of Service	C
Intersection Capacity Utilization	70.5%
ICU Level of Service	C
Analysis Period (min)	15

HCM Signalized Intersection Capacity Analysis

31: Webster Street & Atlantic Avenue

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	179	160	44	57	200	39	31	495	45	87	794	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3453		1770	3495		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3453		1770	3495		1770	3539	1583
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)	195	174	48	62	217	42	34	538	49	95	863	175
RTOR Reduction (vph)	0	0	37	0	17	0	0	6	0	0	0	152
Lane Group Flow (vph)	195	174	11	62	242	0	34	581	0	95	863	23
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	Over
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									
Actuated Green, G (s)	9.3	16.3	16.3	5.0	12.0		2.9	26.1		7.4	30.6	9.3
Effective Green, g (s)	9.3	16.3	16.3	5.0	12.0		2.9	26.1		7.4	30.6	9.3
Actuated g/C Ratio	0.13	0.23	0.23	0.07	0.17		0.04	0.37		0.10	0.43	0.13
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	450	814	364	125	585		72	1288		185	1529	207
v/s Ratio Prot	c0.06	0.05		0.04	c0.07		0.02	0.17		c0.05	c0.24	0.01
v/s Ratio Perm			0.01									
v/c Ratio	0.43	0.21	0.03	0.50	0.41		0.47	0.45		0.51	0.56	0.11
Uniform Delay, d1	28.3	22.1	21.1	31.7	26.3		33.2	16.9		30.0	15.1	27.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.7	0.1	0.0	3.1	0.5		4.8	1.1		2.4	1.5	0.2
Delay (s)	29.0	22.2	21.2	34.8	26.7		38.0	18.1		32.4	16.6	27.3
Level of Service	C	C	C	C	C		D	B		C	B	C
Approach Delay (s)		25.3			28.3			19.2			19.6	
Approach LOS		C			C			B			B	























Intersection Summary

HCM 2000 Control Delay	21.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	70.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

32: Constitution Way & Atlantic Avenue

7/24/2013

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	101	141	99	50	134	95	84	547	38	125	1109	115	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00	
Frt	1.00	0.94		1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	3320		1770	3320		3433	3539	1583	3433	3539	1583	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	3320		1770	3320		3433	3539	1583	3433	3539	1583	
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)	110	153	108	54	146	103	91	595	41	136	1205	125	
RTOR Reduction (vph)	0	87	0	0	88	0	0	0	25	0	0	61	
Lane Group Flow (vph)	110	174	0	54	161	0	91	595	16	136	1205	64	
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases									2			6	
Actuated Green, G (s)	7.6	12.4		4.6	9.4		5.6	25.5	25.5	6.3	26.2	26.2	
Effective Green, g (s)	7.6	12.4		4.6	9.4		5.6	25.5	25.5	6.3	26.2	26.2	
Actuated g/C Ratio	0.12	0.19		0.07	0.15		0.09	0.39	0.39	0.10	0.40	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	207	635		125	481		296	1392	622	333	1430	640	
v/s Ratio Prot	c0.06	c0.05		0.03	0.05		0.03	0.17		c0.04	c0.34		
v/s Ratio Perm									0.01			0.04	
v/c Ratio	0.53	0.27		0.43	0.33		0.31	0.43	0.03	0.41	0.84	0.10	
Uniform Delay, d1	26.9	22.4		28.8	24.9		27.8	14.3	12.0	27.5	17.4	12.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.6	0.2		2.4	0.4		0.6	1.0	0.1	0.8	6.2	0.3	
Delay (s)	29.5	22.6		31.2	25.3		28.4	15.3	12.1	28.3	23.6	12.3	
Level of Service	C	C		C	C		C	B	B	C	C	B	
Approach Delay (s)		24.6			26.4			16.7			23.1		
Approach LOS		C			C			B			C		
Intersection Summary													
HCM 2000 Control Delay			22.0									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.64										
Actuated Cycle Length (s)			64.8									Sum of lost time (s)	16.0
Intersection Capacity Utilization			59.7%									ICU Level of Service	B
Analysis Period (min)			15										
c	Critical Lane Group												


















Level Of Service Computation Report

Cumulative Year 2035 No Project Conditions
AM Peak Hour

HCM Unsignalized Intersection Capacity Analysis

1: Market Street & 3rd Street

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	24	73	20	13	267	33	47	11	3	31	56	96
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	24	73	20	13	267	33	47	11	3	31	56	96
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	300			93			414	457	46	402	450	150
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	300			93			414	457	46	402	450	150
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			89	98	100	94	89	89
cM capacity (veh/h)	1258			1499			415	485	1013	511	489	870
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2	SB 3				
Volume Total	60	56	146	166	61	31	37	115				
Volume Left	24	0	13	0	47	31	0	0				
Volume Right	0	20	0	33	3	0	0	96				
cSH	1258	1700	1499	1700	439	511	489	772				
Volume to Capacity	0.02	0.03	0.01	0.10	0.14	0.06	0.08	0.15				
Queue Length 95th (ft)	1	0	1	0	12	5	6	13				
Control Delay (s)	3.2	0.0	0.7	0.0	14.5	12.5	13.0	10.5				
Lane LOS	A		A		B	B	B	B				
Approach Delay (s)	1.7		0.3		14.5	11.3						
Approach LOS					B	B						
Intersection Summary												
Average Delay			4.8									
Intersection Capacity Utilization			33.5%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Market Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑↑		↘	↑↑↑	
Volume (vph)	4	187	10	0	0	0	0	61	20	63	201	0
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		0.91						0.95		1.00	0.91	
Frt		0.99						0.96		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		5042						3408		1770	5085	
Flt Permitted		1.00						1.00		0.70	1.00	
Satd. Flow (perm)		5042						3408		1307	5085	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	4	187	10	0	0	0	0	61	20	63	201	0
RTOR Reduction (vph)	0	4	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	0	197	0	0	0	0	0	67	0	63	201	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		43.0						24.0		24.0	24.0	
Effective Green, g (s)		43.0						24.0		24.0	24.0	
Actuated g/C Ratio		0.57						0.32		0.32	0.32	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		2890						1090		418	1627	
v/s Ratio Prot								0.02			0.04	
v/s Ratio Perm		0.04								c0.05		
v/c Ratio		0.07						0.06		0.15	0.12	
Uniform Delay, d1		7.1						17.7		18.2	18.1	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		0.0						0.1		0.8	0.2	
Delay (s)		7.1						17.8		19.0	18.2	
Level of Service		A						B		B	B	
Approach Delay (s)		7.1			0.0			17.8			18.4	
Approach LOS		A			A			B			B	

Intersection Summary

HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.10		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	27.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations					↑↑	↑		↓	↑↑			↑↑↓
Volume (vph)	0	0	0	92	259	245	11	24	55	0	0	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0	4.0			4.0
Lane Util. Factor					0.95	1.00		1.00	0.95			0.91
Frt					1.00	0.85		1.00	1.00			0.96
Flt Protected					0.99	1.00		0.95	1.00			1.00
Satd. Flow (prot)					3493	1583		1770	3539			4878
Flt Permitted					0.99	1.00		0.60	1.00			1.00
Satd. Flow (perm)					3493	1583		1125	3539			4878
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	92	259	245	11	24	55	0	0	166
RTOR Reduction (vph)	0	0	0	0	0	93	0	0	0	0	0	43
Lane Group Flow (vph)	0	0	0	0	351	152	0	35	55	0	0	185
Turn Type				Perm	NA	Perm	Perm	Perm	NA			NA
Protected Phases					8				2			6
Permitted Phases				8		8	2	2				
Actuated Green, G (s)					62.0	62.0		30.0	30.0			30.0
Effective Green, g (s)					62.0	62.0		30.0	30.0			30.0
Actuated g/C Ratio					0.62	0.62		0.30	0.30			0.30
Clearance Time (s)					4.0	4.0		4.0	4.0			4.0
Lane Grp Cap (vph)					2165	981		337	1061			1463
v/s Ratio Prot									0.02			c0.04
v/s Ratio Perm					0.10	0.10		0.03				
v/c Ratio					0.16	0.15		0.10	0.05			0.13
Uniform Delay, d1					8.0	8.0		25.3	24.9			25.5
Progression Factor					1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2					0.2	0.3		0.6	0.1			0.2
Delay (s)					8.2	8.3		25.9	25.0			25.6
Level of Service					A	A		C	C			C
Approach Delay (s)		0.0			8.2			25.3				25.6
Approach LOS		A			A			C				C

Intersection Summary

HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.15		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	27.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

7/24/2013



Movement	SBR
Line Configurations	
Volume (vph)	62
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Fr	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	62
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

4: Market Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑		↖	↑↑↑		↖	↑↑		↖	↑↑↑	
Volume (vph)	53	339	37	48	749	46	137	170	14	50	95	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.91	
Frt	1.00	0.99		1.00	0.99		1.00	0.99		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5010		1770	5041		1770	3499		1770	4706	
Flt Permitted	0.23	1.00		0.50	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	425	5010		933	5041		1770	3499		1770	4706	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	53	339	37	48	749	46	137	170	14	50	95	94
RTOR Reduction (vph)	0	17	0	0	9	0	0	8	0	0	82	0
Lane Group Flow (vph)	53	359	0	48	786	0	137	176	0	50	107	0
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4			8								
Actuated Green, G (s)	22.0	22.0		22.0	22.0		36.0	36.0		10.0	10.0	
Effective Green, g (s)	22.0	22.0		22.0	22.0		36.0	36.0		10.0	10.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.45	0.45		0.12	0.12	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	116	1377		256	1386		796	1574		221	588	
v/s Ratio Prot		0.07			c0.16		c0.08	0.05		c0.03	0.02	
v/s Ratio Perm	0.12			0.05								
v/c Ratio	0.46	0.26		0.19	0.57		0.17	0.11		0.23	0.18	
Uniform Delay, d1	24.0	22.7		22.2	24.9		13.1	12.7		31.5	31.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.4	0.5		1.6	1.7		0.5	0.1		2.4	0.7	
Delay (s)	36.5	23.1		23.8	26.6		13.6	12.9		33.9	32.0	
Level of Service	D	C		C	C		B	B		C	C	
Approach Delay (s)		24.8			26.4			13.2			32.4	
Approach LOS		C			C			B			C	

Intersection Summary

HCM 2000 Control Delay	24.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: Castro Street & 11th Street

7/24/2013



Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations	↶	↶↷↷↷	↶↷↷		↶↷↷	
Volume (vph)	159	883	471	31	92	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	0.81	0.81	0.91		0.97	
Frt	1.00	1.00	0.99		0.94	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1433	6030	5038		3287	
Flt Permitted	0.95	1.00	1.00		0.97	
Satd. Flow (perm)	1433	6030	5038		3287	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	159	883	471	31	92	69
RTOR Reduction (vph)	103	53	10	0	0	0
Lane Group Flow (vph)	40	846	492	0	161	0
Turn Type	Split	NA	NA		NA	
Protected Phases	4	4	2		8	
Permitted Phases						
Actuated Green, G (s)	21.0	21.0	21.0		21.0	
Effective Green, g (s)	21.0	21.0	21.0		21.0	
Actuated g/C Ratio	0.28	0.28	0.28		0.28	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Lane Grp Cap (vph)	401	1688	1410		920	
v/s Ratio Prot	0.03	c0.14	c0.10		c0.05	
v/s Ratio Perm						
v/c Ratio	0.10	0.50	0.35		0.17	
Uniform Delay, d1	20.0	22.6	21.5		20.4	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.5	1.1	0.7		0.4	
Delay (s)	20.5	23.7	22.2		20.9	
Level of Service	C	C	C		C	
Approach Delay (s)		23.2	22.2		20.9	
Approach LOS		C	C		C	

Intersection Summary

HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	37.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

6: Castro Street & 12th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑	↑	↑↑↑↑				
Volume (vph)	0	0	0	0	239	289	43	559	0	0	0	0
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					0.91	0.91	0.81	0.81				
Frt					0.95	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	1.00				
Satd. Flow (prot)					3216	1441	1433	6033				
Flt Permitted					1.00	1.00	0.95	1.00				
Satd. Flow (perm)					3216	1441	1433	6033				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	239	289	43	559	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	79	110	17	7	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	284	55	22	556	0	0	0	0
Turn Type					NA	Perm	Perm	NA				
Protected Phases					8			2				
Permitted Phases						8	2					
Actuated Green, G (s)					25.0	25.0	42.0	42.0				
Effective Green, g (s)					25.0	25.0	42.0	42.0				
Actuated g/C Ratio					0.33	0.33	0.56	0.56				
Clearance Time (s)					4.0	4.0	4.0	4.0				
Lane Grp Cap (vph)					1072	480	802	3378				
v/s Ratio Prot					c0.09							
v/s Ratio Perm						0.04	0.02	0.09				
v/c Ratio					0.26	0.11	0.03	0.16				
Uniform Delay, d1					18.3	17.3	7.4	8.0				
Progression Factor					1.00	1.00	0.30	0.44				
Incremental Delay, d2					0.6	0.5	0.1	0.1				
Delay (s)					18.9	17.8	2.3	3.6				
Level of Service					B	B	A	A				
Approach Delay (s)		0.0			18.5			3.5			0.0	
Approach LOS		A			B			A			A	

Intersection Summary

HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	26.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 7: Broadway & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	7	30	4	8	85	92	3	7	0	320	102	66
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	7	30	4	8	85	92	3	7	0	320	102	66

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	41	185	7	4	371	117
Volume Left (vph)	7	8	3	0	320	0
Volume Right (vph)	4	92	0	0	0	66
Hadj (s)	0.01	-0.26	0.26	0.03	0.47	-0.36
Departure Headway (s)	5.4	4.9	5.9	5.7	5.6	4.8
Degree Utilization, x	0.06	0.25	0.01	0.01	0.58	0.15
Capacity (veh/h)	614	687	568	589	628	735
Control Delay (s)	8.7	9.5	7.8	7.5	14.7	7.4
Approach Delay (s)	8.7	9.5	7.7		12.9	
Approach LOS	A	A	A		B	

Intersection Summary

Delay	11.7
Level of Service	B
Intersection Capacity Utilization	42.3%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

8: Broadway & 2nd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	6	2	2	7	22	26	16	337	33	103	369	48
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	6	2	2	7	22	26	16	337	33	103	369	48
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											288	
pX, platoon unblocked												
vC, conflicting volume	836	1001	208	779	1008	185	417			370		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	836	1001	208	779	1008	185	417			370		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	99	100	97	90	97	99			91		
cM capacity (veh/h)	214	217	797	262	215	826	1138			1185		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	10	55	184	202	288	232
Volume Left	6	7	16	0	103	0
Volume Right	2	26	0	33	0	48
cSH	252	343	1138	1700	1185	1700
Volume to Capacity	0.04	0.16	0.01	0.12	0.09	0.14
Queue Length 95th (ft)	3	14	1	0	7	0
Control Delay (s)	19.9	17.5	0.8	0.0	3.5	0.0
Lane LOS	C	C	A		A	
Approach Delay (s)	19.9	17.5	0.4		1.9	
Approach LOS	C	C				

Intersection Summary

Average Delay	2.4
Intersection Capacity Utilization	38.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM Signalized Intersection Capacity Analysis

9: Broadway & 3rd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	34	33	21	5	51	45	34	326	30	101	333	168
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			0.95			0.95	
Frt		0.97			0.94			0.99			0.96	
Flt Protected		0.98			1.00			1.00			0.99	
Satd. Flow (prot)		1769			1746			3483			3363	
Flt Permitted		0.89			0.99			0.89			0.83	
Satd. Flow (perm)		1601			1734			3104			2800	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	34	33	21	5	51	45	34	326	30	101	333	168
RTOR Reduction (vph)	0	14	0	0	30	0	0	11	0	0	74	0
Lane Group Flow (vph)	0	74	0	0	71	0	0	379	0	0	528	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		18.0			18.0			29.0			29.0	
Effective Green, g (s)		18.0			18.0			29.0			29.0	
Actuated g/C Ratio		0.33			0.33			0.53			0.53	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		523			567			1636			1476	
v/s Ratio Prot												
v/s Ratio Perm		c0.05			0.04			0.12			c0.19	
v/c Ratio		0.14			0.12			0.23			0.36	
Uniform Delay, d1		13.0			13.0			7.0			7.6	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.6			0.5			0.3			0.7	
Delay (s)		13.6			13.4			7.3			8.3	
Level of Service		B			B			A			A	
Approach Delay (s)		13.6			13.4			7.3			8.3	
Approach LOS		B			B			A			A	

Intersection Summary

HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

10: Broadway & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	931	177	99	0	0	0	0	305	513	548	320	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.91	0.91	1.00					0.95	1.00	0.97	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3272	1583					3539	1583	3433	1863	
Flt Permitted	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1610	3272	1583					3539	1583	3433	1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	931	177	99	0	0	0	0	305	513	548	320	0
RTOR Reduction (vph)	0	0	71	0	0	0	0	0	203	0	0	0
Lane Group Flow (vph)	465	643	28	0	0	0	0	305	310	548	320	0
Turn Type	Split	NA	Prot					NA	Prot	Split	NA	
Protected Phases	4	4	4					2	2	6	6	
Permitted Phases												
Actuated Green, G (s)	21.0	21.0	21.0					21.0	21.0	21.0	21.0	
Effective Green, g (s)	21.0	21.0	21.0					21.0	21.0	21.0	21.0	
Actuated g/C Ratio	0.28	0.28	0.28					0.28	0.28	0.28	0.28	
Clearance Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	450	916	443					990	443	961	521	
v/s Ratio Prot	c0.29	0.20	0.02					0.09	c0.20	0.16	c0.17	
v/s Ratio Perm												
v/c Ratio	1.03	0.99dl	0.06					0.31	0.70	0.57	0.61	
Uniform Delay, d1	27.0	24.2	19.8					21.3	24.2	23.1	23.5	
Progression Factor	1.00	1.00	1.04					1.00	1.00	0.98	0.99	
Incremental Delay, d2	51.3	4.5	0.3					0.8	8.9	2.4	5.2	
Delay (s)	78.3	28.7	20.9					22.1	33.1	25.1	28.4	
Level of Service	E	C	C					C	C	C	C	
Approach Delay (s)		47.1			0.0			29.0			26.3	
Approach LOS		D			A			C			C	

Intersection Summary

HCM 2000 Control Delay	35.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

11: Broadway & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	294	156	533	64	463	0	0	354	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Util. Factor				1.00	0.91	0.91	1.00	0.95			0.91	
Frt				1.00	0.91	0.85	1.00	1.00			0.98	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3069	1441	1770	3539			4998	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3069	1441	1770	3539			4998	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	294	156	533	64	463	0	0	354	46
RTOR Reduction (vph)	0	0	0	0	182	181	0	0	0	0	22	0
Lane Group Flow (vph)	0	0	0	294	241	85	64	463	0	0	378	0
Turn Type				Split	NA	Prot	Prot	NA			NA	
Protected Phases				8	8	8	5	2			6	
Permitted Phases												
Actuated Green, G (s)				24.0	24.0	24.0	9.0	43.0			30.0	
Effective Green, g (s)				24.0	24.0	24.0	9.0	43.0			30.0	
Actuated g/C Ratio				0.32	0.32	0.32	0.12	0.57			0.40	
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)				566	982	461	212	2029			1999	
v/s Ratio Prot				c0.17	0.08	0.06	c0.04	c0.13			0.08	
v/s Ratio Perm												
v/c Ratio				0.52	0.25	0.18	0.30	0.23			0.19	
Uniform Delay, d1				20.8	18.8	18.4	30.1	7.9			14.6	
Progression Factor				1.00	1.00	1.00	0.83	0.16			1.00	
Incremental Delay, d2				3.4	0.6	0.9	2.4	0.2			0.2	
Delay (s)				24.2	19.4	19.3	27.3	1.4			14.8	
Level of Service				C	B	B	C	A			B	
Approach Delay (s)		0.0			20.8			4.5			14.8	
Approach LOS		A			C			A			B	

Intersection Summary

HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

12: Broadway & 11th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑					↑↑		↑	↑↑	
Volume (vph)	84	632	125	0	0	0	0	410	78	105	529	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0					4.0		4.0	4.0	
Lane Util. Factor		0.91	1.00					0.95		1.00	0.95	
Frt		1.00	0.85					0.98		1.00	1.00	
Flt Protected		0.99	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		5056	1583					3454		1770	3539	
Flt Permitted		0.99	1.00					1.00		0.34	1.00	
Satd. Flow (perm)		5056	1583					3454		638	3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	84	632	125	0	0	0	0	410	78	105	529	0
RTOR Reduction (vph)	0	0	83	0	0	0	0	26	0	0	0	0
Lane Group Flow (vph)	0	716	42	0	0	0	0	462	0	105	529	0
Turn Type	Split	NA	Perm					NA		pm+pt	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4							6		
Actuated Green, G (s)		20.0	20.0					20.0		32.0	32.0	
Effective Green, g (s)		20.0	20.0					20.0		32.0	32.0	
Actuated g/C Ratio		0.33	0.33					0.33		0.53	0.53	
Clearance Time (s)		4.0	4.0					4.0		4.0	4.0	
Lane Grp Cap (vph)		1685	527					1151		491	1887	
v/s Ratio Prot		c0.14						c0.13		0.03	c0.15	
v/s Ratio Perm			0.03							0.09		
v/c Ratio		0.42	0.08					0.40		0.21	0.28	
Uniform Delay, d1		15.5	13.7					15.4		7.4	7.7	
Progression Factor		1.00	1.00					1.00		0.78	0.68	
Incremental Delay, d2		0.8	0.3					1.0		0.9	0.4	
Delay (s)		16.3	14.0					16.4		6.7	5.6	
Level of Service		B	B					B		A	A	
Approach Delay (s)		16.0			0.0			16.4			5.8	
Approach LOS		B			A			B			A	

Intersection Summary

HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: Broadway & 12th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕		↕	↕↕			↕↕↕	
Volume (vph)	0	0	0	145	500	106	93	367	0	0	471	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0	4.0			4.0	
Lane Util. Factor					0.95		1.00	0.95			0.91	
Flt					0.98		1.00	1.00			0.99	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					3431		1770	3539			5023	
Flt Permitted					0.99		0.36	1.00			1.00	
Satd. Flow (perm)					3431		679	3539			5023	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	145	500	106	93	367	0	0	471	42
RTOR Reduction (vph)	0	0	0	0	22	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	0	0	0	729	0	93	367	0	0	496	0
Turn Type				Split	NA		pm+pt	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases							2					
Actuated Green, G (s)					20.0		32.0	32.0			20.0	
Effective Green, g (s)					20.0		32.0	32.0			20.0	
Actuated g/C Ratio					0.33		0.53	0.53			0.33	
Clearance Time (s)					4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)					1143		507	1887			1674	
v/s Ratio Prot					c0.21		0.02	c0.10			c0.10	
v/s Ratio Perm							0.07					
v/c Ratio					0.64		0.18	0.19			0.30	
Uniform Delay, d1					16.9		7.1	7.3			14.8	
Progression Factor					1.00		0.67	0.64			1.93	
Incremental Delay, d2					2.7		0.7	0.2			0.4	
Delay (s)					19.7		5.5	4.8			28.9	
Level of Service					B		A	A			C	
Approach Delay (s)		0.0			19.7			5.0			28.9	
Approach LOS		A			B			A			C	

Intersection Summary

HCM 2000 Control Delay	18.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: Broadway & 14th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↑			↑↑	
Volume (vph)	3	278	79	1	327	111	0	362	24	0	642	95
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			0.95			0.95			0.95	
Frt		0.97			0.96			0.99			0.98	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		3421			3405			3506			3471	
Flt Permitted		0.95			0.95			1.00			1.00	
Satd. Flow (perm)		3260			3250			3506			3471	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	278	79	1	327	111	0	362	24	0	642	95
RTOR Reduction (vph)	0	43	0	0	56	0	0	8	0	0	19	0
Lane Group Flow (vph)	0	317	0	0	383	0	0	378	0	0	718	0
Turn Type	Perm	NA		Perm	NA			NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8								
Actuated Green, G (s)		27.0			27.0			25.0			25.0	
Effective Green, g (s)		27.0			27.0			25.0			25.0	
Actuated g/C Ratio		0.45			0.45			0.42			0.42	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		1467			1462			1460			1446	
v/s Ratio Prot								0.11			c0.21	
v/s Ratio Perm		0.10			c0.12							
v/c Ratio		0.22			0.26			0.26			0.50	
Uniform Delay, d1		10.1			10.3			11.4			12.9	
Progression Factor		1.00			1.00			1.75			1.00	
Incremental Delay, d2		0.3			0.4			0.4			1.2	
Delay (s)		10.4			10.7			20.5			14.1	
Level of Service		B			B			C			B	
Approach Delay (s)		10.4			10.7			20.5			14.1	
Approach LOS		B			B			C			B	

Intersection Summary

















HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	40.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

15: Franklin Street & 2nd Street

7/24/2013

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (veh/h)	0	26	15	5	21	0	0	0	0	14	7	12	
Sign Control		Free			Free			Stop			Stop		
Grade		0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	0	26	15	5	21	0	0	0	0	14	7	12	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None					None							
Median storage (veh)													
Upstream signal (ft)	384												
pX, platoon unblocked													
vC, conflicting volume	21			41				80	64	34	64	72	21
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	21			41				80	64	34	64	72	21
tC, single (s)	4.1			4.1				7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)													
tF (s)	2.2			2.2				3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100				100	100	100	98	99	99
cM capacity (veh/h)	1595			1568				890	824	1040	927	816	1056
Direction, Lane #	EB 1	WB 1	SB 1	SB 2									
Volume Total	41	26	18	16									
Volume Left	0	5	14	0									
Volume Right	15	0	0	12									
cSH	1700	1568	903	991									
Volume to Capacity	0.02	0.00	0.02	0.02									
Queue Length 95th (ft)	0	0	1	1									
Control Delay (s)	0.0	1.4	9.1	8.7									
Lane LOS		A	A	A									
Approach Delay (s)	0.0	1.4	8.9										
Approach LOS			A										
Intersection Summary													
Average Delay			3.3										
Intersection Capacity Utilization			15.4%	ICU Level of Service	A								
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis

16: Franklin Street & 3rd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔	
Volume (veh/h)	0	21	13	8	23	0	0	0	0	7	3	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	21	13	8	23	0	0	0	0	7	3	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		367			383							
pX, platoon unblocked												
vC, conflicting volume	23			34			70	66	28	66	73	23
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	23			34			70	66	28	66	73	23
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	99	100	100
cM capacity (veh/h)	1592			1578			914	820	1048	923	813	1054

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	34	31	8	4
Volume Left	0	8	7	0
Volume Right	13	0	0	2
cSH	1700	1578	902	935
Volume to Capacity	0.02	0.01	0.01	0.00
Queue Length 95th (ft)	0	0	1	0
Control Delay (s)	0.0	1.9	9.0	8.9
Lane LOS		A	A	A
Approach Delay (s)	0.0	1.9	9.0	
Approach LOS			A	

Intersection Summary			
Average Delay		2.2	
Intersection Capacity Utilization	18.2%		ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis

17: Webster Street & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	41	103	118	32	12	28
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	41	103	118	32	12	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	385					
pX, platoon unblocked						
vC, conflicting volume	0		116	82	185	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		116	82	185	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	97		85	96	98	97
cM capacity (veh/h)	1623		811	788	691	1085

Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2
Volume Total	41	103	150	12	28
Volume Left	41	0	118	0	0
Volume Right	0	103	0	0	28
cSH	1623	1700	806	691	1085
Volume to Capacity	0.03	0.06	0.19	0.02	0.03
Queue Length 95th (ft)	2	0	17	1	2
Control Delay (s)	7.3	0.0	10.5	10.3	8.4
Lane LOS	A		B	B	A
Approach Delay (s)	2.1		10.5	9.0	
Approach LOS			B	A	

Intersection Summary					
Average Delay			6.7		
Intersection Capacity Utilization			24.9%	ICU Level of Service	A
Analysis Period (min)			15		

HCM Signalized Intersection Capacity Analysis

18: Harrison Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑↑↑	↑↑			
Volume (vph)	165	691	0	0	0	0	0	607	1356	0	0	0
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			
Lane Util. Factor		0.91						0.91	0.88			
Frt		1.00						1.00	0.85			
Flt Protected		0.99						1.00	1.00			
Satd. Flow (prot)		5037						5085	2787			
Flt Permitted		0.99						1.00	1.00			
Satd. Flow (perm)		5037						5085	2787			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	165	691	0	0	0	0	0	607	1356	0	0	0
RTOR Reduction (vph)	0	88	0	0	0	0	0	0	77	0	0	0
Lane Group Flow (vph)	0	768	0	0	0	0	0	607	1279	0	0	0
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Actuated Green, G (s)		16.0						21.0	21.0			
Effective Green, g (s)		16.0						21.0	21.0			
Actuated g/C Ratio		0.36						0.47	0.47			
Clearance Time (s)		4.0						4.0	4.0			
Lane Grp Cap (vph)		1790						2373	1300			
v/s Ratio Prot								0.12				
v/s Ratio Perm		0.15							c0.46			
v/c Ratio		0.43						0.26	0.98			
Uniform Delay, d1		11.0						7.3	11.8			
Progression Factor		1.00						1.00	1.00			
Incremental Delay, d2		0.8						0.3	21.3			
Delay (s)		11.8						7.5	33.2			
Level of Service		B						A	C			
Approach Delay (s)		11.8			0.0			25.2			0.0	
Approach LOS		B			A			C			A	

Intersection Summary

HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

19: Jackson Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔						↔		↔↕	↕	
Volume (vph)	311	438	446	0	0	0	0	212	41	66	69	0
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		0.91						1.00		1.00	1.00	
Frt		0.94						0.98		1.00	1.00	
Flt Protected		0.99						1.00		0.95	1.00	
Satd. Flow (prot)		4739						1822		1770	1863	
Flt Permitted		0.99						1.00		0.60	1.00	
Satd. Flow (perm)		4739						1822		1122	1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	311	438	446	0	0	0	0	212	41	66	69	0
RTOR Reduction (vph)	0	240	0	0	0	0	0	15	0	0	0	0
Lane Group Flow (vph)	0	955	0	0	0	0	0	238	0	66	69	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		13.0						24.0		24.0	24.0	
Effective Green, g (s)		13.0						24.0		24.0	24.0	
Actuated g/C Ratio		0.29						0.53		0.53	0.53	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		1369						971		598	993	
v/s Ratio Prot								c0.13			0.04	
v/s Ratio Perm		0.20								0.06		
v/c Ratio		0.70						0.24		0.11	0.07	
Uniform Delay, d1		14.3						5.6		5.2	5.1	
Progression Factor		1.00						1.00		0.29	0.30	
Incremental Delay, d2		3.0						0.6		0.4	0.1	
Delay (s)		17.2						6.2		1.9	1.7	
Level of Service		B						A		A	A	
Approach Delay (s)		17.2			0.0			6.2			1.8	
Approach LOS		B			A			A			A	

Intersection Summary

HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

20: Jackson Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↗	↖	↖	↗			↗	↖
Volume (vph)	0	0	0	2	311	56	274	281	0	0	176	1408
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1770	1863	1583	1770	1863			1863	1583
Flt Permitted				0.95	1.00	1.00	0.65	1.00			1.00	1.00
Satd. Flow (perm)				1770	1863	1583	1204	1863			1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	2	311	56	274	281	0	0	176	1408
RTOR Reduction (vph)	0	0	0	0	0	42	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	2	311	14	274	281	0	0	176	1408
Turn Type				Split	NA	Perm	Perm	NA			NA	Free
Protected Phases				8	8			2			6	
Permitted Phases						8	2					Free
Actuated Green, G (s)				11.0	11.0	11.0	26.0	26.0			26.0	45.0
Effective Green, g (s)				11.0	11.0	11.0	26.0	26.0			26.0	45.0
Actuated g/C Ratio				0.24	0.24	0.24	0.58	0.58			0.58	1.00
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)				432	455	386	695	1076			1076	1583
v/s Ratio Prot				0.00	0.17			0.15			0.09	
v/s Ratio Perm						0.01	0.23					c0.89
v/c Ratio				0.00	0.68	0.04	0.39	0.26			0.16	0.89
Uniform Delay, d1				12.9	15.4	13.0	5.2	4.7			4.4	0.0
Progression Factor				0.70	0.70	0.74	1.09	1.04			1.69	1.00
Incremental Delay, d2				0.0	7.9	0.2	1.5	0.5			0.2	6.0
Delay (s)				9.0	18.7	9.8	7.1	5.4			7.7	6.0
Level of Service				A	B	A	A	A			A	A
Approach Delay (s)		0.0			17.3			6.3			6.2	
Approach LOS		A			B			A			A	

Intersection Summary

HCM 2000 Control Delay	7.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

21: Jackson Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔↔	↔					↔			↔	
Volume (vph)	38	529	1308	0	0	0	0	354	90	28	356	0
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		0.86	0.86					1.00			1.00	
Frt		0.92	0.85					0.97			1.00	
Flt Protected		1.00	1.00					1.00			1.00	
Satd. Flow (prot)		4413	1362					1812			1856	
Flt Permitted		1.00	1.00					1.00			0.95	
Satd. Flow (perm)		4413	1362					1812			1773	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	38	529	1308	0	0	0	0	354	90	28	356	0
RTOR Reduction (vph)	0	158	158	0	0	0	0	21	0	0	0	0
Lane Group Flow (vph)	0	1063	496	0	0	0	0	423	0	0	384	0
Turn Type	Split	NA	Perm					NA		Perm	NA	
Protected Phases	4	4						2			6	
Permitted Phases			4							6		
Actuated Green, G (s)		21.0	21.0					16.0			16.0	
Effective Green, g (s)		21.0	21.0					16.0			16.0	
Actuated g/C Ratio		0.47	0.47					0.36			0.36	
Clearance Time (s)		4.0	4.0					4.0			4.0	
Lane Grp Cap (vph)		2059	635					644			630	
v/s Ratio Prot		0.24						c0.23				
v/s Ratio Perm			c0.36								0.22	
v/c Ratio		0.52	0.78					0.66			0.61	
Uniform Delay, d1		8.4	10.1					12.2			11.9	
Progression Factor		1.00	1.00					0.62			1.00	
Incremental Delay, d2		0.9	9.2					5.1			4.4	
Delay (s)		9.4	19.3					12.7			16.3	
Level of Service		A	B					B			B	
Approach Delay (s)		12.8			0.0			12.7			16.3	
Approach LOS		B			A			B			B	

Intersection Summary

HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

22: Madison Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑								↘	↙↑	
Volume (vph)	0	547	22	0	0	0	0	0	0	589	105	0
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	
Lane Util. Factor		0.91								0.91	0.91	
Frt		0.99								1.00	1.00	
Flt Protected		1.00								0.95	0.96	
Satd. Flow (prot)		5056								1610	3270	
Flt Permitted		1.00								0.95	0.96	
Satd. Flow (perm)		5056								1610	3270	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	547	22	0	0	0	0	0	0	589	105	0
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	0	71	71	0
Lane Group Flow (vph)	0	560	0	0	0	0	0	0	0	223	329	0
Turn Type		NA								Perm	NA	
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0								22.0	22.0	
Effective Green, g (s)		16.0								22.0	22.0	
Actuated g/C Ratio		0.35								0.48	0.48	
Clearance Time (s)		4.0								4.0	4.0	
Lane Grp Cap (vph)		1758								770	1563	
v/s Ratio Prot		c0.11										
v/s Ratio Perm										c0.14	0.10	
v/c Ratio		0.32								0.29	0.21	
Uniform Delay, d1		11.0								7.3	7.0	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.5								0.9	0.3	
Delay (s)		11.5								8.2	7.3	
Level of Service		B								A	A	
Approach Delay (s)		11.5			0.0			0.0			7.7	
Approach LOS		B			A			A			A	

Intersection Summary

HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	46.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	31.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

23: Madison Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑						↑↑↑	
Volume (vph)	0	0	0	34	180	0	0	0	0	0	709	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0						4.0	
Lane Util. Factor					0.91						0.91	
Frt					1.00						0.96	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					5045						4890	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					5045						4890	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	34	180	0	0	0	0	0	709	244
RTOR Reduction (vph)	0	0	0	0	23	0	0	0	0	0	125	0
Lane Group Flow (vph)	0	0	0	0	191	0	0	0	0	0	828	0
Turn Type				Split	NA						NA	
Protected Phases				8	8						6	
Permitted Phases												
Actuated Green, G (s)					15.0						22.0	
Effective Green, g (s)					15.0						22.0	
Actuated g/C Ratio					0.33						0.49	
Clearance Time (s)					4.0						4.0	
Lane Grp Cap (vph)					1681						2390	
v/s Ratio Prot					c0.04						c0.17	
v/s Ratio Perm												
v/c Ratio					0.11						0.35	
Uniform Delay, d1					10.4						7.1	
Progression Factor					1.02						0.59	
Incremental Delay, d2					0.1						0.4	
Delay (s)					10.8						4.5	
Level of Service					B						A	
Approach Delay (s)		0.0			10.8			0.0			4.5	
Approach LOS		A			B			A			A	

Intersection Summary

HCM 2000 Control Delay	5.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	31.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

24: Madison Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑									↑↑↑	
Volume (vph)	0	435	254	0	0	0	0	0	0	142	678	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									4.0	
Lane Util. Factor		0.86									0.91	
Frt		0.94									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		6054									5042	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		6054									5042	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	435	254	0	0	0	0	0	0	142	678	0
RTOR Reduction (vph)	0	104	0	0	0	0	0	0	0	0	72	0
Lane Group Flow (vph)	0	585		0	0	0	0	0	0	0	748	
Turn Type		NA								Perm		NA
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0									21.0	
Effective Green, g (s)		16.0									21.0	
Actuated g/C Ratio		0.36									0.47	
Clearance Time (s)		4.0									4.0	
Lane Grp Cap (vph)		2152									2352	
v/s Ratio Prot		c0.10										
v/s Ratio Perm											0.15	
v/c Ratio		0.27									0.32	
Uniform Delay, d1		10.3									7.5	
Progression Factor		0.60									1.00	
Incremental Delay, d2		0.3									0.4	
Delay (s)		6.4									7.9	
Level of Service		A									A	
Approach Delay (s)		6.4			0.0			0.0			7.9	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	33.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

25: Oak Street & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	92	0	70	2	0	0	356	578	0	0	325	97
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	92	0	70	2	0	0	356	578	0	0	325	97
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)											563	
pX, platoon unblocked												
vC, conflicting volume	1374	1664	211	1522	1712	289	422				578	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1374	1664	211	1522	1712	289	422				578	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	0	100	91	96	100	100	69				100	
cM capacity (veh/h)	79	66	794	56	61	708	1134				992	

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	92	70	356	289	289	217	205
Volume Left	92	0	356	0	0	0	0
Volume Right	0	70	0	0	0	0	97
cSH	79	794	1134	1700	1700	1700	1700
Volume to Capacity	1.16	0.09	0.31	0.17	0.17	0.13	0.12
Queue Length 95th (ft)	168	7	34	0	0	0	0
Control Delay (s)	246.0	10.0	9.6	0.0	0.0	0.0	0.0
Lane LOS	F	A	A				
Approach Delay (s)	144.0		3.7			0.0	
Approach LOS	F						

Intersection Summary	
Average Delay	Err
Intersection Capacity Utilization	Err%
ICU Level of Service	H
Analysis Period (min)	15

HCM Signalized Intersection Capacity Analysis

26: Oak Street & 3rd Street

7/24/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	45	94	153	709	514	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.91		1.00	1.00	1.00	0.85
Flt Protected	0.98		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1666		1770	1863	1863	1583
Flt Permitted	0.98		0.30	1.00	1.00	1.00
Satd. Flow (perm)	1666		550	1863	1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	45	94	153	709	514	84
RTOR Reduction (vph)	54	0	0	0	0	50
Lane Group Flow (vph)	85	0	153	709	514	34
Turn Type	NA		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Actuated Green, G (s)	19.0		18.0	18.0	18.0	18.0
Effective Green, g (s)	19.0		18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.42		0.40	0.40	0.40	0.40
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	703		220	745	745	633
v/s Ratio Prot	c0.05			c0.38	0.28	
v/s Ratio Perm			0.28			0.02
v/c Ratio	0.12		0.70	0.95	0.69	0.05
Uniform Delay, d1	7.9		11.2	13.1	11.2	8.3
Progression Factor	1.00		1.00	1.00	0.82	0.78
Incremental Delay, d2	0.4		16.7	23.1	5.1	0.2
Delay (s)	8.3		27.9	36.2	14.4	6.6
Level of Service	A		C	D	B	A
Approach Delay (s)	8.3			34.7	13.3	
Approach LOS	A			C	B	

Intersection Summary

HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

27: Oak Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔↔						↔↔			↔	
Volume (vph)	269	682	155	0	0	0	0	589	181	3	155	0
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	
Lane Util. Factor		0.91						0.95			1.00	
Frt		0.98						0.96			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4919						3414			1861	
Flt Permitted		0.99						1.00			0.99	
Satd. Flow (perm)		4919						3414			1836	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	269	682	155	0	0	0	0	589	181	3	155	0
RTOR Reduction (vph)	0	50	0	0	0	0	0	65	0	0	0	0
Lane Group Flow (vph)	0	1056	0	0	0	0	0	705	0	0	158	0
Turn Type	Split	NA						NA		Perm	NA	
Protected Phases	4	4						2			6	
Permitted Phases										6		
Actuated Green, G (s)		22.0						15.0			15.0	
Effective Green, g (s)		22.0						15.0			15.0	
Actuated g/C Ratio		0.49						0.33			0.33	
Clearance Time (s)		4.0						4.0			4.0	
Lane Grp Cap (vph)		2404						1138			612	
v/s Ratio Prot		c0.21						c0.21				
v/s Ratio Perm											0.09	
v/c Ratio		0.44						0.62			0.26	
Uniform Delay, d1		7.5						12.6			10.9	
Progression Factor		1.00						1.83			1.13	
Incremental Delay, d2		0.6						1.1			1.0	
Delay (s)		8.1						24.2			13.3	
Level of Service		A						C			B	
Approach Delay (s)		8.1			0.0			24.2			13.3	
Approach LOS		A			A			C			B	

Intersection Summary

HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: Oak Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔↔	↗		↔↔				
Volume (vph)	0	0	0	75	61	527	150	463	0	0	0	0
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				
Lane Util. Factor					0.91	0.91		0.95				
Frt					0.90	0.85		1.00				
Flt Protected					0.99	1.00		0.99				
Satd. Flow (prot)					3026	1441		3496				
Flt Permitted					0.99	1.00		0.99				
Satd. Flow (perm)					3026	1441		3496				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	75	61	527	150	463	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	90	90	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	310	173	0	613	0	0	0	0
Turn Type				Split	NA	Perm	Split	NA				
Protected Phases				8	8		2	2				
Permitted Phases						8						
Actuated Green, G (s)					22.0	22.0		15.0				
Effective Green, g (s)					22.0	22.0		15.0				
Actuated g/C Ratio					0.49	0.49		0.33				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					1479	704		1165				
v/s Ratio Prot					0.10			c0.18				
v/s Ratio Perm						c0.12						
v/c Ratio					0.21	0.25		0.53				
Uniform Delay, d1					6.5	6.7		12.1				
Progression Factor					1.00	1.00		0.76				
Incremental Delay, d2					0.3	0.8		1.4				
Delay (s)					6.9	7.5		10.7				
Level of Service					A	A		B				
Approach Delay (s)		0.0			7.1			10.7			0.0	
Approach LOS		A			A			B			A	

Intersection Summary

HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	45.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: Oak Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		←↑↑↑						↑↑↑				
Volume (vph)	108	416	0	0	0	0	0	932	83	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.86						0.91				
Frt		1.00						0.99				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6342						5023				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6342						5023				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	108	416	0	0	0	0	0	932	83	0	0	0
RTOR Reduction (vph)	0	28	0	0	0	0	0	23	0	0	0	0
Lane Group Flow (vph)	0	496	0	0	0	0	0	992	0	0	0	0
Turn Type	Perm	NA						NA				
Protected Phases		4						2				
Permitted Phases	4											
Actuated Green, G (s)		19.0						18.0				
Effective Green, g (s)		19.0						18.0				
Actuated g/C Ratio		0.42						0.40				
Clearance Time (s)		4.0						4.0				
Lane Grp Cap (vph)		2677						2009				
v/s Ratio Prot								c0.20				
v/s Ratio Perm		0.08										
v/c Ratio		0.19						0.49				
Uniform Delay, d1		8.1						10.1				
Progression Factor		1.04						0.82				
Incremental Delay, d2		0.1						0.8				
Delay (s)		8.6						9.1				
Level of Service		A						A				
Approach Delay (s)		8.6				0.0		9.1			0.0	
Approach LOS		A				A		A			A	

Intersection Summary


















HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

30: 5th Avenue & 1st Street / Embarcadero

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	70	421	19	20	623	436	75	45	56	390	16	137
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	70	421	19	20	623	436	75	45	56	390	16	137
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1							
Volume Total (vph)	510	643	436	176	543							
Volume Left (vph)	70	20	0	75	390							
Volume Right (vph)	19	0	436	56	137							
Hadj (s)	0.04	0.05	-0.67	-0.07	0.03							
Departure Headway (s)	8.3	8.6	7.9	9.5	8.2							
Degree Utilization, x	1.17	1.54	0.95	0.46	1.23							
Capacity (veh/h)	439	422	452	367	436							
Control Delay (s)	127.7	273.8	58.6	20.3	149.4							
Approach Delay (s)	127.7	186.9		20.3	149.4							
Approach LOS	F	F		C	F							
Intersection Summary												
Delay			152.3									
Level of Service			F									
Intersection Capacity Utilization			108.6%	ICU Level of Service	G							
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

31: Webster Street & Atlantic Avenue

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	269	193	68	38	334	106	77	857	37	58	617	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3411		1770	3517		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3411		1770	3517		1770	3539	1583
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)	292	210	74	41	363	115	84	932	40	63	671	374
RTOR Reduction (vph)	0	0	50	0	31	0	0	3	0	0	0	315
Lane Group Flow (vph)	292	210	24	41	447	0	84	969	0	63	671	59
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	Over
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									
Actuated Green, G (s)	12.3	25.6	25.6	4.6	17.9		7.3	25.4		6.8	24.9	12.3
Effective Green, g (s)	12.3	25.6	25.6	4.6	17.9		7.3	25.4		6.8	24.9	12.3
Actuated g/C Ratio	0.16	0.33	0.33	0.06	0.23		0.09	0.32		0.09	0.32	0.16
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	538	1155	516	103	778		164	1139		153	1123	248
v/s Ratio Prot	c0.09	0.06		0.02	c0.13		c0.05	c0.28		0.04	0.19	0.04
v/s Ratio Perm			0.02									
v/c Ratio	0.54	0.18	0.05	0.40	0.57		0.51	0.85		0.41	0.60	0.24
Uniform Delay, d1	30.5	18.9	18.1	35.6	26.9		33.9	24.7		33.9	22.5	28.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.1	0.1	0.0	2.5	1.0		2.7	8.1		1.8	2.3	0.5
Delay (s)	31.6	19.0	18.1	38.1	27.9		36.5	32.8		35.7	24.9	29.4
Level of Service	C	B	B	D	C		D	C		D	C	C
Approach Delay (s)		25.3			28.7			33.1			27.0	
Approach LOS		C			C			C			C	

Intersection Summary

HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	78.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

32: Constitution Way & Atlantic Avenue

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	152	283	124	65	338	162	119	876	47	125	507	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.95		1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3377		1770	3367		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3377		1770	3367		3433	3539	1583	3433	3539	1583
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)	165	308	135	71	367	176	129	952	51	136	551	62
RTOR Reduction (vph)	0	46	0	0	59	0	0	0	35	0	0	43
Lane Group Flow (vph)	165	397	0	71	484	0	129	952	16	136	551	19
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	12.9	23.6		7.3	18.0		8.5	24.4	24.4	8.7	24.6	24.6
Effective Green, g (s)	12.9	23.6		7.3	18.0		8.5	24.4	24.4	8.7	24.6	24.6
Actuated g/C Ratio	0.16	0.30		0.09	0.22		0.11	0.30	0.30	0.11	0.31	0.31
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	285	996		161	757		364	1079	482	373	1088	486
v/s Ratio Prot	c0.09	0.12		0.04	c0.14		0.04	c0.27		c0.04	0.16	
v/s Ratio Perm									0.01			0.01
v/c Ratio	0.58	0.40		0.44	0.64		0.35	0.88	0.03	0.36	0.51	0.04
Uniform Delay, d1	31.0	22.5		34.4	28.1		33.2	26.4	19.5	33.1	22.7	19.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.8	0.3		1.9	1.8		0.6	10.4	0.1	0.6	1.7	0.2
Delay (s)	33.9	22.8		36.3	29.8		33.8	36.9	19.6	33.7	24.4	19.6
Level of Service	C	C		D	C		C	D	B	C	C	B
Approach Delay (s)		25.8			30.6			35.8			25.7	
Approach LOS		C			C			D			C	

Intersection Summary

HCM 2000 Control Delay	30.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Level Of Service Computation Report

Cumulative Year 2035 No Project Conditions
PM Peak Hour

HCM Unsignalized Intersection Capacity Analysis

1: Market Street & 3rd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕		↕	↕↕	
Volume (veh/h)	53	273	14	8	161	39	42	97	22	45	20	40
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	53	273	14	8	161	39	42	97	22	45	20	40
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	200			287			532	602	144	510	590	100
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	200			287			532	602	144	510	590	100
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			99			89	75	97	87	95	96
cM capacity (veh/h)	1370			1272			383	394	878	341	400	936

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2	SB 3
Volume Total	190	150	88	120	161	45	13	47
Volume Left	53	0	8	0	42	45	0	0
Volume Right	0	14	0	39	22	0	0	40
cSH	1370	1700	1272	1700	422	341	400	786
Volume to Capacity	0.04	0.09	0.01	0.07	0.38	0.13	0.03	0.06
Queue Length 95th (ft)	3	0	0	0	44	11	3	5
Control Delay (s)	2.4	0.0	0.8	0.0	18.7	17.1	14.3	9.9
Lane LOS	A		A		C	C	B	A
Approach Delay (s)	1.3		0.3		18.7	13.6		
Approach LOS					C	B		

Intersection Summary

Average Delay		6.1						
Intersection Capacity Utilization		40.9%		ICU Level of Service			A	
Analysis Period (min)		15						

HCM Signalized Intersection Capacity Analysis

2: Market Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔↔						↔↔		↔	↔↔↔	
Volume (vph)	6	471	13	0	0	0	0	176	24	105	73	0
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		0.91						0.95		1.00	0.91	
Frt		1.00						0.98		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		5062						3476		1770	5085	
Flt Permitted		1.00						1.00		0.63	1.00	
Satd. Flow (perm)		5062						3476		1166	5085	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	6	471	13	0	0	0	0	176	24	105	73	0
RTOR Reduction (vph)	0	4	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	0	486	0	0	0	0	0	186	0	105	73	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		43.0						24.0		24.0	24.0	
Effective Green, g (s)		43.0						24.0		24.0	24.0	
Actuated g/C Ratio		0.57						0.32		0.32	0.32	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		2902						1112		373	1627	
v/s Ratio Prot								0.05			0.01	
v/s Ratio Perm		0.10								c0.09		
v/c Ratio		0.17						0.17		0.28	0.04	
Uniform Delay, d1		7.6						18.3		19.1	17.6	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		0.1						0.3		1.9	0.1	
Delay (s)		7.7						18.6		20.9	17.6	
Level of Service		A						B		C	B	
Approach Delay (s)		7.7			0.0			18.6			19.6	
Approach LOS		A			A			B			B	

Intersection Summary

HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	31.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations					↑↑	↑		↓	↑↑			↑↑↓
Volume (vph)	0	0	0	23	156	272	17	33	156	0	0	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0	4.0			4.0
Lane Util. Factor					0.95	1.00		1.00	0.95			0.91
Frt					1.00	0.85		1.00	1.00			0.97
Flt Protected					0.99	1.00		0.95	1.00			1.00
Satd. Flow (prot)					3517	1583		1770	3539			4938
Flt Permitted					0.99	1.00		0.63	1.00			1.00
Satd. Flow (perm)					3517	1583		1179	3539			4938
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	23	156	272	17	33	156	0	0	146
RTOR Reduction (vph)	0	0	0	0	0	103	0	0	0	0	0	25
Lane Group Flow (vph)	0	0	0	0	179	169	0	50	156	0	0	157
Turn Type				Perm	NA	Perm	Perm	Perm	NA			NA
Protected Phases					8				2			6
Permitted Phases				8		8	2	2				
Actuated Green, G (s)					62.0	62.0		30.0	30.0			30.0
Effective Green, g (s)					62.0	62.0		30.0	30.0			30.0
Actuated g/C Ratio					0.62	0.62		0.30	0.30			0.30
Clearance Time (s)					4.0	4.0		4.0	4.0			4.0
Lane Grp Cap (vph)					2180	981		353	1061			1481
v/s Ratio Prot									c0.04			0.03
v/s Ratio Perm					0.05	c0.11		0.04				
v/c Ratio					0.08	0.17		0.14	0.15			0.11
Uniform Delay, d1					7.6	8.1		25.6	25.6			25.3
Progression Factor					1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2					0.1	0.4		0.8	0.3			0.1
Delay (s)					7.7	8.5		26.4	25.9			25.4
Level of Service					A	A		C	C			C
Approach Delay (s)		0.0			8.2				26.0			25.4
Approach LOS		A			A				C			C

Intersection Summary

HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.16		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	31.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

7/24/2013



Movement	SBR
Line Configurations	
Volume (vph)	35
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Fr	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	35
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

4: Market Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖		↖	↖↖		↖	↖↖↖	
Volume (vph)	132	991	80	35	424	46	137	254	45	66	107	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.91	
Frt	1.00	0.99		1.00	0.99		1.00	0.98		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5028		1770	5011		1770	3459		1770	4773	
Flt Permitted	0.43	1.00		0.18	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	795	5028		339	5011		1770	3459		1770	4773	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	132	991	80	35	424	46	137	254	45	66	107	74
RTOR Reduction (vph)	0	12	0	0	17	0	0	18	0	0	65	0
Lane Group Flow (vph)	132	1059	0	35	453	0	137	281	0	66	116	0
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4			8								
Actuated Green, G (s)	22.0	22.0		22.0	22.0		36.0	36.0		10.0	10.0	
Effective Green, g (s)	22.0	22.0		22.0	22.0		36.0	36.0		10.0	10.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.45	0.45		0.12	0.12	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	218	1382		93	1378		796	1556		221	596	
v/s Ratio Prot		c0.21			0.09		0.08	c0.08		c0.04	0.02	
v/s Ratio Perm	0.17			0.10								
v/c Ratio	0.61	0.77		0.38	0.33		0.17	0.18		0.30	0.20	
Uniform Delay, d1	25.2	26.6		23.5	23.1		13.1	13.2		31.8	31.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.9	4.1		11.2	0.6		0.5	0.3		3.4	0.7	
Delay (s)	37.1	30.8		34.7	23.8		13.6	13.4		35.2	32.1	
Level of Service	D	C		C	C		B	B		D	C	
Approach Delay (s)		31.5			24.5			13.5			33.0	
Approach LOS		C			C			B			C	

Intersection Summary

HCM 2000 Control Delay	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: Castro Street & 11th Street

7/24/2013



Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations	↶	↶↷↷↷	↶↷↷		↶↷↷	
Volume (vph)	194	613	1360	44	76	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	0.81	0.81	0.91		0.97	
Frt	1.00	1.00	1.00		0.95	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1433	6017	5061		3316	
Flt Permitted	0.95	1.00	1.00		0.97	
Satd. Flow (perm)	1433	6017	5061		3316	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	194	613	1360	44	76	41
RTOR Reduction (vph)	112	53	4	0	0	0
Lane Group Flow (vph)	43	599	1400	0	117	0
Turn Type	Split	NA	NA		NA	
Protected Phases	4	4	2		8	
Permitted Phases						
Actuated Green, G (s)	21.0	21.0	21.0		21.0	
Effective Green, g (s)	21.0	21.0	21.0		21.0	
Actuated g/C Ratio	0.28	0.28	0.28		0.28	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Lane Grp Cap (vph)	401	1684	1417		928	
v/s Ratio Prot	0.03	c0.10	c0.28		c0.04	
v/s Ratio Perm						
v/c Ratio	0.11	0.36	0.99		0.13	
Uniform Delay, d1	20.0	21.6	26.9		20.2	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.5	0.6	21.2		0.3	
Delay (s)	20.6	22.2	48.0		20.4	
Level of Service	C	C	D		C	
Approach Delay (s)		21.9	48.0		20.4	
Approach LOS		C	D		C	

Intersection Summary

HCM 2000 Control Delay	37.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

6: Castro Street & 12th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑	↑	↑↑↑↑				
Volume (vph)	0	0	0	0	249	802	36	1745	0	0	0	0
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					0.91	0.91	0.81	0.81				
Frt					0.91	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	1.00				
Satd. Flow (prot)					3076	1441	1433	6035				
Flt Permitted					1.00	1.00	0.95	1.00				
Satd. Flow (perm)					3076	1441	1433	6035				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	249	802	36	1745	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	10	10	14	7	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	640	391	18	1742	0	0	0	0
Turn Type					NA	Perm	Perm	NA				
Protected Phases					8			2				
Permitted Phases						8	2					
Actuated Green, G (s)					25.0	25.0	42.0	42.0				
Effective Green, g (s)					25.0	25.0	42.0	42.0				
Actuated g/C Ratio					0.33	0.33	0.56	0.56				
Clearance Time (s)					4.0	4.0	4.0	4.0				
Lane Grp Cap (vph)					1025	480	802	3379				
v/s Ratio Prot					0.21							
v/s Ratio Perm						c0.27	0.01	0.29				
v/c Ratio					0.62	0.81	0.02	0.52				
Uniform Delay, d1					21.0	22.9	7.4	10.2				
Progression Factor					1.00	1.00	0.02	0.20				
Incremental Delay, d2					2.9	14.1	0.0	0.3				
Delay (s)					23.9	37.0	0.2	2.4				
Level of Service					C	D	A	A				
Approach Delay (s)		0.0			28.9			2.4			0.0	
Approach LOS		A			C			A			A	

Intersection Summary

HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

7: Broadway & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	24	82	14	12	35	64	6	34	17	310	217	84
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	24	82	14	12	35	64	6	34	17	310	217	84

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	120	111	23	34	419	193
Volume Left (vph)	24	12	6	0	310	0
Volume Right (vph)	14	64	0	17	0	84
Hadj (s)	0.00	-0.29	0.16	-0.32	0.40	-0.27
Departure Headway (s)	5.6	5.3	6.1	5.6	5.6	5.0
Degree Utilization, x	0.19	0.16	0.04	0.05	0.66	0.27
Capacity (veh/h)	597	621	554	599	624	707
Control Delay (s)	9.9	9.4	8.1	7.7	17.6	8.6
Approach Delay (s)	9.9	9.4	7.9		14.7	
Approach LOS	A	A	A		B	

Intersection Summary	
Delay	13.0
Level of Service	B
Intersection Capacity Utilization	41.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

8: Broadway & 2nd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	26	20	10	13	20	49	59	484	161	135	515	84
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	26	20	10	13	20	49	59	484	161	135	515	84
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											288	
pX, platoon unblocked	1.00	1.00	1.00	1.00	1.00		1.00					
vC, conflicting volume	1246	1590	300	1230	1552	322	599			645		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1242	1587	294	1226	1549	322	594			645		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	70	77	99	86	78	93	94			86		
cM capacity (veh/h)	86	86	701	93	91	673	976			936		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	56	82	301	403	392	342
Volume Left	26	13	59	0	135	0
Volume Right	10	49	0	161	0	84
cSH	102	189	976	1700	936	1700
Volume to Capacity	0.55	0.43	0.06	0.24	0.14	0.20
Queue Length 95th (ft)	63	50	5	0	13	0
Control Delay (s)	76.9	37.8	2.3	0.0	4.3	0.0
Lane LOS	F	E	A		A	
Approach Delay (s)	76.9	37.8	1.0		2.3	
Approach LOS	F	E				

Intersection Summary		
Average Delay		6.2
Intersection Capacity Utilization	58.3%	ICU Level of Service
Analysis Period (min)		15
		B

HCM Signalized Intersection Capacity Analysis

9: Broadway & 3rd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	106	118	28	10	102	99	23	274	18	102	459	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.98			0.94			0.99			0.97	
Flt Protected		0.98			1.00			1.00			0.99	
Satd. Flow (prot)		1797			1741			3496			3396	
Flt Permitted		0.81			0.98			0.90			0.85	
Satd. Flow (perm)		1488			1716			3149			2924	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	106	118	28	10	102	99	23	274	18	102	459	162
RTOR Reduction (vph)	0	8	0	0	58	0	0	8	0	0	48	0
Lane Group Flow (vph)	0	244	0	0	153	0	0	307	0	0	675	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		18.0			18.0			29.0			29.0	
Effective Green, g (s)		18.0			18.0			29.0			29.0	
Actuated g/C Ratio		0.33			0.33			0.53			0.53	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		486			561			1660			1541	
v/s Ratio Prot												
v/s Ratio Perm		c0.16			0.09			0.10			c0.23	
v/c Ratio		0.50			0.27			0.18			0.44	
Uniform Delay, d1		14.9			13.7			6.8			8.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		3.7			1.2			0.2			0.9	
Delay (s)		18.6			14.9			7.1			8.9	
Level of Service		B			B			A			A	
Approach Delay (s)		18.6			14.9			7.1			8.9	
Approach LOS		B			B			A			A	

Intersection Summary

HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

10: Broadway & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1162	328	84	0	0	0	0	408	446	879	378	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.91	0.91	1.00					0.95	1.00	0.97	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3285	1583					3539	1583	3433	1863	
Flt Permitted	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1610	3285	1583					3539	1583	3433	1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1162	328	84	0	0	0	0	408	446	879	378	0
RTOR Reduction (vph)	0	0	60	0	0	0	0	0	91	0	0	0
Lane Group Flow (vph)	581	909	24	0	0	0	0	408	355	879	378	0
Turn Type	Split	NA	Prot					NA	Prot	Split	NA	
Protected Phases	4	4	4					2	2	6	6	
Permitted Phases												
Actuated Green, G (s)	21.0	21.0	21.0					21.0	21.0	21.0	21.0	
Effective Green, g (s)	21.0	21.0	21.0					21.0	21.0	21.0	21.0	
Actuated g/C Ratio	0.28	0.28	0.28					0.28	0.28	0.28	0.28	
Clearance Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	450	919	443					990	443	961	521	
v/s Ratio Prot	c0.36	0.28	0.01					0.12	c0.22	c0.26	0.20	
v/s Ratio Perm												
v/c Ratio	1.29	1.24dl	0.05					0.41	0.80	0.91	0.73	
Uniform Delay, d1	27.0	26.9	19.7					22.0	25.1	26.1	24.4	
Progression Factor	0.97	0.97	0.93					1.00	1.00	0.81	0.81	
Incremental Delay, d2	146.8	27.2	0.2					1.3	14.2	13.8	8.0	
Delay (s)	173.0	53.2	18.6					23.2	39.3	34.9	27.8	
Level of Service	F	D	B					C	D	C	C	
Approach Delay (s)		95.6			0.0			31.6			32.8	
Approach LOS		F			A			C			C	

Intersection Summary

HCM 2000 Control Delay	59.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	109.0%	ICU Level of Service	G
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

11: Broadway & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕	↗	↙	↕			↕	↗
Volume (vph)	0	0	0	263	164	791	91	352	0	0	867	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Util. Factor				1.00	0.91	0.91	1.00	0.95			0.91	
Frt				1.00	0.89	0.85	1.00	1.00			0.99	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3031	1441	1770	3539			5052	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3031	1441	1770	3539			5052	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	263	164	791	91	352	0	0	867	40
RTOR Reduction (vph)	0	0	0	0	269	269	0	0	0	0	7	0
Lane Group Flow (vph)	0	0	0	263	291	126	91	352	0	0	900	0
Turn Type				Split	NA	Prot	Prot	NA			NA	
Protected Phases				8	8	8	5	2			6	
Permitted Phases												
Actuated Green, G (s)				24.0	24.0	24.0	9.0	43.0			30.0	
Effective Green, g (s)				24.0	24.0	24.0	9.0	43.0			30.0	
Actuated g/C Ratio				0.32	0.32	0.32	0.12	0.57			0.40	
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)				566	969	461	212	2029			2020	
v/s Ratio Prot				c0.15	0.10	0.09	c0.05	0.10			c0.18	
v/s Ratio Perm												
v/c Ratio				0.46	0.30	0.27	0.43	0.17			0.45	
Uniform Delay, d1				20.4	19.2	19.0	30.6	7.6			16.4	
Progression Factor				1.00	1.00	1.00	0.92	0.10			1.00	
Incremental Delay, d2				2.7	0.8	1.5	2.1	0.1			0.7	
Delay (s)				23.1	20.0	20.5	30.3	0.9			17.1	
Level of Service				C	B	C	C	A			B	
Approach Delay (s)		0.0			20.8			6.9			17.1	
Approach LOS		A			C			A			B	

Intersection Summary

HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	109.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

12: Broadway & 11th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑					↑↑		↑	↑↑	
Volume (vph)	199	813	305	0	0	0	0	453	68	127	895	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0					4.0		4.0	4.0	
Lane Util. Factor		0.91	1.00					0.95		1.00	0.95	
Frt		1.00	0.85					0.98		1.00	1.00	
Flt Protected		0.99	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		5036	1583					3470		1770	3539	
Flt Permitted		0.99	1.00					1.00		0.32	1.00	
Satd. Flow (perm)		5036	1583					3470		599	3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	199	813	305	0	0	0	0	453	68	127	895	0
RTOR Reduction (vph)	0	0	79	0	0	0	0	20	0	0	0	0
Lane Group Flow (vph)	0	1012	226	0	0	0	0	501	0	127	895	0
Turn Type	Split	NA	Perm					NA		pm+pt	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4							6		
Actuated Green, G (s)		20.0	20.0					20.0		32.0	32.0	
Effective Green, g (s)		20.0	20.0					20.0		32.0	32.0	
Actuated g/C Ratio		0.33	0.33					0.33		0.53	0.53	
Clearance Time (s)		4.0	4.0					4.0		4.0	4.0	
Lane Grp Cap (vph)		1678	527					1156		475	1887	
v/s Ratio Prot		c0.20						0.14		0.04	c0.25	
v/s Ratio Perm			0.14							0.11		
v/c Ratio		0.60	0.43					0.43		0.27	0.47	
Uniform Delay, d1		16.7	15.6					15.6		7.5	8.7	
Progression Factor		1.00	1.00					1.00		0.77	0.52	
Incremental Delay, d2		1.6	2.5					1.2		1.1	0.7	
Delay (s)		18.3	18.1					16.8		6.9	5.2	
Level of Service		B	B					B		A	A	
Approach Delay (s)		18.3			0.0			16.8			5.5	
Approach LOS		B			A			B			A	

Intersection Summary

HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: Broadway & 12th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔↔		↗	↕↕			↕↕↔	
Volume (vph)	0	0	0	206	692	127	124	458	0	0	783	109
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	0.95			0.91	
Flt					0.98		1.00	1.00			0.98	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					3439		1770	3539			4992	
Flt Permitted					0.99		0.19	1.00			1.00	
Satd. Flow (perm)					3439		360	3539			4992	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	206	692	127	124	458	0	0	783	109
RTOR Reduction (vph)	0	0	0	0	19	0	0	0	0	0	30	0
Lane Group Flow (vph)	0	0	0	0	1006	0	124	458	0	0	862	0
Turn Type				Split	NA		pm+pt	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases							2					
Actuated Green, G (s)					20.0		32.0	32.0			20.0	
Effective Green, g (s)					20.0		32.0	32.0			20.0	
Actuated g/C Ratio					0.33		0.53	0.53			0.33	
Clearance Time (s)					4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)					1146		380	1887			1664	
v/s Ratio Prot					c0.29		c0.04	0.13			c0.17	
v/s Ratio Perm							0.13					
v/c Ratio					0.88		0.33	0.24			0.52	
Uniform Delay, d1					18.9		7.9	7.5			16.1	
Progression Factor					1.00		1.56	0.78			1.89	
Incremental Delay, d2					9.6		2.0	0.3			0.8	
Delay (s)					28.5		14.3	6.1			31.3	
Level of Service					C		B	A			C	
Approach Delay (s)		0.0			28.5			7.8			31.3	
Approach LOS		A			C			A			C	

Intersection Summary

HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: Broadway & 14th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↑			↑↑	
Volume (vph)	6	328	103	5	582	175	2	556	27	0	988	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frt		0.96			0.97			0.99			0.98	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		3412			3416			3514			3479	
Flt Permitted		0.95			0.95			0.95			1.00	
Satd. Flow (perm)		3232			3256			3347			3479	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	6	328	103	5	582	175	2	556	27	0	988	127
RTOR Reduction (vph)	0	25	0	0	46	0	0	6	0	0	16	0
Lane Group Flow (vph)	0	412	0	0	716	0	0	579	0	0	1099	0
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2					
Actuated Green, G (s)		27.0			27.0			25.0			25.0	
Effective Green, g (s)		27.0			27.0			25.0			25.0	
Actuated g/C Ratio		0.45			0.45			0.42			0.42	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		1454			1465			1394			1449	
v/s Ratio Prot											c0.32	
v/s Ratio Perm		0.13			c0.22			0.17				
v/c Ratio		0.28			0.49			0.42			0.76	
Uniform Delay, d1		10.4			11.6			12.3			14.9	
Progression Factor		1.00			1.00			1.45			1.00	
Incremental Delay, d2		0.5			1.2			0.9			3.8	
Delay (s)		10.9			12.8			18.8			18.7	
Level of Service		B			B			B			B	
Approach Delay (s)		10.9			12.8			18.8			18.7	
Approach LOS		B			B			B			B	

Intersection Summary

















HCM 2000 Control Delay	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

15: Franklin Street & 2nd Street

















7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	87	39	18	83	0	0	0	0	9	21	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	87	39	18	83	0	0	0	0	9	21	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					384							
pX, platoon unblocked												
vC, conflicting volume	83			126			254	226	106	226	245	83
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	83			126			254	226	106	226	245	83
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	99	97	98
cM capacity (veh/h)	1514			1460			663	665	948	723	649	976
Direction, Lane #	EB 1	WB 1	SB 1	SB 2								
Volume Total	126	101	20	28								
Volume Left	0	18	9	0								
Volume Right	39	0	0	18								
cSH	1700	1460	681	823								
Volume to Capacity	0.07	0.01	0.03	0.03								
Queue Length 95th (ft)	0	1	2	3								
Control Delay (s)	0.0	1.4	10.4	9.5								
Lane LOS		A	B	A								
Approach Delay (s)	0.0	1.4	9.9									
Approach LOS			A									
Intersection Summary												
Average Delay			2.2									
Intersection Capacity Utilization			25.7%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

16: Franklin Street & 3rd Street

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											 	
Volume (veh/h)	0	189	12	19	188	0	0	0	0	12	18	74
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	189	12	19	188	0	0	0	0	12	18	74
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		367			383							
pX, platoon unblocked												
vC, conflicting volume	188			201			504	421	195	421	427	188
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	188			201			504	421	195	421	427	188
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	98	96	91
cM capacity (veh/h)	1386			1371			421	517	846	537	513	854
Direction, Lane #	EB 1	WB 1	SB 1	SB 2								
Volume Total	201	207	21	83								
Volume Left	0	19	12	0								
Volume Right	12	0	0	74								
cSH	1700	1371	526	796								
Volume to Capacity	0.12	0.01	0.04	0.10								
Queue Length 95th (ft)	0	1	3	9								
Control Delay (s)	0.0	0.8	12.1	10.0								
Lane LOS		A	B	B								
Approach Delay (s)	0.0	0.8	10.5									
Approach LOS			B									
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization			35.0%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 17: Webster Street & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	23	83	97	54	14	14
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	23	83	97	54	14	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	385					
pX, platoon unblocked						
vC, conflicting volume	0		67	46	129	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		67	46	129	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	99		89	94	98	99
cM capacity (veh/h)	1623		891	834	751	1085

Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2
Volume Total	23	83	151	14	14
Volume Left	23	0	97	0	0
Volume Right	0	83	0	0	14
cSH	1623	1700	870	751	1085
Volume to Capacity	0.01	0.05	0.17	0.02	0.01
Queue Length 95th (ft)	1	0	16	1	1
Control Delay (s)	7.2	0.0	10.0	9.9	8.4
Lane LOS	A		B	A	A
Approach Delay (s)	1.6		10.0	9.1	
Approach LOS			B	A	

Intersection Summary					
Average Delay			6.8		
Intersection Capacity Utilization	24.9%		ICU Level of Service	A	
Analysis Period (min)	15				

HCM Signalized Intersection Capacity Analysis

18: Harrison Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑↑↑	↑↑			
Volume (vph)	334	1529	0	0	0	0	0	678	1172	0	0	0
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			
Lane Util. Factor		0.91						0.91	0.88			
Frt		1.00						1.00	0.85			
Flt Protected		0.99						1.00	1.00			
Satd. Flow (prot)		5040						5085	2787			
Flt Permitted		0.99						1.00	1.00			
Satd. Flow (perm)		5040						5085	2787			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	334	1529	0	0	0	0	0	678	1172	0	0	0
RTOR Reduction (vph)	0	77	0	0	0	0	0	0	13	0	0	0
Lane Group Flow (vph)	0	1786	0	0	0	0	0	678	1159	0	0	0
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Actuated Green, G (s)		16.0						21.0	21.0			
Effective Green, g (s)		16.0						21.0	21.0			
Actuated g/C Ratio		0.36						0.47	0.47			
Clearance Time (s)		4.0						4.0	4.0			
Lane Grp Cap (vph)		1792						2373	1300			
v/s Ratio Prot								0.13				
v/s Ratio Perm		0.35							c0.42			
v/c Ratio		1.00						0.29	0.89			
Uniform Delay, d1		14.5						7.4	11.0			
Progression Factor		1.00						1.00	1.00			
Incremental Delay, d2		20.5						0.3	9.5			
Delay (s)		35.0						7.7	20.5			
Level of Service		C						A	C			
Approach Delay (s)		35.0			0.0			15.8			0.0	
Approach LOS		C			A			B			A	

Intersection Summary

HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

19: Jackson Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔						↔		↔↕	↕	
Volume (vph)	298	622	369	0	0	0	0	581	39	106	82	0
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		0.91						1.00		1.00	1.00	
Frt		0.96						0.99		1.00	1.00	
Flt Protected		0.99						1.00		0.95	1.00	
Satd. Flow (prot)		4811						1847		1770	1863	
Flt Permitted		0.99						1.00		0.30	1.00	
Satd. Flow (perm)		4811						1847		566	1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	298	622	369	0	0	0	0	581	39	106	82	0
RTOR Reduction (vph)	0	161	0	0	0	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	1128	0	0	0	0	0	614	0	106	82	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		13.0						24.0		24.0	24.0	
Effective Green, g (s)		13.0						24.0		24.0	24.0	
Actuated g/C Ratio		0.29						0.53		0.53	0.53	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		1389						985		301	993	
v/s Ratio Prot								c0.33			0.04	
v/s Ratio Perm		0.23								0.19		
v/c Ratio		0.81						0.62		0.35	0.08	
Uniform Delay, d1		14.9						7.3		6.0	5.1	
Progression Factor		1.00						1.00		0.48	0.50	
Incremental Delay, d2		5.3						3.0		3.2	0.2	
Delay (s)		20.1						10.3		6.1	2.7	
Level of Service		C						B		A	A	
Approach Delay (s)		20.1			0.0			10.3			4.6	
Approach LOS		C			A			B			A	

Intersection Summary

HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

20: Jackson Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↗	↗	↖	↗			↗	↖
Volume (vph)	0	0	0	11	389	53	364	434	0	0	213	514
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1770	1863	1583	1770	1863			1863	1583
Flt Permitted				0.95	1.00	1.00	0.62	1.00			1.00	1.00
Satd. Flow (perm)				1770	1863	1583	1164	1863			1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	11	389	53	364	434	0	0	213	514
RTOR Reduction (vph)	0	0	0	0	0	40	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	11	389	13	364	434	0	0	213	514
Turn Type				Split	NA	Perm	Perm	NA			NA	Free
Protected Phases				8	8			2			6	
Permitted Phases						8	2					Free
Actuated Green, G (s)				11.0	11.0	11.0	26.0	26.0			26.0	45.0
Effective Green, g (s)				11.0	11.0	11.0	26.0	26.0			26.0	45.0
Actuated g/C Ratio				0.24	0.24	0.24	0.58	0.58			0.58	1.00
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)				432	455	386	672	1076			1076	1583
v/s Ratio Prot				0.01	c0.21			0.23			0.11	
v/s Ratio Perm						0.01	c0.31					0.32
v/c Ratio				0.03	0.85	0.03	0.54	0.40			0.20	0.32
Uniform Delay, d1				12.9	16.2	13.0	5.8	5.2			4.5	0.0
Progression Factor				0.63	0.66	0.63	0.62	0.66			1.04	1.00
Incremental Delay, d2				0.1	17.7	0.2	2.2	0.8			0.4	0.5
Delay (s)				8.3	28.4	8.3	5.8	4.2			5.0	0.5
Level of Service				A	C	A	A	A			A	A
Approach Delay (s)		0.0			25.5			5.0			1.8	
Approach LOS		A			C			A			A	

Intersection Summary

HCM 2000 Control Delay	8.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

21: Jackson Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔	↔					↔			↔	
Volume (vph)	41	1079	482	0	0	0	0	313	144	36	338	0
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		0.86	0.86					1.00			1.00	
Frt		0.98	0.85					0.96			1.00	
Flt Protected		1.00	1.00					1.00			1.00	
Satd. Flow (prot)		4726	1362					1784			1854	
Flt Permitted		1.00	1.00					1.00			0.91	
Satd. Flow (perm)		4726	1362					1784			1698	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	41	1079	482	0	0	0	0	313	144	36	338	0
RTOR Reduction (vph)	0	28	170	0	0	0	0	32	0	0	0	0
Lane Group Flow (vph)	0	1217	187	0	0	0	0	425	0	0	374	0
Turn Type	Split	NA	Perm					NA		Perm	NA	
Protected Phases	4	4						2			6	
Permitted Phases			4							6		
Actuated Green, G (s)		21.0	21.0					16.0			16.0	
Effective Green, g (s)		21.0	21.0					16.0			16.0	
Actuated g/C Ratio		0.47	0.47					0.36			0.36	
Clearance Time (s)		4.0	4.0					4.0			4.0	
Lane Grp Cap (vph)		2205	635					634			603	
v/s Ratio Prot		c0.26						c0.24				
v/s Ratio Perm			0.14								0.22	
v/c Ratio		0.55	0.30					0.67			0.62	
Uniform Delay, d1		8.6	7.4					12.3			12.0	
Progression Factor		1.00	1.00					0.95			1.00	
Incremental Delay, d2		1.0	1.2					5.3			4.7	
Delay (s)		9.6	8.6					17.0			16.7	
Level of Service		A	A					B			B	
Approach Delay (s)		9.4			0.0			17.0			16.7	
Approach LOS		A			A			B			B	

Intersection Summary

HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

22: Madison Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑								↘	↙↑	
Volume (vph)	0	725	35	0	0	0	0	0	0	931	89	0
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	
Lane Util. Factor		0.91								0.91	0.91	
Frt		0.99								1.00	1.00	
Flt Protected		1.00								0.95	0.96	
Satd. Flow (prot)		5050								1610	3254	
Flt Permitted		1.00								0.95	0.96	
Satd. Flow (perm)		5050								1610	3254	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	725	35	0	0	0	0	0	0	931	89	0
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	35	35	0
Lane Group Flow (vph)	0	749	0	0	0	0	0	0	0	430	520	0
Turn Type		NA								Perm	NA	
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0								22.0	22.0	
Effective Green, g (s)		16.0								22.0	22.0	
Actuated g/C Ratio		0.35								0.48	0.48	
Clearance Time (s)		4.0								4.0	4.0	
Lane Grp Cap (vph)		1756								770	1556	
v/s Ratio Prot		c0.15										
v/s Ratio Perm										c0.27	0.16	
v/c Ratio		0.43								0.56	0.33	
Uniform Delay, d1		11.5								8.5	7.5	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.8								2.9	0.6	
Delay (s)		12.2								11.5	8.0	
Level of Service		B								B	A	
Approach Delay (s)		12.2			0.0			0.0			9.6	
Approach LOS		B			A			A			A	

Intersection Summary

HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	46.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

23: Madison Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑						↑↑↑	
Volume (vph)	0	0	0	18	210	0	0	0	0	0	1047	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0						4.0	
Lane Util. Factor					0.91						0.91	
Frt					1.00						0.97	
Flt Protected					1.00						1.00	
Satd. Flow (prot)					5065						4949	
Flt Permitted					1.00						1.00	
Satd. Flow (perm)					5065						4949	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	18	210	0	0	0	0	0	1047	227
RTOR Reduction (vph)	0	0	0	0	16	0	0	0	0	0	76	0
Lane Group Flow (vph)	0	0	0	0	212	0	0	0	0	0	1198	0
Turn Type				Split	NA						NA	
Protected Phases				8	8						6	
Permitted Phases												
Actuated Green, G (s)					15.0						22.0	
Effective Green, g (s)					15.0						22.0	
Actuated g/C Ratio					0.33						0.49	
Clearance Time (s)					4.0						4.0	
Lane Grp Cap (vph)					1688						2419	
v/s Ratio Prot					c0.04						c0.24	
v/s Ratio Perm												
v/c Ratio					0.13						0.50	
Uniform Delay, d1					10.4						7.8	
Progression Factor					0.91						0.57	
Incremental Delay, d2					0.1						0.6	
Delay (s)					9.7						5.0	
Level of Service					A						A	
Approach Delay (s)		0.0			9.7			0.0			5.0	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	5.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

24: Madison Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑									↑↑↑	
Volume (vph)	0	1045	342	0	0	0	0	0	0	309	852	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									4.0	
Lane Util. Factor		0.86									0.91	
Frt		0.96									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		6171									5019	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		6171									5019	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1045	342	0	0	0	0	0	0	309	852	0
RTOR Reduction (vph)	0	63	0	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	1324	0	0	0	0	0	0	0	0	1148	0
Turn Type		NA								Perm		NA
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0									21.0	
Effective Green, g (s)		16.0									21.0	
Actuated g/C Ratio		0.36									0.47	
Clearance Time (s)		4.0									4.0	
Lane Grp Cap (vph)		2194									2342	
v/s Ratio Prot		c0.21										
v/s Ratio Perm											0.23	
v/c Ratio		0.60									0.49	
Uniform Delay, d1		11.9									8.3	
Progression Factor		0.52									1.00	
Incremental Delay, d2		1.1									0.7	
Delay (s)		7.2									9.0	
Level of Service		A									A	
Approach Delay (s)		7.2				0.0		0.0			9.0	
Approach LOS		A				A		A			A	

Intersection Summary

HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

25: Oak Street & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	42	0	59	5	0	1	218	677	0	0	734	133
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	42	0	59	5	0	1	218	677	0	0	734	133
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											563	
pX, platoon unblocked												
vC, conflicting volume	1576	1914	434	1539	1980	338	867			677		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1576	1914	434	1539	1980	338	867			677		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	27	100	90	91	100	100	72			100		
cM capacity (veh/h)	58	48	570	55	44	657	772			911		

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	42	59	218	338	338	489	378
Volume Left	42	0	218	0	0	0	0
Volume Right	0	59	0	0	0	0	133
cSH	58	570	772	1700	1700	1700	1700
Volume to Capacity	0.73	0.10	0.28	0.20	0.20	0.29	0.22
Queue Length 95th (ft)	78	9	29	0	0	0	0
Control Delay (s)	161.7	12.0	11.5	0.0	0.0	0.0	0.0
Lane LOS	F	B	B				
Approach Delay (s)	74.3		2.8			0.0	
Approach LOS	F						

Intersection Summary		
Average Delay		Err
Intersection Capacity Utilization		Err%
Analysis Period (min)		15
ICU Level of Service		H

HCM Signalized Intersection Capacity Analysis

26: Oak Street & 3rd Street

7/24/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	79	77	136	732	847	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.93		1.00	1.00	1.00	0.85
Flt Protected	0.98		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1696		1770	1863	1863	1583
Flt Permitted	0.98		0.22	1.00	1.00	1.00
Satd. Flow (perm)	1696		414	1863	1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	79	77	136	732	847	189
RTOR Reduction (vph)	37	0	0	0	0	113
Lane Group Flow (vph)	119	0	136	732	847	76
Turn Type	NA		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Actuated Green, G (s)	19.0		18.0	18.0	18.0	18.0
Effective Green, g (s)	19.0		18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.42		0.40	0.40	0.40	0.40
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	716		165	745	745	633
v/s Ratio Prot	c0.07			0.39	c0.45	
v/s Ratio Perm			0.33			0.05
v/c Ratio	0.17		0.82	0.98	1.14	0.12
Uniform Delay, d1	8.1		12.1	13.3	13.5	8.5
Progression Factor	1.00		1.00	1.00	0.91	0.78
Incremental Delay, d2	0.5		35.4	29.0	77.5	0.4
Delay (s)	8.6		47.4	42.3	89.8	7.0
Level of Service	A		D	D	F	A
Approach Delay (s)	8.6			43.1	74.7	
Approach LOS	A			D	E	

Intersection Summary

HCM 2000 Control Delay	56.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

27: Oak Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔						↕↔			↕	
Volume (vph)	246	1016	140	0	0	0	0	825	153	6	131	0
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	
Lane Util. Factor		0.91						0.95			1.00	
Frt		0.99						0.98			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4966						3456			1859	
Flt Permitted		0.99						1.00			0.95	
Satd. Flow (perm)		4966						3456			1776	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	246	1016	140	0	0	0	0	825	153	6	131	0
RTOR Reduction (vph)	0	30	0	0	0	0	0	34	0	0	0	0
Lane Group Flow (vph)	0	1372	0	0	0	0	0	944	0	0	137	0
Turn Type	Split	NA						NA		Perm	NA	
Protected Phases	4	4						2			6	
Permitted Phases										6		
Actuated Green, G (s)		22.0						15.0			15.0	
Effective Green, g (s)		22.0						15.0			15.0	
Actuated g/C Ratio		0.49						0.33			0.33	
Clearance Time (s)		4.0						4.0			4.0	
Lane Grp Cap (vph)		2427						1152			592	
v/s Ratio Prot		c0.28						c0.27				
v/s Ratio Perm											0.08	
v/c Ratio		0.57						0.82			0.23	
Uniform Delay, d1		8.1						13.8			10.8	
Progression Factor		1.00						1.57			1.16	
Incremental Delay, d2		1.0						4.3			0.9	
Delay (s)		9.1						25.9			13.5	
Level of Service		A						C			B	
Approach Delay (s)		9.1			0.0			25.9			13.5	
Approach LOS		A			A			C			B	

Intersection Summary

HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: Oak Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔↔	↗		↔↔				
Volume (vph)	0	0	0	68	85	506	163	586	0	0	0	0
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				
Lane Util. Factor					0.91	0.91		0.95				
Frt					0.91	0.85		1.00				
Flt Protected					0.99	1.00		0.99				
Satd. Flow (prot)					3048	1441		3501				
Flt Permitted					0.99	1.00		0.99				
Satd. Flow (perm)					3048	1441		3501				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	68	85	506	163	586	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	54	54	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	352	199	0	749	0	0	0	0
Turn Type				Split	NA	Perm	Split	NA				
Protected Phases				8	8		2	2				
Permitted Phases						8						
Actuated Green, G (s)					22.0	22.0		15.0				
Effective Green, g (s)					22.0	22.0		15.0				
Actuated g/C Ratio					0.49	0.49		0.33				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					1490	704		1167				
v/s Ratio Prot					0.12			c0.21				
v/s Ratio Perm						c0.14						
v/c Ratio					0.24	0.28		0.64				
Uniform Delay, d1					6.6	6.8		12.7				
Progression Factor					1.00	1.00		0.81				
Incremental Delay, d2					0.4	1.0		1.7				
Delay (s)					7.0	7.8		12.0				
Level of Service					A	A		B				
Approach Delay (s)		0.0			7.3			12.0			0.0	
Approach LOS		A			A			B			A	

Intersection Summary

HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: Oak Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		←↑↑↑						↑↑↑				
Volume (vph)	161	1035	0	0	0	0	0	1017	161	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.86						0.91				
Frt		1.00						0.98				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6365						4981				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6365						4981				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	161	1035	0	0	0	0	0	1017	161	0	0	0
RTOR Reduction (vph)	0	20	0	0	0	0	0	24	0	0	0	0
Lane Group Flow (vph)	0	1176	0	0	0	0	0	1154	0	0	0	0
Turn Type	Perm	NA						NA				
Protected Phases		4						2				
Permitted Phases	4											
Actuated Green, G (s)		19.0						18.0				
Effective Green, g (s)		19.0						18.0				
Actuated g/C Ratio		0.42						0.40				
Clearance Time (s)		4.0						4.0				
Lane Grp Cap (vph)		2687						1992				
v/s Ratio Prot								c0.23				
v/s Ratio Perm		0.18										
v/c Ratio		0.44						0.58				
Uniform Delay, d1		9.2						10.5				
Progression Factor		1.06						0.86				
Incremental Delay, d2		0.4						1.1				
Delay (s)		10.2						10.2				
Level of Service		B						B				
Approach Delay (s)		10.2				0.0		10.2				0.0
Approach LOS		B				A		B				A

Intersection Summary

HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

30: 5th Avenue & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	74	859	57	56	687	623	39	19	27	750	40	97
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	74	859	57	56	687	623	39	19	27	750	40	97

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	990	743	623	85	887
Volume Left (vph)	74	56	0	39	750
Volume Right (vph)	57	0	623	27	97
Hadj (s)	0.01	0.07	-0.67	-0.06	0.14
Departure Headway (s)	7.7	8.1	7.4	9.5	7.7
Degree Utilization, x	2.11	1.68	1.28	0.22	1.90
Capacity (veh/h)	477	448	496	374	476
Control Delay (s)	525.0	333.2	162.2	15.2	430.2
Approach Delay (s)	525.0	255.2		15.2	430.2
Approach LOS	F	F		C	F

Intersection Summary				
Delay		376.0		
Level of Service		F		
Intersection Capacity Utilization		158.2%	ICU Level of Service	H
Analysis Period (min)		15		

HCM Signalized Intersection Capacity Analysis

31: Webster Street & Atlantic Avenue

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	242	216	59	166	581	113	33	526	49	89	768	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3453		1770	3494		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3453		1770	3494		1770	3539	1583
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)	263	235	64	180	632	123	36	572	53	97	835	180
RTOR Reduction (vph)	0	0	48	0	15	0	0	6	0	0	0	155
Lane Group Flow (vph)	263	235	16	180	740	0	36	619	0	97	835	25
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	Over
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									
Actuated Green, G (s)	11.7	20.4	20.4	13.7	22.4		4.6	25.4		7.9	28.7	11.7
Effective Green, g (s)	11.7	20.4	20.4	13.7	22.4		4.6	25.4		7.9	28.7	11.7
Actuated g/C Ratio	0.14	0.24	0.24	0.16	0.27		0.06	0.30		0.09	0.34	0.14
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	481	865	387	290	927		97	1064		167	1217	222
v/s Ratio Prot	0.08	0.07		c0.10	c0.21		0.02	0.18		c0.05	c0.24	0.02
v/s Ratio Perm			0.01									
v/c Ratio	0.55	0.27	0.04	0.62	0.80		0.37	0.58		0.58	0.69	0.11
Uniform Delay, d1	33.4	25.5	24.0	32.4	28.4		38.0	24.5		36.2	23.5	31.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.3	0.2	0.0	4.1	4.8		2.4	2.3		5.1	3.2	0.2
Delay (s)	34.7	25.7	24.1	36.5	33.2		40.4	26.8		41.2	26.6	31.5
Level of Service	C	C	C	D	C		D	C		D	C	C
Approach Delay (s)		29.7			33.9			27.6			28.7	
Approach LOS		C			C			C			C	

Intersection Summary

HCM 2000 Control Delay	30.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	83.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

32: Constitution Way & Atlantic Avenue

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	321	448	315	89	240	170	87	529	39	130	1133	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.94		1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3320		1770	3319		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3320		1770	3319		3433	3539	1583	3433	3539	1583
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)	349	487	342	97	261	185	95	575	42	141	1232	129
RTOR Reduction (vph)	0	115	0	0	141	0	0	0	30	0	0	70
Lane Group Flow (vph)	349	714	0	97	305	0	95	575	12	141	1232	59
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	20.5	26.3		8.5	14.3		6.3	25.2	25.2	8.9	27.8	27.8
Effective Green, g (s)	20.5	26.3		8.5	14.3		6.3	25.2	25.2	8.9	27.8	27.8
Actuated g/C Ratio	0.24	0.31		0.10	0.17		0.07	0.30	0.30	0.10	0.33	0.33
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	427	1028		177	559		254	1050	469	359	1158	518
v/s Ratio Prot	c0.20	c0.21		0.05	0.09		0.03	0.16		c0.04	c0.35	
v/s Ratio Perm									0.01			0.04
v/c Ratio	0.82	0.69		0.55	0.55		0.37	0.55	0.03	0.39	1.06	0.11
Uniform Delay, d1	30.4	25.8		36.4	32.3		37.4	25.1	21.2	35.5	28.6	19.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.5	2.1		3.4	1.1		0.9	2.1	0.1	0.7	45.2	0.4
Delay (s)	41.9	27.8		39.8	33.4		38.4	27.1	21.3	36.2	73.8	20.4
Level of Service	D	C		D	C		D	C	C	D	E	C
Approach Delay (s)		32.0			34.6			28.3			65.7	
Approach LOS		C			C			C			E	

Intersection Summary

HCM 2000 Control Delay	44.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	84.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			


















Level Of Service Computation Report

Cumulative plus Project (Maximum Residential Scenario) Conditions
AM Peak Hour

HCM Unsignalized Intersection Capacity Analysis

1: Market Street & 3rd Street

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	24	74	25	18	268	64	51	33	7	33	79	96
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	24	74	25	18	268	64	51	33	7	33	79	96
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	332			99			440	502	50	444	483	166
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	332			99			440	502	50	444	483	166
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			86	93	99	93	83	89
cM capacity (veh/h)	1224			1492			377	455	1008	455	467	849
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2	SB 3				
Volume Total	61	62	152	198	91	33	53	122				
Volume Left	24	0	18	0	51	33	0	0				
Volume Right	0	25	0	64	7	0	0	96				
cSH	1224	1700	1492	1700	424	455	467	722				
Volume to Capacity	0.02	0.04	0.01	0.12	0.21	0.07	0.11	0.17				
Queue Length 95th (ft)	1	0	1	0	20	6	9	15				
Control Delay (s)	3.2	0.0	1.0	0.0	15.8	13.5	13.7	11.0				
Lane LOS	A		A		C	B	B	B				
Approach Delay (s)	1.6		0.4		15.8	12.1						
Approach LOS					C	B						
Intersection Summary												
Average Delay			5.6									
Intersection Capacity Utilization			37.1%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Market Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑↑		↘	↑↑↑	
Volume (vph)	4	203	15	0	0	0	0	110	24	63	221	0
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		0.91						0.95		1.00	0.91	
Frt		0.99						0.97		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		5029						3444		1770	5085	
Flt Permitted		1.00						1.00		0.67	1.00	
Satd. Flow (perm)		5029						3444		1242	5085	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	4	203	15	0	0	0	0	110	24	63	221	0
RTOR Reduction (vph)	0	6	0	0	0	0	0	16	0	0	0	0
Lane Group Flow (vph)	0	216	0	0	0	0	0	118	0	63	221	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		43.0						24.0		24.0	24.0	
Effective Green, g (s)		43.0						24.0		24.0	24.0	
Actuated g/C Ratio		0.57						0.32		0.32	0.32	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		2883						1102		397	1627	
v/s Ratio Prot								0.03			0.04	
v/s Ratio Perm		0.04								c0.05		
v/c Ratio		0.07						0.11		0.16	0.14	
Uniform Delay, d1		7.1						18.0		18.3	18.1	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		0.1						0.2		0.9	0.2	
Delay (s)		7.2						18.1		19.1	18.3	
Level of Service		A						B		B	B	
Approach Delay (s)		7.2			0.0			18.1			18.5	
Approach LOS		A			A			B			B	

Intersection Summary

HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.10		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	28.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations					↑↑	↑		↓	↑↑			↑↑↓
Volume (vph)	0	0	0	97	259	250	11	29	99	0	0	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0	4.0			4.0
Lane Util. Factor					0.95	1.00		1.00	0.95			0.91
Frt					1.00	0.85		1.00	1.00			0.96
Flt Protected					0.99	1.00		0.95	1.00			1.00
Satd. Flow (prot)					3492	1583		1770	3539			4891
Flt Permitted					0.99	1.00		0.59	1.00			1.00
Satd. Flow (perm)					3492	1583		1108	3539			4891
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	97	259	250	11	29	99	0	0	181
RTOR Reduction (vph)	0	0	0	0	0	95	0	0	0	0	0	43
Lane Group Flow (vph)	0	0	0	0	356	155	0	40	99	0	0	200
Turn Type				Perm	NA	Perm	Perm	Perm	NA			NA
Protected Phases					8				2			6
Permitted Phases				8		8	2	2				
Actuated Green, G (s)					62.0	62.0		30.0	30.0			30.0
Effective Green, g (s)					62.0	62.0		30.0	30.0			30.0
Actuated g/C Ratio					0.62	0.62		0.30	0.30			0.30
Clearance Time (s)					4.0	4.0		4.0	4.0			4.0
Lane Grp Cap (vph)					2165	981		332	1061			1467
v/s Ratio Prot									0.03			c0.04
v/s Ratio Perm					0.10	0.10		0.04				
v/c Ratio					0.16	0.16		0.12	0.09			0.14
Uniform Delay, d1					8.0	8.0		25.4	25.2			25.5
Progression Factor					1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2					0.2	0.3		0.7	0.2			0.2
Delay (s)					8.2	8.3		26.2	25.4			25.7
Level of Service					A	A		C	C			C
Approach Delay (s)		0.0			8.3				25.6			25.7
Approach LOS		A			A				C			C

Intersection Summary

HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.16		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	28.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

7/24/2013



Movement	SBR
Line Configurations	
Volume (vph)	62
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Fr	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	62
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

4: Market Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑↑		↗	↑↑↑		↗	↑↑		↗	↑↑↑	
Volume (vph)	53	339	42	53	749	46	177	175	19	50	100	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.91	
Frt	1.00	0.98		1.00	0.99		1.00	0.99		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5001		1770	5041		1770	3487		1770	4716	
Flt Permitted	0.23	1.00		0.50	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	425	5001		926	5041		1770	3487		1770	4716	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	53	339	42	53	749	46	177	175	19	50	100	94
RTOR Reduction (vph)	0	20	0	0	9	0	0	10	0	0	82	0
Lane Group Flow (vph)	53	361	0	53	786	0	177	184	0	50	112	0
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4			8								
Actuated Green, G (s)	22.0	22.0		22.0	22.0		36.0	36.0		10.0	10.0	
Effective Green, g (s)	22.0	22.0		22.0	22.0		36.0	36.0		10.0	10.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.45	0.45		0.12	0.12	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	116	1375		254	1386		796	1569		221	589	
v/s Ratio Prot		0.07			c0.16		c0.10	0.05		c0.03	0.02	
v/s Ratio Perm	0.12			0.06								
v/c Ratio	0.46	0.26		0.21	0.57		0.22	0.12		0.23	0.19	
Uniform Delay, d1	24.0	22.7		22.3	24.9		13.4	12.8		31.5	31.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.4	0.5		1.9	1.7		0.6	0.2		2.4	0.7	
Delay (s)	36.5	23.1		24.2	26.6		14.1	12.9		33.9	32.1	
Level of Service	D	C		C	C		B	B		C	C	
Approach Delay (s)		24.8			26.4			13.5			32.5	
Approach LOS		C			C			B			C	

Intersection Summary

HCM 2000 Control Delay	24.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: Castro Street & 11th Street

7/24/2013



Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Volume (vph)	159	883	479	31	92	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	0.81	0.81	0.91		0.97	
Frt	1.00	1.00	0.99		0.94	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1433	6030	5039		3287	
Flt Permitted	0.95	1.00	1.00		0.97	
Satd. Flow (perm)	1433	6030	5039		3287	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	159	883	479	31	92	69
RTOR Reduction (vph)	103	53	9	0	0	0
Lane Group Flow (vph)	40	846	501	0	161	0
Turn Type	Split	NA	NA		NA	
Protected Phases	4	4	2		8	
Permitted Phases						
Actuated Green, G (s)	21.0	21.0	21.0		21.0	
Effective Green, g (s)	21.0	21.0	21.0		21.0	
Actuated g/C Ratio	0.28	0.28	0.28		0.28	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Lane Grp Cap (vph)	401	1688	1410		920	
v/s Ratio Prot	0.03	c0.14	c0.10		c0.05	
v/s Ratio Perm						
v/c Ratio	0.10	0.50	0.36		0.17	
Uniform Delay, d1	20.0	22.6	21.6		20.4	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.5	1.1	0.7		0.4	
Delay (s)	20.5	23.7	22.3		20.9	
Level of Service	C	C	C		C	
Approach Delay (s)		23.2	22.3		20.9	
Approach LOS		C	C		C	

Intersection Summary

HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

6: Castro Street & 12th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑	↑	↑↑↑↑				
Volume (vph)	0	0	0	0	239	289	43	567	0	0	0	0
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					0.91	0.91	0.81	0.81				
Frt					0.95	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	1.00				
Satd. Flow (prot)					3216	1441	1433	6033				
Flt Permitted					1.00	1.00	0.95	1.00				
Satd. Flow (perm)					3216	1441	1433	6033				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	239	289	43	567	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	79	110	17	7	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	284	55	22	564	0	0	0	0
Turn Type					NA	Perm	Perm	NA				
Protected Phases					8			2				
Permitted Phases						8	2					
Actuated Green, G (s)					25.0	25.0	42.0	42.0				
Effective Green, g (s)					25.0	25.0	42.0	42.0				
Actuated g/C Ratio					0.33	0.33	0.56	0.56				
Clearance Time (s)					4.0	4.0	4.0	4.0				
Lane Grp Cap (vph)					1072	480	802	3378				
v/s Ratio Prot					c0.09							
v/s Ratio Perm						0.04	0.02	0.09				
v/c Ratio					0.26	0.11	0.03	0.17				
Uniform Delay, d1					18.3	17.3	7.4	8.0				
Progression Factor					1.00	1.00	0.29	0.43				
Incremental Delay, d2					0.6	0.5	0.1	0.1				
Delay (s)					18.9	17.8	2.2	3.6				
Level of Service					B	B	A	A				
Approach Delay (s)		0.0			18.5			3.5			0.0	
Approach LOS		A			B			A			A	

Intersection Summary

HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	26.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

7: Broadway & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	8	71	51	8	138	113	13	54	0	330	151	66
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	8	71	51	8	138	113	13	54	0	330	151	66

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	130	259	40	27	406	142
Volume Left (vph)	8	8	13	0	330	0
Volume Right (vph)	51	113	0	0	0	66
Hadj (s)	-0.19	-0.22	0.20	0.03	0.44	-0.29
Departure Headway (s)	5.8	5.5	6.7	6.5	6.2	5.4
Degree Utilization, x	0.21	0.39	0.07	0.05	0.70	0.21
Capacity (veh/h)	571	614	479	499	567	640
Control Delay (s)	10.3	12.0	9.0	8.6	21.0	8.7
Approach Delay (s)	10.3	12.0	8.8		17.8	
Approach LOS	B	B	A		C	

Intersection Summary

Delay	14.8
Level of Service	B
Intersection Capacity Utilization	48.2%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

8: Broadway & 2nd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Volume (veh/h)	6	2	2	7	22	26	16	405	33	103	429	48
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	6	2	2	7	22	26	16	405	33	103	429	48
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											288	
pX, platoon unblocked												
vC, conflicting volume	930	1129	238	877	1136	219	477			438		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	930	1129	238	877	1136	219	477			438		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	99	100	97	88	97	99			91		
cM capacity (veh/h)	179	181	763	221	179	785	1082			1118		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	10	55	218	236	318	262
Volume Left	6	7	16	0	103	0
Volume Right	2	26	0	33	0	48
cSH	212	293	1082	1700	1118	1700
Volume to Capacity	0.05	0.19	0.01	0.14	0.09	0.15
Queue Length 95th (ft)	4	17	1	0	8	0
Control Delay (s)	22.8	20.1	0.7	0.0	3.4	0.0
Lane LOS	C	C	A		A	
Approach Delay (s)	22.8	20.1	0.4		1.9	
Approach LOS	C	C				

Intersection Summary		
Average Delay		2.3
Intersection Capacity Utilization	42.4%	ICU Level of Service
Analysis Period (min)		15
		A

HCM Signalized Intersection Capacity Analysis

9: Broadway & 3rd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	34	38	21	5	54	54	46	382	30	102	393	168
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			0.95			0.95	
Frt		0.97			0.94			0.99			0.96	
Flt Protected		0.98			1.00			1.00			0.99	
Satd. Flow (prot)		1774			1739			3487			3379	
Flt Permitted		0.89			0.99			0.86			0.82	
Satd. Flow (perm)		1607			1728			3017			2788	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	34	38	21	5	54	54	46	382	30	102	393	168
RTOR Reduction (vph)	0	14	0	0	36	0	0	9	0	0	61	0
Lane Group Flow (vph)	0	79	0	0	77	0	0	449	0	0	602	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		18.0			18.0			29.0			29.0	
Effective Green, g (s)		18.0			18.0			29.0			29.0	
Actuated g/C Ratio		0.33			0.33			0.53			0.53	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		525			565			1590			1470	
v/s Ratio Prot												
v/s Ratio Perm		c0.05			0.04			0.15			c0.22	
v/c Ratio		0.15			0.14			0.28			0.41	
Uniform Delay, d1		13.1			13.0			7.2			7.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.6			0.5			0.4			0.8	
Delay (s)		13.7			13.5			7.7			8.7	
Level of Service		B			B			A			A	
Approach Delay (s)		13.7			13.5			7.7			8.7	
Approach LOS		B			B			A			A	

Intersection Summary

HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

10: Broadway & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	931	179	99	0	0	0	0	329	553	548	381	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.91	0.91	1.00					0.95	1.00	0.97	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3272	1583					3539	1583	3433	1863	
Flt Permitted	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1610	3272	1583					3539	1583	3433	1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	931	179	99	0	0	0	0	329	553	548	381	0
RTOR Reduction (vph)	0	0	71	0	0	0	0	0	202	0	0	0
Lane Group Flow (vph)	465	645	28	0	0	0	0	329	351	548	381	0
Turn Type	Split	NA	Prot					NA	Prot	Split	NA	
Protected Phases	4	4	4					2	2	6	6	
Permitted Phases												
Actuated Green, G (s)	21.0	21.0	21.0					21.0	21.0	21.0	21.0	
Effective Green, g (s)	21.0	21.0	21.0					21.0	21.0	21.0	21.0	
Actuated g/C Ratio	0.28	0.28	0.28					0.28	0.28	0.28	0.28	
Clearance Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	450	916	443					990	443	961	521	
v/s Ratio Prot	c0.29	0.20	0.02					0.09	c0.22	0.16	c0.20	
v/s Ratio Perm												
v/c Ratio	1.03	0.99dl	0.06					0.33	0.79	0.57	0.73	
Uniform Delay, d1	27.0	24.2	19.8					21.4	25.0	23.1	24.4	
Progression Factor	1.00	1.00	1.04					1.00	1.00	1.02	1.02	
Incremental Delay, d2	51.3	4.5	0.3					0.9	13.6	2.4	8.5	
Delay (s)	78.3	28.7	20.9					22.3	38.6	25.9	33.4	
Level of Service	E	C	C					C	D	C	C	
Approach Delay (s)		47.1			0.0			32.5			29.0	
Approach LOS		D			A			C			C	

Intersection Summary

HCM 2000 Control Delay	37.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.3%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

11: Broadway & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕	↗	↙	↕			↕	↗
Volume (vph)	0	0	0	335	160	533	69	482	0	0	374	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Util. Factor				1.00	0.91	0.91	1.00	0.95			0.91	
Frt				1.00	0.91	0.85	1.00	1.00			0.98	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3072	1441	1770	3539			5002	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3072	1441	1770	3539			5002	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	335	160	533	69	482	0	0	374	46
RTOR Reduction (vph)	0	0	0	0	182	181	0	0	0	0	20	0
Lane Group Flow (vph)	0	0	0	335	245	85	69	482	0	0	400	0
Turn Type				Split	NA	Prot	Prot	NA			NA	
Protected Phases				8	8	8	5	2			6	
Permitted Phases												
Actuated Green, G (s)				24.0	24.0	24.0	9.0	43.0			30.0	
Effective Green, g (s)				24.0	24.0	24.0	9.0	43.0			30.0	
Actuated g/C Ratio				0.32	0.32	0.32	0.12	0.57			0.40	
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)				566	983	461	212	2029			2000	
v/s Ratio Prot				c0.19	0.08	0.06	c0.04	c0.14			0.08	
v/s Ratio Perm												
v/c Ratio				0.59	0.25	0.18	0.33	0.24			0.20	
Uniform Delay, d1				21.4	18.8	18.4	30.2	7.9			14.7	
Progression Factor				1.00	1.00	1.00	0.84	0.15			1.00	
Incremental Delay, d2				4.5	0.6	0.9	2.7	0.2			0.2	
Delay (s)				25.9	19.5	19.3	28.1	1.4			14.9	
Level of Service				C	B	B	C	A			B	
Approach Delay (s)		0.0			21.5			4.7			14.9	
Approach LOS		A			C			A			B	

Intersection Summary

HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

12: Broadway & 11th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑					↑↑		↑	↑↑	
Volume (vph)	84	632	130	0	0	0	0	424	83	105	544	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0					4.0		4.0	4.0	
Lane Util. Factor		0.91	1.00					0.95		1.00	0.95	
Frt		1.00	0.85					0.98		1.00	1.00	
Flt Protected		0.99	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		5056	1583					3452		1770	3539	
Flt Permitted		0.99	1.00					1.00		0.33	1.00	
Satd. Flow (perm)		5056	1583					3452		616	3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	84	632	130	0	0	0	0	424	83	105	544	0
RTOR Reduction (vph)	0	0	87	0	0	0	0	27	0	0	0	0
Lane Group Flow (vph)	0	716	43	0	0	0	0	480	0	105	544	0
Turn Type	Split	NA	Perm					NA		pm+pt	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4							6		
Actuated Green, G (s)		20.0	20.0					20.0		32.0	32.0	
Effective Green, g (s)		20.0	20.0					20.0		32.0	32.0	
Actuated g/C Ratio		0.33	0.33					0.33		0.53	0.53	
Clearance Time (s)		4.0	4.0					4.0		4.0	4.0	
Lane Grp Cap (vph)		1685	527					1150		482	1887	
v/s Ratio Prot		c0.14						c0.14		0.03	c0.15	
v/s Ratio Perm			0.03							0.09		
v/c Ratio		0.42	0.08					0.42		0.22	0.29	
Uniform Delay, d1		15.5	13.7					15.5		7.4	7.7	
Progression Factor		1.00	1.00					1.00		0.79	0.68	
Incremental Delay, d2		0.8	0.3					1.1		1.0	0.4	
Delay (s)		16.3	14.0					16.6		6.8	5.6	
Level of Service		B	B					B		A	A	
Approach Delay (s)		16.0			0.0			16.6			5.8	
Approach LOS		B			A			B			A	

Intersection Summary

HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: Broadway & 12th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔↔		↖	↕↕			↕↕↔	
Volume (vph)	0	0	0	150	500	106	98	376	0	0	481	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0	4.0			4.0	
Lane Util. Factor					0.95		1.00	0.95			0.91	
Flt					0.98		1.00	1.00			0.99	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					3431		1770	3539			5024	
Flt Permitted					0.99		0.36	1.00			1.00	
Satd. Flow (perm)					3431		669	3539			5024	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	150	500	106	98	376	0	0	481	42
RTOR Reduction (vph)	0	0	0	0	22	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	0	0	0	734	0	98	376	0	0	506	0
Turn Type				Split	NA		pm+pt	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases							2					
Actuated Green, G (s)					20.0		32.0	32.0			20.0	
Effective Green, g (s)					20.0		32.0	32.0			20.0	
Actuated g/C Ratio					0.33		0.53	0.53			0.33	
Clearance Time (s)					4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)					1143		503	1887			1674	
v/s Ratio Prot					c0.21		0.03	c0.11			c0.10	
v/s Ratio Perm							0.08					
v/c Ratio					0.64		0.19	0.20			0.30	
Uniform Delay, d1					17.0		7.1	7.3			14.8	
Progression Factor					1.00		0.67	0.63			1.92	
Incremental Delay, d2					2.8		0.8	0.2			0.4	
Delay (s)					19.7		5.5	4.8			28.8	
Level of Service					B		A	A			C	
Approach Delay (s)		0.0			19.7			5.0			28.8	
Approach LOS		A			B			A			C	

Intersection Summary

HCM 2000 Control Delay	18.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: Broadway & 14th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↑			↑↑	
Volume (vph)	3	278	84	1	327	111	0	367	29	0	647	95
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			0.95			0.95			0.95	
Frt		0.97			0.96			0.99			0.98	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		3416			3405			3500			3471	
Flt Permitted		0.95			0.95			1.00			1.00	
Satd. Flow (perm)		3255			3250			3500			3471	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	278	84	1	327	111	0	367	29	0	647	95
RTOR Reduction (vph)	0	46	0	0	56	0	0	10	0	0	19	0
Lane Group Flow (vph)	0	319	0	0	383	0	0	386	0	0	723	0
Turn Type	Perm	NA		Perm	NA			NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8								
Actuated Green, G (s)		27.0			27.0			25.0			25.0	
Effective Green, g (s)		27.0			27.0			25.0			25.0	
Actuated g/C Ratio		0.45			0.45			0.42			0.42	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		1464			1462			1458			1446	
v/s Ratio Prot								0.11			c0.21	
v/s Ratio Perm		0.10			c0.12							
v/c Ratio		0.22			0.26			0.26			0.50	
Uniform Delay, d1		10.1			10.3			11.5			12.9	
Progression Factor		1.00			1.00			1.77			1.00	
Incremental Delay, d2		0.3			0.4			0.4			1.2	
Delay (s)		10.4			10.7			20.7			14.1	
Level of Service		B			B			C			B	
Approach Delay (s)		10.4			10.7			20.7			14.1	
Approach LOS		B			B			C			B	

Intersection Summary

















HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	40.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

15: Franklin Street & 2nd Street

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	26	15	5	21	0	0	0	0	14	14	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	26	15	5	21	0	0	0	0	14	14	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					384							
pX, platoon unblocked												
vC, conflicting volume	21			41			84	64	34	64	72	21
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	21			41			84	64	34	64	72	21
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	98	98	99
cM capacity (veh/h)	1595			1568			879	824	1040	927	816	1056
Direction, Lane #	EB 1	WB 1	SB 1	SB 2								
Volume Total	41	26	21	19								
Volume Left	0	5	14	0								
Volume Right	15	0	0	12								
cSH	1700	1568	887	953								
Volume to Capacity	0.02	0.00	0.02	0.02								
Queue Length 95th (ft)	0	0	2	2								
Control Delay (s)	0.0	1.4	9.2	8.9								
Lane LOS		A	A	A								
Approach Delay (s)	0.0	1.4	9.0									
Approach LOS			A									
Intersection Summary												
Average Delay			3.7									
Intersection Capacity Utilization			15.4%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

16: Franklin Street & 3rd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔	
Volume (veh/h)	0	28	13	15	35	0	0	0	0	7	3	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	28	13	15	35	0	0	0	0	7	3	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		367			383							
pX, platoon unblocked												
vC, conflicting volume	35			41			103	100	34	100	106	35
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	35			41			103	100	34	100	106	35
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	99	100	100
cM capacity (veh/h)	1576			1568			867	783	1039	876	777	1038

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	41	50	8	4
Volume Left	0	15	7	0
Volume Right	13	0	0	2
cSH	1700	1568	856	907
Volume to Capacity	0.02	0.01	0.01	0.00
Queue Length 95th (ft)	0	1	1	0
Control Delay (s)	0.0	2.2	9.2	9.0
Lane LOS		A	A	A
Approach Delay (s)	0.0	2.2	9.2	
Approach LOS			A	

Intersection Summary			
Average Delay		2.2	
Intersection Capacity Utilization	19.3%		ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis

17: Webster Street & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	75	157	195	77	54	74
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	75	157	195	77	54	74
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	385					
pX, platoon unblocked						
vC, conflicting volume	0		251	150	307	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		251	150	307	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	95		67	89	91	93
cM capacity (veh/h)	1623		587	707	579	1085

Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2
Volume Total	75	157	272	54	74
Volume Left	75	0	195	0	0
Volume Right	0	157	0	0	74
cSH	1623	1700	616	579	1085
Volume to Capacity	0.05	0.09	0.44	0.09	0.07
Queue Length 95th (ft)	4	0	56	8	5
Control Delay (s)	7.3	0.0	15.4	11.9	8.6
Lane LOS	A		C	B	A
Approach Delay (s)	2.4		15.4	10.0	
Approach LOS			C	A	

Intersection Summary				
Average Delay			9.5	
Intersection Capacity Utilization		32.3%		ICU Level of Service
Analysis Period (min)		15		A

HCM Signalized Intersection Capacity Analysis

18: Harrison Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑↑↑	↑↑			
Volume (vph)	165	691	0	0	0	0	0	613	1376	0	0	0
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			
Lane Util. Factor		0.91						0.91	0.88			
Frt		1.00						1.00	0.85			
Flt Protected		0.99						1.00	1.00			
Satd. Flow (prot)		5037						5085	2787			
Flt Permitted		0.99						1.00	1.00			
Satd. Flow (perm)		5037						5085	2787			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	165	691	0	0	0	0	0	613	1376	0	0	0
RTOR Reduction (vph)	0	88	0	0	0	0	0	0	77	0	0	0
Lane Group Flow (vph)	0	768	0	0	0	0	0	613	1299	0	0	0
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Actuated Green, G (s)		16.0						21.0	21.0			
Effective Green, g (s)		16.0						21.0	21.0			
Actuated g/C Ratio		0.36						0.47	0.47			
Clearance Time (s)		4.0						4.0	4.0			
Lane Grp Cap (vph)		1790						2373	1300			
v/s Ratio Prot								0.12				
v/s Ratio Perm		0.15							c0.47			
v/c Ratio		0.43						0.26	1.00			
Uniform Delay, d1		11.0						7.3	12.0			
Progression Factor		1.00						1.00	1.00			
Incremental Delay, d2		0.8						0.3	24.7			
Delay (s)		11.8						7.5	36.7			
Level of Service		B						A	D			
Approach Delay (s)		11.8			0.0			27.7			0.0	
Approach LOS		B			A			C			A	

Intersection Summary

HCM 2000 Control Delay	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

19: Jackson Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔						↔		↔↕	↕	
Volume (vph)	311	438	491	0	0	0	0	259	41	66	89	0
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		0.91						1.00		1.00	1.00	
Frt		0.94						0.98		1.00	1.00	
Flt Protected		0.99						1.00		0.95	1.00	
Satd. Flow (prot)		4724						1828		1770	1863	
Flt Permitted		0.99						1.00		0.57	1.00	
Satd. Flow (perm)		4724						1828		1066	1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	311	438	491	0	0	0	0	259	41	66	89	0
RTOR Reduction (vph)	0	264	0	0	0	0	0	13	0	0	0	0
Lane Group Flow (vph)	0	976	0	0	0	0	0	287	0	66	89	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		13.0						24.0		24.0	24.0	
Effective Green, g (s)		13.0						24.0		24.0	24.0	
Actuated g/C Ratio		0.29						0.53		0.53	0.53	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		1364						974		568	993	
v/s Ratio Prot								c0.16			0.05	
v/s Ratio Perm		0.21								0.06		
v/c Ratio		0.72						0.30		0.12	0.09	
Uniform Delay, d1		14.3						5.8		5.2	5.1	
Progression Factor		1.00						1.00		0.28	0.29	
Incremental Delay, d2		3.2						0.8		0.4	0.2	
Delay (s)		17.6						6.6		1.9	1.7	
Level of Service		B						A		A	A	
Approach Delay (s)		17.6			0.0			6.6			1.8	
Approach LOS		B			A			A			A	

Intersection Summary

HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

20: Jackson Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↗	↖	↖	↗			↗	↖
Volume (vph)	0	0	0	2	311	56	321	281	0	0	196	1408
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1770	1863	1583	1770	1863			1863	1583
Flt Permitted				0.95	1.00	1.00	0.63	1.00			1.00	1.00
Satd. Flow (perm)				1770	1863	1583	1182	1863			1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	2	311	56	321	281	0	0	196	1408
RTOR Reduction (vph)	0	0	0	0	0	42	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	2	311	14	321	281	0	0	196	1408
Turn Type				Split	NA	Perm	Perm	NA			NA	Free
Protected Phases				8	8			2			6	
Permitted Phases						8	2					Free
Actuated Green, G (s)				11.0	11.0	11.0	26.0	26.0			26.0	45.0
Effective Green, g (s)				11.0	11.0	11.0	26.0	26.0			26.0	45.0
Actuated g/C Ratio				0.24	0.24	0.24	0.58	0.58			0.58	1.00
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)				432	455	386	682	1076			1076	1583
v/s Ratio Prot				0.00	0.17			0.15			0.11	
v/s Ratio Perm						0.01	0.27					c0.89
v/c Ratio				0.00	0.68	0.04	0.47	0.26			0.18	0.89
Uniform Delay, d1				12.9	15.4	13.0	5.5	4.7			4.5	0.0
Progression Factor				0.71	0.70	0.74	1.01	0.95			1.68	1.00
Incremental Delay, d2				0.0	7.9	0.2	2.0	0.5			0.3	5.9
Delay (s)				9.2	18.7	9.8	7.6	5.0			7.8	5.9
Level of Service				A	B	A	A	A			A	A
Approach Delay (s)		0.0			17.3			6.4			6.2	
Approach LOS		A			B			A			A	

Intersection Summary

HCM 2000 Control Delay	7.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

21: Jackson Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔↔	↔					↔			↔	
Volume (vph)	38	529	1328	0	0	0	0	354	90	28	356	0
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		0.86	0.86					1.00			1.00	
Frt		0.92	0.85					0.97			1.00	
Flt Protected		1.00	1.00					1.00			1.00	
Satd. Flow (prot)		4410	1362					1812			1856	
Flt Permitted		1.00	1.00					1.00			0.95	
Satd. Flow (perm)		4410	1362					1812			1773	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	38	529	1328	0	0	0	0	354	90	28	356	0
RTOR Reduction (vph)	0	158	158	0	0	0	0	21	0	0	0	0
Lane Group Flow (vph)	0	1073	506	0	0	0	0	423	0	0	384	0
Turn Type	Split	NA	Perm					NA		Perm	NA	
Protected Phases	4	4						2			6	
Permitted Phases			4							6		
Actuated Green, G (s)		21.0	21.0					16.0			16.0	
Effective Green, g (s)		21.0	21.0					16.0			16.0	
Actuated g/C Ratio		0.47	0.47					0.36			0.36	
Clearance Time (s)		4.0	4.0					4.0			4.0	
Lane Grp Cap (vph)		2058	635					644			630	
v/s Ratio Prot		0.24						c0.23				
v/s Ratio Perm			c0.37								0.22	
v/c Ratio		0.52	0.80					0.66			0.61	
Uniform Delay, d1		8.5	10.2					12.2			11.9	
Progression Factor		1.00	1.00					0.69			1.00	
Incremental Delay, d2		0.9	10.0					5.1			4.4	
Delay (s)		9.4	20.2					13.5			16.3	
Level of Service		A	C					B			B	
Approach Delay (s)		13.2			0.0			13.5			16.3	
Approach LOS		B			A			B			B	

Intersection Summary

HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	81.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

22: Madison Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑								↘	↙↑	
Volume (vph)	0	547	22	0	0	0	0	0	0	589	134	0
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	
Lane Util. Factor		0.91								0.91	0.91	
Frt		0.99								1.00	1.00	
Flt Protected		1.00								0.95	0.97	
Satd. Flow (prot)		5056								1610	3278	
Flt Permitted		1.00								0.95	0.97	
Satd. Flow (perm)		5056								1610	3278	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	547	22	0	0	0	0	0	0	589	134	0
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	0	71	71	0
Lane Group Flow (vph)	0	560	0	0	0	0	0	0	0	223	358	0
Turn Type		NA								Perm	NA	
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0								22.0	22.0	
Effective Green, g (s)		16.0								22.0	22.0	
Actuated g/C Ratio		0.35								0.48	0.48	
Clearance Time (s)		4.0								4.0	4.0	
Lane Grp Cap (vph)		1758								770	1567	
v/s Ratio Prot		c0.11										
v/s Ratio Perm										c0.14	0.11	
v/c Ratio		0.32								0.29	0.23	
Uniform Delay, d1		11.0								7.3	7.0	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.5								0.9	0.3	
Delay (s)		11.5								8.2	7.4	
Level of Service		B								A	A	
Approach Delay (s)		11.5			0.0			0.0			7.7	
Approach LOS		B			A			A			A	

Intersection Summary

HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	46.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	31.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

23: Madison Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑						↑↑↑	
Volume (vph)	0	0	0	34	180	0	0	0	0	0	738	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0						4.0	
Lane Util. Factor					0.91						0.91	
Frt					1.00						0.96	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					5045						4896	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					5045						4896	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	34	180	0	0	0	0	0	738	244
RTOR Reduction (vph)	0	0	0	0	23	0	0	0	0	0	125	0
Lane Group Flow (vph)	0	0	0	0	191	0	0	0	0	0	857	0
Turn Type				Split	NA						NA	
Protected Phases				8	8						6	
Permitted Phases												
Actuated Green, G (s)					15.0						22.0	
Effective Green, g (s)					15.0						22.0	
Actuated g/C Ratio					0.33						0.49	
Clearance Time (s)					4.0						4.0	
Lane Grp Cap (vph)					1681						2393	
v/s Ratio Prot					c0.04						c0.18	
v/s Ratio Perm												
v/c Ratio					0.11						0.36	
Uniform Delay, d1					10.4						7.1	
Progression Factor					1.01						0.57	
Incremental Delay, d2					0.1						0.4	
Delay (s)					10.6						4.5	
Level of Service					B						A	
Approach Delay (s)		0.0			10.6			0.0			4.5	
Approach LOS		A			B			A			A	

Intersection Summary

HCM 2000 Control Delay	5.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	31.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

24: Madison Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑									↑↑↑	
Volume (vph)	0	435	254	0	0	0	0	0	0	142	707	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									4.0	
Lane Util. Factor		0.86									0.91	
Frt		0.94									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		6054									5043	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		6054									5043	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	435	254	0	0	0	0	0	0	142	707	0
RTOR Reduction (vph)	0	96	0	0	0	0	0	0	0	0	67	0
Lane Group Flow (vph)	0	593	0	0	0	0	0	0	0	0	782	0
Turn Type		NA								Perm		NA
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0									21.0	
Effective Green, g (s)		16.0									21.0	
Actuated g/C Ratio		0.36									0.47	
Clearance Time (s)		4.0									4.0	
Lane Grp Cap (vph)		2152									2353	
v/s Ratio Prot		c0.10										
v/s Ratio Perm											0.16	
v/c Ratio		0.28									0.33	
Uniform Delay, d1		10.4									7.6	
Progression Factor		0.60									1.00	
Incremental Delay, d2		0.3									0.4	
Delay (s)		6.5									8.0	
Level of Service		A									A	
Approach Delay (s)		6.5			0.0			0.0			8.0	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	7.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	33.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

25: Oak Street & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	197	0	79	2	0	0	382	579	0	0	325	164
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	197	0	79	2	0	0	382	579	0	0	325	164
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1460	1750	244	1584	1832	290	489			579		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1460	1750	244	1584	1832	290	489			579		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	90	96	100	100	64			100		
cM capacity (veh/h)	65	55	756	47	49	707	1070			991		

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	197	79	382	290	290	217	272
Volume Left	197	0	382	0	0	0	0
Volume Right	0	79	0	0	0	0	164
cSH	65	756	1070	1700	1700	1700	1700
Volume to Capacity	3.02	0.10	0.36	0.17	0.17	0.13	0.16
Queue Length 95th (ft)	Err	9	41	0	0	0	0
Control Delay (s)	Err	10.3	10.2	0.0	0.0	0.0	0.0
Lane LOS	F	B	B				
Approach Delay (s)	7139.9		4.1			0.0	
Approach LOS	F						

Intersection Summary		
Average Delay		Err
Intersection Capacity Utilization	Err%	ICU Level of Service
Analysis Period (min)	15	H

HCM Signalized Intersection Capacity Analysis

26: Oak Street & 3rd Street

7/24/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	71	94	153	821	571	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.92		1.00	1.00	1.00	0.85
Flt Protected	0.98		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1683		1770	1863	1863	1583
Flt Permitted	0.98		0.24	1.00	1.00	1.00
Satd. Flow (perm)	1683		440	1863	1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	71	94	153	821	571	98
RTOR Reduction (vph)	54	0	0	0	0	59
Lane Group Flow (vph)	111	0	153	821	571	39
Turn Type	NA		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Actuated Green, G (s)	19.0		18.0	18.0	18.0	18.0
Effective Green, g (s)	19.0		18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.42		0.40	0.40	0.40	0.40
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	710		176	745	745	633
v/s Ratio Prot	c0.07			c0.44	0.31	
v/s Ratio Perm			0.35			0.02
v/c Ratio	0.16		0.87	1.10	0.77	0.06
Uniform Delay, d1	8.0		12.4	13.5	11.7	8.3
Progression Factor	1.00		1.00	1.00	0.83	1.05
Incremental Delay, d2	0.5		40.3	64.5	7.3	0.2
Delay (s)	8.5		52.8	78.0	17.0	8.9
Level of Service	A		D	E	B	A
Approach Delay (s)	8.5			74.0	15.8	
Approach LOS	A			E	B	

Intersection Summary

HCM 2000 Control Delay	46.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

27: Oak Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔						↕↔			↕	
Volume (vph)	269	682	155	0	0	0	0	624	284	3	225	0
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	
Lane Util. Factor		0.91						0.95			1.00	
Frt		0.98						0.95			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4919						3373			1862	
Flt Permitted		0.99						1.00			0.99	
Satd. Flow (perm)		4919						3373			1840	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	269	682	155	0	0	0	0	624	284	3	225	0
RTOR Reduction (vph)	0	50	0	0	0	0	0	117	0	0	0	0
Lane Group Flow (vph)	0	1056	0	0	0	0	0	791	0	0	228	0
Turn Type	Split	NA						NA		Perm		NA
Protected Phases	4	4						2				6
Permitted Phases										6		
Actuated Green, G (s)		22.0						15.0				15.0
Effective Green, g (s)		22.0						15.0				15.0
Actuated g/C Ratio		0.49						0.33				0.33
Clearance Time (s)		4.0						4.0				4.0
Lane Grp Cap (vph)		2404						1124				613
v/s Ratio Prot		c0.21						c0.23				
v/s Ratio Perm												0.12
v/c Ratio		0.44						0.70				0.37
Uniform Delay, d1		7.5						13.1				11.4
Progression Factor		1.00						1.85				1.19
Incremental Delay, d2		0.6						0.3				1.7
Delay (s)		8.1						24.5				15.3
Level of Service		A						C				B
Approach Delay (s)		8.1			0.0			24.5				15.3
Approach LOS		A			A			C				B

Intersection Summary

HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: Oak Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔	↗		↔				
Volume (vph)	0	0	0	145	61	527	150	498	0	0	0	0
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				
Lane Util. Factor					0.91	0.91		0.95				
Frt					0.92	0.85		1.00				
Flt Protected					0.98	1.00		0.99				
Satd. Flow (prot)					3057	1441		3499				
Flt Permitted					0.98	1.00		0.99				
Satd. Flow (perm)					3057	1441		3499				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	145	61	527	150	498	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	78	78	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	392	185	0	648	0	0	0	0
Turn Type				Split	NA	Perm	Split	NA				
Protected Phases				8	8		2	2				
Permitted Phases						8						
Actuated Green, G (s)					22.0	22.0		15.0				
Effective Green, g (s)					22.0	22.0		15.0				
Actuated g/C Ratio					0.49	0.49		0.33				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					1494	704		1166				
v/s Ratio Prot					0.13			c0.19				
v/s Ratio Perm						c0.13						
v/c Ratio					0.26	0.26		0.56				
Uniform Delay, d1					6.7	6.7		12.3				
Progression Factor					1.00	1.00		0.83				
Incremental Delay, d2					0.4	0.9		1.5				
Delay (s)					7.2	7.7		11.7				
Level of Service					A	A		B				
Approach Delay (s)		0.0			7.3			11.7			0.0	
Approach LOS		A			A			B			A	

Intersection Summary

HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: Oak Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4111						444				
Volume (vph)	108	416	0	0	0	0	0	948	102	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.86						0.91				
Frt		1.00						0.99				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6342						5011				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6342						5011				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	108	416	0	0	0	0	0	948	102	0	0	0
RTOR Reduction (vph)	0	26	0	0	0	0	0	29	0	0	0	0
Lane Group Flow (vph)	0	498	0	0	0	0	0	1021	0	0	0	0
Turn Type	Perm	NA						NA				
Protected Phases		4						2				
Permitted Phases	4											
Actuated Green, G (s)		19.0						18.0				
Effective Green, g (s)		19.0						18.0				
Actuated g/C Ratio		0.42						0.40				
Clearance Time (s)		4.0						4.0				
Lane Grp Cap (vph)		2677						2004				
v/s Ratio Prot								c0.20				
v/s Ratio Perm		0.08										
v/c Ratio		0.19						0.51				
Uniform Delay, d1		8.2						10.2				
Progression Factor		1.04						0.83				
Incremental Delay, d2		0.1						0.9				
Delay (s)		8.6						9.3				
Level of Service		A						A				
Approach Delay (s)		8.6			0.0			9.3			0.0	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 30: 5th Avenue & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	70	431	19	20	649	436	75	45	56	390	16	137
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	70	431	19	20	649	436	75	45	56	390	16	137

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	520	669	436	176	543
Volume Left (vph)	70	20	0	75	390
Volume Right (vph)	19	0	436	56	137
Hadj (s)	0.04	0.05	-0.67	-0.07	0.03
Departure Headway (s)	8.3	8.6	7.9	9.5	8.2
Degree Utilization, x	1.20	1.60	0.95	0.46	1.23
Capacity (veh/h)	439	423	452	367	436
Control Delay (s)	136.2	300.5	58.6	20.3	149.4
Approach Delay (s)	136.2	205.0		20.3	149.4
Approach LOS	F	F		C	F

Intersection Summary				
Delay		163.0		
Level of Service		F		
Intersection Capacity Utilization		110.4%	ICU Level of Service	H
Analysis Period (min)		15		

HCM Signalized Intersection Capacity Analysis

31: Webster Street & Atlantic Avenue

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	269	193	68	38	334	106	77	862	37	58	637	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3411		1770	3517		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3411		1770	3517		1770	3539	1583
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)	292	210	74	41	363	115	84	937	40	63	692	374
RTOR Reduction (vph)	0	0	50	0	31	0	0	3	0	0	0	315
Lane Group Flow (vph)	292	210	24	41	447	0	84	974	0	63	692	59
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	Over
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									
Actuated Green, G (s)	12.3	25.6	25.6	4.6	17.9		7.3	25.4		6.8	24.9	12.3
Effective Green, g (s)	12.3	25.6	25.6	4.6	17.9		7.3	25.4		6.8	24.9	12.3
Actuated g/C Ratio	0.16	0.33	0.33	0.06	0.23		0.09	0.32		0.09	0.32	0.16
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	538	1155	516	103	778		164	1139		153	1123	248
v/s Ratio Prot	c0.09	0.06		0.02	c0.13		c0.05	c0.28		0.04	0.20	0.04
v/s Ratio Perm			0.02									
v/c Ratio	0.54	0.18	0.05	0.40	0.57		0.51	0.86		0.41	0.62	0.24
Uniform Delay, d1	30.5	18.9	18.1	35.6	26.9		33.9	24.8		33.9	22.7	28.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.1	0.1	0.0	2.5	1.0		2.7	8.3		1.8	2.5	0.5
Delay (s)	31.6	19.0	18.1	38.1	27.9		36.5	33.1		35.7	25.2	29.4
Level of Service	C	B	B	D	C		D	C		D	C	C
Approach Delay (s)		25.3			28.7			33.3			27.2	
Approach LOS		C			C			C			C	

Intersection Summary

HCM 2000 Control Delay	29.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	78.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

32: Constitution Way & Atlantic Avenue

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	152	283	124	65	338	162	119	897	47	125	511	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.95		1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3377		1770	3367		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3377		1770	3367		3433	3539	1583	3433	3539	1583
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)	165	308	135	71	367	176	129	975	51	136	555	62
RTOR Reduction (vph)	0	46	0	0	59	0	0	0	35	0	0	43
Lane Group Flow (vph)	165	397	0	71	484	0	129	975	16	136	555	19
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	12.9	23.6		7.3	18.0		8.5	24.4	24.4	8.7	24.6	24.6
Effective Green, g (s)	12.9	23.6		7.3	18.0		8.5	24.4	24.4	8.7	24.6	24.6
Actuated g/C Ratio	0.16	0.30		0.09	0.22		0.11	0.30	0.30	0.11	0.31	0.31
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	285	996		161	757		364	1079	482	373	1088	486
v/s Ratio Prot	c0.09	0.12		0.04	c0.14		0.04	c0.28		c0.04	0.16	
v/s Ratio Perm									0.01			0.01
v/c Ratio	0.58	0.40		0.44	0.64		0.35	0.90	0.03	0.36	0.51	0.04
Uniform Delay, d1	31.0	22.5		34.4	28.1		33.2	26.7	19.5	33.1	22.8	19.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.8	0.3		1.9	1.8		0.6	12.2	0.1	0.6	1.7	0.2
Delay (s)	33.9	22.8		36.3	29.8		33.8	38.9	19.6	33.7	24.5	19.6
Level of Service	C	C		D	C		C	D	B	C	C	B
Approach Delay (s)		25.8			30.6			37.5			25.7	
Approach LOS		C			C			D			C	

Intersection Summary

HCM 2000 Control Delay	31.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			


















Level Of Service Computation Report

Cumulative plus Project (Maximum Residential Scenario) Conditions
PM Peak Hour

HCM Unsignalized Intersection Capacity Analysis

1: Market Street & 3rd Street

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	53	277	22	16	166	101	50	138	30	50	61	40
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	53	277	22	16	166	101	50	138	30	50	61	40
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	267			299			580	693	150	592	654	134
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	267			299			580	693	150	592	654	134
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			99			84	60	97	80	83	96
cM capacity (veh/h)	1294			1259			318	346	870	250	364	891
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2	SB 3				
Volume Total	192	160	99	184	218	50	41	60				
Volume Left	53	0	16	0	50	50	0	0				
Volume Right	0	22	0	101	30	0	0	40				
cSH	1294	1700	1259	1700	369	250	364	599				
Volume to Capacity	0.04	0.09	0.01	0.11	0.59	0.20	0.11	0.10				
Queue Length 95th (ft)	3	0	1	0	91	18	9	8				
Control Delay (s)	2.4	0.0	1.4	0.0	27.9	23.0	16.1	11.7				
Lane LOS	A		A		D	C	C	B				
Approach Delay (s)	1.3		0.5		27.9	16.6						
Approach LOS					D	C						
Intersection Summary												
Average Delay			9.2									
Intersection Capacity Utilization			46.7%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Market Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑↑		↘	↑↑↑	
Volume (vph)	6	488	22	0	0	0	0	271	32	105	110	0
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		0.91						0.95		1.00	0.91	
Frt		0.99						0.98		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		5050						3483		1770	5085	
Flt Permitted		1.00						1.00		0.54	1.00	
Satd. Flow (perm)		5050						3483		1014	5085	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	6	488	22	0	0	0	0	271	32	105	110	0
RTOR Reduction (vph)	0	6	0	0	0	0	0	12	0	0	0	0
Lane Group Flow (vph)	0	510	0	0	0	0	0	291	0	105	110	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		43.0						24.0		24.0	24.0	
Effective Green, g (s)		43.0						24.0		24.0	24.0	
Actuated g/C Ratio		0.57						0.32		0.32	0.32	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		2895						1114		324	1627	
v/s Ratio Prot								0.08			0.02	
v/s Ratio Perm		0.10								c0.10		
v/c Ratio		0.18						0.26		0.32	0.07	
Uniform Delay, d1		7.6						18.9		19.3	17.7	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		0.1						0.6		2.6	0.1	
Delay (s)		7.7						19.5		22.0	17.8	
Level of Service		A						B		C	B	
Approach Delay (s)		7.7			0.0			19.5			19.8	
Approach LOS		A			A			B			B	

Intersection Summary

HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations					↑↑	↑		↓	↑↑			↑↑↓
Volume (vph)	0	0	0	32	156	284	17	42	242	0	0	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0	4.0			4.0
Lane Util. Factor					0.95	1.00		1.00	0.95			0.91
Frt					1.00	0.85		1.00	1.00			0.97
Flt Protected					0.99	1.00		0.95	1.00			1.00
Satd. Flow (prot)					3509	1583		1770	3539			4958
Flt Permitted					0.99	1.00		0.62	1.00			1.00
Satd. Flow (perm)					3509	1583		1146	3539			4958
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	32	156	284	17	42	242	0	0	174
RTOR Reduction (vph)	0	0	0	0	0	108	0	0	0	0	0	25
Lane Group Flow (vph)	0	0	0	0	188	176	0	59	242	0	0	185
Turn Type				Perm	NA	Perm	Perm	Perm	NA			NA
Protected Phases					8				2			6
Permitted Phases				8		8	2	2				
Actuated Green, G (s)					62.0	62.0		30.0	30.0			30.0
Effective Green, g (s)					62.0	62.0		30.0	30.0			30.0
Actuated g/C Ratio					0.62	0.62		0.30	0.30			0.30
Clearance Time (s)					4.0	4.0		4.0	4.0			4.0
Lane Grp Cap (vph)					2175	981		343	1061			1487
v/s Ratio Prot									c0.07			0.04
v/s Ratio Perm					0.05	c0.11		0.05				
v/c Ratio					0.09	0.18		0.17	0.23			0.12
Uniform Delay, d1					7.6	8.1		25.8	26.3			25.4
Progression Factor					1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2					0.1	0.4		1.1	0.5			0.2
Delay (s)					7.7	8.5		26.9	26.8			25.6
Level of Service					A	A		C	C			C
Approach Delay (s)		0.0			8.2				26.8			25.6
Approach LOS		A			A				C			C

Intersection Summary

HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

7/24/2013



Movement	SBR
Line Configurations	
Volume (vph)	35
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Fr	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	35
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

4: Market Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖		↖	↖↖		↖	↖↖↖	
Volume (vph)	132	991	89	44	424	46	216	263	54	66	116	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.91	
Frt	1.00	0.99		1.00	0.99		1.00	0.97		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5022		1770	5011		1770	3449		1770	4788	
Flt Permitted	0.43	1.00		0.18	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	795	5022		339	5011		1770	3449		1770	4788	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	132	991	89	44	424	46	216	263	54	66	116	74
RTOR Reduction (vph)	0	13	0	0	17	0	0	21	0	0	65	0
Lane Group Flow (vph)	132	1067	0	44	453	0	216	296	0	66	125	0
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4			8								
Actuated Green, G (s)	22.0	22.0		22.0	22.0		36.0	36.0		10.0	10.0	
Effective Green, g (s)	22.0	22.0		22.0	22.0		36.0	36.0		10.0	10.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.45	0.45		0.12	0.12	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	218	1381		93	1378		796	1552		221	598	
v/s Ratio Prot		c0.21			0.09		c0.12	0.09		c0.04	0.03	
v/s Ratio Perm	0.17			0.13								
v/c Ratio	0.61	0.77		0.47	0.33		0.27	0.19		0.30	0.21	
Uniform Delay, d1	25.2	26.7		24.2	23.1		13.8	13.2		31.8	31.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.9	4.3		16.3	0.6		0.8	0.3		3.4	0.8	
Delay (s)	37.1	30.9		40.4	23.8		14.6	13.5		35.2	32.2	
Level of Service	D	C		D	C		B	B		D	C	
Approach Delay (s)		31.6			25.2			14.0			33.0	
Approach LOS		C			C			B			C	

Intersection Summary

HCM 2000 Control Delay	26.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: Castro Street & 11th Street

7/24/2013



Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Volume (vph)	194	613	1384	44	76	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	0.81	0.81	0.91		0.97	
Frt	1.00	1.00	1.00		0.95	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1433	6017	5062		3316	
Flt Permitted	0.95	1.00	1.00		0.97	
Satd. Flow (perm)	1433	6017	5062		3316	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	194	613	1384	44	76	41
RTOR Reduction (vph)	112	53	4	0	0	0
Lane Group Flow (vph)	43	599	1424	0	117	0
Turn Type	Split	NA	NA		NA	
Protected Phases	4	4	2		8	
Permitted Phases						
Actuated Green, G (s)	21.0	21.0	21.0		21.0	
Effective Green, g (s)	21.0	21.0	21.0		21.0	
Actuated g/C Ratio	0.28	0.28	0.28		0.28	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Lane Grp Cap (vph)	401	1684	1417		928	
v/s Ratio Prot	0.03	c0.10	c0.28		c0.04	
v/s Ratio Perm						
v/c Ratio	0.11	0.36	1.00		0.13	
Uniform Delay, d1	20.0	21.6	27.0		20.2	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.5	0.6	25.0		0.3	
Delay (s)	20.6	22.2	52.0		20.4	
Level of Service	C	C	D		C	
Approach Delay (s)		21.9	52.0		20.4	
Approach LOS		C	D		C	

Intersection Summary

HCM 2000 Control Delay	40.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

6: Castro Street & 12th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑	↑	↑↑↑↑				
Volume (vph)	0	0	0	0	249	802	36	1769	0	0	0	0
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					0.91	0.91	0.81	0.81				
Frt					0.91	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	1.00				
Satd. Flow (prot)					3076	1441	1433	6035				
Flt Permitted					1.00	1.00	0.95	1.00				
Satd. Flow (perm)					3076	1441	1433	6035				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	249	802	36	1769	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	10	10	14	7	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	640	391	18	1766	0	0	0	0
Turn Type					NA	Perm	Perm	NA				
Protected Phases					8			2				
Permitted Phases						8	2					
Actuated Green, G (s)					25.0	25.0	42.0	42.0				
Effective Green, g (s)					25.0	25.0	42.0	42.0				
Actuated g/C Ratio					0.33	0.33	0.56	0.56				
Clearance Time (s)					4.0	4.0	4.0	4.0				
Lane Grp Cap (vph)					1025	480	802	3379				
v/s Ratio Prot					0.21							
v/s Ratio Perm						c0.27	0.01	0.29				
v/c Ratio					0.62	0.81	0.02	0.52				
Uniform Delay, d1					21.0	22.9	7.4	10.3				
Progression Factor					1.00	1.00	0.02	0.20				
Incremental Delay, d2					2.9	14.1	0.0	0.3				
Delay (s)					23.9	37.0	0.2	2.4				
Level of Service					C	D	A	A				
Approach Delay (s)		0.0			28.9			2.4			0.0	
Approach LOS		A			C			A			A	

Intersection Summary

HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

7: Broadway & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	27	179	63	12	120	97	30	146	17	333	268	85
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	27	179	63	12	120	97	30	146	17	333	268	85

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	269	229	103	90	467	219
Volume Left (vph)	27	12	30	0	333	0
Volume Right (vph)	63	97	0	17	0	85
Hadj (s)	-0.09	-0.21	0.18	-0.10	0.39	-0.24
Departure Headway (s)	6.7	6.7	7.7	7.4	7.1	6.4
Degree Utilization, x	0.50	0.43	0.22	0.19	0.91	0.39
Capacity (veh/h)	513	507	442	456	505	551
Control Delay (s)	16.3	14.7	11.7	10.9	46.8	12.2
Approach Delay (s)	16.3	14.7	11.3		35.8	
Approach LOS	C	B	B		E	

Intersection Summary

Delay	25.0
Level of Service	D
Intersection Capacity Utilization	58.1%
ICU Level of Service	B
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

8: Broadway & 2nd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	26	20	10	13	20	49	59	632	161	135	591	84
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	26	20	10	13	20	49	59	632	161	135	591	84
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											288	
pX, platoon unblocked	0.95	0.95	0.95	0.95	0.95		0.95					
vC, conflicting volume	1396	1814	338	1416	1776	396	675			793		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1314	1753	201	1335	1713	396	555			793		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	60	68	99	81	70	92	94			84		
cM capacity (veh/h)	66	63	767	67	67	603	962			824		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	56	82	375	477	430	380
Volume Left	26	13	59	0	135	0
Volume Right	10	49	0	161	0	84
cSH	77	143	962	1700	824	1700
Volume to Capacity	0.73	0.58	0.06	0.28	0.16	0.22
Queue Length 95th (ft)	86	73	5	0	15	0
Control Delay (s)	128.2	59.9	2.0	0.0	4.6	0.0
Lane LOS	F	F	A		A	
Approach Delay (s)	128.2	59.9	0.9		2.4	
Approach LOS	F	F				

Intersection Summary		
Average Delay		8.2
Intersection Capacity Utilization	64.5%	ICU Level of Service C
Analysis Period (min)		15

HCM Signalized Intersection Capacity Analysis

9: Broadway & 3rd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	106	135	28	10	120	116	53	392	18	106	535	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.99			0.94			0.99			0.97	
Flt Protected		0.98			1.00			0.99			0.99	
Satd. Flow (prot)		1801			1741			3499			3410	
Flt Permitted		0.79			0.99			0.83			0.83	
Satd. Flow (perm)		1456			1719			2907			2848	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	106	135	28	10	120	116	53	392	18	106	535	162
RTOR Reduction (vph)	0	7	0	0	59	0	0	5	0	0	41	0
Lane Group Flow (vph)	0	262	0	0	187	0	0	458	0	0	762	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		18.0			18.0			29.0			29.0	
Effective Green, g (s)		18.0			18.0			29.0			29.0	
Actuated g/C Ratio		0.33			0.33			0.53			0.53	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		476			562			1532			1501	
v/s Ratio Prot												
v/s Ratio Perm		c0.18			0.11			0.16			c0.27	
v/c Ratio		0.55			0.33			0.30			0.51	
Uniform Delay, d1		15.2			14.0			7.3			8.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		4.5			1.6			0.5			1.2	
Delay (s)		19.7			15.6			7.8			9.6	
Level of Service		B			B			A			A	
Approach Delay (s)		19.7			15.6			7.8			9.6	
Approach LOS		B			B			A			A	

Intersection Summary

HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

10: Broadway & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1162	340	84	0	0	0	0	457	534	879	458	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.91	0.91	1.00					0.95	1.00	0.97	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3287	1583					3539	1583	3433	1863	
Flt Permitted	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1610	3287	1583					3539	1583	3433	1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1162	340	84	0	0	0	0	457	534	879	458	0
RTOR Reduction (vph)	0	0	60	0	0	0	0	0	86	0	0	0
Lane Group Flow (vph)	581	921	24	0	0	0	0	457	448	879	458	0
Turn Type	Split	NA	Prot					NA	Prot	Split	NA	
Protected Phases	4	4	4					2	2	6	6	
Permitted Phases												
Actuated Green, G (s)	21.0	21.0	21.0					21.0	21.0	21.0	21.0	
Effective Green, g (s)	21.0	21.0	21.0					21.0	21.0	21.0	21.0	
Actuated g/C Ratio	0.28	0.28	0.28					0.28	0.28	0.28	0.28	
Clearance Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	450	920	443					990	443	961	521	
v/s Ratio Prot	c0.36	0.28	0.01					0.13	c0.28	c0.26	0.25	
v/s Ratio Perm												
v/c Ratio	1.29	1.24dl	0.05					0.46	1.01	0.91	0.88	
Uniform Delay, d1	27.0	27.0	19.7					22.3	27.0	26.1	25.8	
Progression Factor	0.97	0.97	0.92					1.00	1.00	0.84	0.84	
Incremental Delay, d2	146.8	29.9	0.2					1.5	45.8	13.6	17.4	
Delay (s)	173.0	56.1	18.4					23.9	72.8	35.4	39.1	
Level of Service	F	E	B					C	E	D	D	
Approach Delay (s)		96.9			0.0			50.2			36.7	
Approach LOS		F			A			D			D	

Intersection Summary

HCM 2000 Control Delay	64.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	115.4%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

11: Broadway & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↕	↗	↖	↕			↕	↗
Volume (vph)	0	0	0	306	175	791	103	389	0	0	904	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Util. Factor				1.00	0.91	0.91	1.00	0.95			0.91	
Frt				1.00	0.90	0.85	1.00	1.00			0.99	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3038	1441	1770	3539			5052	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3038	1441	1770	3539			5052	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	306	175	791	103	389	0	0	904	41
RTOR Reduction (vph)	0	0	0	0	269	269	0	0	0	0	7	0
Lane Group Flow (vph)	0	0	0	306	302	126	103	389	0	0	938	0
Turn Type				Split	NA	Prot	Prot	NA			NA	
Protected Phases				8	8	8	5	2			6	
Permitted Phases												
Actuated Green, G (s)				24.0	24.0	24.0	9.0	43.0			30.0	
Effective Green, g (s)				24.0	24.0	24.0	9.0	43.0			30.0	
Actuated g/C Ratio				0.32	0.32	0.32	0.12	0.57			0.40	
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)				566	972	461	212	2029			2020	
v/s Ratio Prot				c0.17	0.10	0.09	c0.06	0.11			c0.19	
v/s Ratio Perm												
v/c Ratio				0.54	0.31	0.27	0.49	0.19			0.46	
Uniform Delay, d1				21.0	19.3	19.0	30.8	7.7			16.6	
Progression Factor				1.00	1.00	1.00	0.94	0.10			1.00	
Incremental Delay, d2				3.7	0.8	1.5	2.5	0.1			0.8	
Delay (s)				24.6	20.1	20.5	31.6	0.9			17.4	
Level of Service				C	C	C	C	A			B	
Approach Delay (s)		0.0			21.3			7.3			17.4	
Approach LOS		A			C			A			B	

Intersection Summary

HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	115.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

12: Broadway & 11th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑					↑↑		↑	↑↑	
Volume (vph)	199	813	314	0	0	0	0	482	77	127	924	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0					4.0		4.0	4.0	
Lane Util. Factor		0.91	1.00					0.95		1.00	0.95	
Frt		1.00	0.85					0.98		1.00	1.00	
Flt Protected		0.99	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		5036	1583					3466		1770	3539	
Flt Permitted		0.99	1.00					1.00		0.30	1.00	
Satd. Flow (perm)		5036	1583					3466		556	3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	199	813	314	0	0	0	0	482	77	127	924	0
RTOR Reduction (vph)	0	0	73	0	0	0	0	21	0	0	0	0
Lane Group Flow (vph)	0	1012	241	0	0	0	0	538	0	127	924	0
Turn Type	Split	NA	Perm					NA		pm+pt	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4							6		
Actuated Green, G (s)		20.0	20.0					20.0		32.0	32.0	
Effective Green, g (s)		20.0	20.0					20.0		32.0	32.0	
Actuated g/C Ratio		0.33	0.33					0.33		0.53	0.53	
Clearance Time (s)		4.0	4.0					4.0		4.0	4.0	
Lane Grp Cap (vph)		1678	527					1155		458	1887	
v/s Ratio Prot		c0.20						0.16		0.04	c0.26	
v/s Ratio Perm			0.15							0.11		
v/c Ratio		0.60	0.46					0.47		0.28	0.49	
Uniform Delay, d1		16.7	15.7					15.8		7.6	8.8	
Progression Factor		1.00	1.00					1.00		0.85	0.54	
Incremental Delay, d2		1.6	2.8					1.3		1.2	0.7	
Delay (s)		18.3	18.6					17.1		7.7	5.5	
Level of Service		B	B					B		A	A	
Approach Delay (s)		18.4			0.0			17.1			5.7	
Approach LOS		B			A			B			A	

Intersection Summary

HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: Broadway & 12th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔↔		↗	↕↕			↕↕↔	
Volume (vph)	0	0	0	215	692	127	133	478	0	0	802	109
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	0.95			0.91	
Flt					0.98		1.00	1.00			0.98	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					3438		1770	3539			4994	
Flt Permitted					0.99		0.19	1.00			1.00	
Satd. Flow (perm)					3438		348	3539			4994	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	215	692	127	133	478	0	0	802	109
RTOR Reduction (vph)	0	0	0	0	18	0	0	0	0	0	29	0
Lane Group Flow (vph)	0	0	0	0	1016	0	133	478	0	0	882	0
Turn Type				Split	NA		pm+pt	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases							2					
Actuated Green, G (s)					20.0		32.0	32.0			20.0	
Effective Green, g (s)					20.0		32.0	32.0			20.0	
Actuated g/C Ratio					0.33		0.53	0.53			0.33	
Clearance Time (s)					4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)					1146		375	1887			1664	
v/s Ratio Prot					c0.30		c0.05	0.14			c0.18	
v/s Ratio Perm							0.14					
v/c Ratio					0.89		0.35	0.25			0.53	
Uniform Delay, d1					18.9		8.0	7.6			16.2	
Progression Factor					1.00		1.70	0.75			1.88	
Incremental Delay, d2					10.2		2.3	0.3			0.8	
Delay (s)					29.2		15.9	6.0			31.2	
Level of Service					C		B	A			C	
Approach Delay (s)		0.0			29.2			8.1			31.2	
Approach LOS		A			C			A			C	

Intersection Summary

HCM 2000 Control Delay	24.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: Broadway & 14th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↑			↑↑	
Volume (vph)	6	328	112	5	582	175	2	566	36	0	998	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frt		0.96			0.97			0.99			0.98	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		3404			3416			3507			3479	
Flt Permitted		0.95			0.95			0.95			1.00	
Satd. Flow (perm)		3224			3256			3341			3479	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	6	328	112	5	582	175	2	566	36	0	998	127
RTOR Reduction (vph)	0	24	0	0	46	0	0	8	0	0	16	0
Lane Group Flow (vph)	0	422	0	0	716	0	0	596	0	0	1109	0
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2					
Actuated Green, G (s)		27.0			27.0			25.0			25.0	
Effective Green, g (s)		27.0			27.0			25.0			25.0	
Actuated g/C Ratio		0.45			0.45			0.42			0.42	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		1450			1465			1392			1449	
v/s Ratio Prot											c0.32	
v/s Ratio Perm		0.13			c0.22			0.18				
v/c Ratio		0.29			0.49			0.43			0.77	
Uniform Delay, d1		10.4			11.6			12.4			15.0	
Progression Factor		1.00			1.00			1.48			1.00	
Incremental Delay, d2		0.5			1.2			0.9			3.9	
Delay (s)		11.0			12.8			19.4			18.9	
Level of Service		B			B			B			B	
Approach Delay (s)		11.0			12.8			19.4			18.9	
Approach LOS		B			B			B			B	

Intersection Summary

















HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

15: Franklin Street & 2nd Street

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	87	39	18	83	0	0	0	0	9	29	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	87	39	18	83	0	0	0	0	9	29	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					384							
pX, platoon unblocked												
vC, conflicting volume	83			126			258	226	106	226	245	83
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	83			126			258	226	106	226	245	83
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	99	96	98
cM capacity (veh/h)	1514			1460			653	665	948	723	649	976
Direction, Lane #	EB 1	WB 1	SB 1	SB 2								
Volume Total	126	101	24	32								
Volume Left	0	18	9	0								
Volume Right	39	0	0	18								
cSH	1700	1460	675	797								
Volume to Capacity	0.07	0.01	0.03	0.04								
Queue Length 95th (ft)	0	1	3	3								
Control Delay (s)	0.0	1.4	10.5	9.7								
Lane LOS		A	B	A								
Approach Delay (s)	0.0	1.4	10.0									
Approach LOS			B									
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization			25.7%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

16: Franklin Street & 3rd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	210	12	27	223	0	0	0	0	12	18	74
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	210	12	27	223	0	0	0	0	12	18	74
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		367			383							
pX, platoon unblocked												
vC, conflicting volume	223			222			576	493	216	493	499	223
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	223			222			576	493	216	493	499	223
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			100	100	100	97	96	91
cM capacity (veh/h)	1346			1347			372	467	824	479	464	817
Direction, Lane #												
	EB 1	WB 1	SB 1	SB 2								
Volume Total	222	250	21	83								
Volume Left	0	27	12	0								
Volume Right	12	0	0	74								
cSH	1700	1347	472	754								
Volume to Capacity	0.13	0.02	0.04	0.11								
Queue Length 95th (ft)	0	2	3	9								
Control Delay (s)	0.0	1.0	13.0	10.4								
Lane LOS		A	B	B								
Approach Delay (s)	0.0	1.0	10.9									
Approach LOS			B									
Intersection Summary												
Average Delay			2.4									
Intersection Capacity Utilization			38.3%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 17: Webster Street & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	103	210	217	125	112	63
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	103	210	217	125	112	63
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	385					
pX, platoon unblocked						
vC, conflicting volume	0		325	206	416	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		325	206	416	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	94		53	81	77	94
cM capacity (veh/h)	1623		465	647	494	1085

Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2
Volume Total	103	210	342	112	63
Volume Left	103	0	217	0	0
Volume Right	0	210	0	0	63
cSH	1623	1700	519	494	1085
Volume to Capacity	0.06	0.12	0.66	0.23	0.06
Queue Length 95th (ft)	5	0	119	22	5
Control Delay (s)	7.4	0.0	24.4	14.4	8.5
Lane LOS	A		C	B	A
Approach Delay (s)	2.4		24.4	12.3	
Approach LOS			C	B	

Intersection Summary					
Average Delay			13.6		
Intersection Capacity Utilization			37.6%	ICU Level of Service	A
Analysis Period (min)			15		

HCM Signalized Intersection Capacity Analysis

18: Harrison Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑↑↑	↑↑			
Volume (vph)	334	1529	0	0	0	0	0	686	1212	0	0	0
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			
Lane Util. Factor		0.91						0.91	0.88			
Frt		1.00						1.00	0.85			
Flt Protected		0.99						1.00	1.00			
Satd. Flow (prot)		5040						5085	2787			
Flt Permitted		0.99						1.00	1.00			
Satd. Flow (perm)		5040						5085	2787			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	334	1529	0	0	0	0	0	686	1212	0	0	0
RTOR Reduction (vph)	0	77	0	0	0	0	0	0	13	0	0	0
Lane Group Flow (vph)	0	1786	0	0	0	0	0	686	1199	0	0	0
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Actuated Green, G (s)		16.0						21.0	21.0			
Effective Green, g (s)		16.0						21.0	21.0			
Actuated g/C Ratio		0.36						0.47	0.47			
Clearance Time (s)		4.0						4.0	4.0			
Lane Grp Cap (vph)		1792						2373	1300			
v/s Ratio Prot								0.13				
v/s Ratio Perm		0.35							c0.43			
v/c Ratio		1.00						0.29	0.92			
Uniform Delay, d1		14.5						7.4	11.2			
Progression Factor		1.00						1.00	1.00			
Incremental Delay, d2		20.5						0.3	12.2			
Delay (s)		35.0						7.7	23.4			
Level of Service		C						A	C			
Approach Delay (s)		35.0			0.0			17.8			0.0	
Approach LOS		C			A			B			A	

Intersection Summary

HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	88.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

19: Jackson Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔						↔		↔↕↔	↕	↔
Volume (vph)	298	622	462	0	0	0	0	670	39	106	122	0
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		0.91						1.00		1.00	1.00	
Frt		0.95						0.99		1.00	1.00	
Flt Protected		0.99						1.00		0.95	1.00	
Satd. Flow (prot)		4779						1849		1770	1863	
Flt Permitted		0.99						1.00		0.24	1.00	
Satd. Flow (perm)		4779						1849		441	1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	298	622	462	0	0	0	0	670	39	106	122	0
RTOR Reduction (vph)	0	201	0	0	0	0	0	5	0	0	0	0
Lane Group Flow (vph)	0	1181	0	0	0	0	0	704	0	106	122	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		13.0						24.0		24.0	24.0	
Effective Green, g (s)		13.0						24.0		24.0	24.0	
Actuated g/C Ratio		0.29						0.53		0.53	0.53	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		1380						986		235	993	
v/s Ratio Prot								c0.38			0.07	
v/s Ratio Perm		0.25								0.24		
v/c Ratio		0.86						0.71		0.45	0.12	
Uniform Delay, d1		15.1						7.9		6.5	5.2	
Progression Factor		1.00						1.00		0.53	0.46	
Incremental Delay, d2		7.0						4.4		6.1	0.3	
Delay (s)		22.1						12.3		9.4	2.7	
Level of Service		C						B		A	A	
Approach Delay (s)		22.1			0.0			12.3			5.8	
Approach LOS		C			A			B			A	

Intersection Summary

HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	102.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

20: Jackson Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↗	↖	↖	↗			↗	↖
Volume (vph)	0	0	0	11	389	53	453	434	0	0	253	514
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1770	1863	1583	1770	1863			1863	1583
Flt Permitted				0.95	1.00	1.00	0.60	1.00			1.00	1.00
Satd. Flow (perm)				1770	1863	1583	1122	1863			1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	11	389	53	453	434	0	0	253	514
RTOR Reduction (vph)	0	0	0	0	0	40	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	11	389	13	453	434	0	0	253	514
Turn Type				Split	NA	Perm	Perm	NA			NA	Free
Protected Phases				8	8			2			6	
Permitted Phases						8	2					Free
Actuated Green, G (s)				11.0	11.0	11.0	26.0	26.0			26.0	45.0
Effective Green, g (s)				11.0	11.0	11.0	26.0	26.0			26.0	45.0
Actuated g/C Ratio				0.24	0.24	0.24	0.58	0.58			0.58	1.00
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)				432	455	386	648	1076			1076	1583
v/s Ratio Prot				0.01	c0.21			0.23			0.14	
v/s Ratio Perm						0.01	c0.40					0.32
v/c Ratio				0.03	0.85	0.03	0.70	0.40			0.24	0.32
Uniform Delay, d1				12.9	16.2	13.0	6.7	5.2			4.6	0.0
Progression Factor				0.67	0.67	0.62	0.62	0.67			1.09	1.00
Incremental Delay, d2				0.1	17.6	0.2	3.9	0.7			0.4	0.5
Delay (s)				8.8	28.5	8.2	8.1	4.2			5.5	0.5
Level of Service				A	C	A	A	A			A	A
Approach Delay (s)		0.0			25.7			6.2			2.1	
Approach LOS		A			C			A			A	

Intersection Summary

HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	102.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

21: Jackson Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔	↔					↔			↔↕	
Volume (vph)	41	1079	522	0	0	0	0	313	144	36	338	0
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		0.86	0.86					1.00			1.00	
Frt		0.98	0.85					0.96			1.00	
Flt Protected		1.00	1.00					1.00			1.00	
Satd. Flow (prot)		4713	1362					1784			1854	
Flt Permitted		1.00	1.00					1.00			0.91	
Satd. Flow (perm)		4713	1362					1784			1698	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	41	1079	522	0	0	0	0	313	144	36	338	0
RTOR Reduction (vph)	0	35	170	0	0	0	0	32	0	0	0	0
Lane Group Flow (vph)	0	1236	201	0	0	0	0	425	0	0	374	0
Turn Type	Split	NA	Perm					NA		Perm	NA	
Protected Phases	4	4						2			6	
Permitted Phases			4							6		
Actuated Green, G (s)		21.0	21.0					16.0			16.0	
Effective Green, g (s)		21.0	21.0					16.0			16.0	
Actuated g/C Ratio		0.47	0.47					0.36			0.36	
Clearance Time (s)		4.0	4.0					4.0			4.0	
Lane Grp Cap (vph)		2199	635					634			603	
v/s Ratio Prot		c0.26						c0.24				
v/s Ratio Perm			0.15								0.22	
v/c Ratio		0.56	0.32					0.67			0.62	
Uniform Delay, d1		8.7	7.5					12.3			12.0	
Progression Factor		1.00	1.00					1.00			1.00	
Incremental Delay, d2		1.0	1.3					5.3			4.7	
Delay (s)		9.7	8.8					17.6			16.7	
Level of Service		A	A					B			B	
Approach Delay (s)		9.5			0.0			17.6			16.7	
Approach LOS		A			A			B			B	

Intersection Summary

HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

22: Madison Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑								↘	↙↑	
Volume (vph)	0	725	35	0	0	0	0	0	0	931	150	0
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	
Lane Util. Factor		0.91								0.91	0.91	
Frt		0.99								1.00	1.00	
Flt Protected		1.00								0.95	0.96	
Satd. Flow (prot)		5050								1610	3267	
Flt Permitted		1.00								0.95	0.96	
Satd. Flow (perm)		5050								1610	3267	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	725	35	0	0	0	0	0	0	931	150	0
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	35	35	0
Lane Group Flow (vph)	0	749	0	0	0	0	0	0	0	430	581	0
Turn Type		NA								Perm	NA	
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0								22.0	22.0	
Effective Green, g (s)		16.0								22.0	22.0	
Actuated g/C Ratio		0.35								0.48	0.48	
Clearance Time (s)		4.0								4.0	4.0	
Lane Grp Cap (vph)		1756								770	1562	
v/s Ratio Prot		c0.15										
v/s Ratio Perm										c0.27	0.18	
v/c Ratio		0.43								0.56	0.37	
Uniform Delay, d1		11.5								8.5	7.6	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.8								2.9	0.7	
Delay (s)		12.2								11.5	8.3	
Level of Service		B								B	A	
Approach Delay (s)		12.2			0.0			0.0			9.7	
Approach LOS		B			A			A			A	

Intersection Summary

HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	46.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

23: Madison Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑						↑↑↑	
Volume (vph)	0	0	0	18	210	0	0	0	0	0	1108	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0						4.0	
Lane Util. Factor					0.91						0.91	
Frt					1.00						0.97	
Flt Protected					1.00						1.00	
Satd. Flow (prot)					5065						4956	
Flt Permitted					1.00						1.00	
Satd. Flow (perm)					5065						4956	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	18	210	0	0	0	0	0	1108	227
RTOR Reduction (vph)	0	0	0	0	16	0	0	0	0	0	70	0
Lane Group Flow (vph)	0	0	0	0	212	0	0	0	0	0	1265	0
Turn Type				Split	NA						NA	
Protected Phases				8	8						6	
Permitted Phases												
Actuated Green, G (s)					15.0						22.0	
Effective Green, g (s)					15.0						22.0	
Actuated g/C Ratio					0.33						0.49	
Clearance Time (s)					4.0						4.0	
Lane Grp Cap (vph)					1688						2422	
v/s Ratio Prot					c0.04						c0.26	
v/s Ratio Perm												
v/c Ratio					0.13						0.52	
Uniform Delay, d1					10.4						7.9	
Progression Factor					0.89						0.55	
Incremental Delay, d2					0.1						0.7	
Delay (s)					9.4						5.1	
Level of Service					A						A	
Approach Delay (s)		0.0			9.4			0.0			5.1	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	5.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

24: Madison Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑									↑↑↑	
Volume (vph)	0	1045	342	0	0	0	0	0	0	309	913	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									4.0	
Lane Util. Factor		0.86									0.91	
Frt		0.96									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		6171									5022	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		6171									5022	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1045	342	0	0	0	0	0	0	309	913	0
RTOR Reduction (vph)	0	52	0	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	1335	0	0	0	0	0	0	0	0	1209	0
Turn Type		NA								Perm	NA	
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0									21.0	
Effective Green, g (s)		16.0									21.0	
Actuated g/C Ratio		0.36									0.47	
Clearance Time (s)		4.0									4.0	
Lane Grp Cap (vph)		2194									2343	
v/s Ratio Prot		c0.22										
v/s Ratio Perm											0.24	
v/c Ratio		0.61									0.52	
Uniform Delay, d1		11.9									8.4	
Progression Factor		0.53									1.00	
Incremental Delay, d2		1.1									0.8	
Delay (s)		7.5									9.2	
Level of Service		A									A	
Approach Delay (s)		7.5			0.0			0.0			9.2	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

25: Oak Street & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	209	0	76	5	0	1	273	679	0	0	736	290
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	209	0	76	5	0	1	273	679	0	0	736	290
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)											563	
pX, platoon unblocked												
vC, conflicting volume	1768	2106	513	1669	2251	340	1026				679	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1768	2106	513	1669	2251	340	1026				679	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	0	100	85	86	100	100	59				100	
cM capacity (veh/h)	36	30	506	37	24	656	673				909	

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	209	76	273	340	340	491	535
Volume Left	209	0	273	0	0	0	0
Volume Right	0	76	0	0	0	0	290
cSH	36	506	673	1700	1700	1700	1700
Volume to Capacity	5.78	0.15	0.41	0.20	0.20	0.29	0.31
Queue Length 95th (ft)	Err	13	49	0	0	0	0
Control Delay (s)	Err	13.4	14.0	0.0	0.0	0.0	0.0
Lane LOS	F	B	B				
Approach Delay (s)	7336.2		4.0			0.0	
Approach LOS	F						

Intersection Summary			
Average Delay		Err	
Intersection Capacity Utilization		Err%	ICU Level of Service
Analysis Period (min)		15	H

HCM Signalized Intersection Capacity Analysis
 26: Oak Street & 3rd Street

7/24/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	141	77	136	935	986	203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.95		1.00	1.00	1.00	0.85
Flt Protected	0.97		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1718		1770	1863	1863	1583
Flt Permitted	0.97		0.22	1.00	1.00	1.00
Satd. Flow (perm)	1718		414	1863	1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	141	77	136	935	986	203
RTOR Reduction (vph)	23	0	0	0	0	122
Lane Group Flow (vph)	195	0	136	935	986	81
Turn Type	NA		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Actuated Green, G (s)	19.0		18.0	18.0	18.0	18.0
Effective Green, g (s)	19.0		18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.42		0.40	0.40	0.40	0.40
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	725		165	745	745	633
v/s Ratio Prot	c0.11			0.50	c0.53	
v/s Ratio Perm			0.33			0.05
v/c Ratio	0.27		0.82	1.26	1.32	0.13
Uniform Delay, d1	8.5		12.1	13.5	13.5	8.5
Progression Factor	1.00		1.00	1.00	0.96	1.44
Incremental Delay, d2	0.9		35.4	125.6	154.7	0.4
Delay (s)	9.4		47.4	139.1	167.7	12.7
Level of Service	A		D	F	F	B
Approach Delay (s)	9.4			127.5	141.2	
Approach LOS	A			F	F	

Intersection Summary

HCM 2000 Control Delay	123.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	81.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

27: Oak Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔						↕↔			↕	
Volume (vph)	246	1016	140	0	0	0	0	894	349	6	284	0
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	
Lane Util. Factor		0.91						0.95			1.00	
Frt		0.99						0.96			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4966						3390			1861	
Flt Permitted		0.99						1.00			0.69	
Satd. Flow (perm)		4966						3390			1292	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	246	1016	140	0	0	0	0	894	349	6	284	0
RTOR Reduction (vph)	0	30	0	0	0	0	0	45	0	0	0	0
Lane Group Flow (vph)	0	1372	0	0	0	0	0	1198	0	0	290	0
Turn Type	Split	NA						NA		Perm	NA	
Protected Phases	4	4						2			6	
Permitted Phases										6		
Actuated Green, G (s)		22.0						15.0			15.0	
Effective Green, g (s)		22.0						15.0			15.0	
Actuated g/C Ratio		0.49						0.33			0.33	
Clearance Time (s)		4.0						4.0			4.0	
Lane Grp Cap (vph)		2427						1130			430	
v/s Ratio Prot		c0.28						c0.35				
v/s Ratio Perm											0.22	
v/c Ratio		0.57						1.06			0.67	
Uniform Delay, d1		8.1						15.0			12.9	
Progression Factor		1.00						1.55			1.26	
Incremental Delay, d2		1.0						33.1			8.0	
Delay (s)		9.1						56.4			24.2	
Level of Service		A						E			C	
Approach Delay (s)		9.1			0.0			56.4			24.2	
Approach LOS		A			A			E			C	

Intersection Summary

HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: Oak Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕	↗		↕↕				
Volume (vph)	0	0	0	221	85	506	163	655	0	0	0	0
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				
Lane Util. Factor					0.91	0.91		0.95				
Frt					0.93	0.85		1.00				
Flt Protected					0.98	1.00		0.99				
Satd. Flow (prot)					3101	1441		3504				
Flt Permitted					0.98	1.00		0.99				
Satd. Flow (perm)					3101	1441		3504				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	221	85	506	163	655	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	41	41	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	513	217	0	818	0	0	0	0
Turn Type				Split	NA	Perm	Split	NA				
Protected Phases				8	8		2	2				
Permitted Phases						8						
Actuated Green, G (s)					22.0	22.0		15.0				
Effective Green, g (s)					22.0	22.0		15.0				
Actuated g/C Ratio					0.49	0.49		0.33				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					1516	704		1168				
v/s Ratio Prot					c0.17			c0.23				
v/s Ratio Perm						0.15						
v/c Ratio					0.34	0.31		0.70				
Uniform Delay, d1					7.0	6.9		13.0				
Progression Factor					1.00	1.00		0.91				
Incremental Delay, d2					0.6	1.1		1.1				
Delay (s)					7.6	8.1		13.0				
Level of Service					A	A		B				
Approach Delay (s)		0.0			7.8			13.0			0.0	
Approach LOS		A			A			B			A	

Intersection Summary

HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: Oak Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		←↑↑↑						↑↑↑				
Volume (vph)	161	1035	0	0	0	0	0	1049	198	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.86						0.91				
Frt		1.00						0.98				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6365						4964				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6365						4964				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	161	1035	0	0	0	0	0	1049	198	0	0	0
RTOR Reduction (vph)	0	18	0	0	0	0	0	24	0	0	0	0
Lane Group Flow (vph)	0	1178	0	0	0	0	0	1223	0	0	0	0
Turn Type	Perm	NA						NA				
Protected Phases		4						2				
Permitted Phases	4											
Actuated Green, G (s)		19.0						18.0				
Effective Green, g (s)		19.0						18.0				
Actuated g/C Ratio		0.42						0.40				
Clearance Time (s)		4.0						4.0				
Lane Grp Cap (vph)		2687						1985				
v/s Ratio Prot								c0.25				
v/s Ratio Perm		0.19										
v/c Ratio		0.44						0.62				
Uniform Delay, d1		9.2						10.7				
Progression Factor		1.05						0.87				
Incremental Delay, d2		0.4						1.3				
Delay (s)		10.1						10.6				
Level of Service		B						B				
Approach Delay (s)		10.1				0.0		10.6			0.0	
Approach LOS		B				A		B			A	

Intersection Summary

HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 30: 5th Avenue & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	74	879	57	56	744	623	39	19	27	750	40	97
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	74	879	57	56	744	623	39	19	27	750	40	97

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	1010	800	623	85	887
Volume Left (vph)	74	56	0	39	750
Volume Right (vph)	57	0	623	27	97
Hadj (s)	0.01	0.07	-0.67	-0.06	0.14
Departure Headway (s)	7.7	8.1	7.4	9.5	7.7
Degree Utilization, x	2.15	1.80	1.28	0.22	1.90
Capacity (veh/h)	477	449	496	374	476
Control Delay (s)	544.0	389.2	162.2	15.2	430.2
Approach Delay (s)	544.0	289.8		15.2	430.2
Approach LOS	F	F		C	F

Intersection Summary				
Delay		394.9		
Level of Service		F		
Intersection Capacity Utilization		162.3%	ICU Level of Service	H
Analysis Period (min)		15		

HCM Signalized Intersection Capacity Analysis

31: Webster Street & Atlantic Avenue

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	242	216	59	166	581	113	33	532	49	89	808	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3453		1770	3495		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3453		1770	3495		1770	3539	1583
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)	263	235	64	180	632	123	36	578	53	97	878	180
RTOR Reduction (vph)	0	0	48	0	15	0	0	6	0	0	0	155
Lane Group Flow (vph)	263	235	16	180	740	0	36	625	0	97	878	25
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	Over
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									
Actuated Green, G (s)	11.7	20.4	20.4	13.7	22.4		4.6	25.4		7.9	28.7	11.7
Effective Green, g (s)	11.7	20.4	20.4	13.7	22.4		4.6	25.4		7.9	28.7	11.7
Actuated g/C Ratio	0.14	0.24	0.24	0.16	0.27		0.06	0.30		0.09	0.34	0.14
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	481	865	387	290	927		97	1064		167	1217	222
v/s Ratio Prot	0.08	0.07		c0.10	c0.21		0.02	0.18		c0.05	c0.25	0.02
v/s Ratio Perm			0.01									
v/c Ratio	0.55	0.27	0.04	0.62	0.80		0.37	0.59		0.58	0.72	0.11
Uniform Delay, d1	33.4	25.5	24.0	32.4	28.4		38.0	24.6		36.2	23.9	31.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.3	0.2	0.0	4.1	4.8		2.4	2.4		5.1	3.7	0.2
Delay (s)	34.7	25.7	24.1	36.5	33.2		40.4	26.9		41.2	27.6	31.5
Level of Service	C	C	C	D	C		D	C		D	C	C
Approach Delay (s)		29.7			33.9			27.7			29.3	
Approach LOS		C			C			C			C	





























Intersection Summary

HCM 2000 Control Delay	30.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	83.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

32: Constitution Way & Atlantic Avenue

7/24/2013

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 		 	 		 	 		
Volume (vph)	321	448	315	89	240	170	87	572	39	130	1142	119	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00	
Frt	1.00	0.94		1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	3320		1770	3319		3433	3539	1583	3433	3539	1583	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	3320		1770	3319		3433	3539	1583	3433	3539	1583	
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)	349	487	342	97	261	185	95	622	42	141	1241	129	
RTOR Reduction (vph)	0	115	0	0	141	0	0	0	30	0	0	69	
Lane Group Flow (vph)	349	714	0	97	305	0	95	622	12	141	1241	60	
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases									2			6	
Actuated Green, G (s)	20.5	26.3		8.5	14.3		6.3	25.2	25.2	8.9	27.8	27.8	
Effective Green, g (s)	20.5	26.3		8.5	14.3		6.3	25.2	25.2	8.9	27.8	27.8	
Actuated g/C Ratio	0.24	0.31		0.10	0.17		0.07	0.30	0.30	0.10	0.33	0.33	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	427	1028		177	559		254	1050	469	359	1158	518	
v/s Ratio Prot	c0.20	c0.21		0.05	0.09		0.03	0.18		c0.04	c0.35		
v/s Ratio Perm									0.01			0.04	
v/c Ratio	0.82	0.69		0.55	0.55		0.37	0.59	0.03	0.39	1.07	0.12	
Uniform Delay, d1	30.4	25.8		36.4	32.3		37.4	25.5	21.2	35.5	28.6	20.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	11.5	2.1		3.4	1.1		0.9	2.5	0.1	0.7	47.9	0.5	
Delay (s)	41.9	27.8		39.8	33.4		38.4	27.9	21.3	36.2	76.5	20.4	
Level of Service	D	C		D	C		D	C	C	D	E	C	
Approach Delay (s)		32.0			34.6			28.9			67.9		
Approach LOS		C			C			C			E		
Intersection Summary													
HCM 2000 Control Delay			45.3									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.89										
Actuated Cycle Length (s)			84.9									Sum of lost time (s)	16.0
Intersection Capacity Utilization			78.1%									ICU Level of Service	D
Analysis Period (min)			15										
c	Critical Lane Group												



















Level Of Service Computation Report

Cumulative plus Project (Maximum Commercial Scenario) Conditions
AM Peak Hour

HCM Unsignalized Intersection Capacity Analysis

1: Market Street & 3rd Street

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	24	74	27	20	268	49	49	22	5	32	92	96
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	24	74	27	20	268	49	49	22	5	32	92	96
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	317			101			452	492	50	434	482	158
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	317			101			452	492	50	434	482	158
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			86	95	100	93	80	89
cM capacity (veh/h)	1240			1489			361	460	1007	473	467	859
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2	SB 3				
Volume Total	61	64	154	183	76	32	61	127				
Volume Left	24	0	20	0	49	32	0	0				
Volume Right	0	27	0	49	5	0	0	96				
cSH	1240	1700	1489	1700	404	473	467	714				
Volume to Capacity	0.02	0.04	0.01	0.11	0.19	0.07	0.13	0.18				
Queue Length 95th (ft)	1	0	1	0	17	5	11	16				
Control Delay (s)	3.2	0.0	1.1	0.0	16.0	13.2	13.9	11.1				
Lane LOS	A		A		C	B	B	B				
Approach Delay (s)	1.6		0.5		16.0	12.2						
Approach LOS					C	B						
Intersection Summary												
Average Delay			5.6									
Intersection Capacity Utilization			36.3%		ICU Level of Service			A				
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Market Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑↑		↘	↑↑↑	
Volume (vph)	4	213	17	0	0	0	0	86	22	63	231	0
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		0.91						0.95		1.00	0.91	
Frt		0.99						0.97		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		5026						3431		1770	5085	
Flt Permitted		1.00						1.00		0.68	1.00	
Satd. Flow (perm)		5026						3431		1274	5085	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	4	213	17	0	0	0	0	86	22	63	231	0
RTOR Reduction (vph)	0	7	0	0	0	0	0	15	0	0	0	0
Lane Group Flow (vph)	0	227	0	0	0	0	0	93	0	63	231	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		43.0						24.0		24.0	24.0	
Effective Green, g (s)		43.0						24.0		24.0	24.0	
Actuated g/C Ratio		0.57						0.32		0.32	0.32	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		2881						1097		407	1627	
v/s Ratio Prot								0.03			0.05	
v/s Ratio Perm		0.05								c0.05		
v/c Ratio		0.08						0.08		0.15	0.14	
Uniform Delay, d1		7.1						17.8		18.2	18.2	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		0.1						0.2		0.8	0.2	
Delay (s)		7.2						18.0		19.1	18.3	
Level of Service		A						B		B	B	
Approach Delay (s)		7.2			0.0			18.0			18.5	
Approach LOS		A			A			B			B	

Intersection Summary

HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.11		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	28.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations					↑↑	↑		↓	↑↑			↑↑↓
Volume (vph)	0	0	0	99	259	248	11	26	78	0	0	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0	4.0			4.0
Lane Util. Factor					0.95	1.00		1.00	0.95			0.91
Frt					1.00	0.85		1.00	1.00			0.96
Flt Protected					0.99	1.00		0.95	1.00			1.00
Satd. Flow (prot)					3491	1583		1770	3539			4896
Flt Permitted					0.99	1.00		0.59	1.00			1.00
Satd. Flow (perm)					3491	1583		1100	3539			4896
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	99	259	248	11	26	78	0	0	188
RTOR Reduction (vph)	0	0	0	0	0	94	0	0	0	0	0	43
Lane Group Flow (vph)	0	0	0	0	358	154	0	37	78	0	0	207
Turn Type				Perm	NA	Perm	Perm	Perm	NA			NA
Protected Phases					8				2			6
Permitted Phases				8		8	2	2				
Actuated Green, G (s)					62.0	62.0		30.0	30.0			30.0
Effective Green, g (s)					62.0	62.0		30.0	30.0			30.0
Actuated g/C Ratio					0.62	0.62		0.30	0.30			0.30
Clearance Time (s)					4.0	4.0		4.0	4.0			4.0
Lane Grp Cap (vph)					2164	981		330	1061			1468
v/s Ratio Prot									0.02			c0.04
v/s Ratio Perm					0.10	0.10		0.03				
v/c Ratio					0.17	0.16		0.11	0.07			0.14
Uniform Delay, d1					8.0	8.0		25.4	25.1			25.6
Progression Factor					1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2					0.2	0.3		0.7	0.1			0.2
Delay (s)					8.2	8.3		26.0	25.2			25.8
Level of Service					A	A		C	C			C
Approach Delay (s)		0.0			8.3				25.5			25.8
Approach LOS		A			A				C			C

Intersection Summary

HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.16		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	28.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

7/24/2013



Movement	SBR
Line Configurations	
Volume (vph)	62
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Fr	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	62
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

4: Market Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑		↖	↑↑↑		↖	↑↑		↖	↑↑↑	
Volume (vph)	53	339	44	55	749	46	158	172	16	50	102	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.91	
Frt	1.00	0.98		1.00	0.99		1.00	0.99		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4998		1770	5041		1770	3494		1770	4719	
Flt Permitted	0.23	1.00		0.50	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	425	4998		923	5041		1770	3494		1770	4719	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	53	339	44	55	749	46	158	172	16	50	102	94
RTOR Reduction (vph)	0	20	0	0	9	0	0	9	0	0	82	0
Lane Group Flow (vph)	53	363	0	55	786	0	158	179	0	50	114	0
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4			8								
Actuated Green, G (s)	22.0	22.0		22.0	22.0		36.0	36.0		10.0	10.0	
Effective Green, g (s)	22.0	22.0		22.0	22.0		36.0	36.0		10.0	10.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.45	0.45		0.12	0.12	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	116	1374		253	1386		796	1572		221	589	
v/s Ratio Prot		0.07			c0.16		c0.09	0.05		c0.03	0.02	
v/s Ratio Perm	0.12			0.06								
v/c Ratio	0.46	0.26		0.22	0.57		0.20	0.11		0.23	0.19	
Uniform Delay, d1	24.0	22.7		22.4	24.9		13.3	12.8		31.5	31.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.4	0.5		2.0	1.7		0.6	0.1		2.4	0.7	
Delay (s)	36.5	23.1		24.3	26.6		13.8	12.9		33.9	32.1	
Level of Service	D	C		C	C		B	B		C	C	
Approach Delay (s)		24.8			26.5			13.3			32.5	
Approach LOS		C			C			B			C	

Intersection Summary

HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: Castro Street & 11th Street

7/24/2013



Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations	↵	↵↑↑↑	↑↑↑		↵↵↵	
Volume (vph)	159	883	477	31	92	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	0.81	0.81	0.91		0.97	
Frt	1.00	1.00	0.99		0.94	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1433	6030	5039		3287	
Flt Permitted	0.95	1.00	1.00		0.97	
Satd. Flow (perm)	1433	6030	5039		3287	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	159	883	477	31	92	69
RTOR Reduction (vph)	103	53	9	0	0	0
Lane Group Flow (vph)	40	846	499	0	161	0
Turn Type	Split	NA	NA		NA	
Protected Phases	4	4	2		8	
Permitted Phases						
Actuated Green, G (s)	21.0	21.0	21.0		21.0	
Effective Green, g (s)	21.0	21.0	21.0		21.0	
Actuated g/C Ratio	0.28	0.28	0.28		0.28	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Lane Grp Cap (vph)	401	1688	1410		920	
v/s Ratio Prot	0.03	c0.14	c0.10		c0.05	
v/s Ratio Perm						
v/c Ratio	0.10	0.50	0.35		0.17	
Uniform Delay, d1	20.0	22.6	21.6		20.4	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.5	1.1	0.7		0.4	
Delay (s)	20.5	23.7	22.3		20.9	
Level of Service	C	C	C		C	
Approach Delay (s)		23.2	22.3		20.9	
Approach LOS		C	C		C	

Intersection Summary

HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

6: Castro Street & 12th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑	↑	↑↑↑↑				
Volume (vph)	0	0	0	0	239	289	43	565	0	0	0	0
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					0.91	0.91	0.81	0.81				
Frt					0.95	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	1.00				
Satd. Flow (prot)					3216	1441	1433	6033				
Flt Permitted					1.00	1.00	0.95	1.00				
Satd. Flow (perm)					3216	1441	1433	6033				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	239	289	43	565	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	79	110	17	7	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	284	55	22	562	0	0	0	0
Turn Type					NA	Perm	Perm	NA				
Protected Phases					8			2				
Permitted Phases						8	2					
Actuated Green, G (s)					25.0	25.0	42.0	42.0				
Effective Green, g (s)					25.0	25.0	42.0	42.0				
Actuated g/C Ratio					0.33	0.33	0.56	0.56				
Clearance Time (s)					4.0	4.0	4.0	4.0				
Lane Grp Cap (vph)					1072	480	802	3378				
v/s Ratio Prot					c0.09							
v/s Ratio Perm						0.04	0.02	0.09				
v/c Ratio					0.26	0.11	0.03	0.17				
Uniform Delay, d1					18.3	17.3	7.4	8.0				
Progression Factor					1.00	1.00	0.29	0.44				
Incremental Delay, d2					0.6	0.5	0.1	0.1				
Delay (s)					18.9	17.8	2.2	3.6				
Level of Service					B	B	A	A				
Approach Delay (s)		0.0			18.5			3.5			0.0	
Approach LOS		A			B			A			A	

Intersection Summary

HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	26.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

7: Broadway & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	7	94	79	8	109	101	10	39	0	335	180	66
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	7	94	79	8	109	101	10	39	0	335	180	66

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	180	218	30	20	425	156
Volume Left (vph)	7	8	10	0	335	0
Volume Right (vph)	79	101	0	0	0	66
Hadj (s)	-0.22	-0.24	0.20	0.03	0.43	-0.26
Departure Headway (s)	5.7	5.6	6.8	6.6	6.2	5.5
Degree Utilization, x	0.28	0.34	0.06	0.04	0.73	0.24
Capacity (veh/h)	589	601	470	489	570	639
Control Delay (s)	10.9	11.4	8.9	8.6	22.8	9.0
Approach Delay (s)	10.9	11.4	8.8		19.1	
Approach LOS	B	B	A		C	

Intersection Summary

Delay	15.5
Level of Service	C
Intersection Capacity Utilization	47.1%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

8: Broadway & 2nd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕			↕			↕		
Volume (veh/h)	6	2	2	7	22	26	16	378	33	103	463	48	
Sign Control		Stop			Stop			Free			Free		
Grade		0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	6	2	2	7	22	26	16	378	33	103	463	48	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type							None						
Median storage (veh)													
Upstream signal (ft)												288	
pX, platoon unblocked													
vC, conflicting volume	951	1136	256	867	1144	206	511					411	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	951	1136	256	867	1144	206	511					411	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1					4.1	
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2					2.2	
p0 queue free %	97	99	100	97	88	97	98					91	
cM capacity (veh/h)	173	180	744	225	178	801	1050					1144	

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	10	55	205	222	334	280
Volume Left	6	7	16	0	103	0
Volume Right	2	26	0	33	0	48
cSH	206	294	1050	1700	1144	1700
Volume to Capacity	0.05	0.19	0.02	0.13	0.09	0.16
Queue Length 95th (ft)	4	17	1	0	7	0
Control Delay (s)	23.3	20.1	0.8	0.0	3.2	0.0
Lane LOS	C	C	A		A	
Approach Delay (s)	23.3	20.1	0.4		1.8	
Approach LOS	C	C				

Intersection Summary

Average Delay	2.3
Intersection Capacity Utilization	42.6%
ICU Level of Service	A
Analysis Period (min)	15

HCM Signalized Intersection Capacity Analysis

9: Broadway & 3rd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	34	38	21	5	54	49	42	359	30	102	427	168
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			0.95			0.95	
Frt		0.97			0.94			0.99			0.96	
Flt Protected		0.98			1.00			1.00			0.99	
Satd. Flow (prot)		1774			1745			3485			3386	
Flt Permitted		0.89			0.99			0.86			0.83	
Satd. Flow (perm)		1610			1733			3022			2827	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	34	38	21	5	54	49	42	359	30	102	427	168
RTOR Reduction (vph)	0	14	0	0	33	0	0	10	0	0	55	0
Lane Group Flow (vph)	0	79	0	0	75	0	0	421	0	0	642	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		18.0			18.0			29.0			29.0	
Effective Green, g (s)		18.0			18.0			29.0			29.0	
Actuated g/C Ratio		0.33			0.33			0.53			0.53	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		526			567			1593			1490	
v/s Ratio Prot												
v/s Ratio Perm		c0.05			0.04			0.14			c0.23	
v/c Ratio		0.15			0.13			0.26			0.43	
Uniform Delay, d1		13.1			13.0			7.1			8.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.6			0.5			0.4			0.9	
Delay (s)		13.7			13.5			7.5			8.9	
Level of Service		B			B			A			A	
Approach Delay (s)		13.7			13.5			7.5			8.9	
Approach LOS		B			B			A			A	

Intersection Summary

HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

10: Broadway & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	931	179	99	0	0	0	0	318	537	548	415	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.91	0.91	1.00					0.95	1.00	0.97	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3272	1583					3539	1583	3433	1863	
Flt Permitted	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1610	3272	1583					3539	1583	3433	1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	931	179	99	0	0	0	0	318	537	548	415	0
RTOR Reduction (vph)	0	0	71	0	0	0	0	0	202	0	0	0
Lane Group Flow (vph)	465	645	28	0	0	0	0	318	335	548	415	0
Turn Type	Split	NA	Prot					NA	Prot	Split	NA	
Protected Phases	4	4	4					2	2	6	6	
Permitted Phases												
Actuated Green, G (s)	21.0	21.0	21.0					21.0	21.0	21.0	21.0	
Effective Green, g (s)	21.0	21.0	21.0					21.0	21.0	21.0	21.0	
Actuated g/C Ratio	0.28	0.28	0.28					0.28	0.28	0.28	0.28	
Clearance Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	450	916	443					990	443	961	521	
v/s Ratio Prot	c0.29	0.20	0.02					0.09	c0.21	0.16	c0.22	
v/s Ratio Perm												
v/c Ratio	1.03	0.99dl	0.06					0.32	0.76	0.57	0.80	
Uniform Delay, d1	27.0	24.2	19.8					21.4	24.7	23.1	25.0	
Progression Factor	1.00	1.00	1.04					1.00	1.00	1.04	1.04	
Incremental Delay, d2	51.3	4.5	0.3					0.9	11.5	2.4	11.6	
Delay (s)	78.2	28.6	20.8					22.2	36.1	26.5	37.5	
Level of Service	E	C	C					C	D	C	D	
Approach Delay (s)		47.0			0.0			31.0			31.2	
Approach LOS		D			A			C			C	

Intersection Summary

HCM 2000 Control Delay	37.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

11: Broadway & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕	↗	↙	↕			↕	↗
Volume (vph)	0	0	0	359	160	533	67	473	0	0	384	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Util. Factor				1.00	0.91	0.91	1.00	0.95			0.91	
Frt				1.00	0.91	0.85	1.00	1.00			0.98	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3072	1441	1770	3539			5004	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3072	1441	1770	3539			5004	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	359	160	533	67	473	0	0	384	46
RTOR Reduction (vph)	0	0	0	0	182	181	0	0	0	0	20	0
Lane Group Flow (vph)	0	0	0	359	245	85	67	473	0	0	410	0
Turn Type				Split	NA	Prot	Prot	NA			NA	
Protected Phases				8	8	8	5	2			6	
Permitted Phases												
Actuated Green, G (s)				24.0	24.0	24.0	9.0	43.0			30.0	
Effective Green, g (s)				24.0	24.0	24.0	9.0	43.0			30.0	
Actuated g/C Ratio				0.32	0.32	0.32	0.12	0.57			0.40	
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)				566	983	461	212	2029			2001	
v/s Ratio Prot				c0.20	0.08	0.06	c0.04	c0.13			0.08	
v/s Ratio Perm												
v/c Ratio				0.63	0.25	0.18	0.32	0.23			0.20	
Uniform Delay, d1				21.8	18.8	18.4	30.2	7.9			14.7	
Progression Factor				1.00	1.00	1.00	0.84	0.15			1.00	
Incremental Delay, d2				5.3	0.6	0.9	2.6	0.2			0.2	
Delay (s)				27.1	19.5	19.3	27.9	1.4			14.9	
Level of Service				C	B	B	C	A			B	
Approach Delay (s)		0.0			22.0			4.7			14.9	
Approach LOS		A			C			A			B	

Intersection Summary

HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

12: Broadway & 11th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑					↑↑		↑	↑↑	
Volume (vph)	84	632	133	0	0	0	0	418	80	105	552	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0					4.0		4.0	4.0	
Lane Util. Factor		0.91	1.00					0.95		1.00	0.95	
Frt		1.00	0.85					0.98		1.00	1.00	
Flt Protected		0.99	1.00					1.00		0.95	1.00	
Satd. Flow (prot)		5056	1583					3454		1770	3539	
Flt Permitted		0.99	1.00					1.00		0.34	1.00	
Satd. Flow (perm)		5056	1583					3454		626	3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	84	632	133	0	0	0	0	418	80	105	552	0
RTOR Reduction (vph)	0	0	89	0	0	0	0	27	0	0	0	0
Lane Group Flow (vph)	0	716	44	0	0	0	0	471	0	105	552	0
Turn Type	Split	NA	Perm					NA		pm+pt	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4							6		
Actuated Green, G (s)		20.0	20.0					20.0		32.0	32.0	
Effective Green, g (s)		20.0	20.0					20.0		32.0	32.0	
Actuated g/C Ratio		0.33	0.33					0.33		0.53	0.53	
Clearance Time (s)		4.0	4.0					4.0		4.0	4.0	
Lane Grp Cap (vph)		1685	527					1151		486	1887	
v/s Ratio Prot		c0.14						c0.14		0.03	c0.16	
v/s Ratio Perm			0.03							0.09		
v/c Ratio		0.42	0.08					0.41		0.22	0.29	
Uniform Delay, d1		15.5	13.7					15.4		7.4	7.7	
Progression Factor		1.00	1.00					1.00		0.78	0.68	
Incremental Delay, d2		0.8	0.3					1.1		1.0	0.4	
Delay (s)		16.3	14.0					16.5		6.7	5.7	
Level of Service		B	B					B		A	A	
Approach Delay (s)		16.0			0.0			16.5			5.8	
Approach LOS		B			A			B			A	

Intersection Summary		
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.41	B
Actuated Cycle Length (s)	60.0	Sum of lost time (s)
Intersection Capacity Utilization	47.2%	12.0
Analysis Period (min)	15	ICU Level of Service
		A

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: Broadway & 12th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕		↕	↕↕			↕↕↕	
Volume (vph)	0	0	0	153	500	106	95	372	0	0	486	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0		4.0	4.0			4.0	
Lane Util. Factor					0.95		1.00	0.95			0.91	
Flt					0.98		1.00	1.00			0.99	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					3430		1770	3539			5025	
Flt Permitted					0.99		0.36	1.00			1.00	
Satd. Flow (perm)					3430		664	3539			5025	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	153	500	106	95	372	0	0	486	42
RTOR Reduction (vph)	0	0	0	0	22	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	0	0	0	737	0	95	372	0	0	511	0
Turn Type				Split	NA		pm+pt	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases							2					
Actuated Green, G (s)					20.0		32.0	32.0			20.0	
Effective Green, g (s)					20.0		32.0	32.0			20.0	
Actuated g/C Ratio					0.33		0.53	0.53			0.33	
Clearance Time (s)					4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)					1143		501	1887			1675	
v/s Ratio Prot					c0.21		0.03	c0.11			c0.10	
v/s Ratio Perm							0.08					
v/c Ratio					0.64		0.19	0.20			0.31	
Uniform Delay, d1					17.0		7.1	7.3			14.8	
Progression Factor					1.00		0.67	0.63			1.91	
Incremental Delay, d2					2.8		0.8	0.2			0.4	
Delay (s)					19.8		5.5	4.8			28.8	
Level of Service					B		A	A			C	
Approach Delay (s)		0.0			19.8			5.0			28.8	
Approach LOS		A			B			A			C	

Intersection Summary

HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: Broadway & 14th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↑			↑↑	
Volume (vph)	3	278	87	1	327	111	0	365	26	0	650	95
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			0.95			0.95			0.95	
Frt		0.96			0.96			0.99			0.98	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		3412			3405			3504			3472	
Flt Permitted		0.95			0.95			1.00			1.00	
Satd. Flow (perm)		3252			3250			3504			3472	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	278	87	1	327	111	0	365	26	0	650	95
RTOR Reduction (vph)	0	48	0	0	56	0	0	9	0	0	19	0
Lane Group Flow (vph)	0	320	0	0	383	0	0	382	0	0	726	0
Turn Type	Perm	NA		Perm	NA			NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8								
Actuated Green, G (s)		27.0			27.0			25.0			25.0	
Effective Green, g (s)		27.0			27.0			25.0			25.0	
Actuated g/C Ratio		0.45			0.45			0.42			0.42	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		1463			1462			1460			1446	
v/s Ratio Prot								0.11			c0.21	
v/s Ratio Perm		0.10			c0.12							
v/c Ratio		0.22			0.26			0.26			0.50	
Uniform Delay, d1		10.1			10.3			11.5			12.9	
Progression Factor		1.00			1.00			1.76			1.00	
Incremental Delay, d2		0.3			0.4			0.4			1.2	
Delay (s)		10.4			10.7			20.5			14.2	
Level of Service		B			B			C			B	
Approach Delay (s)		10.4			10.7			20.5			14.2	
Approach LOS		B			B			C			B	

Intersection Summary

















HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

15: Franklin Street & 2nd Street

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	26	15	5	21	0	0	0	0	14	19	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	26	15	5	21	0	0	0	0	14	19	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					384							
pX, platoon unblocked												
vC, conflicting volume	21			41			86	64	34	64	72	21
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	21			41			86	64	34	64	72	21
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	98	98	99
cM capacity (veh/h)	1595			1568			872	824	1040	927	816	1056
Direction, Lane #	EB 1	WB 1	SB 1	SB 2								
Volume Total	41	26	24	22								
Volume Left	0	5	14	0								
Volume Right	15	0	0	12								
cSH	1700	1568	879	935								
Volume to Capacity	0.02	0.00	0.03	0.02								
Queue Length 95th (ft)	0	0	2	2								
Control Delay (s)	0.0	1.4	9.2	8.9								
Lane LOS		A	A	A								
Approach Delay (s)	0.0	1.4	9.1									
Approach LOS			A									
Intersection Summary												
Average Delay			4.0									
Intersection Capacity Utilization			15.4%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

16: Franklin Street & 3rd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔	
Volume (veh/h)	0	27	13	20	30	0	0	0	0	7	3	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	27	13	20	30	0	0	0	0	7	3	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		367			383							
pX, platoon unblocked												
vC, conflicting volume	30			40			107	104	34	104	110	30
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	30			40			107	104	34	104	110	30
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	99	100	100
cM capacity (veh/h)	1583			1570			859	777	1040	868	770	1044

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	40	50	8	4
Volume Left	0	20	7	0
Volume Right	13	0	0	2
cSH	1700	1570	849	906
Volume to Capacity	0.02	0.01	0.01	0.00
Queue Length 95th (ft)	0	1	1	0
Control Delay (s)	0.0	3.0	9.3	9.0
Lane LOS		A	A	A
Approach Delay (s)	0.0	3.0	9.2	
Approach LOS			A	

Intersection Summary			
Average Delay		2.5	
Intersection Capacity Utilization	19.4%		ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis

17: Webster Street & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	64	184	157	52	77	101
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	64	184	157	52	77	101
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	385					
pX, platoon unblocked						
vC, conflicting volume	0		268	128	312	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		268	128	312	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	96		71	93	87	91
cM capacity (veh/h)	1623		542	732	579	1085

Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2
Volume Total	64	184	209	77	101
Volume Left	64	0	157	0	0
Volume Right	0	184	0	0	101
cSH	1623	1700	579	579	1085
Volume to Capacity	0.04	0.11	0.36	0.13	0.09
Queue Length 95th (ft)	3	0	41	11	8
Control Delay (s)	7.3	0.0	14.7	12.2	8.7
Lane LOS	A		B	B	A
Approach Delay (s)	1.9		14.7	10.2	
Approach LOS			B	B	

Intersection Summary					
Average Delay			8.4		
Intersection Capacity Utilization	28.3%		ICU Level of Service	A	
Analysis Period (min)	15				

HCM Signalized Intersection Capacity Analysis

18: Harrison Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑↑↑	↑↑			
Volume (vph)	165	691	0	0	0	0	0	616	1386	0	0	0
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			
Lane Util. Factor		0.91						0.91	0.88			
Frt		1.00						1.00	0.85			
Flt Protected		0.99						1.00	1.00			
Satd. Flow (prot)		5037						5085	2787			
Flt Permitted		0.99						1.00	1.00			
Satd. Flow (perm)		5037						5085	2787			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	165	691	0	0	0	0	0	616	1386	0	0	0
RTOR Reduction (vph)	0	88	0	0	0	0	0	0	77	0	0	0
Lane Group Flow (vph)	0	768	0	0	0	0	0	616	1309	0	0	0
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Actuated Green, G (s)		16.0						21.0	21.0			
Effective Green, g (s)		16.0						21.0	21.0			
Actuated g/C Ratio		0.36						0.47	0.47			
Clearance Time (s)		4.0						4.0	4.0			
Lane Grp Cap (vph)		1790						2373	1300			
v/s Ratio Prot								0.12				
v/s Ratio Perm		0.15							c0.47			
v/c Ratio		0.43						0.26	1.01			
Uniform Delay, d1		11.0						7.3	12.0			
Progression Factor		1.00						1.00	1.00			
Incremental Delay, d2		0.8						0.3	26.6			
Delay (s)		11.8						7.5	38.6			
Level of Service		B						A	D			
Approach Delay (s)		11.8			0.0			29.0			0.0	
Approach LOS		B			A			C			A	

Intersection Summary

HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	94.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

19: Jackson Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔						↔		↔↕	↕	
Volume (vph)	311	438	514	0	0	0	0	236	41	66	99	0
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		0.91						1.00		1.00	1.00	
Frt		0.94						0.98		1.00	1.00	
Flt Protected		0.99						1.00		0.95	1.00	
Satd. Flow (prot)		4717						1826		1770	1863	
Flt Permitted		0.99						1.00		0.59	1.00	
Satd. Flow (perm)		4717						1826		1098	1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	311	438	514	0	0	0	0	236	41	66	99	0
RTOR Reduction (vph)	0	276	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	0	987	0	0	0	0	0	263	0	66	99	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		13.0						24.0		24.0	24.0	
Effective Green, g (s)		13.0						24.0		24.0	24.0	
Actuated g/C Ratio		0.29						0.53		0.53	0.53	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		1362						973		585	993	
v/s Ratio Prot								c0.14			0.05	
v/s Ratio Perm		0.21								0.06		
v/c Ratio		0.72						0.27		0.11	0.10	
Uniform Delay, d1		14.4						5.7		5.2	5.2	
Progression Factor		1.00						1.00		0.28	0.28	
Incremental Delay, d2		3.4						0.7		0.4	0.2	
Delay (s)		17.8						6.4		1.9	1.7	
Level of Service		B						A		A	A	
Approach Delay (s)		17.8			0.0			6.4			1.7	
Approach LOS		B			A			A			A	

Intersection Summary

HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

20: Jackson Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↗	↖	↖	↗			↗	↖
Volume (vph)	0	0	0	2	311	56	298	281	0	0	206	1408
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1770	1863	1583	1770	1863			1863	1583
Flt Permitted				0.95	1.00	1.00	0.63	1.00			1.00	1.00
Satd. Flow (perm)				1770	1863	1583	1171	1863			1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	2	311	56	298	281	0	0	206	1408
RTOR Reduction (vph)	0	0	0	0	0	42	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	2	311	14	298	281	0	0	206	1408
Turn Type				Split	NA	Perm	Perm	NA			NA	Free
Protected Phases				8	8			2			6	
Permitted Phases						8	2					Free
Actuated Green, G (s)				11.0	11.0	11.0	26.0	26.0			26.0	45.0
Effective Green, g (s)				11.0	11.0	11.0	26.0	26.0			26.0	45.0
Actuated g/C Ratio				0.24	0.24	0.24	0.58	0.58			0.58	1.00
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)				432	455	386	676	1076			1076	1583
v/s Ratio Prot				0.00	0.17			0.15			0.11	
v/s Ratio Perm						0.01	0.25					c0.89
v/c Ratio				0.00	0.68	0.04	0.44	0.26			0.19	0.89
Uniform Delay, d1				12.9	15.4	13.0	5.4	4.7			4.5	0.0
Progression Factor				0.71	0.70	0.74	1.04	0.98			1.69	1.00
Incremental Delay, d2				0.0	7.9	0.2	1.8	0.5			0.3	5.9
Delay (s)				9.2	18.7	9.7	7.4	5.1			7.9	5.9
Level of Service				A	B	A	A	A			A	A
Approach Delay (s)		0.0			17.3			6.3			6.2	
Approach LOS		A			B			A			A	

Intersection Summary

HCM 2000 Control Delay	7.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

21: Jackson Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔↔	↔					↔			↔	
Volume (vph)	38	529	1338	0	0	0	0	354	90	28	356	0
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		0.86	0.86					1.00			1.00	
Frt		0.92	0.85					0.97			1.00	
Flt Protected		1.00	1.00					1.00			1.00	
Satd. Flow (prot)		4409	1362					1812			1856	
Flt Permitted		1.00	1.00					1.00			0.95	
Satd. Flow (perm)		4409	1362					1812			1773	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	38	529	1338	0	0	0	0	354	90	28	356	0
RTOR Reduction (vph)	0	158	158	0	0	0	0	21	0	0	0	0
Lane Group Flow (vph)	0	1078	511	0	0	0	0	423	0	0	384	0
Turn Type	Split	NA	Perm					NA		Perm	NA	
Protected Phases	4	4						2			6	
Permitted Phases			4							6		
Actuated Green, G (s)		21.0	21.0					16.0			16.0	
Effective Green, g (s)		21.0	21.0					16.0			16.0	
Actuated g/C Ratio		0.47	0.47					0.36			0.36	
Clearance Time (s)		4.0	4.0					4.0			4.0	
Lane Grp Cap (vph)		2057	635					644			630	
v/s Ratio Prot		0.24						c0.23				
v/s Ratio Perm			c0.37								0.22	
v/c Ratio		0.52	0.80					0.66			0.61	
Uniform Delay, d1		8.5	10.2					12.2			11.9	
Progression Factor		1.00	1.00					0.66			1.00	
Incremental Delay, d2		1.0	10.4					5.1			4.4	
Delay (s)		9.4	20.7					13.2			16.3	
Level of Service		A	C					B			B	
Approach Delay (s)		13.4			0.0			13.2			16.3	
Approach LOS		B			A			B			B	

Intersection Summary

HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

22: Madison Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑								↘	↙↑	
Volume (vph)	0	547	22	0	0	0	0	0	0	589	149	0
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	
Lane Util. Factor		0.91								0.91	0.91	
Frt		0.99								1.00	1.00	
Flt Protected		1.00								0.95	0.97	
Satd. Flow (prot)		5056								1610	3281	
Flt Permitted		1.00								0.95	0.97	
Satd. Flow (perm)		5056								1610	3281	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	547	22	0	0	0	0	0	0	589	149	0
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	0	71	71	0
Lane Group Flow (vph)	0	560	0	0	0	0	0	0	0	223	373	0
Turn Type		NA								Perm	NA	
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0								22.0	22.0	
Effective Green, g (s)		16.0								22.0	22.0	
Actuated g/C Ratio		0.35								0.48	0.48	
Clearance Time (s)		4.0								4.0	4.0	
Lane Grp Cap (vph)		1758								770	1569	
v/s Ratio Prot		c0.11										
v/s Ratio Perm										c0.14	0.11	
v/c Ratio		0.32								0.29	0.24	
Uniform Delay, d1		11.0								7.3	7.1	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.5								0.9	0.4	
Delay (s)		11.5								8.2	7.4	
Level of Service		B								A	A	
Approach Delay (s)		11.5			0.0			0.0			7.7	
Approach LOS		B			A			A			A	

Intersection Summary

HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	46.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	31.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

23: Madison Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑						↑↑↑	
Volume (vph)	0	0	0	34	180	0	0	0	0	0	753	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0						4.0	
Lane Util. Factor					0.91						0.91	
Frt					1.00						0.96	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					5045						4899	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					5045						4899	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	34	180	0	0	0	0	0	753	244
RTOR Reduction (vph)	0	0	0	0	23	0	0	0	0	0	125	0
Lane Group Flow (vph)	0	0	0	0	191	0	0	0	0	0	872	0
Turn Type				Split	NA						NA	
Protected Phases				8	8						6	
Permitted Phases												
Actuated Green, G (s)					15.0						22.0	
Effective Green, g (s)					15.0						22.0	
Actuated g/C Ratio					0.33						0.49	
Clearance Time (s)					4.0						4.0	
Lane Grp Cap (vph)					1681						2395	
v/s Ratio Prot					c0.04						c0.18	
v/s Ratio Perm												
v/c Ratio					0.11						0.36	
Uniform Delay, d1					10.4						7.2	
Progression Factor					1.00						0.57	
Incremental Delay, d2					0.1						0.4	
Delay (s)					10.5						4.5	
Level of Service					B						A	
Approach Delay (s)		0.0			10.5			0.0			4.5	
Approach LOS		A			B			A			A	

Intersection Summary

HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	31.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

24: Madison Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑									↑↑↑	
Volume (vph)	0	435	254	0	0	0	0	0	0	142	722	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									4.0	
Lane Util. Factor		0.86									0.91	
Frt		0.94									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		6054									5044	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		6054									5044	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	435	254	0	0	0	0	0	0	142	722	0
RTOR Reduction (vph)	0	92	0	0	0	0	0	0	0	0	65	0
Lane Group Flow (vph)	0	597	0	0	0	0	0	0	0	0	799	0
Turn Type		NA								Perm		NA
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0									21.0	
Effective Green, g (s)		16.0									21.0	
Actuated g/C Ratio		0.36									0.47	
Clearance Time (s)		4.0									4.0	
Lane Grp Cap (vph)		2152									2353	
v/s Ratio Prot		c0.10										
v/s Ratio Perm											0.16	
v/c Ratio		0.28									0.34	
Uniform Delay, d1		10.4									7.6	
Progression Factor		0.61									1.00	
Incremental Delay, d2		0.3									0.4	
Delay (s)		6.6									8.0	
Level of Service		A									A	
Approach Delay (s)		6.6			0.0			0.0			8.0	
Approach LOS		A			A			A			A	

Intersection Summary





















HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

25: Oak Street & 1st Street / Embarcadero

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Volume (veh/h)	139	0	75	2	0	0	396	579	0	0	325	201
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	139	0	75	2	0	0	396	579	0	0	325	201
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											563	
pX, platoon unblocked												
vC, conflicting volume	1507	1796	263	1608	1897	290	526			579		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1507	1796	263	1608	1897	290	526			579		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	90	95	100	100	62			100		
cM capacity (veh/h)	58	49	735	44	42	707	1037			991		
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2					
Volume Total	139	75	396	290	290	217	309					
Volume Left	139	0	396	0	0	0	0					
Volume Right	0	75	0	0	0	0	201					
cSH	58	735	1037	1700	1700	1700	1700					
Volume to Capacity	2.38	0.10	0.38	0.17	0.17	0.13	0.18					
Queue Length 95th (ft)	346	8	45	0	0	0	0					
Control Delay (s)	778.4	10.4	10.6	0.0	0.0	0.0	0.0					
Lane LOS	F	B	B									
Approach Delay (s)	509.2		4.3			0.0						
Approach LOS	F											
Intersection Summary												
Average Delay			Err									
Intersection Capacity Utilization			Err%		ICU Level of Service				H			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

26: Oak Street & 3rd Street

7/24/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	63	94	153	762	596	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.92		1.00	1.00	1.00	0.85
Flt Protected	0.98		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1679		1770	1863	1863	1583
Flt Permitted	0.98		0.22	1.00	1.00	1.00
Satd. Flow (perm)	1679		414	1863	1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	63	94	153	762	596	106
RTOR Reduction (vph)	54	0	0	0	0	64
Lane Group Flow (vph)	103	0	153	762	596	42
Turn Type	NA		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Actuated Green, G (s)	19.0		18.0	18.0	18.0	18.0
Effective Green, g (s)	19.0		18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.42		0.40	0.40	0.40	0.40
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	708		165	745	745	633
v/s Ratio Prot	c0.06			c0.41	0.32	
v/s Ratio Perm			0.37			0.03
v/c Ratio	0.15		0.93	1.02	0.80	0.07
Uniform Delay, d1	8.0		12.9	13.5	11.9	8.3
Progression Factor	1.00		1.00	1.00	0.85	1.21
Incremental Delay, d2	0.4		53.1	38.9	8.6	0.2
Delay (s)	8.4		65.9	52.4	18.8	10.3
Level of Service	A		E	D	B	B
Approach Delay (s)	8.4			54.6	17.5	
Approach LOS	A			D	B	

Intersection Summary

HCM 2000 Control Delay	35.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

27: Oak Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔						↕↔↔			↕↔	
Volume (vph)	269	682	155	0	0	0	0	608	233	3	259	0
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	
Lane Util. Factor		0.91						0.95			1.00	
Frt		0.98						0.96			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4919						3392			1862	
Flt Permitted		0.99						1.00			0.99	
Satd. Flow (perm)		4919						3392			1845	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	269	682	155	0	0	0	0	608	233	3	259	0
RTOR Reduction (vph)	0	50	0	0	0	0	0	89	0	0	0	0
Lane Group Flow (vph)	0	1056	0	0	0	0	0	752	0	0	262	0
Turn Type	Split	NA						NA		Perm		NA
Protected Phases	4	4						2				6
Permitted Phases										6		
Actuated Green, G (s)		22.0						15.0			15.0	
Effective Green, g (s)		22.0						15.0			15.0	
Actuated g/C Ratio		0.49						0.33			0.33	
Clearance Time (s)		4.0						4.0			4.0	
Lane Grp Cap (vph)		2404						1130			615	
v/s Ratio Prot		c0.21						c0.22				
v/s Ratio Perm											0.14	
v/c Ratio		0.44						0.67			0.43	
Uniform Delay, d1		7.5						12.9			11.7	
Progression Factor		1.00						1.83			1.20	
Incremental Delay, d2		0.6						1.1			2.1	
Delay (s)		8.1						24.5			16.1	
Level of Service		A						C			B	
Approach Delay (s)		8.1			0.0			24.5			16.1	
Approach LOS		A			A			C			B	

Intersection Summary

HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: Oak Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔	↔		↔				
Volume (vph)	0	0	0	179	61	527	150	482	0	0	0	0
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				
Lane Util. Factor					0.91	0.91		0.95				
Frt					0.92	0.85		1.00				
Flt Protected					0.98	1.00		0.99				
Satd. Flow (prot)					3069	1441		3498				
Flt Permitted					0.98	1.00		0.99				
Satd. Flow (perm)					3069	1441		3498				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	179	61	527	150	482	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	83	83	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	421	180	0	632	0	0	0	0
Turn Type				Split	NA	Perm	Split	NA				
Protected Phases				8	8		2	2				
Permitted Phases						8						
Actuated Green, G (s)					22.0	22.0		15.0				
Effective Green, g (s)					22.0	22.0		15.0				
Actuated g/C Ratio					0.49	0.49		0.33				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					1500	704		1166				
v/s Ratio Prot					c0.14			c0.18				
v/s Ratio Perm						0.12						
v/c Ratio					0.28	0.26		0.54				
Uniform Delay, d1					6.8	6.7		12.2				
Progression Factor					1.00	1.00		0.80				
Incremental Delay, d2					0.5	0.9		1.4				
Delay (s)					7.3	7.6		11.2				
Level of Service					A	A		B				
Approach Delay (s)		0.0			7.4			11.2			0.0	
Approach LOS		A			A			B			A	

Intersection Summary

HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: Oak Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4111						↑↑↑				
Volume (vph)	108	416	0	0	0	0	0	941	93	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.86						0.91				
Frt		1.00						0.99				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6342						5017				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6342						5017				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	108	416	0	0	0	0	0	941	93	0	0	0
RTOR Reduction (vph)	0	27	0	0	0	0	0	26	0	0	0	0
Lane Group Flow (vph)	0	497	0	0	0	0	0	1008	0	0	0	0
Turn Type	Perm	NA						NA				
Protected Phases		4						2				
Permitted Phases	4											
Actuated Green, G (s)		19.0						18.0				
Effective Green, g (s)		19.0						18.0				
Actuated g/C Ratio		0.42						0.40				
Clearance Time (s)		4.0						4.0				
Lane Grp Cap (vph)		2677						2006				
v/s Ratio Prot								c0.20				
v/s Ratio Perm		0.08										
v/c Ratio		0.19						0.50				
Uniform Delay, d1		8.2						10.1				
Progression Factor		1.03						0.84				
Incremental Delay, d2		0.1						0.8				
Delay (s)		8.6						9.3				
Level of Service		A						A				
Approach Delay (s)		8.6				0.0		9.3			0.0	
Approach LOS		A				A		A			A	


















Intersection Summary

HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 30: 5th Avenue & 1st Street / Embarcadero

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	70	426	19	20	664	436	75	45	56	390	16	137
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	70	426	19	20	664	436	75	45	56	390	16	137
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1							
Volume Total (vph)	515	684	436	176	543							
Volume Left (vph)	70	20	0	75	390							
Volume Right (vph)	19	0	436	56	137							
Hadj (s)	0.04	0.05	-0.67	-0.07	0.03							
Departure Headway (s)	8.3	8.6	7.9	9.5	8.2							
Degree Utilization, x	1.19	1.63	0.95	0.46	1.23							
Capacity (veh/h)	439	423	452	367	436							
Control Delay (s)	131.9	315.9	58.6	20.3	149.4							
Approach Delay (s)	131.9	215.7		20.3	149.4							
Approach LOS	F	F		C	F							
Intersection Summary												
Delay			167.5									
Level of Service			F									
Intersection Capacity Utilization			111.0%	ICU Level of Service	H							
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

31: Webster Street & Atlantic Avenue

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	269	193	68	38	334	106	77	866	37	58	627	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3411		1770	3518		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3411		1770	3518		1770	3539	1583
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)	292	210	74	41	363	115	84	941	40	63	682	374
RTOR Reduction (vph)	0	0	50	0	31	0	0	3	0	0	0	315
Lane Group Flow (vph)	292	210	24	41	447	0	84	978	0	63	682	59
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	Over
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									
Actuated Green, G (s)	12.3	25.6	25.6	4.6	17.9		7.3	25.4		6.8	24.9	12.3
Effective Green, g (s)	12.3	25.6	25.6	4.6	17.9		7.3	25.4		6.8	24.9	12.3
Actuated g/C Ratio	0.16	0.33	0.33	0.06	0.23		0.09	0.32		0.09	0.32	0.16
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	538	1155	516	103	778		164	1139		153	1123	248
v/s Ratio Prot	c0.09	0.06		0.02	c0.13		c0.05	c0.28		0.04	0.19	0.04
v/s Ratio Perm			0.02									
v/c Ratio	0.54	0.18	0.05	0.40	0.57		0.51	0.86		0.41	0.61	0.24
Uniform Delay, d1	30.5	18.9	18.1	35.6	26.9		33.9	24.8		33.9	22.6	28.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.1	0.1	0.0	2.5	1.0		2.7	8.5		1.8	2.4	0.5
Delay (s)	31.6	19.0	18.1	38.1	27.9		36.5	33.3		35.7	25.1	29.4
Level of Service	C	B	B	D	C		D	C		D	C	C
Approach Delay (s)		25.3			28.7			33.6			27.1	
Approach LOS		C			C			C			C	

Intersection Summary

HCM 2000 Control Delay	29.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	78.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

32: Constitution Way & Atlantic Avenue

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	152	283	124	65	338	162	119	906	47	125	510	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.95		1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3377		1770	3367		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3377		1770	3367		3433	3539	1583	3433	3539	1583
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)	165	308	135	71	367	176	129	985	51	136	554	62
RTOR Reduction (vph)	0	46	0	0	59	0	0	0	35	0	0	43
Lane Group Flow (vph)	165	397	0	71	484	0	129	985	16	136	554	19
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	12.9	23.6		7.3	18.0		8.5	24.4	24.4	8.7	24.6	24.6
Effective Green, g (s)	12.9	23.6		7.3	18.0		8.5	24.4	24.4	8.7	24.6	24.6
Actuated g/C Ratio	0.16	0.30		0.09	0.22		0.11	0.30	0.30	0.11	0.31	0.31
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	285	996		161	757		364	1079	482	373	1088	486
v/s Ratio Prot	c0.09	0.12		0.04	c0.14		0.04	c0.28		c0.04	0.16	
v/s Ratio Perm									0.01			0.01
v/c Ratio	0.58	0.40		0.44	0.64		0.35	0.91	0.03	0.36	0.51	0.04
Uniform Delay, d1	31.0	22.5		34.4	28.1		33.2	26.8	19.5	33.1	22.7	19.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.8	0.3		1.9	1.8		0.6	13.1	0.1	0.6	1.7	0.2
Delay (s)	33.9	22.8		36.3	29.8		33.8	39.9	19.6	33.7	24.4	19.6
Level of Service	C	C		D	C		C	D	B	C	C	B
Approach Delay (s)		25.8			30.6			38.3			25.7	
Approach LOS		C			C			D			C	

Intersection Summary

HCM 2000 Control Delay	31.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			


















Level Of Service Computation Report

Cumulative plus Project (Maximum Commercial Scenario) Conditions
PM Peak Hour

HCM Unsignalized Intersection Capacity Analysis

1: Market Street & 3rd Street

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	53	277	22	16	165	115	53	154	33	49	59	40
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	53	277	22	16	165	115	53	154	33	49	59	40
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	280			299			578	706	150	609	660	140
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	280			299			578	706	150	609	660	140
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			99			83	55	96	78	84	95
cM capacity (veh/h)	1280			1259			320	340	870	226	361	882
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2	SB 3				
Volume Total	192	160	98	198	240	49	39	60				
Volume Left	53	0	16	0	53	49	0	0				
Volume Right	0	22	0	115	33	0	0	40				
cSH	1280	1700	1259	1700	365	226	361	598				
Volume to Capacity	0.04	0.09	0.01	0.12	0.66	0.22	0.11	0.10				
Queue Length 95th (ft)	3	0	1	0	112	20	9	8				
Control Delay (s)	2.5	0.0	1.4	0.0	31.8	25.2	16.2	11.7				
Lane LOS	A		A		D	D	C	B				
Approach Delay (s)	1.3		0.5		31.8	17.4						
Approach LOS					D	C						
Intersection Summary												
Average Delay			10.4									
Intersection Capacity Utilization			48.3%		ICU Level of Service			A				
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

2: Market Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑↑		↘	↑↑↑	
Volume (vph)	6	496	22	0	0	0	0	297	35	105	108	0
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		0.91						0.95		1.00	0.91	
Frt		0.99						0.98		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		5050						3483		1770	5085	
Flt Permitted		1.00						1.00		0.52	1.00	
Satd. Flow (perm)		5050						3483		964	5085	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	6	496	22	0	0	0	0	297	35	105	108	0
RTOR Reduction (vph)	0	6	0	0	0	0	0	12	0	0	0	0
Lane Group Flow (vph)	0	518	0	0	0	0	0	320	0	105	108	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		43.0						24.0		24.0	24.0	
Effective Green, g (s)		43.0						24.0		24.0	24.0	
Actuated g/C Ratio		0.57						0.32		0.32	0.32	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		2895						1114		308	1627	
v/s Ratio Prot								0.09			0.02	
v/s Ratio Perm		0.10								c0.11		
v/c Ratio		0.18						0.29		0.34	0.07	
Uniform Delay, d1		7.6						19.1		19.5	17.7	
Progression Factor		1.00						1.00		1.00	1.00	
Incremental Delay, d2		0.1						0.6		3.0	0.1	
Delay (s)		7.7						19.7		22.5	17.8	
Level of Service		A						B		C	B	
Approach Delay (s)		7.7			0.0			19.7			20.1	
Approach LOS		A			A			B			C	

Intersection Summary

HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	35.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations					↑↑	↑		↓	↑↑			↑↑↓
Volume (vph)	0	0	0	32	156	293	17	45	265	0	0	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0	4.0			4.0
Lane Util. Factor					0.95	1.00		1.00	0.95			0.91
Frt					1.00	0.85		1.00	1.00			0.97
Flt Protected					0.99	1.00		0.95	1.00			1.00
Satd. Flow (prot)					3509	1583		1770	3539			4956
Flt Permitted					0.99	1.00		0.62	1.00			1.00
Satd. Flow (perm)					3509	1583		1148	3539			4956
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	32	156	293	17	45	265	0	0	172
RTOR Reduction (vph)	0	0	0	0	0	111	0	0	0	0	0	25
Lane Group Flow (vph)	0	0	0	0	188	182	0	62	265	0	0	183
Turn Type				Perm	NA	Perm	Perm	Perm	NA			NA
Protected Phases					8				2			6
Permitted Phases				8		8	2	2				
Actuated Green, G (s)					62.0	62.0		30.0	30.0			30.0
Effective Green, g (s)					62.0	62.0		30.0	30.0			30.0
Actuated g/C Ratio					0.62	0.62		0.30	0.30			0.30
Clearance Time (s)					4.0	4.0		4.0	4.0			4.0
Lane Grp Cap (vph)					2175	981		344	1061			1486
v/s Ratio Prot									c0.07			0.04
v/s Ratio Perm					0.05	c0.11		0.05				
v/c Ratio					0.09	0.19		0.18	0.25			0.12
Uniform Delay, d1					7.6	8.2		25.9	26.5			25.4
Progression Factor					1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2					0.1	0.4		1.1	0.6			0.2
Delay (s)					7.7	8.6		27.0	27.0			25.6
Level of Service					A	A		C	C			C
Approach Delay (s)		0.0			8.2				27.0			25.6
Approach LOS		A			A				C			C

Intersection Summary

HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	35.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

7/24/2013



Movement	SBR
Line Configurations	
Volume (vph)	35
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Fr	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	35
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

4: Market Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖↖		↖	↖↖↖		↖	↖↖		↖	↖↖↖	
Volume (vph)	132	991	89	44	424	46	242	266	57	66	116	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	0.95		1.00	0.91	
Frt	1.00	0.99		1.00	0.99		1.00	0.97		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	5022		1770	5011		1770	3446		1770	4788	
Flt Permitted	0.43	1.00		0.18	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	795	5022		339	5011		1770	3446		1770	4788	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	132	991	89	44	424	46	242	266	57	66	116	74
RTOR Reduction (vph)	0	13	0	0	17	0	0	23	0	0	65	0
Lane Group Flow (vph)	132	1067	0	44	453	0	242	300	0	66	125	0
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		4			8		2	2		6	6	
Permitted Phases	4			8								
Actuated Green, G (s)	22.0	22.0		22.0	22.0		36.0	36.0		10.0	10.0	
Effective Green, g (s)	22.0	22.0		22.0	22.0		36.0	36.0		10.0	10.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.45	0.45		0.12	0.12	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Grp Cap (vph)	218	1381		93	1378		796	1550		221	598	
v/s Ratio Prot		c0.21			0.09		c0.14	0.09		c0.04	0.03	
v/s Ratio Perm	0.17			0.13								
v/c Ratio	0.61	0.77		0.47	0.33		0.30	0.19		0.30	0.21	
Uniform Delay, d1	25.2	26.7		24.2	23.1		14.0	13.3		31.8	31.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.9	4.3		16.3	0.6		1.0	0.3		3.4	0.8	
Delay (s)	37.1	30.9		40.4	23.8		15.0	13.5		35.2	32.2	
Level of Service	D	C		D	C		B	B		D	C	
Approach Delay (s)		31.6			25.2			14.2			33.0	
Approach LOS		C			C			B			C	

Intersection Summary

HCM 2000 Control Delay	26.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: Castro Street & 11th Street

7/24/2013



Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations	↵	↵↑↑↑	↑↑↑		↵↵	
Volume (vph)	194	613	1398	44	76	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	0.81	0.81	0.91		0.97	
Frt	1.00	1.00	1.00		0.95	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1433	6017	5062		3316	
Flt Permitted	0.95	1.00	1.00		0.97	
Satd. Flow (perm)	1433	6017	5062		3316	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	194	613	1398	44	76	41
RTOR Reduction (vph)	112	53	4	0	0	0
Lane Group Flow (vph)	43	599	1438	0	117	0
Turn Type	Split	NA	NA		NA	
Protected Phases	4	4	2		8	
Permitted Phases						
Actuated Green, G (s)	21.0	21.0	21.0		21.0	
Effective Green, g (s)	21.0	21.0	21.0		21.0	
Actuated g/C Ratio	0.28	0.28	0.28		0.28	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Lane Grp Cap (vph)	401	1684	1417		928	
v/s Ratio Prot	0.03	c0.10	c0.28		c0.04	
v/s Ratio Perm						
v/c Ratio	0.11	0.36	1.01		0.13	
Uniform Delay, d1	20.0	21.6	27.0		20.2	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.5	0.6	27.6		0.3	
Delay (s)	20.6	22.2	54.6		20.4	
Level of Service	C	C	D		C	
Approach Delay (s)		21.9	54.6		20.4	
Approach LOS		C	D		C	

Intersection Summary

HCM 2000 Control Delay	41.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

6: Castro Street & 12th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑	↑	↑↑↑↑				
Volume (vph)	0	0	0	0	249	802	36	1783	0	0	0	0
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					0.91	0.91	0.81	0.81				
Frt					0.91	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	1.00				
Satd. Flow (prot)					3076	1441	1433	6035				
Flt Permitted					1.00	1.00	0.95	1.00				
Satd. Flow (perm)					3076	1441	1433	6035				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	249	802	36	1783	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	9	10	14	7	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	641	391	18	1780	0	0	0	0
Turn Type					NA	Perm	Perm	NA				
Protected Phases					8			2				
Permitted Phases						8	2					
Actuated Green, G (s)					25.0	25.0	42.0	42.0				
Effective Green, g (s)					25.0	25.0	42.0	42.0				
Actuated g/C Ratio					0.33	0.33	0.56	0.56				
Clearance Time (s)					4.0	4.0	4.0	4.0				
Lane Grp Cap (vph)					1025	480	802	3379				
v/s Ratio Prot					0.21							
v/s Ratio Perm						c0.27	0.01	0.30				
v/c Ratio					0.63	0.81	0.02	0.53				
Uniform Delay, d1					21.1	22.9	7.4	10.3				
Progression Factor					1.00	1.00	0.02	0.20				
Incremental Delay, d2					2.9	14.1	0.0	0.3				
Delay (s)					23.9	37.0	0.2	2.4				
Level of Service					C	D	A	A				
Approach Delay (s)		0.0			28.9			2.4			0.0	
Approach LOS		A			C			A			A	

Intersection Summary

HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 7: Broadway & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	27	155	87	12	130	101	49	238	17	328	294	85
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	27	155	87	12	130	101	49	238	17	328	294	85

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	269	243	168	136	475	232
Volume Left (vph)	27	12	49	0	328	0
Volume Right (vph)	87	101	0	17	0	85
Hadj (s)	-0.14	-0.21	0.18	-0.05	0.38	-0.22
Departure Headway (s)	7.2	7.3	8.0	7.8	7.5	6.9
Degree Utilization, x	0.54	0.49	0.37	0.29	0.99	0.44
Capacity (veh/h)	476	477	427	449	471	515
Control Delay (s)	18.4	17.1	14.5	12.8	65.0	14.1
Approach Delay (s)	18.4	17.1	13.7		48.3	
Approach LOS	C	C	B		E	

Intersection Summary	
Delay	31.1
Level of Service	D
Intersection Capacity Utilization	62.4%
ICU Level of Service	B
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

8: Broadway & 2nd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	26	20	10	13	20	49	59	728	161	135	610	84
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	26	20	10	13	20	49	59	728	161	135	610	84
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											288	
pX, platoon unblocked	0.94	0.94	0.94	0.94	0.94		0.94					
vC, conflicting volume	1463	1929	347	1522	1890	444	694			889		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1367	1862	182	1430	1821	444	551			889		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	52	62	99	75	64	91	94			82		
cM capacity (veh/h)	55	52	781	52	56	561	956			758		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	56	82	423	525	440	389
Volume Left	26	13	59	0	135	0
Volume Right	10	49	0	161	0	84
cSH	64	118	956	1700	758	1700
Volume to Capacity	0.87	0.70	0.06	0.31	0.18	0.23
Queue Length 95th (ft)	102	94	5	0	16	0
Control Delay (s)	182.5	86.9	1.9	0.0	4.9	0.0
Lane LOS	F	F	A		A	
Approach Delay (s)	182.5	86.9	0.8		2.6	
Approach LOS	F	F				

Intersection Summary		
Average Delay		10.6
Intersection Capacity Utilization	67.7%	ICU Level of Service
Analysis Period (min)		15
		C

HCM Signalized Intersection Capacity Analysis

9: Broadway & 3rd Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	106	133	28	10	118	117	77	464	18	106	554	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.99			0.94			1.00			0.97	
Flt Protected		0.98			1.00			0.99			0.99	
Satd. Flow (prot)		1801			1739			3498			3413	
Flt Permitted		0.79			0.99			0.78			0.81	
Satd. Flow (perm)		1456			1717			2753			2793	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	106	133	28	10	118	117	77	464	18	106	554	162
RTOR Reduction (vph)	0	7	0	0	60	0	0	4	0	0	39	0
Lane Group Flow (vph)	0	260	0	0	185	0	0	555	0	0	783	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		18.0			18.0			29.0			29.0	
Effective Green, g (s)		18.0			18.0			29.0			29.0	
Actuated g/C Ratio		0.33			0.33			0.53			0.53	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		476			561			1451			1472	
v/s Ratio Prot												
v/s Ratio Perm		c0.18			0.11			0.20			c0.28	
v/c Ratio		0.55			0.33			0.38			0.53	
Uniform Delay, d1		15.1			14.0			7.7			8.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		4.4			1.6			0.8			1.4	
Delay (s)		19.6			15.5			8.5			9.9	
Level of Service		B			B			A			A	
Approach Delay (s)		19.6			15.5			8.5			9.9	
Approach LOS		B			B			A			A	

Intersection Summary

HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

10: Broadway & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1162	339	84	0	0	0	0	479	582	879	477	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Util. Factor	0.91	0.91	1.00					0.95	1.00	0.97	1.00	
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3286	1583					3539	1583	3433	1863	
Flt Permitted	0.95	0.97	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1610	3286	1583					3539	1583	3433	1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1162	339	84	0	0	0	0	479	582	879	477	0
RTOR Reduction (vph)	0	0	60	0	0	0	0	0	86	0	0	0
Lane Group Flow (vph)	581	920	24	0	0	0	0	479	496	879	477	0
Turn Type	Split	NA	Prot					NA	Prot	Split	NA	
Protected Phases	4	4	4					2	2	6	6	
Permitted Phases												
Actuated Green, G (s)	21.0	21.0	21.0					21.0	21.0	21.0	21.0	
Effective Green, g (s)	21.0	21.0	21.0					21.0	21.0	21.0	21.0	
Actuated g/C Ratio	0.28	0.28	0.28					0.28	0.28	0.28	0.28	
Clearance Time (s)	4.0	4.0	4.0					4.0	4.0	4.0	4.0	
Lane Grp Cap (vph)	450	920	443					990	443	961	521	
v/s Ratio Prot	c0.36	0.28	0.01					0.14	c0.31	c0.26	0.26	
v/s Ratio Perm												
v/c Ratio	1.29	1.24dl	0.05					0.48	1.12	0.91	0.92	
Uniform Delay, d1	27.0	27.0	19.7					22.5	27.0	26.1	26.1	
Progression Factor	0.97	0.97	0.92					1.00	1.00	0.85	0.86	
Incremental Delay, d2	146.8	29.7	0.2					1.7	79.8	13.5	21.7	
Delay (s)	173.0	55.8	18.4					24.2	106.8	35.8	44.1	
Level of Service	F	E	B					C	F	D	D	
Approach Delay (s)		96.8			0.0			69.5			38.7	
Approach LOS		F			A			E			D	

Intersection Summary

HCM 2000 Control Delay	69.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	118.3%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

11: Broadway & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↕	↗	↙	↕			↕	↗
Volume (vph)	0	0	0	327	174	791	112	402	0	0	902	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Util. Factor				1.00	0.91	0.91	1.00	0.95			0.91	
Frt				1.00	0.90	0.85	1.00	1.00			0.99	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1770	3037	1441	1770	3539			5052	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1770	3037	1441	1770	3539			5052	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	327	174	791	112	402	0	0	902	41
RTOR Reduction (vph)	0	0	0	0	269	269	0	0	0	0	7	0
Lane Group Flow (vph)	0	0	0	327	301	126	112	402	0	0	936	0
Turn Type				Split	NA	Prot	Prot	NA			NA	
Protected Phases				8	8	8	5	2			6	
Permitted Phases												
Actuated Green, G (s)				24.0	24.0	24.0	9.0	43.0			30.0	
Effective Green, g (s)				24.0	24.0	24.0	9.0	43.0			30.0	
Actuated g/C Ratio				0.32	0.32	0.32	0.12	0.57			0.40	
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)				566	971	461	212	2029			2020	
v/s Ratio Prot				c0.18	0.10	0.09	c0.06	0.11			c0.19	
v/s Ratio Perm												
v/c Ratio				0.58	0.31	0.27	0.53	0.20			0.46	
Uniform Delay, d1				21.3	19.2	19.0	31.0	7.7			16.6	
Progression Factor				1.00	1.00	1.00	0.95	0.10			1.00	
Incremental Delay, d2				4.3	0.8	1.5	3.0	0.1			0.8	
Delay (s)				25.5	20.1	20.5	32.5	0.9			17.3	
Level of Service				C	C	C	C	A			B	
Approach Delay (s)		0.0			21.6			7.7			17.3	
Approach LOS		A			C			A			B	

Intersection Summary


















HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	118.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

12: Broadway & 11th Street

7/24/2013

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	199	813	314	0	0	0	0	491	80	127	922	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.0	4.0					4.0		4.0	4.0		
Lane Util. Factor		0.91	1.00					0.95		1.00	0.95		
Frt		1.00	0.85					0.98		1.00	1.00		
Flt Protected		0.99	1.00					1.00		0.95	1.00		
Satd. Flow (prot)		5036	1583					3465		1770	3539		
Flt Permitted		0.99	1.00					1.00		0.29	1.00		
Satd. Flow (perm)		5036	1583					3465		543	3539		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	199	813	314	0	0	0	0	491	80	127	922	0	
RTOR Reduction (vph)	0	0	74	0	0	0	0	22	0	0	0	0	
Lane Group Flow (vph)	0	1012	240	0	0	0	0	549	0	127	922	0	
Turn Type	Split	NA	Perm					NA		pm+pt	NA		
Protected Phases	4	4						2		1	6		
Permitted Phases			4							6			
Actuated Green, G (s)		20.0	20.0					20.0		32.0	32.0		
Effective Green, g (s)		20.0	20.0					20.0		32.0	32.0		
Actuated g/C Ratio		0.33	0.33					0.33		0.53	0.53		
Clearance Time (s)		4.0	4.0					4.0		4.0	4.0		
Lane Grp Cap (vph)		1678	527					1155		453	1887		
v/s Ratio Prot		c0.20						0.16		0.04	c0.26		
v/s Ratio Perm			0.15							0.11			
v/c Ratio		0.60	0.46					0.48		0.28	0.49		
Uniform Delay, d1		16.7	15.7					15.8		7.7	8.8		
Progression Factor		1.00	1.00					1.00		0.89	0.54		
Incremental Delay, d2		1.6	2.8					1.4		1.2	0.7		
Delay (s)		18.3	18.5					17.2		8.0	5.5		
Level of Service		B	B					B		A	A		
Approach Delay (s)		18.4			0.0			17.2			5.8		
Approach LOS		B			A			B			A		
Intersection Summary													
HCM 2000 Control Delay			13.7									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.58										
Actuated Cycle Length (s)			60.0									Sum of lost time (s)	12.0
Intersection Capacity Utilization			64.9%									ICU Level of Service	C
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: Broadway & 12th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔↔		↗	↕↕			↕↕↔	
Volume (vph)	0	0	0	215	692	127	136	484	0	0	801	109
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	0.95			0.91	
Flt					0.98		1.00	1.00			0.98	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					3438		1770	3539			4994	
Flt Permitted					0.99		0.19	1.00			1.00	
Satd. Flow (perm)					3438		349	3539			4994	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	215	692	127	136	484	0	0	801	109
RTOR Reduction (vph)	0	0	0	0	18	0	0	0	0	0	29	0
Lane Group Flow (vph)	0	0	0	0	1016	0	136	484	0	0	881	0
Turn Type				Split	NA		pm+pt	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases							2					
Actuated Green, G (s)					20.0		32.0	32.0			20.0	
Effective Green, g (s)					20.0		32.0	32.0			20.0	
Actuated g/C Ratio					0.33		0.53	0.53			0.33	
Clearance Time (s)					4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)					1146		375	1887			1664	
v/s Ratio Prot					c0.30		c0.05	0.14			c0.18	
v/s Ratio Perm							0.15					
v/c Ratio					0.89		0.36	0.26			0.53	
Uniform Delay, d1					18.9		8.0	7.6			16.2	
Progression Factor					1.00		1.74	0.75			1.88	
Incremental Delay, d2					10.2		2.3	0.3			0.8	
Delay (s)					29.2		16.2	5.9			31.2	
Level of Service					C		B	A			C	
Approach Delay (s)		0.0			29.2			8.2			31.2	
Approach LOS		A			C			A			C	

Intersection Summary

HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: Broadway & 14th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↑			↑↑	
Volume (vph)	6	328	112	5	582	175	2	569	39	0	998	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frt		0.96			0.97			0.99			0.98	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		3404			3416			3505			3479	
Flt Permitted		0.95			0.95			0.95			1.00	
Satd. Flow (perm)		3224			3256			3338			3479	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	6	328	112	5	582	175	2	569	39	0	998	127
RTOR Reduction (vph)	0	24	0	0	46	0	0	8	0	0	16	0
Lane Group Flow (vph)	0	422	0	0	716	0	0	602	0	0	1109	0
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2					
Actuated Green, G (s)		27.0			27.0			25.0			25.0	
Effective Green, g (s)		27.0			27.0			25.0			25.0	
Actuated g/C Ratio		0.45			0.45			0.42			0.42	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		1450			1465			1390			1449	
v/s Ratio Prot											c0.32	
v/s Ratio Perm		0.13			c0.22			0.18				
v/c Ratio		0.29			0.49			0.43			0.77	
Uniform Delay, d1		10.4			11.6			12.5			15.0	
Progression Factor		1.00			1.00			1.49			1.00	
Incremental Delay, d2		0.5			1.2			0.9			3.9	
Delay (s)		11.0			12.8			19.5			18.9	
Level of Service		B			B			B			B	
Approach Delay (s)		11.0			12.8			19.5			18.9	
Approach LOS		B			B			B			B	

Intersection Summary

















HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

15: Franklin Street & 2nd Street

















7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	87	39	18	83	0	0	0	0	9	32	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	87	39	18	83	0	0	0	0	9	32	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					384							
pX, platoon unblocked												
vC, conflicting volume	83			126			260	226	106	226	245	83
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	83			126			260	226	106	226	245	83
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	99	95	98
cM capacity (veh/h)	1514			1460			649	665	948	723	649	976
Direction, Lane #	EB 1	WB 1	SB 1	SB 2								
Volume Total	126	101	25	34								
Volume Left	0	18	9	0								
Volume Right	39	0	0	18								
cSH	1700	1460	674	789								
Volume to Capacity	0.07	0.01	0.04	0.04								
Queue Length 95th (ft)	0	1	3	3								
Control Delay (s)	0.0	1.4	10.5	9.8								
Lane LOS		A	B	A								
Approach Delay (s)	0.0	1.4	10.1									
Approach LOS			B									
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			25.7%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

16: Franklin Street & 3rd Street

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	208	12	30	222	0	0	0	0	12	18	74
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	208	12	30	222	0	0	0	0	12	18	74
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		367			383							
pX, platoon unblocked												
vC, conflicting volume	222			220			579	496	214	496	502	222
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	222			220			579	496	214	496	502	222
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			100	100	100	97	96	91
cM capacity (veh/h)	1347			1349			370	465	826	476	461	818
Direction, Lane #												
	EB 1	WB 1	SB 1	SB 2								
Volume Total	220	252	21	83								
Volume Left	0	30	12	0								
Volume Right	12	0	0	74								
cSH	1700	1349	469	754								
Volume to Capacity	0.13	0.02	0.04	0.11								
Queue Length 95th (ft)	0	2	4	9								
Control Delay (s)	0.0	1.1	13.0	10.4								
Lane LOS		A	B	B								
Approach Delay (s)	0.0	1.1	10.9									
Approach LOS			B									
Intersection Summary												
Average Delay			2.4									
Intersection Capacity Utilization			38.4%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

17: Webster Street & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	170	185	234	134	88	86
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	170	185	234	134	88	86
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	385					
pX, platoon unblocked						
vC, conflicting volume	0		470	340	525	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		470	340	525	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	90		34	74	79	92
cM capacity (veh/h)	1623		357	521	410	1085
Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2	
Volume Total	170	185	368	88	86	
Volume Left	170	0	234	0	0	
Volume Right	0	185	0	0	86	
cSH	1623	1700	403	410	1085	
Volume to Capacity	0.10	0.11	0.91	0.21	0.08	
Queue Length 95th (ft)	9	0	244	20	6	
Control Delay (s)	7.5	0.0	57.9	16.2	8.6	
Lane LOS	A		F	C	A	
Approach Delay (s)	3.6		57.9	12.4		
Approach LOS			F	B		
Intersection Summary						
Average Delay			27.6			
Intersection Capacity Utilization			42.8%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

18: Harrison Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑↑↑	↑↑			
Volume (vph)	334	1529	0	0	0	0	0	688	1207	0	0	0
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			
Lane Util. Factor		0.91						0.91	0.88			
Frt		1.00						1.00	0.85			
Flt Protected		0.99						1.00	1.00			
Satd. Flow (prot)		5040						5085	2787			
Flt Permitted		0.99						1.00	1.00			
Satd. Flow (perm)		5040						5085	2787			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	334	1529	0	0	0	0	0	688	1207	0	0	0
RTOR Reduction (vph)	0	77	0	0	0	0	0	0	13	0	0	0
Lane Group Flow (vph)	0	1786	0	0	0	0	0	688	1194	0	0	0
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Actuated Green, G (s)		16.0						21.0	21.0			
Effective Green, g (s)		16.0						21.0	21.0			
Actuated g/C Ratio		0.36						0.47	0.47			
Clearance Time (s)		4.0						4.0	4.0			
Lane Grp Cap (vph)		1792						2373	1300			
v/s Ratio Prot								0.14				
v/s Ratio Perm		0.35							c0.43			
v/c Ratio		1.00						0.29	0.92			
Uniform Delay, d1		14.5						7.4	11.2			
Progression Factor		1.00						1.00	1.00			
Incremental Delay, d2		20.5						0.3	11.8			
Delay (s)		35.0						7.7	23.0			
Level of Service		C						A	C			
Approach Delay (s)		35.0			0.0			17.5			0.0	
Approach LOS		C			A			B			A	

Intersection Summary

HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

19: Jackson Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔						↔		↔↕	↕	
Volume (vph)	298	622	450	0	0	0	0	691	39	106	117	0
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		0.91						1.00		1.00	1.00	
Frt		0.95						0.99		1.00	1.00	
Flt Protected		0.99						1.00		0.95	1.00	
Satd. Flow (prot)		4783						1849		1770	1863	
Flt Permitted		0.99						1.00		0.22	1.00	
Satd. Flow (perm)		4783						1849		412	1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	298	622	450	0	0	0	0	691	39	106	117	0
RTOR Reduction (vph)	0	196	0	0	0	0	0	5	0	0	0	0
Lane Group Flow (vph)	0	1174	0	0	0	0	0	725	0	106	117	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		13.0						24.0		24.0	24.0	
Effective Green, g (s)		13.0						24.0		24.0	24.0	
Actuated g/C Ratio		0.29						0.53		0.53	0.53	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Lane Grp Cap (vph)		1381						986		219	993	
v/s Ratio Prot								c0.39			0.06	
v/s Ratio Perm		0.25								0.26		
v/c Ratio		0.85						0.74		0.48	0.12	
Uniform Delay, d1		15.1						8.1		6.6	5.2	
Progression Factor		1.00						1.00		0.57	0.47	
Incremental Delay, d2		6.7						4.9		7.4	0.2	
Delay (s)		21.8						12.9		11.2	2.7	
Level of Service		C						B		B	A	
Approach Delay (s)		21.8			0.0			12.9			6.7	
Approach LOS		C			A			B			A	

Intersection Summary

HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	103.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

20: Jackson Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↗	↗	↖	↗			↗	↖
Volume (vph)	0	0	0	11	389	53	474	434	0	0	248	514
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00
Satd. Flow (prot)				1770	1863	1583	1770	1863			1863	1583
Flt Permitted				0.95	1.00	1.00	0.61	1.00			1.00	1.00
Satd. Flow (perm)				1770	1863	1583	1127	1863			1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	11	389	53	474	434	0	0	248	514
RTOR Reduction (vph)	0	0	0	0	0	40	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	11	389	13	474	434	0	0	248	514
Turn Type				Split	NA	Perm	Perm	NA			NA	Free
Protected Phases				8	8			2			6	
Permitted Phases						8	2					Free
Actuated Green, G (s)				11.0	11.0	11.0	26.0	26.0			26.0	45.0
Effective Green, g (s)				11.0	11.0	11.0	26.0	26.0			26.0	45.0
Actuated g/C Ratio				0.24	0.24	0.24	0.58	0.58			0.58	1.00
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Grp Cap (vph)				432	455	386	651	1076			1076	1583
v/s Ratio Prot				0.01	c0.21			0.23			0.13	
v/s Ratio Perm						0.01	c0.42					0.32
v/c Ratio				0.03	0.85	0.03	0.73	0.40			0.23	0.32
Uniform Delay, d1				12.9	16.2	13.0	6.9	5.2			4.6	0.0
Progression Factor				0.67	0.67	0.62	0.61	0.67			1.08	1.00
Incremental Delay, d2				0.1	17.6	0.2	4.3	0.7			0.4	0.5
Delay (s)				8.7	28.5	8.2	8.5	4.2			5.4	0.5
Level of Service				A	C	A	A	A			A	A
Approach Delay (s)		0.0			25.6			6.5			2.1	
Approach LOS		A			C			A			A	

Intersection Summary

HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	103.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

21: Jackson Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔	↔					↔			↔	
Volume (vph)	41	1079	517	0	0	0	0	313	144	36	338	0
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		0.86	0.86					1.00			1.00	
Frt		0.98	0.85					0.96			1.00	
Flt Protected		1.00	1.00					1.00			1.00	
Satd. Flow (prot)		4713	1362					1784			1854	
Flt Permitted		1.00	1.00					1.00			0.91	
Satd. Flow (perm)		4713	1362					1784			1698	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	41	1079	517	0	0	0	0	313	144	36	338	0
RTOR Reduction (vph)	0	35	170	0	0	0	0	32	0	0	0	0
Lane Group Flow (vph)	0	1235	197	0	0	0	0	425	0	0	374	0
Turn Type	Split	NA	Perm					NA		Perm	NA	
Protected Phases	4	4						2			6	
Permitted Phases			4							6		
Actuated Green, G (s)		21.0	21.0					16.0			16.0	
Effective Green, g (s)		21.0	21.0					16.0			16.0	
Actuated g/C Ratio		0.47	0.47					0.36			0.36	
Clearance Time (s)		4.0	4.0					4.0			4.0	
Lane Grp Cap (vph)		2199	635					634			603	
v/s Ratio Prot		c0.26						c0.24				
v/s Ratio Perm			0.14								0.22	
v/c Ratio		0.56	0.31					0.67			0.62	
Uniform Delay, d1		8.7	7.5					12.3			12.0	
Progression Factor		1.00	1.00					1.02			1.00	
Incremental Delay, d2		1.0	1.3					5.3			4.7	
Delay (s)		9.7	8.8					17.8			16.7	
Level of Service		A	A					B			B	
Approach Delay (s)		9.5			0.0			17.8			16.7	
Approach LOS		A			A			B			B	

Intersection Summary

HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

22: Madison Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑								↘	↙↑	
Volume (vph)	0	725	35	0	0	0	0	0	0	931	142	0
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	
Lane Util. Factor		0.91								0.91	0.91	
Frt		0.99								1.00	1.00	
Flt Protected		1.00								0.95	0.96	
Satd. Flow (prot)		5050								1610	3265	
Flt Permitted		1.00								0.95	0.96	
Satd. Flow (perm)		5050								1610	3265	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	725	35	0	0	0	0	0	0	931	142	0
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	35	35	0
Lane Group Flow (vph)	0	749	0	0	0	0	0	0	0	430	573	0
Turn Type		NA								Perm	NA	
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0								22.0	22.0	
Effective Green, g (s)		16.0								22.0	22.0	
Actuated g/C Ratio		0.35								0.48	0.48	
Clearance Time (s)		4.0								4.0	4.0	
Lane Grp Cap (vph)		1756								770	1561	
v/s Ratio Prot		c0.15										
v/s Ratio Perm										c0.27	0.18	
v/c Ratio		0.43								0.56	0.37	
Uniform Delay, d1		11.5								8.5	7.6	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.8								2.9	0.7	
Delay (s)		12.2								11.5	8.3	
Level of Service		B								B	A	
Approach Delay (s)		12.2			0.0			0.0			9.6	
Approach LOS		B			A			A			A	

Intersection Summary

HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	46.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	42.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

23: Madison Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←←←						←←←	
Volume (vph)	0	0	0	18	210	0	0	0	0	0	1100	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0						4.0	
Lane Util. Factor					0.91						0.91	
Frt					1.00						0.97	
Flt Protected					1.00						1.00	
Satd. Flow (prot)					5065						4955	
Flt Permitted					1.00						1.00	
Satd. Flow (perm)					5065						4955	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	18	210	0	0	0	0	0	1100	227
RTOR Reduction (vph)	0	0	0	0	16	0	0	0	0	0	70	0
Lane Group Flow (vph)	0	0	0	0	212	0	0	0	0	0	1257	0
Turn Type				Split	NA						NA	
Protected Phases				8	8						6	
Permitted Phases												
Actuated Green, G (s)					15.0						22.0	
Effective Green, g (s)					15.0						22.0	
Actuated g/C Ratio					0.33						0.49	
Clearance Time (s)					4.0						4.0	
Lane Grp Cap (vph)					1688						2422	
v/s Ratio Prot					c0.04						c0.25	
v/s Ratio Perm												
v/c Ratio					0.13						0.52	
Uniform Delay, d1					10.4						7.9	
Progression Factor					0.88						0.55	
Incremental Delay, d2					0.1						0.7	
Delay (s)					9.4						5.0	
Level of Service					A						A	
Approach Delay (s)		0.0			9.4			0.0			5.0	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	5.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	42.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

24: Madison Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑									↑↑↑	
Volume (vph)	0	1045	342	0	0	0	0	0	0	309	905	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									4.0	
Lane Util. Factor		0.86									0.91	
Frt		0.96									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		6171									5021	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		6171									5021	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	1045	342	0	0	0	0	0	0	309	905	0
RTOR Reduction (vph)	0	53	0	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	1334	0	0	0	0	0	0	0	0	1201	0
Turn Type		NA								Perm	NA	
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0									21.0	
Effective Green, g (s)		16.0									21.0	
Actuated g/C Ratio		0.36									0.47	
Clearance Time (s)		4.0									4.0	
Lane Grp Cap (vph)		2194									2343	
v/s Ratio Prot		c0.22										
v/s Ratio Perm											0.24	
v/c Ratio		0.61									0.51	
Uniform Delay, d1		11.9									8.4	
Progression Factor		0.53									1.00	
Incremental Delay, d2		1.1									0.8	
Delay (s)		7.5									9.2	
Level of Service		A									A	
Approach Delay (s)		7.5			0.0			0.0			9.2	
Approach LOS		A			A			A			A	

Intersection Summary





















HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

25: Oak Street & 1st Street / Embarcadero

7/24/2013

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Volume (veh/h)	230	0	83	5	0	1	263	679	0	0	736	251
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	230	0	83	5	0	1	263	679	0	0	736	251
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											563	
pX, platoon unblocked												
vC, conflicting volume	1728	2066	494	1656	2192	340	987			679		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1728	2066	494	1656	2192	340	987			679		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	84	87	100	100	62			100		
cM capacity (veh/h)	40	33	521	38	28	656	696			909		
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2					
Volume Total	230	83	263	340	340	491	496					
Volume Left	230	0	263	0	0	0	0					
Volume Right	0	83	0	0	0	0	251					
cSH	40	521	696	1700	1700	1700	1700					
Volume to Capacity	5.75	0.16	0.38	0.20	0.20	0.29	0.29					
Queue Length 95th (ft)	Err	14	44	0	0	0	0					
Control Delay (s)	Err	13.2	13.3	0.0	0.0	0.0	0.0					
Lane LOS	F	B	B									
Approach Delay (s)	7351.0		3.7			0.0						
Approach LOS	F											
Intersection Summary												
Average Delay			Err									
Intersection Capacity Utilization			Err%	ICU Level of Service	H							
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

26: Oak Street & 3rd Street

7/24/2013



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	193	77	136	953	955	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.96		1.00	1.00	1.00	0.85
Flt Protected	0.97		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1729		1770	1863	1863	1583
Flt Permitted	0.97		0.22	1.00	1.00	1.00
Satd. Flow (perm)	1729		414	1863	1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	193	77	136	953	955	210
RTOR Reduction (vph)	25	0	0	0	0	126
Lane Group Flow (vph)	245	0	136	953	955	84
Turn Type	NA		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Actuated Green, G (s)	19.0		18.0	18.0	18.0	18.0
Effective Green, g (s)	19.0		18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.42		0.40	0.40	0.40	0.40
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	730		165	745	745	633
v/s Ratio Prot	c0.14			0.51	c0.51	
v/s Ratio Perm			0.33			0.05
v/c Ratio	0.34		0.82	1.28	1.28	0.13
Uniform Delay, d1	8.7		12.1	13.5	13.5	8.6
Progression Factor	1.00		1.00	1.00	0.98	1.44
Incremental Delay, d2	1.2		35.4	135.9	136.9	0.4
Delay (s)	10.0		47.4	149.4	150.1	12.8
Level of Service	A		D	F	F	B
Approach Delay (s)	10.0			136.6	125.3	
Approach LOS	A			F	F	

Intersection Summary

HCM 2000 Control Delay	117.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

27: Oak Street & 5th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↕↔						↕↔			↕	
Volume (vph)	246	1016	140	0	0	0	0	917	396	6	261	0
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	
Lane Util. Factor		0.91						0.95			1.00	
Frt		0.99						0.95			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4966						3379			1861	
Flt Permitted		0.99						1.00			0.60	
Satd. Flow (perm)		4966						3379			1111	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	246	1016	140	0	0	0	0	917	396	6	261	0
RTOR Reduction (vph)	0	30	0	0	0	0	0	45	0	0	0	0
Lane Group Flow (vph)	0	1372	0	0	0	0	0	1268	0	0	267	0
Turn Type	Split	NA						NA		Perm	NA	
Protected Phases	4	4						2			6	
Permitted Phases										6		
Actuated Green, G (s)		22.0						15.0			15.0	
Effective Green, g (s)		22.0						15.0			15.0	
Actuated g/C Ratio		0.49						0.33			0.33	
Clearance Time (s)		4.0						4.0			4.0	
Lane Grp Cap (vph)		2427						1126			370	
v/s Ratio Prot		c0.28						c0.38				
v/s Ratio Perm											0.24	
v/c Ratio		0.57						1.13			0.72	
Uniform Delay, d1		8.1						15.0			13.2	
Progression Factor		1.00						1.51			1.25	
Incremental Delay, d2		1.0						60.1			11.3	
Delay (s)		9.1						82.8			27.8	
Level of Service		A						F			C	
Approach Delay (s)		9.1			0.0			82.8			27.8	
Approach LOS		A			A			F			C	

Intersection Summary

HCM 2000 Control Delay	43.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: Oak Street & 6th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕	↗		↕↕				
Volume (vph)	0	0	0	198	85	506	163	678	0	0	0	0
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				
Lane Util. Factor					0.91	0.91		0.95				
Frt					0.93	0.85		1.00				
Flt Protected					0.98	1.00		0.99				
Satd. Flow (prot)					3093	1441		3505				
Flt Permitted					0.98	1.00		0.99				
Satd. Flow (perm)					3093	1441		3505				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	198	85	506	163	678	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	37	37	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	499	216	0	841	0	0	0	0
Turn Type				Split	NA	Perm	Split	NA				
Protected Phases				8	8		2	2				
Permitted Phases						8						
Actuated Green, G (s)					22.0	22.0		15.0				
Effective Green, g (s)					22.0	22.0		15.0				
Actuated g/C Ratio					0.49	0.49		0.33				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					1512	704		1168				
v/s Ratio Prot					c0.16			c0.24				
v/s Ratio Perm						0.15						
v/c Ratio					0.33	0.31		0.72				
Uniform Delay, d1					7.0	6.9		13.2				
Progression Factor					1.00	1.00		0.93				
Incremental Delay, d2					0.6	1.1		0.4				
Delay (s)					7.6	8.0		12.6				
Level of Service					A	A		B				
Approach Delay (s)		0.0			7.7			12.6			0.0	
Approach LOS		A			A			B			A	

Intersection Summary

HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: Oak Street & 7th Street

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		←↑↑↑						↑↑↑				
Volume (vph)	161	1035	0	0	0	0	0	1060	211	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0						4.0				
Lane Util. Factor		0.86						0.91				
Frt		1.00						0.98				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6365						4959				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6365						4959				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	161	1035	0	0	0	0	0	1060	211	0	0	0
RTOR Reduction (vph)	0	17	0	0	0	0	0	24	0	0	0	0
Lane Group Flow (vph)	0	1179	0	0	0	0	0	1247	0	0	0	0
Turn Type	Perm	NA						NA				
Protected Phases		4						2				
Permitted Phases	4											
Actuated Green, G (s)		19.0						18.0				
Effective Green, g (s)		19.0						18.0				
Actuated g/C Ratio		0.42						0.40				
Clearance Time (s)		4.0						4.0				
Lane Grp Cap (vph)		2687						1983				
v/s Ratio Prot								c0.25				
v/s Ratio Perm		0.19										
v/c Ratio		0.44						0.63				
Uniform Delay, d1		9.2						10.8				
Progression Factor		1.05						0.86				
Incremental Delay, d2		0.4						1.3				
Delay (s)		10.1						10.7				
Level of Service		B						B				
Approach Delay (s)		10.1				0.0		10.7			0.0	
Approach LOS		B				A		B			A	

Intersection Summary

HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 30: 5th Avenue & 1st Street / Embarcadero

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔		↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	74	885	57	56	734	623	39	19	27	750	40	97
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	74	885	57	56	734	623	39	19	27	750	40	97

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	1016	790	623	85	887
Volume Left (vph)	74	56	0	39	750
Volume Right (vph)	57	0	623	27	97
Hadj (s)	0.01	0.07	-0.67	-0.06	0.14
Departure Headway (s)	7.7	8.1	7.4	9.5	7.7
Degree Utilization, x	2.17	1.78	1.28	0.22	1.90
Capacity (veh/h)	477	449	496	374	476
Control Delay (s)	549.7	379.4	162.2	15.2	430.2
Approach Delay (s)	549.7	283.6		15.2	430.2
Approach LOS	F	F		C	F

Intersection Summary				
Delay		394.6		
Level of Service		F		
Intersection Capacity Utilization		162.1%	ICU Level of Service	H
Analysis Period (min)		15		

HCM Signalized Intersection Capacity Analysis

31: Webster Street & Atlantic Avenue

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	242	216	59	166	581	113	33	534	49	89	815	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3453		1770	3495		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3453		1770	3495		1770	3539	1583
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)	263	235	64	180	632	123	36	580	53	97	886	180
RTOR Reduction (vph)	0	0	48	0	15	0	0	6	0	0	0	155
Lane Group Flow (vph)	263	235	16	180	740	0	36	627	0	97	886	25
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	Over
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									
Actuated Green, G (s)	11.7	20.4	20.4	13.7	22.4		4.6	25.4		7.9	28.7	11.7
Effective Green, g (s)	11.7	20.4	20.4	13.7	22.4		4.6	25.4		7.9	28.7	11.7
Actuated g/C Ratio	0.14	0.24	0.24	0.16	0.27		0.06	0.30		0.09	0.34	0.14
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	481	865	387	290	927		97	1064		167	1217	222
v/s Ratio Prot	0.08	0.07		c0.10	c0.21		0.02	0.18		c0.05	c0.25	0.02
v/s Ratio Perm			0.01									
v/c Ratio	0.55	0.27	0.04	0.62	0.80		0.37	0.59		0.58	0.73	0.11
Uniform Delay, d1	33.4	25.5	24.0	32.4	28.4		38.0	24.6		36.2	23.9	31.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.3	0.2	0.0	4.1	4.8		2.4	2.4		5.1	3.8	0.2
Delay (s)	34.7	25.7	24.1	36.5	33.2		40.4	27.0		41.2	27.8	31.5
Level of Service	C	C	C	D	C		D	C		D	C	C
Approach Delay (s)		29.7			33.9			27.7			29.5	
Approach LOS		C			C			C			C	

Intersection Summary

HCM 2000 Control Delay	30.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	83.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

32: Constitution Way & Atlantic Avenue

7/24/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	321	448	315	89	240	170	87	566	39	130	1150	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.94		1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3320		1770	3319		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3320		1770	3319		3433	3539	1583	3433	3539	1583
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)	349	487	342	97	261	185	95	615	42	141	1250	129
RTOR Reduction (vph)	0	115	0	0	141	0	0	0	30	0	0	69
Lane Group Flow (vph)	349	714	0	97	305	0	95	615	12	141	1250	60
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	20.5	26.3		8.5	14.3		6.3	25.2	25.2	8.9	27.8	27.8
Effective Green, g (s)	20.5	26.3		8.5	14.3		6.3	25.2	25.2	8.9	27.8	27.8
Actuated g/C Ratio	0.24	0.31		0.10	0.17		0.07	0.30	0.30	0.10	0.33	0.33
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	427	1028		177	559		254	1050	469	359	1158	518
v/s Ratio Prot	c0.20	c0.21		0.05	0.09		0.03	0.17		c0.04	c0.35	
v/s Ratio Perm									0.01			0.04
v/c Ratio	0.82	0.69		0.55	0.55		0.37	0.59	0.03	0.39	1.08	0.12
Uniform Delay, d1	30.4	25.8		36.4	32.3		37.4	25.4	21.2	35.5	28.6	20.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.5	2.1		3.4	1.1		0.9	2.4	0.1	0.7	50.7	0.5
Delay (s)	41.9	27.8		39.8	33.4		38.4	27.8	21.3	36.2	79.2	20.4
Level of Service	D	C		D	C		D	C	C	D	E	C
Approach Delay (s)		32.0			34.6			28.8			70.2	
Approach LOS		C			C			C			E	

Intersection Summary


















HCM 2000 Control Delay	46.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	84.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Level Of Service Computation Report

Existing Conditions
AM Peak Hour

























HCM Unsignalized Intersection Capacity Analysis

1: Market Street & 3rd Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	24	73	20	10	200	25	41	10	3	30	54	93
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	24	73	20	10	200	25	41	10	3	30	54	93
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	225			93			371	376	46	325	374	112
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	225			93			371	376	46	325	374	112
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			91	98	100	95	90	90
cM capacity (veh/h)	1341			1499			457	540	1013	583	542	919
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2	SB 3				
Volume Total	60	56	110	125	54	30	36	111				
Volume Left	24	0	10	0	41	30	0	0				
Volume Right	0	20	0	25	3	0	0	93				
cSH	1341	1700	1499	1700	486	583	542	826				
Volume to Capacity	0.02	0.03	0.01	0.07	0.11	0.05	0.07	0.13				
Queue Length 95th (ft)	1	0	1	0	9	4	5	12				
Control Delay (s)	3.2	0.0	0.7	0.0	13.3	11.5	12.1	10.0				
Lane LOS	A		A		B	B	B	B				
Approach Delay (s)	1.6		0.3		13.3	10.7						
Approach LOS					B	B						
Intersection Summary												
Average Delay			4.9									
Intersection Capacity Utilization			31.1%		ICU Level of Service				A			
Analysis Period (min)			15									


















HCM Signalized Intersection Capacity Analysis

2: Market Street & 5th Street

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		  						  		  	  		
Volume (vph)	10	533	29	0	0	0	0	53	17	52	167	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		5.5						4.5		4.5	4.5		
Lane Util. Factor		0.91						0.95		1.00	0.91		
Frt		0.99						0.96		1.00	1.00		
Flt Protected		1.00						1.00		0.95	1.00		
Satd. Flow (prot)		5042						3410		1770	5085		
Flt Permitted		1.00						1.00		0.71	1.00		
Satd. Flow (perm)		5042						3410		1321	5085		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	10	533	29	0	0	0	0	53	17	52	167	0	
RTOR Reduction (vph)	0	8	0	0	0	0	0	13	0	0	0	0	
Lane Group Flow (vph)	0	564	0	0	0	0	0	57	0	52	167	0	
Turn Type	Perm	NA						NA		Perm	NA		
Protected Phases		4						2			6		
Permitted Phases	4									6			
Actuated Green, G (s)		45.5						19.5		19.5	19.5		
Effective Green, g (s)		45.5						19.5		19.5	19.5		
Actuated g/C Ratio		0.61						0.26		0.26	0.26		
Clearance Time (s)		5.5						4.5		4.5	4.5		
Vehicle Extension (s)		3.0						3.0		3.0	3.0		
Lane Grp Cap (vph)		3058						886		343	1322		
v/s Ratio Prot								0.02			0.03		
v/s Ratio Perm		0.11								c0.04			
v/c Ratio		0.18						0.06		0.15	0.13		
Uniform Delay, d1		6.5						20.9		21.4	21.2		
Progression Factor		1.00						1.01		0.59	0.60		
Incremental Delay, d2		0.1						0.1		0.9	0.2		
Delay (s)		6.7						21.1		13.6	12.9		
Level of Service		A						C		B	B		
Approach Delay (s)		6.7			0.0			21.1			13.1		
Approach LOS		A			A			C			B		
Intersection Summary													
HCM 2000 Control Delay			9.5									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.17										
Actuated Cycle Length (s)			75.0									Sum of lost time (s)	10.0
Intersection Capacity Utilization			29.9%									ICU Level of Service	A
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	
Lane Configurations													
Volume (vph)	0	0	0	96	270	255	9	20	46	0	0	120	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)					4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor					0.95	1.00		1.00	1.00			0.95	
Frt					1.00	0.85		1.00	1.00			1.00	
Flt Protected					0.99	1.00		0.95	1.00			1.00	
Satd. Flow (prot)					3493	1583		1770	1863			3539	
Flt Permitted					0.99	1.00		0.68	1.00			1.00	
Satd. Flow (perm)					3493	1583		1259	1863			3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	0	0	0	96	270	255	9	20	46	0	0	120	
RTOR Reduction (vph)	0	0	0	0	0	205	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	366	50	0	29	46	0	0	120	
Turn Type				Perm	NA	Perm	Perm	Perm	NA			NA	
Protected Phases					8				2			6	
Permitted Phases				8		8	2	2					
Actuated Green, G (s)					14.7	14.7		51.3	51.3			51.3	
Effective Green, g (s)					14.7	14.7		51.3	51.3			51.3	
Actuated g/C Ratio					0.20	0.20		0.68	0.68			0.68	
Clearance Time (s)					4.5	4.5		4.5	4.5			4.5	
Vehicle Extension (s)					3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)					684	310		861	1274			2420	
v/s Ratio Prot									0.02			c0.03	
v/s Ratio Perm					0.10	0.03		0.02					
v/c Ratio					0.54	0.16		0.03	0.04			0.05	
Uniform Delay, d1					27.1	25.0		3.8	3.8			3.9	
Progression Factor					0.83	0.43		0.60	0.59			0.89	
Incremental Delay, d2					0.8	0.2		0.1	0.1			0.0	
Delay (s)					23.2	10.9		2.4	2.3			3.5	
Level of Service					C	B		A	A			A	
Approach Delay (s)		0.0			18.2				2.3			3.6	
Approach LOS		A			B				A			A	
Intersection Summary													
HCM 2000 Control Delay			14.0		HCM 2000 Level of Service					B			
HCM 2000 Volume to Capacity ratio			0.16										
Actuated Cycle Length (s)			75.0		Sum of lost time (s)					9.0			
Intersection Capacity Utilization			29.9%		ICU Level of Service					A			
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Signalized Intersection Capacity Analysis






















3: Market Street & 6th Street



Movement	SBR
Lane Configurations	7
Volume (vph)	45
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	45
RTOR Reduction (vph)	14
Lane Group Flow (vph)	31
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	51.3
Effective Green, g (s)	51.3
Actuated g/C Ratio	0.68
Clearance Time (s)	4.5
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	1082
v/s Ratio Prot	
v/s Ratio Perm	0.02
v/c Ratio	0.03
Uniform Delay, d1	3.8
Progression Factor	1.03
Incremental Delay, d2	0.0
Delay (s)	4.0
Level of Service	A
Approach Delay (s)	
Approach LOS	
Intersection Summary	

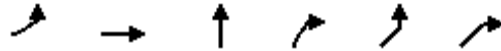
HCM Signalized Intersection Capacity Analysis

4: Market Street & 7th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	42	268	29	37	581	36	118	146	12	40	76	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	0.95	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5011		1770	5041		1770	1842		1770	3539	1583
Flt Permitted	0.32	1.00		0.56	1.00		0.70	1.00		0.66	1.00	1.00
Satd. Flow (perm)	592	5011		1049	5041		1313	1842		1223	3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	42	268	29	37	581	36	118	146	12	40	76	75
RTOR Reduction (vph)	0	23	0	0	13	0	0	2	0	0	0	25
Lane Group Flow (vph)	42	274	0	37	604	0	118	156	0	40	76	50
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	15.9	15.9		15.9	15.9		49.6	49.6		49.6	49.6	49.6
Effective Green, g (s)	15.9	15.9		15.9	15.9		49.6	49.6		49.6	49.6	49.6
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.66	0.66		0.66	0.66	0.66
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	125	1062		222	1068		868	1218		808	2340	1046
v/s Ratio Prot		0.05			c0.12			0.08			0.02	
v/s Ratio Perm	0.07			0.04			c0.09			0.03		0.03
v/c Ratio	0.34	0.26		0.17	0.57		0.14	0.13		0.05	0.03	0.05
Uniform Delay, d1	25.1	24.6		24.1	26.5		4.7	4.7		4.4	4.4	4.4
Progression Factor	1.00	1.00		1.00	1.00		0.68	0.67		1.00	1.00	1.00
Incremental Delay, d2	1.6	0.1		0.4	0.7		0.3	0.2		0.1	0.0	0.1
Delay (s)	26.7	24.8		24.5	27.1		3.5	3.4		4.6	4.4	4.5
Level of Service	C	C		C	C		A	A		A	A	A
Approach Delay (s)		25.0			27.0			3.4			4.5	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			19.1				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.24									
Actuated Cycle Length (s)			75.0				Sum of lost time (s)			9.5		
Intersection Capacity Utilization			42.9%				ICU Level of Service			A		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

5: Castro Street & 11th Street























Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Volume (vph)	139	772	404	27	79	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		5.0	
Lane Util. Factor	0.81	0.81	0.91		0.97	
Frt	1.00	1.00	0.99		0.94	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1290	5427	4534		2959	
Flt Permitted	0.95	1.00	1.00		0.97	
Satd. Flow (perm)	1290	5427	4534		2959	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	139	772	404	27	79	59
RTOR Reduction (vph)	65	34	6	0	0	0
Lane Group Flow (vph)	60	752	425	0	138	0
Turn Type	Split	NA	NA		NA	
Protected Phases	4	4	2		8	
Permitted Phases						
Actuated Green, G (s)	55.0	55.0	24.0		21.0	
Effective Green, g (s)	55.0	55.0	24.0		21.0	
Actuated g/C Ratio	0.48	0.48	0.21		0.18	
Clearance Time (s)	5.0	5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	616	2595	946		540	
v/s Ratio Prot	0.05	c0.14	c0.09		c0.05	
v/s Ratio Perm						
v/c Ratio	0.10	0.29	0.45		0.26	
Uniform Delay, d1	16.4	18.2	39.7		40.3	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.3	0.3	1.5		0.3	
Delay (s)	16.7	18.5	41.3		40.5	
Level of Service	B	B	D		D	
Approach Delay (s)		18.2	41.3		40.5	
Approach LOS		B	D		D	


















Intersection Summary			
HCM 2000 Control Delay	27.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

6: Castro Street & 12th Street

















													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					 		 	  					
Volume (vph)	0	0	0	0	177	214	37	482	0	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)					4.5	4.5	5.0	5.0					
Lane Util. Factor					0.91	0.91	0.81	0.81					
Frt					0.95	0.85	1.00	1.00					
Flt Protected					1.00	1.00	0.95	1.00					
Satd. Flow (prot)					2895	1297	1290	5430					
Flt Permitted					1.00	1.00	0.95	1.00					
Satd. Flow (perm)					2895	1297	1290	5430					
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	0	0	0	0	177	214	37	482	0	0	0	0	
RTOR Reduction (vph)	0	0	0	0	41	54	21	9	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	228	68	12	477	0	0	0	0	
Turn Type					NA	Perm	Perm	NA					
Protected Phases					8			2					
Permitted Phases						8	2						
Actuated Green, G (s)					64.0	64.0	41.5	41.5					
Effective Green, g (s)					64.0	64.0	41.5	41.5					
Actuated g/C Ratio					0.56	0.56	0.36	0.36					
Clearance Time (s)					4.5	4.5	5.0	5.0					
Vehicle Extension (s)					3.0	3.0	3.0	3.0					
Lane Grp Cap (vph)					1611	721	465	1959					
v/s Ratio Prot					c0.08								
v/s Ratio Perm						0.05	0.01	0.09					
v/c Ratio					0.14	0.09	0.03	0.24					
Uniform Delay, d1					12.3	11.9	23.7	25.8					
Progression Factor					1.00	1.00	1.90	1.19					
Incremental Delay, d2					0.2	0.3	0.1	0.3					
Delay (s)					12.5	12.2	45.2	31.0					
Level of Service					B	B	D	C					
Approach Delay (s)		0.0			12.4			31.9			0.0		
Approach LOS		A			B			C			A		
Intersection Summary													
HCM 2000 Control Delay			23.5		HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.18										
Actuated Cycle Length (s)			115.0		Sum of lost time (s)				9.5				
Intersection Capacity Utilization			46.3%		ICU Level of Service				A				
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
 7: Broadway & 1st Street / Embarcadero

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	7	29	4	7	72	78	3	7	0	63	20	13
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	7	29	4	7	72	78	3	7	0	63	20	13
Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2							
Volume Total (vph)	40	157	10	73	23							
Volume Left (vph)	7	7	3	63	0							
Volume Right (vph)	4	78	0	0	13							
Hadj (s)	0.01	-0.26	0.09	0.47	-0.36							
Departure Headway (s)	4.3	4.0	4.6	5.4	4.6							
Degree Utilization, x	0.05	0.17	0.01	0.11	0.03							
Capacity (veh/h)	800	884	732	636	750							
Control Delay (s)	7.6	7.8	7.7	7.9	6.5							
Approach Delay (s)	7.6	7.8	7.7	7.5								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			7.7									
Level of Service			A									
Intersection Capacity Utilization			26.3%	ICU Level of Service	A							
Analysis Period (min)			15									



















HCM Unsignalized Intersection Capacity Analysis

8: Broadway & 2nd Street

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (veh/h)	9	4	4	9	29	34	4	82	8	32	115	15	
Sign Control		Stop			Stop			Free			Free		
Grade		0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	9	4	4	9	29	34	4	82	8	32	115	15	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type							None						
Median storage (veh)													
Upstream signal (ft)												288	
pX, platoon unblocked													
vC, conflicting volume	284	284	65	222	288	45	130					90	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	284	284	65	222	288	45	130					90	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1					4.1	
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2					2.2	
p0 queue free %	98	99	100	99	95	97	100					98	
cM capacity (veh/h)	591	608	986	696	606	1015	1453					1503	
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2							
Volume Total	17	72	45	49	90	72							
Volume Left	9	9	4	0	32	0							
Volume Right	4	34	0	8	0	15							
cSH	657	763	1453	1700	1503	1700							
Volume to Capacity	0.03	0.09	0.00	0.03	0.02	0.04							
Queue Length 95th (ft)	2	8	0	0	2	0							
Control Delay (s)	10.6	10.2	0.7	0.0	2.8	0.0							
Lane LOS	B	B	A			A							
Approach Delay (s)	10.6	10.2	0.3			1.5							
Approach LOS	B	B											
Intersection Summary													
Average Delay			3.5										
Intersection Capacity Utilization			19.2%	ICU Level of Service	A								
Analysis Period (min)			15										

HCM Signalized Intersection Capacity Analysis























9: Broadway & 3rd Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	33	21	4	42	37	10	97	9	39	129	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frt	1.00	0.94			0.94			0.99			0.96	
Flt Protected	0.95	1.00			1.00			1.00			0.99	
Satd. Flow (prot)	1770	1754			1746			3483			3363	
Flt Permitted	0.70	1.00			0.99			0.93			0.90	
Satd. Flow (perm)	1310	1754			1739			3263			3054	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	34	33	21	4	42	37	10	97	9	39	129	65
RTOR Reduction (vph)	0	12	0	0	21	0	0	5	0	0	36	0
Lane Group Flow (vph)	34	42	0	0	62	0	0	111	0	0	197	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	32.0	32.0			32.0			34.0			34.0	
Effective Green, g (s)	32.0	32.0			32.0			34.0			34.0	
Actuated g/C Ratio	0.43	0.43			0.43			0.45			0.45	
Clearance Time (s)	5.0	5.0			5.0			4.0			4.0	
Lane Grp Cap (vph)	558	748			741			1479			1384	
v/s Ratio Prot		0.02										
v/s Ratio Perm	0.03				c0.04			0.03			c0.06	
v/c Ratio	0.06	0.06			0.08			0.08			0.14	
Uniform Delay, d1	12.7	12.6			12.8			11.6			12.0	
Progression Factor	1.00	1.00			1.00			1.00			0.61	
Incremental Delay, d2	0.2	0.1			0.2			0.1			0.2	
Delay (s)	12.9	12.8			13.0			11.7			7.5	
Level of Service	B	B			B			B			A	
Approach Delay (s)		12.8			13.0			11.7			7.5	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			10.2								HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.11									
Actuated Cycle Length (s)			75.0								Sum of lost time (s)	9.0
Intersection Capacity Utilization			26.8%								ICU Level of Service	A
Analysis Period (min)			15									

c Critical Lane Group




















HCM Signalized Intersection Capacity Analysis

10: Broadway & 5th Street

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 						 		 			
Volume (vph)	705	134	75	0	0	0	0	125	210	422	247	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.5	5.5	5.5					3.5	3.5	4.5	4.5		
Lane Util. Factor	0.91	0.91	1.00					0.95	1.00	0.97	1.00		
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00		
Flt Protected	0.95	0.97	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1610	3272	1583					3539	1583	3433	1863		
Flt Permitted	0.95	0.97	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1610	3272	1583					3539	1583	3433	1863		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	705	134	75	0	0	0	0	125	210	422	247	0	
RTOR Reduction (vph)	0	0	54	0	0	0	0	0	136	0	0	0	
Lane Group Flow (vph)	352	487	21	0	0	0	0	125	74	422	247	0	
Turn Type	Split	NA	Prot					NA	Prot	Prot	NA		
Protected Phases	4	4	4					2	2	1	6		
Permitted Phases													
Actuated Green, G (s)	20.6	20.6	20.6					26.5	26.5	14.4	44.4		
Effective Green, g (s)	20.6	20.6	20.6					26.5	26.5	14.4	44.4		
Actuated g/C Ratio	0.27	0.27	0.27					0.35	0.35	0.19	0.59		
Clearance Time (s)	5.5	5.5	5.5					3.5	3.5	4.5	4.5		
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	442	898	434					1250	559	659	1102		
v/s Ratio Prot	c0.22	0.15	0.01					0.04	0.05	c0.12	c0.13		
v/s Ratio Perm													
v/c Ratio	0.80	0.54	0.05					0.10	0.13	0.64	0.22		
Uniform Delay, d1	25.3	23.2	20.0					16.3	16.5	27.9	7.2		
Progression Factor	0.96	0.97	0.78					1.09	1.68	1.02	1.30		
Incremental Delay, d2	9.6	0.7	0.0					0.2	0.5	2.0	0.1		
Delay (s)	33.7	23.2	15.6					17.9	28.1	30.4	9.4		
Level of Service	C	C	B					B	C	C	A		
Approach Delay (s)		26.6			0.0			24.3			22.6		
Approach LOS		C			A			C			C		
Intersection Summary													
HCM 2000 Control Delay			24.8									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.52										
Actuated Cycle Length (s)			75.0									Sum of lost time (s)	13.5
Intersection Capacity Utilization			94.2%									ICU Level of Service	F
Analysis Period (min)			15										
c	Critical Lane Group												

















HCM Signalized Intersection Capacity Analysis

11: Broadway & 6th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	365	194	661	19	137	0	0	335	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			0.91	
Frt				1.00	1.00	0.85	1.00	1.00			0.98	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (prot)				1593	3185	1425	1593	3185			4497	
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00	
Satd. Flow (perm)				1593	3185	1425	1593	3185			4497	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	365	194	661	19	137	0	0	335	44
RTOR Reduction (vph)	0	0	0	0	0	423	0	0	0	0	17	0
Lane Group Flow (vph)	0	0	0	365	194	238	19	137	0	0	362	0
Turn Type				Split	NA	Prot	Prot	NA			NA	
Protected Phases				8	8	8	5	2			6	
Permitted Phases												
Actuated Green, G (s)				27.0	27.0	27.0	3.8	40.0			32.2	
Effective Green, g (s)				27.0	27.0	27.0	3.8	40.0			32.2	
Actuated g/C Ratio				0.36	0.36	0.36	0.05	0.53			0.43	
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)				573	1146	513	80	1698			1930	
v/s Ratio Prot				c0.23	0.06	0.17	c0.01	0.04			c0.08	
v/s Ratio Perm												
v/c Ratio				0.64	0.17	0.46	0.24	0.08			0.19	
Uniform Delay, d1				19.9	16.4	18.4	34.2	8.5			13.3	
Progression Factor				1.00	1.00	1.00	0.65	0.45			1.00	
Incremental Delay, d2				2.3	0.1	0.7	1.3	0.1			0.2	
Delay (s)				22.3	16.4	19.1	23.4	3.9			13.5	
Level of Service				C	B	B	C	A			B	
Approach Delay (s)		0.0			19.6			6.3			13.5	
Approach LOS		A			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			17.1		HCM 2000 Level of Service						B	
HCM 2000 Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			75.0		Sum of lost time (s)					12.0		
Intersection Capacity Utilization			94.2%		ICU Level of Service					F		
Analysis Period (min)			15									
c	Critical Lane Group											






















HCM Signalized Intersection Capacity Analysis

12: Broadway & 11th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	525	104	0	0	0	0	410	78	82	413	0
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		0.86						0.95		1.00	0.95	
Frt		0.98						0.98		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		5610						3109		1593	3185	
Flt Permitted		1.00						1.00		0.43	1.00	
Satd. Flow (perm)		5610						3109		716	3185	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	70	525	104	0	0	0	0	410	78	82	413	0
RTOR Reduction (vph)	0	52	0	0	0	0	0	25	0	0	0	0
Lane Group Flow (vph)	0	647	0	0	0	0	0	463	0	82	413	0
Turn Type	Split	NA						NA		pm+pt	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases										6		
Actuated Green, G (s)		23.0						21.0		29.0	29.0	
Effective Green, g (s)		23.0						21.0		29.0	29.0	
Actuated g/C Ratio		0.38						0.35		0.48	0.48	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Vehicle Extension (s)		3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)		2150						1088		404	1539	
v/s Ratio Prot		c0.12						c0.15		0.01	c0.13	
v/s Ratio Perm										0.08		
v/c Ratio		0.30						0.43		0.20	0.27	
Uniform Delay, d1		12.9						14.9		10.4	9.2	
Progression Factor		1.00						1.00		0.45	0.42	
Incremental Delay, d2		0.1						1.2		0.2	0.4	
Delay (s)		13.0						16.1		4.9	4.3	
Level of Service		B						B		A	A	
Approach Delay (s)		13.0			0.0			16.1			4.4	
Approach LOS		B			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			11.4					HCM 2000 Level of Service			B	
HCM 2000 Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			60.0					Sum of lost time (s)		12.0		
Intersection Capacity Utilization			51.5%					ICU Level of Service		A		
Analysis Period (min)			15									
c	Critical Lane Group											





















HCM Signalized Intersection Capacity Analysis

13: Broadway & 12th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					  			 			  	
Volume (vph)	0	0	0	86	296	63	92	365	0	0	393	35
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					0.91		1.00	0.95			0.91	
Frt					0.98		1.00	1.00			0.99	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					4437		1593	3185			4521	
Flt Permitted					0.99		0.49	1.00			1.00	
Satd. Flow (perm)					4437		827	3185			4521	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	86	296	63	92	365	0	0	393	35
RTOR Reduction (vph)	0	0	0	0	36	0	0	0	0	0	18	0
Lane Group Flow (vph)	0	0	0	0	409	0	92	365	0	0	411	0
Turn Type				Split	NA		pm+pt	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases							2					
Actuated Green, G (s)					26.0		26.0	26.0			18.0	
Effective Green, g (s)					26.0		26.0	26.0			18.0	
Actuated g/C Ratio					0.43		0.43	0.43			0.30	
Clearance Time (s)					4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)					1922		409	1380			1356	
v/s Ratio Prot					c0.09		0.01	c0.11			c0.09	
v/s Ratio Perm							0.08					
v/c Ratio					0.21		0.22	0.26			0.30	
Uniform Delay, d1					10.6		10.8	10.9			16.2	
Progression Factor					1.00		0.27	0.32			1.91	
Incremental Delay, d2					0.3		1.2	0.4			0.5	
Delay (s)					10.9		4.1	3.9			31.4	
Level of Service					B		A	A			C	
Approach Delay (s)		0.0			10.9			3.9			31.4	
Approach LOS		A			B			A			C	
Intersection Summary												
HCM 2000 Control Delay			15.1		HCM 2000 Level of Service						B	
HCM 2000 Volume to Capacity ratio			0.26									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)						12.0	
Intersection Capacity Utilization			51.5%		ICU Level of Service						A	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

















14: Broadway & 14th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Volume (vph)	3	273	78	1	268	91	0	355	24	0	492	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.5			5.5	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frt		0.97			0.96			0.99			0.98	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		3079			3064			3155			3124	
Flt Permitted		0.95			0.95			1.00			1.00	
Satd. Flow (perm)		2932			2924			3155			3124	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	273	78	1	268	91	0	355	24	0	492	73
RTOR Reduction (vph)	0	44	0	0	56	0	0	8	0	0	20	0
Lane Group Flow (vph)	0	310	0	0	304	0	0	371	0	0	546	0
Turn Type	Perm	NA		Perm	NA			NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8								
Actuated Green, G (s)		21.5			21.5			27.5			27.5	
Effective Green, g (s)		21.5			21.5			27.5			27.5	
Actuated g/C Ratio		0.36			0.36			0.46			0.46	
Clearance Time (s)		5.5			5.5			5.5			5.5	
Lane Grp Cap (vph)		1050			1047			1446			1431	
v/s Ratio Prot								0.12			c0.17	
v/s Ratio Perm		c0.11			0.10							
v/c Ratio		0.30			0.29			0.26			0.38	
Uniform Delay, d1		13.8			13.8			10.0			10.7	
Progression Factor		1.00			1.00			1.49			1.00	
Incremental Delay, d2		0.7			0.7			0.4			0.8	
Delay (s)		14.5			14.5			15.3			11.4	
Level of Service		B			B			B			B	
Approach Delay (s)		14.5			14.5			15.3			11.4	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			13.6								HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.34									
Actuated Cycle Length (s)			60.0								Sum of lost time (s)	11.0
Intersection Capacity Utilization			40.4%								ICU Level of Service	A
Analysis Period (min)			15									

c Critical Lane Group
















HCM Unsignalized Intersection Capacity Analysis

15: Franklin Street & 2nd Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	26	15	12	52	0	0	0	0	12	6	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	26	15	12	52	0	0	0	0	12	6	10
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					384							
pX, platoon unblocked												
vC, conflicting volume	52			41			122	110	34	110	117	52
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	52			41			122	110	34	110	117	52
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	99	99	99
cM capacity (veh/h)	1554			1568			834	775	1040	864	767	1016
Direction, Lane #	EB 1	WB 1	SB 1	SB 2								
Volume Total	41	64	15	13								
Volume Left	0	12	12	0								
Volume Right	15	0	0	10								
cSH	1700	1568	843	945								
Volume to Capacity	0.02	0.01	0.02	0.01								
Queue Length 95th (ft)	0	1	1	1								
Control Delay (s)	0.0	1.4	9.3	8.9								
Lane LOS		A	A	A								
Approach Delay (s)	0.0	1.4	9.1									
Approach LOS			A									
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			20.1%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

16: Franklin Street & 3rd Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	21	13	8	23	0	0	0	0	6	3	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	21	13	8	23	0	0	0	0	6	3	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		367			383							
pX, platoon unblocked												
vC, conflicting volume	23			34			70	66	28	66	73	23
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	23			34			70	66	28	66	73	23
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	99	100	100
cM capacity (veh/h)	1592			1578			914	820	1048	923	813	1054
Direction, Lane #	EB 1	WB 1	SB 1	SB 2								
Volume Total	34	31	8	4								
Volume Left	0	8	6	0								
Volume Right	13	0	0	2								
cSH	1700	1578	899	935								
Volume to Capacity	0.02	0.01	0.01	0.00								
Queue Length 95th (ft)	0	0	1	0								
Control Delay (s)	0.0	1.9	9.0	8.9								
Lane LOS		A	A	A								
Approach Delay (s)	0.0	1.9	9.0									
Approach LOS			A									
Intersection Summary												
Average Delay			2.1									
Intersection Capacity Utilization			18.2%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
















17: Webster Street & 1st Street / Embarcadero



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	28	70	91	25	22	54
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	28	70	91	25	22	54
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (ft)	385					
pX, platoon unblocked						
vC, conflicting volume	0		121	56	126	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		121	56	126	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	98		88	97	97	95
cM capacity (veh/h)	1623		783	821	751	1085
Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2	
Volume Total	28	70	116	22	54	
Volume Left	28	0	91	0	0	
Volume Right	0	70	0	0	54	
cSH	1623	1700	791	751	1085	
Volume to Capacity	0.02	0.04	0.15	0.03	0.05	
Queue Length 95th (ft)	1	0	13	2	4	
Control Delay (s)	7.3	0.0	10.3	9.9	8.5	
Lane LOS	A		B	A	A	
Approach Delay (s)	2.1		10.3	8.9		
Approach LOS			B	A		
Intersection Summary						
Average Delay			7.2			
Intersection Capacity Utilization			23.0%	ICU Level of Service	A	
Analysis Period (min)			15			




















HCM Signalized Intersection Capacity Analysis

18: Harrison Street & 7th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	214	0	0	0	0	0	527	1177	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0						5.0	5.0			
Lane Util. Factor		0.91						0.91	0.88			
Frt		1.00						1.00	0.85			
Flt Protected		0.99						1.00	1.00			
Satd. Flow (prot)		4533						4577	2508			
Flt Permitted		0.99						1.00	1.00			
Satd. Flow (perm)		4533						4577	2508			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	51	214	0	0	0	0	0	527	1177	0	0	0
RTOR Reduction (vph)	0	28	0	0	0	0	0	0	539	0	0	0
Lane Group Flow (vph)	0	237	0	0	0	0	0	527	638	0	0	0
Turn Type	Perm	NA						NA	custom			
Protected Phases		2						1				
Permitted Phases	2								5			
Actuated Green, G (s)		27.0						23.0	29.0			
Effective Green, g (s)		27.0						23.0	29.0			
Actuated g/C Ratio		0.45						0.38	0.48			
Clearance Time (s)		5.0						5.0	5.0			
Vehicle Extension (s)		3.0						3.0	3.0			
Lane Grp Cap (vph)		2039						1754	1212			
v/s Ratio Prot								0.12				
v/s Ratio Perm		0.05							c0.25			
v/c Ratio		0.12						0.30	0.53			
Uniform Delay, d1		9.6						12.9	10.7			
Progression Factor		1.00						1.00	1.00			
Incremental Delay, d2		0.1						0.1	0.4			
Delay (s)		9.7						13.0	11.2			
Level of Service		A						B	B			
Approach Delay (s)		9.7			0.0			11.7			0.0	
Approach LOS		A			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			11.4					HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio			0.36									
Actuated Cycle Length (s)			60.0					Sum of lost time (s)		10.0		
Intersection Capacity Utilization			92.2%					ICU Level of Service		F		
Analysis Period (min)			15									
c	Critical Lane Group											




















HCM Signalized Intersection Capacity Analysis

19: Jackson Street & 5th Street

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		  								 			
Volume (vph)	260	366	373	0	0	0	0	170	33	66	69	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		5.5						5.5		5.5	5.5		
Lane Util. Factor		0.91						1.00		1.00	1.00		
Frt		0.94						0.98		1.00	1.00		
Flt Protected		0.99						1.00		0.95	1.00		
Satd. Flow (prot)		4739						1822		1770	1863		
Flt Permitted		0.99						1.00		0.62	1.00		
Satd. Flow (perm)		4739						1822		1163	1863		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	260	366	373	0	0	0	0	170	33	66	69	0	
RTOR Reduction (vph)	0	143	0	0	0	0	0	9	0	0	0	0	
Lane Group Flow (vph)	0	856	0	0	0	0	0	194	0	66	69	0	
Turn Type	Perm	NA						NA		Perm	NA		
Protected Phases		4						2			6		
Permitted Phases	4									6			
Actuated Green, G (s)		34.5						29.5		29.5	29.5		
Effective Green, g (s)		34.5						29.5		29.5	29.5		
Actuated g/C Ratio		0.46						0.39		0.39	0.39		
Clearance Time (s)		5.5						5.5		5.5	5.5		
Lane Grp Cap (vph)		2179						716		457	732		
v/s Ratio Prot								c0.11			0.04		
v/s Ratio Perm		0.18								0.06			
v/c Ratio		0.39						0.27		0.14	0.09		
Uniform Delay, d1		13.3						15.4		14.6	14.3		
Progression Factor		1.00						1.00		0.68	0.70		
Incremental Delay, d2		0.5						0.9		0.7	0.3		
Delay (s)		13.9						16.4		10.7	10.3		
Level of Service		B						B		B	B		
Approach Delay (s)		13.9			0.0			16.4			10.5		
Approach LOS		B			A			B			B		
Intersection Summary													
HCM 2000 Control Delay			13.9									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.34										
Actuated Cycle Length (s)			75.0									Sum of lost time (s)	11.0
Intersection Capacity Utilization			65.1%									ICU Level of Service	C
Analysis Period (min)			15										
c Critical Lane Group													





















HCM Signalized Intersection Capacity Analysis

20: Jackson Street & 6th Street

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	0	0	0	2	279	50	232	238	0	0	158	1262	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				5.5	5.5	5.5	5.5	5.5			5.5	4.0	
Lane Util. Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00	
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)				1593	1676	1425	1593	1676			1676	1425	
Flt Permitted				0.95	1.00	1.00	0.66	1.00			1.00	1.00	
Satd. Flow (perm)				1593	1676	1425	1101	1676			1676	1425	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	0	0	0	2	279	50	232	238	0	0	158	1262	
RTOR Reduction (vph)	0	0	0	0	0	37	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	2	279	13	232	238	0	0	158	1262	
Turn Type				Split	NA	Perm	Perm	NA			NA	Free	
Protected Phases				8	8			2			6		
Permitted Phases						8	2					Free	
Actuated Green, G (s)				19.5	19.5	19.5	44.5	44.5			44.5	75.0	
Effective Green, g (s)				19.5	19.5	19.5	44.5	44.5			44.5	75.0	
Actuated g/C Ratio				0.26	0.26	0.26	0.59	0.59			0.59	1.00	
Clearance Time (s)				5.5	5.5	5.5	5.5	5.5			5.5		
Lane Grp Cap (vph)				414	435	370	653	994			994	1425	
v/s Ratio Prot				0.00	0.17			0.14			0.09		
v/s Ratio Perm						0.01	0.21					c0.89	
v/c Ratio				0.00	0.64	0.04	0.36	0.24			0.16	0.89	
Uniform Delay, d1				20.6	24.6	20.7	7.9	7.2			6.8	0.0	
Progression Factor				1.00	1.00	1.00	1.22	1.22			1.00	1.00	
Incremental Delay, d2				0.0	7.1	0.2	1.4	0.5			0.3	8.4	
Delay (s)				20.6	31.7	20.9	11.0	9.4			7.2	8.4	
Level of Service				C	C	C	B	A			A	A	
Approach Delay (s)		0.0			30.0			10.2			8.3		
Approach LOS		A			C			B			A		
Intersection Summary													
HCM 2000 Control Delay			11.9		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			1.04										
Actuated Cycle Length (s)			75.0		Sum of lost time (s)					11.0			
Intersection Capacity Utilization			65.1%		ICU Level of Service					C			
Analysis Period (min)			15										
c Critical Lane Group													
















HCM Signalized Intersection Capacity Analysis

21: Jackson Street & 7th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  						 			 	
Volume (vph)	32	442	1093	0	0	0	0	265	67	20	255	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	4.0					4.0			4.0	
Lane Util. Factor		0.86	0.86					1.00			1.00	
Frt		0.92	0.85					0.97			1.00	
Flt Protected		1.00	1.00					1.00			1.00	
Satd. Flow (prot)		3971	1226					1631			1670	
Flt Permitted		1.00	1.00					1.00			0.97	
Satd. Flow (perm)		3971	1226					1631			1625	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	32	442	1093	0	0	0	0	265	67	20	255	0
RTOR Reduction (vph)	0	349	0	0	0	0	0	15	0	0	0	0
Lane Group Flow (vph)	0	672	546	0	0	0	0	317	0	0	275	0
Turn Type	Split	NA	Free					NA		Perm	NA	
Protected Phases	4	4						2			6	
Permitted Phases			Free							6		
Actuated Green, G (s)		19.0	60.0					32.0			32.0	
Effective Green, g (s)		19.0	60.0					32.0			32.0	
Actuated g/C Ratio		0.32	1.00					0.53			0.53	
Clearance Time (s)		5.0						4.0			4.0	
Vehicle Extension (s)		3.0						3.0			3.0	
Lane Grp Cap (vph)		1257	1226					869			866	
v/s Ratio Prot		0.17						0.19				
v/s Ratio Perm			c0.45								0.17	
v/c Ratio		0.53	0.45					0.36			0.32	
Uniform Delay, d1		16.9	0.0					8.1			7.9	
Progression Factor		1.00	1.00					1.00			1.00	
Incremental Delay, d2		1.6	1.2					1.2			1.0	
Delay (s)		18.5	1.2					9.3			8.8	
Level of Service		B	A					A			A	
Approach Delay (s)		12.5			0.0			9.3			8.8	
Approach LOS		B			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			11.5					HCM 2000 Level of Service			B	
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			60.0					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			60.0%					ICU Level of Service		B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

22: Madison Street & 5th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	416	17	0	0	0	0	0	0	548	98	0
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	
Lane Util. Factor		0.91								0.91	0.91	
Frt		0.99								1.00	1.00	
Flt Protected		1.00								0.95	0.96	
Satd. Flow (prot)		5055								1610	3270	
Flt Permitted		1.00								0.95	0.96	
Satd. Flow (perm)		5055								1610	3270	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	416	17	0	0	0	0	0	0	548	98	0
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	0	119	119	0
Lane Group Flow (vph)	0	424	0	0	0	0	0	0	0	155	253	0
Turn Type		NA								Perm	NA	
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		16.0								22.0	22.0	
Effective Green, g (s)		16.0								22.0	22.0	
Actuated g/C Ratio		0.35								0.48	0.48	
Clearance Time (s)		4.0								4.0	4.0	
Lane Grp Cap (vph)		1758								770	1563	
v/s Ratio Prot		c0.08										
v/s Ratio Perm										c0.10	0.08	
v/c Ratio		0.24								0.20	0.16	
Uniform Delay, d1		10.7								6.9	6.8	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.3								0.6	0.2	
Delay (s)		11.0								7.5	7.0	
Level of Service		B								A	A	
Approach Delay (s)		11.0			0.0			0.0			7.2	
Approach LOS		B			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			8.7								HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.22									
Actuated Cycle Length (s)			46.0								Sum of lost time (s)	8.0
Intersection Capacity Utilization			29.2%								ICU Level of Service	A
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis















23: Madison Street & 6th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑						↑↑↑	
Volume (vph)	0	0	0	31	164	0	0	0	0	0	610	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0						4.0	
Lane Util. Factor					0.91						0.91	
Frt					1.00						0.96	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					4541						4401	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					4541						4401	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	31	164	0	0	0	0	0	610	210
RTOR Reduction (vph)	0	0	0	0	21	0	0	0	0	0	107	0
Lane Group Flow (vph)	0	0	0	0	174	0	0	0	0	0	713	0
Turn Type				Split	NA						NA	
Protected Phases				8	8						6	
Permitted Phases												
Actuated Green, G (s)					15.0						22.0	
Effective Green, g (s)					15.0						22.0	
Actuated g/C Ratio					0.33						0.49	
Clearance Time (s)					4.0						4.0	
Lane Grp Cap (vph)					1513						2151	
v/s Ratio Prot					c0.04						c0.16	
v/s Ratio Perm												
v/c Ratio					0.12						0.33	
Uniform Delay, d1					10.4						7.0	
Progression Factor					1.11						1.00	
Incremental Delay, d2					0.1						0.4	
Delay (s)					11.7						7.4	
Level of Service					B						A	
Approach Delay (s)		0.0			11.7			0.0			7.4	
Approach LOS		A			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			8.3		HCM 2000 Level of Service					A		
HCM 2000 Volume to Capacity ratio			0.24									
Actuated Cycle Length (s)			45.0		Sum of lost time (s)					8.0		
Intersection Capacity Utilization			29.2%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												




















HCM Signalized Intersection Capacity Analysis

24: Madison Street & 7th Street

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	0	331	193	0	0	0	0	0	0	121	578	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.0									4.0		
Lane Util. Factor		0.86									0.91		
Frt		0.94									1.00		
Flt Protected		1.00									0.99		
Satd. Flow (prot)		5448									4537		
Flt Permitted		1.00									0.99		
Satd. Flow (perm)		5448									4537		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	0	331	193	0	0	0	0	0	0	121	578	0	
RTOR Reduction (vph)	0	119	0	0	0	0	0	0	0	0	54	0	
Lane Group Flow (vph)	0	405	0	0	0	0	0	0	0	0	645	0	
Turn Type		NA								Perm	NA		
Protected Phases		4									6		
Permitted Phases										6			
Actuated Green, G (s)		23.0									29.0		
Effective Green, g (s)		23.0									29.0		
Actuated g/C Ratio		0.38									0.48		
Clearance Time (s)		4.0									4.0		
Vehicle Extension (s)		3.0									3.0		
Lane Grp Cap (vph)		2088									2192		
v/s Ratio Prot		c0.07											
v/s Ratio Perm											0.14		
v/c Ratio		0.19									0.29		
Uniform Delay, d1		12.3									9.3		
Progression Factor		0.53									1.00		
Incremental Delay, d2		0.2									0.3		
Delay (s)		6.6									9.7		
Level of Service		A									A		
Approach Delay (s)		6.6			0.0			0.0			9.7		
Approach LOS		A			A			A			A		
Intersection Summary													
HCM 2000 Control Delay			8.4									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.25										
Actuated Cycle Length (s)			60.0									Sum of lost time (s)	8.0
Intersection Capacity Utilization			38.3%									ICU Level of Service	A
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

25: Oak Street & 1st Street / Embarcadero

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			 	
Volume (veh/h)	87	0	66	2	0	0	139	226	0	0	201	60
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	87	0	66	2	0	0	139	226	0	0	201	60
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											563	
pX, platoon unblocked												
vC, conflicting volume	622	735	130	670	765	113	261			226		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	622	735	130	670	765	113	261			226		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	74	100	93	99	100	100	89			100		
cM capacity (veh/h)	341	308	895	291	296	918	1300			1340		
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2					
Volume Total	87	66	139	113	113	134	127					
Volume Left	87	0	139	0	0	0	0					
Volume Right	0	66	0	0	0	0	60					
cSH	341	895	1300	1700	1700	1700	1700					
Volume to Capacity	0.26	0.07	0.11	0.07	0.07	0.08	0.07					
Queue Length 95th (ft)	25	6	9	0	0	0	0					
Control Delay (s)	19.2	9.3	8.1	0.0	0.0	0.0	0.0					
Lane LOS	C	A	A									
Approach Delay (s)	14.9		3.1			0.0						
Approach LOS	B											
Intersection Summary												
Average Delay			Err									
Intersection Capacity Utilization			Err%		ICU Level of Service				H			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

26: Oak Street & 3rd Street






















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	31	65	58	269	232	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.91		1.00	1.00	1.00	0.85
Flt Protected	0.98		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1666		1770	1863	1863	1583
Flt Permitted	0.98		0.61	1.00	1.00	1.00
Satd. Flow (perm)	1666		1144	1863	1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	31	65	58	269	232	38
RTOR Reduction (vph)	58	0	0	0	0	9
Lane Group Flow (vph)	38	0	58	269	232	29
Turn Type	NA		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Actuated Green, G (s)	5.8		41.5	41.5	41.5	41.5
Effective Green, g (s)	5.8		41.5	41.5	41.5	41.5
Actuated g/C Ratio	0.10		0.75	0.75	0.75	0.75
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	174		858	1398	1398	1187
v/s Ratio Prot	c0.02			c0.14	0.12	
v/s Ratio Perm			0.05			0.02
v/c Ratio	0.22		0.07	0.19	0.17	0.02
Uniform Delay, d1	22.7		1.8	2.0	2.0	1.8
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6		0.2	0.3	0.3	0.0
Delay (s)	23.3		2.0	2.3	2.2	1.8
Level of Service	C		A	A	A	A
Approach Delay (s)	23.3			2.3	2.2	
Approach LOS	C			A	A	

Intersection Summary

HCM 2000 Control Delay	5.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	55.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	31.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			
















HCM Signalized Intersection Capacity Analysis

27: Oak Street & 5th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  						  				
Volume (vph)	219	555	126	0	0	0	0	228	70	2	98	0
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	
Lane Util. Factor		0.91						0.95			1.00	
Frt		0.98						0.96			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4919						3415			1861	
Flt Permitted		0.99						1.00			0.99	
Satd. Flow (perm)		4919						3415			1851	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	219	555	126	0	0	0	0	228	70	2	98	0
RTOR Reduction (vph)	0	50	0	0	0	0	0	47	0	0	0	0
Lane Group Flow (vph)	0	850	0	0	0	0	0	251	0	0	100	0
Turn Type	Split	NA						NA		Perm	NA	
Protected Phases	4	4						2			6	
Permitted Phases										6		
Actuated Green, G (s)		22.0						15.0			15.0	
Effective Green, g (s)		22.0						15.0			15.0	
Actuated g/C Ratio		0.49						0.33			0.33	
Clearance Time (s)		4.0						4.0			4.0	
Lane Grp Cap (vph)		2404						1138			617	
v/s Ratio Prot		c0.17						c0.07				
v/s Ratio Perm											0.05	
v/c Ratio		0.35						0.22			0.16	
Uniform Delay, d1		7.1						10.8			10.6	
Progression Factor		1.00						1.00			1.16	
Incremental Delay, d2		0.4						0.4			0.6	
Delay (s)		7.5						11.2			12.8	
Level of Service		A						B			B	
Approach Delay (s)		7.5			0.0			11.2			12.8	
Approach LOS		A			A			B			B	
Intersection Summary												
HCM 2000 Control Delay			8.8					HCM 2000 Level of Service		A		
HCM 2000 Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			45.0					Sum of lost time (s)		8.0		
Intersection Capacity Utilization			33.2%					ICU Level of Service		A		
Analysis Period (min)			15									
c	Critical Lane Group											















HCM Signalized Intersection Capacity Analysis

28: Oak Street & 6th Street

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	0	0	0	81	66	567	116	358	0	0	0	0	
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					
Lane Util. Factor					0.91	0.91		0.95					
Frt					0.90	0.85		1.00					
Flt Protected					0.99	1.00		0.99					
Satd. Flow (prot)					2724	1297		3147					
Flt Permitted					0.99	1.00		0.99					
Satd. Flow (perm)					2724	1297		3147					
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	0	0	0	81	66	567	116	358	0	0	0	0	
RTOR Reduction (vph)	0	0	0	0	138	138	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	293	145	0	474	0	0	0	0	
Turn Type				Split	NA	Perm	Split	NA					
Protected Phases				8	8		2	2					
Permitted Phases						8							
Actuated Green, G (s)					22.0	22.0		15.0					
Effective Green, g (s)					22.0	22.0		15.0					
Actuated g/C Ratio					0.49	0.49		0.33					
Clearance Time (s)					4.0	4.0		4.0					
Lane Grp Cap (vph)					1331	634		1049					
v/s Ratio Prot					0.11			c0.15					
v/s Ratio Perm						c0.11							
v/c Ratio					0.22	0.23		0.45					
Uniform Delay, d1					6.6	6.6		11.8					
Progression Factor					1.00	1.00		0.87					
Incremental Delay, d2					0.4	0.8		1.4					
Delay (s)					7.0	7.5		11.6					
Level of Service					A	A		B					
Approach Delay (s)		0.0			7.2			11.6			0.0		
Approach LOS		A			A			B			A		
Intersection Summary													
HCM 2000 Control Delay			8.9		HCM 2000 Level of Service				A				
HCM 2000 Volume to Capacity ratio			0.32										
Actuated Cycle Length (s)			45.0		Sum of lost time (s)				8.0				
Intersection Capacity Utilization			47.4%		ICU Level of Service				A				
Analysis Period (min)			15										
c Critical Lane Group													


















HCM Signalized Intersection Capacity Analysis

29: Oak Street & 7th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	84	324	0	0	0	0	0	834	74	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5				
Lane Util. Factor		0.86						0.91				
Frt		1.00						0.99				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		5708						4521				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		5708						4521				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	84	324	0	0	0	0	0	834	74	0	0	0
RTOR Reduction (vph)	0	37	0	0	0	0	0	17	0	0	0	0
Lane Group Flow (vph)	0	371	0	0	0	0	0	891	0	0	0	0
Turn Type	Perm	NA						NA				
Protected Phases		4						2				
Permitted Phases	4											
Actuated Green, G (s)		27.0						24.0				
Effective Green, g (s)		27.0						24.0				
Actuated g/C Ratio		0.45						0.40				
Clearance Time (s)		4.5						4.5				
Lane Grp Cap (vph)		2568						1808				
v/s Ratio Prot								c0.20				
v/s Ratio Perm		0.07										
v/c Ratio		0.14						0.49				
Uniform Delay, d1		9.7						13.5				
Progression Factor		1.18						1.00				
Incremental Delay, d2		0.1						1.0				
Delay (s)		11.6						14.4				
Level of Service		B						B				
Approach Delay (s)		11.6			0.0			14.4			0.0	
Approach LOS		B			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			13.5					HCM 2000 Level of Service			B	
HCM 2000 Volume to Capacity ratio			0.31									
Actuated Cycle Length (s)			60.0					Sum of lost time (s)			9.0	
Intersection Capacity Utilization			66.8%					ICU Level of Service			C	
Analysis Period (min)			15									
c Critical Lane Group												




























HCM Unsignalized Intersection Capacity Analysis

30: 5th Avenue & 1st Street / Embarcadero

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	21	221	4	4	238	190	7	2	2	267	4	103
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	21	221	4	4	238	190	7	2	2	267	4	103
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1							
Volume Total (vph)	246	242	190	11	374							
Volume Left (vph)	21	4	0	7	267							
Volume Right (vph)	4	0	190	2	103							
Hadj (s)	0.04	0.04	-0.67	0.05	0.01							
Departure Headway (s)	5.8	6.1	5.4	6.5	5.6							
Degree Utilization, x	0.40	0.41	0.28	0.02	0.58							
Capacity (veh/h)	580	563	636	456	608							
Control Delay (s)	12.7	12.1	9.3	9.6	16.3							
Approach Delay (s)	12.7	10.8		9.6	16.3							
Approach LOS	B	B		A	C							
Intersection Summary												
Delay			13.2									
Level of Service			B									
Intersection Capacity Utilization			62.0%	ICU Level of Service	B							
Analysis Period (min)			15									




























HCM Signalized Intersection Capacity Analysis

31: Webster Street & Atlantic Avenue

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 			 	
Volume (vph)	275	197	69	23	202	64	75	831	36	40	422	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	1770	3411		1770	3517		1770	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	1770	3411		1770	3517		1770	3539	1583
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)	299	214	75	25	220	70	82	903	39	43	459	255
RTOR Reduction (vph)	0	0	52	0	33	0	0	2	0	0	0	215
Lane Group Flow (vph)	299	214	23	25	257	0	82	940	0	43	459	40
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	Over
Protected Phases	7	4		3	8		5	2		1	6	7
Permitted Phases			4									
Actuated Green, G (s)	11.7	22.4	22.4	2.7	13.4		7.1	28.1		4.5	25.5	11.7
Effective Green, g (s)	11.7	22.4	22.4	2.7	13.4		7.1	28.1		4.5	25.5	11.7
Actuated g/C Ratio	0.16	0.30	0.30	0.04	0.18		0.10	0.38		0.06	0.35	0.16
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	544	1075	481	64	620		170	1340		108	1224	251
v/s Ratio Prot	c0.09	0.06		0.01	c0.08		c0.05	c0.27		0.02	0.13	0.03
v/s Ratio Perm			0.01									
v/c Ratio	0.55	0.20	0.05	0.39	0.41		0.48	0.70		0.40	0.38	0.16
Uniform Delay, d1	28.6	19.0	18.1	34.7	26.7		31.6	19.3		33.3	18.1	26.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.1	0.1	0.0	3.9	0.5		2.2	3.1		2.4	0.9	0.3
Delay (s)	29.7	19.1	18.2	38.6	27.1		33.7	22.3		35.7	19.0	27.1
Level of Service	C	B	B	D	C		C	C		D	B	C
Approach Delay (s)		24.4			28.0			23.2			22.7	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM 2000 Control Delay			23.9				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			73.7				Sum of lost time (s)		16.0			
Intersection Capacity Utilization			56.3%				ICU Level of Service			B		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

32: Constitution Way & Atlantic Avenue


















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 		 	 	
Volume (vph)	93	173	76	33	171	82	107	787	42	75	303	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.95		1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3377		1770	3367		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3377		1770	3367		3433	3539	1583	3433	3539	1583
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)	101	188	83	36	186	89	116	855	46	82	329	37
RTOR Reduction (vph)	0	50	0	0	62	0	0	0	28	0	0	23
Lane Group Flow (vph)	101	221	0	36	213	0	116	855	18	82	329	14
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	7.4	15.7		2.9	11.2		6.0	26.0	26.0	5.4	25.4	25.4
Effective Green, g (s)	7.4	15.7		2.9	11.2		6.0	26.0	26.0	5.4	25.4	25.4
Actuated g/C Ratio	0.11	0.24		0.04	0.17		0.09	0.39	0.39	0.08	0.38	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	198	803		77	571		312	1394	623	280	1361	609
v/s Ratio Prot	c0.06	0.07		0.02	c0.06		c0.03	c0.24		0.02	0.09	
v/s Ratio Perm									0.01			0.01
v/c Ratio	0.51	0.27		0.47	0.37		0.37	0.61	0.03	0.29	0.24	0.02
Uniform Delay, d1	27.6	20.5		30.8	24.3		28.2	16.0	12.3	28.5	13.8	12.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	0.2		4.4	0.4		0.7	2.0	0.1	0.6	0.4	0.1
Delay (s)	29.8	20.7		35.2	24.7		29.0	18.0	12.3	29.1	14.2	12.7
Level of Service	C	C		D	C		C	B	B	C	B	B
Approach Delay (s)		23.2			25.9			19.0			16.8	
Approach LOS		C			C			B			B	
Intersection Summary												
HCM 2000 Control Delay			20.3	HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			66.0	Sum of lost time (s)				16.0				
Intersection Capacity Utilization			50.9%	ICU Level of Service				A				
Analysis Period (min)			15									
c	Critical Lane Group											

Level Of Service Computation Report

Existing Conditions
PM Peak Hour

















HCM Unsignalized Intersection Capacity Analysis

1: Market Street & 3rd Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	52	269	14	6	120	29	33	75	17	41	18	37
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	52	269	14	6	120	29	33	75	17	41	18	37
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	149			283			498	541	142	440	534	74
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	149			283			498	541	142	440	534	74
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			100			92	82	98	90	96	96
cM capacity (veh/h)	1430			1276			411	428	880	412	433	972
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2	SB 3				
Volume Total	186	148	66	89	125	41	12	43				
Volume Left	52	0	6	0	33	41	0	0				
Volume Right	0	14	0	29	17	0	0	37				
cSH	1430	1700	1276	1700	455	412	433	828				
Volume to Capacity	0.04	0.09	0.00	0.05	0.27	0.10	0.03	0.05				
Queue Length 95th (ft)	3	0	0	0	28	8	2	4				
Control Delay (s)	2.3	0.0	0.7	0.0	15.9	14.7	13.6	9.6				
Lane LOS	A		A		C	B	B	A				
Approach Delay (s)	1.3		0.3		15.9	12.3						
Approach LOS					C	B						
Intersection Summary												
Average Delay			5.1									
Intersection Capacity Utilization			37.3%		ICU Level of Service			A				
Analysis Period (min)			15									


















HCM Signalized Intersection Capacity Analysis

2: Market Street & 5th Street

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	9	713	20	0	0	0	0	125	17	103	72	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		5.5						4.5		4.5	4.5		
Lane Util. Factor		0.91						0.95		1.00	0.91		
Frt		1.00						0.98		1.00	1.00		
Flt Protected		1.00						1.00		0.95	1.00		
Satd. Flow (prot)		5062						3476		1770	5085		
Flt Permitted		1.00						1.00		0.66	1.00		
Satd. Flow (perm)		5062						3476		1233	5085		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	9	713	20	0	0	0	0	125	17	103	72	0	
RTOR Reduction (vph)	0	3	0	0	0	0	0	12	0	0	0	0	
Lane Group Flow (vph)	0	739	0	0	0	0	0	130	0	103	72	0	
Turn Type	Perm	NA						NA		Perm	NA		
Protected Phases		4						2			6		
Permitted Phases	4									6			
Actuated Green, G (s)		60.5						19.5		19.5	19.5		
Effective Green, g (s)		60.5						19.5		19.5	19.5		
Actuated g/C Ratio		0.67						0.22		0.22	0.22		
Clearance Time (s)		5.5						4.5		4.5	4.5		
Vehicle Extension (s)		3.0						3.0		3.0	3.0		
Lane Grp Cap (vph)		3402						753		267	1101		
v/s Ratio Prot								0.04			0.01		
v/s Ratio Perm		0.15								c0.08			
v/c Ratio		0.22						0.17		0.39	0.07		
Uniform Delay, d1		5.7						28.7		30.1	28.0		
Progression Factor		1.00						1.00		0.86	0.85		
Incremental Delay, d2		0.1						0.5		4.2	0.1		
Delay (s)		5.8						29.2		30.2	23.9		
Level of Service		A						C		C	C		
Approach Delay (s)		5.8			0.0			29.2			27.6		
Approach LOS		A			A			C			C		
Intersection Summary													
HCM 2000 Control Delay			12.5									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.26										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	10.0
Intersection Capacity Utilization			36.2%									ICU Level of Service	A
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: Market Street & 6th Street

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	
Lane Configurations													
Volume (vph)	0	0	0	21	145	253	12	23	109	0	0	142	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)					4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor					0.95	1.00		1.00	1.00			0.95	
Frt					1.00	0.85		1.00	1.00			1.00	
Flt Protected					0.99	1.00		0.95	1.00			1.00	
Satd. Flow (prot)					3517	1583		1770	1863			3539	
Flt Permitted					0.99	1.00		0.66	1.00			1.00	
Satd. Flow (perm)					3517	1583		1233	1863			3539	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	0	0	0	21	145	253	12	23	109	0	0	142	
RTOR Reduction (vph)	0	0	0	0	0	223	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	166	30	0	35	109	0	0	142	
Turn Type				Perm	NA	Perm	Perm	Perm	NA			NA	
Protected Phases					8				2			6	
Permitted Phases				8		8	2	2					
Actuated Green, G (s)					10.5	10.5		70.5	70.5			70.5	
Effective Green, g (s)					10.5	10.5		70.5	70.5			70.5	
Actuated g/C Ratio					0.12	0.12		0.78	0.78			0.78	
Clearance Time (s)					4.5	4.5		4.5	4.5			4.5	
Vehicle Extension (s)					3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)					410	184		965	1459			2772	
v/s Ratio Prot									c0.06			0.04	
v/s Ratio Perm					0.05	0.02		0.03					
v/c Ratio					0.40	0.16		0.04	0.07			0.05	
Uniform Delay, d1					36.9	35.8		2.2	2.2			2.2	
Progression Factor					0.98	1.75		0.19	0.33			1.00	
Incremental Delay, d2					0.7	0.4		0.1	0.1			0.0	
Delay (s)					36.8	63.1		0.5	0.8			2.2	
Level of Service					D	E		A	A			A	
Approach Delay (s)		0.0			52.6				0.7			2.2	
Approach LOS		A			D				A			A	
Intersection Summary													
HCM 2000 Control Delay			30.5		HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.12										
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				9.0				
Intersection Capacity Utilization			36.2%		ICU Level of Service				A				
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Signalized Intersection Capacity Analysis



























3: Market Street & 6th Street



Movement	SBR
Lane Configurations	7
Volume (vph)	34
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.5
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	34
RTOR Reduction (vph)	7
Lane Group Flow (vph)	27
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	70.5
Effective Green, g (s)	70.5
Actuated g/C Ratio	0.78
Clearance Time (s)	4.5
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	1240
v/s Ratio Prot	
v/s Ratio Perm	0.02
v/c Ratio	0.02
Uniform Delay, d1	2.1
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	2.2
Level of Service	A
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

4: Market Street & 7th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Volume (vph)	94	705	57	27	325	35	110	204	36	53	86	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	0.95	1.00
Frt	1.00	0.99		1.00	0.99		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5028		1770	5011		1770	1821		1770	3539	1583
Flt Permitted	0.53	1.00		0.32	1.00		0.70	1.00		0.56	1.00	1.00
Satd. Flow (perm)	985	5028		596	5011		1301	1821		1043	3539	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	94	705	57	27	325	35	110	204	36	53	86	60
RTOR Reduction (vph)	0	11	0	0	15	0	0	7	0	0	0	34
Lane Group Flow (vph)	94	751	0	27	345	0	110	233	0	53	86	26
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	39.0	39.0		39.0	39.0		36.5	36.5		36.5	36.5	36.5
Effective Green, g (s)	39.0	39.0		39.0	39.0		36.5	36.5		36.5	36.5	36.5
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.43	0.43		0.43	0.43	0.43
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	451	2306		273	2299		558	781		447	1519	679
v/s Ratio Prot		c0.15			0.07			c0.13			0.02	
v/s Ratio Perm	0.10			0.05			0.08			0.05		0.02
v/c Ratio	0.21	0.33		0.10	0.15		0.20	0.30		0.12	0.06	0.04
Uniform Delay, d1	13.8	14.6		13.0	13.4		15.1	15.9		14.6	14.2	14.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.0	0.4		0.7	0.1		0.8	1.0		0.1	0.0	0.0
Delay (s)	14.8	15.0		13.8	13.5		15.9	16.8		14.7	14.2	14.1
Level of Service	B	B		B	B		B	B		B	B	B
Approach Delay (s)		15.0			13.5			16.5			14.3	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			14.9				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.31									
Actuated Cycle Length (s)			85.0				Sum of lost time (s)			9.5		
Intersection Capacity Utilization			50.3%				ICU Level of Service			A		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

5: Castro Street & 11th Street



















Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Volume (vph)	158	500	1090	35	61	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		5.0	
Lane Util. Factor	0.81	0.81	0.91		0.97	
Frt	1.00	1.00	1.00		0.95	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1290	5415	4555		2984	
Flt Permitted	0.95	1.00	1.00		0.97	
Satd. Flow (perm)	1290	5415	4555		2984	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	158	500	1090	35	61	33
RTOR Reduction (vph)	90	65	3	0	0	0
Lane Group Flow (vph)	36	467	1122	0	94	0
Turn Type	Split	NA	NA		NA	
Protected Phases	4	4	2		8	
Permitted Phases						
Actuated Green, G (s)	24.0	24.0	29.2		16.8	
Effective Green, g (s)	24.0	24.0	29.2		16.8	
Actuated g/C Ratio	0.28	0.28	0.34		0.20	
Clearance Time (s)	5.0	5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	364	1528	1564		589	
v/s Ratio Prot	0.03	c0.09	c0.25		c0.03	
v/s Ratio Perm						
v/c Ratio	0.10	0.31	0.72		0.16	
Uniform Delay, d1	22.5	24.0	24.3		28.3	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.5	0.5	2.9		0.1	
Delay (s)	23.0	24.5	27.2		28.4	
Level of Service	C	C	C		C	
Approach Delay (s)		24.2	27.2		28.4	
Approach LOS		C	C		C	

Intersection Summary

















HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

6: Castro Street & 12th Street

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	216	696	29	1412	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5	4.5	5.0	5.0				
Lane Util. Factor					0.91	0.91	0.81	0.81				
Frt					0.91	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	1.00				
Satd. Flow (prot)					2769	1297	1290	5431				
Flt Permitted					1.00	1.00	0.95	1.00				
Satd. Flow (perm)					2769	1297	1290	5431				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	216	696	29	1412	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	16	12	9	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	562	332	14	1406	0	0	0	0
Turn Type					NA	Perm	Perm	NA				
Protected Phases					8			2				
Permitted Phases						8	2					
Actuated Green, G (s)					31.3	31.3	44.2	44.2				
Effective Green, g (s)					31.3	31.3	44.2	44.2				
Actuated g/C Ratio					0.37	0.37	0.52	0.52				
Clearance Time (s)					4.5	4.5	5.0	5.0				
Vehicle Extension (s)					3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)					1019	477	670	2824				
v/s Ratio Prot					0.20							
v/s Ratio Perm						c0.26	0.01	0.26				
v/c Ratio					0.55	0.70	0.02	0.50				
Uniform Delay, d1					21.3	22.8	9.9	13.2				
Progression Factor					1.00	1.00	0.04	0.25				
Incremental Delay, d2					0.6	4.4	0.0	0.5				
Delay (s)					21.9	27.2	0.4	3.8				
Level of Service					C	C	A	A				
Approach Delay (s)		0.0			23.9			3.8			0.0	
Approach LOS		A			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			11.6		HCM 2000 Level of Service						B	
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			85.0		Sum of lost time (s)						9.5	
Intersection Capacity Utilization			61.1%		ICU Level of Service						B	
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis
 7: Broadway & 1st Street / Embarcadero

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	19	66	11	13	39	72	6	34	17	70	49	19
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	19	66	11	13	39	72	6	34	17	70	49	19
Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2							
Volume Total (vph)	96	124	57	95	44							
Volume Left (vph)	19	13	6	70	0							
Volume Right (vph)	11	72	17	0	19							
Hadj (s)	0.00	-0.29	-0.12	0.40	-0.27							
Departure Headway (s)	4.5	4.2	4.6	5.5	4.8							
Degree Utilization, x	0.12	0.14	0.07	0.14	0.06							
Capacity (veh/h)	757	806	742	627	715							
Control Delay (s)	8.2	7.9	7.9	8.2	6.9							
Approach Delay (s)	8.2	7.9	7.9	7.8								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			7.9									
Level of Service			A									
Intersection Capacity Utilization			26.0%	ICU Level of Service	A							
Analysis Period (min)			15									




















HCM Unsignalized Intersection Capacity Analysis

8: Broadway & 2nd Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	40	31	16	17	26	64	18	147	49	53	202	33
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	40	31	16	17	26	64	18	147	49	53	202	33
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											288	
pX, platoon unblocked												
vC, conflicting volume	511	556	118	446	548	98	235			196		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	511	556	118	446	548	98	235			196		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	89	93	98	96	94	93	99			96		
cM capacity (veh/h)	380	415	912	441	419	939	1329			1374		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	87	107	92	122	154	134						
Volume Left	40	17	18	0	53	0						
Volume Right	16	64	0	49	0	33						
cSH	441	634	1329	1700	1374	1700						
Volume to Capacity	0.20	0.17	0.01	0.07	0.04	0.08						
Queue Length 95th (ft)	18	15	1	0	3	0						
Control Delay (s)	15.2	11.8	1.6	0.0	2.9	0.0						
Lane LOS	C	B	A		A							
Approach Delay (s)	15.2	11.8	0.7		1.5							
Approach LOS	C	B										
Intersection Summary												
Average Delay			4.6									
Intersection Capacity Utilization			35.5%	ICU Level of Service	A							
Analysis Period (min)			15									
























HCM Signalized Intersection Capacity Analysis

9: Broadway & 3rd Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	106	118	28	10	102	99	15	181	12	39	176	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frt	1.00	0.97			0.94			0.99			0.97	
Flt Protected	0.95	1.00			1.00			1.00			0.99	
Satd. Flow (prot)	1770	1809			1741			3496			3396	
Flt Permitted	0.62	1.00			0.99			0.93			0.90	
Satd. Flow (perm)	1158	1809			1724			3263			3063	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	106	118	28	10	102	99	15	181	12	39	176	62
RTOR Reduction (vph)	0	11	0	0	42	0	0	6	0	0	34	0
Lane Group Flow (vph)	106	135	0	0	169	0	0	202	0	0	243	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	32.0	32.0			32.0			34.0			34.0	
Effective Green, g (s)	32.0	32.0			32.0			34.0			34.0	
Actuated g/C Ratio	0.43	0.43			0.43			0.45			0.45	
Clearance Time (s)	5.0	5.0			5.0			4.0			4.0	
Lane Grp Cap (vph)	494	771			735			1479			1388	
v/s Ratio Prot		0.07										
v/s Ratio Perm	0.09				c0.10			0.06			c0.08	
v/c Ratio	0.21	0.17			0.23			0.14			0.18	
Uniform Delay, d1	13.6	13.3			13.7			11.9			12.2	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	1.0	0.5			0.7			0.2			0.3	
Delay (s)	14.6	13.8			14.4			12.1			12.4	
Level of Service	B	B			B			B			B	
Approach Delay (s)		14.1			14.4			12.1			12.4	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			13.3					HCM 2000 Level of Service			B	
HCM 2000 Volume to Capacity ratio			0.20									
Actuated Cycle Length (s)			75.0					Sum of lost time (s)			9.0	
Intersection Capacity Utilization			48.7%					ICU Level of Service			A	
Analysis Period (min)			15									
c Critical Lane Group												




















HCM Signalized Intersection Capacity Analysis

10: Broadway & 5th Street

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 						 		 			
Volume (vph)	1007	284	73	0	0	0	0	269	294	591	254	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.5	5.5	5.5					3.5	3.5	4.5	4.5		
Lane Util. Factor	0.91	0.91	1.00					0.95	1.00	0.97	1.00		
Frt	1.00	1.00	0.85					1.00	0.85	1.00	1.00		
Flt Protected	0.95	0.97	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1610	3285	1583					3539	1583	3433	1863		
Flt Permitted	0.95	0.97	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1610	3285	1583					3539	1583	3433	1863		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	1007	284	73	0	0	0	0	269	294	591	254	0	
RTOR Reduction (vph)	0	0	48	0	0	0	0	0	166	0	0	0	
Lane Group Flow (vph)	503	788	25	0	0	0	0	269	128	591	254	0	
Turn Type	Split	NA	Prot					NA	Prot	Prot	NA		
Protected Phases	4	4	4					2	2	1	6		
Permitted Phases													
Actuated Green, G (s)	31.0	31.0	31.0					26.0	26.0	19.5	49.0		
Effective Green, g (s)	31.0	31.0	31.0					26.0	26.0	19.5	49.0		
Actuated g/C Ratio	0.34	0.34	0.34					0.29	0.29	0.22	0.54		
Clearance Time (s)	5.5	5.5	5.5					3.5	3.5	4.5	4.5		
Vehicle Extension (s)	3.0	3.0	3.0					3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	554	1131	545					1022	457	743	1014		
v/s Ratio Prot	c0.31	0.24	0.02					0.08	c0.08	c0.17	0.14		
v/s Ratio Perm													
v/c Ratio	0.91	0.87dl	0.05					0.26	0.28	0.80	0.25		
Uniform Delay, d1	28.1	25.4	19.7					24.6	24.8	33.4	10.8		
Progression Factor	0.87	0.87	0.75					1.00	1.00	0.76	1.03		
Incremental Delay, d2	18.5	1.9	0.0					0.6	1.5	5.5	0.1		
Delay (s)	42.9	23.9	14.7					25.3	26.3	31.0	11.2		
Level of Service	D	C	B					C	C	C	B		
Approach Delay (s)		30.4			0.0			25.8			25.0		
Approach LOS		C			A			C			C		
Intersection Summary													
HCM 2000 Control Delay			27.8									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.67										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	13.5
Intersection Capacity Utilization			105.3%									ICU Level of Service	G
Analysis Period (min)			15										
dl Defacto Left Lane. Recode with 1 though lane as a left lane.													
c Critical Lane Group													

















HCM Signalized Intersection Capacity Analysis

11: Broadway & 6th Street

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	0	0	0	205	128	617	64	248	0	0	715	33	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				4.0	4.0	4.0	4.0	4.0			4.0		
Lane Util. Factor				1.00	0.95	1.00	1.00	0.95			0.91		
Frt				1.00	1.00	0.85	1.00	1.00			0.99		
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00		
Satd. Flow (prot)				1593	3185	1425	1593	3185			4546		
Flt Permitted				0.95	1.00	1.00	0.95	1.00			1.00		
Satd. Flow (perm)				1593	3185	1425	1593	3185			4546		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	0	0	0	205	128	617	64	248	0	0	715	33	
RTOR Reduction (vph)	0	0	0	0	0	379	0	0	0	0	4	0	
Lane Group Flow (vph)	0	0	0	205	128	238	64	248	0	0	744	0	
Turn Type				Split	NA	Prot	Prot	NA			NA		
Protected Phases				8	8	8	5	2			6		
Permitted Phases													
Actuated Green, G (s)				29.2	29.2	29.2	15.2	52.8			33.6		
Effective Green, g (s)				29.2	29.2	29.2	15.2	52.8			33.6		
Actuated g/C Ratio				0.32	0.32	0.32	0.17	0.59			0.37		
Clearance Time (s)				4.0	4.0	4.0	4.0	4.0			4.0		
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0			3.0		
Lane Grp Cap (vph)				516	1033	462	269	1868			1697		
v/s Ratio Prot				0.13	0.04	c0.17	c0.04	0.08			c0.16		
v/s Ratio Perm													
v/c Ratio				0.40	0.12	0.52	0.24	0.13			0.44		
Uniform Delay, d1				23.6	21.4	24.7	32.4	8.3			21.1		
Progression Factor				1.00	1.00	1.00	0.70	0.95			1.00		
Incremental Delay, d2				0.5	0.1	1.0	0.3	0.1			0.8		
Delay (s)				24.1	21.5	25.6	22.9	8.0			22.0		
Level of Service				C	C	C	C	A			C		
Approach Delay (s)		0.0			24.7			11.1			22.0		
Approach LOS		A			C			B			C		
Intersection Summary													
HCM 2000 Control Delay			21.6	HCM 2000 Level of Service						C			
HCM 2000 Volume to Capacity ratio			0.43										
Actuated Cycle Length (s)			90.0	Sum of lost time (s)					12.0				
Intersection Capacity Utilization			105.3%	ICU Level of Service					G				
Analysis Period (min)			15										
c	Critical Lane Group												






















HCM Signalized Intersection Capacity Analysis

12: Broadway & 11th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	486	182	0	0	0	0	453	68	99	697	0
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		0.86						0.95		1.00	0.95	
Frt		0.97						0.98		1.00	1.00	
Flt Protected		0.99						1.00		0.95	1.00	
Satd. Flow (prot)		5525						3123		1593	3185	
Flt Permitted		0.99						1.00		0.40	1.00	
Satd. Flow (perm)		5525						3123		677	3185	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	119	486	182	0	0	0	0	453	68	99	697	0
RTOR Reduction (vph)	0	90	0	0	0	0	0	20	0	0	0	0
Lane Group Flow (vph)	0	697	0	0	0	0	0	502	0	99	697	0
Turn Type	Split	NA						NA		pm+pt	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases										6		
Actuated Green, G (s)		23.0						21.0		29.0	29.0	
Effective Green, g (s)		23.0						21.0		29.0	29.0	
Actuated g/C Ratio		0.38						0.35		0.48	0.48	
Clearance Time (s)		4.0						4.0		4.0	4.0	
Vehicle Extension (s)		3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)		2117						1093		388	1539	
v/s Ratio Prot		c0.13						0.16		0.02	c0.22	
v/s Ratio Perm										0.11		
v/c Ratio		0.33						0.46		0.26	0.45	
Uniform Delay, d1		13.1						15.1		11.1	10.3	
Progression Factor		1.00						1.00		0.75	0.78	
Incremental Delay, d2		0.1						1.4		0.3	0.9	
Delay (s)		13.1						16.5		8.6	8.9	
Level of Service		B						B		A	A	
Approach Delay (s)		13.1			0.0			16.5			8.9	
Approach LOS		B			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			12.4					HCM 2000 Level of Service			B	
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			60.0					Sum of lost time (s)		12.0		
Intersection Capacity Utilization			54.0%					ICU Level of Service		A		
Analysis Period (min)			15									
c Critical Lane Group												

















HCM Signalized Intersection Capacity Analysis

13: Broadway & 12th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					  			 			  	
Volume (vph)	0	0	0	152	511	94	123	454	0	0	594	83
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					0.91		1.00	0.95			0.91	
Flt					0.98		1.00	1.00			0.98	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					4447		1593	3185			4493	
Flt Permitted					0.99		0.34	1.00			1.00	
Satd. Flow (perm)					4447		563	3185			4493	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	152	511	94	123	454	0	0	594	83
RTOR Reduction (vph)	0	0	0	0	31	0	0	0	0	0	30	0
Lane Group Flow (vph)	0	0	0	0	726	0	123	454	0	0	647	0
Turn Type				Split	NA		pm+pt	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases							2					
Actuated Green, G (s)					26.0		26.0	26.0			18.0	
Effective Green, g (s)					26.0		26.0	26.0			18.0	
Actuated g/C Ratio					0.43		0.43	0.43			0.30	
Clearance Time (s)					4.0		4.0	4.0			4.0	
Lane Grp Cap (vph)					1927		312	1380			1347	
v/s Ratio Prot					c0.16		0.03	c0.14			c0.14	
v/s Ratio Perm							0.14					
v/c Ratio					0.38		0.39	0.33			0.48	
Uniform Delay, d1					11.5		13.9	11.2			17.2	
Progression Factor					1.00		0.44	0.49			1.51	
Incremental Delay, d2					0.6		3.4	0.6			1.0	
Delay (s)					12.1		9.5	6.1			26.8	
Level of Service					B		A	A			C	
Approach Delay (s)		0.0			12.1			6.8			26.8	
Approach LOS		A			B			A			C	
Intersection Summary												
HCM 2000 Control Delay			15.5		HCM 2000 Level of Service						B	
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)						12.0	
Intersection Capacity Utilization			54.0%		ICU Level of Service						A	
Analysis Period (min)			15									
c Critical Lane Group												

















HCM Signalized Intersection Capacity Analysis

14: Broadway & 14th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	319	100	3	379	114	2	476	23	0	778	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5			5.5			5.5	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frt		0.96			0.97			0.99			0.98	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		3071			3075			3163			3131	
Flt Permitted		0.95			0.95			0.95			1.00	
Satd. Flow (perm)		2912			2930			3012			3131	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	6	319	100	3	379	114	2	476	23	0	778	100
RTOR Reduction (vph)	0	49	0	0	46	0	0	6	0	0	17	0
Lane Group Flow (vph)	0	376	0	0	450	0	0	495	0	0	861	0
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2					
Actuated Green, G (s)		23.5			23.5			25.5			25.5	
Effective Green, g (s)		23.5			23.5			25.5			25.5	
Actuated g/C Ratio		0.39			0.39			0.42			0.42	
Clearance Time (s)		5.5			5.5			5.5			5.5	
Lane Grp Cap (vph)		1140			1147			1280			1330	
v/s Ratio Prot											c0.28	
v/s Ratio Perm		0.13			c0.15			0.16				
v/c Ratio		0.33			0.39			0.39			0.65	
Uniform Delay, d1		12.8			13.1			11.9			13.7	
Progression Factor		1.00			1.00			1.39			1.00	
Incremental Delay, d2		0.8			1.0			0.8			2.4	
Delay (s)		13.5			14.1			17.3			16.1	
Level of Service		B			B			B			B	
Approach Delay (s)		13.5			14.1			17.3			16.1	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			15.5								HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			60.0								Sum of lost time (s)	11.0
Intersection Capacity Utilization			54.8%								ICU Level of Service	A
Analysis Period (min)			15									
c Critical Lane Group												

















HCM Unsignalized Intersection Capacity Analysis

15: Franklin Street & 2nd Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	87	39	18	83	0	0	0	0	10	24	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	87	39	18	83	0	0	0	0	10	24	21
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None					None					
Median storage (veh)												
Upstream signal (ft)						384						
pX, platoon unblocked												
vC, conflicting volume	83			126			258	226	106	226	245	83
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	83			126			258	226	106	226	245	83
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	99	96	98
cM capacity (veh/h)	1514			1460			654	665	948	723	649	976
Direction, Lane #												
	EB 1	WB 1	SB 1	SB 2								
Volume Total	126	101	22	33								
Volume Left	0	18	10	0								
Volume Right	39	0	0	21								
cSH	1700	1460	681	825								
Volume to Capacity	0.07	0.01	0.03	0.04								
Queue Length 95th (ft)	0	1	3	3								
Control Delay (s)	0.0	1.4	10.5	9.5								
Lane LOS		A	B	A								
Approach Delay (s)	0.0	1.4	9.9									
Approach LOS			A									
Intersection Summary												
Average Delay			2.4									
Intersection Capacity Utilization			25.7%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

16: Franklin Street & 3rd Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											 	
Volume (veh/h)	0	189	12	19	188	0	0	0	0	14	21	86
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	189	12	19	188	0	0	0	0	14	21	86
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		367			383							
pX, platoon unblocked												
vC, conflicting volume	188			201			518	421	195	421	427	188
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	188			201			518	421	195	421	427	188
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	97	96	90
cM capacity (veh/h)	1386			1371			404	517	846	537	513	854
Direction, Lane #												
	EB 1	WB 1	SB 1	SB 2								
Volume Total	201	207	24	96								
Volume Left	0	19	14	0								
Volume Right	12	0	0	86								
cSH	1700	1371	526	796								
Volume to Capacity	0.12	0.01	0.05	0.12								
Queue Length 95th (ft)	0	1	4	10								
Control Delay (s)	0.0	0.8	12.2	10.1								
Lane LOS		A	B	B								
Approach Delay (s)	0.0	0.8	10.6									
Approach LOS			B									
Intersection Summary												
Average Delay			2.7									
Intersection Capacity Utilization			35.4%		ICU Level of Service			A				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
















17: Webster Street & 1st Street / Embarcadero



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	32	115	72	40	27	27
Sign Control	Free			Stop	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	32	115	72	40	27	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	385					
pX, platoon unblocked						
vC, conflicting volume	0		104	64	179	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0		104	64	179	0
tC, single (s)	4.1		7.1	6.5	6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2		3.5	4.0	4.0	3.3
p0 queue free %	98		91	95	96	98
cM capacity (veh/h)	1623		816	810	701	1085
Direction, Lane #	EB 1	EB 2	NB 1	SB 1	SB 2	
Volume Total	32	115	112	27	27	
Volume Left	32	0	72	0	0	
Volume Right	0	115	0	0	27	
cSH	1623	1700	814	701	1085	
Volume to Capacity	0.02	0.07	0.14	0.04	0.02	
Queue Length 95th (ft)	2	0	12	3	2	
Control Delay (s)	7.3	0.0	10.1	10.3	8.4	
Lane LOS	A		B	B	A	
Approach Delay (s)	1.6		10.1	9.4		
Approach LOS			B	A		
Intersection Summary						
Average Delay			6.0			
Intersection Capacity Utilization			22.8%	ICU Level of Service	A	
Analysis Period (min)			15			




















HCM Signalized Intersection Capacity Analysis

18: Harrison Street & 7th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	86	394	0	0	0	0	0	502	868	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0						5.0	5.0			
Lane Util. Factor		0.91						0.91	0.88			
Frt		1.00						1.00	0.85			
Flt Protected		0.99						1.00	1.00			
Satd. Flow (prot)		4536						4577	2508			
Flt Permitted		0.99						1.00	1.00			
Satd. Flow (perm)		4536						4577	2508			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	86	394	0	0	0	0	0	502	868	0	0	0
RTOR Reduction (vph)	0	37	0	0	0	0	0	0	340	0	0	0
Lane Group Flow (vph)	0	443	0	0	0	0	0	502	528	0	0	0
Turn Type	Perm	NA						NA	custom			
Protected Phases		2						1				
Permitted Phases	2								5			
Actuated Green, G (s)		34.0						16.0	34.0			
Effective Green, g (s)		34.0						16.0	34.0			
Actuated g/C Ratio		0.57						0.27	0.57			
Clearance Time (s)		5.0						5.0	5.0			
Vehicle Extension (s)		3.0						3.0	3.0			
Lane Grp Cap (vph)		2570						1220	1421			
v/s Ratio Prot								0.11				
v/s Ratio Perm		0.10							c0.21			
v/c Ratio		0.17						0.41	0.37			
Uniform Delay, d1		6.2						18.1	7.1			
Progression Factor		1.00						1.00	1.00			
Incremental Delay, d2		0.1						0.2	0.2			
Delay (s)		6.4						18.3	7.3			
Level of Service		A						B	A			
Approach Delay (s)		6.4			0.0			11.3			0.0	
Approach LOS		A			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			10.1					HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			60.0					Sum of lost time (s)		10.0		
Intersection Capacity Utilization			80.2%					ICU Level of Service		D		
Analysis Period (min)			15									
c	Critical Lane Group											




















HCM Signalized Intersection Capacity Analysis

19: Jackson Street & 5th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  								 		
Volume (vph)	232	484	287	0	0	0	0	416	28	106	82	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5						5.5		5.5	5.5	
Lane Util. Factor		0.91						1.00		1.00	1.00	
Frt		0.96						0.99		1.00	1.00	
Flt Protected		0.99						1.00		0.95	1.00	
Satd. Flow (prot)		4811						1847		1770	1863	
Flt Permitted		0.99						1.00		0.34	1.00	
Satd. Flow (perm)		4811						1847		642	1863	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	232	484	287	0	0	0	0	416	28	106	82	0
RTOR Reduction (vph)	0	96	0	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	907	0	0	0	0	0	441	0	106	82	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		34.5						29.5		29.5	29.5	
Effective Green, g (s)		34.5						29.5		29.5	29.5	
Actuated g/C Ratio		0.46						0.39		0.39	0.39	
Clearance Time (s)		5.5						5.5		5.5	5.5	
Lane Grp Cap (vph)		2213						726		252	732	
v/s Ratio Prot								c0.24			0.04	
v/s Ratio Perm		0.19								0.17		
v/c Ratio		0.41						0.61		0.42	0.11	
Uniform Delay, d1		13.5						18.1		16.5	14.4	
Progression Factor		1.00						1.00		0.68	0.72	
Incremental Delay, d2		0.6						3.8		5.1	0.3	
Delay (s)		14.0						21.9		16.3	10.7	
Level of Service		B						C		B	B	
Approach Delay (s)		14.0			0.0			21.9			13.9	
Approach LOS		B			A			C			B	
Intersection Summary												
HCM 2000 Control Delay			16.2					HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			75.0					Sum of lost time (s)		11.0		
Intersection Capacity Utilization			81.0%					ICU Level of Service		D		
Analysis Period (min)			15									
c Critical Lane Group												




















HCM Signalized Intersection Capacity Analysis

20: Jackson Street & 6th Street

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	0	0	0	9	322	44	309	368	0	0	176	425	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				5.5	5.5	5.5	5.5	5.5			5.5	4.0	
Lane Util. Factor				1.00	1.00	1.00	1.00	1.00			1.00	1.00	
Frt				1.00	1.00	0.85	1.00	1.00			1.00	0.85	
Flt Protected				0.95	1.00	1.00	0.95	1.00			1.00	1.00	
Satd. Flow (prot)				1593	1676	1425	1593	1676			1676	1425	
Flt Permitted				0.95	1.00	1.00	0.65	1.00			1.00	1.00	
Satd. Flow (perm)				1593	1676	1425	1083	1676			1676	1425	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	0	0	0	9	322	44	309	368	0	0	176	425	
RTOR Reduction (vph)	0	0	0	0	0	33	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	9	322	11	309	368	0	0	176	425	
Turn Type				Split	NA	Perm	Perm	NA			NA	Free	
Protected Phases				8	8			2			6		
Permitted Phases						8	2					Free	
Actuated Green, G (s)				19.5	19.5	19.5	44.5	44.5			44.5	75.0	
Effective Green, g (s)				19.5	19.5	19.5	44.5	44.5			44.5	75.0	
Actuated g/C Ratio				0.26	0.26	0.26	0.59	0.59			0.59	1.00	
Clearance Time (s)				5.5	5.5	5.5	5.5	5.5			5.5		
Lane Grp Cap (vph)				414	435	370	642	994			994	1425	
v/s Ratio Prot				0.01	c0.19			0.22			0.10		
v/s Ratio Perm						0.01	c0.29					0.30	
v/c Ratio				0.02	0.74	0.03	0.48	0.37			0.18	0.30	
Uniform Delay, d1				20.7	25.4	20.7	8.7	7.9			6.9	0.0	
Progression Factor				1.00	1.00	1.00	0.67	0.70			1.00	1.00	
Incremental Delay, d2				0.1	10.8	0.2	2.2	0.9			0.4	0.5	
Delay (s)				20.7	36.2	20.9	8.0	6.5			7.3	0.5	
Level of Service				C	D	C	A	A			A	A	
Approach Delay (s)		0.0			34.0			7.2			2.5		
Approach LOS		A			C			A			A		
Intersection Summary													
HCM 2000 Control Delay			11.6									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.56										
Actuated Cycle Length (s)			75.0									Sum of lost time (s)	11.0
Intersection Capacity Utilization			81.0%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													













HCM Signalized Intersection Capacity Analysis

21: Jackson Street & 7th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  						 				
Volume (vph)	32	839	375	0	0	0	0	234	108	30	281	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	4.0					4.0			4.0	
Lane Util. Factor		0.86	0.86					1.00			1.00	
Frt		0.98	0.85					0.96			1.00	
Flt Protected		1.00	1.00					1.00			1.00	
Satd. Flow (prot)		4253	1226					1605			1668	
Flt Permitted		1.00	1.00					1.00			0.95	
Satd. Flow (perm)		4253	1226					1605			1592	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	32	839	375	0	0	0	0	234	108	30	281	0
RTOR Reduction (vph)	0	21	0	0	0	0	0	28	0	0	0	0
Lane Group Flow (vph)	0	948	277	0	0	0	0	314	0	0	311	0
Turn Type	Split	NA	Free					NA		Perm	NA	
Protected Phases	4	4						2			6	
Permitted Phases			Free							6		
Actuated Green, G (s)		27.0	60.0					24.0			24.0	
Effective Green, g (s)		27.0	60.0					24.0			24.0	
Actuated g/C Ratio		0.45	1.00					0.40			0.40	
Clearance Time (s)		5.0						4.0			4.0	
Vehicle Extension (s)		3.0						3.0			3.0	
Lane Grp Cap (vph)		1913	1226					642			636	
v/s Ratio Prot		c0.22						c0.20				
v/s Ratio Perm			0.23								0.20	
v/c Ratio		0.50	0.23					0.49			0.49	
Uniform Delay, d1		11.7	0.0					13.4			13.4	
Progression Factor		1.00	1.00					1.00			1.00	
Incremental Delay, d2		0.9	0.4					2.7			2.7	
Delay (s)		12.6	0.4					16.1			16.1	
Level of Service		B	A					B			B	
Approach Delay (s)		9.9			0.0			16.1			16.1	
Approach LOS		A			A			B			B	
Intersection Summary												
HCM 2000 Control Delay			12.0					HCM 2000 Level of Service			B	
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			60.0					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			71.9%					ICU Level of Service		C		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

22: Madison Street & 5th Street

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑↑								↘	↙↑		
Volume (vph)	0	539	26	0	0	0	0	0	0	747	71	0	
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		
Lane Util. Factor		0.91								0.91	0.91		
Frt		0.99								1.00	1.00		
Flt Protected		1.00								0.95	0.96		
Satd. Flow (prot)		5050								1610	3253		
Flt Permitted		1.00								0.95	0.96		
Satd. Flow (perm)		5050								1610	3253		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	0	539	26	0	0	0	0	0	0	747	71	0	
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	74	74	0	
Lane Group Flow (vph)	0	554	0	0	0	0	0	0	0	299	371	0	
Turn Type		NA								Perm	NA		
Protected Phases		4									6		
Permitted Phases										6			
Actuated Green, G (s)		16.0								22.0	22.0		
Effective Green, g (s)		16.0								22.0	22.0		
Actuated g/C Ratio		0.35								0.48	0.48		
Clearance Time (s)		4.0								4.0	4.0		
Lane Grp Cap (vph)		1756								770	1555		
v/s Ratio Prot		c0.11											
v/s Ratio Perm										c0.19	0.11		
v/c Ratio		0.32								0.39	0.24		
Uniform Delay, d1		11.0								7.7	7.1		
Progression Factor		1.00								1.00	1.00		
Incremental Delay, d2		0.5								1.5	0.4		
Delay (s)		11.5								9.2	7.4		
Level of Service		B								A	A		
Approach Delay (s)		11.5			0.0			0.0			8.2		
Approach LOS		B			A			A			A		
Intersection Summary													
HCM 2000 Control Delay			9.5									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.36										
Actuated Cycle Length (s)			46.0									Sum of lost time (s)	8.0
Intersection Capacity Utilization			33.6%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis















23: Madison Street & 6th Street






















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑						↑↑↑	
Volume (vph)	0	0	0	15	173	0	0	0	0	0	854	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0						4.0	
Lane Util. Factor					0.91						0.91	
Frt					1.00						0.97	
Flt Protected					1.00						1.00	
Satd. Flow (prot)					4559						4455	
Flt Permitted					1.00						1.00	
Satd. Flow (perm)					4559						4455	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	15	173	0	0	0	0	0	854	185
RTOR Reduction (vph)	0	0	0	0	16	0	0	0	0	0	76	0
Lane Group Flow (vph)	0	0	0	0	172	0	0	0	0	0	963	0
Turn Type				Split	NA						NA	
Protected Phases				8	8						6	
Permitted Phases												
Actuated Green, G (s)					15.0						22.0	
Effective Green, g (s)					15.0						22.0	
Actuated g/C Ratio					0.33						0.49	
Clearance Time (s)					4.0						4.0	
Lane Grp Cap (vph)					1519						2178	
v/s Ratio Prot					c0.04						c0.22	
v/s Ratio Perm												
v/c Ratio					0.11						0.44	
Uniform Delay, d1					10.4						7.5	
Progression Factor					0.98						1.00	
Incremental Delay, d2					0.1						0.7	
Delay (s)					10.3						8.2	
Level of Service					B						A	
Approach Delay (s)		0.0			10.3			0.0			8.2	
Approach LOS		A			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			8.5		HCM 2000 Level of Service						A	
HCM 2000 Volume to Capacity ratio			0.31									
Actuated Cycle Length (s)			45.0		Sum of lost time (s)						8.0	
Intersection Capacity Utilization			33.6%		ICU Level of Service						A	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

24: Madison Street & 7th Street

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	0	777	254	0	0	0	0	0	0	242	668	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.0									4.0		
Lane Util. Factor		0.86									0.91		
Frt		0.96									1.00		
Flt Protected		1.00									0.99		
Satd. Flow (prot)		5554									4517		
Flt Permitted		1.00									0.99		
Satd. Flow (perm)		5554									4517		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	0	777	254	0	0	0	0	0	0	242	668	0	
RTOR Reduction (vph)	0	98	0	0	0	0	0	0	0	0	44	0	
Lane Group Flow (vph)	0	933	0	0	0	0	0	0	0	0	866	0	
Turn Type		NA								Perm	NA		
Protected Phases		4									6		
Permitted Phases										6			
Actuated Green, G (s)		24.0									28.0		
Effective Green, g (s)		24.0									28.0		
Actuated g/C Ratio		0.40									0.47		
Clearance Time (s)		4.0									4.0		
Vehicle Extension (s)		3.0									3.0		
Lane Grp Cap (vph)		2221									2107		
v/s Ratio Prot		c0.17											
v/s Ratio Perm											0.19		
v/c Ratio		0.42									0.41		
Uniform Delay, d1		13.0									10.6		
Progression Factor		0.31									1.00		
Incremental Delay, d2		0.5									0.6		
Delay (s)		4.5									11.2		
Level of Service		A									B		
Approach Delay (s)		4.5			0.0			0.0			11.2		
Approach LOS		A			A			A			B		
Intersection Summary													
HCM 2000 Control Delay			7.6									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.42										
Actuated Cycle Length (s)			60.0									Sum of lost time (s)	8.0
Intersection Capacity Utilization			43.7%									ICU Level of Service	A
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
 25: Oak Street & 1st Street / Embarcadero

															
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations								 			 				
Volume (veh/h)	68	0	96	5	0	1	77	239	0	0	226	41			
Sign Control		Stop			Stop			Free			Free				
Grade		0%			0%			0%			0%				
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Hourly flow rate (vph)	68	0	96	5	0	1	77	239	0	0	226	41			
Pedestrians															
Lane Width (ft)															
Walking Speed (ft/s)															
Percent Blockage															
Right turn flare (veh)															
Median type						None			None						
Median storage (veh)															
Upstream signal (ft)											563				
pX, platoon unblocked															
vC, conflicting volume	521	640	134	602	660	120	267				239				
vC1, stage 1 conf vol															
vC2, stage 2 conf vol															
vCu, unblocked vol	521	640	134	602	660	120	267				239				
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1				4.1				
tC, 2 stage (s)															
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2				
p0 queue free %	84	100	89	98	100	100	94				100				
cM capacity (veh/h)	418	369	891	327	359	910	1294				1325				
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2								
Volume Total	68	96	77	120	120	151	116								
Volume Left	68	0	77	0	0	0	0								
Volume Right	0	96	0	0	0	0	41								
cSH	418	891	1294	1700	1700	1700	1700								
Volume to Capacity	0.16	0.11	0.06	0.07	0.07	0.09	0.07								
Queue Length 95th (ft)	14	9	5	0	0	0	0								
Control Delay (s)	15.3	9.5	8.0	0.0	0.0	0.0	0.0								
Lane LOS	C	A	A												
Approach Delay (s)	11.9	1.9		0.0											
Approach LOS	B														
Intersection Summary															
Average Delay			Err												
Intersection Capacity Utilization			Err%				ICU Level of Service				H				
Analysis Period (min)	15														

HCM Signalized Intersection Capacity Analysis

26: Oak Street & 3rd Street


















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	79	77	49	263	175	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.93		1.00	1.00	1.00	0.85
Flt Protected	0.98		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1696		1770	1863	1863	1583
Flt Permitted	0.98		0.65	1.00	1.00	1.00
Satd. Flow (perm)	1696		1205	1863	1863	1583
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	79	77	49	263	175	39
RTOR Reduction (vph)	67	0	0	0	0	11
Lane Group Flow (vph)	89	0	49	263	175	28
Turn Type	NA		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Actuated Green, G (s)	7.0		37.4	37.4	37.4	37.4
Effective Green, g (s)	7.0		37.4	37.4	37.4	37.4
Actuated g/C Ratio	0.13		0.71	0.71	0.71	0.71
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	226		860	1329	1329	1129
v/s Ratio Prot	c0.05			c0.14	0.09	
v/s Ratio Perm			0.04			0.02
v/c Ratio	0.40		0.06	0.20	0.13	0.02
Uniform Delay, d1	20.8		2.2	2.5	2.4	2.2
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1		0.1	0.3	0.2	0.0
Delay (s)	21.9		2.4	2.8	2.6	2.2
Level of Service	C		A	A	A	A
Approach Delay (s)	21.9			2.8	2.5	
Approach LOS	C			A	A	

Intersection Summary

HCM 2000 Control Delay	7.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	52.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	31.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

27: Oak Street & 5th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	207	854	118	0	0	0	0	395	73	4	88	0
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	
Lane Util. Factor		0.91						0.95			1.00	
Frt		0.98						0.98			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4965						3456			1859	
Flt Permitted		0.99						1.00			0.98	
Satd. Flow (perm)		4965						3456			1824	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	207	854	118	0	0	0	0	395	73	4	88	0
RTOR Reduction (vph)	0	30	0	0	0	0	0	34	0	0	0	0
Lane Group Flow (vph)	0	1149	0	0	0	0	0	434	0	0	92	0
Turn Type	Split	NA						NA		Perm	NA	
Protected Phases	4	4						2			6	
Permitted Phases										6		
Actuated Green, G (s)		22.0						15.0			15.0	
Effective Green, g (s)		22.0						15.0			15.0	
Actuated g/C Ratio		0.49						0.33			0.33	
Clearance Time (s)		4.0						4.0			4.0	
Lane Grp Cap (vph)		2427						1152			608	
v/s Ratio Prot		c0.23						c0.13				
v/s Ratio Perm											0.05	
v/c Ratio		0.47						0.38			0.15	
Uniform Delay, d1		7.6						11.4			10.5	
Progression Factor		1.00						1.00			1.18	
Incremental Delay, d2		0.7						0.9			0.5	
Delay (s)		8.3						12.4			13.0	
Level of Service		A						B			B	
Approach Delay (s)		8.3			0.0			12.4			13.0	
Approach LOS		A			A			B			B	
Intersection Summary												
HCM 2000 Control Delay			9.7					HCM 2000 Level of Service		A		
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			45.0					Sum of lost time (s)		8.0		
Intersection Capacity Utilization			43.2%					ICU Level of Service		A		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

28: Oak Street & 6th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔	↔		↔				
Volume (vph)	0	0	0	64	80	478	134	481	0	0	0	0
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				
Lane Util. Factor					0.91	0.91		0.95				
Frt					0.91	0.85		1.00				
Flt Protected					0.99	1.00		0.99				
Satd. Flow (prot)					2743	1297		3151				
Flt Permitted					0.99	1.00		0.99				
Satd. Flow (perm)					2743	1297		3151				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	64	80	478	134	481	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	84	84	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	299	155	0	615	0	0	0	0
Turn Type				Split	NA	Perm	Split	NA				
Protected Phases				8	8		2	2				
Permitted Phases						8						
Actuated Green, G (s)					22.0	22.0		15.0				
Effective Green, g (s)					22.0	22.0		15.0				
Actuated g/C Ratio					0.49	0.49		0.33				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					1341	634		1050				
v/s Ratio Prot					0.11			c0.20				
v/s Ratio Perm						c0.12						
v/c Ratio					0.22	0.24		0.59				
Uniform Delay, d1					6.6	6.7		12.4				
Progression Factor					1.00	1.00		0.65				
Incremental Delay, d2					0.4	0.9		2.2				
Delay (s)					7.0	7.6		10.3				
Level of Service					A	A		B				
Approach Delay (s)		0.0			7.2			10.3			0.0	
Approach LOS		A			A			B			A	















Intersection Summary

HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.7%	ICU Level of Service	A
Analysis Period (min)	15		


















c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: Oak Street & 7th Street




























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	118	758	0	0	0	0	0	876	139	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5				
Lane Util. Factor		0.86						0.91				
Frt		1.00						0.98				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		5728						4483				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		5728						4483				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	118	758	0	0	0	0	0	876	139	0	0	0
RTOR Reduction (vph)	0	32	0	0	0	0	0	36	0	0	0	0
Lane Group Flow (vph)	0	844	0	0	0	0	0	979	0	0	0	0
Turn Type	Perm	NA						NA				
Protected Phases		4						2				
Permitted Phases	4											
Actuated Green, G (s)		27.0						24.0				
Effective Green, g (s)		27.0						24.0				
Actuated g/C Ratio		0.45						0.40				
Clearance Time (s)		4.5						4.5				
Lane Grp Cap (vph)		2577						1793				
v/s Ratio Prot								c0.22				
v/s Ratio Perm		0.15										
v/c Ratio		0.33						0.55				
Uniform Delay, d1		10.6						13.8				
Progression Factor		0.69						1.00				
Incremental Delay, d2		0.3						1.2				
Delay (s)		7.7						15.0				
Level of Service		A						B				
Approach Delay (s)		7.7			0.0			15.0			0.0	
Approach LOS		A			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			11.6					HCM 2000 Level of Service			B	
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			60.0					Sum of lost time (s)			9.0	
Intersection Capacity Utilization			69.3%					ICU Level of Service			C	
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis
 30: 5th Avenue & 1st Street / Embarcadero

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	44	312	5	1	195	309	9	1	3	340	2	46
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	44	312	5	1	195	309	9	1	3	340	2	46
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1							
Volume Total (vph)	361	196	309	13	388							
Volume Left (vph)	44	1	0	9	340							
Volume Right (vph)	5	0	309	3	46							
Hadj (s)	0.05	0.04	-0.67	0.03	0.14							
Departure Headway (s)	6.2	6.5	5.8	7.4	6.3							
Degree Utilization, x	0.62	0.36	0.50	0.03	0.68							
Capacity (veh/h)	557	528	594	389	388							
Control Delay (s)	18.8	11.9	13.3	10.6	21.4							
Approach Delay (s)	18.8	12.8		10.6	21.4							
Approach LOS	C	B		B	C							
Intersection Summary												
Delay			17.1									
Level of Service			C									
Intersection Capacity Utilization			66.7%		ICU Level of Service		C					
Analysis Period (min)			15									





























HCM Signalized Intersection Capacity Analysis

31: Webster Street & Atlantic Avenue

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 	 			 			 			 		
Volume (vph)	179	160	44	57	200	39	31	487	45	87	747	161	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	3433	3539	1583	1770	3453		1770	3494		1770	3539	1583	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	3433	3539	1583	1770	3453		1770	3494		1770	3539	1583	
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)	195	174	48	62	217	42	34	529	49	95	812	175	
RTOR Reduction (vph)	0	0	37	0	17	0	0	6	0	0	0	152	
Lane Group Flow (vph)	195	174	11	62	242	0	34	572	0	95	812	23	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	Over	
Protected Phases	7	4		3	8		5	2		1	6	7	
Permitted Phases			4										
Actuated Green, G (s)	9.3	16.3	16.3	5.0	12.0		2.9	26.1		7.4	30.6	9.3	
Effective Green, g (s)	9.3	16.3	16.3	5.0	12.0		2.9	26.1		7.4	30.6	9.3	
Actuated g/C Ratio	0.13	0.23	0.23	0.07	0.17		0.04	0.37		0.10	0.43	0.13	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	450	814	364	125	585		72	1288		185	1529	207	
v/s Ratio Prot	c0.06	0.05		0.04	c0.07		0.02	0.16		c0.05	c0.23	0.01	
v/s Ratio Perm			0.01										
v/c Ratio	0.43	0.21	0.03	0.50	0.41		0.47	0.44		0.51	0.53	0.11	
Uniform Delay, d1	28.3	22.1	21.1	31.7	26.3		33.2	16.9		30.0	14.8	27.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.7	0.1	0.0	3.1	0.5		4.8	1.1		2.4	1.3	0.2	
Delay (s)	29.0	22.2	21.2	34.8	26.7		38.0	18.0		32.4	16.1	27.3	
Level of Service	C	C	C	C	C		D	B		C	B	C	
Approach Delay (s)		25.3			28.3			19.1			19.4		
Approach LOS		C			C			B			B		
Intersection Summary													
HCM 2000 Control Delay			21.5									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.51										
Actuated Cycle Length (s)			70.8									Sum of lost time (s)	16.0
Intersection Capacity Utilization			49.2%									ICU Level of Service	A
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

32: Constitution Way & Atlantic Avenue

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 		 	 		 	 	
Volume (vph)	101	141	99	50	134	95	84	510	38	125	1092	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	0.94		1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3320		1770	3320		3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3320		1770	3320		3433	3539	1583	3433	3539	1583
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)	110	153	108	54	146	103	91	554	41	136	1187	125
RTOR Reduction (vph)	0	87	0	0	88	0	0	0	25	0	0	62
Lane Group Flow (vph)	110	174	0	54	161	0	91	554	16	136	1187	63
Turn Type	Prot	NA		Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases									2			6
Actuated Green, G (s)	7.6	12.4		4.6	9.4		5.6	25.5	25.5	6.3	26.2	26.2
Effective Green, g (s)	7.6	12.4		4.6	9.4		5.6	25.5	25.5	6.3	26.2	26.2
Actuated g/C Ratio	0.12	0.19		0.07	0.15		0.09	0.39	0.39	0.10	0.40	0.40
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	207	635		125	481		296	1392	622	333	1430	640
v/s Ratio Prot	c0.06	c0.05		0.03	0.05		0.03	0.16		c0.04	c0.34	
v/s Ratio Perm									0.01			0.04
v/c Ratio	0.53	0.27		0.43	0.33		0.31	0.40	0.03	0.41	0.83	0.10
Uniform Delay, d1	26.9	22.4		28.8	24.9		27.8	14.1	12.0	27.5	17.3	12.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	0.2		2.4	0.4		0.6	0.9	0.1	0.8	5.7	0.3
Delay (s)	29.5	22.6		31.2	25.3		28.4	15.0	12.1	28.3	23.0	12.3
Level of Service	C	C		C	C		C	B	B	C	C	B
Approach Delay (s)		24.6			26.4			16.6			22.6	
Approach LOS		C			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			21.8	HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			64.8	Sum of lost time (s)				16.0				
Intersection Capacity Utilization			59.2%	ICU Level of Service				B				
Analysis Period (min)			15									
c	Critical Lane Group											