

ATTACHMENT D

**MISSION BAY SOUTH
INFRASTRUCTURE PLAN**

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MISSION BAY SOUTH INFRASTRUCTURE PLAN

This Infrastructure Plan will govern the construction and development of Infrastructure in the South Plan Area and is consistent with the Redevelopment Requirements. Except as is consistent with the Interagency Cooperation Agreement and as agreed to by the Agency and Owner, no Infrastructure beyond what is described herein and such other Infrastructure as may be mutually agreed to by the Agency and Owner, will be required for development of the South Plan Area or will be constructed by the Owner in the South Plan Area.

Initially capitalized terms unless separately defined in this Infrastructure Plan have the meanings and content set forth in the South OPA. Elevations referred to herein are to Mission Bay Datum. "Mission Bay Datum" is defined as City Datum plus one hundred feet.

This Infrastructure Plan describes all Infrastructure Improvements to be provided by Owner in accordance herewith for the South Plan Area. While some Infrastructure Improvements to be provided by City Agencies and other governmental agencies, such as the San Francisco Municipal Railway ("MUNI"), the Port and the University of California, are described, their inclusion herein is not intended to be all inclusive of all Improvements to be provided by City Agencies and other governmental agencies. Except as specifically identified below, this Infrastructure Plan does not include Infrastructure within the approximately forty-three (43) acre Campus Site shown on the Site Plan, Attachment 1 to the South OPA. Only the following public Infrastructure which runs through the Campus Site are included in this Infrastructure Plan: (i) Fourth Street; and (ii) sewer and storm drainage systems, overland flow and any other utilities running across the Campus Site in the vara-block utility easement corridors which benefit non-Campus Site development in the South Plan Area. See Exhibits 4 and 4a. A condition of Owner's performance under this Infrastructure Plan is the obtaining of all requisite approvals in accordance with the South OPA and Interagency Cooperation Agreement.

This Infrastructure Plan and the Mission Bay Subdivision Regulations establish the design standards, construction standards, criteria and specifications of Infrastructure in the South Plan Area, including, without limitation, streets, blocks, lots, and Infrastructure within the street right of ways, including for the separated storm and sewer system, Open Space Parcels and all other Infrastructure. In subdivision processing, including the review and approval of subdivision improvement plans, the precise location and final design of Infrastructure consistent with this Infrastructure Plan including intersection Improvements, street segment Improvements, wet and dry utilities Improvements, open space Improvements, and other Infrastructure will be determined.

The acquisition, dedication and acceptance of streets and other Infrastructure Improvements will occur through the subdivision map process in accordance with the Mission

Bay Subdivision Code, Mission Bay Subdivision Regulations and as provided in the Financing Plan and Acquisition Agreement.

Required Infrastructure Lands as referred to in Section 5.4 of the South OPA, includes those portions of the real property not owned by City Agencies or Owner necessary to complete the following Improvements:

- (1) Third Street/16th Street, as described in Section I.A.1.b.(vi).
- (2) Third Street/Mariposa Street, as described in Section I.A.1.b.(vii).
- (3) Fourth Street/Mariposa Street, as described in Section I.A.1.b.(xi).
- (4) Owens Street/Mariposa Street, as described in Section I.A.1.b.(xiv).
- (5) Mariposa Street, as described in Section I.A.1.c.(ii).
- (6) The Common, as described in Section I.A.1.c.(v).

I. INFRASTRUCTURE DESCRIPTION

A. PUBLIC INFRASTRUCTURE WITHIN THE STREET RIGHT OF WAYS

1. Street Improvements.

The street system for the South Plan Area, including existing and proposed streets, is shown in Exhibit 2 and accompany Exhibits 3a-d, the Circulation and Street Section Exhibits. Basic geometrics in the right of ways such as numbers of lanes, their uses, and their widths are also shown therein. The following Infrastructure descriptions apply generally to streets in the South Plan Area, but may vary slightly from street to street based on particular requirements, as shall be determined during the review of the applicable subdivision improvement plans, in accordance with the procedure for granting exceptions as set forth in the Mission Bay Subdivision Code and the South OPA. The street improvements will be implemented at specific stages of development, as triggered either by the adjacency principle described in Section II or by the estimated number of p.m. (evening) peak user vehicle trips. The required triggers are set forth in Tables 1, 2, and 3 attached to this Infrastructure Plan.

a. Street Surface Improvements. Street surface improvements consist of roadway reconstruction, preparation, excavation, fine grade, rock base, concrete pavement, asphalt pavement, combined concrete curbs and gutters, concrete sidewalk, traffic control signs and striping, street landscaping and appurtenant improvements. Grading will be performed by cutting or importing fill in order to provide sufficient gradient to accommodate one hundred (100) year overland flow requirements. Consideration will be given to future settlement of new Improvements installed by the Owner pursuant to this Infrastructure Plan. Street surface Improvements are not required except as specifically set forth in this Infrastructure Plan.

The street structural sections consist of three typical types: asphaltic concrete over aggregate base; asphaltic concrete over concrete; and a combination to meet and match existing streets. All street structural sections shall meet City standards in effect from time to time. However, the City may allow flexible pavement modifications to Sections 208 and 209 of Standard Specifications and Section XII of the Mission Bay Subdivision Regulations. Such modifications may be reviewed and approved during the review of the applicable subdivision improvement plans.

At the time of new permanent street construction, all anticipated Infrastructure crossings will be installed prior to final street pavement. For major utilities such as water lines, the facilities are to be installed “dry” until such time as the interconnections are available. For minor conduits, such as for future traffic signal wires, sleeves (or individual conduits if detailed data is available at the time) will be installed to minimize future street cuts. Space will be provided in areas where new joint trench is being installed for future installation of twelve (12) conductor cables to synchronize intersections. Underground utilities shall not be required to be built on piles. No surcharging of street rights of ways or Open Space Parcels shall be required.

As used in this Infrastructure Plan,

- (i) Shared right-through lane means a traffic lane from which a vehicle can either make a right turn, or travel straight through the intersection.
- (ii) Shared left-through lane means a traffic lane from which a vehicle can either make a left turn, or travel straight through the intersection.
- (iii) Exclusive through lane means a traffic lane from which a vehicle can only travel straight through the intersection.
- (iv) Exclusive left-turn lane means a traffic lane from which a vehicle can only make a left turn.
- (v) Exclusive right-turn lane means a traffic lane from which a vehicle can only make a right turn.

b. Intersection Improvements.

The following specific intersection Improvements, shown in Exhibit 2 and Exhibits 3a-f shall, except as otherwise indicated, be provided by Owner in connection with the development of the South Plan Area in accordance with this Infrastructure Plan:

- (i) Third Street/Owens Street
 - A. Install new traffic signal poles, masts, and heads in each corner of the intersection. Install a new traffic

signal controller. Owner and MUNI will each be responsible for one-half (1/2) of the cost of installing the new traffic signal and controller, in accordance with Section 1.C.3.

(ii) Third Street/Mission Rock

- A. Install new traffic signal poles, masts, and heads in each corner of the intersection. Install a new traffic signal controller.

(iii) Third Street/Rincon

- A. Install stop signs and right-turn only signs on Rincon on each side of Third Street.
- B. City to prohibit cross traffic on MUNI rails.

(iv) Third Street/The Common

- A. Install new traffic signal poles, masts, and heads in each corner of the intersection. Install a new traffic signal controller.

(v) Third Street/South Street

- A. Install new traffic signal poles, masts, and heads in each corner of the intersection. Install a new traffic signal controller. Owner and MUNI will each be responsible for one-half (1/2) of the cost of installing the new traffic signal and controller, in accordance with Section 1.C.3.

(vi) Third Street/16th Street

- A. Widen the east side of Third Street for approximately one hundred and fifty (150) feet south of 16th Street by approximately fifteen (15) feet to provide one (1) additional exclusive left turn lane in the northbound direction, for a total of two (2) left turn lanes, a through lane, and a shared right-through lane. Except as otherwise provided herein, Owner and MUNI will each be responsible for one-half (1/2) the cost of widening and improving the existing east side of Third Street for approximately one hundred fifty (150) feet south of

the intersection to the configuration shown in Section Q3, in accordance with Section I.C.3.

- B. Widen the west side of Third Street for approximately one hundred thirty (130) feet north of Sixteenth Street by approximately three (3) feet to accommodate MUNI right of way. Except as otherwise provided herein, Owner and MUNI will each be responsible for one-half (1/2) the cost of widening and improving the existing Third Street one hundred thirty (130) feet north of the intersection to the configuration shown in Section Q4, in accordance with Section I.C.3.
- C. Relocate the traffic signal poles within the right of way in the southeast and northwest corner of the intersection to accommodate the widening of Third Street. Except as otherwise provided herein, Owner and MUNI will each share one-half (1/2) the cost of relocating the signal poles in the southeast and northwest corner of the intersection, in accordance with Section I.C.3.

Additional right of way may be required to provide the appropriate turning radius at the southwest corner of the intersection.

(vii) Third Street/Mariposa Street

- A. Widen the north side of Mariposa Street between Third and Fourth Streets by approximately fourteen (14) feet to provide an additional through lane in the eastbound direction, for a total of one (1) left turn lane, one (1) through lane, and one (1) shared right-through lane.

The widening of the north side of Mariposa Street will require the acquisition of a strip of private property approximately fourteen (14) feet wide by three hundred eighty (380) feet long between Third and Fourth Streets totaling approximately twelve one hundredth (0.12) acre. Additional right of way required at this location is discussed in the Section on Open Space below.

- B. Widen and restripe the north side of Mariposa Street between Third Street and Terry François Boulevard by approximately fourteen (14) feet to provide an exclusive left turn lane and an additional through lane in the westbound direction, for a total of one (1) left turn lane, one (1) through lane, and one (1) shared right-through lane.
- C. Relocate the signal poles in the northeast and northwest corners of the intersection to accommodate the widening of the north side of Mariposa Street.

(viii) Fourth Street/Owens Street

- A. Install new traffic signal poles, masts, and heads in each corner of the intersection. Install a new traffic signal controller. Owner and MUNI will each be responsible for one-half (1/2) of the cost of installing the new traffic signal and controller, in accordance with Section 1.C.3.

(ix) Fourth Street/The Common

- A. Install new traffic signal poles, masts, and heads in each corner of the intersection. Install a new traffic signal controller.

(x) Fourth Street/16th Street

- A. Install new traffic signal poles, masts, and heads in each corner of the intersection. Install a new traffic signal controller.

(xi) Fourth Street/Mariposa Street

- A. Widen the north side of Mariposa Street between Fourth and Third Streets by approximately fourteen (14) feet to provide an exclusive left turn lane in the westbound direction, for a total of one (1) left turn lane, one (1) through lane, and one (1) shared right-through lane.

As described in Section (v)(A) above, the widening of the north side of Mariposa Street will require the acquisition of a strip of private property

approximately fourteen (14) feet wide by three hundred eighty (380) feet long between Third and Fourth Streets totaling approximately twelve one hundredth (0.12) acre. Additional right of way required at this location is discussed in the Section on Open Space below.

- B. Widen the north side of Mariposa Street between Fourth and Owens Streets by approximately fourteen (14) feet to provide an exclusive left turn lane in the eastbound direction, for a total of one (1) left turn lane, one (1) through lane, and one (1) shared right-through lane.
- C. Install new traffic signal poles, masts, and heads in each corner of the intersection. Install a new traffic signal controller.

(xii) Seventh Street/16th Street

- A. Restripe the northbound approach to provide an additional through lane in the northbound direction, for a total of one (1) shared left-through lane, and one (1) shared right-through pocket.
- B. Restripe the southbound approach to provide an additional through lane in the westbound direction, for a total of one (1) shared left-through lane, a shared right-through lane, and a right turn lane.
- C. Restripe the eastbound approach to provide an additional through lane in the eastbound direction, for a total of one (1) shared left-through lane, and one (1) shared right-through lane.
- D. Restripe the westbound approach to provide an additional through lane and a left turn lane in the southbound direction, for a total of one (1) left turn lane, one (1) through lane, and one (1) shared right-through lane.
- E. Install new traffic signal poles, masts, and heads in each corner of the intersection. Install a new traffic signal controller.

- F. Provide railroad crossing automatic gates, pavement markings, signals, and signs at the Caltrain tracks crossing. The railroad signal system will be upgraded and coordinated with all other intersections with the railroad in the North Plan Area and South Plan Area adjacent Seventh Street. These at grade railroad signals will also be coordinated with the street traffic signals.

The upgrade of the at grade railroad crossings will require a maintenance agreement between the City and the Peninsula Corridor Joint Powers Board (JPB), and approval by the California Public Utilities Commission (CPUC). The application to the CPUC shall be made by the City.

(xiii) Owens Street/16th Street

- A. Install new traffic signal poles, masts, and heads in each corner of the intersection. Install a new traffic signal controller.

(xiv) Owens Street/Mariposa Street/I-280 Off-ramp (See Exhibit 11)

- A. Widen the bridge over the Caltrain tracks by approximately six (6) feet to provide an exclusive left turn lane in the eastbound direction, for a total of one (1) left turn lane and one (1) through lane, and create new signalized intersection with Owens Street.

The bridge widening requires approvals from the following: Caltrans, City and JPB. The City may be required to be the applicant (or co-applicant) for such approvals.

The northbound I-280 off ramp will be widened about twelve (12) feet to the east near the intersection to align with Owens Street.

The realignment of the off ramp will require acquisition of approximately one one-hundredth (1/100th) of an acre of property outside the South Plan Area located at the southwest corner of Mariposa and Owens Streets. The property to be

acquired By Owner or City Agencies for the off ramp will be conveyed to the State upon acceptance of the Improvement.

- A. Widen the north side of Mariposa Street between the I-280 off-ramp and Fourth Street by approximately fourteen (14) feet to provide two (2) through lanes, and one (1) shared right-through lane.
- B. Relocate (or replace if needed) the signal poles at all corners of the intersection and the traffic signal controller.

(xv) I-280 On-Ramp/Mariposa Street (See Exhibit 11)

- A. Widen the bridge over the Caltrain tracks by approximately six (6) feet to provide a shared left-through lane in the westbound direction, for a total of one (1) left turn lane, one (1) shared left-through lane, and one (1) through lane.

The bridge widening requires approvals from the following: Caltrans, City and JPB. The City may be required to be the applicant (or co-applicant) for such approvals.

- B. Restripe Mariposa Street between Pennsylvania Avenue and the I-280 on-ramp to provide one (1) exclusive right turn lane, and one (1) shared right-through lane.
- C. Install new traffic signal poles, masts, and heads in each corner of the intersection and connect them to the traffic signal controller described in Section (xiv)C above.

(xvi) Berry Street Connector Road/The Common

- A. Install new traffic signal poles, mast and heads on the westbound approaches of the intersection. Connect to the traffic signal controller at Seventh Street/The Common Intersection
- B. Widen the standard cross-section of North Common Street Connection from two to three lanes for

approximately two hundred (200) feet to provide two (2) through lanes and one (1) right-turn-only lane.

(xvii) Seventh Street/Brannan Street

- A. Restripe the southbound approach to provide an additional lane in the northbound direction, for a total of one (1) shared left-through lane, one (1) through lane, and one (1) shared right-through lane.

(xviii) 16th Street/Potrero Street

- A. Restripe the eastbound approach to provide a shared left-through lane and a right turn lane in the eastbound direction.
- B. Restripe the westbound approach to provide a left turn lane, a through lane, and a shared right-through lane in the westbound direction.

(xix) 16th Street/Vermont Street

- A. Install new traffic signal poles, masts, and heads in each corner of the intersection. Install a new traffic signal controller.

(xx) Owens Street/The Common

- A. Construct a two-lane traffic roundabout with an inscribed diameter of approximately one hundred eighty (180) feet.

(xxi) Owens Street/Fifth Street Pedestrian Bridge

- A. Install new traffic signal poles, masts, heads and pedestrian push buttons at a new pedestrian crosswalk across Owens Street.

(xxii) Seventh Street/The Common/Berry Street Connector (See Exhibit 9, Section I.A.c.(vi) and Section I.C.4 below)

- A. Construct two (2) twelve (12) foot southbound exclusive right turn lanes at the intersection with The Common.

- B. Restripe the northbound Seventh Street approach to provide an additional lane in the northbound direction, for a total of two (2) through lanes, and one (1) exclusive right turn lane.
- C. Restripe the southbound Seventh Street approach to provide an additional lane in the southbound direction for a total of one (1) exclusive left turn lane and two (2) through lanes.
- D. Install new traffic signal poles, masts and heads in each corner of the intersection. Install a new traffic signal controller. Interconnect traffic signal controller with those at 16th and Townsend Streets.
- E. Provide railroad crossing automatic gates, pavement markings, signals and signs at the Caltrain tracks crossing. Interconnected railroad and street signals shall be provided for both The Common and 16th Street.

This Improvement will require a construction and maintenance agreement between the City and the Peninsula Corridor Joint Powers Board (JPB) and is subject to approval by the California Public Utility Commission (CPUC).

- F. Relocate three (3) railroad tracks approximately twelve (12) feet to the east from its current position for a distance of approximately eight hundred (800) feet. See Subsection E, above and Exhibit 9.

c. Street Segments.

The following specific street segment Improvements shall, except as otherwise indicated, be provided by Owner in connection with the development of the South Plan Area.

(i) Third Street

- A. Reconstruct Third Street in accordance with attached Sections to accommodate the MUNI Third Street Light Rail transit median while maintaining two (2) lanes in each direction and exclusive left turn lanes at specific locations.

- B. Widen east side Third Street for approximately one hundred fifty (150) feet south of 16th Street by approximately fifteen (15) feet to accommodate the lane configuration described in intersection Improvement Section (vi)A, above. Except as otherwise provided herein, Owner and MUNI will each be responsible for one-half (1/2) the cost of widening and improving the existing Third Street in accordance with Section I.C.3.

(ii) Mariposa Street

- A. Widen the north side of Mariposa Street between Terry François Boulevard and the I-280 off-ramp by approximately fourteen (14) feet to accommodate the lane configurations noted in intersection Improvements Sections (vii)A, (vii)B, (xi)A, (xi)B, and (xiv)B above.

Property acquisitions required as conditions of these Improvements are discussed in the corresponding above-referenced Sections.

- B. Widen the bridge over the Caltrain tracks between the I-280 off- and on-ramps by approximately six (6) feet to accommodate the lane configurations noted in intersection Improvements Sections (xiv)A and (xv)A.

Property acquisitions required as conditions of these Improvements are discussed in the corresponding above-referenced Sections.

- C. Restripe Mariposa Street between the I-280 on-ramp and Pennsylvania Avenue to accommodate the lane configurations noted in intersection Improvement Section (xv)B above.

(iii) Fourth Street

- A. Provide eighty-eight (88) feet right of way with sixty-eight (68) feet of roadway, including MUNI right-of-way, and two (2) ten (10) foot sidewalks. MUNI's right-of-way will transition from an exclusive width of twenty-four (24) feet at Owens Street to a shared right-of-way at the south end of

the Fourth Street Bridge. The two northbound lanes on Fourth Street will merge together and merge again with the MUNI tracks, between Owens Street and the south end of the Bridge, to line up with the northbound lane on the Bridge. The center southbound lane on the Bridge will transition out from MUNI's shared right-of-way between the south end of the Fourth Street Bridge and Owens street.

- B. Extend Fourth Street southward from Owens Street, parallel to Third Street, to intersect with Mariposa Street at the existing intersection with Minnesota Street.

(iv) Owens Street

- A. Construct Owens Street between Third and Fourth Streets, providing a median approximately twenty-four (24) feet wide to accommodate the MUNI Third Street Light Rail line, but providing no on-street parking.
- B. Construct Owens Street between Fourth Street and The Common, but providing on-street parking on the north side of the street only.
- C. Extend Owens Street northward from 16th Street to The Common, but providing no on-street parking.
- D. Construct Owens Street between 16th Street and Mariposa Street, providing no on-street parking.

(v) The Common

- A. Construct North Common and South Common Streets, two parallel east-west one-way roadways separated by an approximately one hundred thirty (130) foot wide grassy area, running from Terry A. François Boulevard to Mission Bay Street, and providing one (1) fifteen (15) foot wide lane and parking on the curb side.

The construction of North and South Common Streets at Third Street requires the minimum acquisition of a strip of property approximately

seventy-four (74) feet wide and two hundred (200) feet long and may require the acquisition of a larger parcel because of the presence of existing buildings.

There shall be no parking on the north side of North Common Street and the south side of South Common Street one hundred sixty (160) feet west of the center line of the Commons crossing located between Third Street and Terry François Boulevard.

- B. Construct North Common and South Common Streets between Mission Bay Street and the roundabout intersection with Owens Street, providing two (2) eleven (11) foot wide lanes each way, separated by six (6) foot median and with no on-street parking.

(vi) North Common and South Common Streets Connection to Seventh Street Connector Road

- A. Construct the North Common and South Common Streets, two east-west one-way roadways, running from the roundabout intersection with Owens Street to Seventh Street, and providing two (2) eleven (11) foot wide lanes each way. No bicycle lanes or on-street parking will be provided. See Exhibit 9.
- B. Relocate three (3) railroad tracks and JPB easement approximately twelve (12) feet to the east from its current location for a distance of approximately eight hundred (800) feet to accommodate the lane configurations for the Seventh Street/Berry Street intersection in Section I.A.1.b(xxii), above. See Subsection E thereof and Exhibit 9.

(vii) Seventh Street

- A. Restripe Seventh Street between Hooper and 16th Streets to accommodate the lane configuration changes described in intersection Improvements Sections (xii)A and (xii)D above. The northbound and southbound curb lanes will be restriped as fourteen (14) foot wide lanes to accommodate both bicycles and motor vehicles.

- B. Note: Agency to cause City to take all necessary actions to eliminate on-street parking on both sides of Seventh Street between Hooper and 16th Streets during the morning and evening peak commute periods in order to provide the lane configuration described in this street segment Improvement Section (vii)A above.

(viii) Terry A. François Boulevard

- A. Restripe the existing Terry A. François Boulevard between Mission Rock Street and The Common, and between 16th and Mariposa Streets, to accommodate two (2) traffic lanes and one (1) bicycle lane each way, with parallel parking on both sides.
- B. Realign Terry A. François Boulevard parallel to Third Street between The Common and 16th Street, providing two (2) traffic lanes and one (1) bicycle lane each way, with parking on both sides.

(ix) Illinois Street

- A. Repave and restripe Illinois Street between 16th and Mariposa Street to accommodate one lane each way, providing parallel parking on both sides.

(x) South Street

- A. Construct South Street between Third Street and Terry A. François Boulevard to accommodate two (2) lanes each way, providing no on-street parking.
- B. Construction of South Street between Third and Fourth Streets is not part of this Infrastructure Plan. UCSF may build the extension of South Street between Third and Fourth Streets as a public or private street.

(xi) Residential Streets

- A. A series of new residential streets will be created or extended into Mission Bay South, to serve the northern portion of Mission Bay South. These will include Mission Bay, Rincon and Mission Rock

Streets and other streets, and will accommodate one lane each way, providing parking on both sides.

2. **Wet Utilities.**

The following section describes Infrastructure for the sanitary sewer and storm drain Improvements, which shall, except as otherwise indicated, be provided by Owner in connection with the development of the South Plan Area.

a. **Sanitary Sewer and Storm Drain System.**

The sanitary sewer and storm drain system and the Infrastructure to be constructed by Owner in connection therewith are shown on Exhibit 4.

The storm drain collection system described above is designed for a five (5) year storm, consistent with existing City design criteria. For flows over the five (5) year storm, adequate overland flows for the one hundred (100) year storm will be maintained in the street areas or in other designated areas or other approved corridors which may require easements such as from City Agencies and/or the State, with flows directed to Channel or Bay.

b. **Description of Drainage Basins.**

For purposes of this Infrastructure Plan, the Mariposa Basin is defined as the part of the South Plan Area located between Mariposa Street and a point three hundred (300) feet north of 16th Street. The Central Basin is described as the part of the South Plan Area located between the Channel and a point three hundred (300) feet north of 16th Street. See Exhibit 4.

c. **Separate Sanitary Sewer and Storm Drain System (Central Basin and Mariposa Basin).**

The Improvements are shown on Exhibit 4 as two (2) separate systems as follows:

(i) **Sanitary Sewer Only.**

- A. The Central Basin sanitary sewer system is divided into two (2) zones, each of which flow by gravity to the City combined sewer box just south of the Channel. A sewer lift station will be provided at the box entrance to provide for pressure flow during high level flow in the City box.
- B. The Mariposa Basin sanitary system is a single zone which will be directed to the existing combined pipe system which flows by gravity to the Mariposa Pump Station.

C. The sanitary sewer systems may consist of high density polyethylene (“HDPE”) pipe up to and including twelve (12) inches in diameter (sewers exceeding twelve (12) inches in diameter will be Vitrified Clay Pipe (VCP) or Reinforced Concrete Pipe (RCP)), manholes with solid covers, HDPE laterals and appurtenant Improvements. The independent sanitary sewer system may utilize some of the existing combined sewer lines to the extent possible by dedicating the existing line to sanitary sewer collection only. This will require that all previously connected storm drain flows to these lines be redirected to the new separate storm drain system.

(ii) Storm Drain Only.

A. The Central Basin storm drain system is divided into four (4) zones, each of which flow by gravity to its separate stormwater pump station.

The Mariposa storm drain system will be similar to the Central Basin except it will only have one (1) zone.

The storm drain system for both Basins will consist of RCP pipe, manholes, drain inlets integral with sidewalks, outfall structures and appurtenant structures. As a minimum, Class IV RCP will be used under sidewalks and streets with four (4) feet of cover, minimum, unless otherwise approved by the City. The areas near the Bay or Channel will be set at a minimum top of curb elevation of ninety-eight (98.0) feet. The minimum first floor building elevation shall be ninety-nine (99.0) feet. Hydraulic grade line at catch basin not to exceed elevation ninety-seven (97.0) feet.

Some additional specific design parameters from the storm drain system are one (1) foot of freeboard to top of curb in the inlets, pipe sized to be capable of conveying a minimum five (5) year storm, and flows over the piping capacity to be conveyed overland to the Bay or Channel. Pump stations would be provided with dewatering capability and

with sufficient storage for storm drain flows during dry weather.

As the separated system becomes necessary, is constructed and becomes operational (see paragraph F below), one hundred percent (100%) of storm water flows up to a five (5) year storm would be directed to the Channel or Bay, as shown on Exhibit 4, after treatment by the liquid/solid separator as described in paragraph B below.

The City will timely apply for, and diligently pursue, a NPDES Permit for storm water discharge related to the separated system, in accordance with and subject to the provisions of the Interagency Cooperation Agreement.

- B. Liquid/Solid Separator. Mitigation Measure K-4 in the Mission Bay Subsequent EIR provides for use of alternative technologies (or other means) for treatment of storm water discharges (to the Channel) to reduce floatable materials and settleable solids to levels equivalent to or better than City treated Combined System Overflow (“CSO”). For storm water volumes to be discharged to the Channel or Bay, up to a five (5) year storm frequency, the project will include vortex type treatment or an alternative treatment that meets the performance standard of Mitigation Measure K4. Such treatment device is hereinafter referred to as a “Vortex” unit, but the use of such term is not intended to preclude the use of any treatment device, regardless of its technology or manufacturer, which meets the standards set forth herein.
- C. Particulate Management. Mitigation Measure K-4 in the Mission Bay Subsequent EIR provides for source control measures to remove particulates from streets and parking lots. Owner will purchase a Schwarze Industries EV2 (or comparable) particulate management system for use during construction and dedication to the City for roadway maintenance for the Mission Bay Project.

D. Monitoring Program. It is anticipated that the combination of the Vortex treatment and the source control measures for particulate management described in paragraphs B and C above will achieve at least a 40% reduction in the total suspended solids ("TSS") in stormwater discharges as compared to that which would otherwise be discharged to the Bay or Channel without such Vortex treatment and source control measures. In order to evaluate the stormwater management program against this goal, Owner will implement a monitoring program as described below. The monitoring program will be developed by Owner, in consultation with and subject to the reasonable approval of the General Manager of the City's Public Utilities Commission, which program will include the following elements:

- Owner will collect and analyze for TSS influent and effluent flow samples to and from a single Vortex unit;
- The goal of the monitoring program will be to calculate a TSS removal rate based on samples taken during a total of fifteen (15) to twenty (20) representative storms over a three year period. The sampled storms should be generally representative, in terms of magnitude, time of year and antecedent rainfall, of the total number of storms during each year;
- The mass of particulates captured by the particulate management system, referenced in paragraph C above, will be measured, and the calculated removal efficiency will reflect an appropriate mass of particulates as would otherwise have been discharged to the Bay or Channel.
- Based on the results of this monitoring, Owner will submit annually a report summarizing the data and results to the City, including calculation of an average annual removal rate for the current year and, when data is available,

the average annual removal rate for the last three (3) consecutive years combined.

Owner will be required to continue this monitoring program until such time as monitoring results demonstrate an average TSS removal rate of at least 40% over a combined period of any three (3) consecutive years, at which point the system will be deemed to have achieved the design goal of 40% TSS reduction and Owner will no longer be responsible for further monitoring. If the monitoring results indicate that the goal is not achieved, Owner shall, subject to the approval of the City's PUC, make modifications to the Vortex unit or units installed to date (and incorporate such modifications into future installations) or take additional measures designed to achieve the goal; provided, however, that the cost to Owner of such modifications or additional measures within each of the five (5) zones within the Central and Mariposa Basins shall not exceed the original cost of acquisition and installation of the first Vortex unit.

- E. Maintenance and Operation. The Owner will, at its cost, secure a maintenance agreement, either with the manufacturer or another entity experienced with the operation of such systems, who will be responsible to operate and maintain any Vortex unit installed, but only until the earlier of (1) such date as monitoring results indicate that the design goal of 40% TSS removal has been achieved, as provided in paragraph D above or (2) the date six (6) years after commencement of operation of the first Vortex unit. During the period when Owner is responsible to secure a maintenance agreement, Owner shall cause the manufacturer or other entity providing such maintenance to keep detailed logs of all maintenance activities. Once monitoring results indicate that the design goal has been achieved, Owner shall have no further obligation for the cost of operation or maintenance.
- F. Phasing. Initially, Owner would use the existing combined system to the extent of available capacity, supplemented by interim surface detention or by

interim adjustment of the watershed and/or sewershed boundary between the Central Basin and the Mariposa Basin, where feasible.

- G. Owner and the City are continuing to explore the possibility of incorporating sand filtration into some open space areas to provide both additional stormwater treatment and rapid drainage of open space areas. If proposed by Owner, such sand filtration system would be subject to approval by both the Agency and the City's PUC. If such sand filtration is installed, the monitoring program described in paragraph D above, would be designed to include treatment provided by such sand filtration system in the calculation of the TSS removal rate.

d. Seawall Lot 337.

The Port will work with its tenants in engineering for the new development and new uses of Port property, including interim new uses, such that sanitary sewer and storm drain Improvements are consistent with this Infrastructure Plan. The Port will deliver Storm water discharge from the approximately twenty (20) acre Port property adjacent to the South Plan Area, located east of Third Street and north of Mission Rock Street, known as Seawall Lot ("SWL") 337, as follows: For new development on SWL 337, storm water will be collected on site and delivered directly to the storage box near Fourth Street and Owens Street by a separate storm water pipe. See Exhibit 4. The storm water discharges from parcel SWL 337 or the adjacent piers 48 and 50 and the connections to the existing City combined sewer system shall not be the responsibility of Owner. Upon construction of the required sanitary sewer Improvements by Owner under this Infrastructure Plan, sewer flows from parcel SWL 337 and the adjacent piers 48 and 50 shall be directed to the new pump stations which discharge the flow to the existing City combined sewer in Fourth Street or the separated system as shown in Exhibit 4 when constructed in accordance with this Infrastructure Plan. See Exhibit 4. The sanitary sewer system, including piping, pumping and treatment facilities will accommodate planning criteria provided by the Port for the development and use of Port owned property consistent with the development criteria in the existing Waterfront Land Use Plan and the Mission Bay Subsequent EIR. Provision of sewer lines or pumps, except as otherwise described in this Infrastructure Plan, and connection to Owner constructed sewer system as described in this Infrastructure Plan shall not be the responsibility of Owner. Neither the planning, development nor use of the Port property shall alter, accelerate, delay or otherwise adversely affect Owner's rights and obligations under this Infrastructure Plan. If the Port does new development prior to Owner's construction of Infrastructure, the Port will have no obligation to construct infrastructure with capacity in excess of the Port's development needs for SWL 337, Piers 48 and 50 unless tax increment from the South Plan Area is available with respect thereto consistent with the financing plan.

e. **Auxiliary Water Supply System (AWSS).** The AWSS system and the Infrastructure to be constructed by Owner in connection therewith are identified on Exhibit 5. This system is also known as a high pressure water supply system dedicated for fire protection. The City-wide system serves as a source of fire protection in industrial, commercial and many residential districts. The system consists of cast iron or ductile iron pipe (DIP), high pressure hydrants, valves and fittings, and appurtenant improvements. It is contemplated that the South Plan Area system will be connected to the North Plan Area system via an interconnection between Berry Street and North and South Common Streets via the proposed connector road when appropriate. DPW will design the proposed Improvements in the locations shown in Exhibit 5. Owner shall pay for the costs of designing the AWSS system. Owner may monitor the design process and cost parameters during design development and contribute to the design specifications by reviewing and commenting on conceptual design and cost analyses and proposed final construction plans and estimates prior to bidding for cost and to ensure consistency with the other utility Infrastructure Improvements, including pipe, hydrant and valve locations.

f. **Low Pressure Water System.** The low pressure water system is identified schematically on Exhibit 6. This domestic water supply and fire protection system consists of DIP mains, low pressure fire hydrants, valves and fittings, and appurtenant Improvements. It is contemplated that the South Plan Area will be connected to the North Plan Area. A connection to the North Plan Area low pressure system may, subject to approval of other regulatory agencies with jurisdiction (such as BCDC, Corps of Engineers, RWQCB and others), be installed in the Fourth Street alignment beneath the Channel when appropriate. Engineering design and analysis provided by Owner shall verify whether this interconnect is required for adequate fire flows. Final pipe sizes, locations, connections and interconnections, flows, pressures, and location and number of fire hydrants will be determined with a new “Hardy Cross” hydraulic model analysis using appropriate design criteria reasonably established by the City.

g. **Channel Suction Inlets.** Channel Suction Inlet Infrastructure in the locations shown on Exhibit 5 will be provided by Owner subject to approval of regulatory agencies with jurisdiction (such as BCDC, Corps of Engineers, RWQCB and others). No cisterns are required.

h. **Reclaimed Water System.** The Reclaimed Water System Infrastructure Improvements identified on Exhibit 7 will be installed by Owner to the extent required by applicable City Regulations. This system consists of DIP bagged for corrosion protection and cross-connection prevention valves and fittings, and appurtenant Improvements. The pipes will be installed in each of the streets (one (1) side only) as the streets are constructed. Supply for the reclaimed water has not yet been determined. Supply sources may include the high pressure water line system or the vault at Mariposa and Owens or other sources such as the Seventh Street existing unused sludge line or Third Street as shown on the Recycled Water Master Plan. Lines will therefore be installed dry. Actual supply point connections will be determined when supply is available.

i. Public Utility Easements. Public utility easements will be allowed at other locations, including in the vara right of ways shown on Exhibit 2. Utilities in these areas will be installed in accordance with the standards in this Infrastructure Plan and applicable City Regulations for public acquisition and acceptance within public utility easement areas, including provisions for maintenance access, but such areas shall not be required to be dedicated as public right of ways or improved to public right of way standards.

3. Dry Utilities.

a. Joint Utility Trench.

Work necessary to provide the joint trench for dry utilities (that lie in public streets and in the sidewalk area if at all possible) consists of trench excavation and installation of conduit ducts for telephone, cable, fiber optic, electrical, gas (direct burial), fire and police alarm and MUNI. Additionally, utility vaults, splice boxes, street lights and bases, wire and transformer allowance, and backfill are included. The utility owner/franchisee (such as MUNI and fiber optic companies) will be responsible for installing facilities such as transformers and wire.

All necessary and properly authorized public utility Improvements for which franchises are authorized by the City shall be designed and installed in the public right-of way in accordance with governing codes, rules and regulations (in effect from time to time), and permits approved by DPW. Joint trenches or utility corridors will be utilized wherever feasible. The location and design of joint trenches/utility corridors in the right-of way must be approved by DPW during the subdivision review process. All subsurface vaults serving one building shall be placed behind the property line. If a subsurface vault serves the distribution system, it may be placed in the right of way. Other facilities (e.g., traffic signal controllers) shall be located above ground as necessary for operational reasons. The precise location of the joint trench in the right of way will be determined prior to recording the applicable final map and identified in the subdivision improvement plans. Nothing in this Infrastructure Plan shall be deemed to preclude Owner from seeking reimbursement for or causing others to obtain consent for the utilization of such joint trench facilities where such reimbursement or consent requirement is otherwise permitted by law.

b. Street Lights. Secondary power for street lighting shall be installed in a separate trench in accordance with City Regulations in effect from time to time. Sections 937 through 943 of the San Francisco Public Works Code contain specific requirements for street lighting and is hereby incorporated by reference.

c. Public Utility Easements. Public utility easements will be allowed at other locations, including in the vara right of ways shown on Exhibit 2. Utilities in these areas will be installed in accordance with the standards in this Infrastructure Plan and applicable City Regulations for public acquisition and acceptance within public utility easement areas, including provisions for maintenance access (refer to Section 2 on Exhibit 3H for typical twenty-two (22) foot maintenance access easement), but such areas shall not be required to be dedicated as public right of ways or improved to public right of way standards but may including paving, street furnishings, lighting, landscaping and irrigation.

B. PUBLIC OPEN SPACE

1. Open Space Parcels.

The Open Space Parcels in the South Plan Area are shown in Exhibit 8 and denoted as the parcels beginning with "P," totaling approximately thirty-three (33) acres. This total area is in addition to the approximately two (2) acres of Port owned Property described in Section I.B1.i, below, which is located outside the South Plan Area and integrated in South park plans, the school yard described in Section I.C.9 below and the approximately eight (8) acres of publicly accessible open space within the UCSF Campus Site. Except as provided herein, the Owner shall construct all of the Improvements in the Open Space Parcels. Improvements to Open Space Parcels are further described in the Design for Development.

a. Mission Creek Park - South Channel. (P1, P2, P3 and P8.)

The Mission Creek Park - South Channel park system will connect to the Mission Creek Park - North Channel park system in the North Plan Area. The Mission Creek Park - South Channel consists of approximately eleven and three tenths (11.3) acres and will include a separate Class-1 bike-path and a meandering pedestrian path along the length of the park system from P1 through P8. The park may also include a restroom.

Parcel P3 will be designed as an urban plaza recognizing intensive use from hotel patrons in character of landscape and use of pavement materials.

Planned Improvements in the P1, P2, and P8 park areas include walkways, grassy areas and picnic tables for passive activities such as strolling, sunning and picnicking. A bicycle and pedestrian path will be provided on Parcels P1, P2, P3 and P8 connecting the Berry Street Connector with Third Street.

Park design in Parcel P2 will integrate with the existing houseboat park and accommodate houseboat area access and parking. No Improvements to the Channel edge below top of bank including with respect to the existing utility outfalls or houseboat ramps area are included in Parcel P2 along the existing houseboat park.

New vehicular access to the houseboat parking lot located on P2 will be provided from Owens Street. There will be one major roadway and a secondary/emergency access. Their exact location will be determined after on-going detailed planning and engineering analyses are concluded, but it is anticipated that the main access will be located near the midpoint between the proposed Fifth Street pedestrian bridge and the roundabout intersection with The Common. The existing number of parking spaces (50) will be maintained.

Guidelines for Improvements to the Channel edge below top of bank including, without limitation, selective repairs, bank stabilization as necessary and revegetation are described in the Design for Development. Such Improvements are subject to approval of regulatory agencies with jurisdiction (such as BCDC, Corps of Engineers, and RWCQB).

b. Mission Bay Commons. (P11 through P17.)

The Mission Bay Commons consists of approximately six and four tenths (6.4) acres of parks adjacent to the Campus Site and to residential neighborhood. This park system will provide both passive and active activities for children and adults. A continuous internal pathway system will include a sidewalk around the perimeter and meandering pathways through the interior of Mission Bay Commons. Street trees will be located within the perimeter of the park rather than on the other side of the adjacent street right of way. An art feature is anticipated as a focal point or significant design feature in P17.

c. Owens Field. (P7 and P9.)

Owens Field consists of approximately two and four tenths (2.4) acres. The park will be developed to accommodate a variety of zones for active recreation such as a softball field, and, in areas under the freeway, “noisy” recreation such as skateboarding, rollerblading, basketball, etc.

d. Bayfront Park. (P22 and P21.)

The Bayfront Park system consists of approximately five and a half (5.5) acres located east of Terry A. François Boulevard and an additional approximately two (2) acres on property owned by the Port, totaling approximately seven and a half (7.5) acres. The Bayfront Park System does not include the additional open space area running north from the boundary of the Aqua Vista Park to Pier 54. The park will be designed to accommodate a variety of both passive and active uses, such as soccer or other field related sports or informal performance areas. Improvements in P21 will include boat trailer parking and access to the boat launch to be constructed by the City’s Port. Improvements in P22 will extend to the top of the bank to the east in the adjacent Port property as shown on Exhibit 8. The Bay Trail will be extended through the Bayfront Park and adjacent area subject to authorization from BCDC.

As discussed in Section 7 below, Freight Rail Improvements may be extended in the Bayfront Park area by the City’s Port if needed.

e. Mariposa Walk and Parks. (P23, P24 and P26.)

The Mariposa Walk and Parks will consist of approximately four and a half (4.5) acres and includes Mariposa Park (P26) and Mariposa Bayfront Park (P23 and P24) as well as the landscaped Mariposa Walk. Mariposa Park will be designed as a green, flexible use community park, including a “junior” soccer field and a restroom/equipment storage facility. Mariposa Bayfront Park will include informal play areas and picnic areas.

Mariposa Walk consists of a thirty (30) foot wide (twenty (20) foot building setback and ten (10) foot sidewalk) combined pedestrian and bicycle connection between Mariposa Park and Mariposa Bayfront Park along the northern edge of Mariposa Street at Parcels X3 and 34 from Terry François to Fourth Street. This setback area will be privately owned but publicly accessible.

f. Residential Parks. (P5, P6, P18 and P19.)

The Residential Parks consist of approximately two (2) acres. They will be designed to benefit the adjacent residential neighborhoods, and include uses for children and families that invite daily and active use. Triangle Square (P6) will be developed for use by the residential community. A central green space will be designated to accommodate flexible programs and uses, including uses for children and families that invite daily and active use.

g. Other Open Space Parcels. (P10, P20 and P27.)

Landscape Improvements will be provided in P10, P20 and P27.

h. UCSF Campus.

At least eight (8) acres of publicly accessible open space will be provided by UCSF within the Campus. The Campus Site will also include an approximately one and a half (1.5) acre public school yard as described in Section I.C.9 below.

i. Open Space in Port Jurisdiction East of Terry François Blvd.

On an approximately one and eight-tenths (1.8) acre portion of Bayfront Park (Parcel 21) that is within Port jurisdiction, easterly of realigned Terry A. François Blvd., the Port shall construct a boat trailer parking lot, including temporary accessways to serve Port tenants at Pier 54. The Port will demolish and remove existing buildings within the future Bayfront park area (including Parcels 21 and 22) and the area east of Parcels 21 and 22 within Port jurisdiction; reconstruct or rehabilitate the existing seawall, where required (except in future storm outfall areas); construct and, after relocation of Terry A. François Boulevard in accordance with this Infrastructure Plan, reconstruct the boat trailer parking lot in accordance with Section 6.7 of the Port Land Transfer Agreement; remove piers beyond the seawall, if necessary; and, extend rail service to Piers 48 and 50, if necessary. (See Section I.C.6 below.) The Port will maintain the seawall, piers and other maritime facilities and the boat trailer parking lot.

A BCDC permit and other approvals are required for the proposed Bayfront Park, shoreline trail, Channel-edge enhancements and other Improvements. City Agencies may be required to be a co-applicant on such applications.

Owner will relocate and reconstruct Terry A. François Blvd., including associated street utilities, provide new and/or relocated utility services to existing Port tenants along Terry François Boulevard (sized to accommodate existing users and land use intensities), and construct storm drain outfalls in accordance with this Infrastructure Plan. Owner will remove debris from the area between top of bank and the east right of way line of the relocated Terry A. François Boulevard and regrade; construct landscape improvements from the east right of way line of the relocated street to the top of bank (including the Bay Trail); and construct a rail line, if necessary, to serve Pier 80 as described in Section I.C.6 below.

The CFD Maintenance District will maintain the new park area from the east right of way of Terry A. François Boulevard to the top of bank.

2. Mid Block Lanes.

A Mid Block Lane on Parcel 12 and on Parcel 13 will be at least thirty (30) feet wide. Improvements may include paving, street furnishings, lighting, landscaping and irrigation system.

C. OTHER INFRASTRUCTURE

The following additional Infrastructure Improvements shall, except as otherwise indicated, be provided by Owner in connection with the development of the South Plan Area.

1. Pedestrian Bridge. A neighborhood linking pedestrian bridge across the Channel at Fifth Street will connect the neighborhood open space system north and south of Channel in the Channel Park area along Fifth Street. The obligation to construct a neighborhood linking pedestrian bridge is subject to obtaining authorization and approvals acceptable to Owner from all regulatory agencies with jurisdiction (such as BCDC and Coast Guard). The bridge as shown in Exhibit 12 will be a center swing bridge, 11 feet wide, with a steel approach span of approximately 115 feet long, a steel center swing span of approximately 70 feet, an approach span of approximately 65 feet long, and steel deck supports, turntable systems, wall abutments (not higher than five feet above adjacent finish grades at the north and south channel banks) and a control building (or equivalent type of bridge structure which achieves the same pedestrian connection between the north and south sides of Channel).

2. Interim Operational Requirements. These Improvements are temporary Improvements or modifications of existing facilities to be constructed by Owner such as interim parking, drainage, roadways and utility improvements such as water, sewer, storm drain and franchise utilities such as electrical, gas and telephone and cable which may be necessary to adequately serve a Major Phase or Project therein or other development or transit requirements, until such time as final Improvements are constructed. These temporary improvements may be relocated, removed and/or abandoned by Owner, as determined by the Department of Public Works, when the balance of development occurs. An example is a traffic turn-around area at the interim terminus of a street which will be extended in future phases. Maintenance of such Improvements shall be by Owner.

As described in Section II below the construction of wet utilities will usually be undertaken when the street is constructed. The ultimate piping for storm and sewer will be installed within the limits of the street work. However, the Owner reserves the right to connect these construction segments to the City combined system as an interim stage of development. It is understood that such connection will be allowed as long as the City system capacity is not exceeded.

Interim parking for the San Francisco Giants Ballpark and UCSF Campus is shown on Exhibit 13. The areas shown are not intended to be the final locations but are shown for

conceptual purposes only and are subject to modification based upon the construction phasing of UCSF and the final configuration as will be determined between the Giants and Owner. These surface parking lots would be constructed of impervious materials. Interim drainage will include, subject to regulatory review and approval, shallow temporary surface detention of rainwater from large storms up to a five-year storm event until such time as the ultimate need for the proposed separated storm drain and sanitary system is required.

3. MUNI Transit Related Improvements.

There may be necessary or desirable revisions to MUNI transit plans for trolley coach services described herein, as a result of the review and legislative approval process associated with service implementation, the development of proposals which better serve Mission Bay and adjacent neighborhoods, integration with changes to MUNI service elsewhere in the City, particularly the areas south of Market Street, design and State of California approvals associated with trolley coach crossings of the Caltrain tracks, or other reasons. If this occurs, Owner agrees to work with City to accommodate such revisions, including construction of poles, eyebolts and other facilities as enumerated herein at alternate locations. However, once initially designed or constructed, the cost of relocation of such facilities will not be Owner's responsibility and any such changes shall not adversely delay or affect Owner's ability to develop the South Plan Area in accordance with the Mission Bay South Redevelopment Plan and Plan Documents. Final design details and design adjustments, consistent with this Infrastructure Plan will, as necessary or appropriate, accommodate trolley route extensions.

MUNI intends to extend service in the South Plan Area, including extensions of the MUNI Lines 22-Fillmore and either 30-Stockton or 45-Union/Stockton and in connection therewith MUNI will provide the following transit services:

a. MUNI Line 22-Fillmore.

Owner will provide and construct street light and/or overhead trolley bus poles and/or eyebolts on buildings to support MUNI trolley wires along 16th Street, between Seventh Street and Third Street, South Common Street between Third Street and the Commons connecting street, the Commons connecting street between South and North Common Streets, and North Common Street between the Commons connecting street and Third Street. Some additional trolley poles or eyebolts may also need to be provided and constructed by Owner on Third Street between 16th Street and the Commons.

MUNI staff has indicated that the 22-Fillmore service cannot be extended to the South Plan Area until service can be extended on the 30-Stockton or 45-Union/Stockton to Potrero Hill. The extension of the 30-Stockton or the 45-Union/Stockton is contingent on the street system being constructed.

b. MUNI Line 30-Stockton or 45-Union/Stockton.

Owner will provide and construct street light and/or overhead trolley bus poles and/or eyebolts on buildings to support MUNI trolley wires along Fourth Street between Owens and

Mission Bay Streets, Mission Bay Street between North and South Common Streets, the portion of North and South Common Streets between Mission Bay Street and the Seventh Street connector, and the Seventh Street connector between North and South Common Streets and Seventh Street, including the Caltrain at-grade crossing. Some additional trolley poles or eyebolts may also need to be provided and constructed by Owner on Fourth Street between the Channel and Owens Street. This work will be undertaken in conjunction with development of Residential Projects between the Common and Owens Streets. Owner will work with Department of Parking and Traffic and MUNI to evaluate the need of transit-only lanes on the Common Street Connector to Seventh Street. If the lanes are to be implemented, they would be provided within the right of way described in this Infrastructure Plan.

c. MUNI Light Rail.

The MUNI Third Street Light Rail project is anticipated to run from King Street over the Fourth Street Bridge through the Owens extension to connect to Third Street and continuing through the South Plan Area on Third Street. The Light Rail project shall be the responsibility of MUNI. Except as otherwise provided in this Infrastructure Plan, MUNI is responsible for the cost of modifications/improvements to Fourth Street south of Channel, Owens Street and Third Street consistent with this Infrastructure Plan that are necessitated by the Third Street Light Rail project. The right of way is shown on Sections J and Q. MUNI will provide Owner's Representative with progress plans for review and plan coordination. It is anticipated that portions of the MUNI Third Street Light Rail project will commence in advance of adjacent development along the adjacent street frontage. The Owner shall provide those portions of the right of way necessary for the Third Street Light Rail project within Owner's ownership or control as required to meet the Light Rail project schedule. MUNI will provide a power substation located in Parcel P23.

Except as otherwise provided herein, Owner and MUNI will each contribute only to "Street Widening Costs" (as defined below) incurred by Owner or MUNI in the total amount for each of one-half (1/2) the cost of widening and improving the existing Third Street in the vicinity of the 16th Street Intersection, and including the Improvements described in Subsection (8) below, in accordance with this Infrastructure Plan (the "Third Street Contribution"). As used herein, the widening and improving of the existing Third Street in accordance with this Infrastructure Plan, hereinafter the "Street Widening," consists only of the following:

- (1) Demolition of existing pavement, curb and gutter;
- (2) Preparation of street subsurface and street base;
- (3) Installation and resurfacing of street;
- (4) Construction or reconstruction of gutters, catch basins and sidewalks;
- (5) Utility lateral extensions;
- (6) Installation or relocation of street lights and strain poles;

(7) Installation or relocation of traffic signal poles, masts, heads and controllers.

(8) Installing new strain poles, street lights, traffic signal poles, masts and heads and a new traffic signal controller at the intersections of Fourth Street and Owens, Third Street and Owens, and Third Street and South Street.

MUNI's or Owner's, as applicable, obligation for any Third Street Contribution is conditioned upon: (a) A construction contract having been executed for the Street Widening, or a portion thereof; and (b) The Owner or MUNI, as applicable, having secured a funding commitment for the balance of the cost of constructing the Street Widening or the segment which is covered by the construction contract described in clause (a) above.

Provided the foregoing conditions to Owner's and MUNI's obligation for any Third Street Contribution have been satisfied, the Owner or MUNI, as applicable, shall pay the Third Street Contribution upon the occurrence of all of the following: (i) Owner and MUNI, as applicable, having certified that construction of the Street Widening, or portion thereof covered by the applicable construction contract, is ready to proceed; and (ii) Owner or MUNI, as applicable, having provided reasonably detailed documentation, including, without limitation, from the construction bid documents, for the Street Widening Costs (as defined below) to be paid.

As used herein, "Street Widening Costs" means the substantiated, reasonable costs of construction of the Street Widening, which costs shall consist of the following, without duplication: (i) the "hard" costs to be incurred by Owner or MUNI, as applicable, under the contract, for the construction of the Street Widening (the "Hard Costs"); (ii) out of pocket costs incurred by Owner or MUNI, as applicable, in preparing construction documents, specifications, schedules and related construction contracts in the amount of two percent (2%) of the Hard Costs; (iii) a construction and project management fee to be retained by Owner or MUNI, as applicable, in the amount of four percent (4%) of the Hard Costs; (iv) pro-rata professional costs, such as design, engineering, architectural, legal accounting, inspection, construction staking, materials testing, consulting and similar professional services (excluding cost of any such services provided directly by Owner or MUNI) in the amount of eleven percent (11%) of the Hard Costs; and (v) out of pocket costs directly related to the construction of the Street Widening, such as costs of security, safety signage, payment, performance and/or maintenance bonds, and insurance costs. City Agencies' administrative costs in connection with the Street Widening project(s) shall only be included to the extent allowed as a Street Widening Costs and shall not be included in Agency Costs.

d. Other. City shall install and maintain transit shelters, including transit related furniture, adjacent to MUNI selected transit zones on land owned by the City (unless otherwise agreed by Owner). Owner should work with MUNI to accommodate MUNI operations, staging and support facilities, including but not limited to operator restroom, street supervisor call boxes, oversized terminus/transfer shelters, transit patron access, and special vehicular and MUNI personnel access and staging areas to support maintenance and security functions on land owned by the City (unless otherwise agreed by Owner). The precise location

shall be determined in consultation with Owner. If Owner modifies lot entrances and/or exits that affect MUNI facilities, such as bus terminal areas, Owner will work with MUNI to develop acceptable mitigation. Owner will bear the reasonable costs of relocation of MUNI facilities if needed.

4. **Seventh Street/The Common/Berry Street Connector At Grade Railroad Crossing.** Access to Seventh Street will be provided via the North and South Common Streets connection to Seventh Street Connector Road, which, in turn, will connect to Seventh Street by means of an at-grade railroad crossing. The Berry Street Connector Road is included in the Mission Bay North OPA. See Exhibit 9.

At grade crossing of the JPB railroad line, which is mostly parallel and adjacent to Seventh Street, near Hooper Street, would provide access to the west side of the South Plan Area (and North Plan Area) via Seventh Street, as described in Section I.A.1.b.(xxii), above.

At grade crossings of railroads are under the jurisdiction of the CPUC and subject to application by the City and an agreement for construction and maintenance with JPB. The agreement would provide for reimbursement by Owner of JPB for construction costs and costs and expenses for engineering review, marketing and scheduling, detouring flagging and engineering inspections in connection with the construction of the Improvements to be provided by JPB. Additional approvals are also required. Construction of the road and path will require BCDC approval and approval of City Agencies. The Seventh Street connector road requires construction of the at grade crossing at The Common.

As required by JPB, the new at grade crossing will require relocation by Owner or JPB of three (3) railroad tracks approximately twelve (12) feet to the east from its existing location for a distance of approximately eight hundred (800) feet and new traffic signals at the intersection of the Berry Street Connector Road, North and South Common Streets, and Seventh Street. New traffic signal poles, mast and heads and a traffic signal controller will be installed. The traffic signal controller will be interconnected with those at 16th and Townsend Streets. The at-grade railroad crossing will be protected by automatic gates, signals and signs.

5. **Grading and Surcharging.**

Grading, including preparation, import fill, excavation fill and compaction consistent with the RMP, will occur to some degree depending upon the zone. Grade on the project will be adequate to accommodate the storm drain overland flow considerations.

Surcharge techniques may be utilized in particular zones, including right of way areas, in order to accelerate consolidation.

6. **Rail Road Facilities/Rail Relocations.** Railroad facilities for freight operations are intended to provide potential future access for freight to Piers 48 and 50 at the Northeast end of the South Plan Area and continued freight access to Pier 80 south of the South Plan Area. See Exhibit 10. The rail alignment shown is for conceptual purposes only and is not

intended to identify a precise location within the street right of way. A final location within the right of way will be determined at the time of improvement.

Alternative future rail access to Pier 80 may be provided from the south via a new Illinois Street Bridge over Islais Creek at a location between Piers 80 and 90. It is contemplated that the bridge would also accommodate Port vehicular traffic. Until such time, if any, as a new Illinois Street Bridge is approved, constructed and made operational, freight rail access will be provided via existing rail lines near 16th Street, which switch back to Illinois Street and then to Pier 80 south of the South Plan Area.

If development in the South Plan Area requires relocation of freight rail service in the absence of a new Illinois Street Bridge, the 16th Street rail lines will be relocated to within the 16th Street right of way and proceed easterly to a point near the current alignment of Terry A. François Blvd., where it will switch back along such alignment to connect to existing rail lines in Illinois Street for access to Pier 80.

Subject to the following conditions Owner shall contribute only to Illinois Street Bridge Costs (as hereinafter defined), of City Agencies in the total amount of the lesser of one-half (1/2) of the amount of the selected construction contract bid for the fixed (non-moveable) Illinois Street bridge ("Illinois Street Bridge") or two and a half million dollars (\$2,500,000), without any escalation in the amount thereof (the "Rail Contribution"). Owner's obligation for any Rail Contribution is conditioned upon (i) the City securing a funding commitment for the balance of the cost of constructing the Illinois Street Bridge providing for rail access and all related project improvements within five (5) years of the Effective Date, (ii) the Port's agreement, within five (5) years from the Effective Date, to abandon all rail lines within the South Plan Area north of Mariposa Street upon completion of such work, including, without limitation, permitting removal of any interim rail lines in the Bayfront Park area, and (iii) the City's use of good faith efforts to identify and obtain sources other than Owner or to timely reimburse Owner (without interest) for the Rail Contribution, provided that the City shall not be required to incur costs or expenses in connection therewith (other than administrative expenses).

Provided the foregoing conditions to Owner's obligation have been satisfied, the Owner shall pay the Rail Contribution upon the occurrence of all of the following: (a) the applicable City Agency's issuance of a Building Permit providing for construction of the first Owner Project in a Major Phase in the South Plan Area, which Building Permit is valid, binding and in full force and effect, and the period for challenging such Building Permit has either passed without challenge, or the same has been upheld through and including all administrative proceedings or appeals without adverse effect; (b) the applicable City Agency has executed a construction contract for the Illinois Street Bridge; and (c) all Other Regulatory Approvals and all applicable railroad licenses and approvals have been granted and are valid, binding and in full force and effect.

As used in this Section, "Bridge Costs" means the substantiated, reasonable cost of construction of the Illinois Street Bridge, which costs shall consist of the following, without duplication: (i) the "hard" costs incurred by City Agencies for the construction of such bridge,

and any associated environmental investigation, remediation and response activities; (ii) out of pocket costs incurred by City Agencies in preparing construction documents, specifications, schedules and related construction contracts and the related costs of environmental evaluations of the Illinois Street Bridge; (iii) fees paid to governmental agencies for obtaining permits, licenses or Other Regulatory Approvals for the Illinois Street Bridge; (iv) a construction and project management fee to be retained by the City Agencies not to exceed four percent (4%) of the costs described in clause (i) above incurred for the construction of the Illinois Street Bridge; (v) professional costs incurred by City Agencies associated with the Illinois Street Bridge, such as design, engineering, architectural, legal, accounting, inspection, construction staking, materials testing, consulting and similar professional services (excluding cost of any such services provided directly by City Agencies); (vi) out of pocket costs directly related to the construction and/or acquisition of the Illinois Street Bridge, such as costs of security, safety signage, payment, performance and/or maintenance bonds, and insurance costs (including costs of any title insurance required under the South OPA or the Land Transfer Agreements); (vii) costs of land or right-of-way acquisitions from unrelated third parties and condemnation pursuant to the South OPA or Interagency Cooperation Agreement; and (viii) construction financing costs, (consisting of interest expense and lender fees related to the financing costs) with respect to any construction loan obtained by the applicable City Agency with respect to the Illinois Street Bridge provided that such financing costs shall not be included within the definition of Bridge Costs to the extent such financing costs are in excess of commercially prevailing rates or accrue during any period that the City or Agency is in Material Breach under the South OPA or any other Plan Document. City Agencies' administrative costs in connection with the Illinois Street Bridge project shall only be included to the extent allowed as a Bridge Costs and shall not be included in Agency Costs.

The Illinois Street Bridge project would be subject to environmental review; and the City would be the lead agency for preparing the environmental document(s). Nothing herein shall be deemed to limit any City Agency's or the Agency's ability to comply with the California Environmental Quality Act or other federal or state environmental laws. The bridge and rail relocations are also subject to obtaining regulatory approvals, and City Agencies will be the applicant thereon. Subject to further review, a fixed (non-moveable) Illinois Street Bridge could include extension of the AWSS system via a connection to the existing pipeline, relocating the existing fireboat manifold and an additional fully equipped hose tender apparatus (fire pump truck).

Future access to Piers 48 and 50, if any, would be provided from the south near Pier 80, northerly on Illinois Street and then along an alignment that is outside of the developable Parcels in the South Plan Area along Terry A. François Blvd. and the adjacent open space as shown on Exhibit 10. Owner shall not be responsible for construction or funding of any rail access to Piers 48 and 50 or for obtaining necessary regulatory approvals.

7. Utility Relocations.

The installation of Infrastructure herein described will require the relocation of certain existing utility facilities. In most cases, relocation will occur in connection with the installation

of Infrastructure elsewhere described in this Infrastructure Plan. Continuance of utility service to users during relocation activities will be the responsibility of the Owner together with the providing utility. Although such relocations are not described in this Plan (except as noted below), this work shall be generally delineated in any tentative map submittal and more specifically detailed in public improvement plans. Where feasible, all utilities should be located in their ultimate locations to avoid relocation. Side sewers and other utilities shall be extended to at least one foot (1') beyond future curbs.

Utility relocation activities include the following:

a. Third Street Light Rail Extension Project.

It is expected that MUNI will proceed with the extension of their facilities in the Fourth Street — Owens Street — Third Street corridor prior to the development of Owner and UCSF Campus Site properties adjacent to these streets. The relocation of utilities necessitated by this work shall not be the responsibility of Owner. The relocation of existing utilities and the installation of new utilities shall be consistent with this Infrastructure Plan.

b. 66" Combined Sewer Force Main.

Because the existing sixty-six (66) inch facility encroaches upon or bisects proposed development parcels (Parcels 38, 39, & 43), materially impacting land utilization, it may be necessary to relocate this line in one or more locations. Temporary interruption of summer time low flows will occur if this line is relocated; however, sufficient in-ground storage facilities are available in the immediate vicinity of the Channel Pumping Station to contain these flows during disconnect and reconnect activities.

c. Utility Services to the Port.

Maritime activities will continue to the east of Terry A. François Blvd. while the South Plan Area is developed. Services to Port tenants will need to be maintained during installation of a new separated sanitary sewer and storm drain collection and treatment system, a new low pressure water supply grid and other utilities incident to the development of housing, R&D and open space uses in the Port area. Although Terry A. François Blvd. will be relocated westerly of its current position, the Plan will provide for continuous access to Port tenants located along the current alignment of the street.

8. Police/Fire Facility.

When and as provided in the South OPA, Owner will, if it has elected to take title pursuant to the Land Transfer Agreements, convey to the City approximately one and twenty-seven one-hundredths (1.27) acres of real property on parcel eight (8) as shown in the Site Plan to augment the existing City-owned fire station site of twenty-six one-hundredths (0.26) acres, for a combined police and fire facility. The City shall be solely responsible for the design, construction, operation and maintenance of the police and fire facility, and for obtaining all necessary funding except to the extent provided in Section 4.4 of the South OPA and all permits

and authorizations with respect thereto. Owner shall not be required to do any Infrastructure in connection therewith except for the realignment of Mission Rock Street as necessary to complete the 1.27 acre parcel, which obligation shall not arise until the earlier of Certificates of Occupancy having been issued for one thousand (1,000) Residential Units in the South Plan Area or development of the Major Phase which includes parcel 9 as shown on the Site Plan.

9. *School Site and Elementary/Secondary School Play Yard.*

a. *School Site.*

Owner will convey to the City or its nominee or, if previously conveyed to the Regents as part of the UCSF Campus, shall cause to be conveyed, a seven tenth (0.7) acre elementary/secondary (K-12) school site and an adjacent one and a half (1.5) acre elementary/secondary (K-12) school play yard within a two and two tenth (2.2) acre portion of parcel fourteen (14) as shown in the Site Plan within the UCSF Campus (the "School Site"). The School Site will be conveyed prior to issuance of a Building Permit for the Residential Project which includes the three thousand two hundredth (3,200) Residential Unit in the North and South Plan Areas, provided that the City or its nominee shall have certified it is ready, willing and able to Commence Construction of an elementary or secondary school thereon. At the time of such conveyance (i) Owner will have met its pre-conveyance obligations under the South Environmental Investigation and Response Program; (ii) the School Site will either be served by Infrastructure as described in the Infrastructure Plan or such Infrastructure shall be provided for in a subdivision improvement agreement for which subdivision improvement security for the installation of same has been posted, in which event Owner shall provide such Infrastructure by the time the school facility has completed construction and is available for occupancy; (iii) any surface structures on such real property will have been demolished and cleared; and (iv) no exception to title shall appear except as permitted by Exhibit B to the Housing Program and the Amended and Restated City Land Transfer Agreement for such parcel. Owner will have no obligation to remove any foundation piles or subsurface structures, or to fill, grade or otherwise level the seven tenths (0.7) acre school building portion of the School Site or to perform any Improvements thereto.

Agency, City and Owner acknowledge that if the City elects in writing to decline to accept conveyance of the School Site or if the City does not deliver to Owner (or the Regents if the property has been conveyed to the Regents) a written request for conveyance of the School Site for school purposes within twenty-nine (29) years after the Effective Date, then the one and a half (1.5) acre play yard portion of the School Site shall nevertheless be developed and maintained as publicly accessible open space in accordance with Section 3.2 of the Agreement for Donation of Real Property by and between the City and County of San Francisco and the Regents of the University of California. Such one and a half (1.5) acres of publicly accessible open space shall be in addition to the approximately eight (8) acres of publicly accessible open space otherwise included in the UCSF Campus.

b. Elementary/Secondary School Play Yard.

A one and one-half (1.5) acre elementary/secondary (K-12) school play yard will be located on a portion of the School Site conveyed to the City. The location of the school play yard shall be determined by the City. The Agency, in consultation with the City and Owner will determine the design and type and quality of play yard Improvements consistent with the standards generally applicable to such play yards. Subject to the foregoing and to obtaining requisite permission for access and other permits and authorizations, if any, Owner will complete the play yard Improvements prior to completion of construction of the school by the City.

10. Odor Control Improvements.

Owner shall, subject to the terms and conditions of this Section I.C.10, pay to the City a total of Five Million Dollars (\$5,000,000) in cash (inclusive of amounts payable pursuant to this Section I.C.10 and pursuant to Section I.C.7 of the North Infrastructure Plan) to be used, together with any interest earned thereon, exclusively for capital costs (i.e., out-of-pocket costs of design and construction) of physical improvements at the Southeast Water Pollution Control Plant designed to reduce odors ("Odor Control Improvements"), such as, without limitation, covering, venting and treating foul air from various solids handling facilities.

a. Owner shall pay said amount in two (2) equal installments (each, an "Installment") of Two Million Five Hundred Thousand Dollars (\$2,500,000) each. The first Installment shall be due and payable on the date ten (10) days after the date of Final Approval (as defined below) of the first Building Permit for new construction by Owner of a Project in either the North or the South Plan Area other than a Project to be constructed by the Agency, City or for the UCSF Campus. The date of "Final Approval" of a Building Permit is the date upon which (i) any and all applicable appeal periods for the filing of any administrative appeal challenging the issuance or effectiveness of such Building Permit shall have expired and no such appeal shall have been filed, or (ii) if such an administrative appeal is filed, the issuance and effectiveness of such Building Permit shall have been upheld by a final decision in each such administrative appeal without any adverse effect on the validity of such Building Permit. The second Installment shall be payable on the date one (1) year after the date of Final Approval of such Building Permit. Installments paid pursuant to Section I.C.7 of the North Infrastructure Plan shall be credited against any Installments due under this Section I.C.10.

b. Owner's obligation to pay each Installment shall be conditioned only on (i) the continuing effectiveness on the date the Installment is due of the Owner Participation Agreement for either or both the North Plan Area and the South Plan Area and (ii) such Building Permit is not as of the date the installment is due suspended or revoked by the City at its own initiative. Following contribution by Owner, the City shall diligently proceed to design and construction Odor Control Improvements to the Extent of the fund contributed by Owner.

c. The City has publicly stated its intent to spend an additional Five Million Dollars (\$5,000,000) to correct sewer flooding problems in the Bay View/Hunters Point neighborhoods. Annually, following the contribution of funds by the Owner pursuant to the

foregoing paragraph and until all such funds have been expended, the City will provide to Owner a summary of the status of the Odor Control Improvements and sewer flooding improvements undertaken with the funds contributed by the Owner and the City's own funds.

II. INFRASTRUCTURE PHASING METHODOLOGY

A. Infrastructure Phasing.

Construction of Infrastructure Improvements described herein, including public Open Space Parcels, will be phased and included in the applicable tentative maps and related improvement plans and improvement agreement approved prior to filing a final map to serve the incremental build-out of the South Plan Area in accordance with the Plan and Plan Documents. In order to maintain flexibility in determining Infrastructure requirements, an Infrastructure phase is defined as the access, utility (including overland flows) and open space Improvements necessary to accommodate development of a Major Phase or Project therein.

1. Adjacency.

The primary underlying principle of the Mission Bay South Plan Area Infrastructure phasing plan is “adjacency”, and unless specifically provided below, Infrastructure will be constructed based on this principle. When development occurs in a Major Phase or for a Project therein adjacent Infrastructure necessary for access and utilities such as streets (and Improvements therein, if any), curbs, gutters, sidewalks and open space will be constructed. Adjacent Infrastructure refers to Infrastructure which is near to and may share a common border or end point with a Major Phase or Project but which may not be immediately adjoining or contiguous with a Major Phase or Project. Additionally, where the City determines it is feasible and sufficient, half (½) streets will be constructed. This may specifically include Third Street, 16th Street and others. Infrastructure will be constructed in accordance with the adjacency principle unless other specific criteria described below applies.

Similarly, the construction of storm and sewer facilities will generally follow the adjacency principle.

2. Cumulative Development Requirements.

The second principle of infrastructure phasing is “cumulative development requirements”. Due to the effect of cumulative traffic growth, some key intersections or street segments may begin to reach congested conditions before development occurs on sites adjacent to those intersections or street segments, out of the adjacency phase. A specific improvement might be, for example, a new reconstructed intersection or street segment, such as widening of an existing street.

Therefore, thresholds have been established for each applicable traffic infrastructure Improvement, based on the number of p.m. (evening) peak hour vehicle trips that are likely to cause one or more intersections in the South Plan area to deteriorate to unacceptable levels of service. As part of the review process for each Project, the number of p.m. peak hour

vehicle trips generated will be estimated using the trip rates shown in Table 1, and added to the total calculated number of p.m. (evening) peak hour vehicle trips already generated by the developed portions of the Mission Bay project, using the same trip rates. This number will determine which infrastructure Improvements have to be implemented, other than those already required by the adjacency principle.

Tables 2 and 3 identify the street intersections and street segments Improvements, respectively, that are subject to cumulative development requirements and show the approximate amount of p.m. peak hour vehicle trips that establish the need for each such Improvement. The number of p.m. peak hour vehicle trips shown in Tables 2 and 3 could result from a variety of project development schemes and land use combinations. The trip rates shown in Table 1 will be used to establish if a given mix of land use development requires Improvements to the street intersections and street segments listed in Tables 2 and 3.

Another type of Improvement subject to the cumulative development principle relates to overland flow facilities. As development in certain regions of the planning area increases, storm runoff due to increases in impervious land areas will also increase. Streets will often provide the drainage corridors for these flows, but it is possible that temporary or permanent drainage pipes, basins or swale corridors will need to be constructed in various locations in the South Plan Area until ultimate drainage systems are completed.

B. Specific Additional Factors and Criteria Influencing Infrastructure Phasing.

Several other factors or specific criteria will affect the timing and nature of Infrastructure construction. Except as provided below, the general phasing principles in Section II.B shall control the construction of Infrastructure Improvements.

1. Interim Operational Requirements.

The interim operational requirements as described above shall be provided as necessary to adequately serve a Major Phase or Project therein, until such time as the final or permanent Infrastructure Improvements are constructed. These interim Improvements may be removed and/or abandoned, as determined by the Department of Public Works, when the balance of development occurs.

2. Intersection and Street Segment Improvements.

a. Intersection Improvements. Table 2 identifies the approximate levels of cumulative development that produces the number of vehicle trips to require the implementation of the South Plan Area intersections Improvements at each intersection described in Section I.A.1.b. Even if not required by Table 2's land use intensity threshold, adjacent intersection Improvements will be constructed with development of an adjacent Project, regardless of the amount of overall cumulative development.

b. Street Segments. Table 3 identifies the approximate levels of cumulative development that would require the implementation of the South Plan Area street

segments Improvements described in Section I.A.1.c. Even if not required by Table 3's land use intensity threshold, adjacent street segment Improvements will be constructed with the development of an adjacent Project as described in Section II.a.1 above, regardless of the amount of overall cumulative development.

3. Open Space.

a. **General Phasing.** Open Space Parcels shall be designated in connection with the approval of each Major Phase based on a ratio of approximately forty-five one-hundredths (0.45) acres of open space for each acre of Owner Project development within a Major Phase. The Agency shall credit Owner with respect to open space requirements in subsequent Major Phases for the amount of open space included in previous Major Phases that exceed this ratio and for construction of Open Space Parcels by third parties within the South Plan Area. Owner will have no obligation to develop Open Space parcels until the entire credit has been used. The Agency may defer open space requirements to subsequent Major Phases where appropriate. Improvements on Open Space Parcels or portions thereof, in the South Plan Area, will be provided in connection with Project approvals and in accordance with applicable Project final map improvement plans. Owner may elect, subject to Agency approval as part of the Design Review and Document Approval Procedure, which Open Space Parcels are to be improved consistent with this ratio, provided that the designation of Open Space Parcels to be improved shall be consistent with the following:

- (i) Improvements to Mission Creek Park South Channel (Parcels P1, P2, and P8) and the Residential Parks (Parcels P5, P6, P18 and P19) may be provided in connection with development of adjacent Major Housing Phases.
- (ii) Improvements to Owens Field (Parcels P7 and P9), Bayfront Park (Parcels P21 and P22) and Mariposa Bayfront Park (Parcels P23 and P24) may be provided in connection with development of Major Phases which include commercial Projects.
- (iii) Improvements to Mission Bay Commons (Parcels P11 through 17) may be provided in connection with the development of either adjacent Major Housing Phases or any other Major Phases.
- (iv) Notwithstanding the foregoing:
 - (A) Parcel P3 shall be improved when the adjacent Hotel Site is constructed;
 - (B) All of Parcel P1 will be included in the first Major Phase and constructed pursuant to subdivision improvement plans for the first Owner Project in the South Plan Area;

- (C) Parcels P10, P20 and P27 will be provided in connection with adjacent street Improvements;
- (D) Parcel P26 will be constructed in connection with the adjacent Project on Parcel 38;
- (E) Parcel P27 will be constructed in connection with adjacent street improvements;
- (F) None of the Residential Park Parcels (P5, P6, P18, and P19) shall be constructed in segments smaller than the numbered Open Space Parcels as shown on Exhibit 8; and
- (G) The Commons (Parcels P11a, P12, P13, P15, P16 and P 17) shall be constructed in no more than six (6) segments each corresponding with the numbered Open Space Parcel as shown on Exhibit 8.

A construction phasing schedule for Open Space Parcels shall be identified at the time of Major Phase approval for each Major Phase which includes Open Space Parcels. Development of the eight (8) acres of open space within the UCSF Campus shall be the responsibility of UCSF and subject to such schedule as determined by UCSF.

4. Interconnecting Infrastructure.








The following interconnecting Infrastructure systems should be provided based upon cumulative development requirements as following.

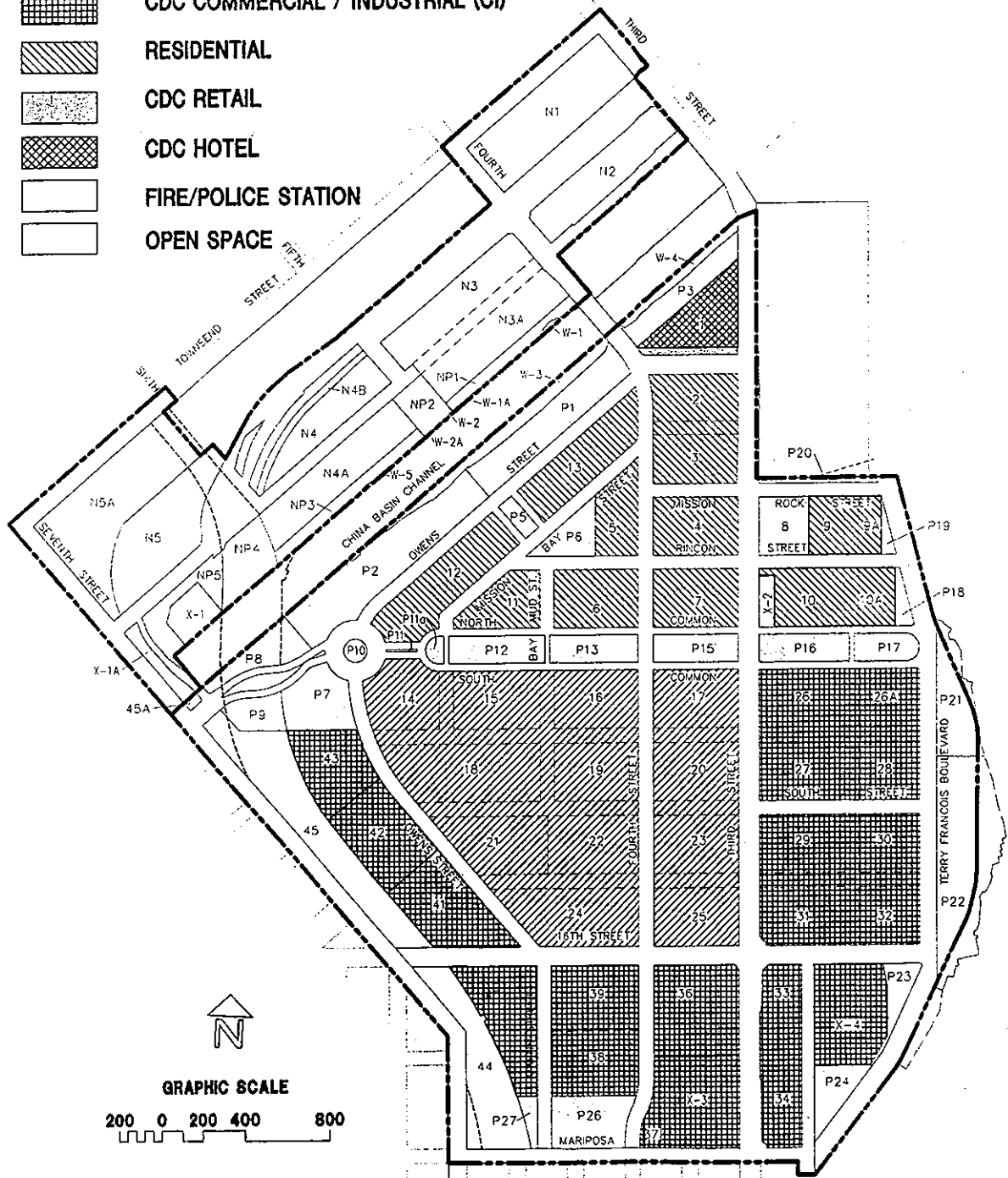
- a. **Pedestrian Bridge.** Owner shall submit an application for approval of a pedestrian bridge upon Completed Completion of one thousand (1,000) Owner Residential Units in the South Plan Area and Owner shall thereafter diligently and in good faith pursue approval thereof.
- b. **Possible Low Pressure Water Line at Fourth Street.** The results of a new “Hardy Cross” hydraulic model analysis will be submitted to the San Francisco Water Department at the time of approval of the first Major Phase is the South Plan Area. The timing of construction of a low pressure water connection to the North Plan Area, if necessary, shall be determined by the City based upon the hydraulic analysis described above, subject to the approval of all regulatory agencies with jurisdiction and the San Francisco Water Department.
- c. **High pressure (AWSS) Water System West of the Channel along 7th Street to Berry.** The timing of construction of a high pressure water connection to the South Plan Area, as described in Section I.A.2.e, shall be determined based upon a hydraulic analysis submitted when required by the City and as approved by the Department of Public Works and subject to approval of all regulatory agencies with jurisdiction and the San Francisco Water Department.

d. **Seventh Street Signal Interconnects Between 16th Street and Townsend Street.** The timing of the construction of the traffic signal interconnection on Seventh Street shall be determined by the Department of Parking and Traffic, JPB and California PUC in connection with any application for approval of at grade crossings. See Sections I.A.1.b.(xxii), I.A.1.c.(vi) and I.C.4 above.

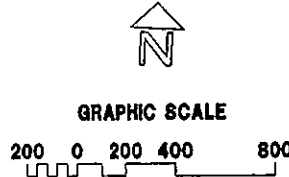
**SOUTH OF CHANNEL
PLAN AREA**

SYMBOL DESCRIPTION

-  UCSF
-  CDC COMMERCIAL / INDUSTRIAL (CI)
-  RESIDENTIAL
-  CDC RETAIL
-  CDC HOTEL
-  FIRE/POLICE STATION
-  OPEN SPACE



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




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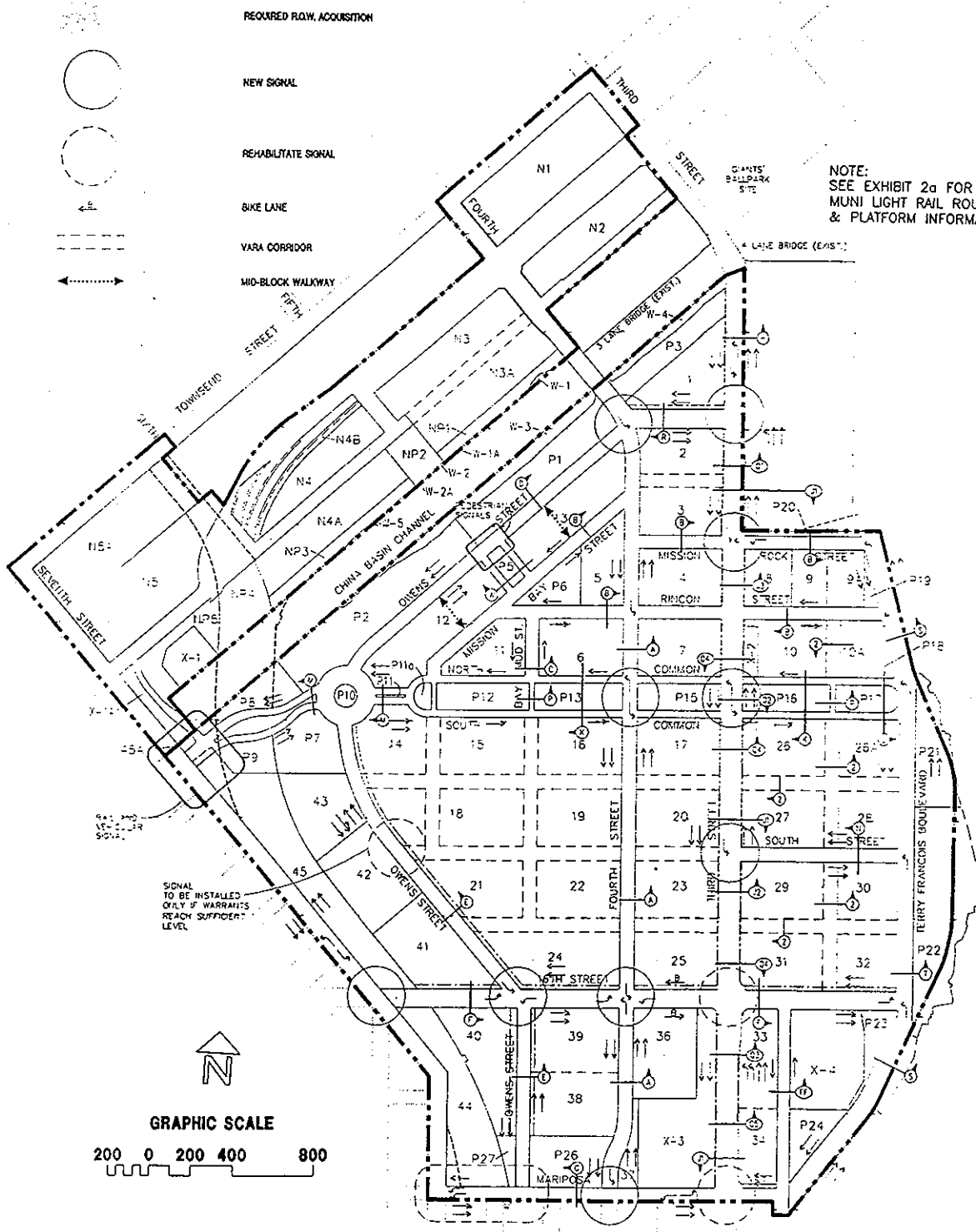
SOUTH OF CHANNEL INFRASTRUCTURE CIRCULATION

SYMBOL

DESCRIPTION

-  REQUIRED R.O.W. ACQUISITION
-  NEW SIGNAL
-  REHABILITATE SIGNAL
-  BIKE LANE
-  VARA CORRIDOR
-  MID-BLOCK WALKWAY

NOTE:
SEE EXHIBIT 2a FOR
MUNI LIGHT RAIL ROUTE
& PLATFORM INFORMATION



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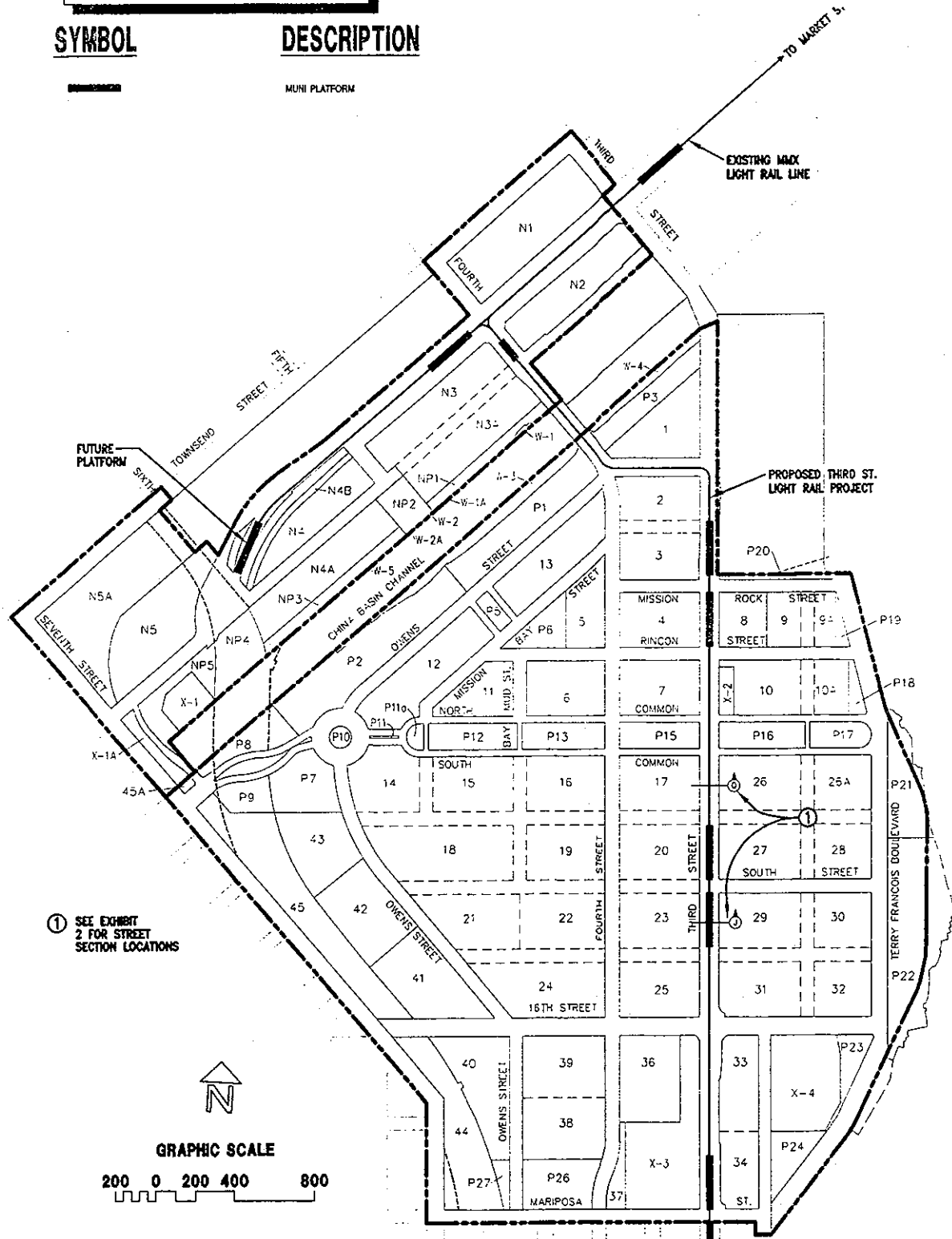


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**SOUTH OF CHANNEL
INFRASTRUCTURE
MUNI LIGHT RAIL PROJECT**

SYMBOL DESCRIPTION

— MUNI PLATFORM



① SEE EXHIBIT 2 FOR STREET SECTION LOCATIONS

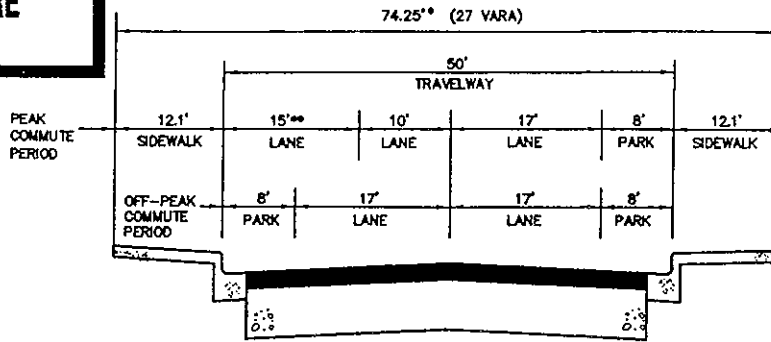
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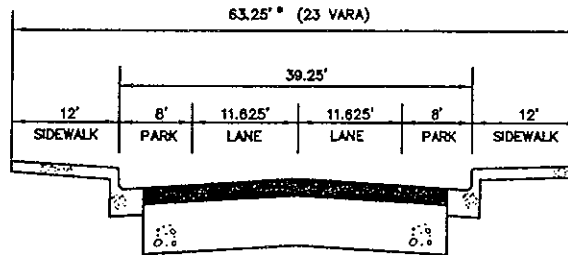
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2a

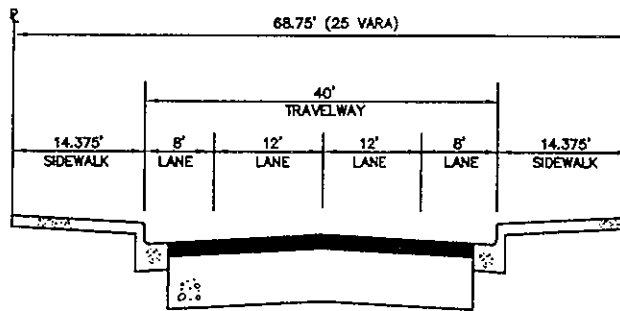
**SOUTH OF CHANNEL
INFRASTRUCTURE
INTERIM PARKING**



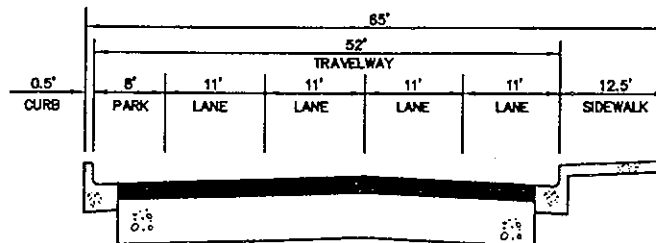
- A** * PROVIDE WIDENED R.O.W. AT SELECTED LOCATIONS FOR LEFT TURNS
- ** ACCOMMODATES BICYCLES
FOURTH STREET SOUTH OF CHANNEL



- B** * PROVIDE WIDENED R.O.W. AT SELECTED LOCATIONS FOR LEFT TURNS
EAST-WEST RESIDENTIAL STREETS



- C** NORTH-SOUTH RESIDENTIAL STREETS



- D** OWENS STREET ADJACENT TO CHANNEL

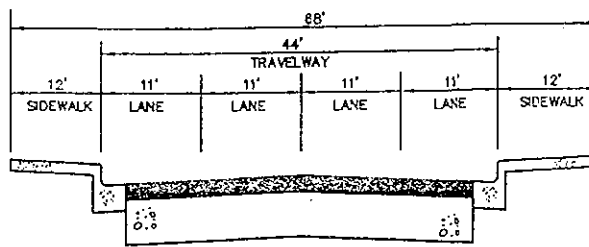
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3a

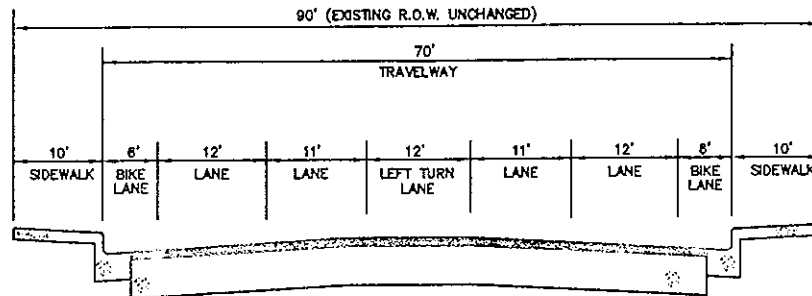
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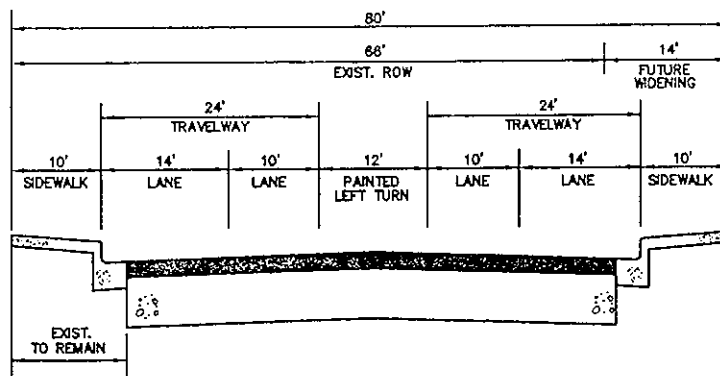
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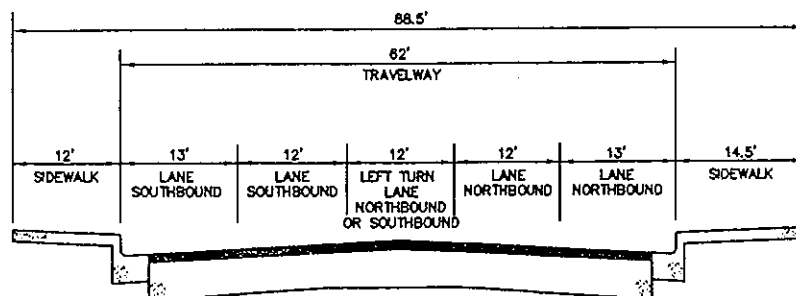
E OWENS STREET SOUTH OF ROUNDABOUT - MAY BE WIDENED AT SELECTED INTERSECTIONS TO ACCOMMODATE TURNING MOVEMENTS



F SIXTEENTH STREET



G MARIPOSA STREET



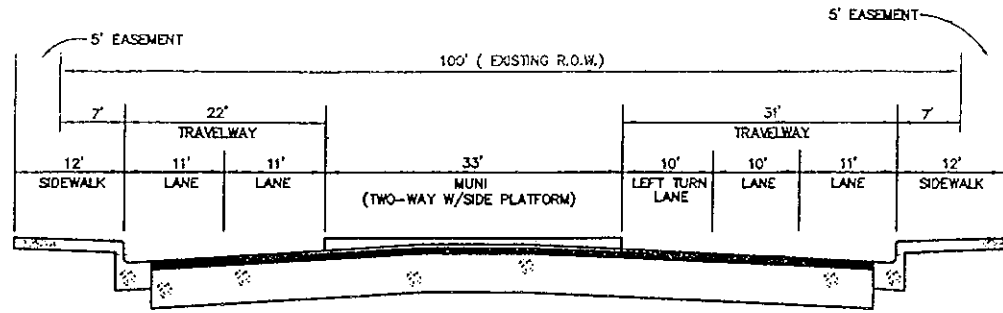
H THIRD STREET NEAR CHANNEL



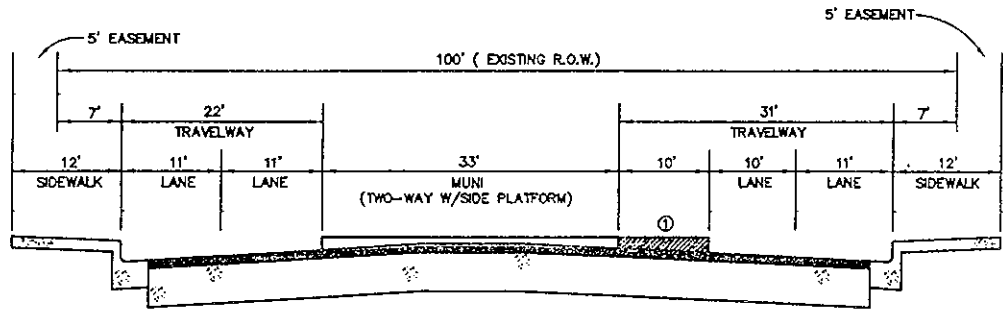
A PROJECT OF CATELLUS DEVELOPMENT CORPORATION

3b

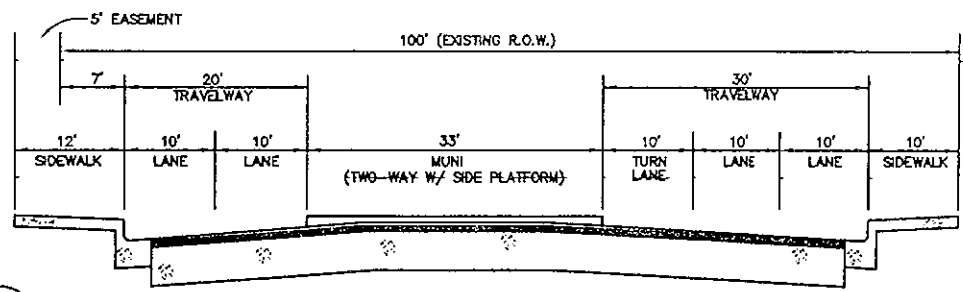
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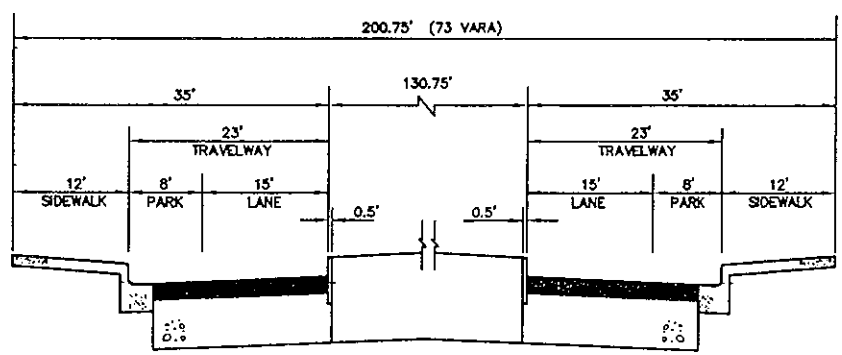
J1 THIRD STREET NORTH OF SOUTH STREET AND NORTH OF MARIPOSA STREET



J2 THIRD STREET SOUTH OF SOUTH STREET ① PEDESTRIAN REFUGE AREA



J3 THIRD STREET AT THE EXISTING FIRE STATION



K THE COMMON

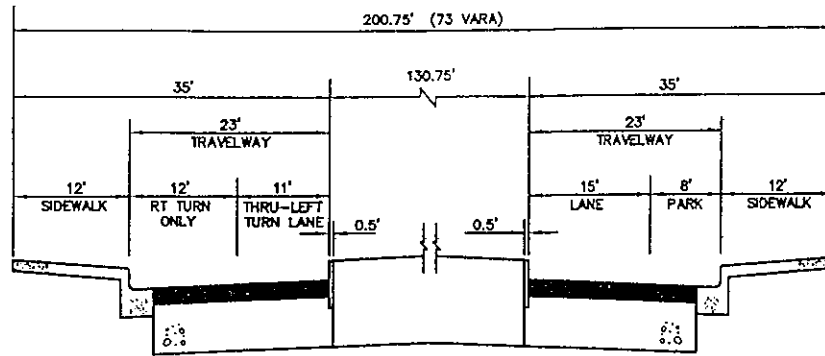


A PROJECT OF CATELLUS DEVELOPMENT CORPORATION

3c

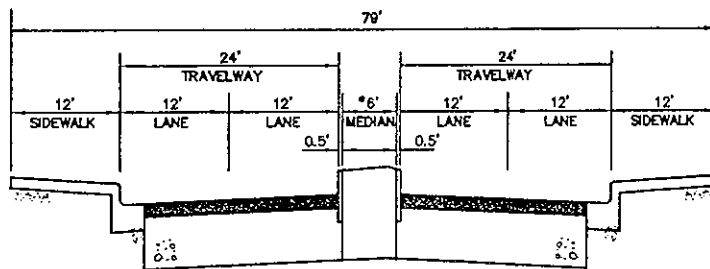
INF-004A 97.0191 / L

INF-004A 97.0191 / L



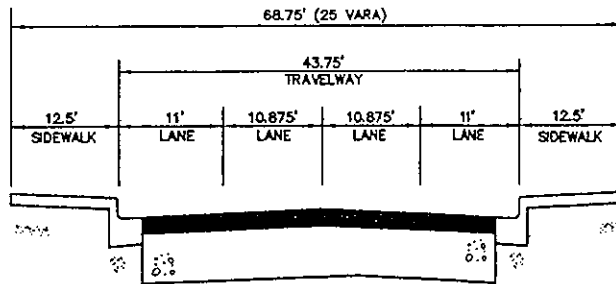
L

THE COMMON AT INTERSECTIONS



M

*MEDIAN WIDTH VARIES WESTERLY OF ROUNDABOUT
THE COMMON AT ROUNDABOUT



N

SOUTH STREET

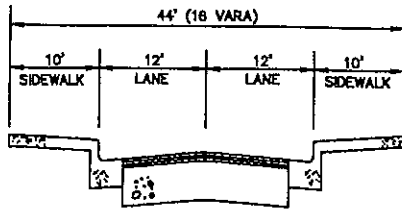
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INTENTIONALLY LEFT OUT OF SEQUENCE

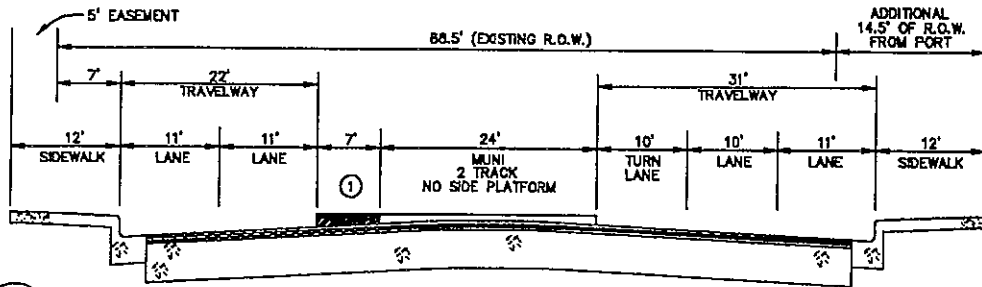


A PROJECT OF CATELLUS DEVELOPMENT CORPORATION

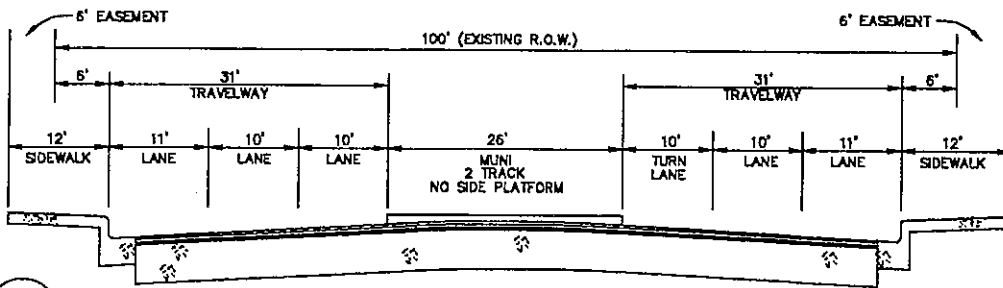
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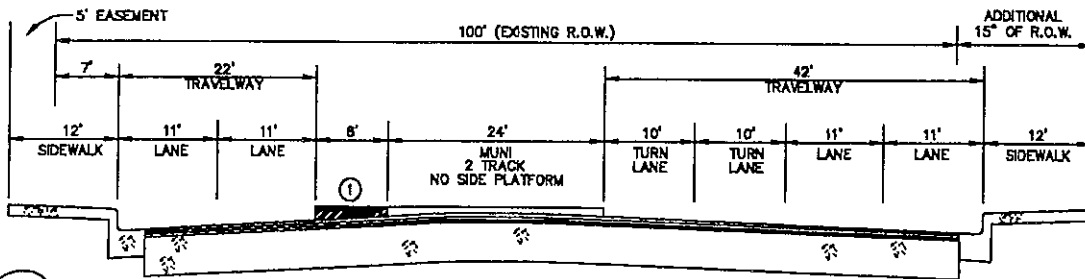
P THE COMMONS - CONNECTOR ROADS



Q1 THIRD STREET IMMEDIATELY SOUTH OF OWENS STREET ① PEDESTRIAN REFUGE AREA



Q2 THIRD STREET AT THE COMMON BETWEEN NORTH AND SOUTH STREETS



Q3 THIRD STREET SOUTH OF 18TH STREET ① PEDESTRIAN REFUGE AREA

INF-004A 97.0191 / L



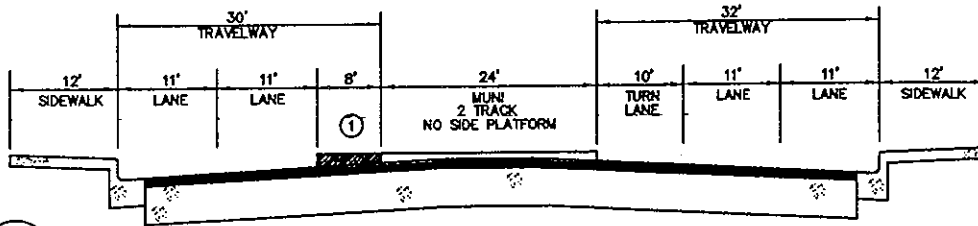
A PROJECT OF CATELLUS DEVELOPMENT CORPORATION

3e

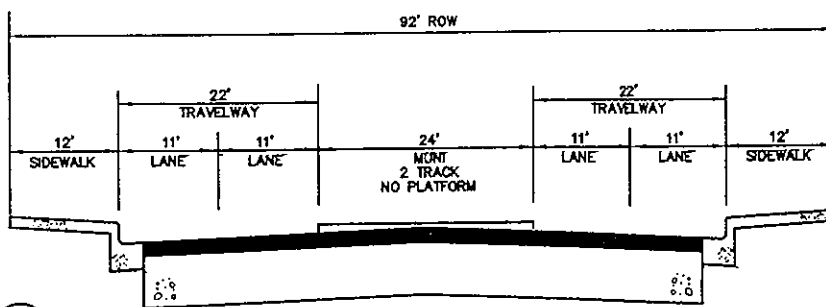
9/22/98

EXHIBIT 3e

INF--004A 97.0191 / L



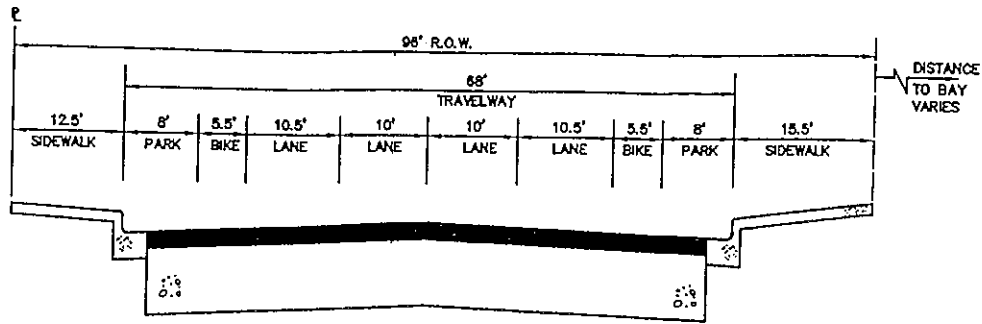
Q4 THIRD STREET NORTH OF 16TH STREET AND NORTH AND SOUTH OF THE COMMON ① PEDESTRIAN REFUGE AREA



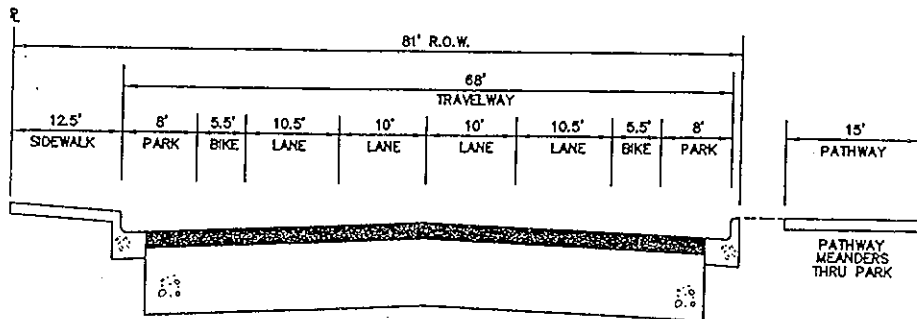
R PROPOSED OWENS STREET
NEW FOURTH STREET TO THIRD STREET



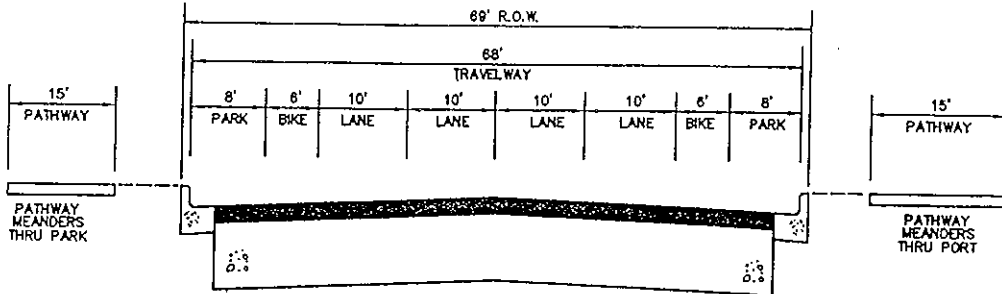
A PROJECT OF CATELLUS DEVELOPMENT CORPORATION



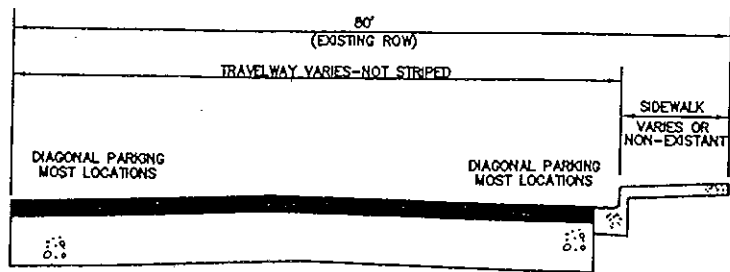
S * PROVIDE WIDENED R.O.W. AT SELECTED LOCATIONS FOR LEFT TURNS
 T. FRANCOIS BLVD -MIDDLE SECTION



T * PROVIDE WIDENED R.O.W. AT SELECTED LOCATIONS FOR LEFT TURNS
 T. FRANCOIS BLVD VARIANT-MIDDLE SECTION



U * PROVIDE WIDENED R.O.W. AT SELECTED LOCATIONS FOR LEFT TURNS
 T. FRANCOIS BLVD BASE CASE-MIDDLE SECTION

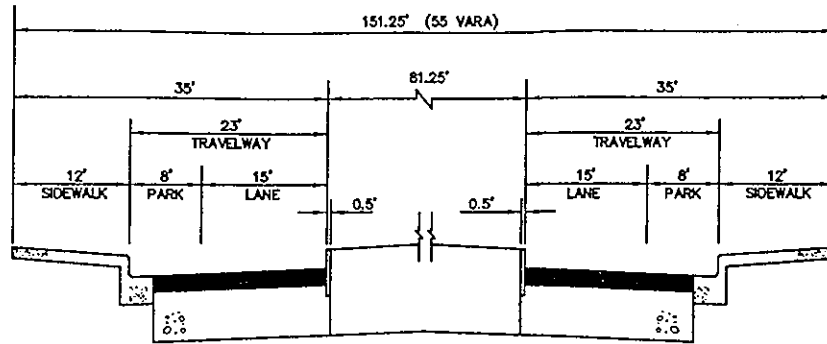


V T. FRANCOIS BLVD. APPROXIMATE EXISTING SECTION



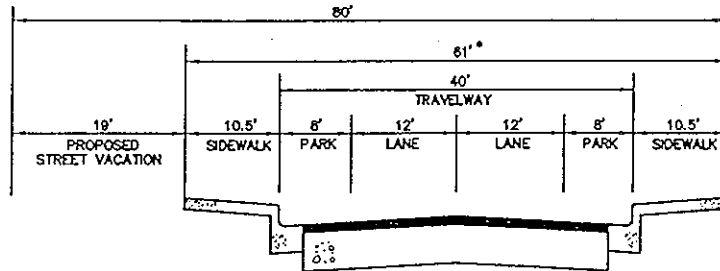
A PROJECT OF CATELLUS DEVELOPMENT CORPORATION

INF-004A 97.0191 / L



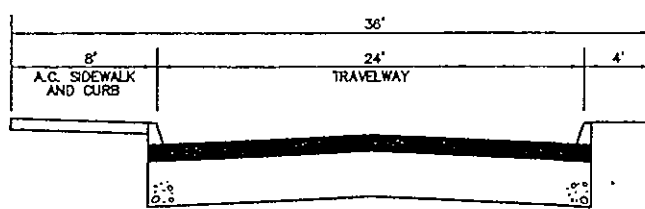
W

FIFTH STREET, SOUTH OF CHANNEL



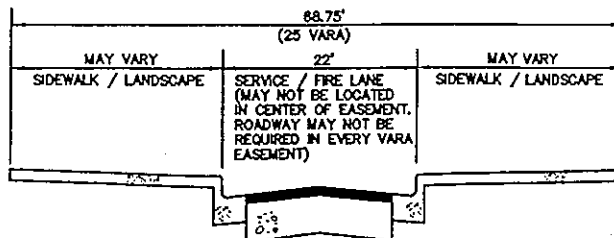
FF

* PROVIDE WIDENED R.O.W. AT SELECTED LOCATIONS FOR LEFT TURNS
ILLINOIS, 16TH TO MARIPOSA



1

INTERIM STREET SECTION



2

VARA EASEMENT



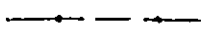
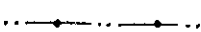



A PROJECT OF CATELLUS DEVELOPMENT CORPORATION

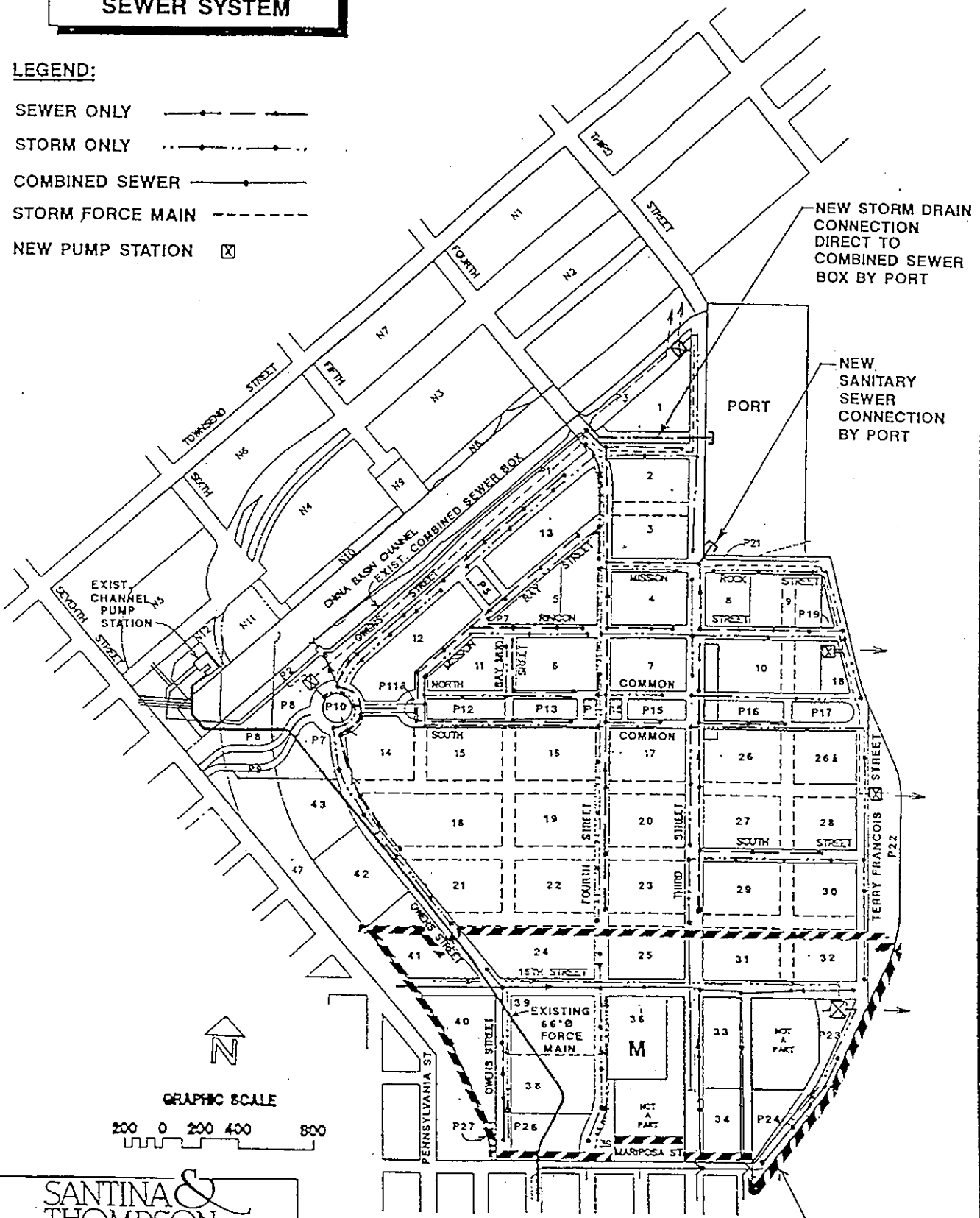
3h

EXHIBIT 4

**SOUTH OF CHANNEL
INFRASTRUCTURE
STORM AND
SEWER SYSTEM**

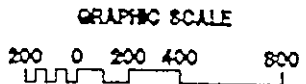
LEGEND:

- SEWER ONLY 
- STORM ONLY 
- COMBINED SEWER 
- STORM FORCE MAIN 
- NEW PUMP STATION 



NEW STORM DRAIN CONNECTION DIRECT TO COMBINED SEWER BOX BY PORT

NEW SANITARY SEWER CONNECTION BY PORT



SANTINA & THOMPSON, INC.

Hawk Engineers, Inc.

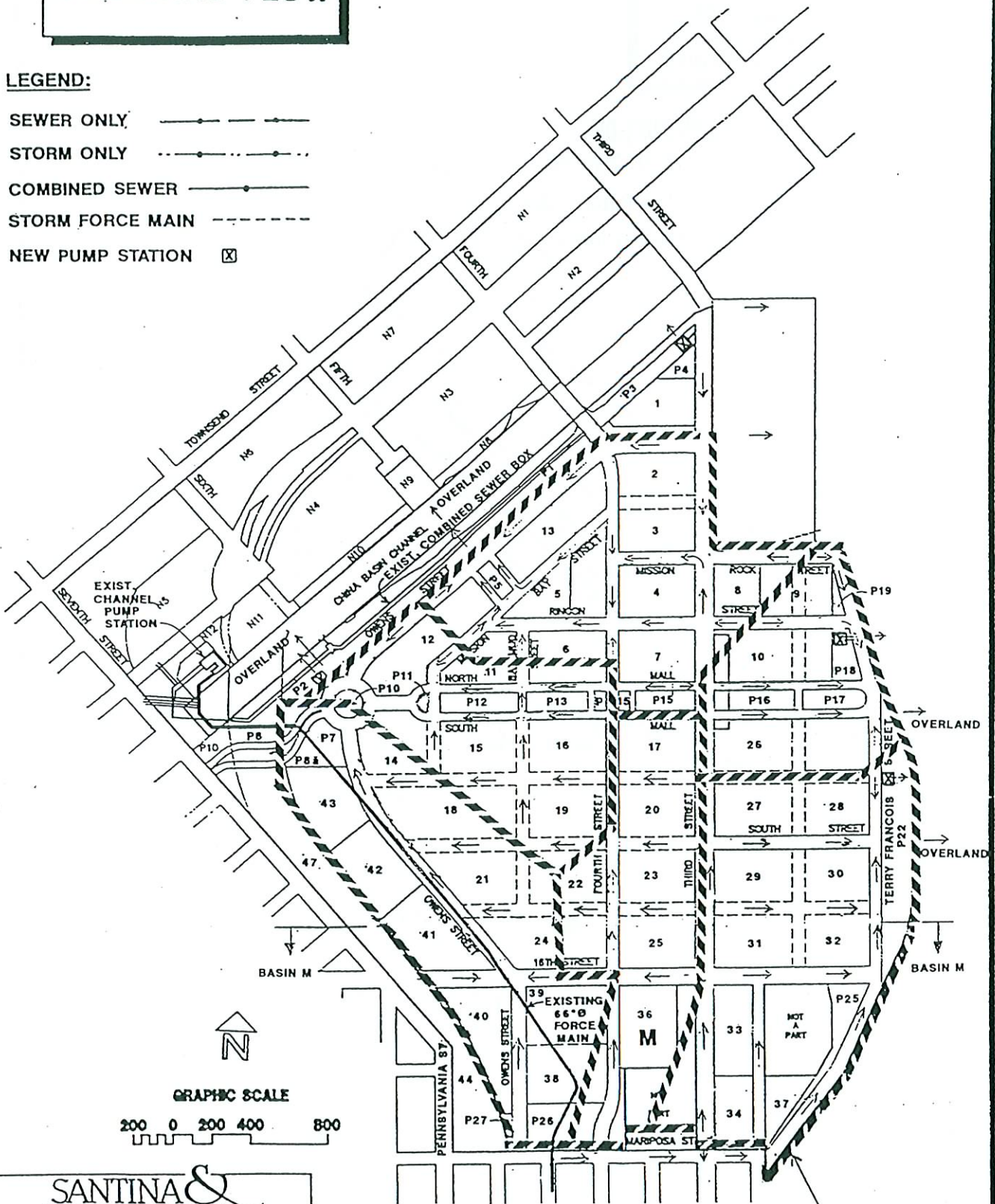
9/1/98

NOTE:
SEWER ONLY TO MARIPOSA PUMP STATION
OVERLAND FLOWS DIRECTLY TO BAY
STORM ONLY TO PUMP & VORTEX TREATMENT

OVERLAND FLOW

LEGEND:

- SEWER ONLY
- STORM ONLY
- COMBINED SEWER
- STORM FORCE MAIN
- NEW PUMP STATION



GRAPHIC SCALE

200 0 200 400 800

SANTINA & THOMPSON, INC.

Hawk Engineers, Inc.

NOTE:

COMBINED FLOWS TO MARIPOSA PUMP STATION.
OVERLAND FLOWS DIRECTLY TO BAY.

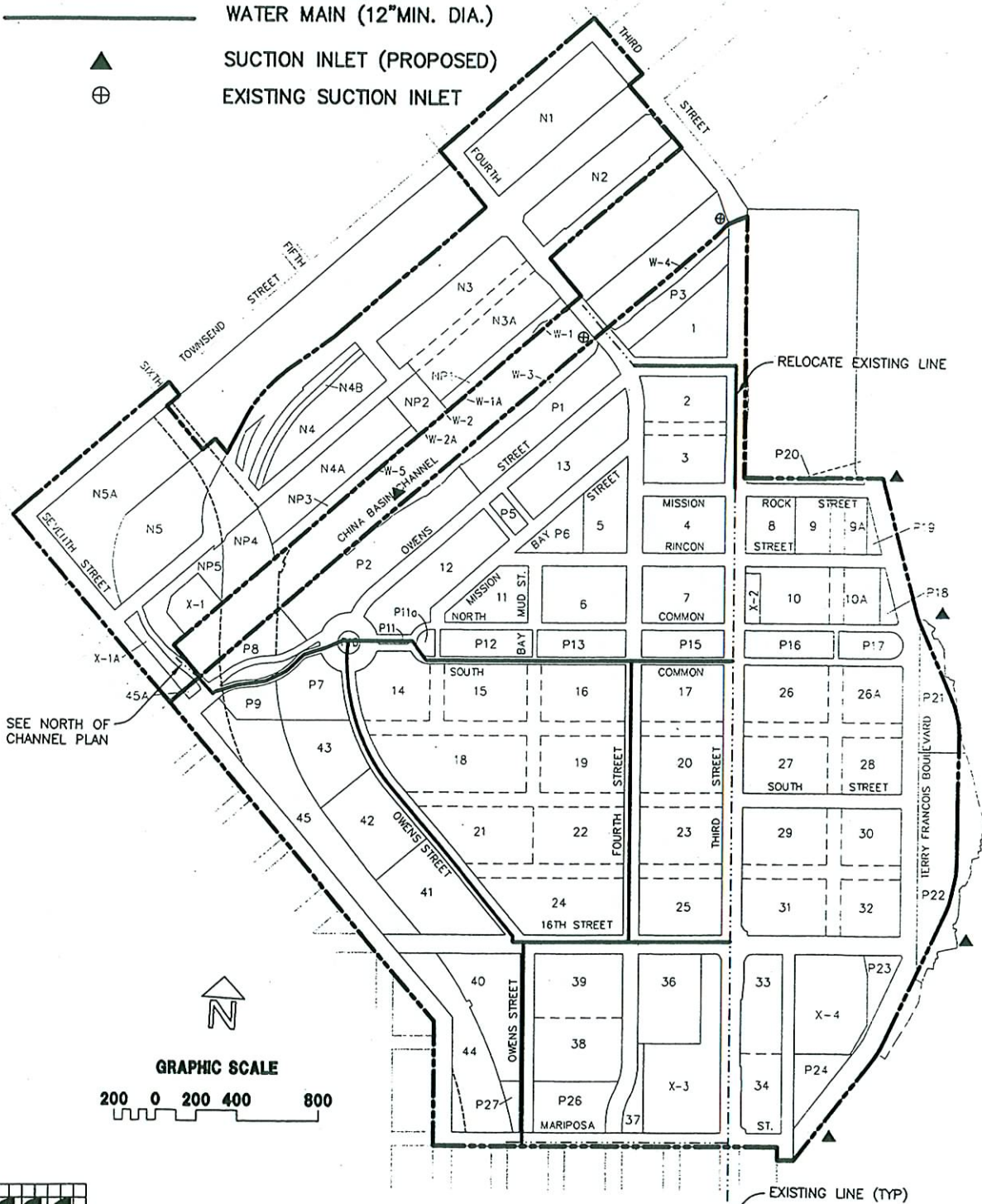
4a

**SOUTH OF CHANNEL
INFRASTRUCTURE
HIGH PRESSURE WATER
BAY & CHANNEL SUCTION INLETS**

SYMBOL

DESCRIPTION

- WATER MAIN (12" MIN. DIA.)
- ▲ SUCTION INLET (PROPOSED)
- ⊕ EXISTING SUCTION INLET



SEE NORTH OF CHANNEL PLAN



A PROJECT OF CATELLUS DEVELOPMENT CORPORATION

5

INF-004A 97.0191 / L

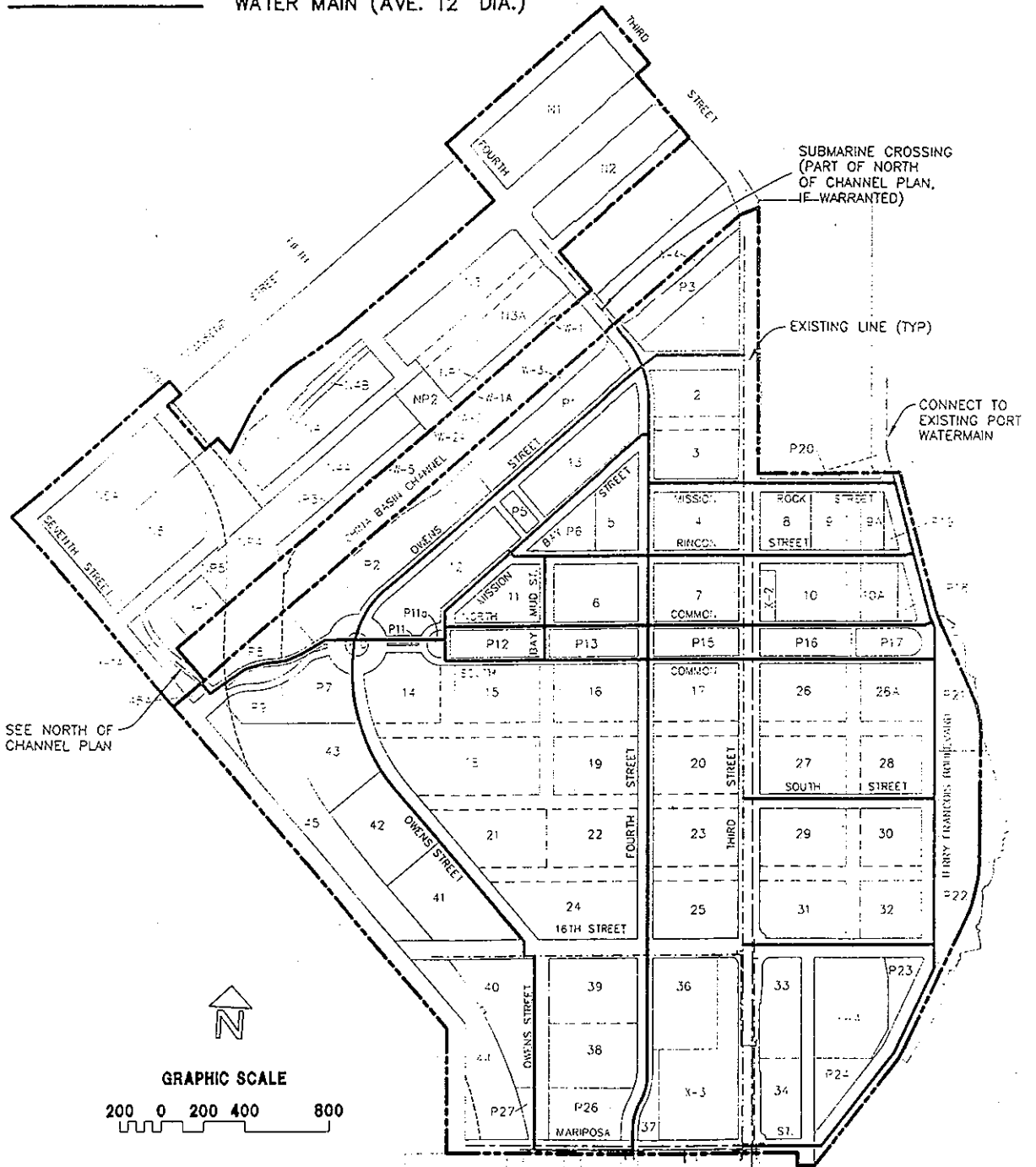
8/19/98

EXHIBIT 5

**SOUTH OF CHANNEL
INFRASTRUCTURE
LOW PRESSURE WATER**

SYMBOL **DESCRIPTION**

————— WATER MAIN (AVE. 12" DIA.)



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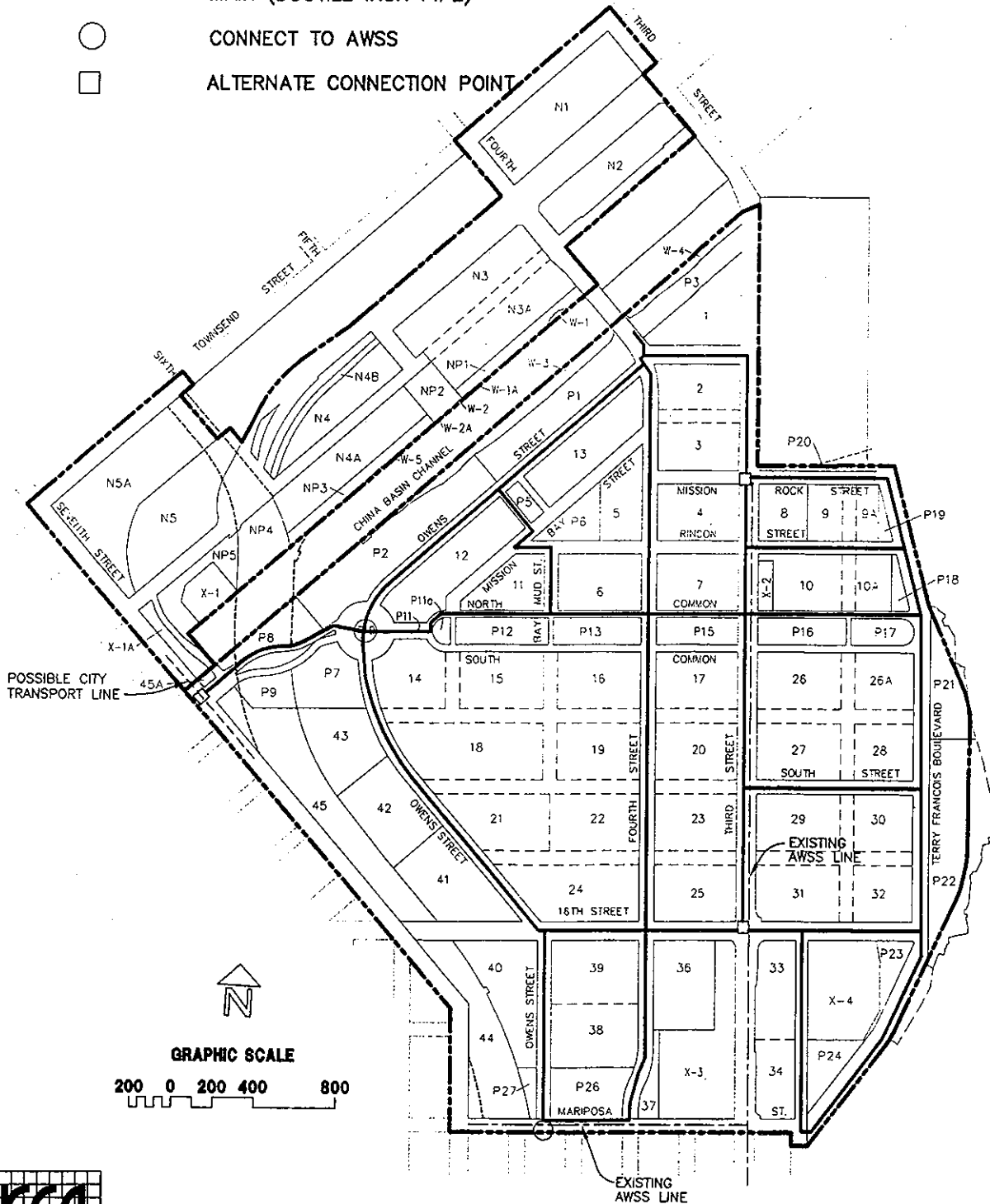
A PROJECT OF CATELLUS DEVELOPMENT CORPORATION

**SOUTH OF CHANNEL
INFRASTRUCTURE
RECLAIMED WATER**

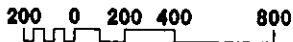
SYMBOL

DESCRIPTION

- MAIN (DUCTILE IRON PIPE)
- CONNECT TO AWSS
- ALTERNATE CONNECTION POINT



GRAPHIC SCALE



A PROJECT OF CATELLUS DEVELOPMENT CORPORATION

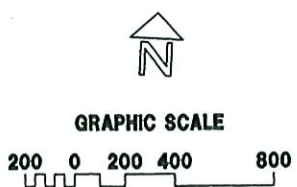
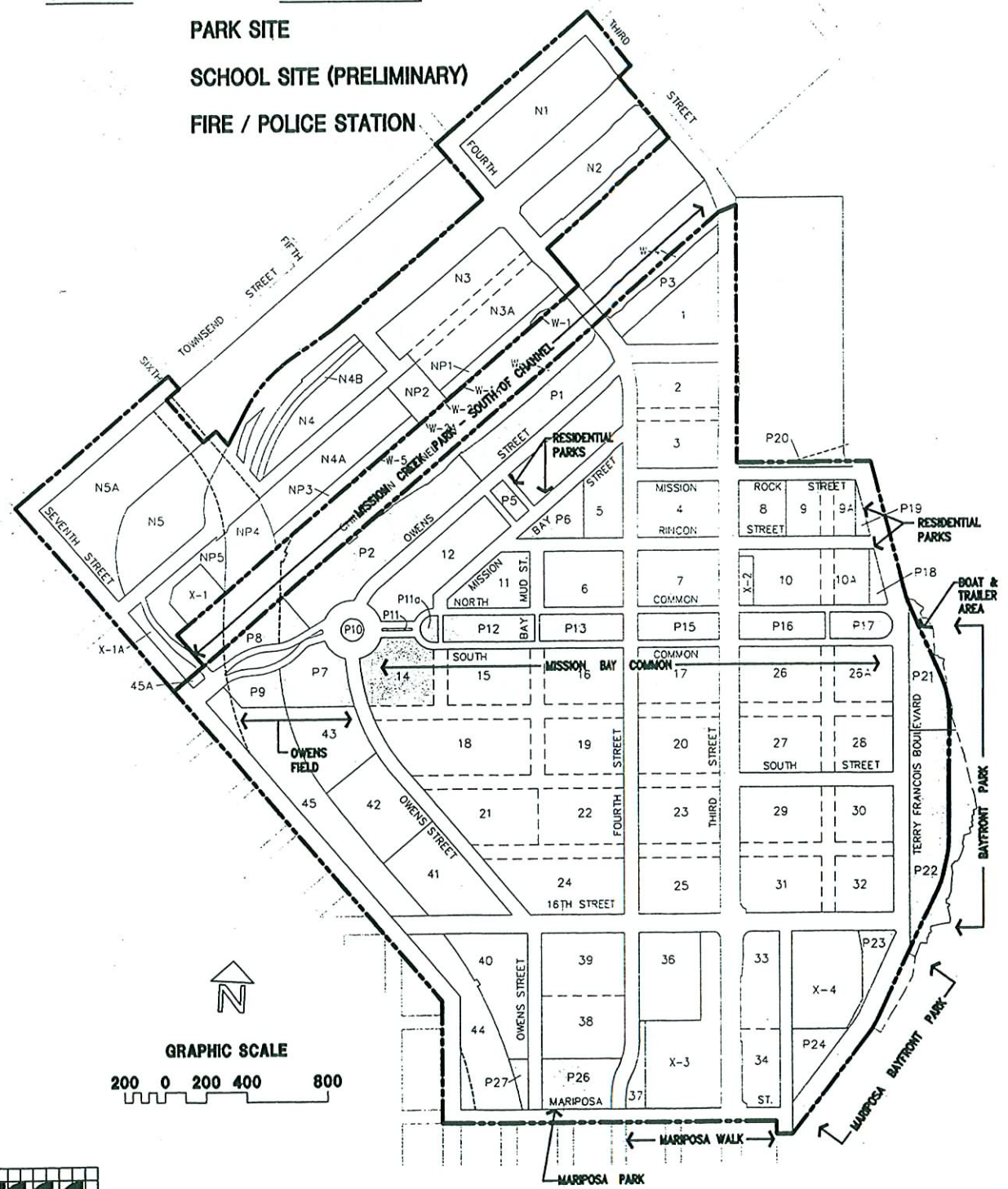
7

INF-004A 97.0191 / L

**SOUTH OF CHANNEL
INFRASTRUCTURE
PARKS & OPEN SPACE
FIRE & POLICE STATION
SCHOOL SITE**

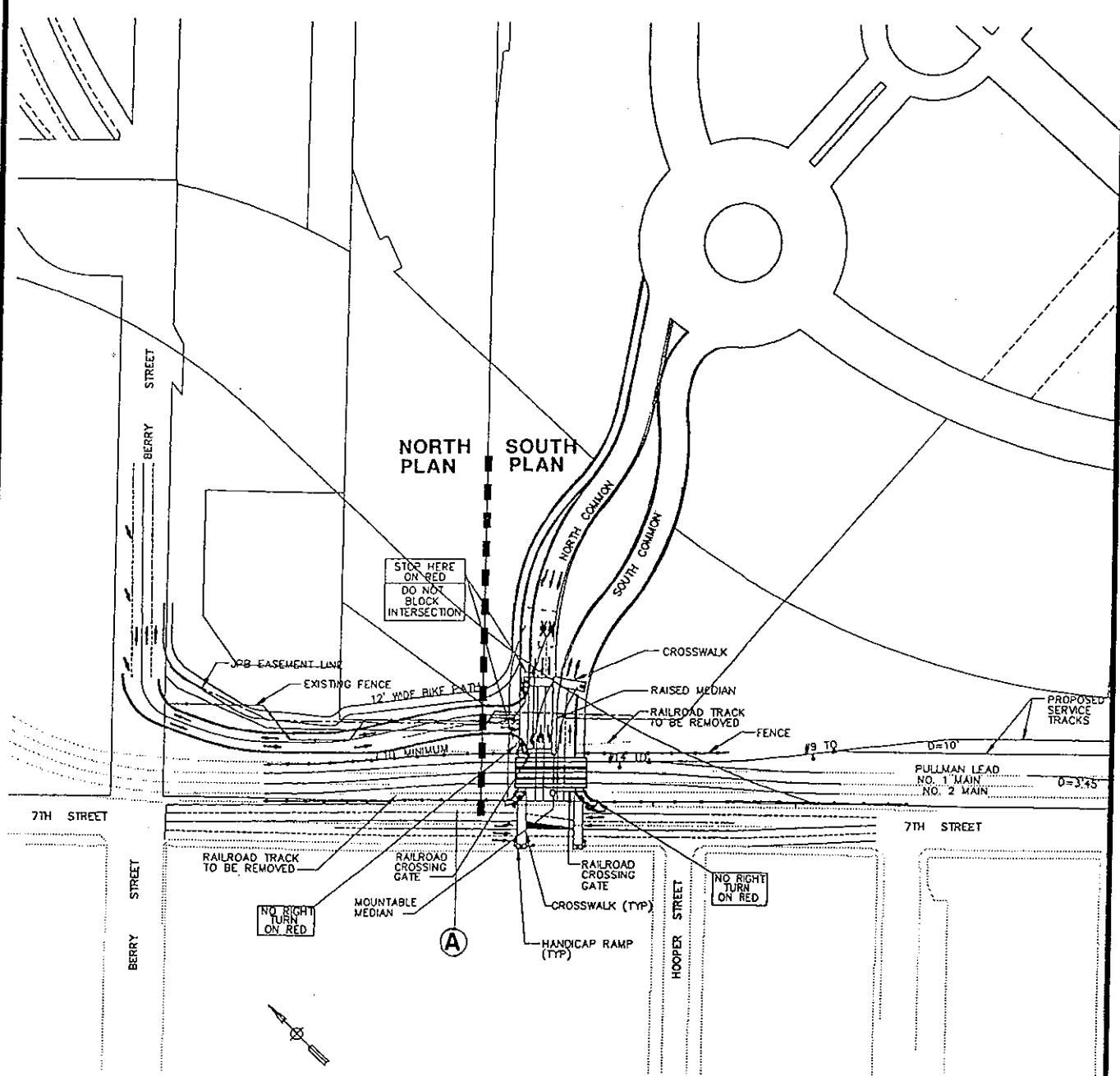
<u>SYMBOL</u>	<u>DESCRIPTION</u>
	PARK SITE
	SCHOOL SITE (PRELIMINARY)
	FIRE / POLICE STATION

INF-004A 97.0191 / L

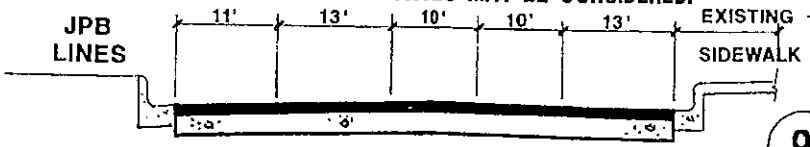


A PROJECT OF CATELLUS DEVELOPMENT CORPORATION

INFRASTRUCTURE AT GRADE CROSSING AT COMMON



NOTE:
* AS AN ALTERNATE, FOUR QUADRANT GATES MAY BE CONSIDERED.



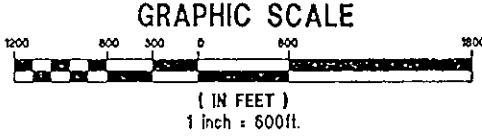
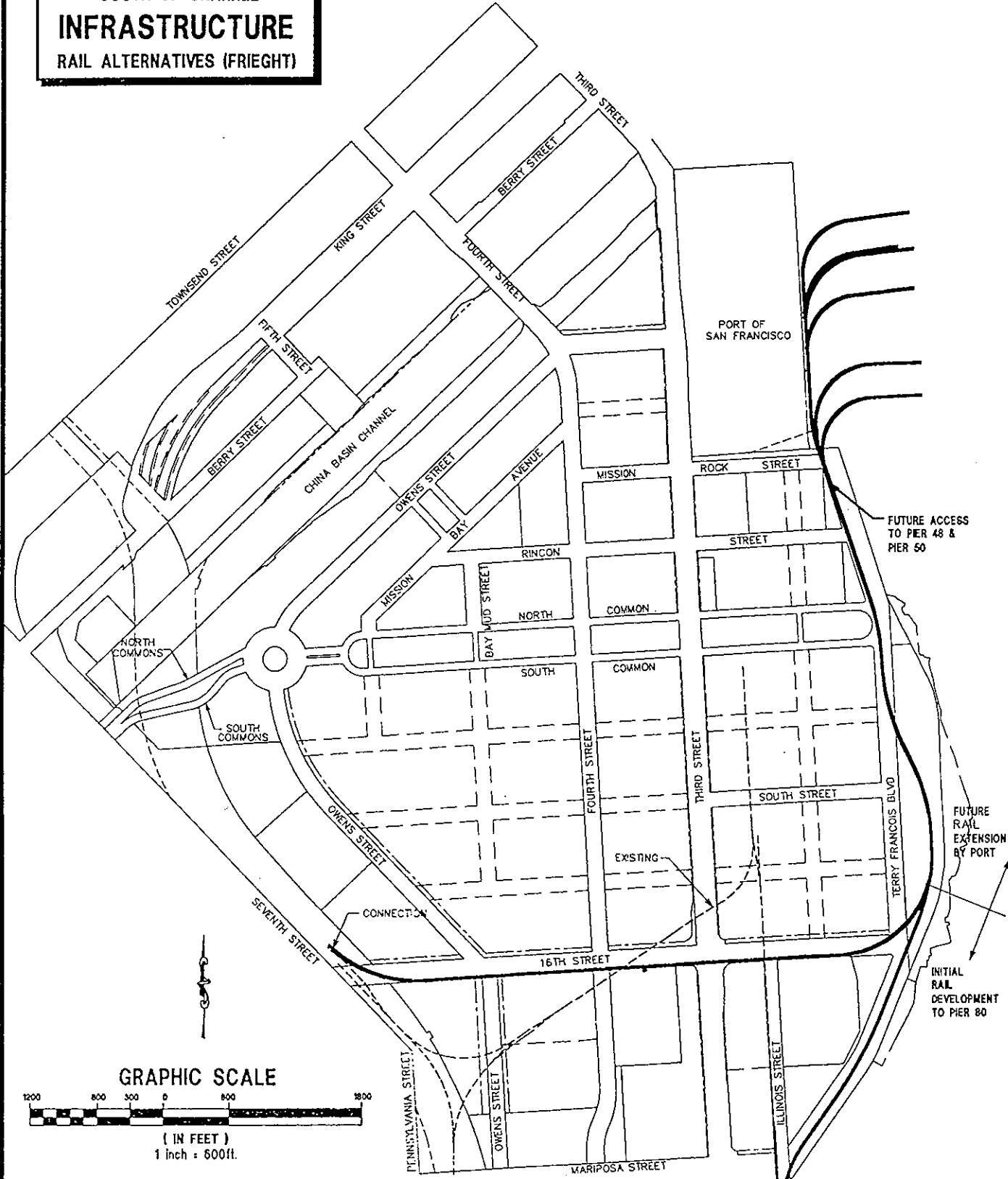
SANTINA & THOMPSON, INC.
Hawk Engineers, Inc.

8/21/98

N.T.S. SECTION A

9

**SOUTH OF CHANNEL
INFRASTRUCTURE
RAIL ALTERNATIVES (FRIEGHT)**



**SANTINA &
THOMPSON, INC.**
Hawk
Engineers, Inc.

**SOUTH OF CHANNEL
INFRASTRUCTURE
MARIPOSA WIDENING**



OWENS ST.

NB OFF RAMP

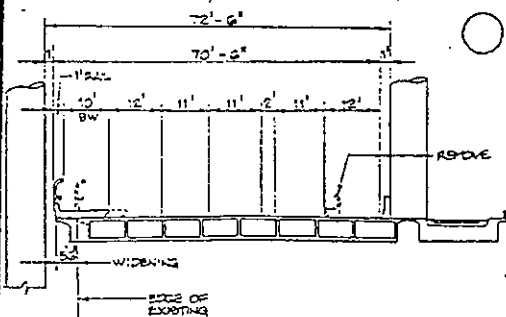
STREET WIDENING

MARIPOSA ST.

ROUTE 280
FREEWAY (ABOVE)

RAILROAD (BELOW)

SB ON RAMP



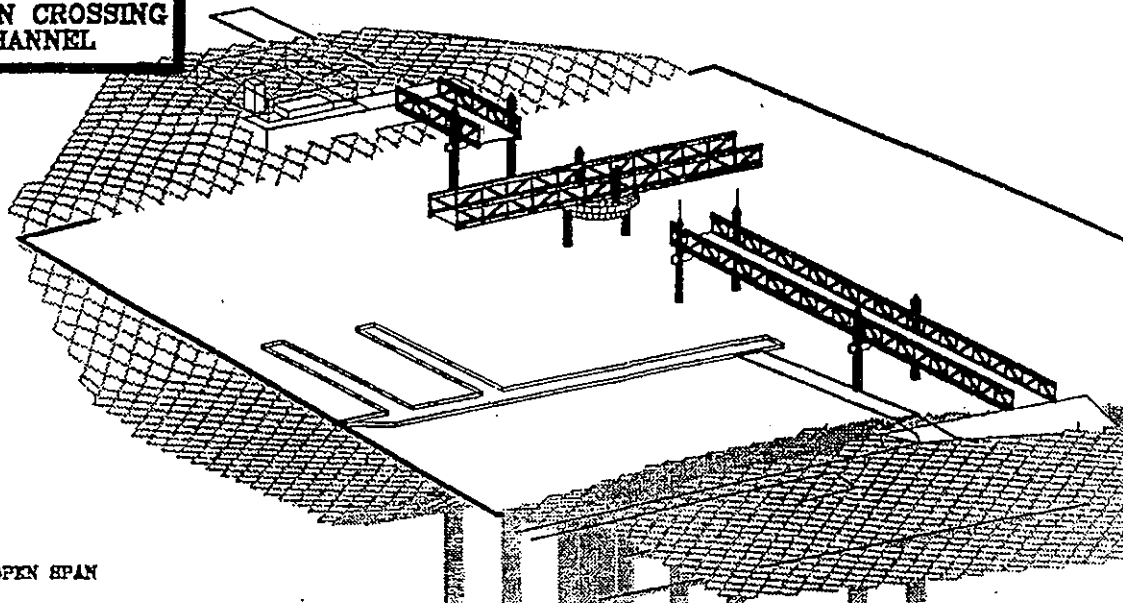
SECTION AA
(3 LANES @ 10' BW)
(N.T.S.)

SCALE: 1" = 40'

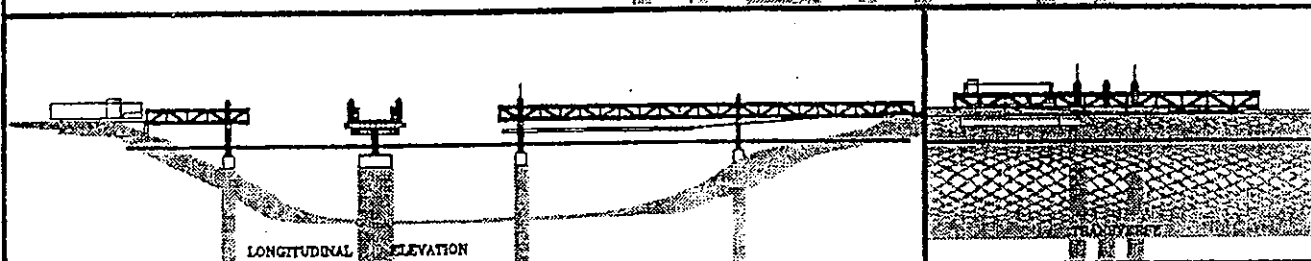
SANTINA & THOMPSON, INC.
Hawk Engineers, Inc.

7/30/98

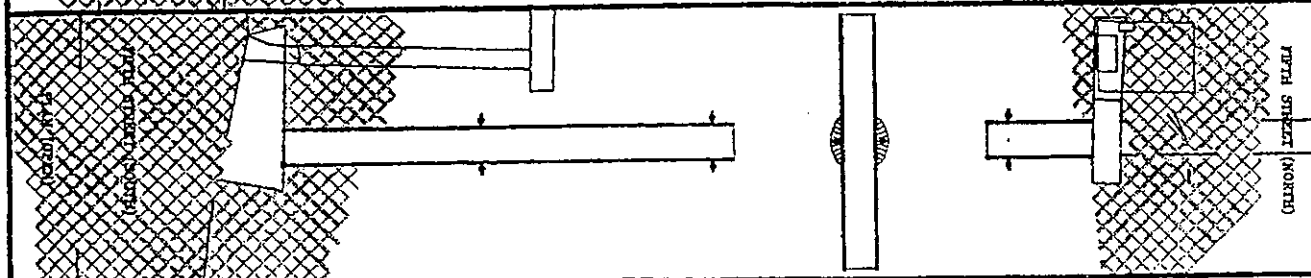
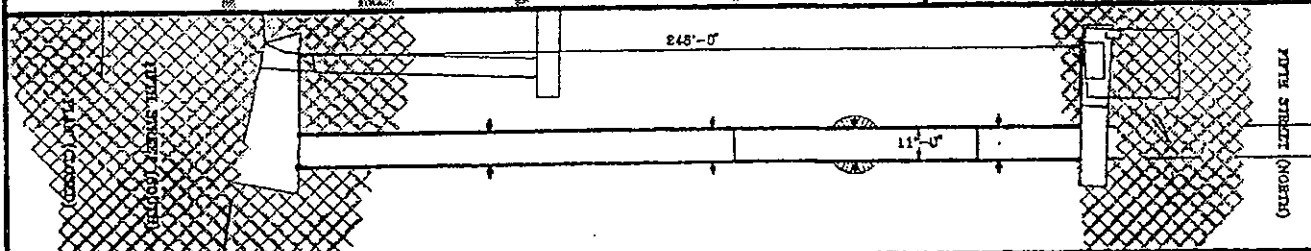
**SOUTH OF CHANNEL
INFRASTRUCTURE
PEDESTRIAN CROSSING
OF CHANNEL**



3-D VIEW OF OPEN SPAN



LONGITUDINAL ELEVATION




**SANTINA &
THOMPSON, INC.**

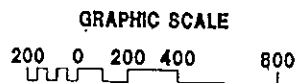
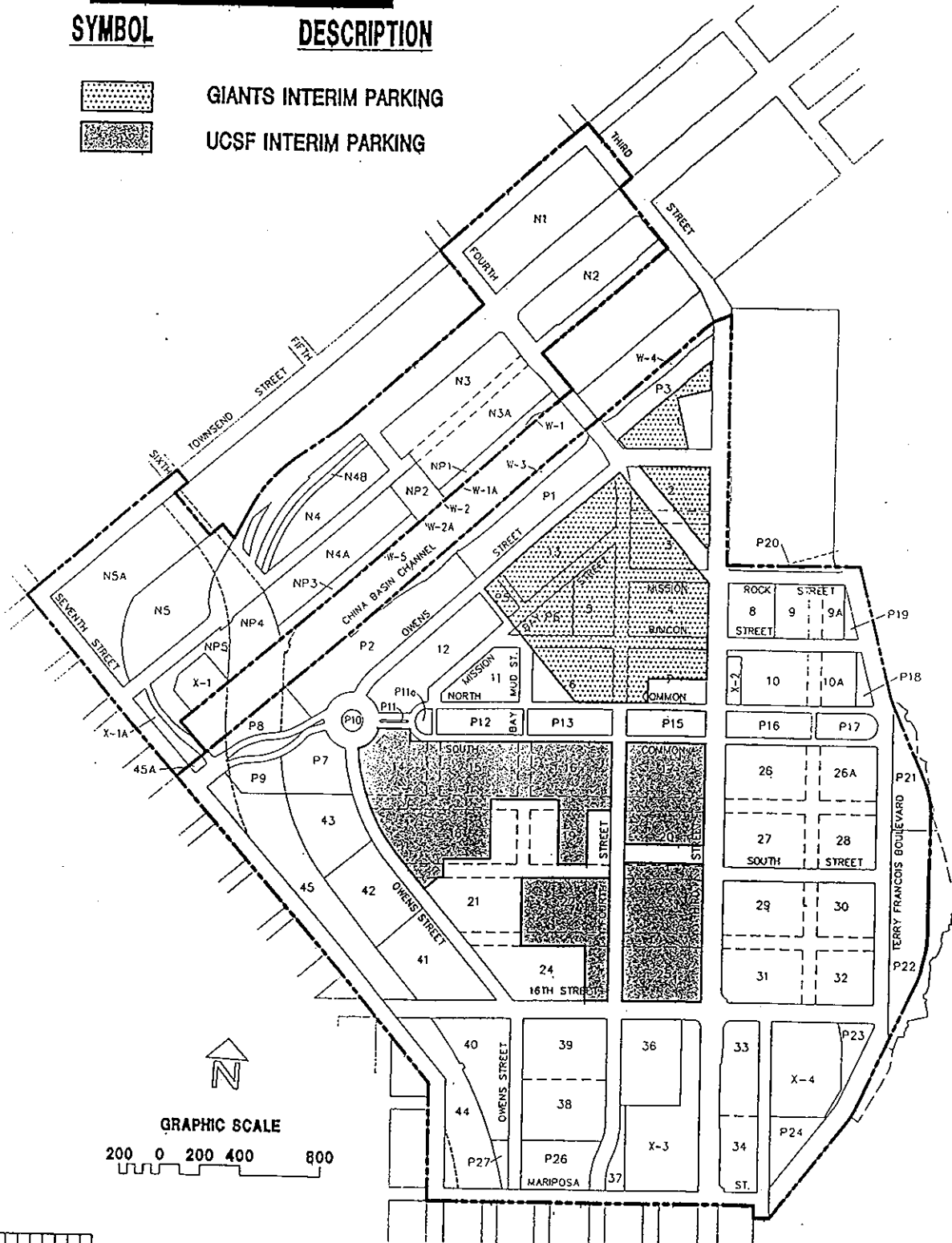
Hawk
Engineers, Inc.

**SOUTH OF CHANNEL
INFRASTRUCTURE
INTERIM PARKING**

SYMBOL **DESCRIPTION**

-  GIANTS INTERIM PARKING
-  UCSF INTERIM PARKING

INF-004A 97.0191 / L



A PROJECT OF CATELLUS DEVELOPMENT CORPORATION

TABLE 1. MISSION BAY PM PEAK HOUR VEHICLE TRIP GENERATION RATES

Project Areas	Land Use Type	PM Peak Hour Vehicle Trip Rate
Mission Bay North	Retail	1.36 per ksq. ft.
	Restaurant	6.02 per ksq. ft.
	Residential	0.75 per d.u.
	Movie Theater	0.06 per seat
Mission Bay South	Retail	2.00 per ksq. ft.
	Hotel	0.27 per room
	Residential	0.81 per d.u.
	Office	0.95 per ksq. ft.
	Research & Development	0.59 per ksq. ft.
	Large Retail	4.50 per ksq. ft.
UCSF Subarea	UCSF	0.61 per ksq. ft.
	School	0.05 per student

Notes:

ksq. ft. = 1,000 square feet

d.u. = dwelling unit

Source: Table VI.1, p. VI.8, Volume II, Draft Mission Bay Subsequent Environmental Impact Report.

**TABLE 2. MISSION BAY SOUTH: INTERSECTION IMPROVEMENT THRESHOLDS
BASED ON CUMULATIVE PROJECT P.M. PEAK HOUR VEHICLE TRIPS***

Intersection	Measure	Mission Bay PM Peak Hour Vehicle Trips
Third/The Common ¹	New signal.	10,400 ⁴
Third/South ¹	New signal.	8,200 ⁴
Third/Owens ¹	New signal.	8,200 ⁴
Third/16 th	Reconfigure signal & widen street.	8,200 ⁴
Third/Mariposa ³	Reconfigure signal & widen street.	14,200 ³
Fourth/Owens ¹	New signal.	8,200 ⁴
Fourth/South	New signal.	8,200 ⁴
Fourth/16 th	New signal.	8,200 ⁴
Fourth/Mariposa	New signal.	8,200 ⁴
Seventh/16 th	New signal & restripe street.	5,500
Owens/16 th	New signal.	10,400 ⁴
Owens/Mariposa/I-280 Off-ramp	Reconfigure signal.	5,500
I-280 On-ramp/Mariposa	New signal.	10,400 ⁴
Vermont/16 th	New signal.	2,600
Potrero/16 th	Restripe street.	8,200 ⁴
Seventh/Brannan	Restripe street.	15,400 ⁵
Seventh/The Common/Berry Connector ²	New signal, railroad crossing, & restripe street.	8,200 ⁴

* When Mission Bay development reaches a level that produces the number of p.m. peak hour project vehicle trips shown, the intersection would need to include the measures shown in order to maintain an acceptable level of service.

¹ Improvements may be needed before the vehicle threshold indicated to conform with MUNI Third Street Light Rail extension construction.

² This Improvement would be triggered earlier if 2,300 p.m. peak hour vehicle trips were generated by Owner and UCSF development in Mission Bay South before a total of 8,200 p.m. peak hour vehicle trips were generated by all development in Mission Bay as a whole.

³ Remove on-street parking and restripe within the existing right of way to provide two (2) lanes for the westbound approach and adjust signal timing by the end of a project development that produces 5,500 p.m. (evening) peak hour vehicle trips.

⁴ May include development up to 460,000 square feet of commercial/industrial, 40,000 square feet of city-serving retail and 90 dwelling units which are not part of the Owner Project in the South Plan Area.

⁵ May include development of up to 1,064,000 square feet of commercial/industrial, 90,000 square feet of city-serving retail and 90 dwelling units which are not part of the Owner Project in the South Plan Area.

Source: Table VI.2, p. VI.13 and Table VI.4, p. VI.21, Volume II, Draft Subsequent Environmental Impact Report.

**TABLE 3. MISSION BAY SOUTH: STREET SEGMENT IMPROVEMENT THRESHOLDS
BASED ON CUMULATIVE PROJECT P.M. (EVENING) PEAK HOUR VEHICLE TRIPS***

Street Segment	Mission Bay PM Peak Hour Vehicle Trips
Fourth Street between 16 th and Mariposa Streets	8,200 ³
Fourth Street between 16 th and South Streets	8,200 ³
Fourth Street between South Street and China Basin Channel Bridge	10,400 ³
Owens Street between Third and Fourth Streets ¹	10,400 ³
Owens Street between Fourth Street and The Common	14,200 ⁴
Owens Street between The Common and 16 th Street	10,400 ³
Owens Street between 16 th and Mariposa Streets	12,200 ⁴
Connection of Common Streets to Seventh Street ²	8,200 ³
Third Street, south of 16 th Street, approximately one-third the distance between 16 th and Mariposa Streets	8,200 ³
Mariposa Street Caltrain Bridge Widening	10,400 ³
Mariposa Street between Caltrain Bridge and Fourth Street	12,200 ⁴
Mariposa Street between Fourth and Third Streets ⁵	14,200 ⁴
Mariposa Street between Third Street and Terry A. François Boulevard	14,200 ⁴

* When Mission Bay development reaches a level that produces the number of p.m. (evening) peak hour project vehicle trips shown, the intersection would need to include the measures shown in order to maintain an acceptable level of service.

¹ Improvements may be needed earlier to conform with MUNI's Third Street Light Rail extension construction.

² This Improvement would be triggered earlier if 2,300 p.m. (evening) peak hour vehicle trips were generated by Owner and UCSF development in Mission Bay South before a total of 8,200 p.m. peak hour vehicle trips were generated by development in Mission Bay as a whole.

³ May include development of up to 460,000 square feet of commercial/industrial, 40,000 square feet of city-serving retail and 90 dwelling units which are not part of the Owner Project in the South Plan Area.

⁴ May include development of 1,064,000 square feet of commercial/industrial, 90,000 square feet of city-serving retail and 90 dwelling units which are not part of the Owner Project in the South Plan Area.

⁵ This improvement requires the taking of an adjacent building which is subject to leaseholds. If the Improvement is triggered prior to redevelopment or leasehold termination, additional analysis may be warranted to avoid unnecessary condemnation proceedings.

Source: Table VI.2, p. VI.13 and Table VI.4, p. VI.21, Volume II, Draft Mission Bay Subsequent Environmental Impact Report.

