
INFRASTRUCTURE PLAN

VOLUME 2

HUNTERS POINT SHIPYARD PHASE 2 DEVELOPMENT

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INFRASTRUCTURE PLAN

HUNTERS POINT SHIPYARD PHASE 2 DEVELOPMENT

1. INTRODUCTION / PROJECT DESCRIPTION

1.1 PURPOSE

This Infrastructure Plan is an attachment to the Disposition and Development Agreement (DDA) between the Redevelopment Agency of the City and County of San Francisco, a public body, corporate, and politic of the State of California, together with any successor public agency, (the Agency) and CP Development Co., LP, a Delaware limited partnership, together with its successors, (the Developer) and is an exhibit to the Interagency Cooperation Agreement (ICA) between the City and County of San Francisco (City) and the Agency. This Infrastructure Plan defines the Public Infrastructure for the Hunters Point Shipyard Phase 2 (HPS2) Development. The HPS2 Development is a portion of the overall Candlestick Point/Hunters Point Shipyard Phase 2 Development Project (Project). The Project is organized into two major sub-components: Candlestick Point Development (Candlestick Development) and Hunters Point Shipyard Phase 2 Development (Shipyard Site). A separate Infrastructure Plan covers the Candlestick Development. Collectively, these Infrastructure Plans comprise the Project Infrastructure Plan. Capitalized terms used but not otherwise defined shall have those meanings set forth in the DDA.

The overall Project description, location, and the nature of the Development within the HPS2 Area are described fully in the DDA.

1.2 INFRASTRUCTURE PLAN OVERVIEW

This HPS2 Infrastructure Plan will govern the construction and development of Infrastructure in the HPS2 Area and off-site work needed to support the HPS2 Development. This Infrastructure Plan may be modified to the extent such additional Infrastructure is mutually agreed to by the Agency, City, and the Developer consistent with the terms of the DDA and the ICA.

This Infrastructure Plan defines Infrastructure improvements to be provided by the Developer for the HPS2 Area and off-site work needed to support development of the HPS2 Area. While some Infrastructure improvements to be provided by City Agencies and other governmental agencies are described, their inclusion herein is not intended to be inclusive of all improvements to be provided by City Agencies and other governmental agencies.

Permitting and infrastructure associated with Navy Parcel E-2 will be completed by the Navy, except Yosemite Slough Bridge and related approach span to Crisp Road which will be designed, permitted and constructed by the Developer. The infrastructure improvements required by the Parcel E-2 landfill closure, Stormwater management and shoreline stabilization will be completed by the Navy. The City will receive the property from the Navy in an as-built condition, and the Developer shall not make any improvements to the remedial design completed by the Navy. The limit of the Developer's work in regards to this IP shall be limited to the roadway construction of Arelious Walker Dr. and park improvements for the Grassland Ecology Park. All work to be done by the Developer shall be coordinated with the as-built condition received from the Navy and approved by the Regulatory Agencies. No mass grading, storm drainage, sea level rise or shoreline improvements on Parcel E-2 (except that required within the Arelious Walker Dr. Right-of-Way) will be the responsibility of the Developer.

This Infrastructure Plan and the approved 2014 Subdivision Regulations for the Candlestick Point / Hunters Point Shipyard Project (Project Subdivision Regulations) establish the design standards, criteria and specifications of Infrastructure in the Project, including streets, low pressure water, recycled water, auxiliary water supply system, joint trench, street lighting, street furniture, separated storm and sewer systems, low impact design (LID) storm water treatment features, open space parcels, and other Infrastructure. Where improvement standards proposed herein differ from the Project Subdivision Regulations, such standards and Infrastructure shall require Director's granting of an exception pursuant to the Subdivision Code and shall be subject to design modification or exception requests and reviewed by the affected City Agencies during the Project Sub-Phase application or construction document approval process. During subdivision processing and approval by the City, including the review and approval of subdivision improvement plans, the final design of Infrastructure will be consistent with this Infrastructure Plan. This Infrastructure Plan focuses on the Infrastructure required to build the Project as described in the Project Environmental Impact Report (EIR).

1.3 PROPERTY ACQUISITION, DEDICATION, AND EASEMENTS

The mapping, street vacations, property acquisition, dedication and acceptance of streets and other Infrastructure improvements will occur through the Subdivision Map process in accordance with the Project Subdivision Regulations. Except as otherwise noted, all Infrastructure described in this Infrastructure Plan shall be constructed within the public right-of-way or dedicated easements to provide for access and maintenance of Infrastructure facilities. In the event property necessary to provide the rights-of-way or easements for construction of improvements shown herein cannot be

acquired by the Developer, alternate Infrastructure designs will be submitted by the Developer for consideration by the City.

Public utility easements, which are conceptually located on Figure 1.3.1, will be allowed within the Project as may be necessary to service the development. Utilities or stormwater treatment solutions 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; however, such areas shall not be required to be dedicated as public right-of-ways or improved to public right-of-way standards. It is noted that the City strongly prefers public utilities be installed within public rights-of-way. In the event of a conflict between the Infrastructure Plan and the tentative map conditions, the tentative map conditions shall control.

1.4 PROJECT DATUM

Elevations are referred to herein in reference to the “CP/HPS2 Datum” or “Project Datum.” “CP/HPS2 Datum” and “Project Datum” are both defined as the following:

- Old City Datum (CCSF) plus 100 feet
- The San Francisco Vertical Datum 2013 (SFVD 13) plus 88.7 feet
- The North American Vertical Datum 1988 (NAVD 88) plus approximately 88.7 feet

The definitions of development-related terms as defined in the DDA shall apply to this Infrastructure Plan.

1.5 TECHNICAL MEMORANDA AND MASTER UTILITY PLANNING

Each Infrastructure system described herein has been more fully described in a Technical Memorandum or other Draft Master Utility Plan that has been submitted separately to the City and reviewed, including but not limited to the following:

- Hunters Point Shipyard Phase II Development Grading and Storm Drain System Master Plan, dated July 21, 2017 and prepared by BKF Engineers
- Sanitary Sewer System Master Plan for the Hunters Point Shipyard Phase II Development, dated July 21, 2017 and prepared by BKF Engineers

- Low Pressure Water System Master Plan for the Hunters Point Shipyard Phase II Development, dated July 21, 2017 and prepared by BKF Engineers
- Recycled Water System Master Plan for the Hunters Point Shipyard Phase II Development, dated July 21, 2017 and prepared by BKF Engineers
- Hunter's Point Shipyard Phase 2 Dry Utilities Joint Trench Master Plan & Master Electric Infrastructure Plan Hunter's Point San Francisco, CA, dated July 10, 2017 and prepared by Power Systems Design
- Hunters Point Shipyard Phase 2 AWSS Alternatives, dated July 6, 2015 and prepared by AECOM for the SFPUC
- Hunters Point Shipyard Phase 2 – Sanitary Sewer Pump Station and Lift Station Design Optimization Technical Memorandum prepared by BKF Engineers

These documents identify the key design criteria and provide more detailed layouts of each Infrastructure system. These Technical Memoranda or other Draft Master Utility Plan form the basis of what will become the final Master Plans, as amended from time to time, for each utility system, to be approved initially by the City prior to any Subdivision Maps (excepting tentative and final transfer maps) or Construction Permits related to the Project. Any subsequent amendments to the Master Utility Plans must be approved by the City prior to issuance of any affected Construction Permits. Approval of this Infrastructure Plan does not imply approval of the respective utility system Technical Memoranda or other Draft Master Utility Plan. Each utility will be constructed according to the provisions of the relevant City Standard Plans and Specifications provided for in this infrastructure Plan, the associated Final Master Utility Plans, as amended from time to time, and construction permits. All facilities will be located within the public right-of-way or dedicated easements to provide for access and maintenance to facilities.

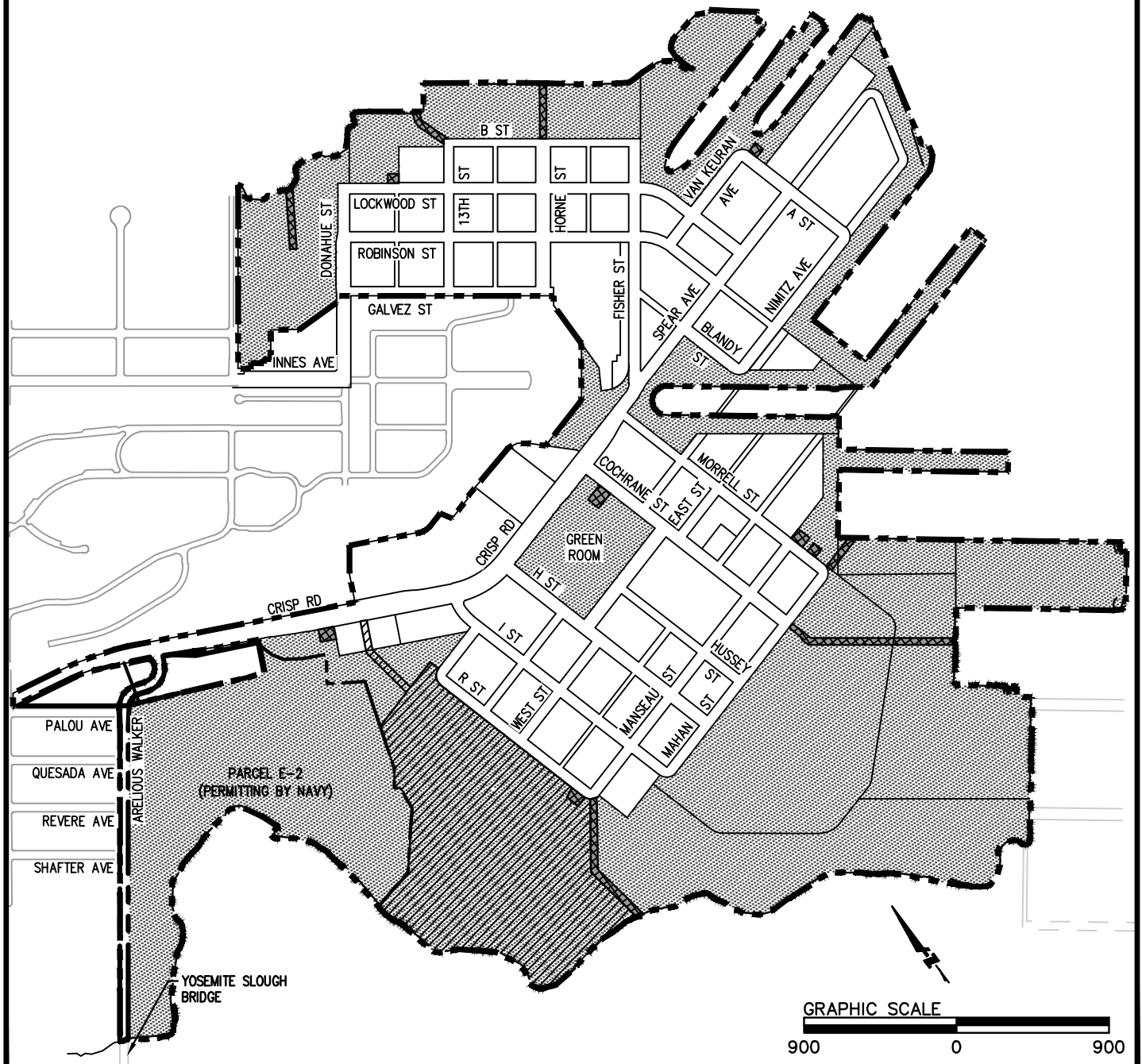
1.6 CONFORMANCE WITH EIR & ENTITLEMENTS

This Infrastructure Plan has been developed to be consistent with Project mitigation measures required by the Environmental Impact Report (EIR) and other entitlement documents. Regardless of the status of their inclusion in this Infrastructure Plan, all mitigation measures of the EIR shall apply to the Project. Compliance with Project mitigation measures shall be the responsibility of the Developer or its Contractor until acceptance of the related Infrastructure by the Agency, City, or on-site development entity.

LEGEND

- PROJECT BOUNDARY
- PARKS AND OPEN SPACE
- CONCEPTUAL PUBLIC UTILITY EASEMENT
- CONCEPTUAL OVERLAND RELEASE EASEMENT

NOTE:
THE GREEN ROOM IS NOT CONSIDERED
INFRASTRUCTURE FOR THE PURPOSES OF
COST REIMBURSEMENT UNDER THE DDA



2. PUBLIC INFRASTRUCTURE WITHIN THE STREET RIGHTS-OF-WAY

2.1 STREET IMPROVEMENTS

A new on-site street system, comprised of proposed new and reconstructed streets, and improvements to selected off-site roadways outside the project boundary, will be constructed to serve the Project, as described in Section 2.

The following Infrastructure descriptions apply generally to public streets in the HPS2 Area, but may vary slightly by street based on particular requirements, as shall be determined during the review of the applicable subdivision improvement plans and in accordance with the procedure for granting exceptions as set forth in the applicable Subdivision Code and the Project DDA. The street improvements will be implemented at specific stages of development; on-site street improvements will be implemented as triggered by the adjacency principle described in Section 6 and off-site street improvements will be implemented based on traffic triggers as discussed in Section 6. Mid-block breaks, which are conceptually identified on Figure 2.1.1A, will be owned and maintained in accordance with the DDA.

2.1.1 STREET SURFACE IMPROVEMENTS

Street surface improvements consist of roadway reconstruction, preparation, excavation, fine grading, pavement section (including base and asphalt concrete wearing surface), combined concrete curbs and gutters, concrete sidewalk and curb ramps, traffic control signs and striping, street landscaping and trees, low impact design stormwater treatment facilities where applicable, and appurtenant improvements. Grading will be performed by cutting existing grades and redistributing the resulting soil for placement on site, or by importing fill for placement in order to provide sufficient gradient to accommodate the 100-year overland flow requirements and the projected sea level rise, as described in Section 3. Consideration will be made during design of potential settlement that may result by the addition of loads to existing compressible soils by Infrastructure described in this Infrastructure Plan, and action will be taken by the Developer prior to construction to minimize such settlements.

The street structural sections will consist of three typical types: asphaltic concrete over concrete; asphaltic concrete over aggregate base; and a combination to meet and match existing streets. Future feasibility studies will be conducted for locations within reconstructed roadway sections and parking lots for permeable or porous paving materials.

Streetscape improvements of the on-site streets will include sidewalk, a planting area, street trees and street furnishings, as approved by the Agency and City. These improvements will be further defined by the Streetscape Master Plan to be submitted by the Developer for approval by the City and/or Agency in accordance with the Design Review and Document Approval Procedure (DRDAP). Street furnishings include, but are not limited to, benches, trash cans, bike support facilities and pedestrian scale lighting.

Upon acceptance of these street improvements by the City, responsibility for the operation and maintenance of the roadway and streetscape elements shall be designated and allocated as may be allowed by the City pursuant to the various City and County of San Francisco Municipal Codes, including but not limited to Public Works Code Section 786. Responsibility for accepted street improvements for streets within the Public Trust will be determined separately.

At the time of new permanent street construction, all Infrastructure under the pavement, including utility crossings at intersections, will be installed prior to final street pavement. For major utilities such as water lines, the facilities are to be installed and tested for acceptance. 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 in a manner that minimizes the need for future street cuts. Spare conduits will be provided within the joint trench where necessary for future installation of twelve (12) conductor cable to synchronize intersections. The foundations for underground utilities shall be determined by the geotechnical and civil engineering requirements for the location.

The following lane use definitions shall apply to this Infrastructure Plan:

Shared right-through lane means a traffic lane from which a vehicle may either make a right turn, or travel straight through the intersection.

Shared left-through lane means a traffic lane from which a vehicle may either make a left turn, or travel straight through the intersection.

Exclusive through lane means a traffic lane from which a vehicle may only travel straight through the intersection.

Exclusive left-turn lane means a traffic lane from which a vehicle may only make a left turn.

Exclusive right-turn lane means a traffic lane from which a vehicle may only make a right turn.

The following bicycle facility definitions shall apply to this Infrastructure Plan:

Class I bicycle facility means an off-road bicycle path, generally shared with pedestrians. Class I facilities may be adjacent to an existing roadway, or may be entirely independent of existing vehicular facilities.

Class II bicycle facility means striped bicycle lanes on roadways.

Class III bicycle facility means a signed bicycle route. Class III facilities do not have striped, reserved right of way for bicycles, but are signed and designed to accommodate and encourage bicycle traffic. These facilities are often demarcated by “sharrows” indicating the shared use of the lane by both motorized vehicles and bicycles.

Class IV bicycle facility means a separated and protected one-way or two-way bicycle facility, commonly referred to as a cycle track. Class IV facilities designed for use by only bicyclists and are physically separated from both vehicular and pedestrian facilities by a vertical element.

2.1.2 ON-SITE STREET SYSTEM

The following specific on-site street improvements shall be provided by the Developer in connection with the development of the HPS2 Area in accordance with this Infrastructure Plan.

STREET SEGMENTS

The on-site street system for the HPS2 Area, including existing and proposed streets, is shown on Figure 2.1.1A. Streets and parks within the Public Trust lands, which are subject to separate acceptance procedures and post-acceptance regulations, are shown on Figure 2.1.1B. Figures 2.1.2A – 2.1.2E show on-site street cross sections within the HPS2 Area, including basic geometries within the rights-of-way such as numbers of lanes, their uses, their widths, and the full width of right-of-way. These sections demonstrate the transportation functionality of the roadways and may not be inclusive of all features and utilities that will be included in the final street sections. Curb ramps and crosswalks are shown diagrammatically and will be designed to align across pedestrian paths of travel. The precise locations of these features will be subject to approval through the design process. Street names for proposed roadways are only to identify particular roadway segments and are subject to final determination at a later time.

INTERSECTION IMPROVEMENTS

The following specific intersection Improvements shall be provided by Developer in connection with the development of the HPS2 Area in accordance with this Infrastructure Plan.

New Traffic Signals

The Developer shall install new traffic signal poles, masts, and heads, pedestrian count-down indicators, and other related infrastructure in each corner of the intersection, and install a new traffic signal controller at the following intersections (as shown on Figure 2.1.5), or as may be agreed upon by the City and Developer based on further information from a traffic engineer:

1. Crisp Road / Arelious Walker
2. Crisp Road / Donahue Street
3. Crisp Road / H Street
4. Crisp Road / Cochrane Street
5. Crisp Road / Fisher Avenue / Spear Avenue
6. Spear Avenue / Robinson Street
7. Spear Avenue / Lockwood Street
8. Fisher Avenue / Robinson Street
9. Fisher Avenue / Lockwood Street
10. Donahue Street / Robinson Street
11. Donahue Street / Innes Avenue
12. Arelious Walker / Quesada

Certain traffic signals will have interconnection infrastructure as recommended by the Project Transportation Plan, which may be amended by mutual agreement of the City and Developer from time to time.

Other Traffic Control

At intersections on major roadways where traffic signals are not installed, the Developer shall install stop signs on streets intersecting the following major roadways:

1. Donahue Street, at Galvez Street
2. Robinson Street, between Donahue Street and Fischer Street
3. Lockwood Street, between Donahue Street and Fischer Street
4. Spear Avenue, between Fischer Street and A Street
5. H Street, between Crisp Road and Mahan Street
6. Cochrane Street, between Crisp Road and Mahan Street

The Developer shall install stop sign and related traffic control infrastructure at other intersections in the HPS2 Area, with configuration (all-way or side-street) to be determined in consultation with

the City prior to approval of Improvement Plans. All other streets shall have traffic control as recommended by the Project Transportation Plan, which may be amended by mutual agreement of the City and Developer from time to time.

2.1.3 OFF-SITE STREET SYSTEM

The following specific off-site improvements shall be provided by Developer in connection with the development of the HPS2 Development in accordance with this Infrastructure Plan:

STREET SEGMENTS

The Developer shall reconstruct or improve existing street segments outside of the HPS2 Area as described below, pursuant to a schedule based on traffic triggers defined by Section 6. The proposed street improvements are generally limited to the sidewalk (including curb ramps) and street sections within the existing right-of-way. Limited areas of streetscape improvements may be included in off-site street segments or along certain off-site corridors as described herein. A Technical Memorandum will recommend one or more of the following types of roadway improvements for the street pavement section based on site reconnaissance, topographic survey and geotechnical investigation completed prior to the final design and any proposed construction. These recommendations will be mutually agreed upon by both the Developer and SFDPW prior to final design. Site reconnaissance will consist of a site walk to document the existing conditions within the ROW including pavement and sidewalk conditions and above ground utilities requiring protection and/or potential relocation during work activities. A topographic survey of existing surface elevations including location of surface utilities will be completed following site reconnaissance. Existing pavement conditions will be evaluated and documented by performing a limited geotechnical investigation.

Because the proposed work activities are needed to improve access to the project area per the Transportation Plan, all the proposed improvements by the Developer are limited to pavement and sidewalk improvements within the right of way. Therefore, any primary subsurface utilities that are present below the existing off-site roadway and sidewalk sections will be not be redesigned or reconstructed.

All off-site street and streetscape improvements will be constructed per recommendations of a Technical Memorandum discussing Off-Site Street Pavement Rehabilitation and Replacement and per the approved Plans and Specifications per current City requirements.

Based on the above documents the types of off-site roadway improvement work expected to be performed are defined as:

Reconstruct Structural Section – This street improvement includes removal of the existing roadway pavement section between roadway structural joints and/or expansion joints as necessary – including asphalt concrete (AC) pavement, portland cement concrete base (PCC), aggregate base (AB) and sidewalk as needed. Following removal a new roadway structural section will be constructed, which will include placement of a new AC wearing course, PCC and/or AB, adjustment of valve boxes and manhole frames and covers to grade, placement of new traffic markings / striping and construction of new sidewalk as needed per current City requirements within the existing ROW.

Repair and Resurface Streets – This street improvement includes partial removal of the existing AC wearing surface (up to the top of the PCC base or a maximum of 3 inches) by grinding, assessment and potential replacement of the concrete roadway structural section in those areas demonstrating visible signs of structural failure (e.g., cracks more than 1/8-inch in thickness, differential settlement of more than 1/2-inch, etc.), and removal of sidewalk sections with visible signs of failure. Repairs of the PCC in areas with affected structural sections shall be made from structural joint to structural joint. Following these activities the failed road pavement sections will be repaired or replaced, a new AC surface will be placed (up to 3 inches), including adjustment of valve boxes and manhole frames and covers to grade, and placement of new traffic markings / striping. Sidewalk sections will be repaired or replaced. This work will be completed per current City requirements within the existing ROW. The extent of this type of repair is intended to correct areas of deficient structural sections without replacing an entire roadway segment, as agreed by the Developer and City.

Resurface Streets – This street improvement includes removal of the existing AC wearing surface (down to the top of the PCC base, or a maximum of 3 inches in depth) by grinding and placement of a new AC wearing surface. Resurfacing of streets shall include adjustment of valve boxes and manhole frames and covers to grade and placement of new traffic markings / striping.

Overlay Streets – This street improvement includes placement of a new AC wearing surface overlay over the existing pavement surface without modification of the underlying pavement. Resurfacing of streets shall include adjustment of valve boxes and manhole covers to grade and placement of new traffic markings / striping.

Restripe Street – This work is defined as the removal of existing pavement delineation, obliterating of prior pavement markings, and placement of new pavement delineation and pavement markings.

Existing off-site roadways being improved are shown on Figures 2.1.3A and 2.1.3B. Existing off-site roadways outside the project boundary, such as Thomas Avenue, Griffith Street, Innes Avenue (Including Innes Avenue / Hunters Point Boulevard / Evans Avenue), and Palou Avenue will be improved to serve the HPS2 Area. The intersection of Thomas Avenue and Ingalls Street is included as part of the HPS2 Infrastructure Plan; Ingalls Street is included in the Infrastructure improvements to be built to serve the CP Area. For each segment of improved street pavement, improvements to street pavement at street intersections will continue into the crossing street and up to the curb returns on either side of the crossing street. The City may choose to incorporate additional design elements into these off-site roadways at City cost. These may include LID features to address the flow rate of storm water flows into the combined sanitary sewer system, major curb and gutter replacement (where not called for by the Technical Memorandum) and/or curb bulb-outs.

These terms as defined above are used in describing the work at specific locations delineated below:

A. Thomas Avenue

Work will consist of widening Thomas Avenue by three feet on each side of the street (within the existing right-of-way) between Ingalls Street and Griffith Street in accordance with Figure 2.1.3B (4 travel lanes, 2 parking lanes, and sidewalks on both sides of the street). Developer will implement the improvements identified in a technical memorandum, which likely will consist of Reconstruct Structural Section. In addition to Reconstruct Structural Section, additional improvements within this road segment will include new pedestrian lighting added to existing pole when possible; extension of drainage laterals and installation of new catch basins; and relocation of low pressure water system fire hydrants. Street signage to be provided includes relocation of existing street signs. Work does not include low impact development storm water quality treatment. A pre-design study for off-site roadways targeted for reconstruction will include possible use of LIDs. Implementation of any LID elements is not part of the Developer's scope of work for off-site road improvements.

A new traffic signal will be installed at the intersection of Thomas Avenue at Ingalls Street as discussed in the following section on Intersection Improvements.

B. Griffith Street

Work will occur on Griffith Street between Thomas Avenue and Palou Avenue in accordance with Figure 2.1.3B (2 travel lanes, 2 parking lanes (which may be converted to travel lanes), and sidewalks on both sides of the street). Developer will implement the improvements identified in a Technical Memorandum, which describe the limits of work for each of the following potential types of work on Griffith Street: Reconstruct Structural Section, Repair and Resurface Street, Resurface Street, Overlay Street and/or Restripe Street.

In addition to the improvements identified above, other improvements within this road segment may include street lights that need to be replaced or moved during construction will be upgraded with new fixtures and an additional pedestrian lighting added to the existing pole when possible; extension of drainage laterals and installation of new catch basins; and relocation of low pressure water system fire hydrants. Street signage to be provided includes relocation of existing street signs. Work does not include low impact development storm water quality treatment. A pre-design study for off-site roadways targeted for reconstruction will include possible use of LIDs. Implementation of any LID elements is not part of the Developer's scope of work for off-site road improvements.

C. Innes Avenue / Hunters Point Boulevard / Evans Avenue

Work will consist of widening the corridor consisting of Innes Avenue, Hunters Point Boulevard, and Evans Avenue by 2 feet on the southern side of the existing roadway between Earl Street (the Hunters Point Shipyard Phase 2 Development Area boundary) and Jennings Street in accordance with Figure 2.1.3A (4 travel lanes, sidewalk on both sides of the street, bicycle facilities, parking, and turn lanes vary throughout the corridor). Developer will implement the improvements identified in a Technical Memorandum, which consist of Reconstruct Structural Section as necessary.

In addition to Reconstruct Structural Section, additional improvements within this roadway segment include: upgrading of street lights that need to be replaced or moved during construction with new fixtures and new pedestrian lighting added to the existing pole when possible; extension of drainage laterals and installation of new catch basins; and relocation of low pressure water system fire hydrants. Work includes streetscape improvements which can include new street trees with grates, street benches, bicycle racks, and trash receptacles as per the agreed Streetscape Plan between the Developer and the City. Street signage to be provided includes relocation of existing street. Work does not include irrigation system for the street trees or low impact development storm

water quality treatment. A pre-design study for off-site roadways targeted for reconstruction will include possible use of LIDs. Implementation of any LID elements is not part of the Developer's scope of work for off-site road improvements. It is the desire of the City that the sidewalk along the south side of Innes Avenue be widened beyond the minimum width of five feet as depicted in Figure 2.1.3. The City shall be obligated to fully reimburse the Developer for the increase in soft and hard costs of such widening separate from the reimbursement provisions of the DDA for Infrastructure. If the City has not demonstrated to the Developer's satisfaction the availability of funds to fully reimburse the Developer at the time of the approval of the associated Sub-Phase application, then the Developer shall not permit or construct the City's alternative of a widened right-of-way design for Innes Avenue, and shall instead permit and construct the cross-section identified in Figure 2.1.3. The Developer shall construct such widening if an executed Memorandum of Agreement or Memorandum of Understanding documenting between the City and the Developer that City funds for design and construction are available is completed in advance of the Approval of the associated Sub-Phase Application. Furthermore, the improvement of Innes Avenue / Hunters Point Boulevard / Evans Avenue will not be delayed by the availability of City funds to construct retaining walls to widen sidewalks on Innes Avenue / Hunters Point Boulevard / Evans Avenue.

A new traffic signal will be installed at the intersection of Evans Avenue / Middle Point / Jennings as discussed in the following section on Intersection Improvements.

D. Palou Avenue

Work will be performed on Palou Avenue between Griffith Avenue and the easternmost curb returns on Third Street in accordance with Figure 2.1.4 (2 travel lanes, 2 parking lanes, and sidewalk on both sides of the street between Griffith Street and Keith Street; 3 travel lanes, 2 parking lanes and sidewalk on both sides of the street between Keith Street and Third Street).

From Third Street to Lane Street, the Developer will implement the improvements identified in a Technical Memorandum, which likely consists of Reconstruct Structural Section. From Lane Street to Griffith Street, the Developer will implement the improvements identified in a Technical Memorandum, which may include one or more of the following; Reconstruct Structural Section, Repair and Resurface Street, Resurface Street, Overlay Street and/or Restripe street.

Palou Avenue [Proposed Improvement] (Griffith Street to 3rd Street) – In addition to the improvements identified above other additional improvements may include street lights that need

to be replaced or moved during construction will be upgraded to new fixtures and an additional pedestrian lighting added to the existing pole when possible; extension of drainage laterals and installation of new catch basins; and relocation of low pressure water system fire hydrants. Work can include streetscape improvements, which are new street trees with grates, street benches, bicycle racks, and trash receptacles, as per agreed Streetscape Plan between the Developer and the City. Street signage to be provided includes relocation of existing street signs. Bulb-outs are to be provided. Bulb-outs will have a minimum radius of 10 feet at the outside of the bulb and 20 feet at the inside of the bulb. New catch basins will be installed where necessary at the bulb-outs to facilitate drainage. Work does not include irrigation system for the street trees or low impact development storm water quality treatment. A pre-design study for off-site roadways targeted for reconstruction will include possible use of LIDs, implementation of any LID elements is not part of the Developer's scope of work for off-site road improvements. Work does not include irrigation system for the street trees.

Six new traffic signals will be installed at major intersections along Palou Avenue as discussed in the following section on Intersection Improvements.

Palou Avenue [Future Improvements to be constructed by the Developer only as a mitigation measure should future observed Project impacts and the Project entitlement documents require] (Griffith Street to Third Street) – Work includes Reconstruct Structural Section for area to be widened, removal of 3 feet sidewalk on each side of the street; curb ramps; curb and gutter; adjusting extension of drainage laterals and installation of new catch basins/ reuse of existing catch basins allowed; new street signage if required by change in traffic requirements; and traffic striping. Work does not include streetscape improvements which are new street trees with grates, street benches, bicycle racks, and trash receptacles; street signage; irrigation system for the street trees or low impact development storm flow treatment.

E. Illinois Street Improvements

As mutually agreed by the Developer and the City, the Developer will contribute its fair share for the improvement of the southbound approach of Illinois Street at Cargo Way. These improvements include widening the southbound approach on Illinois Street to provide a dedicated southbound left turn lane (approximately 100 feet long) and a dedicated right-turn lane, and extending the existing bicycle lane on Illinois Street to the Cargo Way intersection. Sidewalks, street lighting, signing, striping, pavement, and signal equipment will be replaced or relocated as made necessary by these changes.

INTERSECTION IMPROVEMENTS

The following specific off-site intersection Improvements shall be provided by Developer in connection with the development of the HPS2 Area in accordance with this Infrastructure Plan:

New Off-Site Traffic Signals

The Developer shall install new traffic signal poles, masts, and heads, pedestrian count downs, and other related infrastructure in each corner of the intersection, and install a new traffic signal controller at the following intersections (or at a nearby location as agreed upon by the City and Developer based on further information from a traffic engineer), pursuant to a schedule based on Traffic Triggers and Infrastructure Phasing defined in Section 6:

1. Palou Avenue / Griffith Street*
2. Palou Avenue / Hawes Street*
3. Palou Avenue / Ingalls Street*
4. Palou Avenue / Jennings Street*
5. Palou Avenue / Keith Street*
6. Palou Avenue / Lane Street*
7. Middle Point Road / Evans Avenue / Jennings Street
8. Pennsylvania Avenue / 25th Street
9. Thomas Avenue / Ingalls Street

*New traffic signals along Palou Avenue should be equipped to provide transit signal priority, including traffic signal interconnect wiring. Interconnect wiring should extend to the Palou Avenue / Third Street intersection.

**Improvements along Thomas Avenue and improvements to the intersection of Thomas Avenue / Ingalls Street are included as part of the HPS2 Infrastructure Plan; improvements along Ingalls Street from Carroll Avenue to Thomas Avenue are included as part of the CP Infrastructure Plan.

New traffic signal locations are illustrated on Figure 2.1.5.

At other off-site intersections on roadways being reconfigured or modified by the project, where traffic signals are not installed, traffic control devices shall remain the same as existing conditions. New traffic control devices will not be required at other off-site intersections unless specifically identified in this Infrastructure Plan.

Intersection Lane Configuration Revisions

In addition to signalization and other traffic control, the Developer will restripe the intersection approaches to provide revised lane configurations as described in Table 2.1.1 below at the intersections listed:

Table 2.1.1 Off-Site Intersection Lane Configuration Revisions

Intersection	Street	Direction	Lane Striping Configuration Revisions
Evans / Jennings / Middle Point	Evans	Eastbound Approach	Reconfigure existing 3 travel lanes (includes turn lanes) to provide a shared through and left-turn lane, through lane, and right-turn lane.
		Westbound Approach	Reconfigure existing 3 travel lanes (includes turn lanes) to provide a shared through and left-turn lane, through lane, and right-turn lane.
	Jennings	Southbound Approach	Reconfigure to provide a southbound left-turn pocket, a shared southbound through and right-turn lane. The reconfiguration of the southbound approach would require displacement of about 200 feet of on-street parking on the west side of Jennings Street, which would eliminate about 8 to 10 parking spaces.
		Southwest Approach	Remove southwest leg.
Palou / Griffith / Crisp	Crisp	Westbound Approach	Re-stripe westbound approach to provide two approach lanes, a left-turn lane and a shared left/through/right lane.
	Griffith	Northbound Approach	Reconfigure to provide 2 approach lanes- a shared left/through/right-turn lane and a right-turn lane. The reconfiguration of the northbound approach requires displacement of approximately 200 feet of on-street parking on the east side of Griffith Street, which would eliminate about 8 to 10 parking spaces.
	Palou	Eastbound Approach	Reconfigure to provide 2 approach lanes - a left-turn lane, and a shared through and right-turn lane
Thomas / Ingalls	Thomas	Westbound Approach	Reconfigure to provide 2 lanes, a left-turn lane and a shared through and right-turn lane

Other Traffic Control

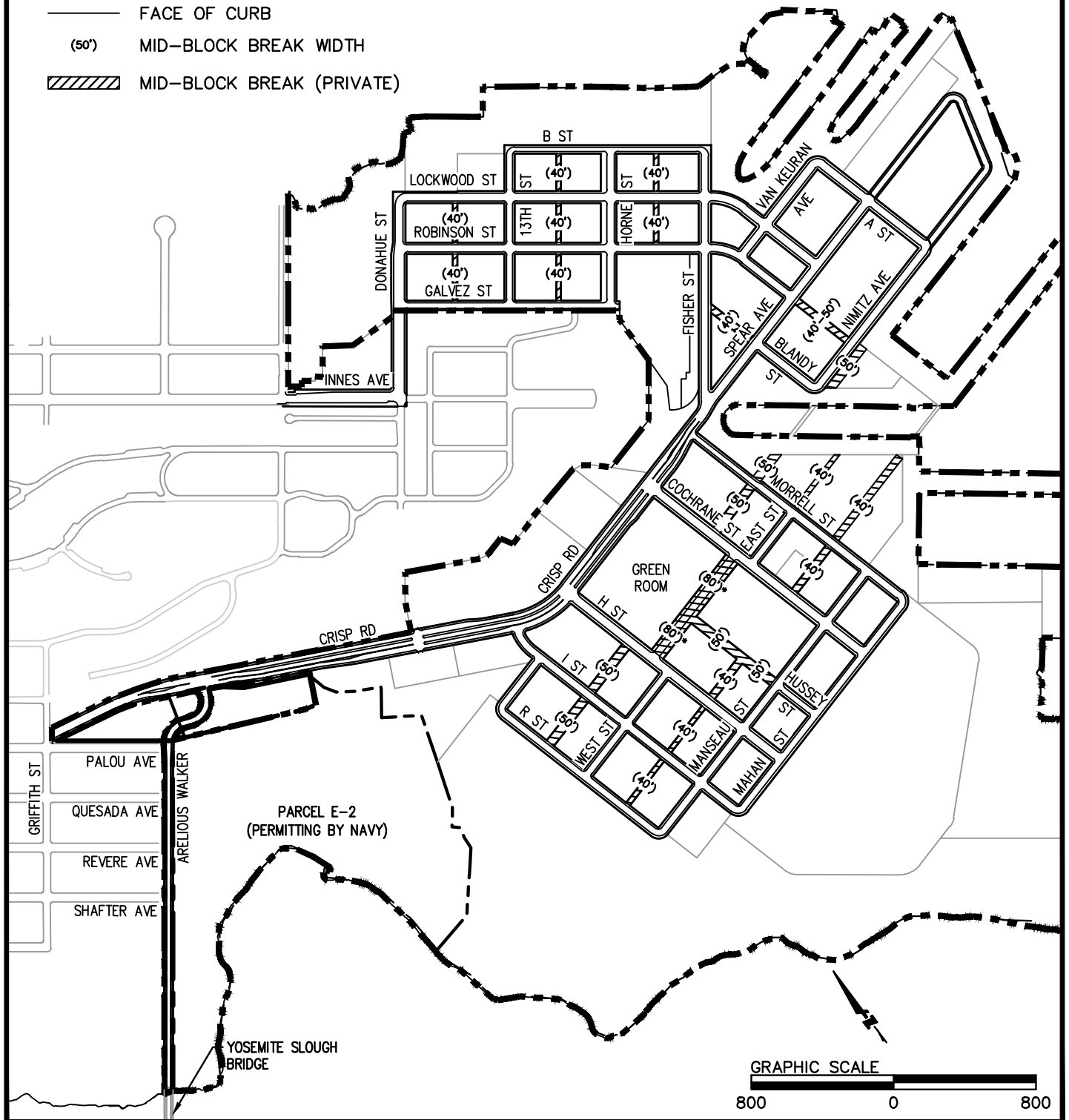
At other off-site intersections on roadways being reconfigured or modified by the project, where traffic signals are not installed, traffic control devices shall remain the same as existing conditions. New traffic control devices will not be required at other off-site intersections unless specifically identified in this Infrastructure Plan.

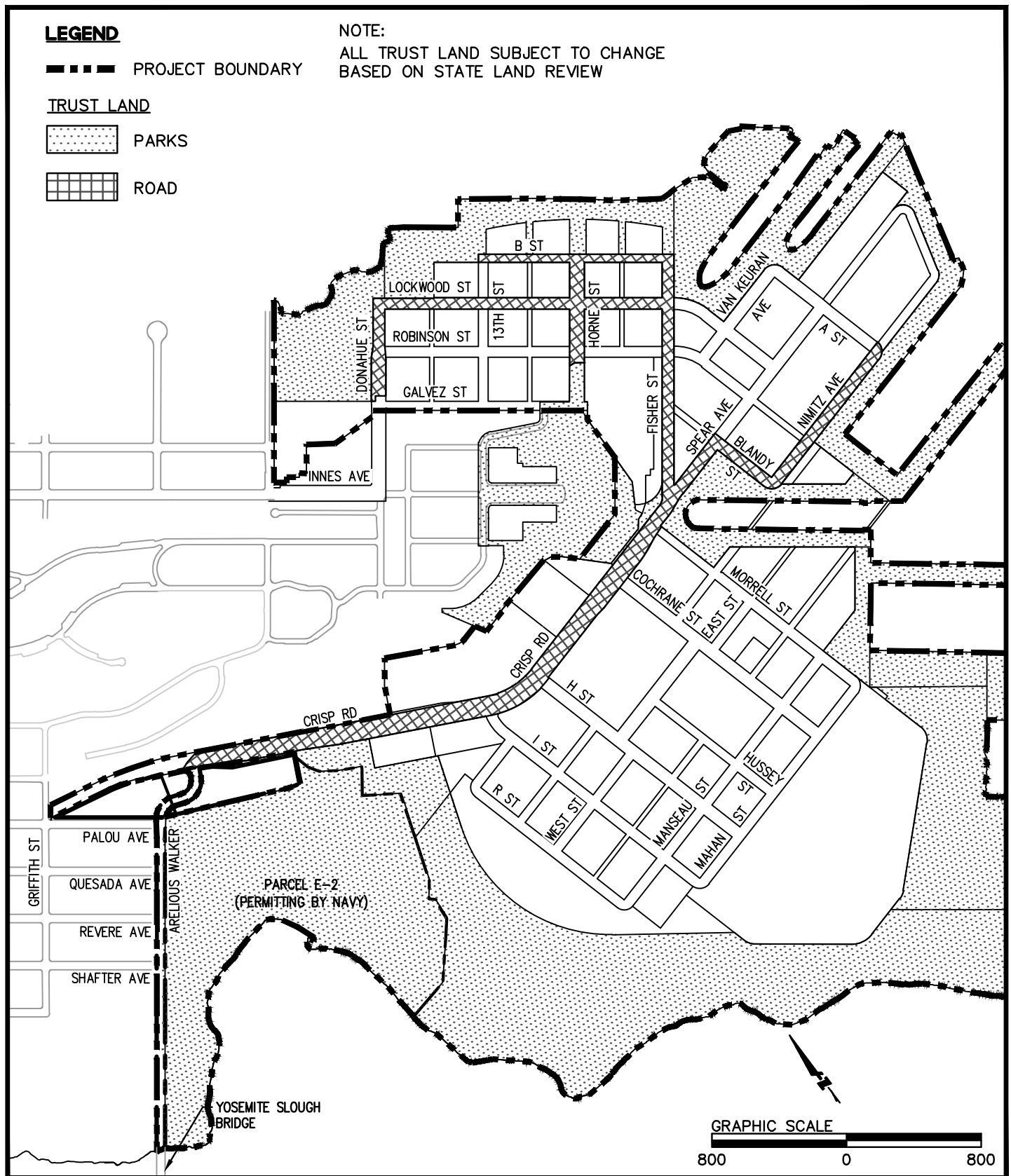
LEGEND

- PROJECT BOUNDARY
- RIGHT OF WAY
- FACE OF CURB
- (50') MID-BLOCK BREAK WIDTH
- ▨ MID-BLOCK BREAK (PRIVATE)

NOTE:

*MID-BLOCK BREAK WIDTHS SUBJECT TO CHANGE. SEE DESIGN FOR DEVELOPMENT FOR ADDITIONAL DETAILS.



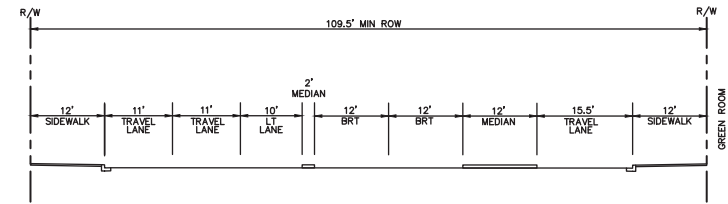




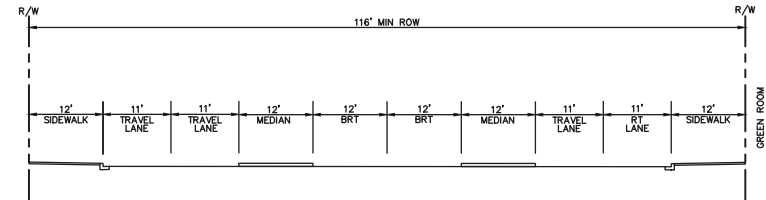
- ① Park with multi-use paths is adjacent to the street. The alignment of Arelious Walker at Crisp Road is subject to change; however, the cross-section at this intersection is fixed. The cross section of the Yosemite Slough Bridge will be refined as bridge designs advance.



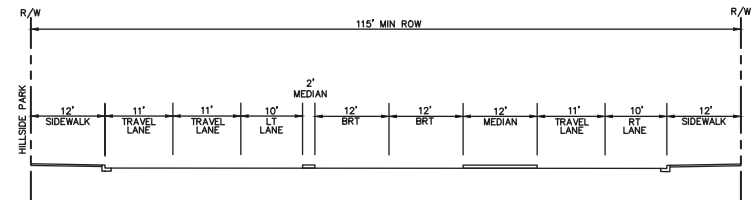
■ ■ ■ ■ Crisp Road, east of H Street



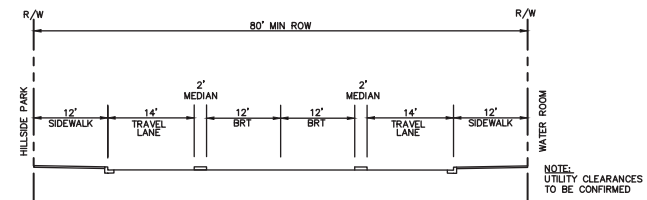
||||| Crisp Road, west of Cochrane Street



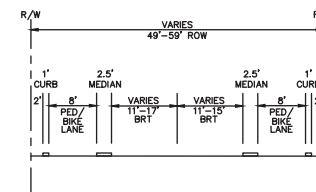
● ● ● ● Crisp Road, east of Cochrane Street

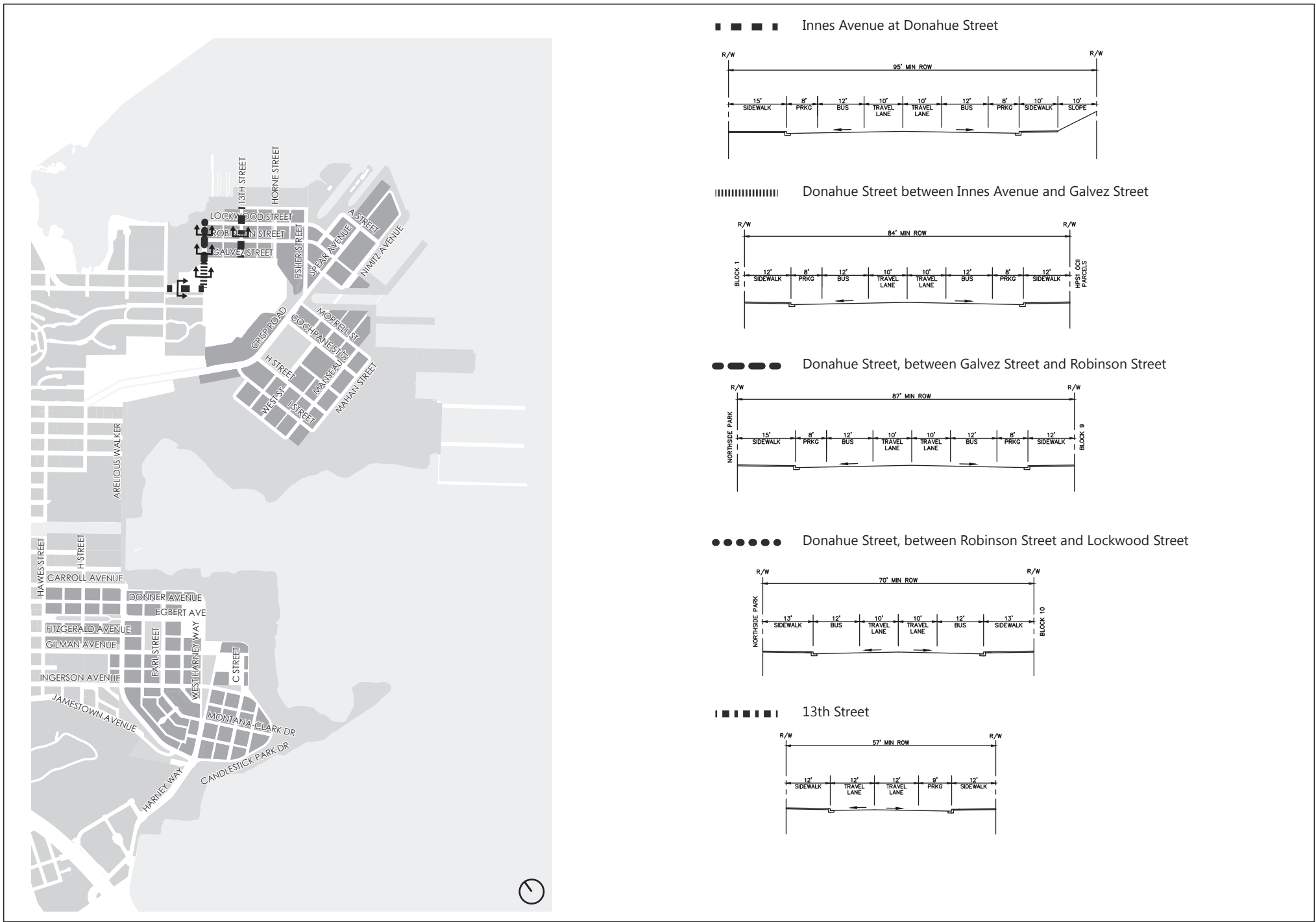


● ● ● ● ● Crisp Road, between Morrell Street and Fisher Avenue

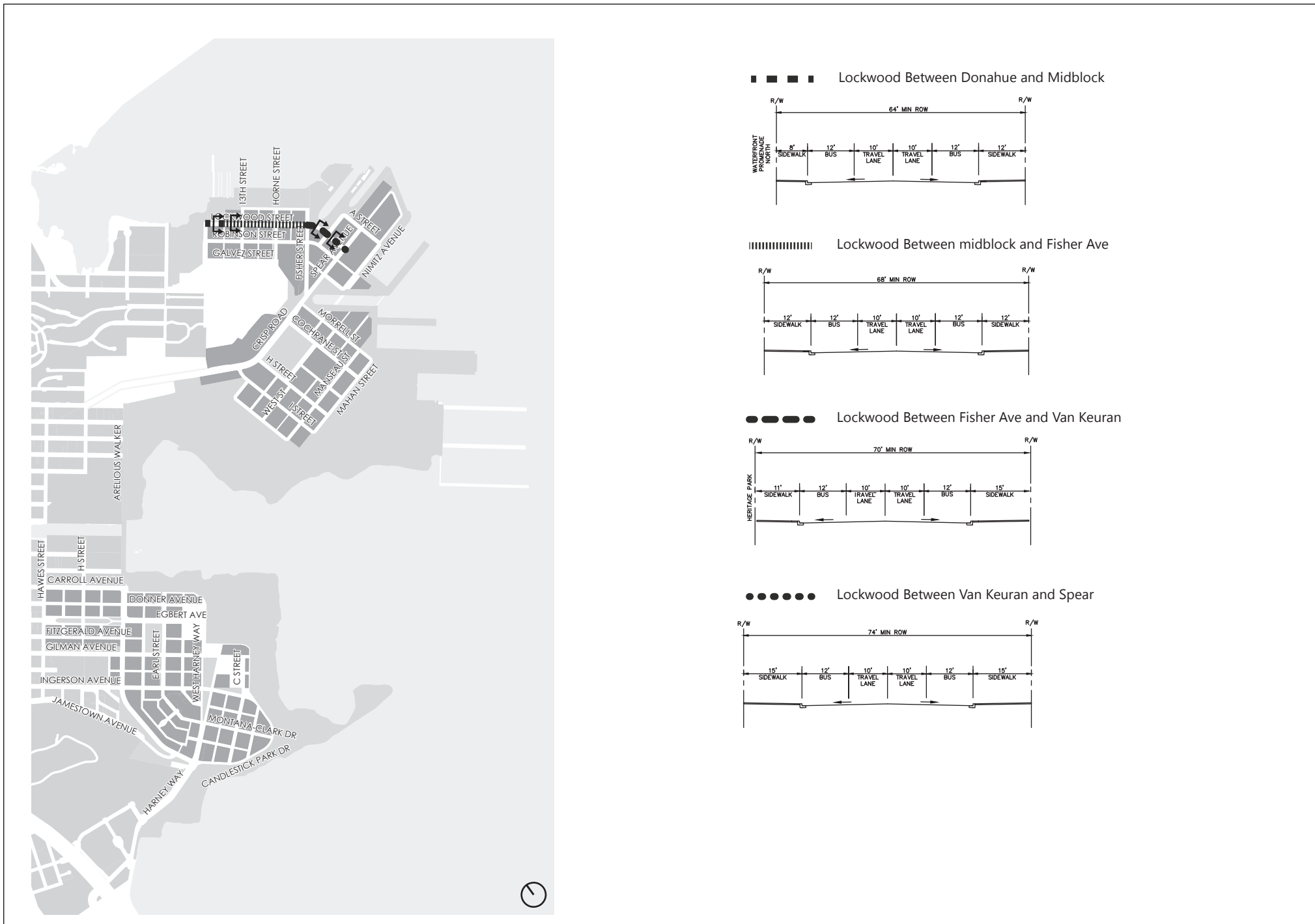


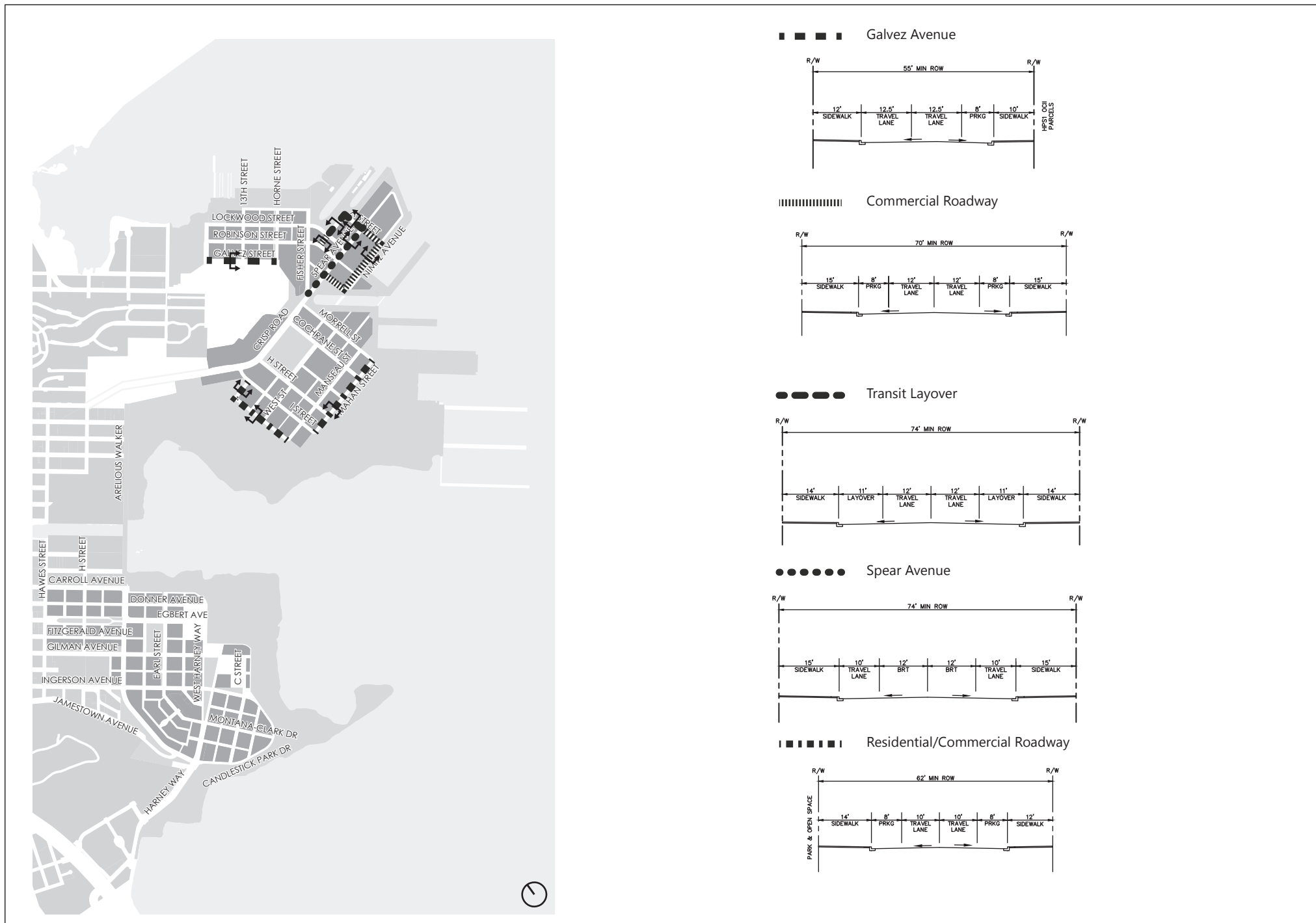
||||| Arelious Walker, south of Crisp Road ①

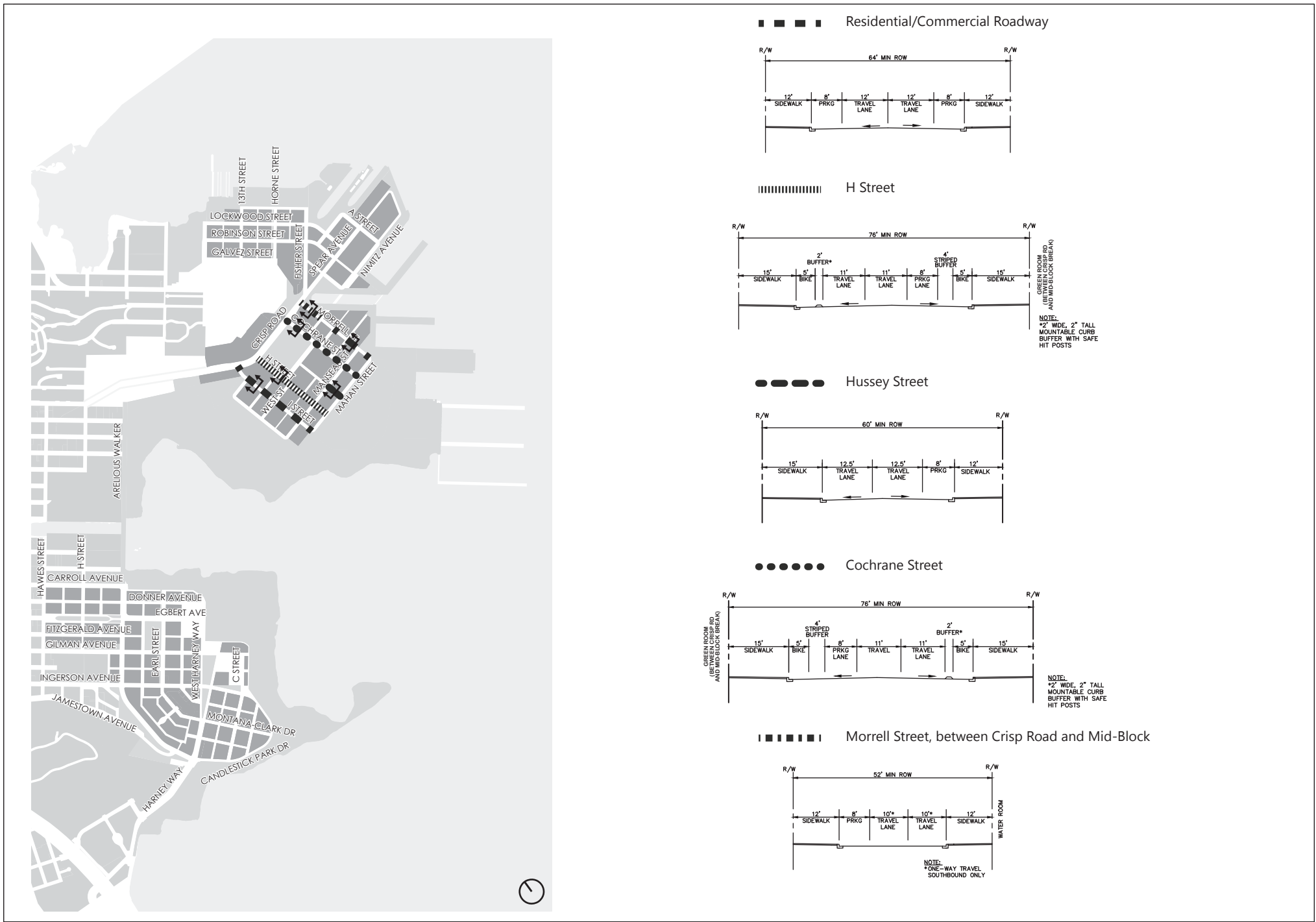




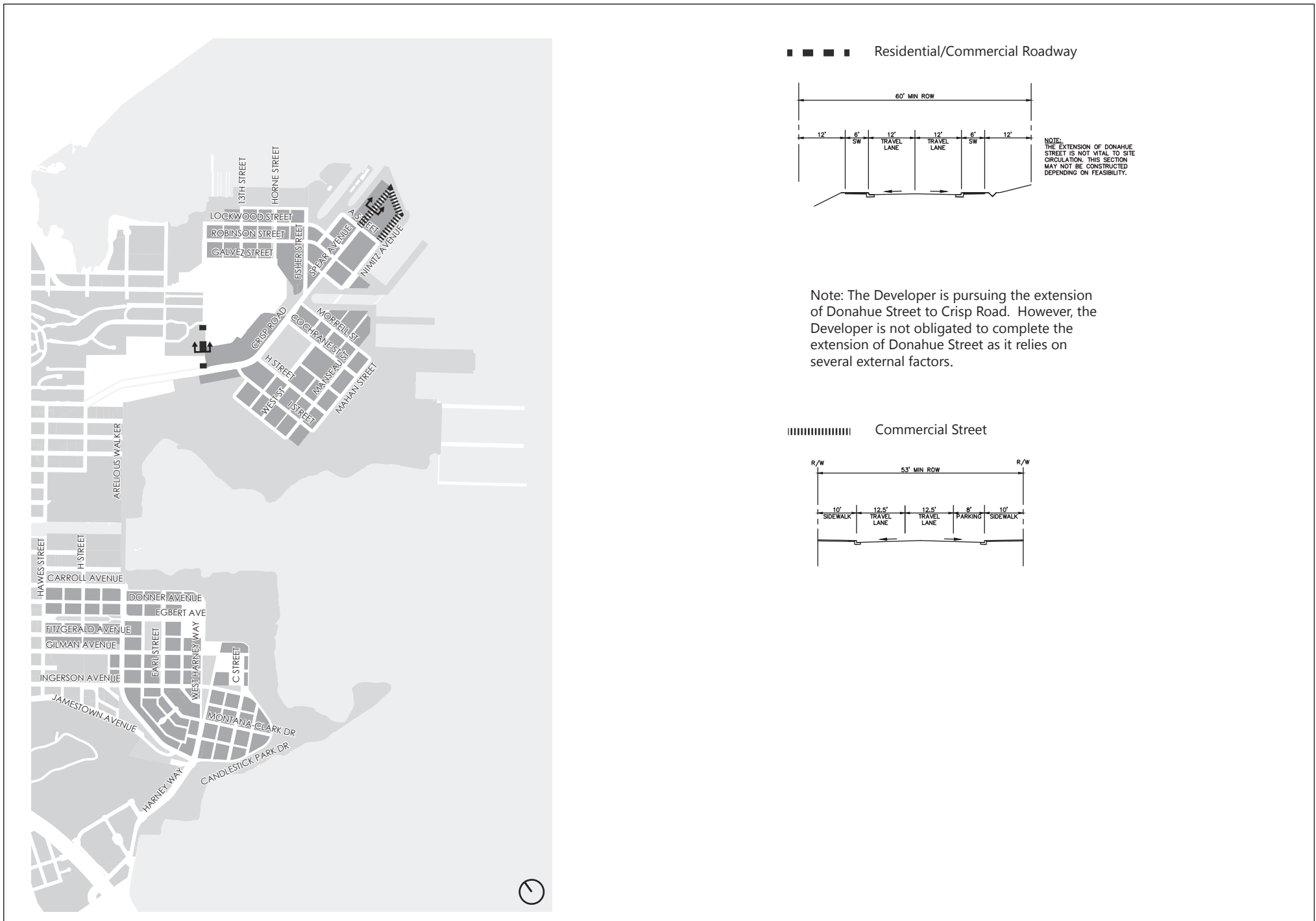










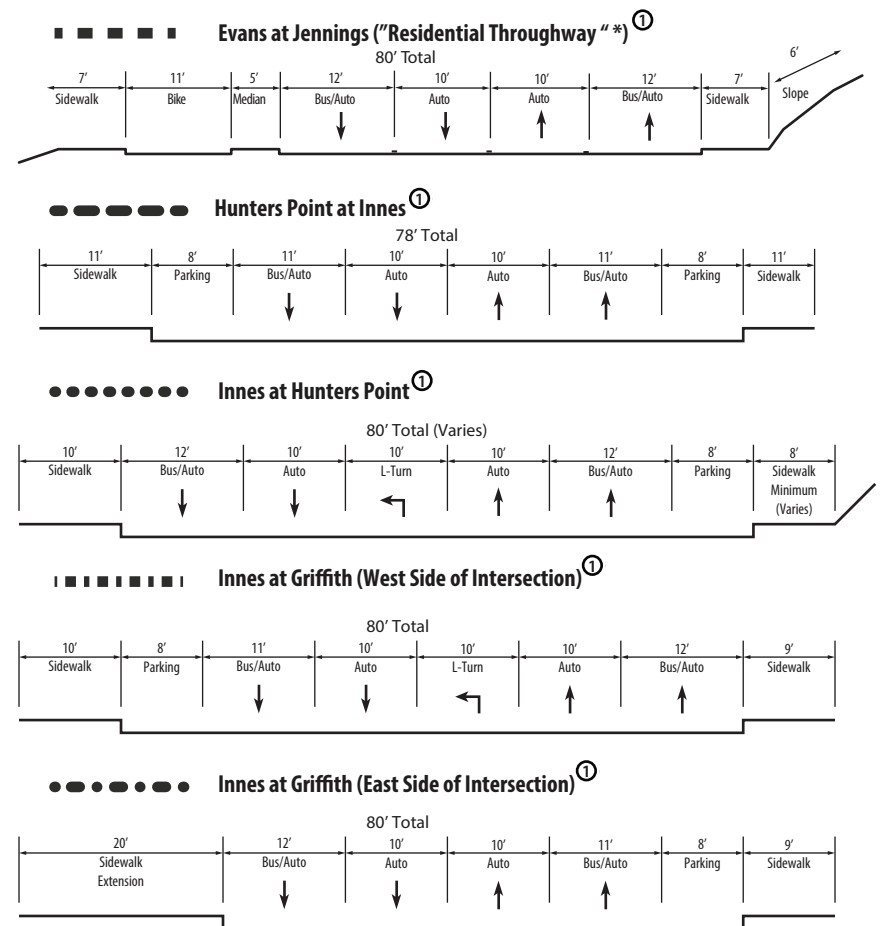


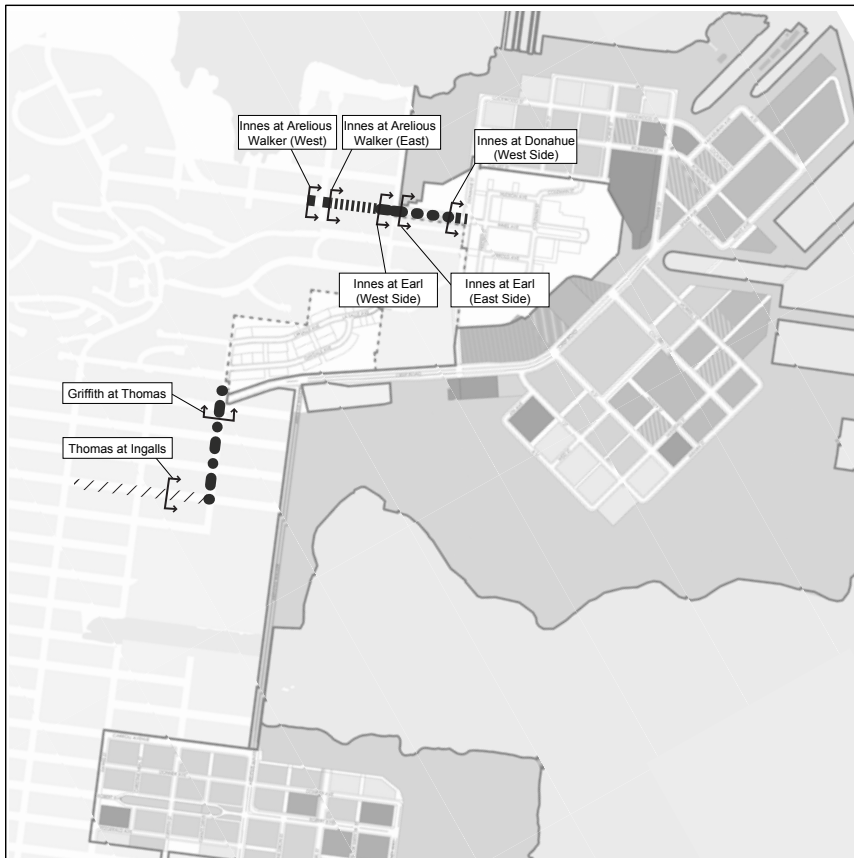


SECTIONS NOT TO SCALE

① Typical sections shown here represent the most constrained portion of the Right-of-Way. Parking, turn lanes and sidewalk widths vary within blocks along the corridor.

* Street type based on typology developed in the City of San Francisco Draft Better Street Plan, June 2008.



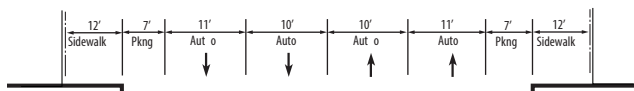


SECTIONS NOT TO SCALE

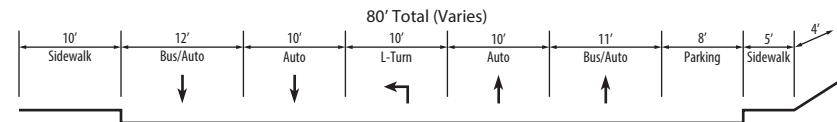
- ① Typical sections shown here represent the most constrained portion of the Right-of-Way. Parking, turn lanes and sidewalk widths vary within blocks along the corridor.
- ② Truck loading is permitted on either side of Ingalls and Griffith from 6 AM to 4 PM; parking/loading lane becomes auto travel lane from 4 PM to 7 PM.

* Street type based on typology developed in the City of San Francisco Draft Better Street Plan, June 2008.

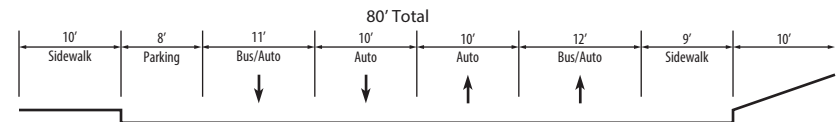
Thomas at Ingalls ("Industrial Mixed-Use Street"*) (Existing ROW = 80') ① ②
80' Total



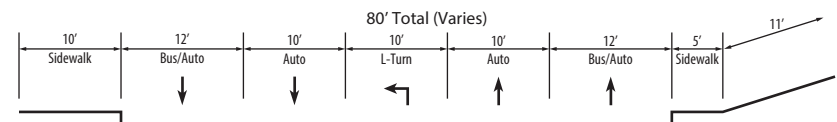
Innes at Arellous Walker (West Side of Intersection) ①



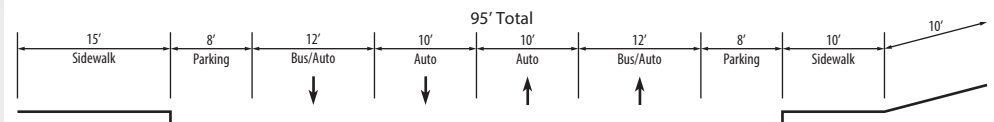
Innes at Arellous Walker (East Side of Intersection) ①



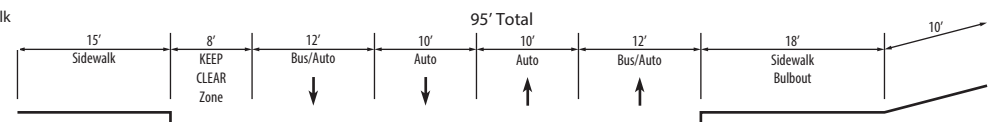
Innes at Earl (West Side of Intersection) ①



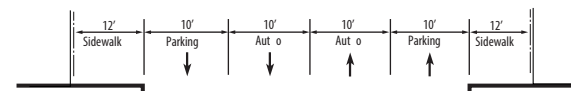
Innes at Earl (East Side of Intersection) ①

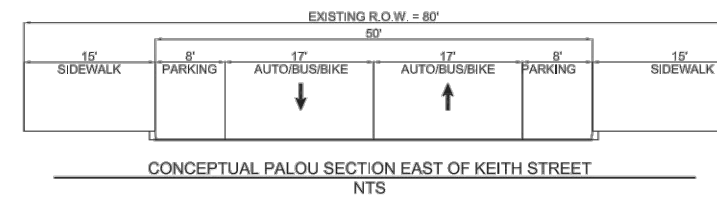
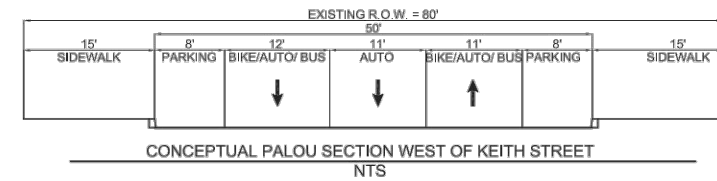
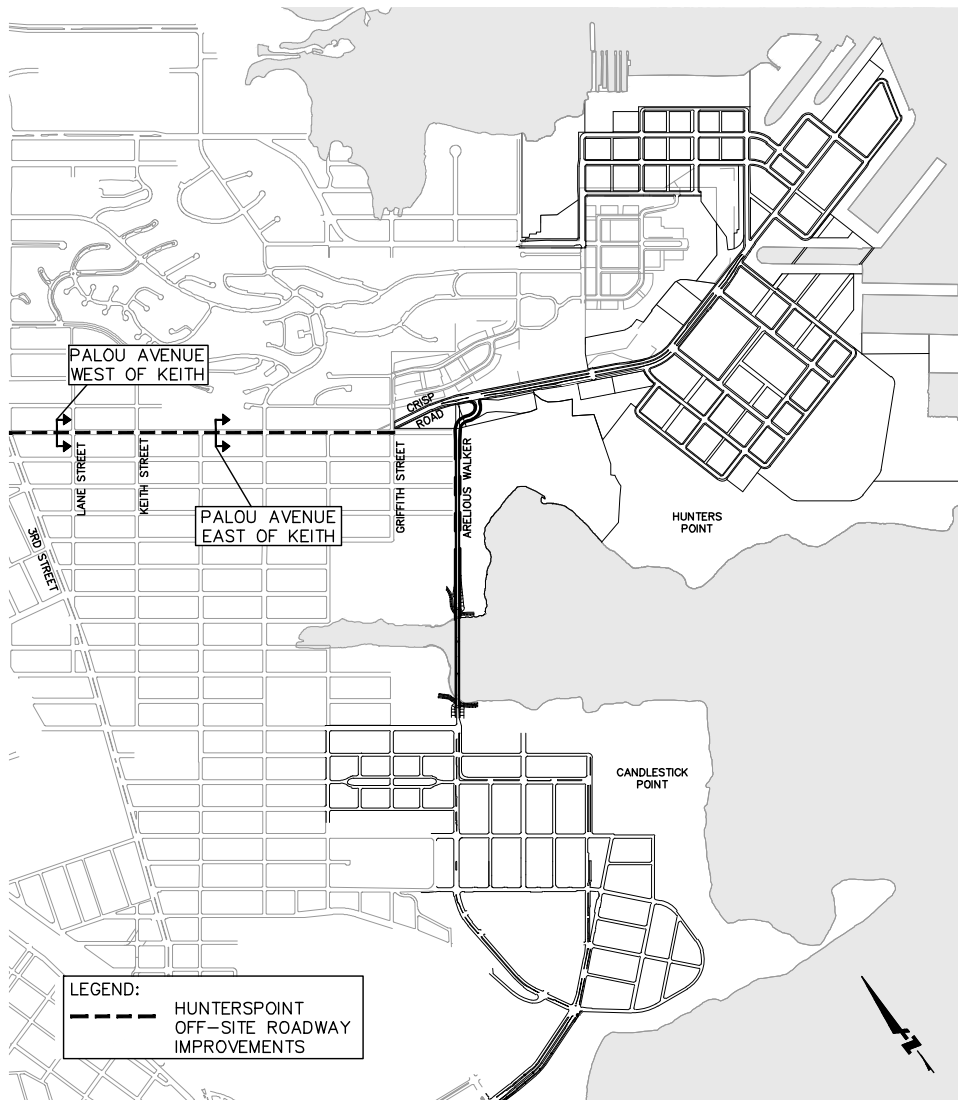


Innes at Donahue (West Side of Intersection) ①



Griffith at Thomas ("Industrial Mixed-Use Street"*) (Existing ROW = 64') ① ②
64' Total





- REFERENCE:
1. CONCEPTUAL SECTION LAYOUTS PROVIDED BY F&P
 2. CITY AND COUNTY OF SAN FRANCISCO STREET SHAPE FILES DOWNLOADED JUNE 2009.

- NOTES:
1. FOR LIMITS OF WORK, REFER TO TEXT DESCRIPTIONS OF IMPROVEMENTS.

HUNTERS POINT SHIPYARD PHASE II DEVELOPMENT

OFF-SITE ROADWAY IMPROVEMENTS – PALOU AVENUE

FIGURE
2.1.4

2.2 MUNI IMPROVEMENTS

As described in the Project Transportation Plan, MUNI intends to provide an increased level of service to the HPS2 Area, including a new Bus Rapid Transit (BRT) route (extension of 28L-19th Avenue Limited), extensions of several motor coach routes (23-Monterey, 24-Divisadero, 44-O'Shaughnessy, and 48-Quintara), and introduction of a new express motor coach route (HPS2X – Hunters Point Express). Service improvements that MUNI intends to operate are illustrated on Figure 2.2.1.

There may be necessary or desirable revisions to MUNI transit plans for services described herein, as a result of the review and legislative approval process associated with service implementation, the development of proposals which better serve the CP Area or the HPS2 Area of the Project and/or their adjacent neighborhoods, integration with changes to MUNI service elsewhere in the City, particularly the southeast quadrant of the City, or other reasons. In addition, the Project is not required to meet “light rail ready” standards, nor is it required to accommodate the Overhead Contact System.

The following transit services will be provided by Developer and MUNI, as described herein:

HUNTERS POINT TRANSIT CENTER

In consultation with MUNI, the Developer will develop and provide a new Hunters Point Transit Center (Transit Center). Most of the bus lines serving Hunters Point Shipyard (including Muni lines 24-Divisadero, 44-O'Shaughnessy, and 48-Quintara) would be extended into Hunters Point Shipyard and would stop at the transit center allowing quick and immediate transfers to other lines. The Transit Center shall be located within the block encompassed by Spear Avenue, A Street, Lockwood Street, and Van Keuran Avenue and shall include ten bus bays, shelters, ticketing kiosks, real-time transit information technology, a bike station, operator restrooms, and office space for the CP and HPS2 TDM Coordinator. If office space cannot be provided at the Transit Center, the Developer shall provide office space for the TDM coordinator at an alternate location. Once constructed, the City shall maintain the Transit Center, except for the TDM coordinator office space, which shall be maintained by Developer.

The Developer will work with SFMTA to determine the infrastructure requirements for electric bus charging at the Transit Center. Responsibility for the cost of the charging equipment will be determined once the technology is confirmed. The Developer will provide joint trench sub-

structures for primary service for end of line charging for electric buses at the Transit Center. Space will be provided for this infrastructure at the Transit Center, both subsurface and at grade.

BUS RAPID TRANSIT (BRT)

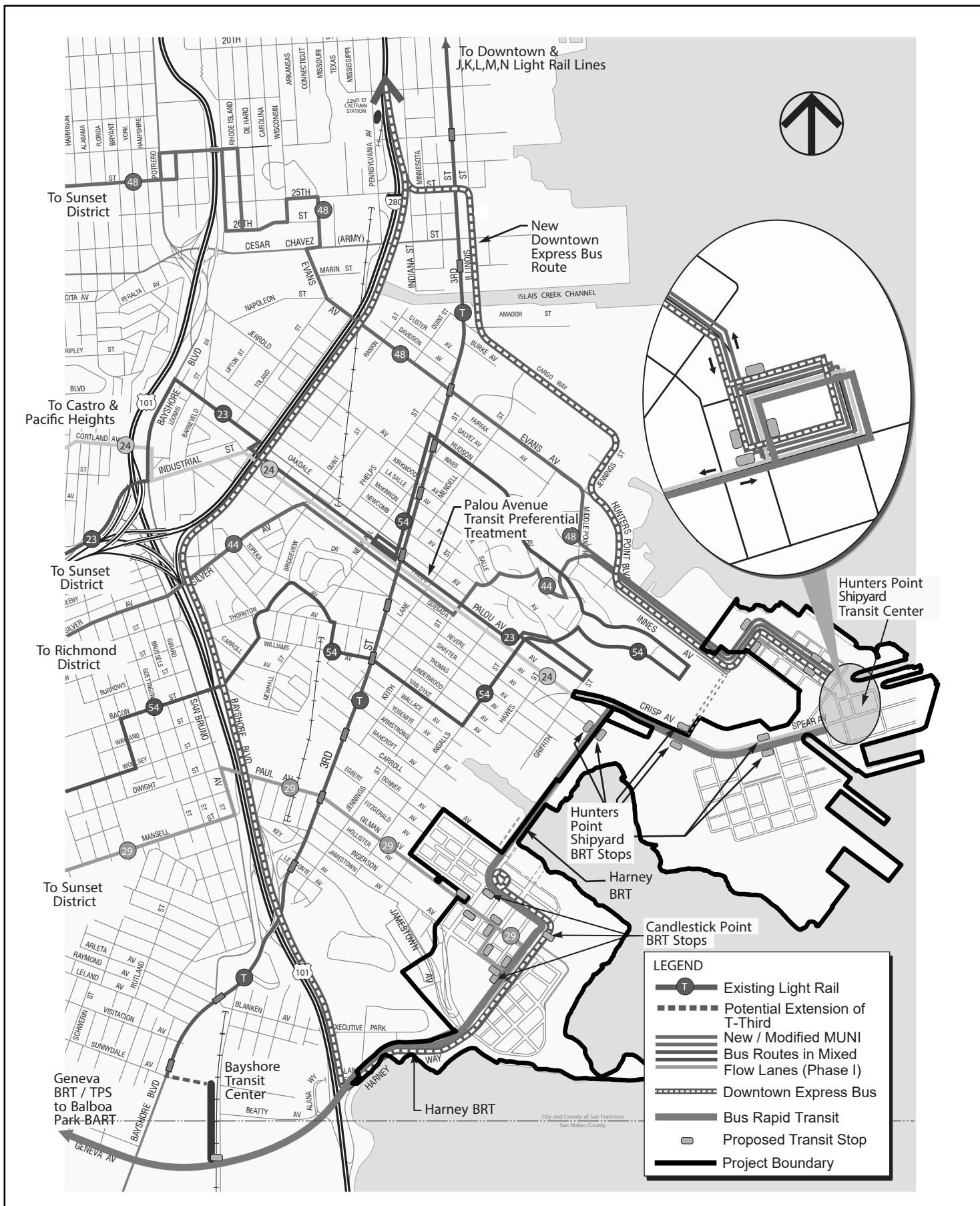
Developer and City shall participate in the planning, design and construction of transit-only lanes and stations in the HPS2 area, as described herein, to accommodate new BRT service. Within the HPS2 area, transit only lanes will travel across the Yosemite Slough Bridge along Arellious Walker Drive, Crisp Road and Spear Avenue into the Hunters Point Transit Center. Four BRT stops will be constructed within the Hunters Point Shipyard Development Area, including the Hunters Point Transit Center. BRT stops shall be designed and constructed according to standards developed for other ongoing BRT studies in San Francisco at the time of adoption of this Plan, including along Geary Boulevard and Van Ness Avenue.

The Developer will provide facilities for bus stop locations, including but not limited to: a 10-inch thick PCC bus pad, electric service pull box, communication system pull box, and minimum 8-foot wide sidewalk to provide clearance for potential future transit shelters that might be provided by others. The precise location of such facilities shall be determined in consultation with the City. If the Developer modifies entrances and/or exits that affect MUNI facilities, such as bus terminal areas or bus stops, the Developer will work with MUNI to develop acceptable mitigation measures. The Developer will bear the reasonable costs of relocation of MUNI facilities if needed.

MOTOR COACH ROUTES (23-MONTEREY, 44-O'SHAUGHNESSY, 48-QUINTARA, HPX-HUNTERS POINT EXPRESS)
MUNI shall extend existing motor coach routes and create a new Downtown express route to serve the HPS2 Area. The City shall install and maintain transit shelters, including related furniture, adjacent to selected transit zones on land owned by the City (unless otherwise agreed by the Developer) along these routes, as depicted on Figure 2.2.1. The precise location of such facilities shall be determined in consultation with Developer. If the Developer modifies entrances and/or exits that affect MUNI facilities, such as bus terminal areas or bus stops, the Developer will work with MUNI to develop acceptable mitigation measures. Developer will bear the reasonable costs of relocation of MUNI facilities if needed.

PALOU AVENUE TRANSIT PREFERENTIAL STREET (TPS) TREATMENTS

As part of installation of new traffic signals along Palou Avenue between Third Street and Griffith Street (see Section 2.1.3), Developer will provide or construct signal interconnect, equipped with transit signal priority devices.



2.3 WET UTILITIES

The following section describes Infrastructure for the separated sanitary sewer, separated storm drainage, low pressure water, recycled water and Auxiliary Water Supply System (AWSS), which shall, except as otherwise indicated, be provided by the Developer in connection with the development of the HPS2 Area of the Project. Permitting and infrastructure associated with Navy Parcel E-2 will be completed by the Navy. As described in Section 1.5, a Technical Memorandum or other Draft Master Utility Plan presenting the hydraulic analysis and planning criteria for proposed build-out development for each public wet and dry utility system of the Project has been prepared by the Developer and submitted to the San Francisco Public Utilities Commission (SFPUC) for review. Improvements delineated in this Infrastructure Plan summarize the major elements of the respective systems. Pursuant to SFPUC policy at the time of the adoption of this agreement, Infrastructure that will be owned by the City or a department thereof will be placed in a dedicated rights-of-way or easements prior to acceptance. Other utilities may be placed in public utility easements pursuant to the criteria of the respective utility providers. Locations of utilities shown in this Infrastructure Plan are schematic and are subject to final alignment design and easement or dedication through the Subdivision Land Act Mapping process.

2.3.1 SEPARATED SANITARY SEWER

The separated sanitary sewer flows for the HPS2 Area development will be collected by a separated sanitary sewer system as shown on Figure 2.3.1. The system consists of separated sanitary sewer gravity mains, force mains, and 7 lift and/or pump stations. The Project's sanitary sewer flow will ultimately drain to a sanitary sewer pump station located at Horne Street and Robinson Street where it will be pumped to a sanitary sewer manhole at Innes Avenue and Donahue Street. From there and as directed by the SFPUC, a separated sanitary sewer gravity main will connect into the existing combined sewer gravity main within Innes Avenue that drains to the Southeast Treatment Plant. No improvements are required to rehabilitate any portion of the City's combined sewer system or the City's pumping stations outside the boundary of the HPS2 Area.

Four lots fronting Galvez Avenue near Donahue Street on the Hunters Point Phase I Hilltop project are currently designed with a separated sanitary sewer system that will be pumped on an interim basis to the Hilltop sanitary sewer gravity system. Upon completion of the HPS2 separated sanitary sewer system, these lots will be connected to the new sewer main in Galvez Avenue. The Developer will make this connection and abandon the small lift station and its force main once connection has been made to the HPS2 Area Separated Sanitary Sewer System. Rehabilitation of the existing combined gravity sewer pipeline and support system, if required, would be provided by the City.

No improvements are required by the Developer to any portion of the City's combined sewer systems or City's pumping stations outside the boundary of the HPS2 Area development. Portions of the existing combined sewer within the HPS2 Area development may be removed and or abandoned by the Developer where reuse is not compatible with Project objectives. The City will not accept existing facilities or be responsible to replace or rehabilitate any existing facilities within the Project Boundary. No sanitary sewer service connection will be permanently interrupted.

The Separated Sanitary Sewer System will be designed in accordance with the Subdivision Code and Project Subdivision Regulations. In addition, the Separated Sanitary Sewer System will be conceptually designed in a final Sanitary Sewer System Master Plan for the Hunters Point Shipyard Phase II Development, prepared by BKF Engineers that has been submitted by the Developer to the City, and a supporting Sanitary Sewer Memorandum by BKF Engineers. In subdivision processing, including the review and approval of subdivision improvement plans, the precise location and final design of the Separated Sanitary Sewer System Infrastructure will be consistent with this Infrastructure Plan and an approved Sanitary Sewer System Master Plan for the Hunters Point Shipyard Phase II Development.

The design criteria used for the development of the Separated Sanitary Sewer System is based upon established industry operations standards, regulatory agency requirements, and Project Subdivision Regulations, and is consistent with criteria utilized for recent developments with separated sanitary sewer systems within the City and County of San Francisco. Design criteria have been presented to, and reviewed by, the SFPUC Wastewater Enterprise.

The proposed Separated Sanitary Sewer System has been configured to handle the sewer flows based on the land use plan and defined development contained in the Plan or Plan Documents. The proposed separated sanitary sewer system shall be constructed in compliance with the Subdivision Regulations..

Upon acceptance of the Separated Sanitary Sewer System by the City, the SFPUC will assume responsibility for the operation and maintenance of all facilities, including responsibility for compliance with all regulations and mitigation measures.

Reuse of any particular portion of the existing gravity combined sewer and support system in the manner described above shall be subject to further review by the SFPUC of the Developer's reuse proposal. Such review shall include an assessment of the condition of the existing pipe(s) performed by the Developer using a technical assessment methodology approved by the SFPUC prior to any

construction or excavation work in the vicinity of the systems in question. Such review shall also take into account the system in which the existing combined sewer is proposed for reuse and the proposed rehabilitation methodology. The SFPUC will bear costs of rehabilitation if and to the extent the technical assessment of the sewer pipe reveals conditions that the SFPUC would address under its typical practice with respect to maintaining and rehabilitating combined sewer pipes.

2.3.2 SEPARATED STORM DRAINAGE

The separated storm drainage flows for the development will be conveyed by a Separated Storm Drainage System as shown on Figure 2.3.2. In addition, overland flow drainage from the HP Phase I Development area along Donahue and Coleman Streets will be tributary to the proposed storm drain system within the norther development blocks of Shipyard Site. Piped stormwater flows from HP Phase I development in Donahue Street will be treated in the Northside Park consistent with SFPUC Stormwater Management Requirements and Design Guidelines (SMR) before discharging to San Francisco Bay through proposed Outfalls A and B within the northern area of the Shipyard Site.

The Separated Storm Drainage System will consist of Low Impact Design (LID) features to treat the 2-year 24-hour design storm, a 5-year piped collection system, and 100-year storm event overland release system. The HP Area will be designed to comply with the SMR and Stormwater Management Ordinance (SMO). As required by the SMR, the HP Area will develop a Preliminary and Final Stormwater Control Plan (SCP) that will be submitted concurrently with the Basis of Design and final construction documentation for approval by the SFPUC, respectively. Stormwater BMPs, including decentralized and centralized bio-retention treatment facilities, will be designed such that the bottom of the stormwater treatment bio-retention soil mix is above the 5-yr HGL for the storm drainage system. The starting hydraulic grade line design elevation for the storm drain system will be 100.2 feet (100-year tide elevation of 98.2 + 24-inches of SLR).

LID strategies will be used to meet the required SMR performance measure across the site. LID strategies include, but are not limited to, infiltration trenches, vegetated swales, vegetated rock filters, bio-retention devices, flow-through planters, permeable pavements, tree well filter units, and other LID technologies. The selection of LID features will be made through studies and through the design process and will involve the use of context-sensitive features that complement the proposed streetscape, open spaces, and accompanying Infrastructure. Runoff will be treated, as defined by the SMR, before discharging into the separate storm drain system and being delivered to San Francisco Bay.

The 5-year piped system will consist of gravity mains draining to San Francisco Bay. The overland flow releases for the 100-year minus 5-year flow will be conveyed through pipes and streets from face-of-curb to face-of-curb, into a junction box, and through a gravity pipe that will discharge to San Francisco Bay via six outfalls subject to approval of the associated Master Utility Plan. Discharges to the San Francisco Bay will be made consistent with the Project Storm Water Management Plan (SWMP) and the National Pollution Discharge Elimination System (NPDES) permit, and applicable requirements of the Trash Amendments (Trash Capture) of the California State Water Resources Control Board. Storm Drain main sizes range from 12 inches to 72 inches in diameter.

Runoff from proposed Arelious Walker will be collected in a separated storm drain system that discharges to the adjacent combined sewer system serving the properties to the east of the proposed right-of-way. Stormwater runoff directed to the CSS from the proposed Arelious Walker must be managed per the SMR and associated CSS performance requirements.

The overland release system consists of the 5-year collection system, the street network, open space areas and other designated areas or approved corridors, some or all of which may require easements from State agencies. The Project will require several overland release discharge facilities to San Francisco Bay.

Grading of the HPS2 Area shall be performed in compliance with the Project Risk Management Plan. Consistent with the Project Subdivision Regulations, the development areas near San Francisco Bay will be set at a minimum top of curb elevation of 100.2 feet, Project Datum. The minimum first floor building elevation shall be no lower than 103.7 feet, Project Datum. Subterranean levels may be included, with appropriate protection measures as required by the SFPUC and City Health Department to be designed by the respective property owners at the time of building design.

The Separated Storm Drainage System, including LID features will be designed in accordance with the Subdivision Code, Project Subdivision Regulations, and the SMR. In addition, the Separate Storm Drain System will be conceptually designed in a final Hunters Point Shipyard Phase II Development Grading and Storm Drain System Master Plan prepared by BKF Engineers that has been submitted by the Developer to the City. In subdivision processing, including the review and approval of subdivision improvement plans, the precise location and final design of the Separated Storm Drainage System Infrastructure will be consistent with this Infrastructure Plan and the Hunters Point Shipyard Phase II Development Grading and Storm Drain System Master Plan.

The design criteria used for the development of the Separated Storm Drainage System is based upon established industry operations standards, regulatory agency requirements, and Project Subdivision Regulations, and is consistent with criteria utilized for recent developments with separated storm drain systems within the City of San Francisco. Design criteria have been presented to, and reviewed by, the SFPUC, which oversees the SMR and storm drainage system for the City.

The proposed Separated Storm Drainage System has been configured to meet the stormwater flows based on the land use plan and defined development contained in the Plan or Plan Documents. Gravity manholes, drainage inlets, laterals and other appurtenances will be constructed as required to meet HPS2 Area design standards. Upon acceptance of the Separated Storm Drainage System by the City, the City will assume responsibility for the operation and maintenance of all facilities, including responsibility for compliance with all regulations and mitigation measures. Should LID strategies include treatment of development parcels and open space areas in combination with public right-of-ways, such combined or centralized treatment areas and associated infrastructure required to meet SMR performance standards will be owned by OCII and maintained by the Master Developer or its Assignee, which will not be OCII. The centralized treatment area in Northside Park treatment facility that provides treatment for Hunters Point Naval Shipyard Phase 1 stormwater flows will be owned and maintained by the SFPUC.

2.3.3 AUXILIARY WATER SUPPLY SYSTEM (AWSS)

The Auxiliary Water Supply System (AWSS) and the Infrastructure to be constructed by Developer in connection therewith are identified on Figure 2.3.3. This system is also known as a high pressure-water supply system dedicated for fire protection, operated by the San Francisco Fire Department (SFFD), and owned and maintained by the SFPUC. The system serves as a source of fire protection in industrial, commercial and many residential districts. The system consists of cast iron or earthquake resistant ductile iron pipe (ERDIP), high pressure hydrants, valves and fittings, suction intakes, and appurtenances.

The HPS2 Area is not currently served by the AWSS. The City will extend the AWSS with transmission mains and appurtenances along Crisp Avenue from the intersection of Ingalls Street and Revere Avenue to the Project boundary and along Evans Avenue, Hunters Point Boulevard, Innes Avenue and Donahue Street from the intersection of Keith Street and Evans Avenue to the Project boundary. The Developer will provide a new AWSS loop within the development connecting with AWSS system infrastructure extending from this loop to the edges of the development as shown on Figure 2.3.3. Unless a future alternative design is approved by the SFFD

and the SFPUC in coordination with the Developer, the proposed AWSS system shall also have two (2) electrically operated remotely controlled valves on the mains at the connection points (if required), four suction intakes at the shoreline, high pressure hydrants throughout the system, a new saltwater pump station, and two fireboat wharf manifolds.

The SFPUC has determined there is limited hydraulic capacity to serve HPS2, and the current AWSS cannot meet the required pressures and flow. A salt water pump station is shown on Figure 2.3.3 as an alternative water source to be designed and constructed at the Developer's expense. However, the Developer and the SFPUC will work together to explore an alternative design that utilizes off-site facilities, or a combination of on-site and off-site facilities, instead of the salt water pump station shown, fire boat manifolds, suction intakes, and portable water supply tenders. Access for emergency vehicles to the Salt Water Pump Station, if constructed, will be coordinated with the SFFD during the permitting process. Should it be determined that this alternate design is desirable by both parties, the corresponding Master Utility Plan will reflect this change in design.

The Developer will design and construct, or pay for the reasonable costs of designing and constructing the AWSS as shown on Figure 2.3.3 or a future alternative design approved by the SFFD and the SFPUC in coordination with the Developer. The City will provide hydraulic modeling criteria for the AWSS MUP to be prepared by the developer and submit design plans to the Developer for coordination purposes. The City will use its best efforts to control the costs as agreed by the City and the Developer in the ICA, DDA, and other Plan Documents. Upon acceptance of the Auxiliary Water Supply System by the City, the SFPUC will assume responsibility for the operation and maintenance of all facilities, including responsibility for compliance with all regulations and mitigation measures.

2.3.4 LOW PRESSURE WATER SYSTEM

Potable water and fire flow demands for the HPS2 Development will be served by the Low Pressure Water System as shown on Figure 2.3.4. The Low Pressure Water System will deliver water supplied by the City, and will also serve as the supply for the recycled water system until such time as a recycled water supply is developed as described in Section 2.3.5 below.

The HPS2 Area will be supplied City water through connections to the City's University Mound Pressure Zone at two locations: 1) Palou Avenue and Griffith Street; and 2) Innes Avenue and Earl Street and through a connection to the Hunters Point Pressure Zone at Coleman Street between Galvez Street and Innes Avenue. No improvements are required by the Developer to the City water

system outside of these connection points. The Project water system has been designed to meet hydraulic grade line (HGL) elevations at the boundary conditions as shown in the following table:

Table 2.3.1 Hunters Point Shipyard Phase 2 Boundary Conditions

Connection Point	<i>Hydraulic Grade at Connection Point (feet)⁽¹⁾</i>					
	<i>@0 gpm</i>	<i>@500 gpm</i>	<i>@1,000 gpm</i>	<i>@1,500 gpm</i>	<i>@ 2,000 gpm</i>	<i>@3,500 gpm</i>
Palau Ave/Griffith St	267	266	262	256	247	237
Innes Ave/Earl St	268	265	261	254	245	234

Notes: ⁽¹⁾ CP/HPS2 Datum

In addition, the boundary condition for the connection to the Hunters Point Pressure Zone at Coleman Street between Galvez Street and Innes Avenue is defined by the “Hunters Point Naval Shipyard Phase 1, Parcel A’ Hydraulic Analysis of Low Pressure Water System” report by DMJM Harris dated July 18, 2007 and supporting model. The proposed Low Pressure Water System has been configured to meet the water demands based on the land use plan and defined development contained in the Plan or Plan Documents.

The proposed distribution system consists of a backbone of 16-inch transmission pipelines from the connection points and 12-inch (or smaller) pipelines throughout the majority of the development. Valves, pressure-reducing valves, blow-offs, air release valves, services, meters and other appurtenances will be constructed as necessary to meet system operational requirements. Where a Development block or parcel fronts a street with a transmission main pipeline, the Developer may request a design modification and exception request to utility standards and requirements subject to approval by the Director of Public Works with the consent of the SFPUC to allow for a lateral service connection to a transmission main.

The Low Pressure Water System will be designed in accordance with the Subdivision Code and Project Subdivision Regulations. In addition, low pressure water system will be conceptually designed in a final Low Pressure Water System Master Plan for the Hunters Point Shipyard Phase II Development prepared by BKF Engineers that has been submitted by the Developer to the City. In subdivision processing, including the review and approval of subdivision improvement plans, the precise location and final design of the Low Pressure Water System Infrastructure will be generally consistent with this Infrastructure Plan and the Low Pressure Water System Master Plan for the Hunters Point Shipyard Phase II Development.

The design criteria used for the development of the low pressure water system is based upon established industry operations standards, regulatory agency requirements, and Project Subdivision Regulations, and is consistent with criteria utilized for recent developments within the City. Design criteria have been presented to, and reviewed by, the City Distribution Division (CDD) of the SFPUC, as well as the San Francisco Fire Department (SFFD).

Upon acceptance of the Low Pressure Water System by the City, the SFPUC will assume responsibility for the operation and maintenance of all facilities, including responsibility for compliance with all regulations and mitigation measures.

2.3.5 RECYCLED WATER SYSTEM

The Recycled Water System as shown on Figure 2.3.5 will be constructed by the Developer and will be designed in accordance with the Subdivision Code and Project Subdivision Regulations. In addition, the Recycled Water System will be conceptually designed in a final Recycled Water System Master Plan for the Hunters Point Shipyard Phase II Development, prepared by BKF Engineers that has been submitted by the Developer to the City. In subdivision processing, including the review and approval of subdivision improvement plans, the precise location and final design of the Recycled Water System Infrastructure will be consistent with this Infrastructure Plan and the Recycled Water System Master Plan for the Hunters Point Shipyard Phase II Development.

The design criteria used for the development of the Recycled Water System is based upon established industry operations standards, regulatory agency requirements, and the Project Subdivision Regulations, and is consistent with criteria utilized for recent developments within the City. The design criteria have been presented to, and reviewed by the SFPUC.

The proposed Recycled Water System will be connected to the Low Pressure Water System on an interim basis via reduced pressure principle backflow prevention devices located in the general vicinity of connections of the Low Pressure Water System. These will occur in or near the following two intersections: 1) Palou Avenue and Griffith Street; 2) Innes Avenue and Earl Street; and potentially 3) Coleman Avenue and Hudson Avenue, if required to meet project demands. The locations of permanent connections to the yet-to-be-constructed recycled water supply are also anticipated to be in the general vicinity of these same locations.

The proposed Recycled Water System has been configured to meet the recycled water demands, based on the land use plan and defined development contained in the Plan or Plan Documents. The Recycled Water System is comprised of 6-inch, 8-inch, and 16-inch mains. Valves, pressure-

reducing valve, blow-offs, air release valves, services, meters, purple hydrants/fill stations, and other appurtenances will be constructed as necessary to meet City design standards. The proposed Recycled Water System includes services to all buildings, including residential, and irrigation services for parks and open spaces, in order to provide recycled water.

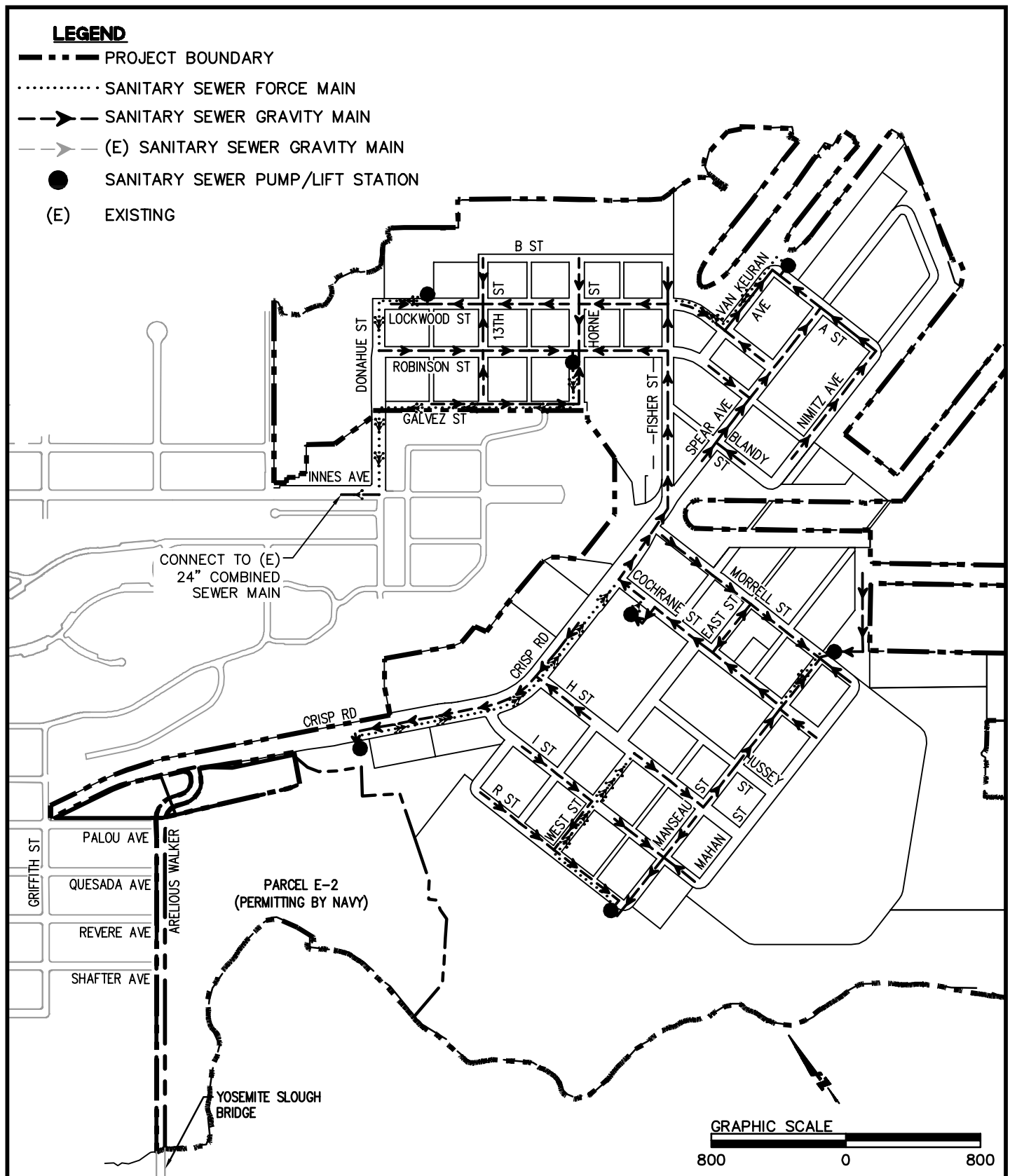
Unless an exemption to the Recycled Water Ordinance is requested by the Developer and granted by the SFPUC, the SFPUC will assume responsibility for the operation and maintenance of the Recycled Water System upon acceptance.

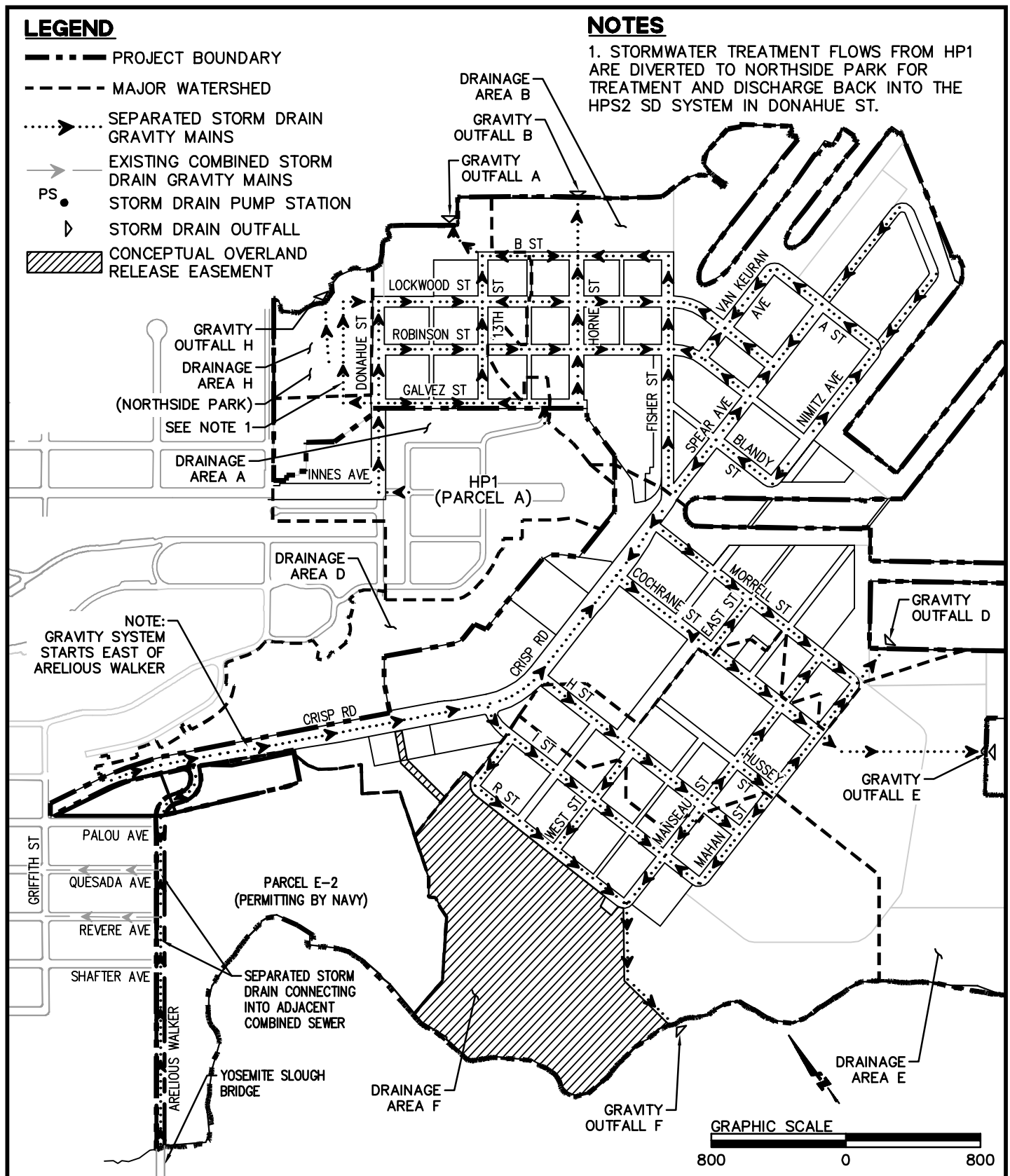
2.3.6 NON-POTABLE WATER

The Project is a Large Development Project for purposes of Article 12C.4 of the San Francisco Health Code (“Article 12C.4”). Accordingly, the Developer is undertaking feasibility analyses in order to identify an approach for generating recycled water on-site that will meet the requirements of Article 12C.4.

The Developer will comply with Article 12C.4, unless implementation of Article 12C.4 would be prohibited under Section II.D.1.c of the Hunters Point Shipyard Redevelopment Plan on the basis that it would conflict with development permitted or contemplated under that plan. By approving this plan, the City does not concede that any such conflict exists, or could exist, through application of Article 12C of the San Francisco Health Code.

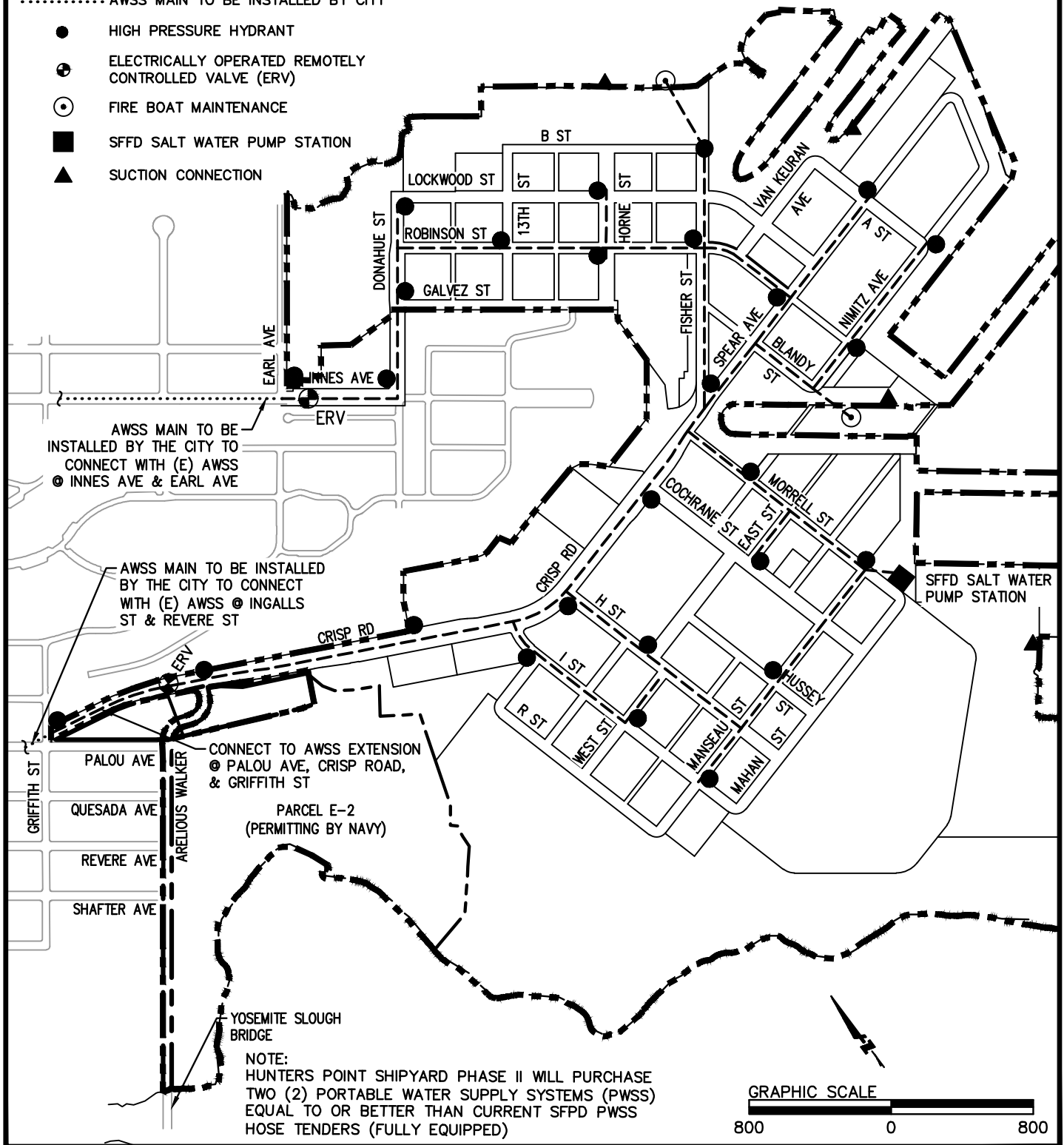
If the Project proceeds with a parcel by parcel approach, the Project may apply for an exemption from the Recycled Water Ordinance requirement to provide a Recycled Water System as described above in Section 2.3.5. If the Project proceeds with a district-wide non-potable water system, the Project will prepare a Non-Potable Implementation Plan for review and approval by the SFPUC.





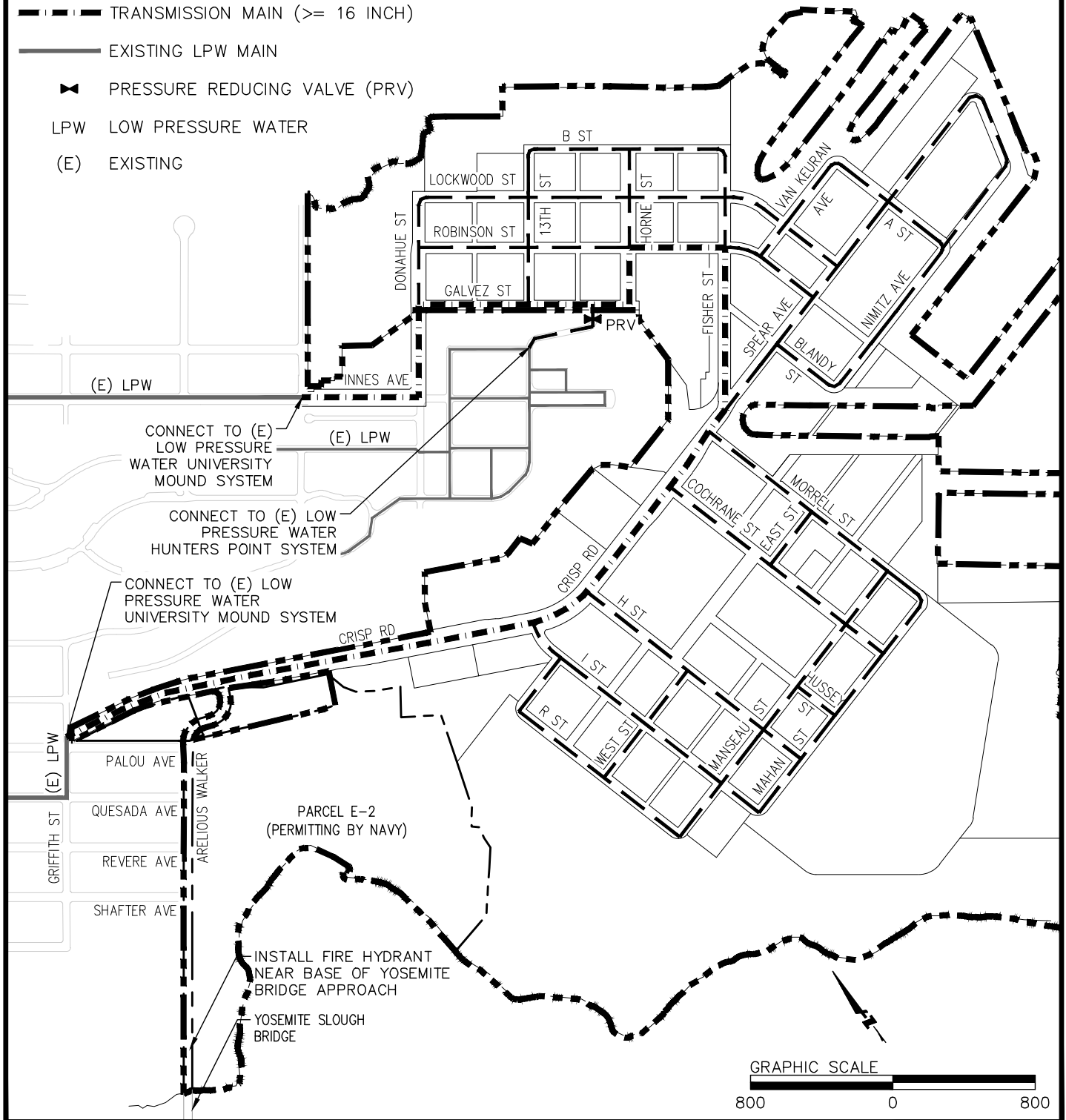
LEGEND

- PROJECT BOUNDARY
- AWSS MAIN
- AWSS MAIN TO BE INSTALLED BY CITY
- HIGH PRESSURE HYDRANT
- ⊕ ELECTRICALLY OPERATED REMOTELY CONTROLLED VALVE (ERV)
- ⊙ FIRE BOAT MAINTENANCE
- SFFD SALT WATER PUMP STATION
- ▲ SUCTION CONNECTION



LEGEND

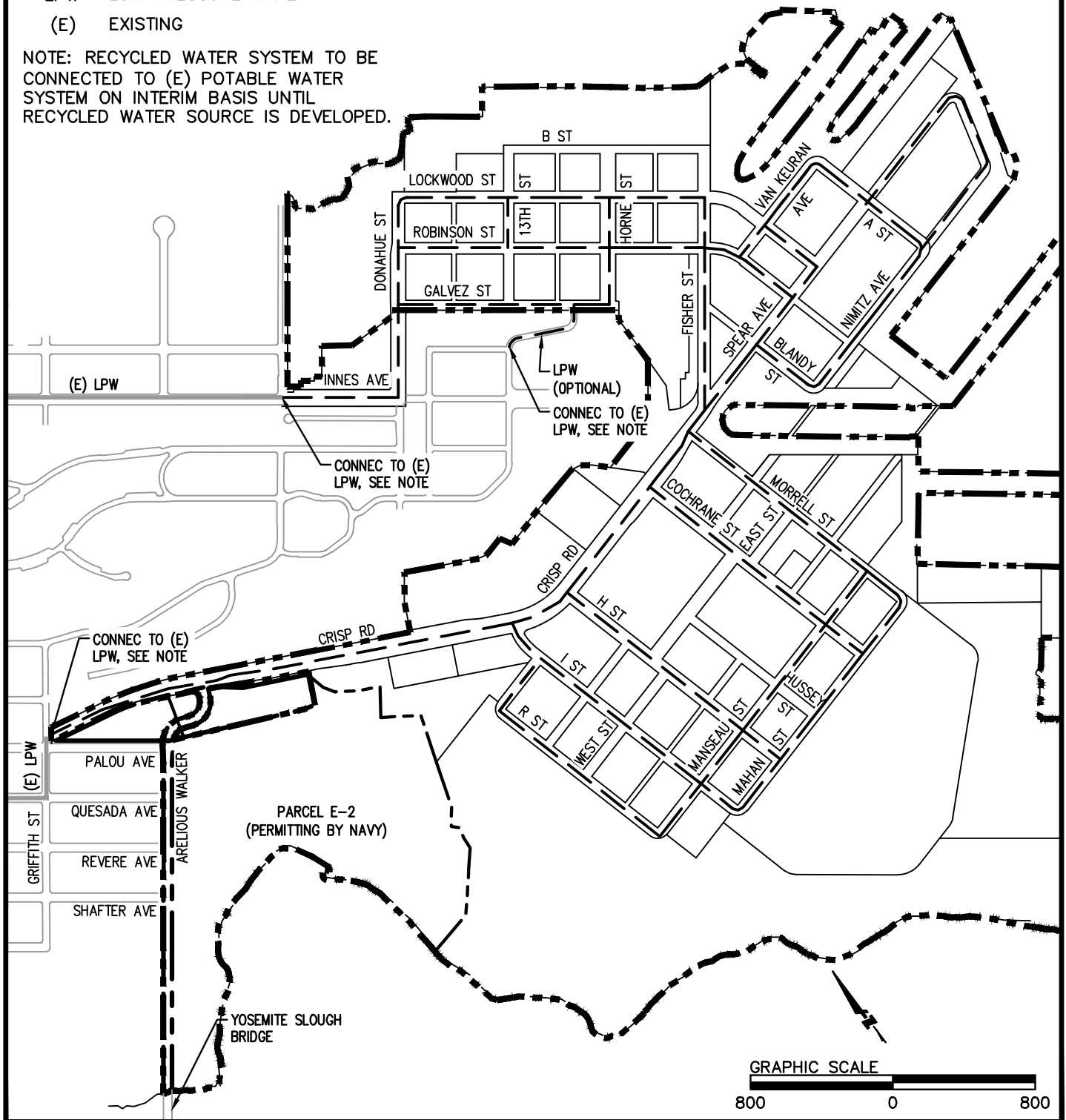
- PROJECT BOUNDARY
- DISTRIBUTION MAIN (≤ 12 INCH)
- TRANSMISSION MAIN (≥ 16 INCH)
- EXISTING LPW MAIN
- PRESSURE REDUCING VALVE (PRV)
- LPW LOW PRESSURE WATER
- (E) EXISTING



LEGEND

- PROJECT BOUNDARY
- RECYCLED WATER PIPELINE
- LPW LOW PRESSURE WATER
- (E) EXISTING

NOTE: RECYCLED WATER SYSTEM TO BE CONNECTED TO (E) POTABLE WATER SYSTEM ON INTERIM BASIS UNTIL RECYCLED WATER SOURCE IS DEVELOPED.



2.4 DRY UTILITY LAYOUTS

2.4.1 ON-SITE

GENERAL JOINT UTILITY TRENCH REQUIREMENTS

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, fire and police alarm systems operated by the City Department of Technology (“DT Systems”), DPT, and MUNI. The overall layout of these systems is shown on Figure 2.4.1. Additionally, space for utility vaults, splice boxes, street lights and bases will be provided. The utility owner/franchisee (e.g., MUNI, AT&T, SFPUC, PG&E, fiber optic companies, etc.) will install facilities such as transformers and wire, and be responsible for making these systems operational.

All necessary and properly authorized Public Utility Infrastructure 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 at time of construction), and approved by DPW. Joint trenches or utility corridors will be utilized wherever feasible. The location and design of joint trenches/utility corridors in the public right-of-way must be approved by DPW during the subdivision review process.

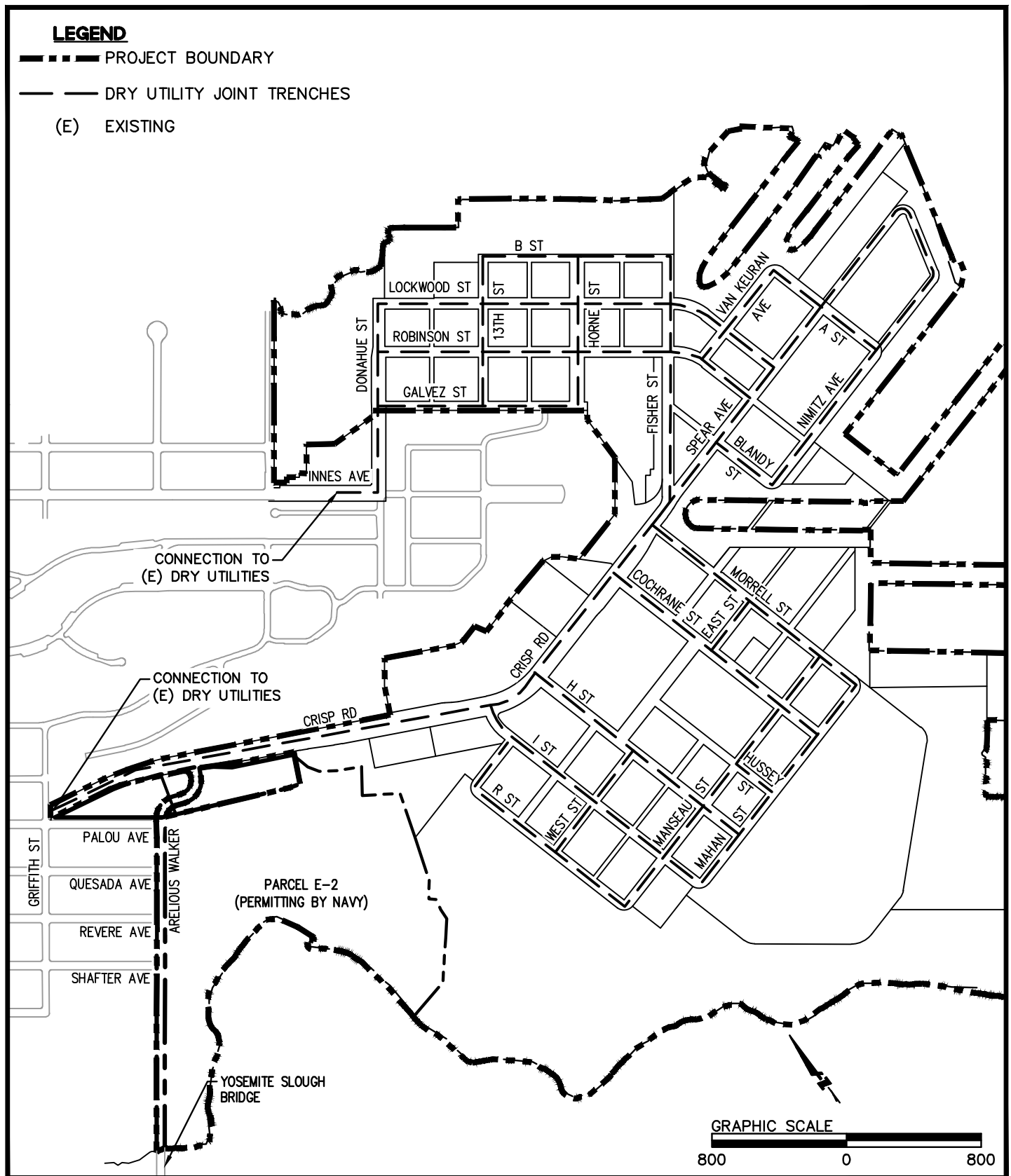
The existing electrical distribution system in the subject project area will be replaced as necessary and placed underground consistent with the timing of the development in phases as the project builds out, while maintaining service to existing customers.

The electric distribution system is planned to be in a joint or common trench which would include gas, phone, cable TV, and streetlight facilities. Redundancy for the proposed electrical distribution system would be achieved by providing looped circuits where necessary, and providing circuit ties to different substation feeders. Spare conduits will be provided to the extent reasonably required and approved by the City.

STREET LIGHTS

All street lights in the HPS2 Area shall have LED fixtures as approved by the Bureau of Light, Heat, and Power. Secondary power for LED street lighting shall be installed in a separate trench in accordance with City Regulations in effect at time of construction. Sections 937 through 943 of the San Francisco Public Works Code in effect at the time of adoption of this Infrastructure Plan contain specific requirements for street lighting and are hereby incorporated by reference. Upon acceptance

of the street lighting system by the City, the SFPUC will assume responsibility for the operation and maintenance of all facilities, including the light fixtures, poles, secondary power conduit and pull-boxes, and shall assume responsibility for compliance with all regulations and mitigation measures.



3. SEA LEVEL RISE

3.1 GENERAL

Sea Level Rise (SLR) will result in changing water levels in the San Francisco Bay that the Project will need to accommodate. The evolution of design strategies to address SLR is a process that is in its infancy. As a result, the design criteria employed at the time of this Infrastructure Plan are based on the best scientific forecasts and potential design strategies currently available. The forecasts will very likely change over time and will provide guidance for the future. As design solutions are developed in parallel with project approvals, the SFPUC Sea Level Rise Checklist will be provided for applicable infrastructure.

3.2 SEA LEVEL RISE STRATEGIES

SLR will result in changing water levels that the project will need to accommodate. Estimates for the project were developed by Moffatt & Nichol (M&N). The SLR values adopted for this project for implementation purposes are the worst-case SLR estimates described in the Sea Level Rise Guidance Document issued by the State of California in 2013, which are: 24" by 2050 and 66" by 2100. The 2018 Update of the Sea-Level Rise Guidance by the Ocean Protection Council and Natural Resources Agency is still in Draft form but is referenced here because it will likely supersede the current Guidance. For 2050, per the Draft, there is a 99.5% probability that SLR would be below 24". For 2100, the Draft estimates that for the High Emissions scenario there is a 95% probability that SLR would be below 53", and a 98% probability that SLR would be below 66". To summarize, the project's approach to address SLR is to use a low risk tolerance and effectively plan for a very low probability event by accommodating 24" by 2050 and 66" by 2100.

Shoreline areas and open space adjacent to the Shoreline, except for Heritage Park will be designed such that, until 2050, even for worst-case SLR trends (24"), flooding would not occur during 100-year return period tides or lower. Development areas will be designed such that, even for worst-case SLR trends (66" by 2100), flooding would not occur during 100-year return period tides or lower. For SLR exceeding the above design allowances, Adaptive Management Strategies (described in Section 3.5) will be implemented. The mechanism for developing and implementing the Adaptive Management Plan (AMP) is described in Section 3.5.

The project has three zones that could be impacted by SLR:

- Shoreline -- The land or marine structures that are at the edge of San Francisco Bay.

- Parks and Open Space -- the public land located from the shoreline upland to the edge of the Development Area.
- Development Area Perimeter -- the closest element of the development area to the shoreline that will have structures and/or facilities that are to be elevated above the adopted SLR elevation values.

The present 100-year return period tide elevation (also called 1% annual chance tide) was used for open space and development area design, which was estimated by M&N as elevation 98.2, Project Datum. The 100-year return period tide elevation does not include additional estimated allowance for wind-driven waves. The present 100-year return period Total Water Level (TWL), which includes the effect of tides, storm surges, tsunamis, and waves, was also estimated by M&N and varies by location as described in various reports. The general initial strategies for the Project and the adaptive management strategies needed after the Project is constructed are described below.

3.3 PROJECT DESIGN CRITERIA

The constructed Project will incorporate SLR strategies that are based on the design criteria provided in Table 3.3.1 below. Existing structures to remain may include elements below the minimum required grading and hydrology requirements for proposed structures within the “Development Perimeter – Structures” as defined in Table X.1 of Attachment 4 in Appendix C of the Project Subdivision Regulations. Such elements should be protected from flooding to the greatest extent practicable. Responsibility for and liability directly related to flooding and associated damage that may occur in buildings with elements below the minimum required grading and hydrology requirements or within private streets will be by the property owner.

Table 3.3.1 Sea Level Rise Design Criteria

<u>Parameter</u>	<u>Criteria</u>	<u>Value</u>
Shoreline	At a minimum, provide an elevation to accommodate the 100-year return period TWL in the Bay (caused by tides and/or wave runup) with minimal overtopping, plus 24 inches of SLR	Provide shoreline protection at a minimum of the elevation required by the “Criteria”.
Parks and Open Space adjacent to the shoreline	At a minimum, provide an elevation that will not result in flooding due to tides up to 100-year return period in the Bay even with 24” of SLR, while allowing ponding during combined large rain and high tide events	For facilities that are to be dry, either raise the elevation of site or provide appropriate Shoreline protection to meet the “Criteria.”

<u>Parameter</u>	<u>Criteria</u>	<u>Value</u>
Parks and Open Space-Heritage Park	At a minimum, provide an elevation of 98.2 (100-year tide elevation) while allowing ponding during combined large rain and high tide events	For facilities that are to be dry, either raise the elevation of site or provide appropriate Shoreline protection to meet the “Criteria.”
Development Perimeter – Structures	Finished floor of occupied facilities shall be at a minimum elevation of the 100-year tide plus 66 inches of SLR	Occupied facilities, including pump station facilities and above grade electrical infrastructure, shall have a minimum first floor elevation of 103.7 feet, Project Datum, based on SLR
Development Perimeter – Separated Storm Drainage System 5-Year Storm Event	Provide 2 feet freeboard between storm drainage system hydraulic grade line and the street finished grade with a 100-Year tide plus 24 inches of SLR in San Francisco Bay	Minimum elevation of street centerlines is elevation 103.3 feet, Project Datum. Minimum elevation of the bottom of stormwater treatment bio-retention soil mix will be at or above the 5-year HGL (includes 24-inches of SLR). Storm drainage system designs to accommodate 24-inches of SLR for system operation with 2 feet of freeboard between 5-year event storm hydraulic grade line and the finished grade of the street. Less freeboard will be allowed where the elevation of the 100-year overland release water surface is lower than the back of sidewalk.
Development Perimeter – Separated Storm Drainage System 5- to 100-Year Storm Event	With a 100-year tide in San Francisco Bay, overland release in the streets is allowed to the edge of the City right-of-way commonly identified as the back of sidewalk	Drain overland release to shoreline/ San Francisco Bay

3.4 PROJECT INITIAL CONSTRUCTION

The initial construction will provide the required improvements to address a minimum of 24 inches of SLR at the Shoreline. It will also provide the required improvements to address a minimum of 66 inches of SLR at the development perimeter for development parcels.

3.4.1 SHORELINE IMPROVEMENTS

The shoreline improvements shall be constructed to accommodate a minimum of 24 inches of SLR above the 100-year return period TWL (due to tides and/or wave runup) with minimal overtopping.

The elevation of shoreline improvements will include consideration for wind-driven waves when

constructed to the recommended perimeter elevations. Improvements will address drainage of wave splash. Specific improvements to the various facilities are as follows:

- Northside Park - City will receive a reconstructed shoreline and land surface from the Navy as part of its site remediation plan for this park. The Navy has placed riprap to protect the shoreline from erosion and flooding, to an elevation of 106.8 feet, Project Datum, which exceeds the recommended perimeter elevation for minimal overtopping during the 1 percent annual chance event plus 24 inches of SLR. The slope protection was placed at 3:1 or flatter slopes (H:V). The Project needs no additional shoreline improvements.
- Submarine Drydocks (Waterfront Promenade North) - The northern portion of the shoreline was used as a submarine mooring facility. The southern portion of the shoreline is a wharf that will remain. The existing Shoreline edge is high enough to accommodate the 1 percent annual chance storm event with minimal overtopping, but the area immediately inland will not accommodate any appreciable amount of SLR. As a result, this area will require a raised embankment, either along the shoreline with rock protection on the Bay side, or setback from the shoreline depending on the location of the public trail that is still in the planning stages. The project will install the required berm along the shoreline to accommodate the 1 percent annual chance storm event with minimal overtopping, plus include an allowance for 24 inches of SLR. In addition, a 20-foot wide space is reserved so that for greater than 24 inches of SLR, wave barriers or other appropriate shore protection facilities can be constructed to protect against extreme tide conditions.
- Wharf Along Berths 55 to 61 (Waterfront Promenade North) - The elevation of the deck of the wharf ranges from 101.4 feet 101.9 feet, Project Datum, which is high enough that it is protected from the 100-year tide plus 36 inches of SLR. A 20-foot wide space is reserved so that for greater than 24 inches of SLR, wave barriers or other appropriate shore protection facilities can be constructed to protect against extreme tide conditions.
- Rip-Rap Protected Slope East of Berth 55 (Heritage Park) - The Navy has reconstructed the northern shoreline edge as part of its site remediation plan by placing a wave berm with slope protection to protect shoreline from erosion and flooding. The improvements will accommodate the 1 percent annual chance storm event with minimal overtopping plus 36 inches of SLR. The south frontage adjacent to Dry Dock 3 will be raised by the project to accommodate the 1 percent annual chance storm event with minimal overtopping plus 24

inches of SLR. The project does not include any improvements to the wharf on the northwest of the site for SLR. In addition, a 20-foot wide space is reserved so that for greater than 24 inches of SLR, wave barriers or other appropriate shore protection facilities can be constructed to protect against extreme tide conditions.

- Drydocks 2 and 3 (Heritage Park Frontage) - The elevation of the shoreline edges around the drydocks are high enough that they are protected from the 100-year tide plus 24 inches of SLR. A 20-foot wide space is reserved so that for greater than 24 inches of SLR, wave barriers or other appropriate shore protection facilities can be constructed to protect against extreme tide conditions.
- Drydocks 2, 3, and 4 (Waterfront Promenade North Pier between Dry Dock 2 and the Northern Marina) - The existing Shoreline is a concrete wharf which is at elevation 99.4. A wave protection embankment/berm will be provided by the Project immediately inland of the wharf to prevent flooding from the 1% annual chance storm event with minimal overtopping plus 24 inches of SLR. In addition, a 20-foot wide space is reserved so that for greater than 24 inches of SLR, wave barriers or other appropriate shore protection facilities can be constructed to protect against extreme tide conditions.
- Drydocks 2, 3, and 4 (Northern Marina) - The existing Shoreline elevation is 99.7 feet, Project Datum. The project will raise the edge of the Shoreline to prevent flooding from the 1% annual chance storm event with minimal overtopping plus 24 inches of SLR. In addition, a 20-foot wide space is reserved so that for greater than 24 inches of SLR, wave barriers or other appropriate shore protection facilities can be constructed to protect against extreme tide conditions.
- Shoreline of Dry Dock No. 4 – The existing edge of Dry Dock 4 is approximately elevation 100.5 feet, Project Datum. The project will raise the edge of the Shoreline to prevent flooding from the 1% annual chance storm event with minimal overtopping plus 24 inches of SLR. In addition, a 20-foot wide space is reserved so that for greater than 24 inches of SLR, wave barriers or other appropriate shore protection facilities can be constructed to protect against extreme tide conditions.
- Easterly Shoreline of Parcel D - The existing Shoreline elevation is approximately 100.2 feet, Project Datum. The project will raise the edge of the Shoreline to prevent flooding from the 1% annual chance storm event with minimal overtopping plus 24 inches of SLR.

In addition, a 20-foot wide space is reserved so that for greater than 24 inches of SLR, wave barriers or other appropriate shore protection facilities can be constructed to protect against extreme tide conditions.

- Easterly Shoreline of Parcel E - The existing shoreline is at elevation 99.4 to 98.1 feet, Project Datum. The project will raise the edge of the Shoreline to prevent flooding from the 1% annual chance storm event with minimal overtopping plus 24 inches of SLR. In addition, a 20-foot wide space is reserved so that for greater than 24 inches of SLR, wave barriers or other appropriate shore protection facilities can be constructed to protect against extreme tide conditions.
- Re-Gunning Crane Pier Habitats - This is the Re-gunning pier. The existing surface elevations range from 99.6 to 98.4 feet, Project Datum. While the foundations for the Re-Gunning Crane will be protected, the pier edges that consist of cellular steel sheetpiles will be modified by removing the upper portion of the sheetpiles, laying back the slopes behind them, and installing edge treatment measures that will allow establishment of marsh vegetation or other habitat-friendly vegetation over time. The habitat type and function will change over time in response to SLR. Crane foundation protection solutions will be investigated by the Developer with final designs prepared by the Developer and coordinated with OCII during the permitting process.
- Grasslands Ecology Park Southern Portion - The eastern edge of this park has an existing elevation of 99.7 feet, Project Datum. The southern edge existing grade ranges from 99.5 feet to 101.0 feet, Project Datum. The Navy will reconstruct the shoreline edge as part of its site remediation plan by placing wave protection berms with riprap or other slope protection to protect the shoreline from erosion and flooding. The Navy will also provide the grading and embankment for the Bay Trail to an elevation high enough that it provides flood protection from the 1 percent annual chance storm event plus 36 inches of SLR.
- Grasslands Ecology Park Northern Portion – The existing shoreline elevation ranges from 96.0 feet to 99.7 feet, Project Datum. From 3600 to 4600 feet westerly of the easterly shoreline of Parcel E, the Navy will reconstruct the shoreline edge as part of its site remediation plan. The Navy will place wave berms with riprap or other slope protection to protect the shoreline from erosion and flooding for the 1% annual chance storm event with minimal overtopping plus 36 inches of SLR. On the remaining 400 feet to the western edge of the park, the Navy shoreline edge improvements, which will be completed before land

transfer to the City, will create a shoreline edge designed as a habitat zone where flooding is expected. Those berms that must protect the shoreline will be constructed to accommodate the 1% annual chance storm event with minimal overtopping plus 36 inches of SLR. The Navy will also raise the shoreline edge perimeter elevation at the Yosemite Slough Bridge north abutment to accommodate the 1% annual chance storm event with minimal overtopping plus 36 inches of SLR, which will extend 200 feet northeasterly along the adjacent shoreline.

3.4.2 OPEN SPACE AND PARK IMPROVEMENTS

Open Space and Park improvements within the shoreline zone shall be constructed such that the intended Year 2050 operation of the facilities with 24 inches of SLR is accommodated. Some existing facilities will always be above the water, some will always be flooded at some point in time, and some will experience occasional tidal flooding and be subject to both wet and dry conditions.

DRY FACILITIES

Dry facilities are those facilities that will be required to be above the water level of San Francisco Bay, and either are existing above the elevation, will be rehabilitated to above the elevation, or will be constructed at the time of initial construction to accommodate a minimum of 24 inches of SLR above the current 100-year tide of 98.2 feet, Project Datum.

WET FACILITIES

Wet facilities are those facilities that will be allowed to flood and be allowed to convert back to wetlands and/or marshes will remain unchanged.

The specific Open Space and Park facilities and their condition to accommodate the 100-year tide plus 24 inches of SLR are as follows:

- Northside Park - No project improvements are required to prevent SLR impacts for this park.
- Submarine Drydocks (Waterfront Promenade North) - The grading for the new Park area will be a minimum of 24 inches above the current 100-year tide. A 20-foot wide space is reserved so that for greater than 24 inches of SLR, various methods of wave protection can be constructed to protect against extreme tides and waves.

- Wharf along Berths 55 to 61 (Waterfront Promenade North) - The grading for the new Park area will be a minimum of 24 inches above the current 100-year tide. A 20-foot wide space is reserved so that for greater than 24 inches of SLR, wave barriers or other appropriate shore protection facilities can be constructed to protect against extreme tide conditions.
- Rip-Rap Protected Slope East of Berth 55 (Heritage Park) - A 20-foot wide space is reserved for future adaptations to address greater than 36 inches of SLR on the north and 24 to 36 inches on the south. Wave barriers or other facilities can be constructed to protect against extreme tides and wave conditions for the 100-year tide plus SLR as described for the shoreline. The project will not provide an increase in site elevations above existing conditions for the EIR Variant associated with the Heritage Alternative. For non-Heritage alternatives, the site is to be raised to a minimum of 24 inches above the current 100-year tide.
- Drydocks 2 and 3 (Heritage Park Frontage) - A wave protection embankment/berm will be provided by the Project immediately inland of the wharf to prevent flooding from the 1% annual chance storm event with minimal overtopping plus 24 inches of SLR. In addition, a 20-foot wide space is reserved so that for greater than 24 inches of SLR, wave barriers or other appropriate shore protection facilities can be constructed to protect against extreme tide conditions. The project will not provide an increase in site elevation for the Heritage Alternative. For non-Heritage alternatives, the site is to be raised to a minimum of 24 inches above the current 100-year tide.
- Drydocks 2, 3, and 4 (Waterfront Promenade North Pier between Dry Dock 2 and the Northern Marina) - A 20-foot wide space is reserved so that for greater than 24 inches of SLR, wave barriers or other facilities can be constructed to protect against 100-year tide plus 24 inches of SLR. Adjacent to Dry Dock 3 there is limited space that may dictate that the wall be raised. The project will not provide an increase in site elevation for the Heritage Alternative. For non-Heritage alternatives, the site is to be raised to a minimum of 24 inches above the current 100-year tide.
- Drydocks 2, 3, and 4 (Northern Marina) - The project will raise the edge of the Shoreline to prevent flooding from the 1% annual chance storm event with minimal overtopping plus 24 inches of SLR. In addition, a 20-foot wide space is reserved so that for greater than 24 inches of SLR, wave barriers or other appropriate shore protection facilities can be constructed to protect against extreme tide conditions. The project will not provide an

increase in site elevation for the Heritage Alternative. For non-Heritage alternatives, the site is to be raised to a minimum of 24 inches above the current 100-year tide.

- Shoreline of Dry Dock No. 4 - The edge of the existing Dry Dock 4 is at elevation 100.5 feet, Project Datum. The project will raise the Shoreline edge to prevent flooding from the 1% annual chance storm event with minimal overtopping plus 24 inches of SLR. In addition, a 20-foot wide space is reserved so that for greater than 24 inches of SLR, wave barriers or other appropriate shore protection facilities can be constructed to protect against extreme tide conditions.
- Easterly Shoreline of Parcel D - Elevations of the land inland of the shoreline are approximately 100.2 feet, Project Datum, which is approximately 24 inches above the current 100-year tide. The project will raise the edge of the Shoreline to prevent flooding from the 1% annual chance storm event with minimal overtopping plus 24 inches of SLR. In addition, a 20-foot wide space is reserved so that for greater than 24 inches of SLR, wave barriers or other appropriate shore protection facilities can be constructed to protect against extreme tide conditions.
- Easterly Shoreline of Parcel E - The project will raise the elevation of the land inland of the shoreline to a minimum of 24 inches above the current 100-year tide. In addition, a 20-foot wide space is reserved so that for greater than 24 inches of SLR, wave barriers or other appropriate shore protection facilities can be constructed to protect against extreme tide conditions.
- Re-Gunning Crane Pier Habitats – While the foundations for the Re-Gunning Crane will be protected, the pier edges that consist of cellular steel sheetpiles will be modified by removing the upper portion of the sheetpiles, laying back the slopes behind them, and installing edge treatment measures that will allow establishment of marsh vegetation or other habitat-friendly vegetation over time. The habitat type and function will change over time in response to SLR. Other project improvements that are required are shoreline improvements and removal of concrete, asphalt, and other features to establish habitat in this area. Public access will be studied as part of the improvements, and may be incorporated subject to feasibility analyses conducted by the Developer in coordination with OCII. Crane foundation protection solutions will be investigated by the Developer with final designs prepared by the Developer and coordinated with OCII during the permitting process.

- Grasslands Ecology Park Southern Portion - The Navy will reconstruct the shoreline edge as part of its site remediation plan by placing wave protection berms with riprap or other slope protection to protect the shoreline from erosion and flooding. The Navy will also provide the grading and embankment for the Bay Trail to an elevation high enough that it provides flood protection from the 1 percent annual chance storm event plus 36 inches of SLR. In addition, the Navy is expected to install a cap over the land inland of the shoreline as part of its site remediation plan. No additional grading improvements will be provided by the Project.
- Grasslands Ecology Park North – The Navy will install shore protection system (riprap or similar) along the shoreline of this reach to protect it from erosion and flooding for the 1% annual chance storm event with minimal overtopping plus 36 inches of SLR. On the southern edge of the southwestern edge, the Navy shoreline improvements will create a shoreline edge designed as a habitat zone where flooding is expected. Areas that are not intended as wetland areas by the Navy are expected to be capped as part of its site remediation plan. The Navy plans to remove certain contaminated soils in this general area and construct tidal wetlands. For areas that are to be protected, space will be reserved to accommodate for greater-than-36-inches SLR to allow for wave barriers or other facilities to protect against extreme conditions. No additional grading improvements will be provided by the Project.

3.4.3 DEVELOPMENT PERIMETER

The perimeter edges of the developed areas shall be constructed such that the minimum elevations of street centerlines will accommodate over 36 inches of SLR. Building occupied floors shall have a minimum elevation that provides 66” of SLR protection. Parking floors can be lower, but must include pumps and other improvements to protect from flooding as well as comply with the AMP.

3.4.4 5-YEAR STORM DRAINAGE SYSTEM

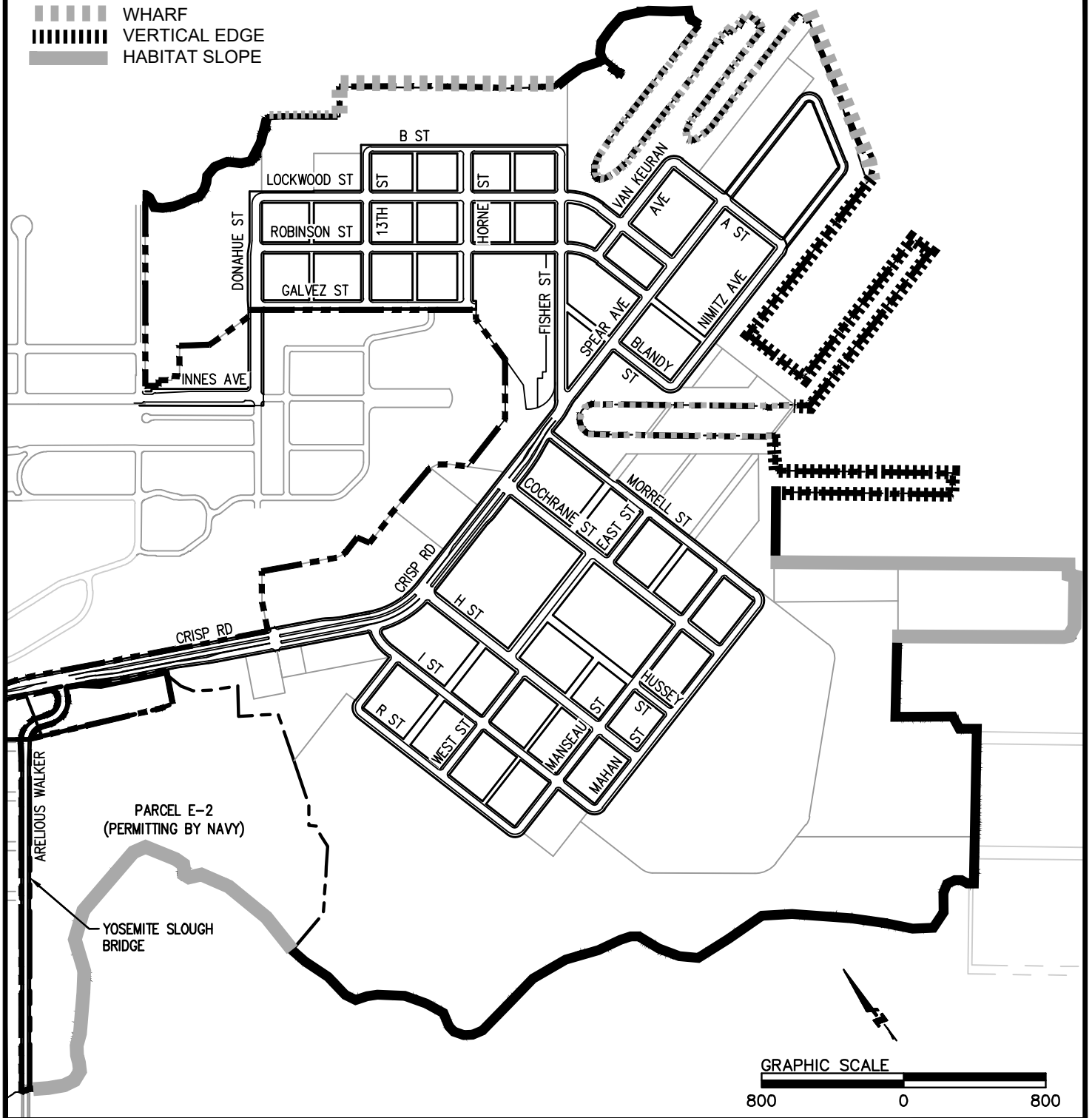
The initial construction of the 5-year storm drainage system will be conceptually designed in a final Hunters Point Shipyard Phase II Development Grading and Storm Drain System Master Plan prepared by BKF Engineers as submitted by the Developer to the City. Additionally, the 5-year storm system shall operate with a 2-foot minimum freeboard between street finished grade elevations and hydraulic grade line of the storm drain system pipelines. Due to constraints within the Project site, design modifications and exceptions to freeboard requirements may be requested. A design modification and exception request to utility standards and requirements is subject to

approval by the Director of Public Works with the consent of the SFPUC. The 5-year piped system shall be designed to operate with an SLR allowance of 24 inches. This change in height does not include wind-driven wave. Wind-driven waves is applicable only to shoreline structures and related wave protection.

Historic structures 140, 204, 205, 207, and 208 within the Historic District area include elements below the minimum required grading and hydrology requirements for proposed structures in “Development Perimeter – Structures” as defined by Table X.1 in Attachment 4 within Appendix C of the Project Subdivision Regulations and Table 3.3.1. However, such structures are compliant with the minimum grading requirements (100-year tide, elevation 98.2) for “Parks and Open Space Adjacent to the Shoreline” as defined in Table X.1. Since certain building elements are not elevated above the 5-year HGL (100-year tide + 24-inches SLR) but are above the 100-year tide elevation, drainage infrastructure, such as pump stations, historic structure disposition, and the current uses of the area will be evaluated and adapted over time in context with hydrologic and sea level conditions, and the AMP. Responsibility for and liability directly related to flooding and associated damage that may occur in buildings with elements below the minimum required grading and hydrology requirements or within private streets will be by the owner of the Open Space parcel containing the Historic District.

LEGEND

-  PROJECT BOUNDARY
-  RIPRAP
-  SETBACK BERM / DRYDOCK
-  WHARF
-  VERTICAL EDGE
-  HABITAT SLOPE



3.5 ADAPTIVE MANAGEMENT STRATEGIES

As the SLR is experienced, the projections of the magnitude of future SLR will be adjusted based on actual SLR conditions. Adjustments of the shoreline, parks and open space, and the development perimeter may be needed. A Project-specific SLR adaptation strategy will be implemented that will provide guidance, identify relevant stakeholders, define appropriate management actions and triggers, and establish a Project-specific funding mechanism. It will be administered by an entity for the Project as defined by the DDA, such as a Geologic Hazard Abatement District (GHAD), Community Facilities District (CFD), or other similar public entity with similar funding responsibility.

The strategies for SLR and the improvement alternatives will be further defined by an AMP that will define specific triggers for action based on observed changes in sea level. The plan will required updates on a 5-to-10 year basis based on observed changes in sea levels as well as other effects of climate change (e.g., more or less extreme storm wave conditions).

The adaptive management strategies for the Project in general are outlined below. An Adaptive Management Plan (AMP) detailing strategies for each of the individual elements of the shoreline, adjacent Parks and Open Space, and the Development Perimeter will be developed. The AMP shall specifically address each of the following elements for the future SLR scenarios: Northside Park; Waterfront Promenade North; Heritage Park; Waterfront Promenade North Pier; Waterfront Promenade South Pier; Shoreline of Dry Dock No. 4 (Water Room); Easterly shoreline of Parcel D; Easterly Shoreline of Parcel E; Urban Recreation Area; Grasslands Ecology Park; and any other Shoreline within the limits of Hunters Point Shipyard Phase 2 not specifically included above.

In general, although these strategies refer to “minimum” standards, the initial constructed grades at the Development Perimeter for the project are higher than the minimum standards defined by the “Development Perimeter – Structures” as defined by Table X.1 in Attachment 4 within Appendix C of the Project Subdivision Regulations, and Table 3.3.1 of this document. Therefore, a higher amount of SLR can be accommodated at the Development Area Perimeter as outlined in Section 3.4 above. Figure 3.5.1, 3.5.2, and 3.5.3 show the progression of Adaptive Management through the successive rise of sea level from the initial 24 inches of SLR condition through the 66 inches of SLR condition.

The improvements required by the AMP are to be funded by the financial plan described in the DDA and Plan Documents.

3.5.1 STRATEGIES FOR SEA LEVEL RISE ABOVE 24 INCHES

When it is known that SLR has occurred and is approaching 16-inches, the following strategies or more current strategies should be implemented to protect the particular shoreline or waterfront improvements.

SHORELINE

Accommodate 1 percent annual chance storm event with minimal overtopping plus an additional 24-inches of SLR, (assuming the shoreline has already experienced 24-inches of SLR) for a cumulative total of 48 inches of SLR. Modify shoreline protection and marine structures to provide same level of protection as initial constructed conditions.

PARKS AND OPEN SPACE

As mean sea level rises up to 24-inches, allow more frequent flooding of the parks and open space during storm events greater than 5-year return period, raise ground level of facilities, or install wave protection berms. In addition, provide for the collection of 100-year overland release and its discharge to San Francisco Bay if the drainage path is blocked by a berm or other feature.

DEVELOPMENT PERIMETER

No change in constructed project required.

Within the developed perimeter, for separated storm drainage systems, the 5-year storm event and 5- to 100-year storm events will require that operation of the separated storm drainage systems be provided with the following described capabilities:

- 5-year Storm Event –The operation of the 5-year collection system will normally operate with a freeboard of 2 feet, but as SLR occurs, the system will require a minimum of 1-foot of freeboard for operation before the follow-on strategies are implemented and operational. When the SLR from the beginning of the project exceeds 24 inches then the AMP should be implemented, with analysis and planning commencing such that by the time the SLR value reaches 36 inches any required improvements should be operational.

Building 813 along Crisp Road, which is tied to Outfall-D, may need to install pumps to handle storm flows when SLR is greater than 24 inches and less than 36 inches.

- 5- to 100-year Storm Events – With the 100-year high water on San Francisco Bay, overland release from the streets is allowed, subject to City approval, from the edge of the City right-of-way (back of sidewalk) where no downstream flow impacts are identified.

3.5.2 STRATEGIES FOR SEA LEVEL RISE GREATER THAN 48-INCHES

When it is known that SLR has occurred and is approaching 36-inches in increase, the following strategies or more current strategies should be implemented to protect the particular shoreline or waterfront improvements.

SHORELINE

Accommodate 1 percent annual chance storm event with minimal overtopping plus appropriate SLR, as based on guidance at the time. Modify shoreline protection and marine structures to provide same level of protection as initial constructed conditions

PARKS AND OPEN SPACE

As mean sea level rises beyond 36-inches, allow more frequent flooding of the parks and open space during storm events greater than 5-year return period, Raise elevation of facilities, provide wave berms, and enhance the capabilities of pumping stations to increase freeboard in the storm drainage systems. In addition, provide for the collection of 100-year overland release and its discharge to San Francisco Bay if the drainage path is blocked by a berm or other feature.

DEVELOPMENT PERIMETER

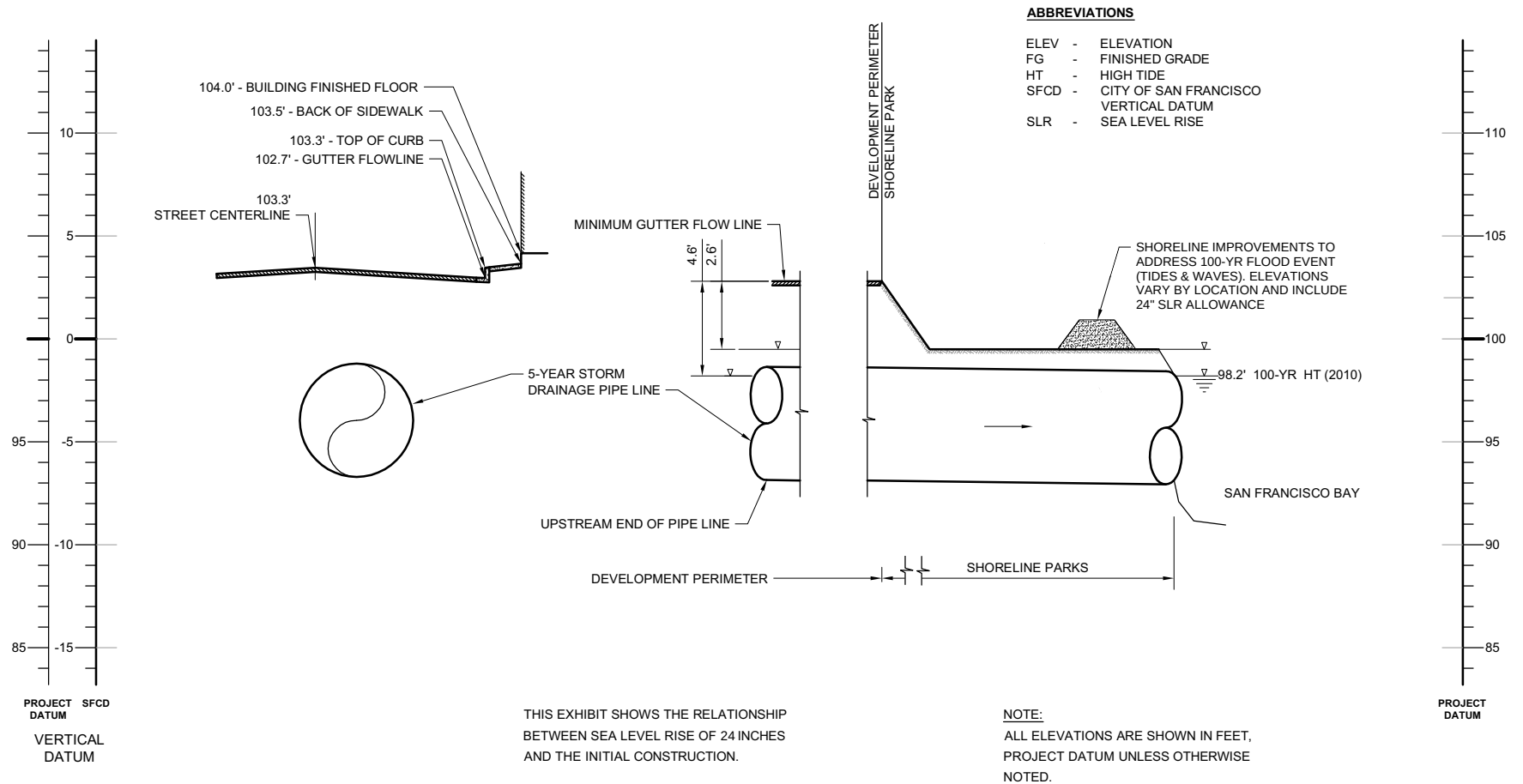
No change in constructed project required.

Within the development perimeter, for separated storm drainage systems, the 5-year storm event and 5- to 100-year storm events will require that operation of the separated storm drainage systems be provided with the following described capabilities:

- 5-year Storm Event –The operation of the 5-year collection system will normally operate with a freeboard of 2 feet, but as SLR occurs the system will require a minimum of 1-foot of freeboard for operation before the follow-on strategies are implemented and operational. When the SLR from the beginning of the project exceeds 48 inches, then the second phase of the AMP should be implemented, with analysis and planning commencing such that by the time the SLR value reaches 60 inches, any required improvements should be operational.

The storm drainage outfalls for the Project must address SLR when the SLR exceeds the conceptual values at the outfall described by Figure 3.5.4 in the 5- to 100-year storm event. Final values will be confirmed as part of the permitting process.

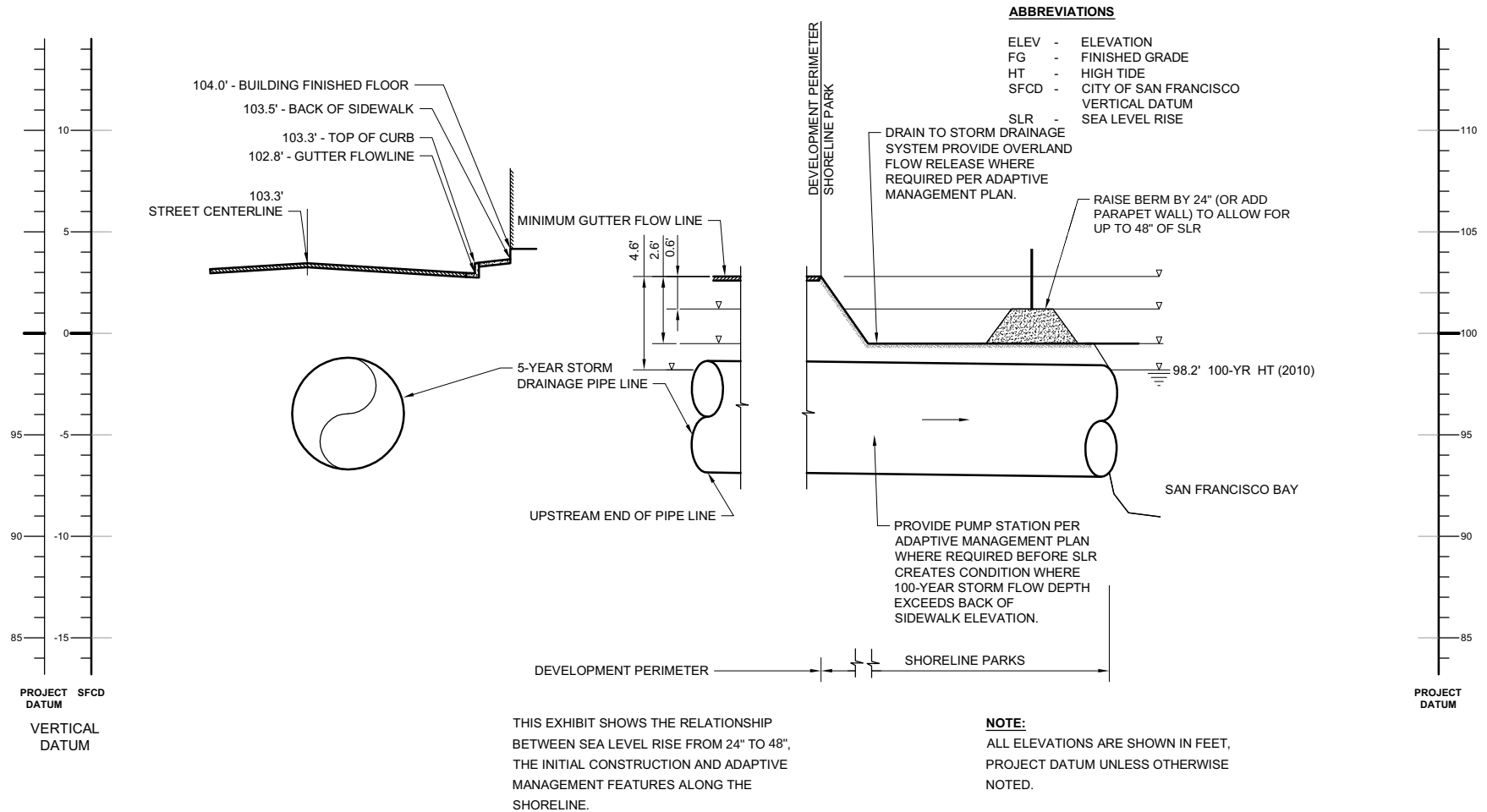
- 5- to 100-year Storm Events – With the 100-year high water on San Francisco Bay, overland release in the streets is allowed to the edge of the City right-of-way commonly identified as the back of sidewalk. As SLR exceeds the values described by Figure 3.5.4, a pump station should be installed. An area for installation of a pump station should be reserved.



Hunters Point Shipyard Phase II Development

General Site Section For Base Year: 24" of Sea Level Rise

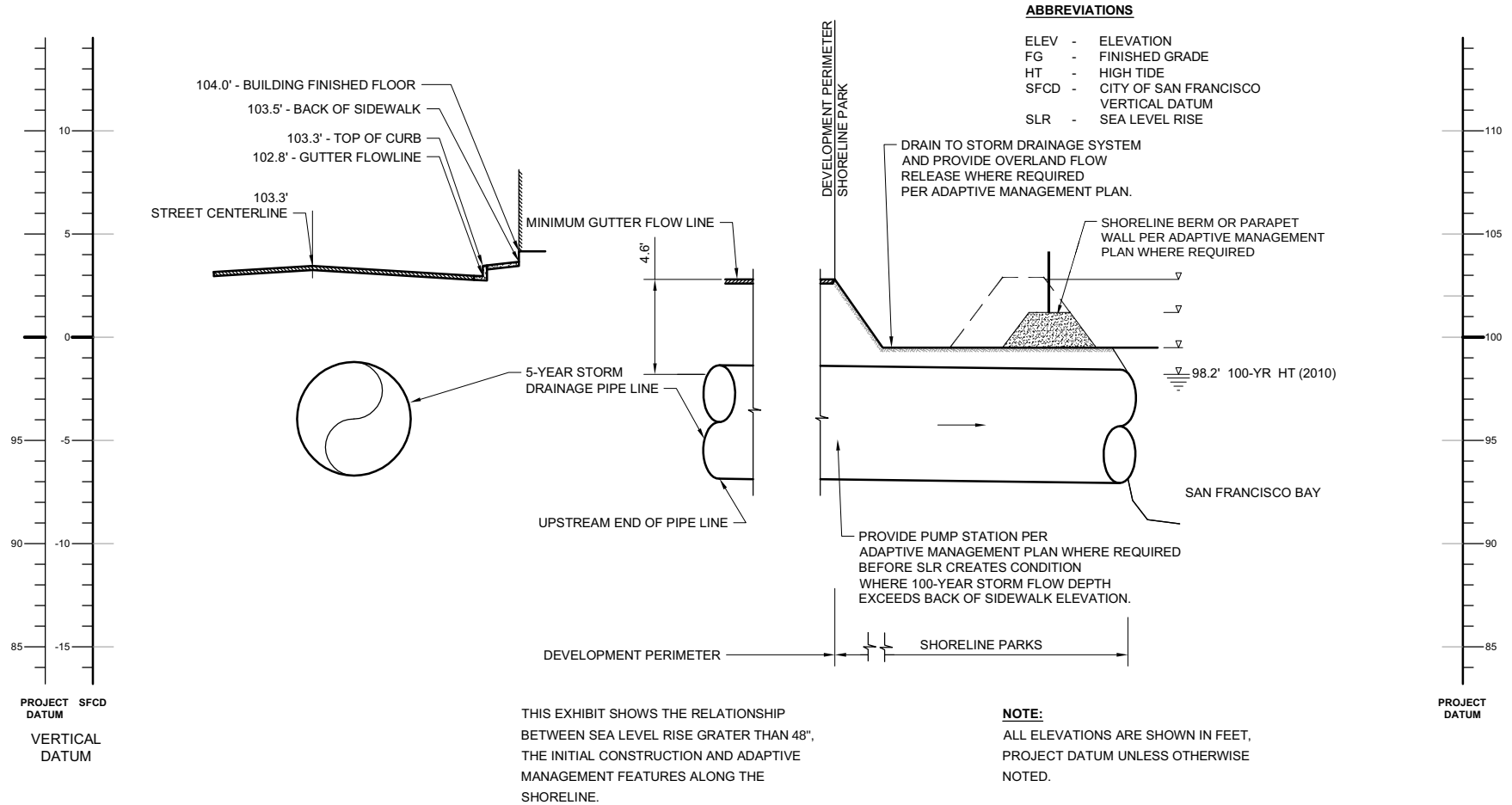
Figure
3.5.1



Hunters Point Shipyard Phase II Development

General Site Section For 24" to 48" of Sea Level Rise

**Figure
3.5.2**



Hunters Point Shipyard Phase II Development

General Site Section For Greater Than 48" of Sea Level Rise

Figure
3.5.3

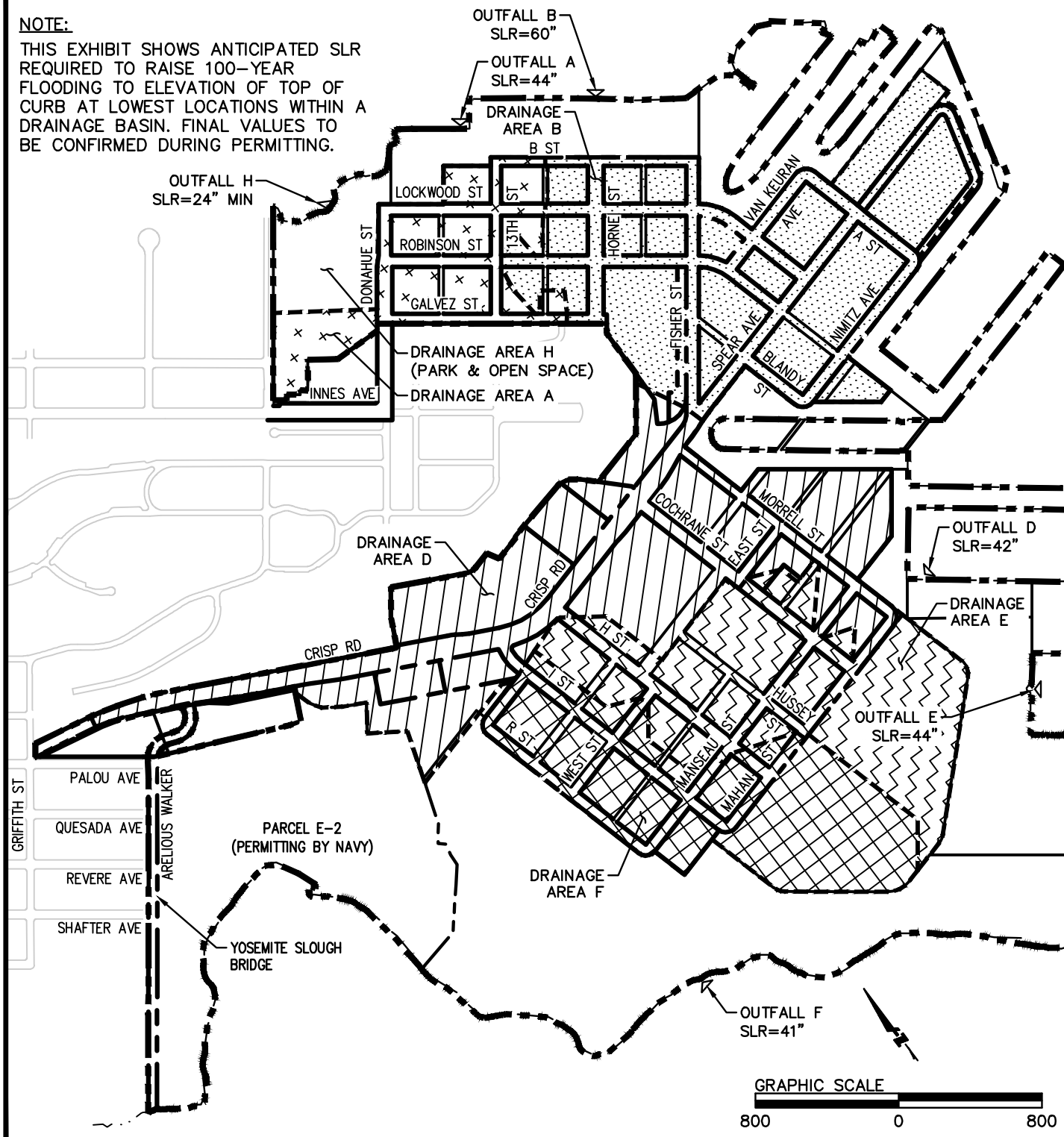
LEGEND

■■■■■ PROJECT BOUNDARY

----- MAJOR WATERSHED

NOTE:

THIS EXHIBIT SHOWS ANTICIPATED SLR REQUIRED TO RAISE 100-YEAR FLOODING TO ELEVATION OF TOP OF CURB AT LOWEST LOCATIONS WITHIN A DRAINAGE BASIN. FINAL VALUES TO BE CONFIRMED DURING PERMITTING.



4 PUBLIC OPEN SPACE

4.1 OPEN SPACE PARCELS

The Open Space Parcels in the HPS2 Area of the Project shall be developed in accordance with the Project Open Space Master Plan, and as summarized herein. Except as provided herein, the Developer shall construct all of the improvements in the Open Space Parcels. Improvements to Open Space Parcels are described in the Parks, Open Space and Habitat Concept Plan and will be further defined in Design Document submittals to the Agency described under the DRDAP. The completed Open Space and Park Improvements will be provided on the schedule defined in the DDA. Unless otherwise provided for in the DDA, or other Instrument, Infrastructure within the Open Space Parcels will be owned and maintained by the entity retaining ownership of the Open Space Parcel(s).

Overall, the Project will involve the creation of new parks and recreational opportunities, provide park improvements, and create new access to the shoreline. New parks will include destination parks, neighborhood parks, a sports field complex and multi-use lawn, the waterfront promenade, the waterfront recreation area, and the extension of the Bay Trail through the Project site. Improvements in the Park and Open Space parcels will be subject to a site-specific storm water management plan, which may include the presence of LID features as part of a comprehensive storm water management approach for the HPS2 Area.

In total approximately 327.1 acres of parks (not counting Boulevard Parks, Jamestown Walker Slope, Bayview Hillside Open Space, the Green Room, and the Re-Gunning Crane Pier) will be provided in the CP Area and HPS2 Area combined, which includes a net reduction of 23.5 acres of CPSRA. The HPS2 Area will include approximately 232.0 acres of parks (Boulevard Parks, the Green Room, and the Re-Gunning Crane Pier are not counted in the acreage total).

Table 4.1 (Proposed Parks and Open Space) presents the proposed park and open space in the HPS2 Area. Figure 4.1.1 illustrates the location of the proposed parks and open space. A brief description of the new parks and open space facilities, and the Bay Trail is provided in the Parks, Open Spaces and Habitat Concept Plan. Open Space development in the HPS2 Area of the Project will include an extensive network of parks.

Table 4.1 Proposed Parks and Open Space

	<u>Acres (Approx.)</u>	<u>Park Role</u>	<u>Features</u>	<u>New / Existing Park</u>
New Urban Parks				
Northside Park	12.8	Neighborhood	Overlook Terrace, Information Kiosk, Terraced Planting, Water-wise ornamental Gardens, Seating Terrace, Tennis Courts, Basketball Courts, Playground, Shade Pavilion, Lawn Steps, African Market, Open Lawn, BBQ, Picnic Area, Terraced Viewing Mound, Bay Trail, Boardwalk, Café, Centralized Stormwater Treatment	New
Waterfront Promenade North	13.3	Destination	Waterfront Promenade, Picnic/Seating Areas, Interpretive Grasslands, Native Plant Garden, Open Lawns, Plaza, Dog Run, Dog Park, Tot-Lot, Exercise Area, Centralized Stormwater Treatment	New
Waterfront Promenade North Pier	10.5	Destination	Waterfront Promenade, Restrooms, Café, Concessionaire, Seating Plinths, Tree Grove, Marina, Native Plant Gardens, Marina Support Facility, Exercise Area, Dog Run	New
Waterfront Promenade South Pier	5.3	Destination	Waterfront Promenade, Restrooms, Café, Concessionaire, Seating Plinths, Tree Grove, Marina, Native Plant Gardens, Marina Support Facility, Exercise Area	New
Heritage Park	15.5	Destination	Shoreline Revetment, Native Planting, Historic Building/ Visitor Center, Cultural Center, Tree Groves, Gardens, Open Lawns, Seating Areas, Plaza, Sculptural Landform, Multi-use Event Area, Maritime Education Area, Kiosk, Exercise Area	New
Water Room Plaza/ Dry Dock 4	7.3	Destination	Plaza, Amphitheater Seating, Pedestrian and Bike Bridge, Sculptural Art Feature	New
Grasslands Ecology Park	106.8	Ecology Park	Picnic Pods and Shelters, Bay Nature Interpretive Play, Viewing Mounds, Overlook Terraces, Amphitheater / Outdoor Classroom, Native Grasslands and Plant Gardens, Viewing Pier, Interpretive Center, Freshwater Wetland, Tidal Wetland, Basketball Court, Tennis Courts, Centralized Stormwater Treatment	New
Shipyards Hillside Open Space	2.4	Destination	Native Hillside Plantings, Native Planting Garden, Overlook Terraced Steps	New
Subtotal	173.9			
New Sports Fields and Active Urban Recreation				
Community Sports Field Complex	28.7	Sports Fields	Multi-use Sports Fields, Softball/Baseball Fields, Field House, Parking Lot, Centralized Stormwater Treatment	New
Waterfront Recreation and Education Park	3.4	Destination	Tidal Wetlands, Interpretive Walk, Upland Habitats, Tree Grove, Seating Areas, Waterfront Recreation and Education Center, Bay Nature Interpretive Play	New
Multi-Use Fields	20.5	Destination	Multi-use Lawn	New
Maintenance Yard	5.5	Facility	Parks and Open Space Maintenance Yard	New
Subtotal	58.1			
Total Acreage	232.0			

Table 4.1 Proposed Parks and Open Space

	<u>Acres (Approx.)</u>	<u>Park Role</u>	<u>Features</u>	<u>New / Existing Park</u>
Other Parks & Open Space (*excluded from Total Acreage above)				
Gunning Crane Pier Habitat	9.2	Destination	Tidal Wetlands, Interpretive Walk, Re-gunning Crane, Upland Habitats, Tree Grove, Seating Areas	New
Green Room (Publicly accessible, privately owned)	8.1	Destination	Café, Plazas, Seating Areas, Water Feature, Shade Groves, Picnic Areas, Ornamental Gardens, Open Lawn, Pavilion/Outdoor Stage, Stage with Shade Structure, Sculptural Marker, Promenade, Children's Play Area, Basketball Court, Bocce Courts	New
<i>Subtotal</i>	<i>17.3</i>			

Note: Park features to be constructed per the Parks, Open Space and Habitat Concept Plan

Source: Lennar Urban, 2009.

Revised: FivePoint, 2018.

PARKS AND OPEN SPACE

1. NORTHSIDE PARK
2. WATERFRONT PROMENADE NORTH
3. HERITAGE PARK
4. WATERFRONT PROMENADE NORTH PIER
5. WATER ROOM PLAZA/DRY DOCK 4/
PEDESTRIAN AND BICYCLE BRIDGE
6. WATERFRONT PROMENADE SOUTH PIER
7. WATERFRONT RECREATION &
EDUCATION PARK

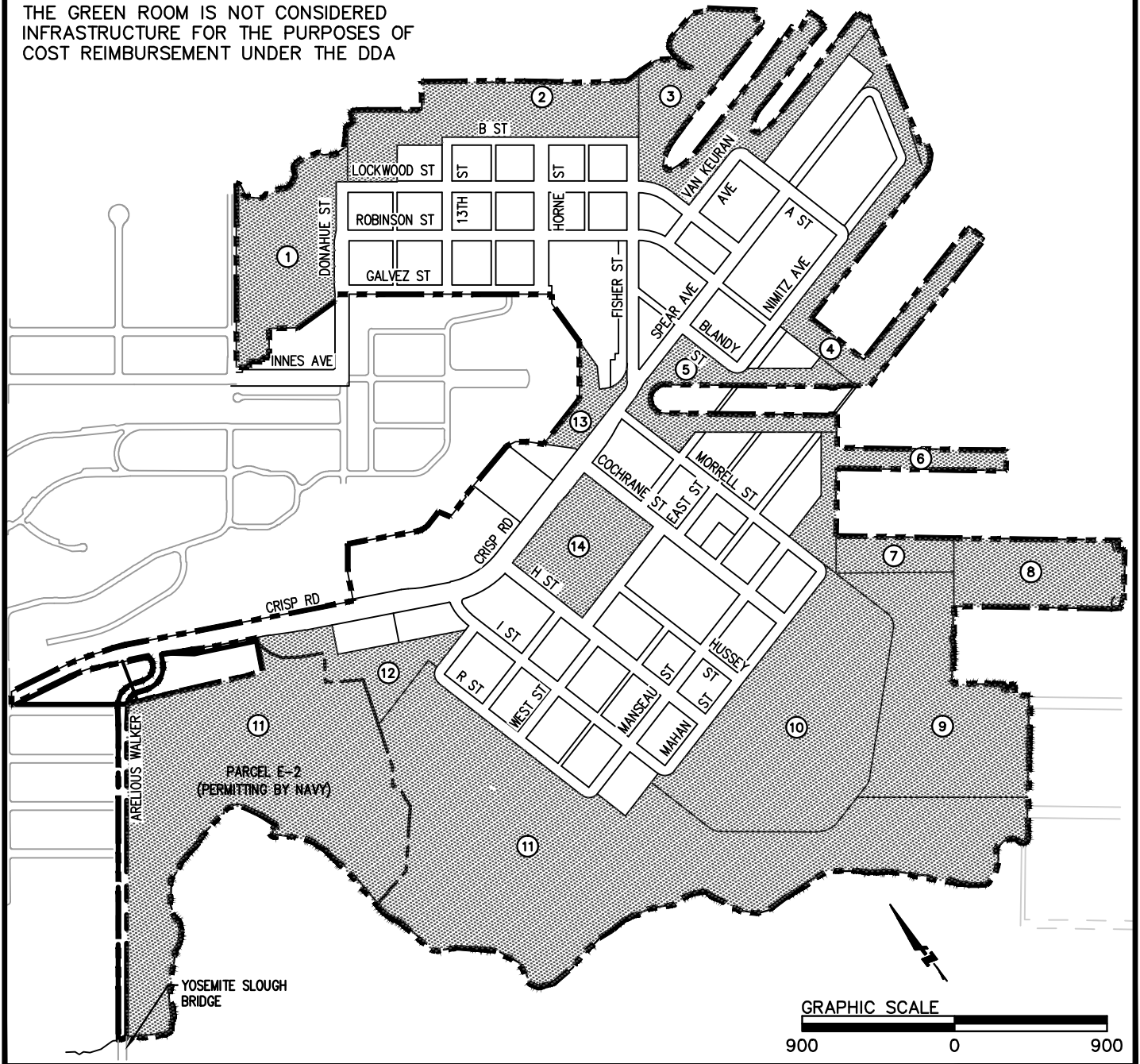
8. GUNNING CRANE PIER HABITATS
9. MULTI USE OPEN SPACE
10. COMMUNITY SPORTS FIELD
COMPLEX
11. GRASSLANDS ECOLOGY PARK
12. MAINTENANCE YARD
13. SHIPYARD HILLSIDE OPEN SPACE
14. GREEN ROOM

LEGEND

- PROJECT BOUNDARY
- ⑥ PARK IDENTIFICATION
NUMBER
- [Hatched Box] PARKS AND OPEN
SPACE

NOTE:

THE GREEN ROOM IS NOT CONSIDERED
INFRASTRUCTURE FOR THE PURPOSES OF
COST REIMBURSEMENT UNDER THE DDA



5. OTHER INFRASTRUCTURE

5.1 BUILDING DEMOLITION

Demolition of structures and other existing improvements within the HPS2 Area shall be executed in compliance with City regulations and with the Project Risk Management Plan. As a minimum standard, materials resulting from demolition activities shall be recycled to the extent required by City codes and regulations and in compliance with the Hunters Point Shipyard Navy Transfer Risk Management Plan.

5.2 INTERIM OPERATIONAL REQUIREMENTS

Essential to the function of site infrastructure are the interim improvements which may be requested to serve an early phase of the development. An early phase of work may trigger a need for interim parking, drainage, water mains, sewer mains, dry utilities, or modifications to existing utilities for a locale prior to it receiving its final Improvements per the Infrastructure Plan. A specific example is a vehicular turn-around area needed at the terminus of a new street prior to the ultimate extension of the street. Construction and maintenance of such interim improvements shall be by the Developer subject to the DRDAP process and other DDA requirements. These interim improvements shall be removed, relocated or abandoned by the Developer, at the Developer's sole cost and with approval by Department of Public Works, after final Improvements are in place.

Normally, the wet utilities within City right of way will be installed per the requirements of this Infrastructure Plan when the new street is constructed; however, the Developer reserves the right to request of the City the ability to connect these new wet utilities to the existing City facilities. City concurrence shall not be unreasonably withheld, provided City system capacities are not exceeded. For example, new storm and sanitary sewer segments may be temporarily connected to the City's combined sewer mains.

Where requested by Developer, and if the designated City Agency or Agencies with jurisdiction over the affected Infrastructure determines it is appropriate in connection with the phased development of the Project, portions of the Infrastructure may be constructed or installed as interim improvements to be owned and maintained by the Developer. Interim improvements would be removed or abandoned, as determined by the Acquiring Agency, when substitute permanent Phase Improvements are provided to serve a subsequent Development Parcel.

Where requested by Developer, and if the designated City Agency or Agencies with jurisdiction over the affected Infrastructure, determines it is appropriate in connection with the phased development of the Project, portions of the Infrastructure may be constructed or installed as permanent improvements outside of the current phase.

5.3 WATERFRONT TRANSPORTATION

Waterfront transportation improvements, including a passenger ferry terminal, may be implemented at a future time. These improvements are not part of the Project.

5.4 WATERFRONT IMPROVEMENTS

The existing waterfront of the HPS2 Area is characterized by a wide variety of conditions. Virtually the entire HPS2 Area shoreline consists of pile supported piers, timber crib walls, concrete bulkheads, riprap and similar shoreline protection structures. There are some areas of beach-fronted, unprotected slopes.

Except those Improvements noted as work to be performed by the Navy, the Developer will make Improvements to the shorelines to minimize, to the maximum extent practical, coastal flooding and to provide continuous public access along the San Francisco Bay. Shoreline Improvements in the HPS2 Area will be phased over a period of several years. The principal of adjacency described in Section 6 shall generally apply to the phasing of shoreline improvements. Proposed shoreline improvements and modifications along the HPS2 Area shoreline are defined below. The scope of Waterfront Improvements – rehabilitation, repair, abandonment and demolition – as presented herein are the basis of the Water Improvement funding stipulated in the DDA. The total scope of all Waterfront Improvements is limited to the total of the funding allocated to Waterfront Improvements by the DDA.

The improvements described below are based on a preliminary engineering evaluation. Detailed investigations of the shoreline condition will be performed by Developer to further define the scope of shoreline improvements. Using the information from these investigations, the Developer will submit a Technical Memorandum on the Infrastructure to be implemented, including rehabilitation, or demolition and abandonment, of existing waterfront structures based on detailed marine structure and geotechnical engineering analysis. This Technical Memorandum will further refine the improvements summarized below. The Developer will provide improvement or demolition as recommended by the Technical Memorandum. If the structure is determined to be adequate, or repairable to current codes with relatively minor repairs, the Developer will conduct the repairs for

continued public use as Open Space. If the investigation finds the structure to be significantly deficient or expensive to repair, the Developer will demolish the wharf portion, or allow it to remain in place with appropriate landscaping improvements that will deter public access. For reference, berth locations are shown on Figure 5.4.1.

RIP-RAP PROTECTED SLOPE (NORTHSIDE PARK)

No work anticipated. This portion of shoreline will be improved to a rip-rap revetment by the Navy.

SUBMARINE DRYDOCKS (WATERFRONT PROMENADE)

- Install a raised embankment, either along the shoreline with rock protection on the Bay side, or setback from the shoreline depending on the location of the public trail that is still in the planning stages.
- Public access improvements along the shoreline, and reserving a 20-ft wide buffer for future adaptation (see Section 3.4.2)

WHARF ALONG BERTHS 55 TO 61 (WATERFRONT PROMENADE)

- Repairs to the 4-ft diameter steel caisson piles, which may range from limiting ongoing corrosion by wrapping or encasing the piles in concrete, to structural retrofit of piles by welding additional steel plates to the piles.
- Repairs to the reinforced concrete beams and deck slab, including spall repair, using shotcrete, grout, and/or epoxy injections.
- Public access improvements along the shoreline, and reserving a 20-ft wide buffer for future adaptation (see Section 3.4.2)

RIP-RAP PROTECTED SLOPE EAST OF BERTH 55 (HERITAGE PARK)

- Public access improvements along the shoreline, and reserving a 20-ft wide buffer for future adaptation (see Section 3.4.2)

DRYDOCKS 2 AND 3 (HERITAGE PARK FRONTAGE)

- Install a wave protection embankment/berm inland of the drydock edge
- Add weep holes as needed on the sidewalls of the Drydocks from above the lowest tide to near the top of the dry dock walls.

- Repair the exposed drydock walls by patching any spalls, exposed and corroded reinforcing bars, and broken concrete. This may include applying high strength concrete grout to exposed surfaces and/or epoxy mix application to cracks. Repairs will extend from below the lowest tide up to near the top of the dry dock walls.
- Public access improvements along the shoreline, and reserving a 20-ft wide buffer for future adaptation (see Section 3.4.2)

WHARF AT OUTBOARD END BETWEEN DRYDOCKS 2 AND 3(HERITAGE PARK)

The existing timber structure has been demolished and removed by the Navy.

DRYDOCKS 2, 3, AND 4 (WATERFRONT PROMENADE NORTH PIER BETWEEN DRY DOCK 2 AND THE NORTHERN MARINA)

- Repair or replace the existing steel bulkhead.
- Conduct an inspection of the pile-supported wharf portion of the wharf, assess the structural integrity of the deck and piles, and make appropriate repairs for continued public access along this reach.
- Public access improvements along the shoreline, and reserving a 20-ft wide buffer for future adaptation (see Section 3.4.2)

DRYDOCKS 2, 3, AND 4 (NORTHERN MARINA)

- Retrofit the bulkheads via jetgrouting the timber cribs or similar method
- Patch exposed spalls, replace reinforcing bars that are exposed and deemed to be necessary, inject epoxy material to cracks, and fill visible holes and/or depressions.
- Public access improvements along the shoreline, and reserving a 20-ft wide buffer for future adaptation (see Section 3.4.2)

SHORELINE OF DRY DOCK NO. 4

- Install a wave protection embankment/berm inland of the drydock edge
- Add weep holes as needed on the sidewalls of the Drydocks from above the lowest tide to near the top of the dry dock walls.

- Repair the exposed drydock walls by patching any spalls, exposed and corroded reinforcing bars, and broken concrete. This may include applying high strength concrete grout to exposed surfaces and/or epoxy mix application to cracks. Repairs will extend from below the lowest tide up to near the top of the dry dock walls.
- Public access improvements along the shoreline, and reserving a 20-ft wide buffer for future adaptation (see Section 3.4.2)

EASTERLY SHORELINE OF PARCEL D

- Install a raised embankment, either along the shoreline with rock protection on the Bay side, or setback from the shoreline depending on the location of the public trail that is still in the planning stages.
- Public access improvements along the shoreline, and reserving a 20-ft wide buffer for future adaptation (see Section 3.4.2)

EASTERLY SHORELINE OF PARCEL E

- Install a raised embankment, either along the shoreline with rock protection on the Bay side, or setback from the shoreline depending on the location of the public trail that is still in the planning stages.
- Public access improvements along the shoreline, and reserving a 20-ft wide buffer for future adaptation (see Section 3.4.2)

RE-GUNNING CRANE PIER HABITATS

- Conduct an inspection of the crane foundations, and retrofit as needed after coordinating with OCII
- Conduct an inspection of the cellular sheet piles, identify portions and extent of demolition of the sheetpiles, lay back the slopes behind the sheetpiles, and install edge treatment measures that will allow establishment of marsh vegetation or other habitat-friendly vegetation over time.
- Remove concrete, asphalt, and other features behind the existing edge and resurface appropriately to establish habitat in this area.
- Public access improvements (still under planning – extents to be determined)

THE GRASSLANDS ECOLOGY PARK SOUTHERN PORTION

- Public access improvements landward of the Navy-constructed shoreline edge

GRASSLANDS ECOLOGY PARK NORTH

- Public access improvements landward of the Navy-constructed shoreline edge

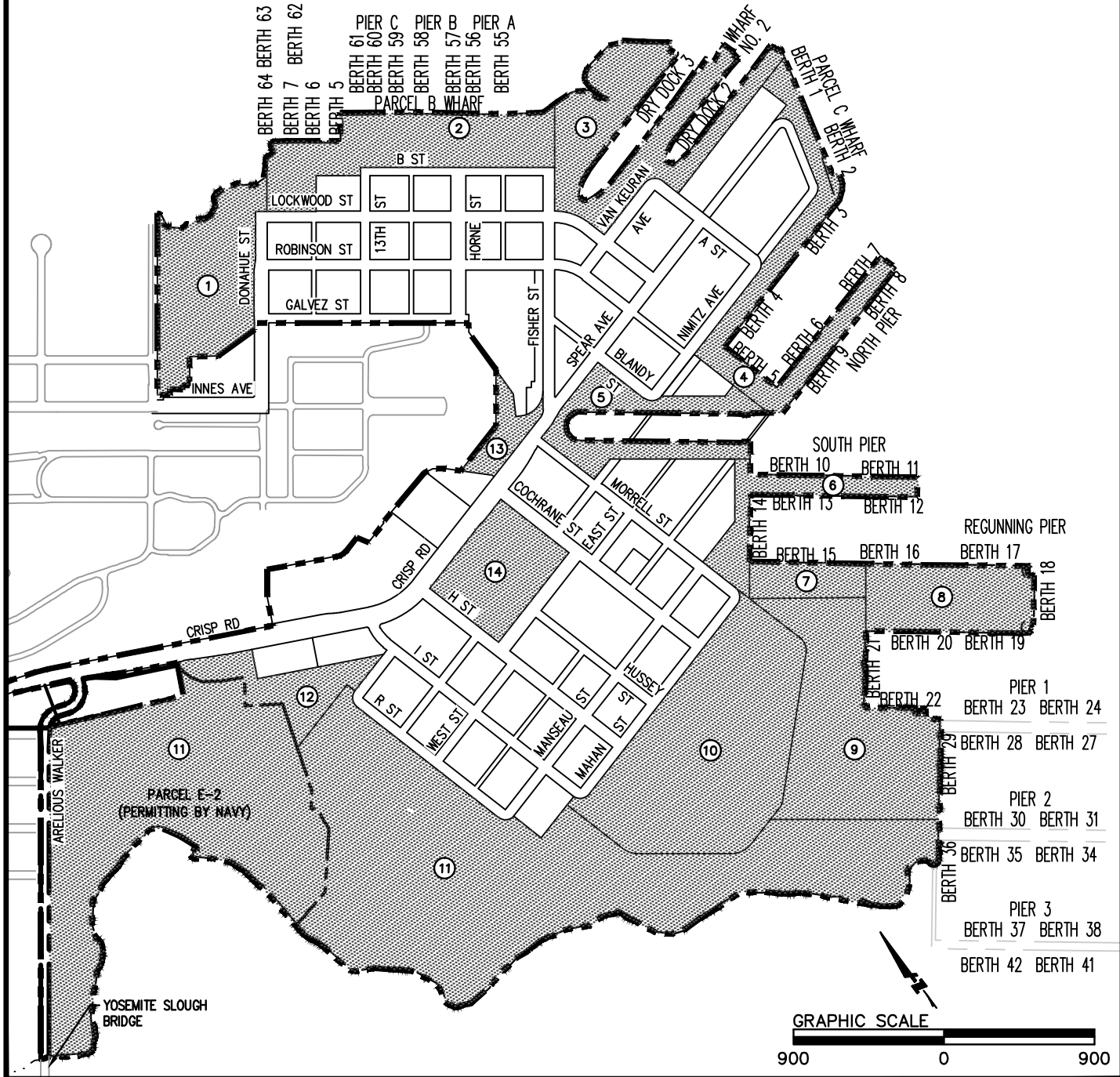
PARKS AND OPEN SPACE

1. NORTHSIDE PARK
2. WATERFRONT PROMENADE NORTH
3. HORNE BLVD PARK 1
4. HORNE BLVD PARK 2
5. HERITAGE PARK
6. WATERFRONT PROMENADE NORTH PIER
7. WATER ROOM PLAZA/DRY DOCK 4/
PEDESTRIAN AND BICYCLE BRIDGE
8. WATERFRONT PROMENADE SOUTH PIER
9. WATERFRONT RECREATION &
EDUCATION PARK

10. GUNNING CRANE PIER HABITATS
11. MULTI USE OPEN SPACE
12. COMMUNITY SPORTS FIELD
COMPLEX
13. GRASSLANDS ECOLOGY PARK
14. MAINTENANCE YARD
15. SHIPYARD HILLSIDE
OPEN SPACE
16. GREEN ROOM

LEGEND

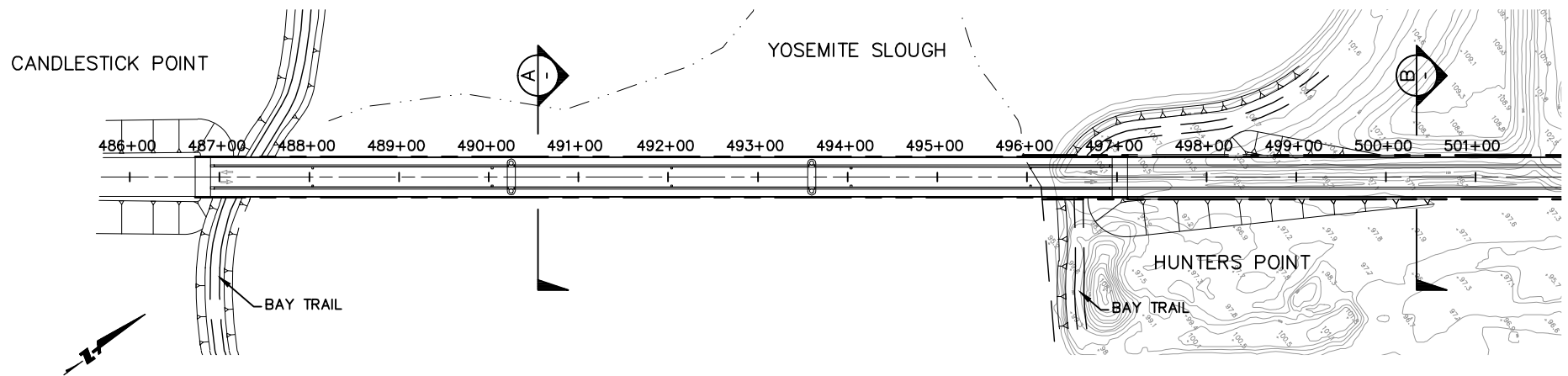
- PROJECT BOUNDARY
- ⑥ PARK IDENTIFICATION
NUMBER
- [Hatched Box] PARKS AND OPEN
SPACE



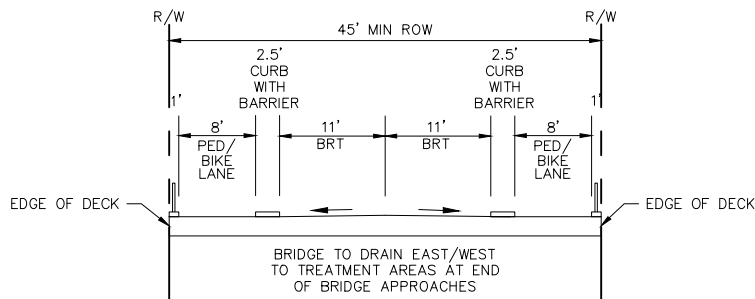
5.5 YOSEMITE SLOUGH BRIDGE

A new Yosemite Slough bridge will be constructed to extend Arelious Walker Drive across Yosemite Slough from the CP Area to the HPS2 Area as shown on Figure 5.5.1. The bridge is intended to primarily function for transit, bicycle, and pedestrian use. The bridge will be a maximum of 45-feet wide and have two dedicated 11-foot-wide BRT lanes and space for bicycle and pedestrian use, both of which would be open at all times. The bridge will be approximately 902 feet long with abutments on the north and south ends connecting the bridge to land. Preliminary studies indicate the bridge will be supported by 8 piers of four columns each.

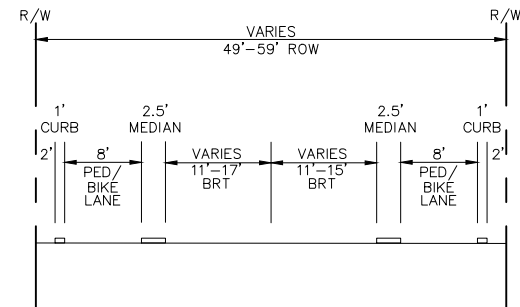
The bridge would be served by approach streets from the Hunters Point side to the north and the Candlestick Point side to the south. The bridge approach on the Hunters Point side would consist of approximately 1,000 feet of new bridge approach roadway connected to 970 feet of new Arelious Walker Drive connecting Crisp Avenue to the bridge. The bridge approach street on the Candlestick Point side would consist of 250 feet of bridge approach roadway. The approach streets will have two dedicated 11-foot-wide BRT lanes, which will be open at all times along with pedestrian and bicycle facilities. Stormwater from the bridge and approach streets will be subject to the requirements of the SMR. Conceptual bridge and approach street layouts and sections are shown on Figure 5.5.1. The final design for the bridge may be refined, but will be in compliance with the Environmental Impact Report and subsequent addenda.



YOSEMITE SLOUGH BRIDGE PLAN
NTS



SECTION A
NTS



SECTION B
NTS

The entrances to the bridge approach roadways along Arelious Walker Drive (both North and South of the bridge) will have barrier facilities that will prevent motorized vehicle traffic (except BRT vehicles) from accessing the bridge. A barrier or other enforcement mechanism acceptable to the City will also be installed to block the BRT lanes, such that only authorized buses and emergency vehicles may gain access. These facilities will be further defined in the Infrastructure submittals required in the DRDAP, but would most likely be in the form of a gate, retractable bollards, removable barriers, or photo enforcement.

To facilitate a safe and continuous bay trail connection between Candlestick Point and Hunters Point appropriate crosswalks will be installed across the approach roads at points that will accommodate users of the bay trail. In Candlestick Point the crosswalk will be at Arelious Walker and Carroll and in Hunters Point it will likely be within the first 500 feet of the approach road following the bridge. The exact location of the bay trail in Hunters Point is not set yet, but will be coordinated with the slough restoration project to accommodate this crossing. The approximate locations of these crossings are shown on Figures 5.6.1. At the time the bridge and its approach roadways are accepted by the City for operation and maintenance, they will be designated by the City as public right-of-way with restrictions. The bridge and roadways will be restricted to transit-only use and closed to private vehicular traffic. The remainder of the time, the auto and BRT lanes would be restricted to prevent private vehicular use of the BRT and auto lanes, but allow free passage of pedestrians and bicyclists.

5.6 GRADING & SURCHARGE

Grading, including preparation, import fill, excavation fill and compaction consistent with the Project Risk Management Plan and Soil and Groundwater Management Plan, will occur to some degree over certain portions of the HPS2 Area. The preliminary site grading plan is shown on Figure 5.6.1. Final grades based on this preliminary site grading plan will be determined through the design review and approval process. The degree of grading will vary depending upon the needs of each zone within the HPS2 Area as determined by gravity utilities, access requirements, projections of SLR, and/or other criteria. Grades in all areas of the Project will be adequate to accommodate the storm drain overland flow considerations. In addition to grading, retaining walls may need to be constructed by the Developer in specific portions of the HPS2 Area. These retaining walls may be needed in major landslide hazard areas as required by the Geotechnical Analysis of the site. Retaining walls may also be needed on sloped parcels to create a level pad. Upon acceptance of the retaining walls by the City, the underlying property owners will have all responsibility for their operation and maintenance.

Surcharge techniques may be utilized in particular zones, including right of way areas, in order to accelerate consolidation. The grading will be defined by the Hunters Point Shipyard Phase II Development Grading and Storm Drain System Master Plan prepared by BKF Engineers, which has been submitted by the Developer to the City, and subsequent approved final version.

5.7 UTILITY RELOCATION

A number of existing utilities may require relocation during the course of Project development. Additionally, undefined relocations may be necessary to accommodate the installation of Infrastructure described elsewhere in this Infrastructure Plan. It will be the responsibility of the Developer and utility companies to maintain service to existing users. When feasible, all utilities should be installed in the locations provided for in the respective Technical Memoranda or Draft Master Utility Plans, to avoid relocation. Relocations shall be delineated in the Tentative Map process, detailed in the Improvement Plan process, and considered a financial obligation of the Developer pursuant to this Infrastructure Plan or unless indicated otherwise in the DDA, or separate agreement.

5.8 COMMUNITY FACILITIES LOTS

There are several Community Facilities Lots at the HPS2 area which include a fire station lot as well as lots for other community uses as defined in the Candlestick Point and Phase 2 of the Hunters Point Shipyard Community Benefits Plan. The locations of these Community Facilities Lots are shown on Figure 5.8.1.

5.8.1 CONDITION OF AGENCY PARCELS

In coordination with the requirements of the DDA and as part of the Project Infrastructure, the Developer shall complete all work necessary to create Developable Lots for Community Facilities within the Project Site, and shall deliver such Lots to the Agency. To be a Developable Lot, the following conditions shall be met:

1. A final subdivision map for conveyance and financing of the Lot as a separate legal parcel has been recorded in the Official Records of the City and County of San Francisco, and applicable appeal periods for such approvals and the environmental clearances for such approvals have expired without appeal, or if there has been an appeal, a final non-appealable judgment has been entered in a court or administrative agency of competent and final jurisdiction affirming the approvals and environmental clearances that were issued for the building site;

2. The Lot has been graded and soil compacted in accordance with the grading plans approved by the Agency, including necessary elevations;
3. The Lot is served by the Infrastructure described in this Infrastructure Plan with respect to the Lot;
4. The Lot is in the environmental regulatory condition required by the DDA based upon the proposed use of the Lot; and
5. All other obligations outside the boundaries of the Lot as required by all applicable Governmental Agencies have been fulfilled, or appropriate guarantees, bonds and/or subdivision improvement agreements acceptable to the City are in place, to enable a Vertical Developer to obtain a building permit to commence construction on the Lot.

With respect to the Open Space Parcels, in addition to creating Developable Lots as set forth above, Developer shall also complete the surface improvements and utilities in accordance with the Park and Open Space Plan.

5.9 HILLPOINT PARK PATH

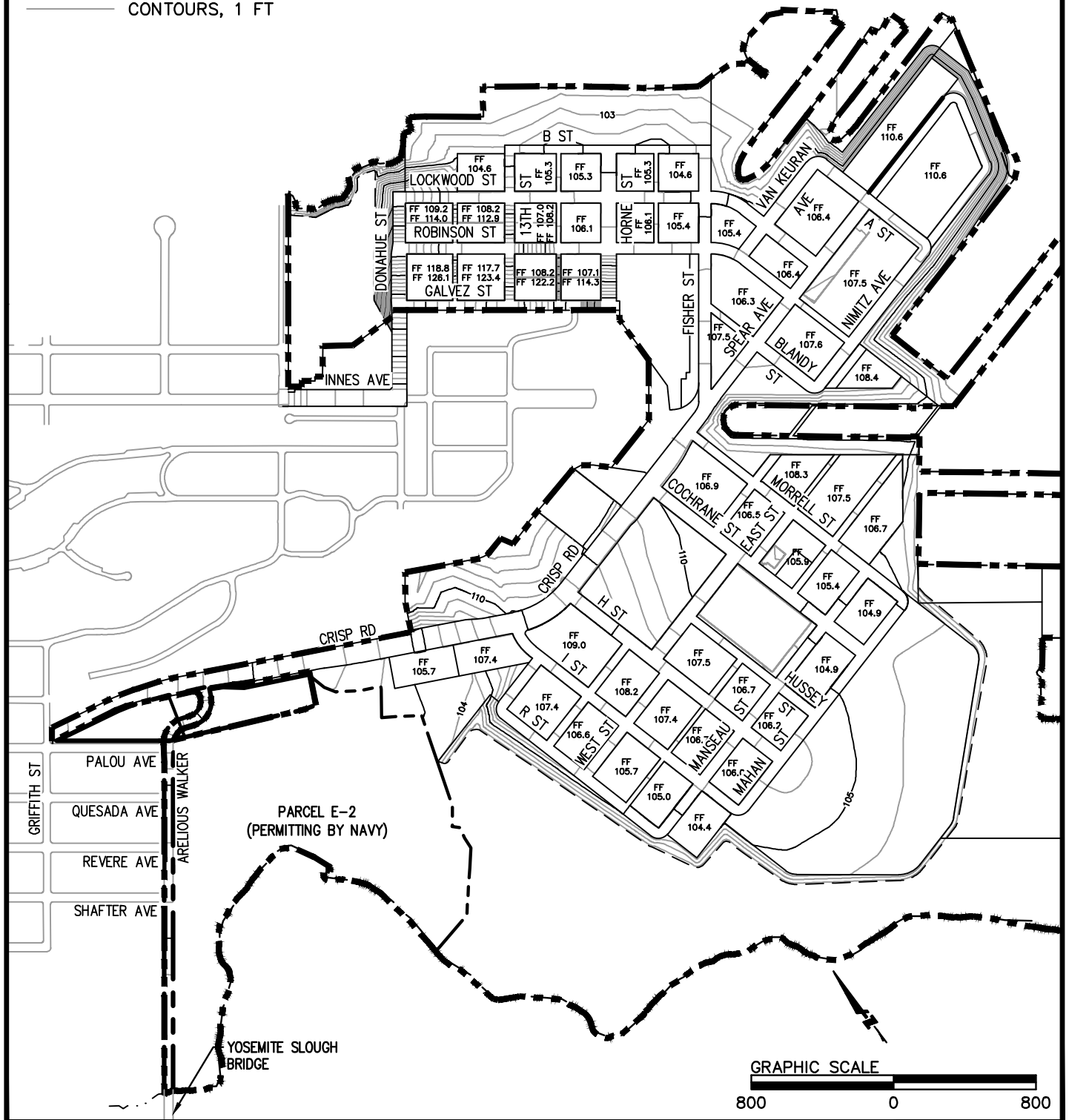
The Developer shall provide a pedestrian path from Hillpoint Park in the Hunters Point Shipyard Phase I area to the Spear / Crisp / Horne Street area as specified in California Senate Bill 792 and the Public Trust Exchange Agreement.

5.10 TRANSPORTATION MANAGEMENT SYSTEM

In conjunction with the roadway facilities and transportation improvements described herein, a transportation management system will be implemented. The system will allow for the coordination of signals at over 25 intersections in the Project area and surrounding area using fiber-optic or equivalent technology.

LEGEND

- PROJECT BOUNDARY
- CONTOURS, 5 FT
- CONTOURS, 1 FT

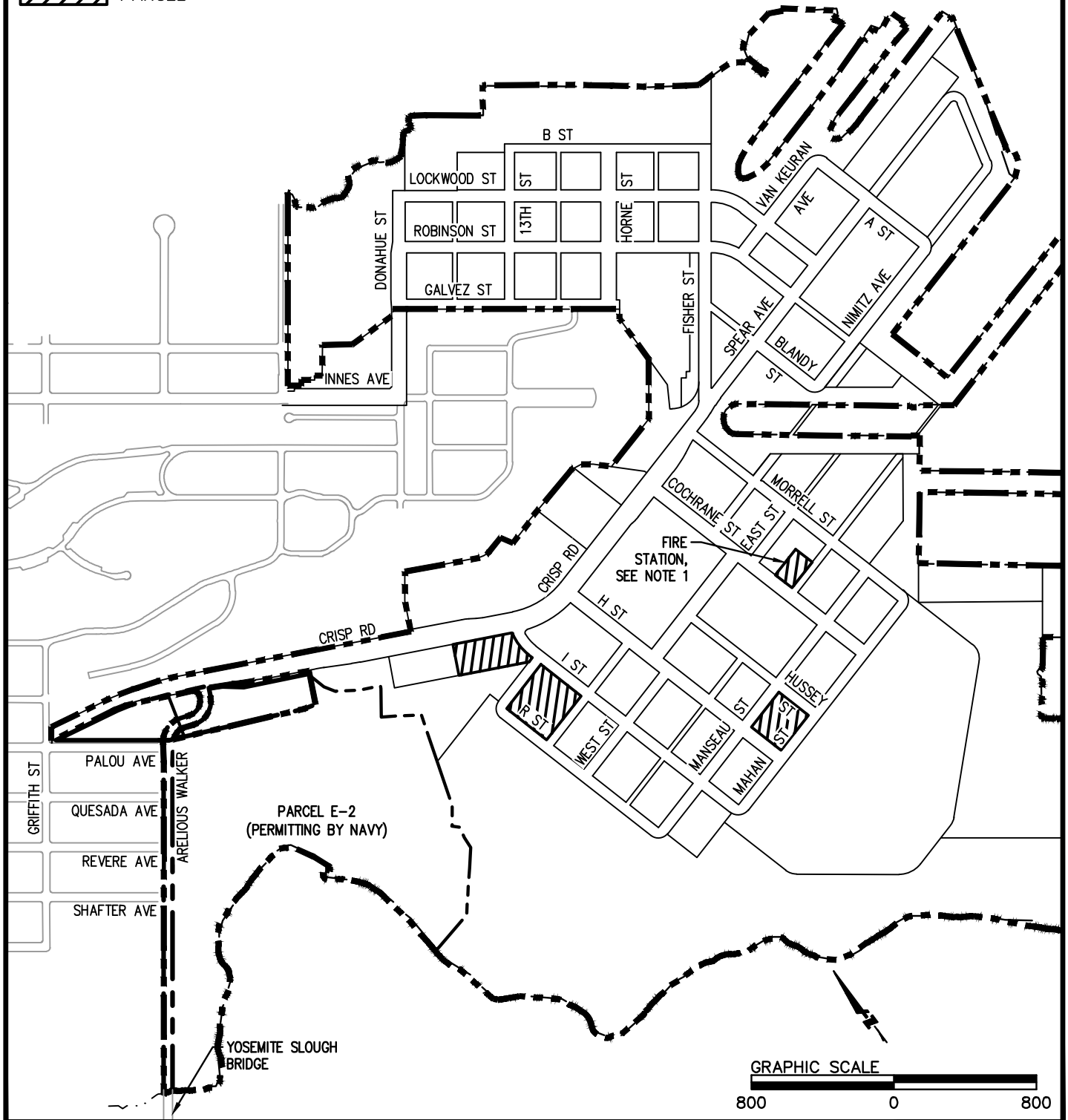


LEGEND

- PROJECT BOUNDARY
- COMMUNITY FACILITY PARCEL

NOTE:

1. PLACEHOLDER LOCATION FOR THE FIRE STATION LOT, SUBJECT TO CHANGE AFTER CONSULTATION WITH SSFD.



6. INFRASTRUCTURE PHASING METHODOLOGY

6.1. INFRASTRUCTURE PHASING

Infrastructure improvements will be constructed in accordance with the development phasing plan presented in the DDA. Improvements will be constructed in accordance with the Adjacency principle or based on cumulative development requirements as described more fully below.

6.1.1 ADJACENCY

Adjacency is a primary underlying principle of the phasing of improvements described in this HPS2 Area Infrastructure Plan, and unless otherwise specifically provided in the DDA and Plan Documents, Infrastructure will be constructed based on this principle. When development occurs in a Major Phase, Sub-Phase, or for a discrete portion of the development (Block) therein, the adjacent Infrastructure necessary for access and for utilities, such as streets (including Infrastructure 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, Sub-Phase or Block but which may not be immediately adjoining or contiguous with a Major Phase, Sub-Phase, or Block. Infrastructure will be constructed in accordance with the adjacency principle, unless other specific criteria described below applies.

Similarly, the construction of low pressure water, recycled water, storm drainage (including LID measures), sewer, and other utility facilities will be constructed as part of the roadway infrastructure. Infrastructure improvements necessary to make the utility facilities operable, whether located in the HPS2 Area or off-site, are required to be constructed in unison. Unless specifically agreed to otherwise, segments of adjacent infrastructure required for a Major Phase, Sub-Phase, or Block shall be no less than complete street sections (back of sidewalk to back of sidewalk) for at least one continuous block (intersection to intersection).

The conceptual limits of the existing Infrastructure to be demolished as well as conceptual layouts of the permanent and/or temporary infrastructure systems for each Development Parcel will be provided as part of the construction document submittals for that Development Parcel or Phase. Repairs and/or replacement of the existing facilities necessary to serve the Development Parcel will be designed and constructed by the Developer.

Proposed infrastructure improvements are anticipated to be constructed by the adjacency principle, with the exception of the following improvements:

- Development of Residential Blocks 6 and 9 - Construct Galvez Street adjacent to development and extend to existing artist buildings east of intersection with Horne Street.

6.1.2 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, and before improvements would be constructed due to Adjacency.

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 HPS2 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 6.1.1, and added to the total calculated number of p.m. peak hour vehicle trips already generated by the developed portions of the CP/HPS2 Project, using the same trip rates. This number will determine which infrastructure Improvements must be implemented, other than those already required by the adjacency principle.

Table 6.1.1 Effective PM Peak Hour Vehicle Trip Generation Rates
Hunters Point Shipyard Phase 2

<u>Land Use</u>	<u>Amount Provided</u>	<u>Unit</u>	<u>Effective PM Peak Hour Trip Generation Rate (Auto Trips Per Unit of Development)^a</u>
Residential	3,454	units	0.25
Neighborhood Retail	225	ksf	1.62
Regional Retail	100	ksf	5.81
Hotel	175	rooms	0.31
Community Services	50	ksf	1.33
Park	238	acres	0.03
R&D	4,265	ksf	0.33
Maker's Space	75	ksf	1.37
Artist Studios	255	ksf	0.19
School ^b	264	students	0.07

SOURCE: Fehr & Peers, 2017.

- The effective rates are the total number of person trips forecasted to be generated by each use, with the mode split forecasts developed as part of the project's transportation impact study. The rates are based on the trip generation methodology used in the traffic analysis which includes reductions due to the Project's land use mix and estimated transit mode share. The number of auto trips generated per unit of development is dependent on both the size of development and the mix of uses proposed. As the project uses change, the vehicle trip generation rates per unit of development may not be constant. Thus, the rates presented in this table should be used cautiously.
- The effective rate accounts for different school types (public and private) and a range in student grade (elementary through high school).

Tables 6.1.2 and 6.1.3 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 (or other metric, as applicable) that establish the need for each such Improvement. The number of p.m. peak hour vehicle trips shown in Tables 6.1.2 and 6.1.3 could result from a variety of project development schemes and land use combinations. The trip rates shown in Table 6.1.1 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 6.1.2 and 6.1.3, respectively.

Transit service improvements shall be gradually increased to anticipate development build-out as described in the Transit Operating Plan.

Table 6.1.2 Project Intersection Improvements
Hunters Point Shipyard Phase 2

<u>Intersection</u>	<u>Improvements</u>	<u>Traffic Volume Trigger?^a</u>	<u>Trigger^b</u>
<u>Project Improvements</u>			
Crisp Road / Arelious Walker Drive	New Traffic Signal	No	Construction of the Yosemite Slough Bridge / BRT
Crisp Road / Donahue Street	New Traffic Signal	No	Adjacency ^c
Crisp Road / H Street	New Traffic Signal	No	Adjacency ^c
Crisp Road / Cochrane Street	New Traffic Signal	No	Adjacency ^c
Crisp Road / Spear Avenue / Fisher Street	New Traffic Signal	No	Adjacency ^c
Spear Avenue / Robinson Street	New Traffic Signal	No	Adjacency ^c
Spear Avenue / Lockwood Street	New Traffic Signal	No	Adjacency ^c
Fisher Street / Robinson Street	New Traffic Signal	No	Adjacency ^c
Fisher Street / Lockwood Street	New Traffic Signal	No	Adjacency ^c
Robinson Street / Donahue Street	New Traffic Signal	No	Adjacency ^c
Innes Avenue / Donahue Street	New Traffic Signal	No	Sub-Phase HP-01
Palou Avenue / Griffith Street / Crisp Avenue	New Traffic Signal / Reconfiguration ^d	No	Sub-Phase HP-01
Palou Avenue / Hawes Street	New Traffic Signal	Yes	Sub-Phase HP-05
Palou Avenue / Ingalls Street	New Traffic Signal	Yes	Sub-Phase HP-05
Palou Avenue / Jennings Street	New Traffic Signal	Yes	Sub-Phase HP-05

<u>Intersection</u>	<u>Improvements</u>	<u>Traffic Volume Trigger?^a</u>	<u>Trigger^b</u>
Palou Avenue / Keith Street	New Traffic Signal	Yes	Sub-Phase HP-05
Palou Avenue / Lane Street	New Traffic Signal	Yes	Sub-Phase HP-05
Palou Avenue / Ingalls Street	New Traffic Signal	Yes	Sub-Phase HP-05
Ingalls Street / Carroll Avenue	New Traffic Signal / Reconfiguration ^e	Yes	Sub-Phase CP-04 (Approximately 3,200 PM Peak Hour Vehicle Trips (CP & HP) ⁱ
Ingalls Street / Thomas Avenue	New Traffic Signal / Reconfiguration ^f	Yes	Sub-Phase CP-04 (Approximately 3,200 PM Peak Hour Vehicle Trips (CP & HP) ⁱ
Hunters Point Boulevard / Evans Avenue / Jennings Street	New Traffic Signal / Reconfiguration ^g	No	Sub-Phase HP-01
Pennsylvania Avenue / 25 th Street	New Traffic Signal	Yes	1,926 PM Peak Hour Vehicle Trips
<u>Mitigation Measures</u>			
Amador / Cargo / Illinois	Reconfiguration ^h	Yes	2,121 PM Peak Hour Vehicle Trips

SOURCE: Fehr & Peers, 2017

- a. Assumes other background traffic increases at same rate as build-out of the Project.
- b. Where multiple triggers are provided, the trigger shall be whichever event occurs first. When a Sub-Phase is listed as the trigger, the improvement shall be fully constructed and operational prior to occupancy of the Sub-Phase.
- c. Intersection improvements, such as traffic signals, will be constructed with construction of roadway and/or intersection.
- d. The Project will reconfigure the intersection based on traffic studies, on coordination and feedback from the SFMTA, and to conform to recently constructed improvements coordinated by SFDPW.
- e. The Project will reconfigure Carroll Avenue to provide two travel lanes and a bicycle lane in each direction. This will allow for a shared left turn and through lane, and a shared through and right turn lane at both the east- and westbound approaches. The southbound approach will be reconfigured to allow for two approach lanes: a left turn lane, and a shared through and right turn lane. The reconfiguration of the southbound approach will require displacement of about 200 feet of on-street parking/loading on the west side of Ingalls Street.
- f. The Project will reconfigure the westbound approach of Thomas Avenue to Ingalls Street to provide two lanes, a left turn lane, and a shared through and right turn lane. Thomas Avenue will be reconfigured to provide two travel lanes in each direction and on-street parking on both sides of the street.
- g. The Project will reconfigure the existing three travel lanes on Evans Avenue in both the eastbound and westbound approaches to provide a shared through/left turn lane, a through lane, and a right turn lane. The Project will also reconfigure the southbound approach on Jennings Street to provide a southbound left turn pocket, a shared southbound through lane, and a right turn lane.
- h. Reconfigure the southbound approach to the intersection to provide one dedicated left-turn lane and one dedicated right turn lane. City is currently evaluating the feasibility of this mitigation measure.
- i. Combined total from CP and HP.

Table 6.1.3 Project Street Segment Improvements
Hunters Point Shipyard Phase 2

<u>Intersection</u>	<u>Improvements</u>	<u>Traffic Volume Trigger^a</u>	<u>Trigger</u>
<u>Project Improvement</u>			
Palou Avenue, Griffith Avenue to Third Street	Resurface and Restripe, Streetscape Amenities	No	Sub-phase HP-05
Thomas Avenue, Ingalls Street to Griffith Street	Resurface and Restripe, Streetscape Amenities	Yes	Sub-phase HP-01 (Reconstruction of Crisp Avenue)
Griffith Street, Thomas Street to Palou Street	Resurface and Restripe, Streetscape Amenities	Yes	Sub-phase HP-01 (Reconstruction of Crisp Avenue)
Innes Avenue, Donahue Street to Earl Street	Resurface and Restripe, Streetscape Amenities	No	Sub-phase HP-01
Innes Avenue / Hunters Point Boulevard / Evans Street, Earl Street to Jennings Street	Resurface and Restripe, Streetscape Amenities	No	Sub-phase HP-01
Crisp Road, Palou Avenue to Fischer Street	Resurface, Restripe, Realign	No	Sub-phase HP-01
<u>Mitigation Measures</u>			
Palou Avenue, Crisp Avenue to Third Street	Narrow sidewalks to 12-feet, transit only lane in both directions	TBD	Supplemental study to determine if transit travel times have degraded
Evans Street, Jennings Street to Napoleon Street	Convert one lane in each direction to transit only	TBD	Supplemental study to determine if transit travel times have degraded
Third Street, Thomas Avenue to Kirkwood Avenue	Provide exclusive LRT right-of-way, remove parking as needed	TBD	Supplemental study to determine if transit travel times have degraded

SOURCE: Fehr & Peers, 2017

a. Assumes other background traffic increases at same rate as buildout of the Project.

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 HPS2 Area until ultimate drainage systems are completed.

6.2. 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 this Section as well as those described in the DDA shall control the construction of Infrastructure Improvements.

6.2.1 INTERIM OPERATIONAL REQUIREMENTS

The interim operational requirements as described above in Sections 6.1 and 5.2 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.

6.2.2 INTERSECTION & STREET SEGMENT IMPROVEMENTS

INTERSECTION IMPROVEMENTS

Table 6.1.2 identifies the approximate levels of cumulative development that produces the number of vehicle trips to require the implementation of the HPS2 Area intersection Improvements at each intersection. Even if not required by the land use intensity threshold shown in Table 6.1.2, the principle of Adjacency will require the construction of intersection Improvements with development of an adjacent Project, regardless of the amount of overall cumulative development. In some cases, interim Improvements may be constructed until such time as the ultimate Improvements are warranted. Intersections will remain stop sign controlled until signal analysis criteria warrant signalization.

STREET SEGMENTS

Table 6.1.3 identifies the approximate levels of cumulative development that would require the implementation of the HPS2 Area street segments Improvements. Even if not required by the land use intensity threshold shown in Table 6.1.3, the principle of Adjacency will require the construction of street segments with the development of an adjacent Project as described above.

6.2.3 OPEN SPACE

Timing of open space development will be delineated by the schedule of performance outlined in the DDA.

6.2.4 INTERCONNECTING INFRASTRUCTURE

The following interconnecting Infrastructure systems should be provided based upon cumulative development requirements as follows: low pressure water, recycled water, separated sanitary sewer, separated storm drainage, electric power facilities and joint trench utilities.

6.2.5 NORTHSIDE PARK

Subject to the Navy parcel conveyance schedule, installation of the stormwater treatment infrastructure serving the Hunter's Point Phase 1 Hilltop development shall be installed concurrently with the first Sub-Phase of Phase II Infrastructure development in Parcel B.

7. PROJECT ALTERNATIVES

7.1 ALTERNATIVE INFRASTRUCTURE UTILITIES

A number of alternative infrastructure utilities have been considered for the project, including district heating and cooling, automated waste collection, and on-site wastewater treatment. These systems have been evaluated for use on the project, but have not been formally adopted as of the date of this Infrastructure Plan. Upon mutual agreement between the City and the Developer, future implementation of any of these systems could be integrated into the project design as project approvals progress, subject to environmental review. The infrastructure plans presented in this Infrastructure Plan would not preclude the future implementation of any of these systems. Infrastructure facilities to provide for the generation of on-site non-potable water are required to comply with Article 12C of the San Francisco Health Code.

7.2 HISTORIC STRUCTURE PRESERVATION

7.2.1 HUNTERS POINT COMMERCIAL DRY DOCK AND NAVAL SHIPYARD HISTORIC DISTRICT

Dry Docks 2, 3, and 4, and four existing buildings (Buildings 140, 204, 205, and 207) in the Hunters Point Commercial Dry Dock and Naval Shipyard Historic District, as defined in the EIR, are identified as historic resources on the National Register of Historic Places. In addition, Buildings 208, 211, 224, 231 and 253 have been identified as being eligible for listing under the California Register of Historic Resources.

7.2.2 HISTORIC PRESERVATION STRATEGY

The Project and the Project Alternative both propose to stabilize and preserve Dry Docks 2, 3 and 4 and Buildings 140 and 205 consistent with the Secretary of Interior Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings. In addition Buildings 204, 207, and 208 will be retained as features of the cultural landscape.

Per the DDA, the economic feasibility for rehabilitating Buildings 211, 224, 231 and 253 will be studied and determined prior to their development. Under the Project Alternative, four Navy buildings within the Shipyard R&D District will be considered for retention, subject to an economic and physical feasibility analysis that will be undertaken in conjunction with the selection of the Project Alternative. The four buildings considered for full or partial retention are Building 211, Building 224, Building 231, and Building 253. Refer to Figure 7.2.1 for the locations of the existing buildings proposed to remain, subject to economic feasibility, within the Commercial Dry Dock and Naval Shipyard Historic District.

Historic Buildings 211, 231 and 253 are proposed to remain with adjacent grades elevated above the existing finished floors to meeting grading requirements defined by Table X.1 in Attachment 4 within Appendix C of the Project Subdivision Regulations. Should economic studies associated with rehabilitating Buildings 211, 231 and 253 indicate that is not feasible to preserve the buildings or raise the grade adjacent to the buildings while maintaining the building(s) integrity, the project may pursue an alternative grading and drainage strategy that includes maintaining existing grades and revise the Hunters Point Shipyard Phase II Development Grading and Storm Drain System Master Plan for review and approval by the SFPUC.

7.3 SEA LEVEL RISE STRATEGY

While improvements that are to be constructed as part of the HPS2 development are required to be a minimum of 66 inches above the existing base flood elevation to mitigate for SLR (as detailed in Section 3), all of the buildings in the proposed Historic District will remain at their current elevations, below this minimum criterion. The new development area will be accessed from the Historic District via a landscaped grading transition zone.

In addition to the SLR measures described in Section 3, barriers will be constructed to mitigate for SLR at the Historic District and to protect its buildings from flooding. The barriers will be designed to provide protection for up to 24 inches of SLR. To minimize the disruption of access and views from the Historic District to the shoreline, a higher level of protection will not be constructed during the initial phase of the project; however, an easement will be provided to allow future expansion of the barriers as needed to provide protection from more than 24 inches of future SLR as part of the AMP. Storm drainage improvements may be required to support implementation of the AMP. Such storm drain Improvements shall be constructed and financed by, or caused to be constructed and financed by, the entity responsible for implementing the AMP.

LEGEND

----- PROJECT BOUNDARY

 COMMERCIAL DRY DOCK AND NAVAL SHIPYARD HISTORIC DISTRICT BUILDINGS

NOTE:

1. IF RETENTION OF BLDG 211 IS FOUND TO BE ECONOMICALLY FEASIBLE, THE ROAD NETWORK WILL BE RE-ALIGNED TO FACILITATE ITS RETENTION

