



December 11, 2013

Mr. Chris Kern
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1650 Mission Street, Suite 400
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Subject: DRAFT Analysis of Transportation Effects of Project Refinements to the Candlestick Point/Hunters Point Shipyard Phase II Project Since Certification of the Project's Final EIR

Dear Chris:

As you know, the *Candlestick Point/Hunters Point Shipyard Phase II Project Final EIR* (herein referred to simply as "EIR") was certified by the San Francisco Planning Commission and the San Francisco Redevelopment Commission in June 2010. Since that time, the Housing/R&D Variant (Variant 2A) has been advanced as the project. Since the certification of the EIR, a number of refinements have been proposed to Variant 2A. This letter summarizes a review of the proposed refinements to determine whether and to what extent they would change conclusions regarding significant transportation-related impacts and associated mitigation measures as described in the EIR.

TRAVEL DEMAND

At buildout, the project will contain the same land uses, the same levels of transit service, and a comparable roadway grid as was assumed in the EIR for Variant 2A. The primary factors that influence the project's travel demand have not changed; therefore, the project's travel demand forecasts as described in the EIR remain valid for conducting this assessment.

IMPACT TR-1: ON-SITE AND OFF-SITE CONSTRUCTION IMPACTS

As described in the EIR, construction of the Project would result in transportation impacts in the Project vicinity due to construction vehicle traffic and roadway construction and would contribute to cumulative construction impacts in the Project vicinity. The EIR concluded implementation of mitigation measure MM TR-1, which would require the Applicant to develop and implement a construction traffic management plan to reduce the impact of construction activity on



transportation facilities, would reduce the impacts caused by construction, but not to a less-than-significant level.

The overall amount of construction anticipated to occur as part of the modified Project will be the same as originally conceived and described in the EIR. However, the original analysis anticipated development phasing that would create more construction activities in the Hunters Point Shipyard in the early years of project buildout, with higher construction levels in Candlestick Point during later phases. The revised phasing proposed for the project will likely reverse this, with more construction activities in Candlestick Point during the earlier years and more activity in the Hunters Point Shipyard site during later years. The acceleration of construction in Candlestick Point is associated with demolition of Candlestick Park and construction of the Candlestick Point retail center and several blocks of housing surrounding the site. Postponement of construction in Hunters Point Shipyard is primarily a result of delays in transferring land from the US Navy to the City and County of San Francisco. An estimate of construction activities during the course of project buildout associated with the modified Project compared to the original project is provided in **Appendix A**. Note that the comparison shown in the Appendix is for the 2010 Stadium Alternative and the 2013 Modified Project.

Overall, although the timing and location of construction activities may vary within the site compared to what was originally anticipated, the construction activities are expected to create similar significant and unavoidable localized construction-related traffic impacts as were originally described in Impact TR-1 the EIR. Mitigation measure MM-TR-1, development of a Construction Traffic Management Program, would still apply, although impacts would continue to remain significant and unavoidable.

Therefore, construction of the modified project would not result in any new significant effects to transportation beyond those identified in the EIR or a substantial increase in the severity of a significant impact, and no new mitigation measures would be required.

IMPACTS TR-2 THROUGH TR-16: TRAFFIC IMPACTS TO REGIONAL AND LOCAL ROADWAY SYSTEM, STUDY INTERSECTIONS, AND FREEWAY FACILITIES

As described in the EIR, the Project would generate substantial amounts of new vehicular traffic resulting in a number of significant impacts and mitigation measures. More specifically, the EIR identified Impact TR-2, a significant impact related to the Project's overall increase in traffic



generation in relation to the current roadway system capacity. The EIR identified Mitigation Measure MM TR-2, the development and implementation of the Project's Transportation Demand Management (TDM) plan as a means to lessen the severity of Project-generated traffic impact; however, Impact TR-2 would remain significant and unavoidable with mitigation.

The EIR identified Impacts TR-3 through TR-8, which described locations where the Project would create new project-related impacts or contribute to significant cumulative impacts at study intersections. Mitigation Measures MM TR-4 (restriping at the intersection of Tunnel/Blanken), MM TR-6 (participating in the bi-county study and paying a fair share contribution toward improvements near the Geneva Avenue/US 101 interchange), MM TR-7 (restriping at the Amador/Cargo Way intersection), and MM TR-8 (participating in the bi-county study and paying a fair share contribution toward improvements near the Bayshore/Geneva intersection) were recommended to reduce the severity of Project-related impacts. However, due to uncertainty regarding implementation of mitigation measures, Impacts TR-3 through TR-8 were determined to remain significant and unavoidable with mitigation. The FIER also identified Impact TR-9, which described the project's less than significant impact to a number of other study intersections.

At a slightly larger scale, the EIR identified Impact TR-10, which describes the effect of Project-related traffic spilling over into nearby residential neighborhood streets. The EIR determined this impact to be significant, and referenced other mitigation measures described elsewhere in the EIR (including Mitigation Measure MM TR-2, the development and implementation of a TDM Plan) as appropriate strategies to reduce the severity of Impact TR-10. However, the EIR determined that the impact would remain significant and unavoidable with mitigation.

The EIR also identified a number of significant Project-related impacts to freeway facilities, including Impacts TR-11 through TR-15. No feasible mitigation measures were identified for Impacts TR-11 through TR-13 and these impacts would be significant and unavoidable. Mitigation Measures MM TR-14 and MM TR-15, which called for participation in the bi-county study and payment of a fair share contribution toward improvements near the Geneva Avenue / US 101 interchange area, were identified to reduce the severity of Impacts TR-14 and TR-15; however, since the implementation of these measures was uncertain, Impacts TR-14 and TR-15 would also remain significant and unavoidable.



Finally, the EIR identified Impact TR-16, a significant impact associated with the Project's contribution to traffic on Harney Way, which will be a primary access route for all modes between the Project site and regional transportation facilities (US 101, Bayshore Caltrain, Balboa Park BART, the Bay Trail, etc.). Mitigation Measure MM TR-16 called for the project to construct the initial phase of Harney Way at the outset of construction of the first major phase, which would reduce the Project's impact to less than significant.

Overall, at buildout, the modified Project will contain the same land uses, the same levels of transit service, and a comparable roadway grid as was assumed in the EIR for Variant 2A. The primary factors that influence the Project's travel demand have not changed; therefore, the modified Project's travel demand forecasts for buildout conditions will be identical to those described in the EIR.

There are two components to the discussion of the modified Project's traffic impacts: one component addresses how project refinements would affect impacts under long-term buildout conditions (similar to the conditions analyzed in the EIR) and the other component addresses how changes to project phasing would affect auto access to the site during the buildout period.

Buildout Conditions

The EIR's discussion of traffic impacts is based on project buildout. Minor refinements have been made to the internal roadway network, both to cross-section dimensions and roadway alignments. Refinements to roadway cross sections have been made to continue to encourage slow-speed auto traffic, but to better accommodate transit, bicyclists, and on-street parking based on recent SFMTA design guidance for travel lane widths. Specifically, changes fall into one of several categories. The categories of modifications, and their potential for creating new impacts, are discussed below:

- **Establish consistent design principles.** The revisions reflect recent direction from SFMTA regarding cross-section dimensions for various street components, such as width of parking lanes, width of travel lanes, and width of bicycle lanes. While there have been some refinements to specific lane dimensions, all auto and transit travel lanes will continue to be within a range of 10-12 feet, consistent with the range of widths analyzed in the original EIR. Parking lanes will be 8-feet wide, increasing to 9-feet when adjacent to Class II bicycle lanes, which is also within the range of between 7-9 feet for on-street parking included in the original EIR. Class II bicycle lanes will be 6-feet wide, except when



- adjacent to (9-foot wide) on street parking, in which case they will be 5-feet wide. Bicycle lanes between 5-6 feet wide are consistent with the range of bicycle lanes included in the original EIR. Sidewalks have been made more consistent such that they are nearly always either 12- or 15-feet wide, which is consistent with the range of sidewalk widths described in the original EIR.
- **Establish a more consistent BRT alignment.** The modifications also reflect direction from SFMTA regarding converting the BRT from a two-way, side-running alignment to a center-running alignment, where possible, to be consistent with other priority transit corridors in San Francisco. Generally, this affects the Hunters Point Shipyard site more than the Candlestick Point site. However, within Candlestick Point, adjacent to the wedge park, the BRT and auto lanes have been re-oriented so that both auto lanes are on the east side of the wedge park and both BRT lanes are on the west side of the wedge park, essentially offering similar benefits as center-running BRT, since the BRT lanes would essentially be operating in an exclusive roadway. Overall, SFMTA has determined that center-running BRT tends to be quicker and more reliable because left-turns at intersections, which conflict with the center-running BRT, can more easily be controlled by special signal phasing than right turns, which conflict with the side-running proposal. As a result, the changes should, if anything, result in a faster and more reliable BRT route.
 - **Reorientation of some streets in Candlestick Point.** The original transportation network analyzed in the EIR had one east-west residential street in Candlestick Point parallel to and between Ingerson Avenue and Gilman Avenue and one street parallel to and between Egbert Street and Gilman Avenue. The original plan had north-south mid-block breaks (also referred to as alleys) on either side of Earl Street (parallel to Earl Street). However, with the proposed changes to the BRT-only roadway on the west side of the wedge park, the east-west streets would dead-end at the wedge park, potentially forcing autos to turn into the BRT lanes. To respond, the functionality of these streets was switched, essentially converting these two east-west residential streets into mid-block breaks and the two north-south mid-block breaks described above into residential streets. Overall, this swap will result in approximately the same level of auto capacity in the area and is anticipated to result in only minor, localized changes to auto circulation.
 - **Revised bicycle network.** The project modifications include a new cycletrack facility that closes a gap in the bicycle network near the project's retail center. The cycletrack would



- extend west of the project site, along Harney Way toward US 101¹ replacing the originally-proposed Class II bicycle lanes on both sides of the street. Refer to the bicycle impacts section of this letter for further discussion. Illustrations of the revised configuration of the first phase of Harney Way are provided in **Appendix B**. In other locations Class II bicycle lanes have been proposed to be converted to Class III routes. Refer to the discussion of bicycle impacts for further discussion of the changes to the bicycle network.
- **Yosemite Slough Bridge.** The bridge width is currently proposed to be four feet wider than the previously-approved non-stadium alternative, but substantially narrower than the approved stadium alternative, and therefore, within the range of bridge widths considered in the EIR. The additional four feet will accommodate bicycle and pedestrian circulation on both sides of the bridge and will accommodate maintenance vehicles on both sides of the bridge. Overall, the additional width will provide more space for bicycles and pedestrians, and better allow for maintenance to occur with minimal disruption to BRT service.
 - **Reorientation of Street Grid in Hunters Point South.** Streets in the Hunters Point South neighborhood have been re-oriented to allow for the BRT route to penetrate the center of the neighborhood at the intersection of Crisp Avenue / Fischer Street. This should, if anything, further promote the use of transit from the Hunters Point South neighborhood. Overall, the size and density of the street grid in Hunters Point South is similar to what was originally approved in the EIR for Variant 2A - Housing, and therefore, transportation capacity is expected to be similar.

Although most roadway cross-section refinements consist of relatively minor modifications to the roadway network to accommodate refined bus circulation, bicycle networks, and pedestrian amenities as described above, one refinement is proposed – to Arellous Walker Drive – that does affect vehicular capacity at buildout.

¹ The EIR anticipated that Harney Way would be constructed in two phases. The first phase would construct two auto travel lanes in each direction (with two BRT lanes, on-street bicycle lanes, and a center turn lane). The changes proposed for the initial configuration of Harney Way do not affect auto capacity, but rather use land reserved for potential future expansion to extend the two-way Class I cycletrack from the project site west toward the Bay Trail. The Class I cycletrack would be removed if Harney Way were widened to its ultimate width because of the need for auto capacity. Under these circumstances, bicycle conditions along Harney Way would be identical to what was originally approved in the EIR.



Currently, Arelious Walker Drive is a short roadway between Gilman Avenue and Carroll Avenue that provides access to parking areas for Candlestick Park stadium. As previously proposed in the CP/HPS Phase II redevelopment plan and analyzed in the EIR, Arelious Walker Drive would be extended south to Harney Way and north to Carroll Avenue after the demolition of Candlestick Park. It would serve as one of the primary auto arterial streets both into and through the Candlestick Point site. As approved, Arelious Walker Drive would have two travel lanes, a bicycle lane and on-street parking on the east side (northbound) of the street and three travel lanes, a bicycle lane and on-street parking on the west side (southbound) of the street. The sidewalk on the east side was proposed to be 22 feet to allow for the addition of a third northbound lane in the future, should traffic conditions warrant. The intersections of Arelious Walker Drive/Gilman Avenue and Arelious Walker Drive/Harney Way would both be signalized as part of the project.

One of the proposed modifications to the Project is to narrow the ultimate cross section of Arelious Walker Drive to include only two travel lanes and no on-street parking and no Class II bicycle lane in each direction (i.e., a travel lane was removed from the southbound side of the street and more conventional sidewalks have been proposed on each side of the street, and on-street parking and bicycle lanes have been eliminated). The bicycle lanes have been replaced by a two-way cycle track running through the heart of the project along Harney Way (see bicycle impacts section for more discussion). Two-way Bus Rapid Transit (BRT) lanes would be provided between Egbert Street and Carroll Avenue.

The EIR assessed cumulative (year 2030) weekday AM and PM peak hour intersection turning movement volumes for approximately 60 study intersections, assuming the development of CP/HPS Phase II, a number of adjacent planned projects, and some background traffic growth on area roadways. The operating characteristics of these study intersections were described in terms of Level of Service ("LOS")². The intersections of Arelious Walker Drive/Gilman Avenue and Arelious Walker Drive/Harney Way were included in the analysis.

Below, **Table 1** summarizes the intersection LOS for both intersections at full project buildout with the original Arelious Walker Drive configuration and with the proposed change to the ultimate configuration (i.e., two through lanes in each direction instead of three). As shown, with the

² LOS is a qualitative description of an intersection's performance based on the average delay of per vehicles traveling through it. Intersection levels of service range from "A", which indicates free flow or excellent conditions with short delays, to LOS F, which indicates congested or overloaded conditions with extremely long delays. LOS A through D are considered excellent to satisfactory service levels.



proposed change to the ultimate configuration, both study intersections would operate within the City's LOS D threshold at full project buildout conditions. Detailed intersection LOS calculations are included in **Appendix C**.

TABLE 1: INTERSECTION OPERATIONS – ARELIIOUS WALKER DRIVE

Intersection	Arelious Walker/Gilman				Arelious Walker/Harney Way			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Delay ²	LOS ²	Delay ²	LOS ²	Delay ²	LOS ²	Delay ²	LOS ²
Original Arelious Walker Drive Configuration at Buildout	30	C	36	C	22	C	41	D
Revised Arelious Walker Drive Configuration at Buildout	33	C	50	D	22	C	41	D

Notes:

1. Intersection level of service (LOS) based on weighted average control delay per vehicle, according to the *2000 Highway Capacity Manual*.

Source: Fehr & Peers, 2009 and 2013.

Therefore, because travel demand would be consistent with what was described in the EIR, and there would be no changes to auto capacity associated with project refinements, other than the change described above, which would not result in additional significant impacts, the EIR's conclusions for Impacts TR-2 through TR-16, remain unchanged from what was described in the EIR. Mitigation measures MM TR-2, MM TR-4, MM TR-6, MM TR-7, MM TR-8, and MM TR-16 will continue to apply.

Timing of Traffic Improvements

Although, for purposes of assessing transportation impacts, the modified Project will be essentially the same as evaluated in the EIR at buildout, the project development phasing has changed. The phasing of traffic improvements was set forth in the *Infrastructure Plan – Candlestick Point Development and Hunters Point Shipyard Phase 2 Development*, August 3, 2010 (Infrastructure Plan). An analysis of the revised project phasing and infrastructure implementation timing was conducted to determine whether the modified Project would provide auto circulation and access at a level adequate to meet the travel demand throughout the buildout period.



Candlestick Point

As noted earlier, development at Candlestick Point is anticipated to occur earlier than originally anticipated. As a result, and to respond to some of the changes in the order of development, revisions to the implementation phasing from the Infrastructure Plan are proposed to better respond to land use phasing. As shown in **Table 2**, all roadway improvements are scheduled to be implemented at the same triggers or sooner (relative to development levels) than proposed in the EIR, with the exception of Jamestown Avenue and Ingerson Avenue. However, Jamestown Avenue and Ingerson Avenue improvements are largely streetscape improvements, designed to improve the overall urban design of the streets, and will not affect vehicular capacity along the streets, so in terms of assessing traffic impacts, this modification is not material.

Figures 1 – 4, attached, illustrate the auto access routes that would be available based on the modified development and roadway infrastructure phasing. As shown, the major connections between the Candlestick Point development and the external transportation network are expected to be developed as part of the first Major Phase. These include Arelious Walker Drive, the four-lane internal spine roadway that connects the smaller internal streets to the external roadways connecting to the rest of the City via Carroll Avenue, Gilman Avenue, Ingerson Avenue, and Jamestown Avenue.

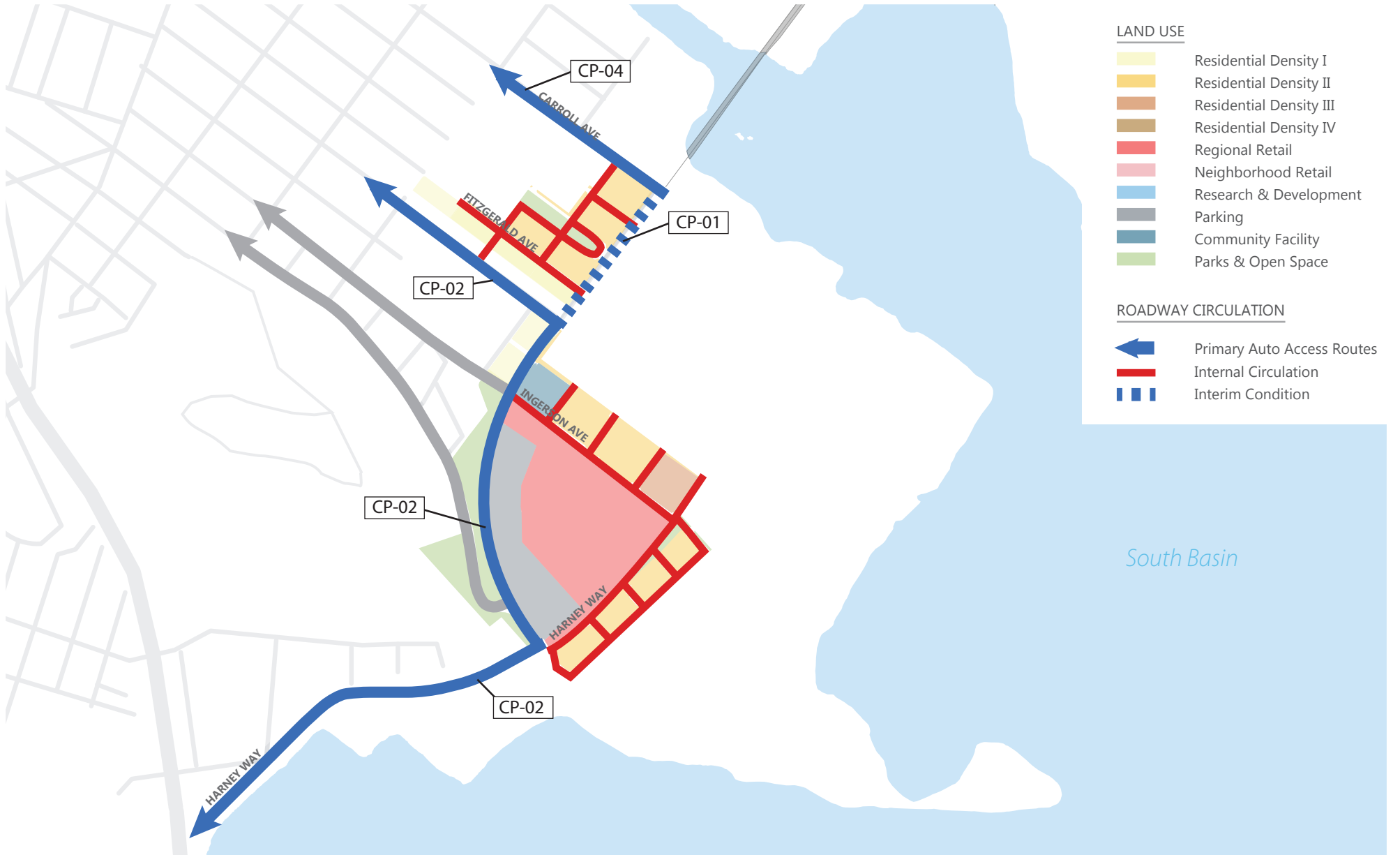
Within Major Phase 1 in Candlestick Point, the development will occur in five sub-phases, CP-01 through CP-05. CP-01 includes construction of 325 residential dwelling units on the Alice Griffith site, which will generate approximately 100 PM peak hour auto trips, based on the methodology described in the EIR. As part of this sub-phase, a portion of Arelious Walker will be constructed, between Gilman Avenue and Carroll Avenue. Ultimately, as noted earlier, Arelious Walker Drive would be constructed to provide two travel lanes in each direction, separated by a median. However, as part of CP-01, only the two lanes west of the median would be constructed. During this initial period, this segment of Arelious Walker would provide one travel lane in each direction. Then, during later phases of development, as noted below, the remaining half of Arelious Walker Drive would be constructed such that two auto lanes would be provided in each direction. The construction of this interim portion of Arelious Walker Drive would be consistent with and would support the final configuration of Arelious Walker Drive. The interim configuration of Arelious Walker Drive is shown in **Appendix D**.

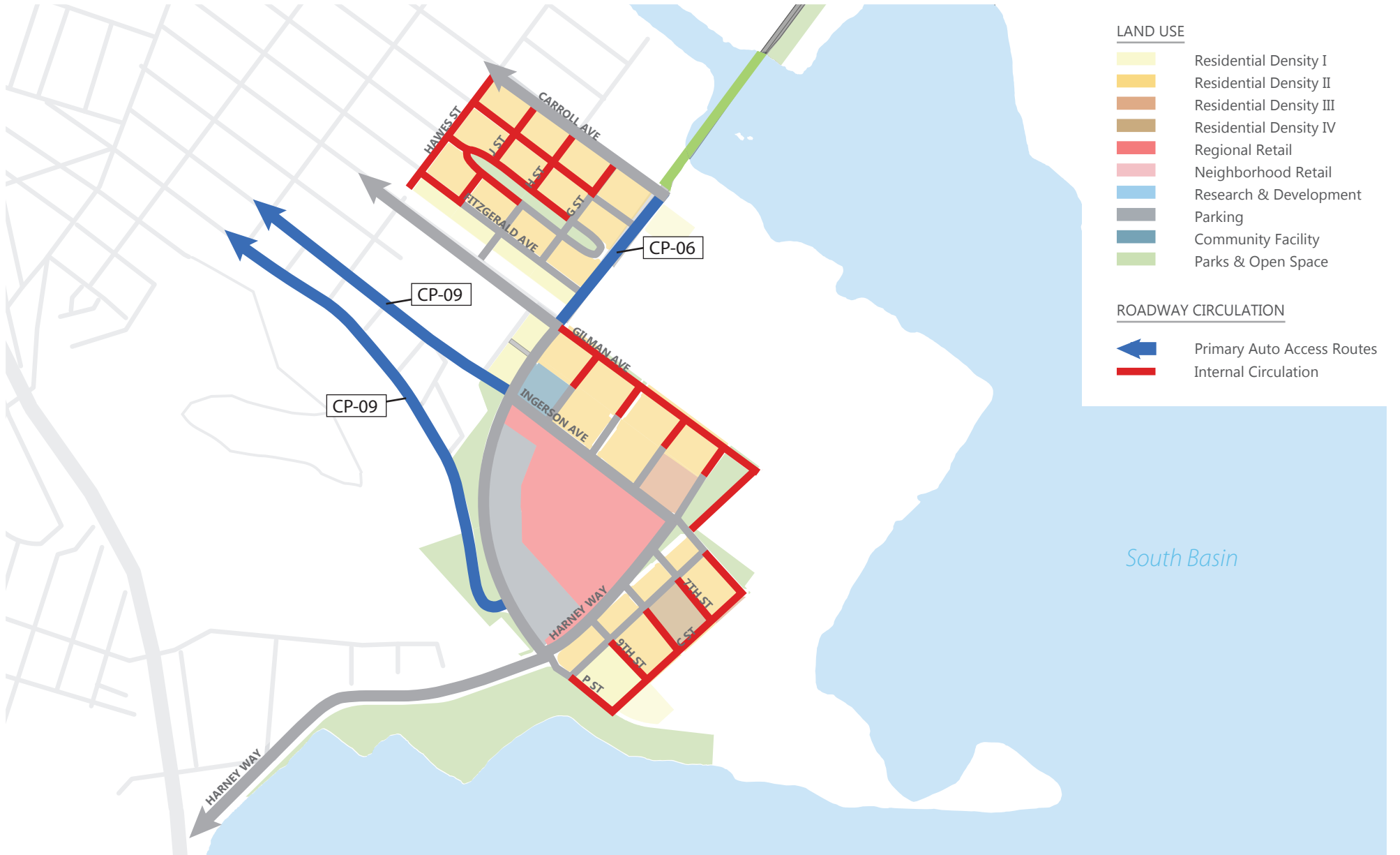


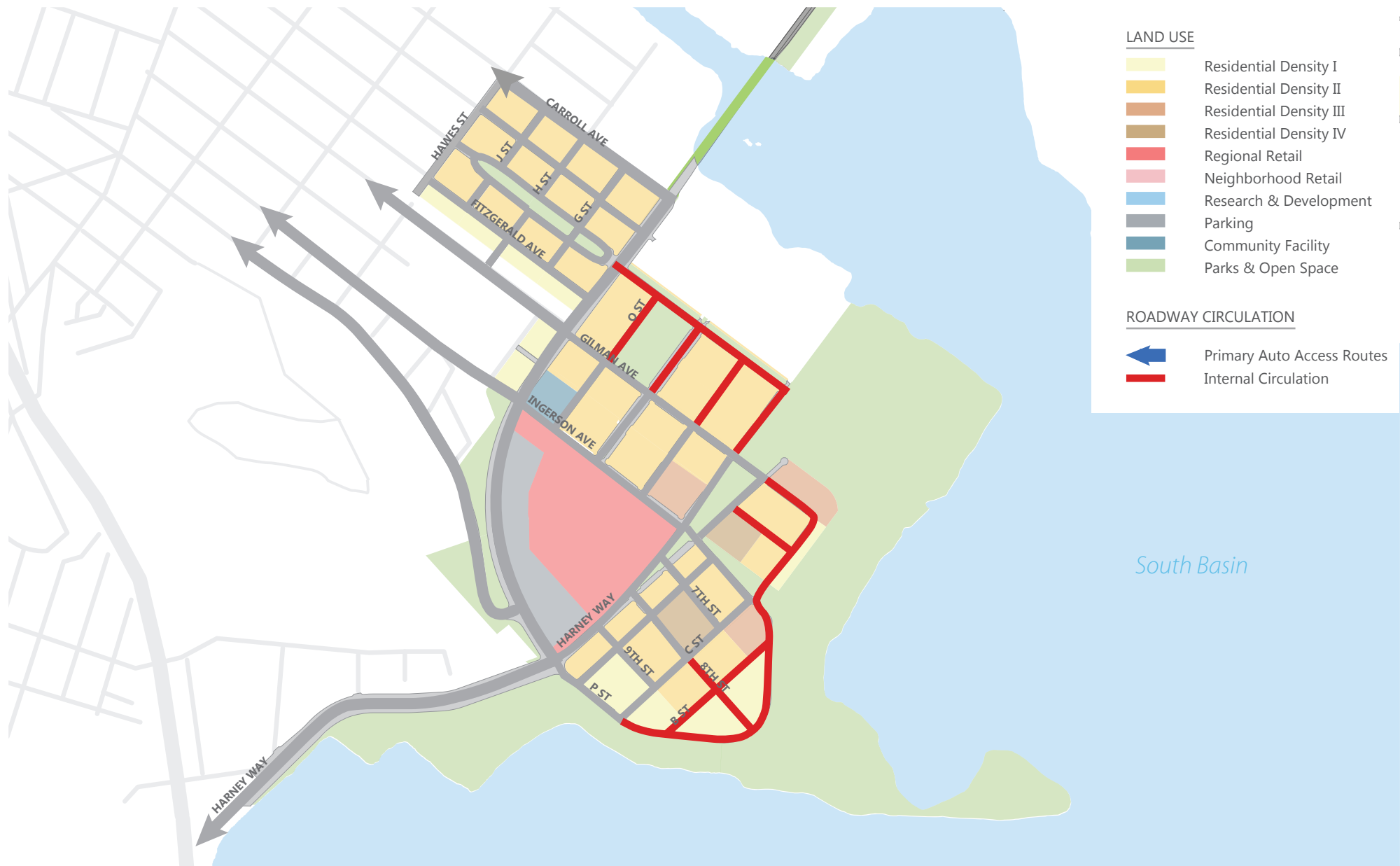
TABLE 2 - PROJECT STREET SEGMENT IMPROVEMENTS - CANDLESTICK POINT

Intersection	Improvement	Original Non-Stadium Option ^d		Modified Project	
		Traffic Volume Trigger? ^c	Trigger	Traffic Volume Trigger? ^c	Trigger ^e
Arelious Walker Drive, Shafter Avenue to Carroll Avenue	Construct Yosemite Slough Bridge ^a	No	Implementation of BRT	No	Implementation of BRT
Arelious Walker Drive, Carroll Avenue to Gilman Avenue	Interim Two-Lane Condition (See Appendix D)	N/A		No	CP-01 (Adjacency)
	Ultimate Condition (See description above)	No	Implementation of BRT	Yes	CP-06 (Approximately 3,500 PM Peak Hour Vehicle Trips) or Implementation of BRT
Arelious Walker Drive, Gilman Avenue to Harney Way	Construct two travel lanes in each direction with center median/turn lane	No	Implementation of BRT	No	CP-02 (Adjacency)
Harney Way Widening, Arelious Walker Drive to Thomas Mellon Drive	Near Term (See Appendix B)	Yes	3,537 PM Peak Hour Vehicle Trips or Implementation of BRT ^c	No	CP-02 (Adjacency)
	Long-Term (See Appendix B)	TBD ^b	Per Mitigation Measure MM TR-16	TBD ^b	Per Mitigation Measure MM TR-16
Jamestown Avenue, Arelious Walker Drive to Third Street	Resurface and Restripe	No	Demolition of Candlestick Park	No	CP-09
Ingerson Avenue, Arelious Walker Drive to Third Street	Resurface and Restripe	No	Demolition of Candlestick Park	No	CP-09
Gilman Avenue, Arelious Walker Drive to Third Street	Reconstruct or Resurface and Restripe	No	TBD	No	CP-02
Carroll Avenue, Arelious Walker Drive to Ingalls Street	See Figures 2.1.2A – 2.1.2G	Yes	3,131 PM Peak Hour Vehicle Trips (CP & HP) ^c	Yes	CP-04 (Approximately 3,200 PM Peak Hour Vehicle Trips, CP & HP) ^c
Ingalls Street, Carroll Avenue to Thomas Avenue	See Figures 2.1.2A – 2.1.2G	Yes	3,131 PM Peak Hour Vehicle Trips (CP & HP) ^c	Yes	HP-06 (Reconstruction of Crisp Avenue) ^f

- The cross-section for Yosemite Slough Bridge has been modified from what is shown in the EIR for the Non-Stadium alternative. However, at 45-feet in width, the structure would be smaller than the bridge approved in the Stadium scenario.
- The isolated intersection analysis conducted for this study shows that the two intersections along Harney Way would operate acceptably with the near-term configuration even with full buildout of the project. However, because Harney Way is part of a complex series of roadway improvements and due to the inherent uncertainty in traffic forecasts, a study will be conducted prior to construction of each development phase to determine whether conditions are better or worse than projected. The results of that study will indicate whether additional development can be accommodated under the near-term configuration while maintaining acceptable LOS or whether widening is required.
- Based on trip rates by land use used in the EIR for Variant 2A – Housing Variant.
- As summarized in the project's Infrastructure Plan.
- 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.
- Although improvements to Ingalls Street were proposed as part of the Candlestick Point development, they, along with improvements to Thomas Avenue and Griffith Street will not be necessary until development levels at Hunters Point Shipyard necessitate the provision of a southern access roadway via Crisp Avenue. Until this time, there will not be a complete route to connect Candlestick Point and the Hunters Point Shipyard and these roadway improvements offer no meaningful benefit.











As proposed, providing only one travel lane in each direction along Arelious Walker Drive should be adequate for this small number of units expected as part of CP-01, and will essentially serve to connect the four development blocks together and provide connections to Carroll Avenue and Gilman Avenue, two primary east-west connections to the greater Bayview neighborhood.

Sub-phase CP-02 would develop the 635 ksf regional retail center, 150 ksf of office space, a 220-room hotel, 280 additional residential units, and possibly a 75 ksf arena/performance venue. To support this large amount of new development, the key transportation infrastructure connecting Candlestick Point to external routes will be constructed, including Harney Way between the retail center and Thomas Mellon Drive and Arelious Walker Drive, between Harney Way and Gilman Avenue. This portion of Arelious Walker Drive would be constructed to its ultimate width of four lanes, and would connect to the interim two-lane portion to the north of Gilman. Harney Way will be constructed to its initial configuration with four lanes, as described in the EIR. Additionally, Gilman Avenue, between Arelious Walker and Third Street would be reconfigured to provide two travel lanes, on-street parking, and 12-foot sidewalks on both sides of the street.

Note that Mitigation Measure MM TR-16 in the EIR requires Harney Way to be reconstructed prior to the issuance of a grading permit for the first Major Phase of development. Since the first Sub-phase in Major Phase 1 in Candlestick Point, CP-01, does not connect to Harney Way and improvements to Harney Way would not affect auto capacity associated with CP-01, reconstruction of Harney Way is not necessary for the first subphase of development. Consequently, a modification is proposed to Mitigation Measure MM TR-16 to provide that Harney Way would be constructed such that it is complete prior to the issuance of occupancy permits for the second subphase of Major Phase 1, CP-02. Mitigation Measure MM TR-16 is proposed to be modified as follows:

MM TR-16 Widen Harney Way as shown in Figure 5 in the Transportation Study. Prior to issuance of the ~~grading~~occupancy permit for ~~Development Phase 1 of the Project, Candlestick Point Sub-Phase CP-02,~~ the Project Applicant shall widen Harney Way as shown in Figure 5 in the Transportation Study, with the modification to include a two-way cycletrack, on the southern portion of the project right of way. Prior to the issuance of grading permits for Candlestick Point Major Phases 2, 3 and 4, the Project Applicant shall fund a study to evaluate traffic conditions on Harney Way and determine whether additional traffic associated with the next phase of development would result in the need to modify Harney Way to its ultimate configuration, as shown in Figure 6 in the



Transportation Study, unless this ultimate configuration has already been built. This study shall be conducted in collaboration with the SFMTA, which would be responsible for making final determinations regarding the ultimate configuration. The ultimate configuration would be linked to intersection performance, and it would be required when study results indicate intersection LOS at one or more of the three signalized intersection on Harney Way at mid-LOS D (i.e., at an average delay per vehicle of more than 45 seconds per vehicle). If the study and SFMTA conclude that reconfiguration would be necessary to accommodate traffic demands associated with the next phase of development, the Project Applicant shall be responsible to fund and complete construction of the improvements prior to occupancy of the next phase.

Other than ensuring that other existing east-west streets connect to Arelious Walker Drive, none of the project-proposed improvements to Carroll Avenue, Ingerson Avenue, or Jamestown Avenue will be constructed as part of Sub-phase CP-02. Carroll Avenue is at the northernmost portion of the CP site, and therefore, not likely to be a desirable route to the Candlestick Point retail center, which sits at the southern end of the CP site. Further, improvements proposed for Ingerson Avenue and Jamestown Avenue are generally streetscape improvements designed to improve the attractiveness of the streets and not to increase auto capacity; therefore, for purposes of discussing traffic impacts, the timing of improvements to these streets is not critical and most of the auto capacity connecting the CP site to the external roadway network will be constructed as part of Sub-phase CP-02 with the described improvements to Harney Way and interim improvements to Arelious Walker Drive.

At this point, prior to occupancy of Sub-phase CP-02, with the exception of the interim portion of Arelious Walker Drive between Gilman Avenue and Carroll Avenue, all of the major auto traffic infrastructure in Candlestick Point required to connect project-related traffic to the external roadway network will be constructed, as will most of the off-site capacity enhancements, including Harney Way and Gilman Avenue.

Subphase CP-03 involves construction of the blocks directly opposite the retail center across Ingerson Avenue. No additional transportation improvements are proposed as part of CP-03.

Prior to opening of CP-04, the first three subphases would generate about 3,200 vehicle trips, which is approximately the trigger point identified in the project's Infrastructure Plan that would require improvements to the auto route around the Yosemite Slough, that includes Carroll



Avenue, Ingalls Street, Thomas Avenue, and Griffith Avenue. The analysis conducted for the Infrastructure Plan was based on the original phasing, which as noted earlier, would develop in the Hunters Point Shipyard site faster than currently proposed. As a result, the automobile route around Yosemite Slough was identified as appropriate infrastructure to provide access to Candlestick Point and US 101 from the development at Hunters Point Shipyard. The trigger in the Infrastructure Plan was identified as the appropriate time when the improvements would be necessary.

However, based on current proposed phasing, the previously-identified trigger point for the auto route around Yosemite Slough would be met with very little development in the Hunters Point Shipyard and substantially more development in Candlestick Point than originally anticipated. As a result, there is likely to be little auto demand for travel between the Hunters Point site and US 101 or between the Candlestick Point and Hunters Point Shipyard sites, making the auto route around Yosemite Slough less critical at such an early stage. Regardless, improvements to Carroll Avenue between Arelious Walker Drive and Ingalls Street are still proposed to be completed as part of CP-04, generally consistent with the Infrastructure Plan triggers, because development at Candlestick Point will still increase demand for east-west travel to the greater Bayview neighborhood. However, improvements to Ingalls Street, Thomas Street, and Griffith Avenue which primarily serve to connect the Hunters Point Shipyard development with the Bayview neighborhood, Candlestick Point, and US 101, will be constructed at a later point, when development levels in the Hunters Point Shipyard development warrant (refer to next section, which discusses timing of improvements for Hunters Point Shipyard for more detail).

Finally, although improvements associated with Carroll Avenue are currently proposed to be constructed prior to occupancy of Subphase CP-04 based on the original Infrastructure Plan analysis, if subsequent technical analysis can demonstrate that because of the location and types of development proposed, improvements to Carroll Avenue are not required until later in the development phasing, at the mutual agreement of the Environmental Review Officer and the Project Sponsor, and with the appropriate addenda to the EIR, the timing may be further modified.

The remaining auto capacity enhancements on Arelious Walker Drive, between Gilman Avenue and Carroll Avenue would be constructed prior to occupancy of the first sub-phase in Major Phase 2 (CP-06). At the end of Major Phase 1 in Candlestick Point, which represents the condition at which the most traffic would be using the interim portion of Arelious Walker Drive, the



intersection of Arelious Walker Drive and Gilman Avenue would operate within acceptable level of service, as shown in **Table 3** below, and therefore, no significant impacts would occur as a result of providing this interim condition through Major Phase 1. Detailed LOS calculations are provided in **Appendix C**.

**TABLE 3: INTERIM INTERSECTION OPERATIONS –
ARELIOUS WALKER DRIVE**

Intersection	Arelious Walker/Gilman	
	Delay ²	LOS ²
Interim Condition at completion of Major Phase 1	44	D

Notes:

1. Intersection level of service (LOS) based on weighted average control delay per vehicle, according to the *2000 Highway Capacity Manual*.

As a result, the roadways that facilitate travel between the project site and the external roadway network would generally provide their full capacity prior to any new trips being generated from Major Phase 2. As shown in **Figures 2 – 4**, subsequent Major Phases 2 through 4, respectively, would only add internal circulation roadways adjacent to new development parcels to connect to the major roadways built as part of Major Phase 1. As a result, auto capacity in the Candlestick Point area will be greater than or similar to what was described in the EIR throughout the development buildout.

Hunters Point Shipyard

As noted earlier, development at Hunters Point Shipyard is anticipated to occur later than originally anticipated. As a result, and to respond to some of the changes in the order of development, revisions to the Infrastructure Plan improvement phasing requirements are proposed to better respond to land use phasing. As shown in **Table 4**, similar to the proposed changes at Candlestick Point, all roadway improvements are scheduled to be implemented at the same triggers or sooner (relative to development levels) than proposed in the EIR.



TABLE 4 - PROJECT STREET SEGMENT IMPROVEMENTS – HUNTERS POINT SHIPYARD

Intersection	Improvement	Original Non-Stadium Option ^c		Modified Project	
		Traffic Volume Trigger? ^b	Trigger	Traffic Volume Trigger? ^b	Trigger ^d
Palou Avenue, Griffith Avenue to Third Street	Resurface and Restripe, Streetscape Amenities	Yes	TBD - Based on Transit Phasing	No	HP-06 or Based on Transit Phasing
Thomas Avenue, Ingalls Street to Griffith Street	Resurface and Restripe, Streetscape Amenities	Yes	3,131 PM Peak Hour Vehicle Trips (CP & HP) ^a	Yes	HP-06 (Reconstruction of Crisp Avenue)
Griffith Street, Thomas Street to Palou Street	Resurface and Restripe, Streetscape Amenities	Yes	Reconstruction of Crisp Avenue	Yes	HP-06 (Reconstruction of Crisp Avenue)
Innes Avenue, Donahue Street to Earl Street	Resurface and Restripe, Streetscape Amenities	Yes	1,000 PM Peak Hour Vehicle Trips	No	HP-01
Crisp Avenue, Palou Avenue to Fischer Street (Diagonal Route)	Resurface, Restripe, Realign	No	Adjacency	No	HP-06 (Adjacency) or Based on Transit Phasing
Innes Avenue/Hunters Point Boulevard/Evans Street, Earl Street to Jennings Street	Resurface and Restripe, Streetscape Amenities	Yes	1,000 PM Peak Hour Vehicle Trips	No	HP-01

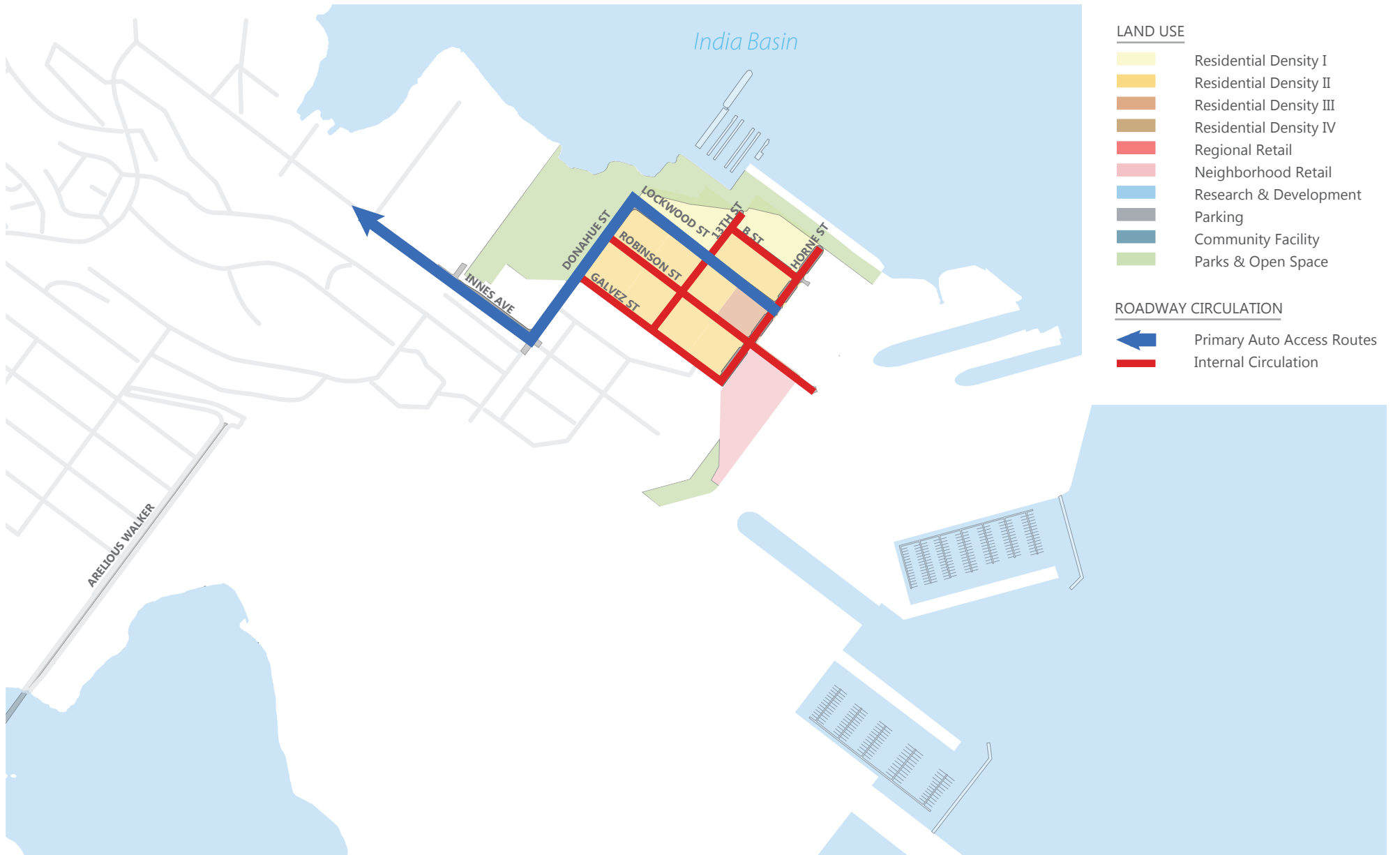
a. Combined total from CP and HP

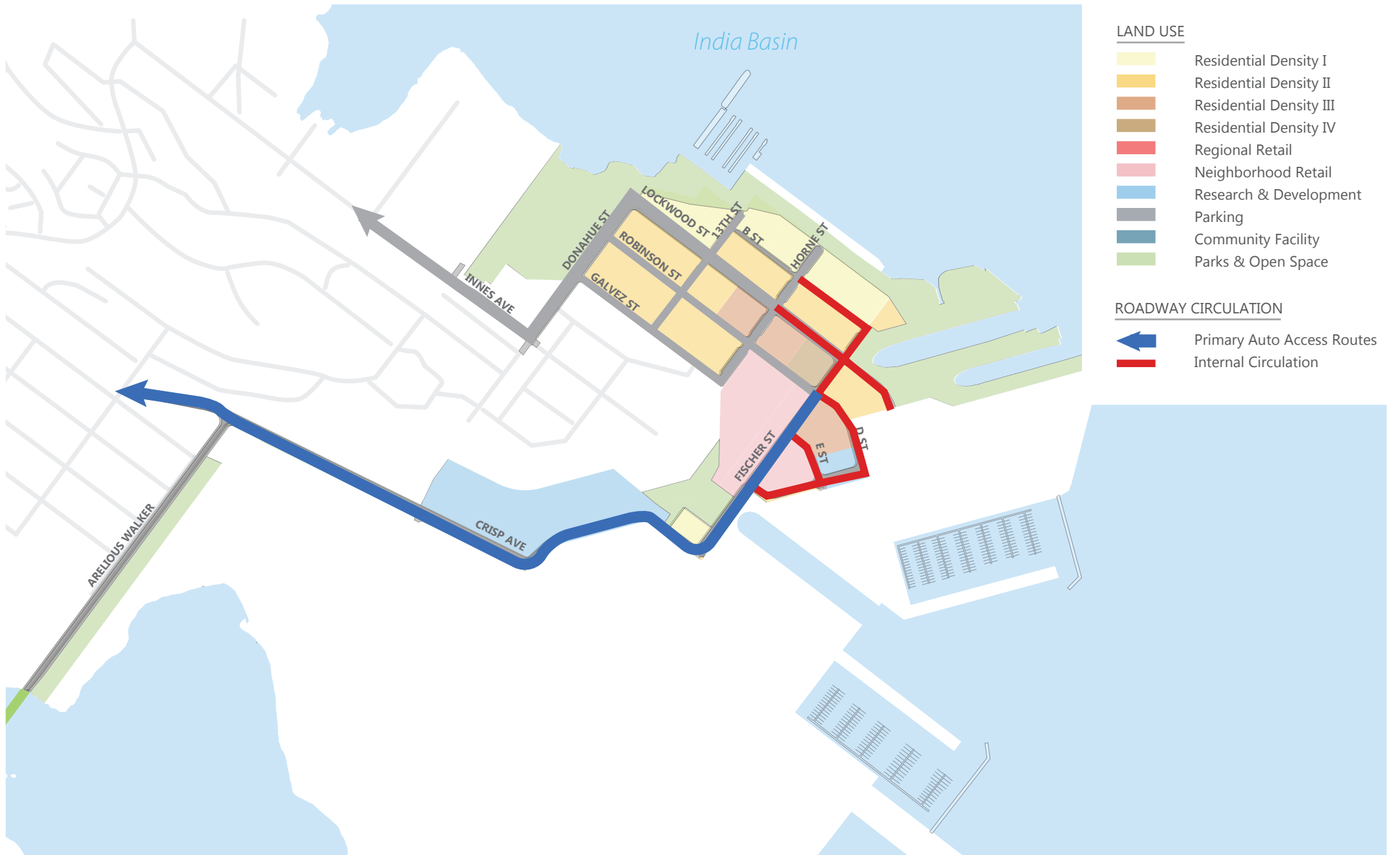
b. Based on trip rates by land use used in the EIR for Variant 2A – Housing Variant.

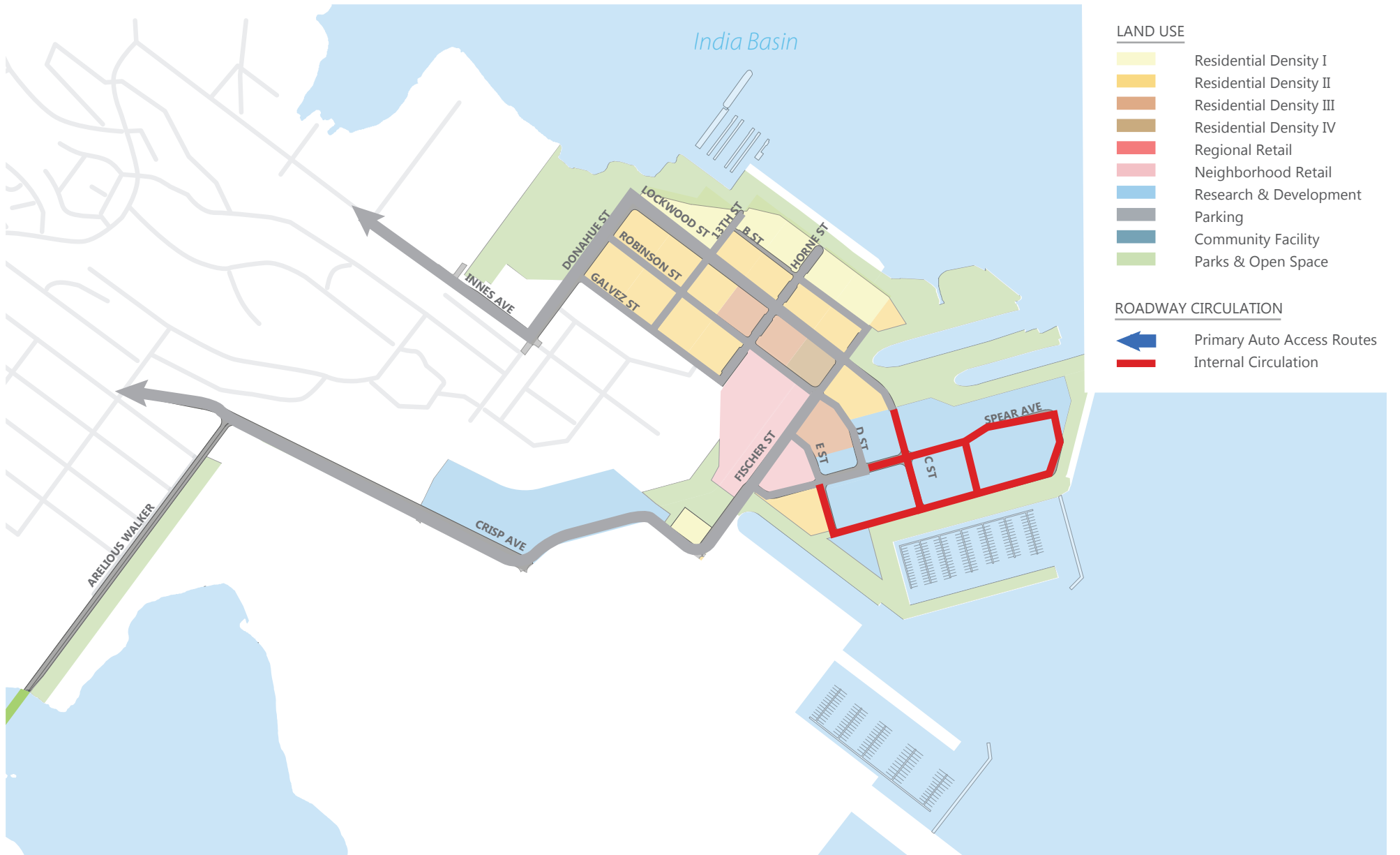
c. As summarized in the project's Infrastructure Plan.

d. 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.

Figures 5 – 8 show the development of land use and roadway infrastructure for Major Phases 1 – 4 for the Hunters Point Shipyard site, respectively. At buildout, the primary access routes to the Hunters Point Shipyard site include the four-lane Innes Avenue and the two-lane Palou Avenue. **Figure 5** illustrates that the primary northern access route to the Shipyard site, Donohue Street and Innes Avenue, would be constructed and connected to the HPS North area as part of Major Phase 1. These improvements would be constructed as part of Subphase CP-01, prior to any new trips generated by development in the Hunters Point Shipyard site. This access route accounts for approximately 2/3 of the total auto capacity of the HPS site and will be adequate to serve the development proposed as part of Major Phase 1 in Hunters Point Shipyard, due to its relatively large portion of the total planned auto capacity and its proximity to the development proposed as part of Major Phase 1 in Hunters Point Shipyard. Internal streets proposed as part of Major Phase 1 in Hunters Point Shipyard would connect to Donohue Street and Innes Avenue.







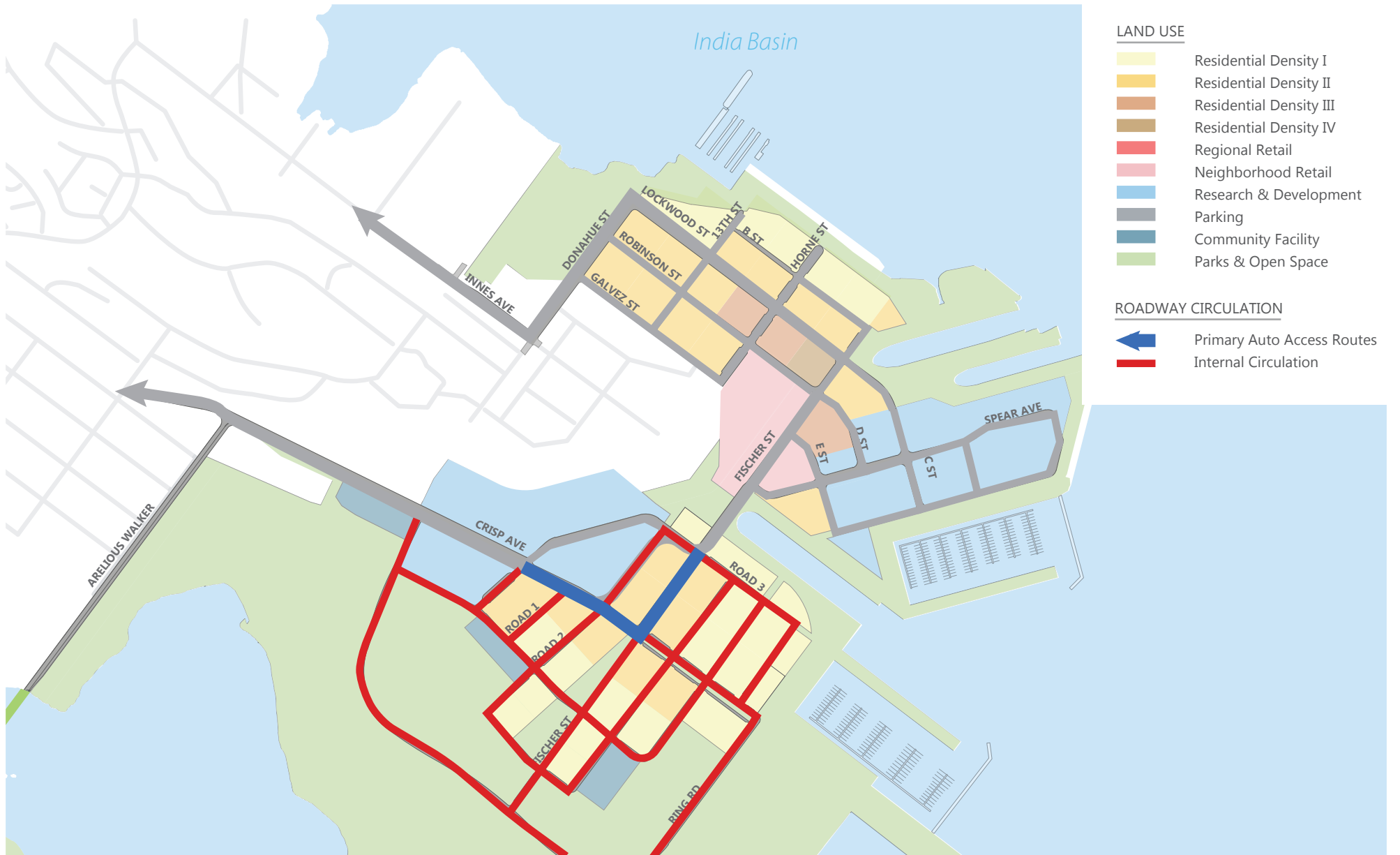




Figure 6 illustrates that the second major auto access route, Crisp Road and Palou Avenue, would be constructed as part of Major Phase 2 in Hunters Point Shipyard. These improvements would be constructed as part of Subphase CP-06, the first development site to be constructed within the southern half of the Hunters Point Shipyard site. This means that 100 percent of the planned auto ingress/egress capacity for the HPS site would be constructed and fully operational before any trips associated with Major Phase 3 in Hunters Point Shipyard are generated, when only approximately 40 percent of the total auto trips associated with the full site buildout would be generated. **Figures 7 and 8** illustrate that subsequent phases would simply build out the internal roadway network adjacent to individual development parcels, all of which will connect to the major access routes. Therefore, similar to Candlestick Point, the major pieces of auto infrastructure will be constructed as part of Major Phases 1 and 2 in Hunters Point Shipyard, and therefore, auto capacity should be greater than or similar to what was described in the EIR during all phases of development.

As a result, no new significant traffic impacts are expected as a result of the modified Project or the modified phasing compared to the traffic impacts described in the EIR, and the modified Project is not expected to substantially increase the severity of significant impacts compared to what was described in the FIER, and therefore, no new mitigation measures are required.

IMPACTS TR-17 THROUGH TR-30: IMPACTS TO LOCAL AND REGIONAL TRANSIT OPERATIONS AND CAPACITY

The EIR described the Project's impacts to transit in Impacts TR-17 through TR-30. Impacts TR-17 through TR-20 identified that, with implementation of the Project's Transit Operating Plan (identified as Mitigation Measure MM TR-17), the Project would provide adequate transit capacity locally, at the standard Downtown screenlines, and regionally to meet its projected demand. With implementation of MM TR-17, Impacts TR-17 through TR-20 were determined to be less than significant.

The EIR also identified Impacts TR-21 through TR-27, which describe impacts to transit travel time associated with Project-generated traffic congestion on specific corridors affecting specific transit lines. Mitigation Measures MM TR-21 through MM TR-27 were identified and consist of three parts:



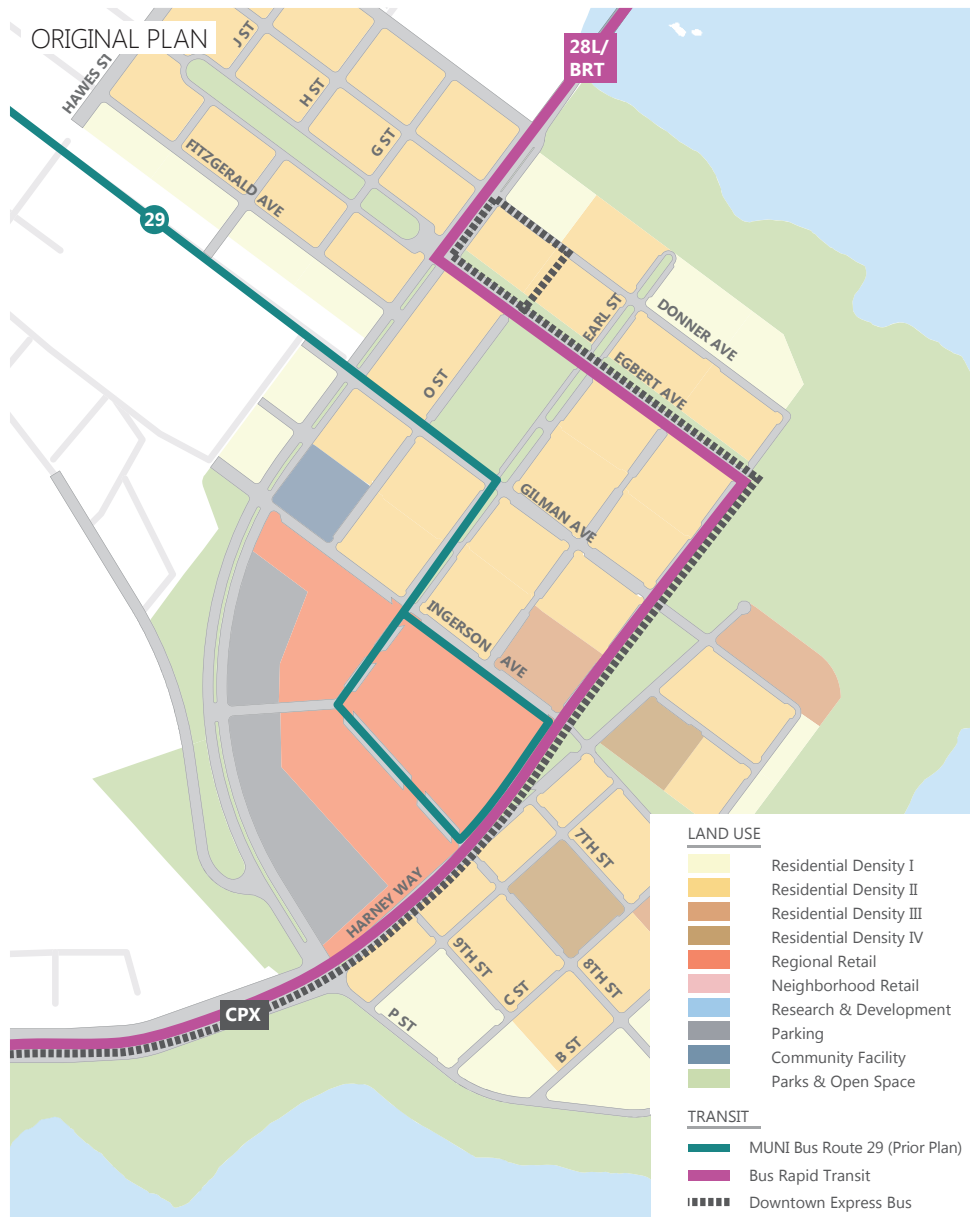
- Transit travel times should be monitored throughout the course of project buildout to determine whether Project-generated traffic is decreasing transit travel speeds.
- If speeds are decreasing, travel time reduction measures should be implemented on the affected corridors. These measures typically involve dedication of transit-only lanes.
- If reduction measures are either infeasible or not effective at improving travel speeds, new vehicles should be purchased to allow SFMTA to maintain planned service frequencies.

However, because implementation of these measures requires substantial additional outreach and design, the feasibility of these measures is uncertain, and Impacts TR-21 through TR-27 were determined to be significant and unavoidable.

The EIR also identifies Impact TR-28, a significant and unavoidable impact to SFMTA transit express routes using US 101 that may be slowed down by Project-generated freeway traffic for which no mitigation measures were identified. Impact TR-29 was identified as a less than significant impact to SFMTA transit express routes using I-280 because project-generated traffic on this route would not be as substantial. Impact TR-30 would be a significant and unavoidable impact to other regional transit routes (such as SamTrans express routes) using regional facilities to which the Project would contribute substantial amounts of traffic congestion.

Similar to traffic impacts, the modified Project's transit impacts at buildout as described in Impacts TR-17 through TR-30 will be identical to what was described in the EIR, although two minor changes have been proposed. Specifically, the modified Project proposes minor changes to the proposed routes for the 29 Sunset in Candlestick Point and to all routes in the Hunters Point Shipyard associated with a one-block shift of the Hunters Point Shipyard Transit Center.

Figure 9 illustrates the proposed change to the 29 Sunset routing within Candlestick Point. The original project called for the 29 Sunset to circulate within the Candlestick Point retail center. The revised proposal calls for the 29 Sunset to continue to serve the front of the retail center along Ingerson Avenue, but instead of circulating within the retail center, the route would circulate around the development blocks to the north, so that the 29 Sunset provides more direct service to the high-density residential buildings proposed near the intersection of Gilman Avenue and Harney Way. This minor routing change will, if anything, increase the project's transit mode share by bringing transit service closer to more residential units while continuing to provide direct "front-door" service to the retail center.



Not to Scale



Figure 10 illustrates the proposed changes to routes serving the Hunters Point Shipyard. The changes involve moving the Hunters Point Transit Center one block to the north. The 28L BRT route and the 24 Divisadero would travel an additional block along Spear Street to reach the center. Routes approaching the Transit Center from Innes Avenue would travel along Lockwood Street to reach the Transit Center instead of Robinson Street, as originally proposed. Land uses along Lockwood Street and Robinson Street are relatively similar, so no change to transit mode share is expected as a result of this change. In Hunters Point South, transit (the 28L BRT and the 24 Divisadero) would travel along Crisp Avenue into the approximate center of Hunters Point South, instead of around the northern perimeter. By providing service into the center of the Hunters Point South, if anything, transit will be more accessible to surrounding development, and transit mode share would, if anything, increase slightly.

Because transit mode share is likely to be only slightly affected by the proposed modifications in CP and HP, the proposed modifications will not likely result in additional significant impacts beyond those identified in the EIR under buildout conditions.

Mitigation Measure MM TR-17, which calls for the project applicant to work with SFMTA to implement the proposed transit service increases would still apply. Mitigation Measures MM TR-21, MM TR-22, MM TR-23, MM TR-24, MM TR-25, MM TR-26, and MM TR-27, which call for the applicant and SFMTA to implement transit priority features or purchase new vehicles to maintain headways affected by Project-generated traffic congestion, would also still apply.

Similar to the Project's roadway infrastructure, the Project's transit network was proposed to be implemented at various levels throughout the development as described in the Transit Operating Plan. As a result of proposed changes to the development phasing, the transit phasing has been modified in order to ensure that the appropriate transit service is provided throughout the development as currently envisioned. Mitigation Measure MM TR-17 notes that the transit operating plan may be modified from what was approved in the EIR if modifications result in:

- Similar or higher transit mode share to what was projected in the EIR
- Adequate capacity to serve projected transit ridership
- Similar or less severe traffic impacts to those identified in the EIR

ORIGINAL PLAN



MODIFIED PLAN





The original and revised transit phasing are shown in **Table 5. Appendix E** includes detailed comparison of the approximate number of transit trips (and approximate level of development) that would be in place at the time each level of transit service would be implemented under the original plan and the modified plan. Generally, changes to the transit phasing delay the provision of transit service to the Hunters Point Shipyard site, due to the delay in development there. In response to the acceleration of planned development in Candlestick Point, transit service at Candlestick Point would be accelerated. Overall, the revised phasing has been developed in collaboration with SFMTA service planning staff to retain a relatively close approximation to the level of transit demand that would be generated for each level of transit service between the original and modified project, combined with engineering judgment to account for the unique development phasing currently proposed.

To serve the retail center, the 29 Sunset would be extended to the retail center and its frequency would be increased from 10 minutes to its ultimate frequency of 5 minutes. However, because of the substantial amount of development proposed in early phases of the modified project compared to the original project, and the different types of land uses to be constructed initially (i.e., a heavier focus on retail in the early phases than originally anticipated), SFMTA has indicated that operating the other routes ultimately planned to serve Candlestick Point, including the CPX Candlestick Point Express and the 28L BRT route, is not possible in the near term. The CPX Candlestick Point Express is not likely to be particularly effective for non-residential uses, which account for the majority of travel-demand generating uses in the early phases of development in Candlestick Point. Similarly, the 28L BRT would not be desirable in early years because the infrastructure connecting it to Geneva Avenue to the west would not be in place.

Instead of the 28L BRT and the CPX, SFMTA has indicated that it will instead extend the 56 Rutland route as an interim measure until the 28L BRT and/or the CPX are implemented. In addition, the 56 Rutland would increase its frequency from every 20 minutes as proposed under the Transit Effectiveness Project (TEP) to every 15 minutes. While the 56 Rutland is a relatively minor route in relation to the overall system, it provides service to regional transit facilities, including the T Third Street light rail, the Bayshore Caltrain station, and the 9 San Bruno bus lines, which serve Downtown San Francisco, and is therefore, and appropriate substitution for part of the CPX and 28L BRT service. Once the CPX and/or the 28L BRT are implemented, the 56 Rutland may be returned to its TEP-proposed route and frequency.



TABLE 5: TRANSIT PHASING

Route	Frequency	Original Transit Operating Plan		Proposed Revisions	
		Major Phase ^a	Approx. Year	Major Phase ^a / Subphase	Approx. Year
Hunters Point Shipyard					
Hunters Point Express (HPX)	20	1	2017	2 / HP-04	2023
	12	1	2019	2 / HP-05	2024
23 Monterey	15	1	2017	2 / HP-04	2023
24 Divisadero	10	2	2023	3 / HP-09	2029
	7.5	2	2025	3 / HP-12	2030
48 Quintara	15	1	2015	1 / HP-01	2019
	10	1	2019	2 / HP-05	2024
44 O'Shaughnessy	7.5	1	2017	2 / HP-04	2023
	6.5	1	2019	2 / HP-05	2024
Candlestick Point					
56 Rutland ^b	15	N/A	N/A	1 / CP-02	2017
Private Shopping Center Shuttle ^b	7.5	N/A	N/A	1 / CP-02	2017
Candlestick Point Express (CPX)	20	2	2021	N/A	N/A
	15	2	2022	2 / CP-06	2020
	10	3	2027	3 / CP-14	2030
29 Sunset	10	2	2021	N/A	N/A
	5	2	2022	1 / CP-02	2017
Routes Serving Both Sites					
28L/BRT (Includes Construction of Yosemite Slough Bridge)	8	2	2021	2 / CP-07 and HP-04 ^c	2023
	5	2	2022	3 / CP-12 and HP-07 ^d	2028
T Third	6	2	2020	No Change - Not triggered by project development	
	5	3	2025		

Notes:

- a) The original Transit Operating Plan contemplated only three Major Phases of development. The revised phasing breaks the development into four Major Phases each for Candlestick Point and Hunters Point Shipyard.
- b) Temporary until initiation of CPX and/or BRT
- c) Respective sub-phases in CP and HP that reach 20% buildout of Major Phase 2
- d) Respective sub-phases in CP and HP that initiate Major Phase 3

In addition, the Project Sponsor will include a complimentary shuttle, available for shopping center patrons and employees, to provide service between the project site and the Balboa Park BART station, replicating service that will ultimately be offered by the 28L BRT route. Service will be offered at 7.5 minute frequency with approximately 30-passenger vehicles. This service will be interim service until the 28L BRT route, the CPX, or other comparable transit service is implemented. Although the shuttle service will initially be oriented to the Balboa Park BART Station, the site's TDM coordinator will retain the ability to reroute the shuttle to other regional transit hubs to better match patron and employee demand, with the mutual agreement of the Environmental Review Officer.



Figures 11 and 12 summarize the level of transit supply proposed to be implemented over time relative to the expected transit ridership demand, based on the development phasing schedule and the transit implementation triggers described above, for Candlestick Point and Hunters Point Shipyard, respectively. The figures compare this information for the original project (the red line) and the modified project (the blue line). It is important to note that the graphs compare the one-way transit capacity in terms of seats per hour with the two-way transit demand. Thus, since the transit capacity to demand ratio is greater than 1.0 at all times, even if all transit trips were traveling in a single direction (all inbound or all outbound), there would be enough transit capacity serving the project site at all times to accommodate the demand. Note also that the information provided for the original project is based on the Stadium Alternative, because year-by-year development phasing was not developed for other Alternatives and Variants. As a result, at buildout, the modified transit service appears to provide slightly less transit service than the original project, when actually, the difference is simply the difference between the Stadium Alternative and Non-Stadium Variant 2a – Housing. **Appendix E** provides a year-by-year summary of anticipated development, auto trip generation, and transit trip generation for the Candlestick Point and Hunters Point Shipyard sites, which, along with anticipated transit phasing described in **Table 5**, formed the basis for **Figures 11 and 12**.

The figures illustrate that with the proposed changes in development and transit phasing, the level of transit service proposed throughout the development process relative to the types of development anticipated will remain at a similarly robust level as was originally contemplated throughout development and at Project buildout. **Figure 11** illustrates that with the revised development schedule and revised transit phasing, the level of transit service relative to demand will remain similar to or greater than the original project at buildout, which means the transit will remain an attractive option for travelers in the area.

Figure 12 illustrates that once substantial development begins to occur in Hunters Point, the level of transit service relative to demand will actually exceed what was anticipated in the original project, based on the original development and transit implementation phasing until approximately year 2030. After that, the modified project appears to provide less transit service relative to demand than the original project is because the “original” project shown is the stadium alternative and the modified alternative is the Non-Stadium Alternative Variant 2A – Housing, which provides the same level of transit service with slightly higher demand than the Stadium Alternative. As a result, transit service will remain an equally attractive option in Hunters Point under the modified project development and transit phasing as was under the original phasing.

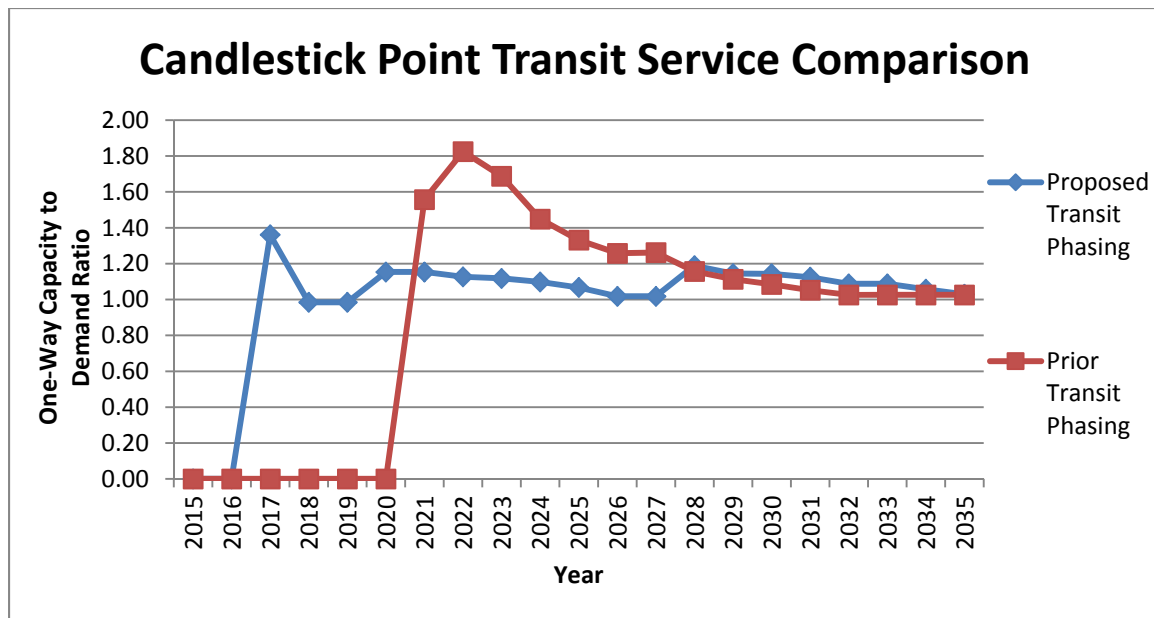


Figure 11 – Comparison of Transit Service Relative to Demand during Project Buildout at Candlestick Point

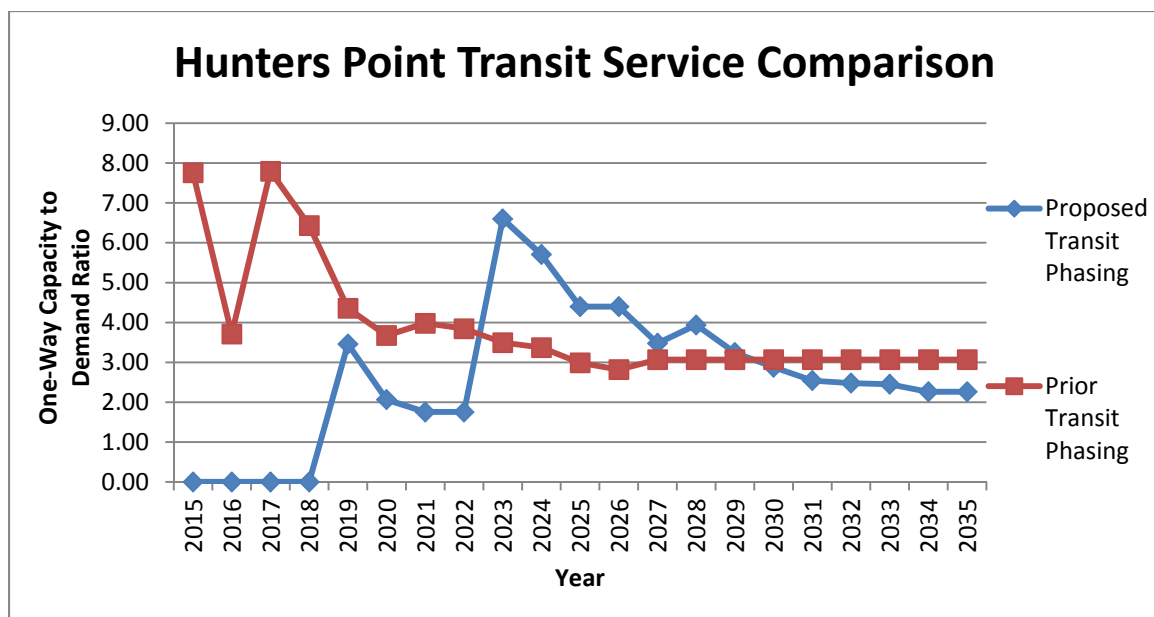


Figure 12 – Comparison of Transit Service Relative to Demand during Project Buildout at Hunters Point Shipyard



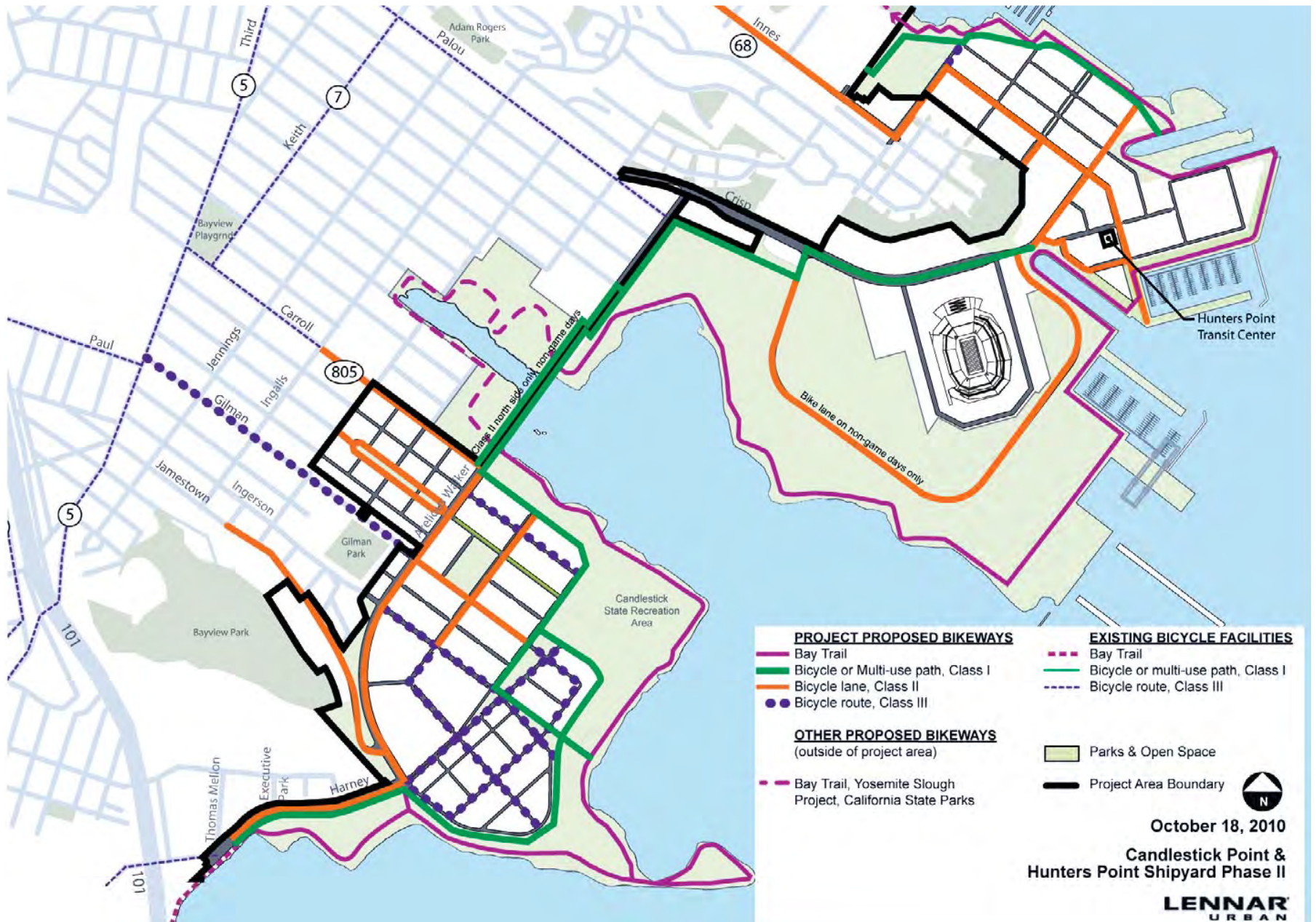
Therefore, transit capacity will be adequate to serve the expected demand, and the mode split (i.e., the percentage of trips made by transit) should remain similar, meaning that there will not be additional significant transit impacts beyond those described in the EIR, nor will the modified Project substantially increase the severity of significant impacts identified in the FIER, and no additional mitigation measures are required.

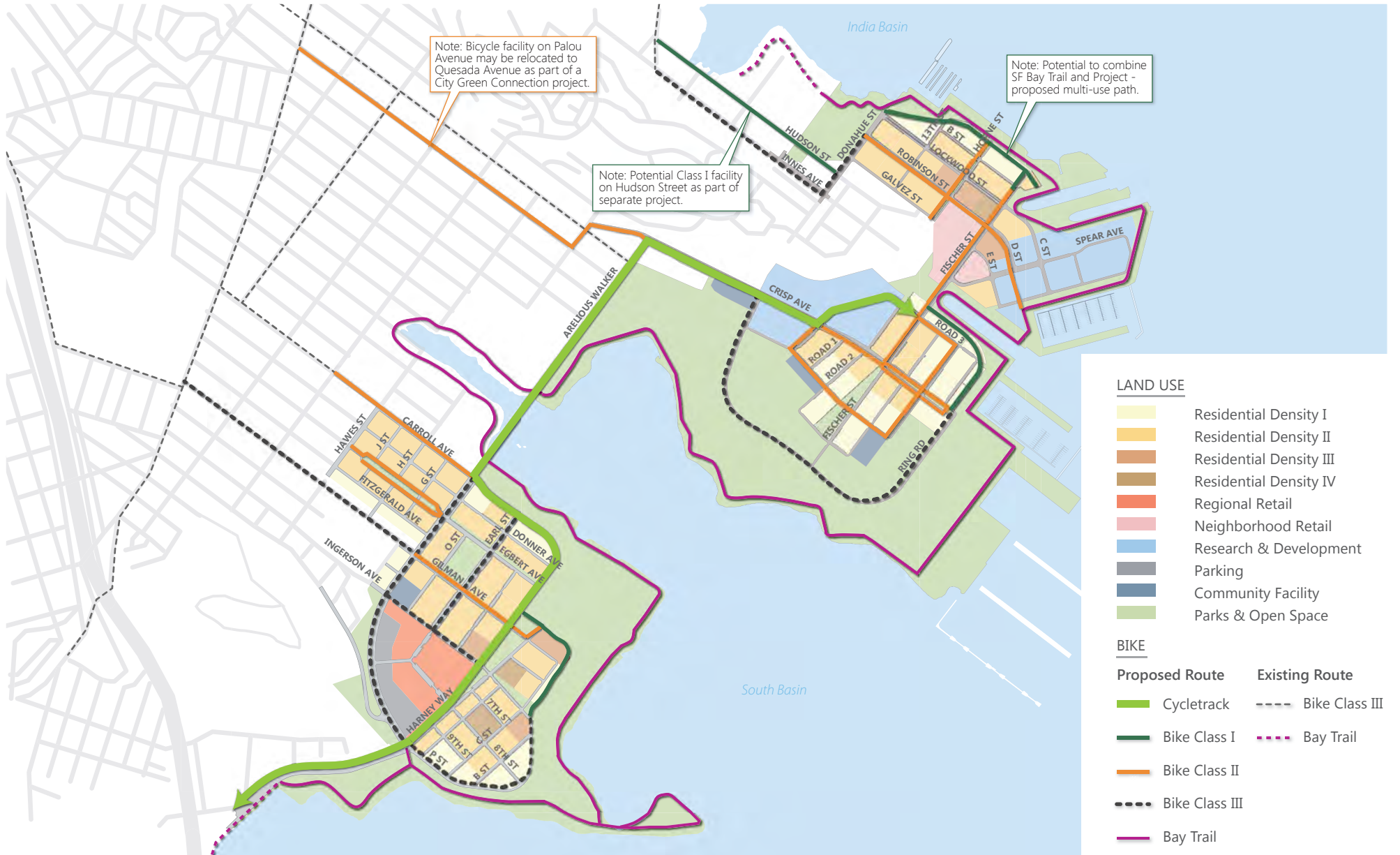
IMPACT TR-31 AND TR-32: BICYCLE CIRCULATION

The EIR identified Impacts TR-31 and TR-32 to bicycle circulation. Impact TR-31 generally describes the overall improvement to the areawide bicycle network that would result from the Project. Impact TR-32 describes a significant impact to Bicycle Routes #70 and #170 on Palou Avenue that would be adversely affected by the substantial increases to transit service along this street. Mitigation Measure MM TR-32 calls for relocating the bicycle routes to another nearby street with fewer conflicts, although the measure does not specify where the bicycle facilities should be relocated to.

As noted in the EIR, bicycle facilities are typically categorized as one of three “classes.” A Class I facility is a dedicated, off-street space for bicycles to operate without interference from cars, except at intersections. Class I facilities can be one-way or two-way, and can also be shared with pedestrians in some cases. Class II facilities are on-street striped bicycle lanes, which allocate specific space on the street for bicycle use only. Class III facilities are bicycle routes, which do not allocate space dedicated for bicycles, but often include signage and “sharrow” pavement markings alerting drivers to the likely presence of bicycles.

As shown in **Figures 13 and 14**, the modified Project includes refinements to the proposed bicycle network. The changes include replacing the Class II facilities on Arellous Walker Drive with a new, separated, two-way Class I bicycle facility that travels through the heart of the project, and more directly connects the CP and HP project sites. The original bicycle network included Class II facilities on Arellous Walker Drive that connected from the Yosemite Slough Bridge to Harney Way, essentially the only route connecting one end of the Candlestick Point site to the other. The original project also included Class II facilities on Harney Way adjacent to the retail center and the wedge park north of Ingerson Avenue. But, between Ingerson Avenue and Arellous Walker Drive, only Class III facilities were provided, which meant that no dedicated facilities would be provided through the retail core of the project.







The proposed refinements to the bicycle network would replace the Class II facilities on Arelious Walker with a new Class I two-way cycletrack that travels through the wedge park and the retail center of the Candlestick Point site. The cycletrack will be fully separated from auto traffic, will travel along a route with fewer intersection conflicts, and will provide a flatter topographic route. As a result, it will likely be more desirable to commuters and recreational cyclists, alike. The cycletrack would continue north through the Hunters Point Shipyard site to the Hunters Point transit center and south along Harney Way toward US 101, where ultimately it could be connected to the Bay Trail and/or other regional facilities. When fully-constructed, the new cycletrack facility will provide a dedicated, two-way, Class I facility connecting the Hunters Point Shipyard and Candlestick Point sites to each other and to regional bicycle and transit facilities. Arelious Walker Drive would retain a Class III designation.

In addition, Class II bicycle lanes would be removed from Earl Street to narrow the street and to maximize the space available for public parks on the west side of the street. The narrower street would shorten crossing distances for pedestrians and as a result, improve pedestrian safety and further encourage walking as a primary mode of transportation (reducing demand for transit and auto travel). Earl Street would retain a Class III designation. Given the low speeds anticipated for this street enabled by the narrowing of the street, provision of corner and mid-block bulbouts, and enhanced "sharrow" pavement markings, bicycles will be more comfortably able to share the travel lane with autos.

The revised bicycle network also corrects an error on the proposed bicycle network figure from the Transportation Study and the EIR. Both documents depicted a proposed Class II bicycle facility on Gilman Avenue, between Arelious Walker and Third Street, although the project actually proposed a Class III facility. The project's Transportation Plan bicycle network figure (which is shown in Figure 13) correctly depicted this corridor as a Class III route, and the Final EIR noted that the Draft EIR had incorrectly represented this corridor on the figure. Thus, this is not a project change, but rather a correction of a graphical error.

Class III bicycle route designations have been removed from several streets within the CP South neighborhood, and from Donner Avenue in the CP North neighborhood. Regardless of the bicycle designation, these streets are designed to minimum widths allowed by various City departments in order to encourage traffic to drive slowly. Further, the density of the street grid and dispersion of auto parking throughout the area means that traffic volumes will be dispersed through the network and therefore, relatively low on any individual street. In these cases, the



designation of Class III routes was deemed unnecessary because all of the streets in this part of the project would function well for bicyclists to share travel lanes with traffic. Thus, while a comparison of the graphics may suggest substantial changes to the bicycle network, particularly in the CP South neighborhood due to the removal of a number of Class III routes, the only physical difference on these streets associated with a removal of the Class III designation is that "sharrow" pavement markings and bicycle route signage would not be provided; the change in designation would not affect the physical amount of space allocated for bicycles, nor would it substantially affect the interactions between bicycles and autos.

Changes to the bicycle network in Hunters Point Shipyard include extension of a one-block Class II facility on Horne Street from its originally proposed northern terminus at Robinson to the end of Horne Street, where it will intersect with the Bay Trail. Additionally, Class II bicycle lanes have been added throughout the refined HP South neighborhood.

Finally, the proposed Class II bicycle lanes on Innes Avenue would have resulted in removal of on-street parking along Innes Avenue in the India Basin neighborhood. In response to neighbor concerns regarding the loss of on-street parking, the refined project no longer includes these Class II bicycle lanes, but instead retains the existing Class III bicycle route. However, this does not constitute a new significant impact as Class III bicycle routes are standard treatments provided throughout San Francisco as part of the City's bicycle network. As part of a separate project, the City is investigating opportunities to provide a parallel Class I facility on Hudson Street; however, this is not required as mitigation for project impacts and is being pursued separately.

Overall, the project refinements would continue to improve the overall bicycle network in the study area and facilities will be adequate to meet bicycle needs and Impacts TR-31 and TR-32 would remain unchanged. Mitigation Measure MM TR-32 would also still apply, and as part of the requirements of MM TR-32, SFMTA has already initiated conversations with the Project Sponsor regarding a study to consider relocating the existing bicycle route on Palou Avenue to Quesada Avenue, immediately to the south, and part of the City's Green Connections project. As noted in the EIR, this study must be complete prior to issuance of the grading permit for Major Phase 1 at Hunters Point Shipyard. No new significant impacts beyond those identified in the EIR would result from the modified Project and the modified Project would not make bicycle impacts substantially more severe than identified in the FIER, and therefore, no additional mitigation measures are required.



IMPACTS TR-33 AND TR-34: PEDESTRIAN CIRCULATION

The EIR identified Impacts TR-33 and TR-34 and determined that the Project would cause less than significant impacts on pedestrian circulation. The modified Project generally maintains the project's goals of prioritizing the pedestrian realm through provision of generous sidewalks with streetscape amenities and safety measures, such as bulbouts at key locations. As noted earlier, sidewalks would generally remain between 12 and 15 feet, within the range of sidewalks considered in the original plan. One sidewalk, the west side of Arelious Walker, between Ingerson Avenue and Harney Way, on the opposite side of the street from the retail center, would be reduced to 7 feet; however, this change is expected to be adequate because there are no land uses on the west side of this street, and the design meets minimum ADA requirements. This dimension is analogous to the original project's proposed sidewalk width of 8 feet on the south side of Innes Avenue, near Donohue Street, which is also adjacent to a large hill with no fronting land uses.

Overall, the modified Project includes minor changes with respect to the pedestrian realm and impacts are expected to be similar to Impacts TR-33 and TR-34, as described in the EIR and no new significant impacts or mitigation measures would be required.

IMPACTS TR-35 AND TR-36: PARKING

The EIR identified Impacts TR-35 and TR-36, which determined that although the Project would result in a shortfall of parking spaces compared to its projected demand and would remove some existing on-street parking spaces, the Project's impacts to parking conditions would be less than significant. The modified Project may result in slightly fewer parking spaces on-street than the maximum envelope anticipated in the EIR for Variant 2A - Housing. Specifically, the EIR identified that Variant 2A - Housing would include approximately 2,800 on-street parking spaces (roughly evenly split between Candlestick Point and Hunters Point Shipyard) and between zero and approximately 17,300 off-street spaces. Therefore, the EIR concluded there would be a range of between approximately 2,800 spaces and 20,000 spaces in the entire development area.

The modified Project would reduce on-street parking supply by approximately 450 spaces at Candlestick Point and by approximately 150 spaces at Hunters Point Shipyard. Although the range of off-street parking spaces constructed was projected to be between zero and 17,300 spaces, it is reasonable to expect that the project will build at least 600 off-street spaces, such that



with the loss of 600 on-street spaces, the modified Project will still contain between 2,800 spaces and 20,000 spaces. Therefore, since the modified Project will still provide parking within the range identified in the EIR, conclusions in the EIR related to parking, as described in Impacts TR-35 and TR-36, remain valid, no new significant impacts have been identified, and no new mitigation measures would be required.

IMPACT TR-37: LOADING

The EIR identified Impact TR-37 and determined that the Project would provide adequate loading supply and therefore concluded that impacts related to loading would be less than significant, and that no mitigation measures would be required. As the modified Project does not change the overall loading requirements, implementation of the modified Project would not result in any new significant impacts related to loading and no new mitigation measures would be required.

IMPACTS TR-38 THROUGH TR-50: STADIUM IMPACTS

The EIR included a number of impacts related to operation of the proposed new NFL stadium in the Hunters Point Shipyard site. However, the stadium is not part of the modified Project and these impacts and associated mitigation measures no longer apply.

IMPACT TR-51 THROUGH TR-55: ARENA IMPACTS

The EIR determined that the Project's proposed Arena use would create new impacts. Specifically, Impact TR-51 noted that the arena component of the Project would create significant and unavoidable traffic and site access impacts, and required development of an event Transportation Management Plan (TMP) by the arena operator as Mitigation Measure MM TR-51. However, even with MM TR-51, the arena's impacts to site access and traffic would be significant and unavoidable. The EIR also identified as part of impact TR-52, that the arena's traffic generation would have significant impacts to transit operation and identified Mitigation Measure MM TR-23.1 (operational improvements to the 29 Sunset route) as a way to reduce the effects of the arena traffic on the 29 Sunset travel times. However, even with implementation of these two mitigation measures, the EIR concluded that the arena's impacts to traffic congestion and transit operations would remain significant and unavoidable.

The EIR also determined that the arena would have a less than significant impact to bicycle circulation (TR-53), pedestrian circulation (TR-54), and parking conditions (TR-55).



The modified Project would continue to include a potential arena/entertainment use near the Candlestick Point retail center. Nothing in the modified Project would substantially change the degree to which the arena use would generate travel demand or access the site, and therefore, the modified Project would not create any new significant impacts or substantially increase the severity of a significant impact compared to what was described in the EIR, and therefore no additional mitigation measures are required.

IMPACT TR-56: AIR TRAFFIC IMPACTS

The EIR determined that the Project would have a less than significant impact on air traffic. The modified Project would contain the same overall land uses and general development form and would not change the EIR's conclusion regarding air traffic. The modified Project would not create any new significant impacts with respect to air traffic and no additional mitigation measures are required.

IMPACT TR-57: HAZARDS DUE TO DESIGN FEATURES

The EIR determined that the Project's transportation infrastructure would be designed in accordance with City standards, and would be reviewed and approved by the City prior to construction. As a result the Project's impacts to hazards would be less than significant. The modified Project would also be designed accordance with City standards and would be reviewed and approved by the City. Therefore, no new significant impacts to design features have been identified and no mitigation measures are required.

IMPACT TR-58: EMERGENCY ACCESS

The EIR determined that the Project's transportation infrastructure would adequately facilitate emergency access and be designed to City standards, which include provisions that address emergency vehicles. The modified Project would also be designed accordance with City standards and would be reviewed and approved by the City. Therefore, no new significant impacts to emergency access have been identified and no mitigation measures are required.

CUMULATIVE IMPACTS

As noted in the EIR, the discussion of cumulative impacts was included with the discussion of project-related impacts in Impacts TR-1 through TR-58 and no additional cumulative impact



discussion is necessary. Similar to what is described above and in the EIR, since the modified Project would generate the same levels of travel demand at buildout and would have a similar transportation infrastructure, the modified Project's contribution to cumulative impacts would be the same as what is described in the EIR.

CONCLUSION

In conclusion, the modified Project would not change or alter any of the EIR's findings with respect to transportation impacts. All impacts would remain less than significant, less than significant with mitigation, or significant and unavoidable, as previously identified, and no new mitigation measures would be required. Additionally, the EIR's transportation cumulative impact conclusions would not be altered.

We hope you have found this useful.

Sincerely,

FEHR & PEERS

A handwritten signature in black ink, appearing to read "Chris Mitchell".

Chris Mitchell, PE
Principal

SF08-0407



APPENDIX A

Construction Activities by Phase

Table of Construction Comparison 2010 vs. 2013 (Draft TRC 12/04/2013)								
Construction Workers and Trucks by Phase Hunters Point Shipyard and Candlestick Point								
Project Area / Construction Phase	2010 Construction Duration	2010 Construction Years	2010 Daily Construction Workers	2010 Daily Construction Truck Trips	2013 Construction Duration	2013 Construction Years	2013 Daily Construction Workers	2013 Daily Construction Truck Trips
Hunters Point Shipyard								
Phase 1 - Site Preparation								
Abatement & Demo	2011 - 2015	1 - 5	10 - 63	8 - 48	2014 - 2020	1 - 7	0 - 66	0 - 104
Grading and Infrastructure	2013 - 2017	3 - 7	25 - 130	8 - 288	2014 - 2020	1 - 7	0 - 113	0 - 176
Phase 1 - Building Construction								
Structure/Rough in	2011 - 2016	1 - 6	18 - 100	8 - 32	2014 - 2021	1 - 8	0 - 58	0 - 48
Interior and Exterior Finishes	2011 - 2016	1 - 6	10-70	8 - 32	2014 - 2021	1 - 8	0 - 56	0 - 40
Phase 2 - Site Preparation								
Abatement & Demo	2016 - 2019	6 - 9	13 - 65	8 - 56	2018 - 2024	5 - 11	13 - 76	4 - 80
Grading and Infrastructure	2018 - 2021	8 - 11	38-100	96 - 224	2018 - 2024	5 - 11	25 - 111	8 - 208
Phase 2 - Building Construction								
Structure/Rough in	2016 - 2019	6 - 9	60 - 80	16 - 32	2022 - 2025	9 - 12	10 - 80	8 - 32
Interior and Exterior Finishes	2016 - 2019	6 - 9	25 - 83	16 - 40	2022 - 2025	9 - 12	10 - 55	4 - 24
Phase 3 - Site Preparation								
Abatement & Demo	2020 - 2023	10 - 13	13 - 35	8 -32	2024 - 2030	11 - 17	13 - 48	4 - 48
Grading and Infrastructure	2022 - 2025	12 - 15	35 - 60	24 - 40	2025 - 2030	12 - 17	25 - 95	4 - 80
Phase 3 - Building Construction								
Structure/Rough in	2021 - 2024	11 - 14	16 - 20	8 - 16	2026 - 2030	13 - 17	20 - 40	8 - 32
Interior and Exterior Finishes	2021 - 2025	11 - 15	25 - 35	8 - 16	2027 - 2031	14 - 18	10 - 35	4 - 24
Phase 4 - Site Preparation								
Abatement & Demo	2024 - 2028	14 - 18	13 - 28	8 - 32	2026 - 2033	17 - 20	13 - 185	4 - 200
Grading and Infrastructure	2026 - 2031	16 - 21	18 - 60	8 - 128	2027 - 2033	18 - 20	25 - 146	2 - 232
Phase 4 - Building Construction								
Structure/Rough in	None				2028 - 2034	15 - 21	18 - 76	8 - 64
Interior and Exterior Finishes	2026 - 2031	16 - 21	10-50	8 - 40	2028 - 2034	15 - 21	10 - 80	2 - 64
Candlestick Point								
Phase 1 - Site Preparation								
Abatement & Demo	2013 - 2015	3 - 5	10 - 13	8 - 16	2014 - 2017	1 - 4	13 - 57	4 - 72
Grading and Infrastructure	2013 - 2017	3 - 7	30 - 55	12 - 96	2014 - 2018	1 - 5	25 - 145	4 - 64
Phase 1 - Building Construction								
Structure/Rough in	2013 - 2016	3 - 6	14 - 18	8 - 16	2015 - 2018	2 - 5	18 - 100	8 - 64
Interior and Exterior Finishes	2013 - 2016	3 - 6	8 - 10	4 - 8	2015 - 2019	2 - 6	10 - 63	2 - 36
Phase 2 - Site Preparation								
Abatement & Demo	2016 - 2019	6 - 9	13 - 38	8 - 32	2018 - 2025	5 - 12	13 - 26	4 - 32
Grading and Infrastructure	2018 - 2021	8 - 11	30 - 93	8 - 32	2018 - 2025	5 - 12	25 - 85	4 - 20
Phase 2 - Building Construction								
Structure/Rough in	2016 - 2021	6 - 11	16 - 32	16 - 32	2019 - 2025	6 - 12	18 - 40	8 - 32
Interior and Exterior Finishes	2016 - 2021	6 - 11	10 - 33	8 - 20	2019 - 2026	6 - 13	10 - 46	2 - 20
Phase 3 - Site Preparation								
Abatement & Demo	2020 - 2023	10 - 13	10 - 38	4 - 50	2025 - 2031	12 - 18	13 - 31	4 - 24
Grading and Infrastructure	2022 - 2025	12 - 15	26 - 60	12 - 128	2025 - 2031	12 - 18	25 - 135	4 - 48
Phase 3 - Building Construction								
Structure/Rough in	2021 - 2025	11 - 15	40 - 100	16 - 48	2027 - 2031	14 - 18	18 - 80	8 - 32
Interior and Exterior Finishes	2021 - 2025	11 - 15	20 - 75	16 - 32	2027 - 2032	14 - 19	10 - 66	2 - 28
Phase 4 - Site Preparation								
Abatement & Demo	2024 - 2028	14 - 18	13 - 43	8 - 32	2031 - 2034	18 - 21	13 - 26	4 - 16
Grading and Infrastructure	2026 - 2030	16 - 20	30 - 135	16 - 52	2031 - 2034	18 - 21	25 - 50	4 - 16
Phase 4 - Building Construction								
Structure/Rough in	2024 - 2030	14 - 20	40 - 80	16 - 32	2033 - 2034	20 - 21	18 - 40	8 - 16
Interior and Exterior Finishes	2024 - 2031	14 - 21	30 - 90	16 - 48	2033 - 2035	20 - 22	10 - 56	4 - 32
Yosemite Slough Bridge	2015 - 2016	5 - 6	62 - 78	18- 24	2018 - 2020	5 - 7	62 - 78	16- 24
HPS Off-Site Improvements	2015 - 2017	5 - 7	24 - 30	8 - 12	2018 - 2025	5 - 12	30 - 60	8 - 24
CP Off-Site Improvements	2013 - 2018	3 - 8	24 - 30	8 - 12	2015 - 2023	2 - 10	30 - 56	8 - 24

Notes:

- 2010 data was derived from Table 90, Appendix A3 of the EIR, March 23, 2010
- 2013 Major Phase boundaries differ from 2010 boundaries; in addition, the 2010 project included the Stadium option.
- Values presented in Blue have been added to the 2010 column for completeness as they were not present in the original table in the Final EIR.
- The "Construction Years" column was added for reference purposes, please assume that the "2010" Year 1 is 2011 and the "2013" Year 1 is 2014.
- All worker and truck quantities are approximate, and subject to change pending final design.
- This table does not include trips associated with field management.
- Hunter Point Shipyard Phase 2 "Abatement and Demolition" and "Infrastructure and Grading" have been adjusted to a 2018 start date to accommodate the construction of the Yosemite Slough Bridge, and connecting roadways within HP-05 and HP-06 per the 2013 phasing.
- The main changes associated with Candlestick point relate to the Candlestick Stadium sub phase occurring earlier in the project then what was assumed in the 2010 schedule. This resulted in higher values in the early part of the project but lower in the later part.
- The main changes associated with Hunter Point Shipyard (HPS) relate to the Non Stadium variant, and having that sub phase divided down into several smaller development blocks. This resulted in higher average values across HPS due to construction being spread more evenly across the project years rather than a large amount of work all happening on the front end of the project as in the 2010 project schedule.

Table of Shoreline Improvement Daily Construction Workers Comparison 2010 vs. 2013 (Draft TRC 11/18/2013)						
Construction Workers by Phase and Yearly Barge Trips						
Hunters Point Shipyard and Candlestick Point						
Project Area / Construction Year	2010 Construction Duration (Months)	2010 Daily Construction Workers	2010 Yearly Barge Trips	2013 Construction Duration (Months)	2013 Daily Construction Workers	2013 Yearly Barge Trips
Hunters Point Shipyard						
2015 Shoreline	9	6 - 7	0			
2016 Shoreline	9	18 - 21	6			
2017 Shoreline	9	45 - 50	80			
2018 Shoreline	6	35 - 40	55			
2020 Shoreline				9	18 - 21	6
2021 Shoreline				9	18 - 21	6
2022 Shoreline	5	14 - 16	15	5	11 - 12	20
2023 Shoreline	5	14 - 16	15	9	21 - 24	40
2024 Shoreline				5	21 - 24	30
2025 Shoreline	10	14 - 16	10			
2026 Shoreline	9	42 - 48	40			
2027 Shoreline				3	7 - 8	8
2028 Shoreline				3	7 - 8	8
2029 Shoreline				9	21 - 24	40
2030 Shoreline				7	15 - 17	18
2031 Shoreline				11	22 - 25	28
2032 Shoreline				9	18 - 21	22
2033 Shoreline				2	5 - 7	2
2034 Shoreline				2	5 - 7	2
Candlestick Point						
2018 Shoreline	2	5 - 7	2			
2022 Shoreline	2	5 - 7	2			
2024 Shoreline	2	5 - 7	2	4	5 - 7	2
2026 Shoreline	4	5 - 7	3			
2027 Shoreline	4	5 - 7	3			
2028 Shoreline	6	5 - 7	4	2	5 - 7	2
2029 Shoreline				2	5 - 7	2
2030 Shoreline				4	5 - 7	2
2031 Shoreline				2	5 - 7	2
2033 Shoreline				2	5 - 7	2
2034 Shoreline				2	5 - 7	2

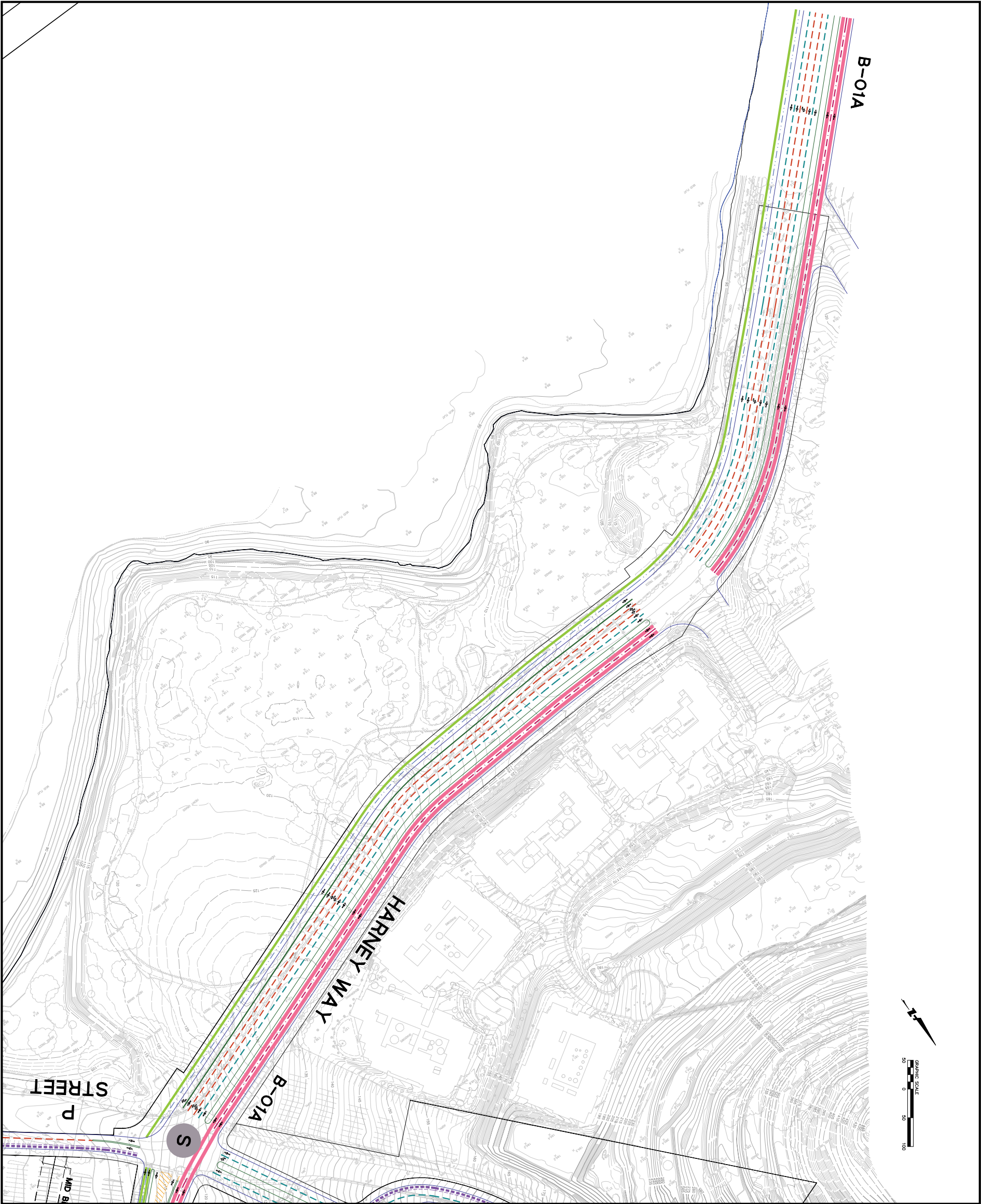
Notes:

1. 2010 data was derived from Table 91, Appendix A3 of the EIR, March 23, 2010
2. 2013 Major Phase boundaries differ from 2010 boundaries; in addition, the 2010 project included the Stadium option.
3. Spaces shaded in grey show that no shoreline work is anticipated for the construction year.
4. All worker and barge quantities are approximate, and subject to change pending final design.
5. Does not include work associated with field management.



APPENDIX B

Harney Way Initial and Long-Term Configuration



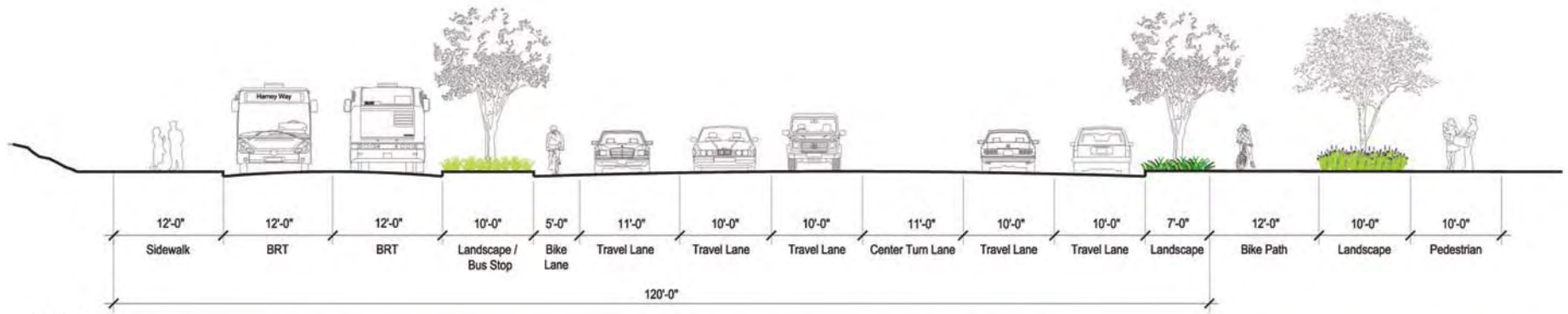
6 OF 10	Drawing Number: 6	Date 7/26/13	No.	Revisions
		Scale SEE DWG		
		Design JRK / HH		
		Drawn JRK		
		Approved TA		
		Job No 20110162		

CANDLESTICK POINT AND HUNTERS POINT SHIPYARD PHASE 2
HARNEY WAY
SAN FRANCISCO CALIFORNIA

**BKF**
ENGINEERS/SURVEYORS/PLANNERS

255 SHORELINE DRIVE, STE 200
REDWOOD CITY, CA 94065
650/482-6300
650/482-6399 (FAX)

Figure 10: Proposed Harney Way Potential Long-Term Configuration



Section A





APPENDIX C

Intersection LOS Calculations

ORIGINAL ARELIOUS WALKER DRIVE CONFIGURATION

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-----
Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)
*****
Intersection #1034 Arelious Walker Dr / Gilman Ave
*****
Cycle (sec):          100          Critical Vol./Cap.(X):          0.531
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):      30.2
Optimal Cycle:        43          Level Of Service:          C
*****
Street Name:          Arelious Walker Dr          Gilman Ave
Approach:              North Bound          South Bound          East Bound          West Bound
Movement:              L - T - R          L - T - R          L - T - R          L - T - R
-----|-----|-----|-----|
Control:               Protected          Protected          Split Phase          Split Phase
Rights:                Include          Include          Include          Include
Min. Green:            0    0    0          0    0    0          0    0    0          0    0    0
Lanes:                 2    0    1    1    0          1    0    1    1    0          1    1    0    0    2          0    0    1!    0    0
-----|-----|-----|-----|
Volume Module:
Base Vol:              320    360    10          70    360    310          340    60    330          10    40    40
Growth Adj:            1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
Initial Bse:           320    360    10          70    360    310          340    60    330          10    40    40
Added Vol:             0    0    0          0    0    0          0    0    0          0    0    0
PasserByVol:          0    0    0          0    0    0          0    0    0          0    0    0
Initial Fut:           320    360    10          70    360    310          340    60    330          10    40    40
User Adj:              1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
PHF Adj:               1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
PHF Volume:            320    360    10          70    360    310          340    60    330          10    40    40
Reduct Vol:            0    0    0          0    0    0          0    0    0          0    0    0
Reduced Vol:           320    360    10          70    360    310          340    60    330          10    40    40
PCE Adj:               1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
MLF Adj:               1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
Final Vol.:            320    360    10          70    360    310          340    60    330          10    40    40
-----|-----|-----|-----|
Saturation Flow Module:
Sat/Lane:              1900    1900    1900          1900    1900    1900          1900    1900    1900          1900    1900    1900
Adjustment:            0.90    0.93    0.93          0.93    0.87    0.87          0.94    0.94    0.73          0.92    0.92    0.92
Lanes:                 2.00    1.95    0.05          1.00    1.07    0.93          1.70    0.30    2.00          0.11    0.45    0.44
Final Sat.:            3432    3428    95          1769    1770    1524          3036    536    2786          193    773    773
-----|-----|-----|-----|
Capacity Analysis Module:
Vol/Sat:               0.09    0.11    0.11          0.04    0.20    0.20          0.11    0.11    0.12          0.05    0.05    0.05
Crit Moves:           ****              ****              ****              ****
Green/Cycle:           0.18    0.41    0.41          0.15    0.38    0.38          0.22    0.22    0.22          0.10    0.10    0.10
Volume/Cap:            0.53    0.26    0.26          0.26    0.53    0.53          0.50    0.50    0.53          0.53    0.53    0.53
Uniform Del:           37.5    19.7    19.7          37.3    23.9    23.9          34.0    34.0    34.2          42.9    42.9    42.9
IncremntDel:           0.9    0.1    0.1          0.5    0.4    0.4          0.5    0.5    0.9          3.2    3.2    3.2
InitQueueDel:          0.0    0.0    0.0          0.0    0.0    0.0          0.0    0.0    0.0          0.0    0.0    0.0
Delay Adj:             1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
Delay/Veh:             38.4    19.8    19.8          37.9    24.3    24.3          34.5    34.5    35.1          46.1    46.1    46.1
User DelAdj:           1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
AdjDel/Veh:            38.4    19.8    19.8          37.9    24.3    24.3          34.5    34.5    35.1          46.1    46.1    46.1
LOS by Move:           D    B    B          D    C    C          C    C    D          D    D    D
HCM2kAvgQ:             5    4    4          2    9    9          6    6    6          3    3    3
*****

```

```

-----
Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)
*****
Intersection #1034 Arelious Walker Dr / Gilman Ave
*****
Cycle (sec):          100          Critical Vol./Cap.(X):          0.772
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):      35.6
Optimal Cycle:        71          Level Of Service:          D
*****
Street Name:          Arelious Walker Dr          Gilman Ave
Approach:              North Bound          South Bound          East Bound          West Bound
Movement:              L - T - R          L - T - R          L - T - R          L - T - R
-----|-----|-----|-----|
Control:               Protected          Protected          Split Phase          Split Phase
Rights:                Include          Include          Include          Include
Min. Green:            0    0    0          0    0    0          0    0    0          0    0    0
Lanes:                 2    0    1    1    0          1    0    1    1    0          1    1    0    0    2          0    0    1!    0    0
-----|-----|-----|-----|
Volume Module:
Base Vol:              570    580    10          110    680    160          390    130    550          10    30    80
Growth Adj:            1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
Initial Bse:           570    580    10          110    680    160          390    130    550          10    30    80
Added Vol:              0    0    0          0    0    0          0    0    0          0    0    0
PasserByVol:           0    0    0          0    0    0          0    0    0          0    0    0
Initial Fut:           570    580    10          110    680    160          390    130    550          10    30    80
User Adj:              1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
PHF Adj:               1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
PHF Volume:            570    580    10          110    680    160          390    130    550          10    30    80
Reduct Vol:             0    0    0          0    0    0          0    0    0          0    0    0
Reduced Vol:           570    580    10          110    680    160          390    130    550          10    30    80
PCE Adj:               1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
MLF Adj:               1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
Final Vol.:            570    580    10          110    680    160          390    130    550          10    30    80
-----|-----|-----|-----|
Saturation Flow Module:
Sat/Lane:              1900    1900    1900          1900    1900    1900          1900    1900    1900          1900    1900    1900
Adjustment:            0.90    0.93    0.93          0.93    0.90    0.90          0.94    0.94    0.73          0.89    0.89    0.89
Lanes:                 2.00    1.97    0.03          1.00    1.62    0.38          1.50    0.50    2.00          0.08    0.25    0.67
Final Sat.:            3432    3467    60          1769    2784    655          2692    897    2786          141    422    1125
-----|-----|-----|-----|
Capacity Analysis Module:
Vol/Sat:               0.17    0.17    0.17          0.06    0.24    0.24          0.14    0.14    0.20          0.07    0.07    0.07
Crit Moves:            ****          ****          ****          ****
Green/Cycle:           0.22    0.39    0.39          0.14    0.32    0.32          0.26    0.26    0.26          0.09    0.09    0.09
Volume/Cap:            0.77    0.43    0.43          0.43    0.77    0.77          0.57    0.57    0.77          0.77    0.77    0.77
Uniform Del:           36.9    22.5    22.5          39.1    30.9    30.9          32.4    32.4    34.5          44.4    44.4    44.4
IncremntDel:           5.0    0.2    0.2          1.2    3.5    3.5          0.8    0.8    5.2          20.8    20.8    20.8
InitQueueDel:          0.0    0.0    0.0          0.0    0.0    0.0          0.0    0.0    0.0          0.0    0.0    0.0
Delay Adj:             1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
Delay/Veh:             41.9    22.7    22.7          40.2    34.4    34.4          33.2    33.2    39.7          65.2    65.2    65.2
User DelAdj:           1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
AdjDel/Veh:            41.9    22.7    22.7          40.2    34.4    34.4          33.2    33.2    39.7          65.2    65.2    65.2
LOS by Move:           D    C    C          D    C    C          C    C    D          E    E    E
HCM2kAvgQ:             10    7    7          4    14    14          8    8    11          6    6    6
*****

```

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1029 Harney Way / Jamestown Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.565

Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 22.3

Optimal Cycle: 45 Level Of Service: C

Street Name: Harney Way Jamestown Ave

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

-----|-----|-----|-----|

Control: Protected Protected Split Phase Split Phase

Rights: Include Include Ovl Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Lanes: 2 0 0 1 0 0 0 1 0 1 0 0 0 0 0

-----|-----|-----|-----|

Volume Module:

Base Vol: 230 300 0 0 480 60 100 0 360 0 0 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 230 300 0 0 480 60 100 0 360 0 0 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 230 300 0 0 480 60 100 0 360 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Volume: 230 300 0 0 480 60 100 0 360 0 0 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 230 300 0 0 480 60 100 0 360 0 0 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Vol.: 230 300 0 0 480 60 100 0 360 0 0 0

-----|-----|-----|-----|

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.90 0.98 1.00 1.00 0.98 0.83 0.86 1.00 0.86 1.00 1.00 1.00

Lanes: 2.00 1.00 0.00 0.00 1.00 1.00 0.36 0.00 1.64 0.00 0.00 0.00

Final Sat.: 3432 1862 0 0 1862 1583 581 0 2671 0 0 0

-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat: 0.07 0.16 0.00 0.00 0.26 0.04 0.17 0.00 0.13 0.00 0.00 0.00

Crit Moves: ****

Green/Cycle: 0.12 0.58 0.00 0.00 0.46 0.46 0.30 0.00 0.42 0.00 0.00 0.00

Volume/Cap: 0.56 0.28 0.00 0.00 0.56 0.08 0.56 0.00 0.32 0.00 0.00 0.00

Uniform Del: 41.6 10.8 0.0 0.0 19.9 15.4 29.2 0.0 19.2 0.0 0.0 0.0

IncrementDel: 1.8 0.1 0.0 0.0 0.9 0.0 0.9 0.0 0.1 0.0 0.0 0.0

InitQueueDel: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Delay Adj: 1.00 1.00 0.00 0.00 1.00 1.00 1.00 0.00 1.00 0.00 0.00 0.00

Delay/Veh: 43.5 10.9 0.0 0.0 20.8 15.4 30.1 0.0 19.3 0.0 0.0 0.0

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 43.5 10.9 0.0 0.0 20.8 15.4 30.1 0.0 19.3 0.0 0.0 0.0

LOS by Move: D B A A C B C A B A A A

HCM2kAvgQ: 4 5 0 0 11 1 8 0 5 0 0 0

```

-----
Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)
*****
Intersection #1029 Harney Way / Jamestown Ave
*****
Cycle (sec):          100          Critical Vol./Cap.(X):          1.003
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):      41.1
Optimal Cycle:        100          Level Of Service:          D
*****
Street Name:          Harney Way          Jamestown Ave
Approach:             North Bound          South Bound          East Bound          West Bound
Movement:             L - T - R          L - T - R          L - T - R          L - T - R
-----|-----|-----|-----|
Control:              Protected          Protected          Split Phase          Split Phase
Rights:               Include          Include          Ovl          Include
Min. Green:           0    0    0          0    0    0          0    0    0          0    0    0
Lanes:                2    0    0    1    0          0    0    1    0    1          0    0    1!    0    1          0    0    0    0    0
-----|-----|-----|-----|
Volume Module:
Base Vol:             450    950          0          0    1000          60          80    0    530          0    0    0
Growth Adj:           1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
Initial Bse:           450    950          0          0    1000          60          80    0    530          0    0    0
Added Vol:             0    0    0          0    0    0          0    0    0          0    0    0
PasserByVol:          0    0    0          0    0    0          0    0    0          0    0    0
Initial Fut:           450    950          0          0    1000          60          80    0    530          0    0    0
User Adj:             1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
PHF Adj:              1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
PHF Volume:           450    950          0          0    1000          60          80    0    530          0    0    0
Reduct Vol:           0    0    0          0    0    0          0    0    0          0    0    0
Reduced Vol:          450    950          0          0    1000          60          80    0    530          0    0    0
PCE Adj:              1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
MLF Adj:              1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
Final Vol.:           450    950          0          0    1000          60          80    0    530          0    0    0
-----|-----|-----|-----|
Saturation Flow Module:
Sat/Lane:             1900    1900    1900          1900    1900    1900          1900    1900    1900          1900    1900    1900
Adjustment:           0.90    0.98    1.00          1.00    0.98    0.83          0.85    1.00    0.85          1.00    1.00    1.00
Lanes:                2.00    1.00    0.00          0.00    1.00    1.00          0.23    0.00    1.77          0.00    0.00    0.00
Final Sat.:           3432    1862          0          0    1862    1583          373    0    2844          0    0    0
-----|-----|-----|-----|
Capacity Analysis Module:
Vol/Sat:              0.13    0.51    0.00          0.00    0.54    0.04          0.21    0.00    0.19          0.00    0.00    0.00
Crit Moves:          ****          ****          ****
Green/Cycle:          0.13    0.67    0.00          0.00    0.54    0.54          0.21    0.00    0.34          0.00    0.00    0.00
Volume/Cap:           1.00    0.77    0.00          0.00    1.00    0.07          1.00    0.00    0.54          0.00    0.00    0.00
Uniform Del:          43.5    11.4    0.0          0.0    23.2    11.2          39.3    0.0    26.4          0.0    0.0    0.0
IncremntDel:          43.2    2.9    0.0          0.0    29.2    0.0          37.2    0.0    0.5          0.0    0.0    0.0
InitQueueDel:         0.0    0.0    0.0          0.0    0.0    0.0          0.0    0.0    0.0          0.0    0.0    0.0
Delay Adj:            1.00    1.00    0.00          0.00    1.00    1.00          1.00    0.00    1.00          0.00    0.00    0.00
Delay/Veh:            86.7    14.3    0.0          0.0    52.5    11.3          76.5    0.0    26.9          0.0    0.0    0.0
User DelAdj:          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
AdjDel/Veh:           86.7    14.3    0.0          0.0    52.5    11.3          76.5    0.0    26.9          0.0    0.0    0.0
LOS by Move:          F    B    A          A    D    B          E    A    C          A    A    A
HCM2kAvgQ:            12    21    0          0    39    1          16    0    8          0    0    0
*****

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REVISED ARELIOUS WALKER DRIVE CONFIGURATION

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1034 Arelious Walker Dr / Gilman Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.630

Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 32.5

Optimal Cycle: 51 Level Of Service: C

Street Name: Arelious Walker Dr Gilman Ave

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Split Phase Split Phase

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Lanes: 1 0 1 1 0 1 0 1 1 0 1 1 0 0 2 0 0 1! 0 0

Volume Module:

Base Vol: 320 360 10 70 360 310 340 60 330 10 40 40

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 320 360 10 70 360 310 340 60 330 10 40 40

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 320 360 10 70 360 310 340 60 330 10 40 40

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Volume: 320 360 10 70 360 310 340 60 330 10 40 40

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 320 360 10 70 360 310 340 60 330 10 40 40

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Vol.: 320 360 10 70 360 310 340 60 330 10 40 40

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.93 0.93 0.93 0.93 0.87 0.87 0.94 0.94 0.73 0.92 0.92 0.92

Lanes: 1.00 1.95 0.05 1.00 1.07 0.93 1.70 0.30 2.00 0.11 0.45 0.44

Final Sat.: 1769 3428 95 1769 1770 1524 3036 536 2786 193 773 773

Capacity Analysis Module:

Vol/Sat: 0.18 0.11 0.11 0.04 0.20 0.20 0.11 0.11 0.12 0.05 0.05 0.05

Crit Moves: **** **** **** ****

Green/Cycle: 0.29 0.44 0.44 0.17 0.32 0.32 0.19 0.19 0.19 0.08 0.08 0.08

Volume/Cap: 0.63 0.24 0.24 0.24 0.63 0.63 0.60 0.60 0.63 0.63 0.63 0.63

Uniform Del: 31.0 17.3 17.3 36.1 28.8 28.8 37.1 37.1 37.4 44.4 44.4 44.4

IncremntDel: 2.5 0.1 0.1 0.4 1.2 1.2 1.5 1.5 2.5 8.7 8.7 8.7

InitQueueDel: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Delay/Veh: 33.6 17.4 17.4 36.5 30.0 30.0 38.6 38.6 39.9 53.2 53.2 53.2

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 33.6 17.4 17.4 36.5 30.0 30.0 38.6 38.6 39.9 53.2 53.2 53.2

LOS by Move: C B B D C C D D D D D D

HCM2kAvgQ: 9 4 4 2 10 10 6 6 6 4 4 4

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)
*****
Intersection #1034 Arelious Walker Dr / Gilman Ave
*****
Cycle (sec):          100          Critical Vol./Cap.(X):          0.949
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):          49.6
Optimal Cycle:        100          Level Of Service:          D
*****
Street Name:          Arelious Walker Dr          Gilman Ave
Approach:              North Bound          South Bound          East Bound          West Bound
Movement:              L - T - R          L - T - R          L - T - R          L - T - R
-----|-----|-----|-----|
Control:               Protected          Protected          Split Phase          Split Phase
Rights:                Include          Include          Include          Include
Min. Green:            0    0    0          0    0    0          0    0    0          0    0    0
Lanes:                 1  0  1  1  0          1  0  1  1  0          1  1  0  0  2          0  0  1! 0  0
-----|-----|-----|-----|
Volume Module:
Base Vol:              570  580    10          110  680    160          390  130    550          10  30    80
Growth Adj:            1.00 1.00    1.00          1.00 1.00    1.00          1.00 1.00    1.00          1.00 1.00    1.00
Initial Bse:           570  580    10          110  680    160          390  130    550          10  30    80
Added Vol:              0    0    0          0    0    0          0    0    0          0    0    0
PasserByVol:           0    0    0          0    0    0          0    0    0          0    0    0
Initial Fut:           570  580    10          110  680    160          390  130    550          10  30    80
User Adj:              1.00 1.00    1.00          1.00 1.00    1.00          1.00 1.00    1.00          1.00 1.00    1.00
PHF Adj:               1.00 1.00    1.00          1.00 1.00    1.00          1.00 1.00    1.00          1.00 1.00    1.00
PHF Volume:           570  580    10          110  680    160          390  130    550          10  30    80
Reduct Vol:              0    0    0          0    0    0          0    0    0          0    0    0
Reduced Vol:           570  580    10          110  680    160          390  130    550          10  30    80
PCE Adj:               1.00 1.00    1.00          1.00 1.00    1.00          1.00 1.00    1.00          1.00 1.00    1.00
MLF Adj:               1.00 1.00    1.00          1.00 1.00    1.00          1.00 1.00    1.00          1.00 1.00    1.00
Final Vol.:           570  580    10          110  680    160          390  130    550          10  30    80
-----|-----|-----|-----|
Saturation Flow Module:
Sat/Lane:              1900 1900    1900          1900 1900    1900          1900 1900    1900          1900 1900    1900
Adjustment:            0.93 0.93    0.93          0.93 0.90    0.90          0.94 0.94    0.73          0.89 0.89    0.89
Lanes:                 1.00 1.97    0.03          1.00 1.62    0.38          1.50 0.50    2.00          0.08 0.25    0.67
Final Sat.:           1769 3467    60          1769 2784    655          2692 897    2786          141 422    1125
-----|-----|-----|-----|
Capacity Analysis Module:
Vol/Sat:               0.32 0.17    0.17          0.06 0.24    0.24          0.14 0.14    0.20          0.07 0.07    0.07
Crit Moves:            ****          ****          ****          ****
Green/Cycle:           0.34 0.44    0.44          0.16 0.26    0.26          0.21 0.21    0.21          0.07 0.07    0.07
Volume/Cap:            0.95 0.38    0.38          0.38 0.95    0.95          0.70 0.70    0.95          0.95 0.95    0.95
Uniform Del:           32.2 19.2    19.2          37.5 36.5    36.5          36.7 36.7    39.1          46.1 46.1    46.1
IncremntDel:           24.7 0.2    0.2          0.9 19.0    19.0          2.9 2.9    25.3          64.1 64.1    64.1
InitQueueDel:          0.0 0.0    0.0          0.0 0.0    0.0          0.0 0.0    0.0          0.0 0.0    0.0
Delay Adj:             1.00 1.00    1.00          1.00 1.00    1.00          1.00 1.00    1.00          1.00 1.00    1.00
Delay/Veh:             56.8 19.3    19.3          38.3 55.5    55.5          39.6 39.6    64.3          110.2 110 110.2
User DelAdj:           1.00 1.00    1.00          1.00 1.00    1.00          1.00 1.00    1.00          1.00 1.00    1.00
AdjDel/Veh:           56.8 19.3    19.3          38.3 55.5    55.5          39.6 39.6    64.3          110.2 110 110.2
LOS by Move:           E    B    B          D    E    E          D    D    E          F    F    F
HCM2kAvgQ:             22    6    6          3    18    18          9    9    14          7    7    7
*****

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Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #1029 Harney Way / Jamestown Ave

Cycle (sec): 100 Critical Vol./Cap.(X): 0.565

Loss Time (sec): 12 (Y+R=4.0 sec) Average Delay (sec/veh): 22.3

Optimal Cycle: 45 Level Of Service: C

Street Name: Harney Way Jamestown Ave

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

-----|-----|-----|-----|

Control: Protected Protected Split Phase Split Phase

Rights: Include Include Ovl Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0

Lanes: 2 0 0 1 0 0 0 1 0 1 0 0 0 0 0

-----|-----|-----|-----|

Volume Module:

Base Vol: 230 300 0 0 480 60 100 0 360 0 0 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 230 300 0 0 480 60 100 0 360 0 0 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 230 300 0 0 480 60 100 0 360 0 0 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Volume: 230 300 0 0 480 60 100 0 360 0 0 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 230 300 0 0 480 60 100 0 360 0 0 0

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Vol.: 230 300 0 0 480 60 100 0 360 0 0 0

-----|-----|-----|-----|

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.90 0.98 1.00 1.00 0.98 0.83 0.86 1.00 0.86 1.00 1.00 1.00

Lanes: 2.00 1.00 0.00 0.00 1.00 1.00 0.36 0.00 1.64 0.00 0.00 0.00

Final Sat.: 3432 1862 0 0 1862 1583 581 0 2671 0 0 0

-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat: 0.07 0.16 0.00 0.00 0.26 0.04 0.17 0.00 0.13 0.00 0.00 0.00

Crit Moves: ****

Green/Cycle: 0.12 0.58 0.00 0.00 0.46 0.46 0.30 0.00 0.42 0.00 0.00 0.00

Volume/Cap: 0.56 0.28 0.00 0.00 0.56 0.08 0.56 0.00 0.32 0.00 0.00 0.00

Uniform Del: 41.6 10.8 0.0 0.0 19.9 15.4 29.2 0.0 19.2 0.0 0.0 0.0

IncrementDel: 1.8 0.1 0.0 0.0 0.9 0.0 0.9 0.0 0.1 0.0 0.0 0.0

InitQueueDel: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Delay Adj: 1.00 1.00 0.00 0.00 1.00 1.00 1.00 0.00 1.00 0.00 0.00 0.00

Delay/Veh: 43.5 10.9 0.0 0.0 20.8 15.4 30.1 0.0 19.3 0.0 0.0 0.0

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 43.5 10.9 0.0 0.0 20.8 15.4 30.1 0.0 19.3 0.0 0.0 0.0

LOS by Move: D B A A C B C A B A A A

HCM2kAvgQ: 4 5 0 0 11 1 8 0 5 0 0 0

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)
*****
Intersection #1029 Harney Way / Jamestown Ave
*****
Cycle (sec):          100          Critical Vol./Cap.(X):          1.003
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):      41.1
Optimal Cycle:        100          Level Of Service:          D
*****
Street Name:          Harney Way          Jamestown Ave
Approach:             North Bound        South Bound        East Bound        West Bound
Movement:             L - T - R          L - T - R          L - T - R          L - T - R
-----|-----|-----|-----|
Control:              Protected          Protected          Split Phase        Split Phase
Rights:               Include            Include            Ovl                Include
Min. Green:           0    0    0          0    0    0          0    0    0          0    0    0
Lanes:                2    0    0    1    0        0    0    1    0    1        0    0    1!    0    1        0    0    0    0    0
-----|-----|-----|-----|
Volume Module:
Base Vol:             450    950          0          0    1000          60          80    0    530          0    0    0
Growth Adj:           1.00    1.00    1.00        1.00    1.00    1.00        1.00    1.00    1.00        1.00    1.00    1.00
Initial Bse:           450    950          0          0    1000          60          80    0    530          0    0    0
Added Vol:             0    0    0          0    0    0          0    0    0          0    0    0
PasserByVol:          0    0    0          0    0    0          0    0    0          0    0    0
Initial Fut:           450    950          0          0    1000          60          80    0    530          0    0    0
User Adj:             1.00    1.00    1.00        1.00    1.00    1.00        1.00    1.00    1.00        1.00    1.00    1.00
PHF Adj:              1.00    1.00    1.00        1.00    1.00    1.00        1.00    1.00    1.00        1.00    1.00    1.00
PHF Volume:           450    950          0          0    1000          60          80    0    530          0    0    0
Reduct Vol:            0    0    0          0    0    0          0    0    0          0    0    0
Reduced Vol:          450    950          0          0    1000          60          80    0    530          0    0    0
PCE Adj:              1.00    1.00    1.00        1.00    1.00    1.00        1.00    1.00    1.00        1.00    1.00    1.00
MLF Adj:              1.00    1.00    1.00        1.00    1.00    1.00        1.00    1.00    1.00        1.00    1.00    1.00
Final Vol.:           450    950          0          0    1000          60          80    0    530          0    0    0
-----|-----|-----|-----|
Saturation Flow Module:
Sat/Lane:             1900    1900    1900        1900    1900    1900        1900    1900    1900        1900    1900    1900
Adjustment:           0.90    0.98    1.00        1.00    0.98    0.83        0.85    1.00    0.85        1.00    1.00    1.00
Lanes:                2.00    1.00    0.00        0.00    1.00    1.00        0.23    0.00    1.77        0.00    0.00    0.00
Final Sat.:           3432    1862          0          0    1862    1583        373    0    2844          0    0    0
-----|-----|-----|-----|
Capacity Analysis Module:
Vol/Sat:              0.13    0.51    0.00        0.00    0.54    0.04        0.21    0.00    0.19        0.00    0.00    0.00
Crit Moves:          ****              ****              ****
Green/Cycle:          0.13    0.67    0.00        0.00    0.54    0.54        0.21    0.00    0.34        0.00    0.00    0.00
Volume/Cap:           1.00    0.77    0.00        0.00    1.00    0.07        1.00    0.00    0.54        0.00    0.00    0.00
Uniform Del:          43.5    11.4    0.0          0.0    23.2    11.2        39.3    0.0    26.4          0.0    0.0    0.0
IncremntDel:          43.2    2.9    0.0          0.0    29.2    0.0        37.2    0.0    0.5          0.0    0.0    0.0
InitQueueDel:         0.0    0.0    0.0          0.0    0.0    0.0        0.0    0.0    0.0          0.0    0.0    0.0
Delay Adj:            1.00    1.00    0.00        0.00    1.00    1.00        1.00    0.00    1.00        0.00    0.00    0.00
Delay/Veh:            86.7    14.3    0.0          0.0    52.5    11.3        76.5    0.0    26.9          0.0    0.0    0.0
User DelAdj:          1.00    1.00    1.00        1.00    1.00    1.00        1.00    1.00    1.00        1.00    1.00    1.00
AdjDel/Veh:           86.7    14.3    0.0          0.0    52.5    11.3        76.5    0.0    26.9          0.0    0.0    0.0
LOS by Move:          F    B    A    A    D    B    E    A    C    A    A    A
HCM2kAvgQ:            12    21    0    0    39    1    16    0    8    0    0    0
*****

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Interim Arelious Walker Configuration - End of Major Phase 1

MITIG8 - PP Variant 2A PM Sun Nov 24, 2013 19:51:14

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)
*****
Intersection #1034 Arelious Walker Dr / Gilman Ave
*****
Cycle (sec):          100          Critical Vol./Cap.(X):          0.821
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):      43.5
Optimal Cycle:        82          Level Of Service:          D
*****
Street Name:          Arelious Walker Dr          Gilman Ave
Approach:             North Bound          South Bound          East Bound          West Bound
Movement:             L - T - R          L - T - R          L - T - R          L - T - R
-----|-----|-----|-----|
Control:              Protected          Protected          Split Phase          Split Phase
Rights:               Include          Include          Include          Include
Min. Green:           0    0    0          0    0    0          0    0    0          0    0    0
Lanes:                2    0    1    1    0          0    0    1!    0    0          1    1    0    0    2          0    0    1!    0    0
-----|-----|-----|-----|
Volume Module:
Base Vol:             419    426          8          79    506    118          284    94    404          7    22    58
Growth Adj:           1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
Initial Bse:           419    426          8          79    506    118          284    94    404          7    22    58
Added Vol:             0    0    0          0    0    0          0    0    0          0    0    0
PasserByVol:          0    0    0          0    0    0          0    0    0          0    0    0
Initial Fut:           419    426          8          79    506    118          284    94    404          7    22    58
User Adj:             1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
PHF Adj:              0.98    0.98    0.98          0.98    0.98    0.98          0.98    0.98    0.98          0.98    0.98    0.98
PHF Volume:           428    435          8          81    516    120          290    96    412          7    22    59
Reduct Vol:           0    0    0          0    0    0          0    0    0          0    0    0
Reduced Vol:          428    435          8          81    516    120          290    96    412          7    22    59
PCE Adj:              1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
MLF Adj:              1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
Final Vol.:           428    435          8          81    516    120          290    96    412          7    22    59
-----|-----|-----|-----|
Saturation Flow Module:
Sat/Lane:             1900    1900    1900          1900    1900    1900          1900    1900    1900          1900    1900    1900
Adjustment:           0.90    0.93    0.93          0.95    0.95    0.95          0.94    0.94    0.73          0.89    0.89    0.89
Lanes:                2.00    1.96    0.04          0.11    0.72    0.17          1.50    0.50    2.00          0.08    0.25    0.67
Final Sat.:           3432    3462          65          203    1302    304          2697    893    2786          136    427    1125
-----|-----|-----|-----|
Capacity Analysis Module:
Vol/Sat:              0.12    0.13    0.13          0.40    0.40    0.40          0.11    0.11    0.15          0.05    0.05    0.05
Crit Moves:           ****          ****          ****          ****
Green/Cycle:           0.15    0.15    0.15          0.48    0.48    0.48          0.18    0.18    0.18          0.06    0.06    0.06
Volume/Cap:           0.82    0.82    0.82          0.82    0.82    0.82          0.60    0.60    0.82          0.82    0.82    0.82
Uniform Del:          41.1    41.0    41.0          22.2    22.1    22.1          37.7    37.7    39.4          46.2    46.2    46.2
IncremntDel:          10.0    9.8    9.8          6.3    6.2    6.2          1.5    1.5    10.4          37.4    37.4    37.4
InitQueueDel:         0.0    0.0    0.0          0.0    0.0    0.0          0.0    0.0    0.0          0.0    0.0    0.0
Delay Adj:            1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
Delay/Veh:            51.0    50.8    50.8          28.4    28.3    28.3          39.2    39.2    49.9          83.6    83.6    83.6
User DelAdj:          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00          1.00    1.00    1.00
AdjDel/Veh:           51.0    50.8    50.8          28.4    28.3    28.3          39.2    39.2    49.9          83.6    83.6    83.6
LOS by Move:          D    D    D          C    C    C          D    D    D          F    F    F
HCM2kAvgQ:            9    9    9          21    21    21          6    6    9          5    5    5
*****

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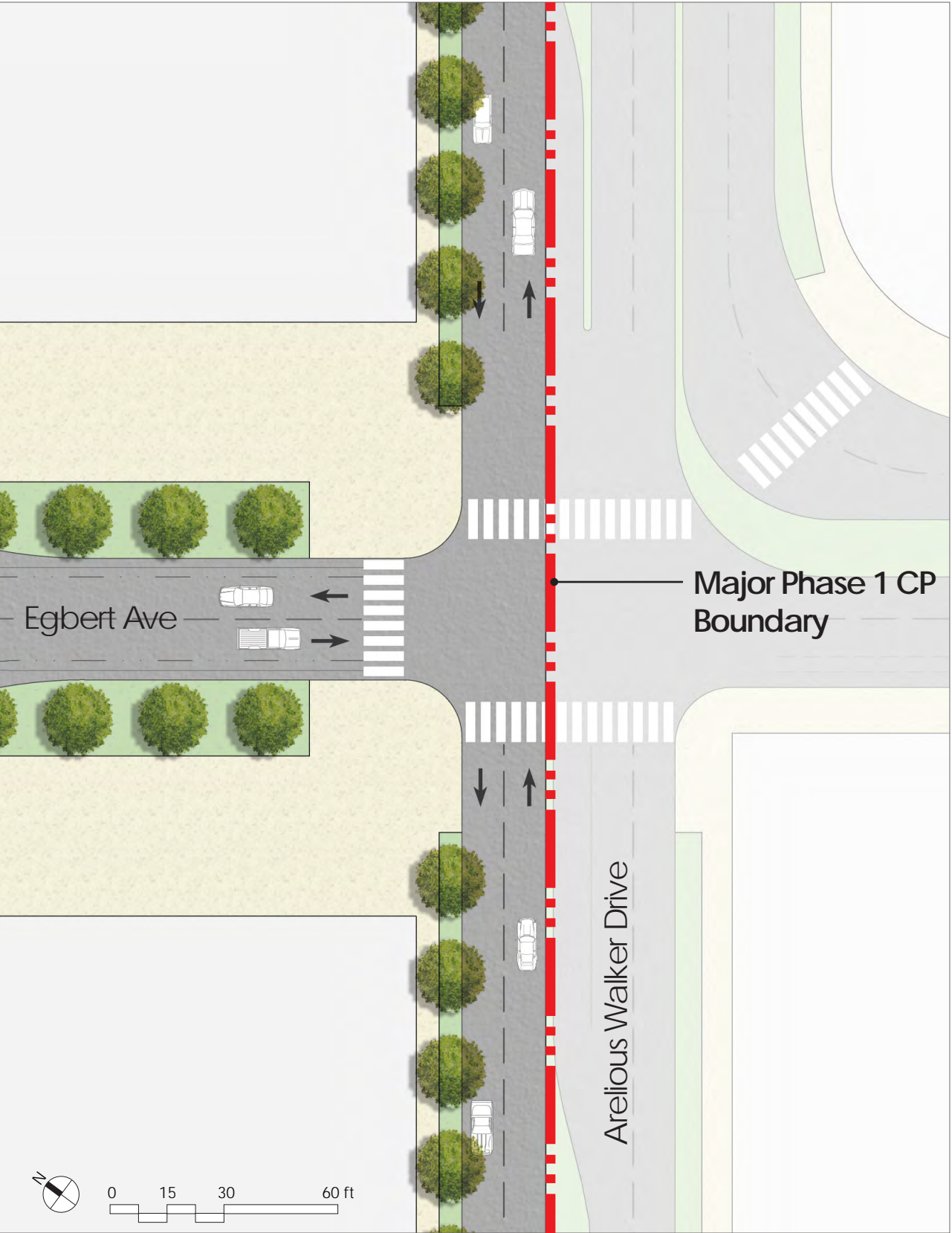
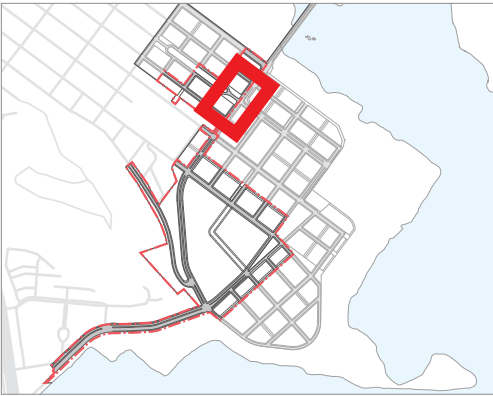



APPENDIX D

Initial Configuration for Arelious Walker Drive

ARELIIOUS WALKER

INTERIM CONDITION



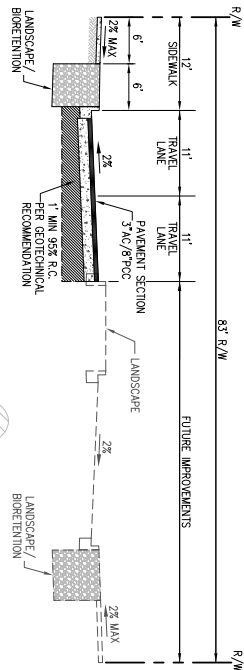
FULL BUILDOUT



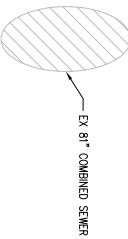
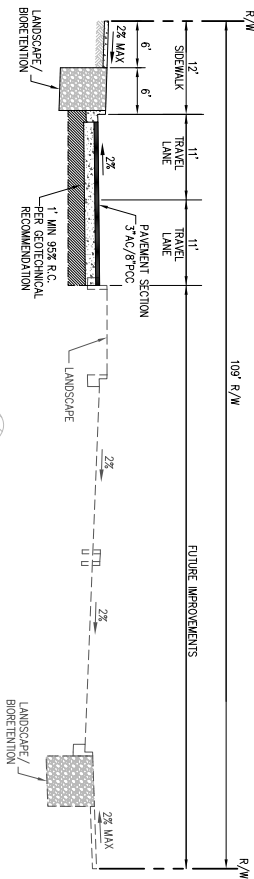


DIAL TOLL FREE
1-800-227-2800
AT LEAST TWO DAYS
BEFORE THE DIS

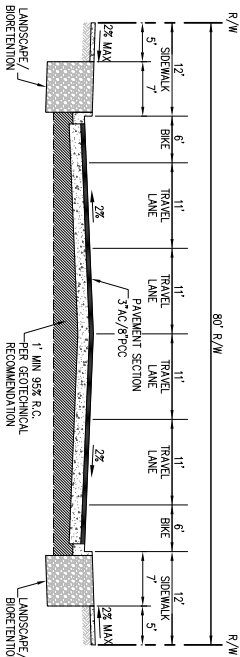
UNDERGROUND SERVICE LEFT OF NORTHERN CALIFORNIA



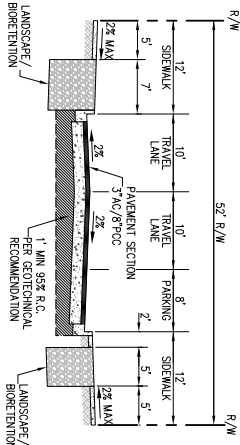
ARROYO WALKER DRIVE
TYPICAL SECTION
(STA 40+00 TO STA 45+60)
NOT TO SCALE



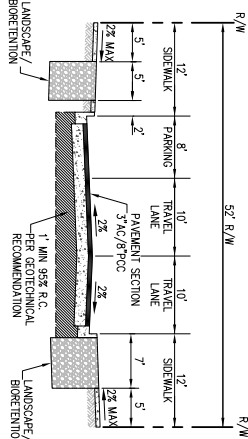
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(STA 45+60 TO STA 51+20)
NOT TO SCALE



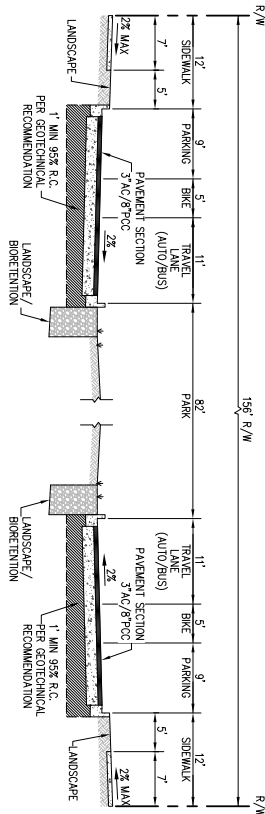
CARROLL AVENUE
TYPICAL SECTION
NOT TO SCALE



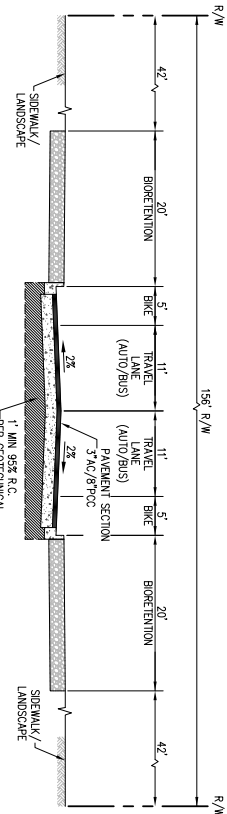
DONNER AVENUE
TYPICAL SECTION
NOT TO SCALE



FITZGERALD AVENUE & G STREET
TYPICAL SECTION
NOT TO SCALE



EGBERT AVENUE
TYPICAL SECTION
(STA 19+60 TO STA 20+60)
NOT TO SCALE



EGBERT AVENUE
TYPICAL SECTION
(STA 22+10 TO STA 23+00)
NOT TO SCALE

65% SUBMITTAL
PRELIMINARY PLANS
NOT FOR CONSTRUCTION

CANDLESTICK POINT

SUB-PHASE CP-01

IMPROVEMENT PLANS

TYPICAL STREET CROSS SECTIONS

CITY AND COUNTY OF SAN FRANCISCO

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09/18/2013
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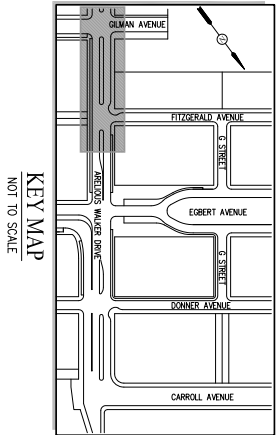
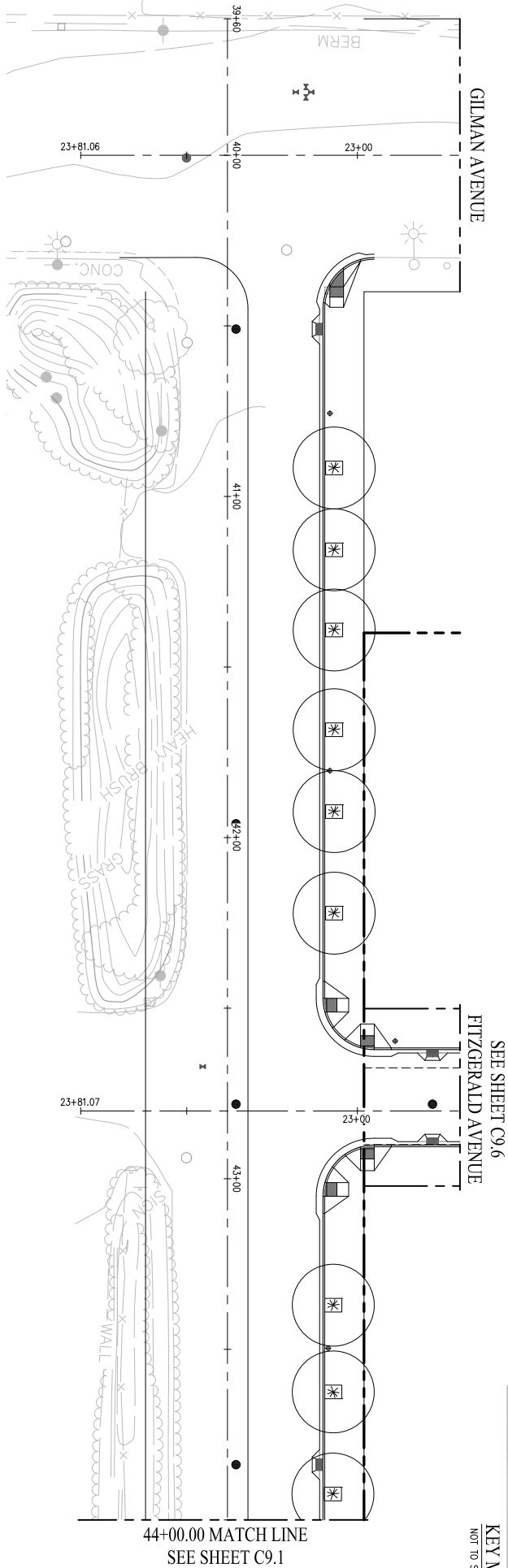
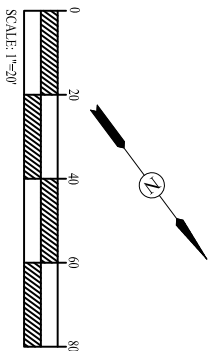
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SHEET NUMBER
C1.4
JOB NUMBER
1804-030

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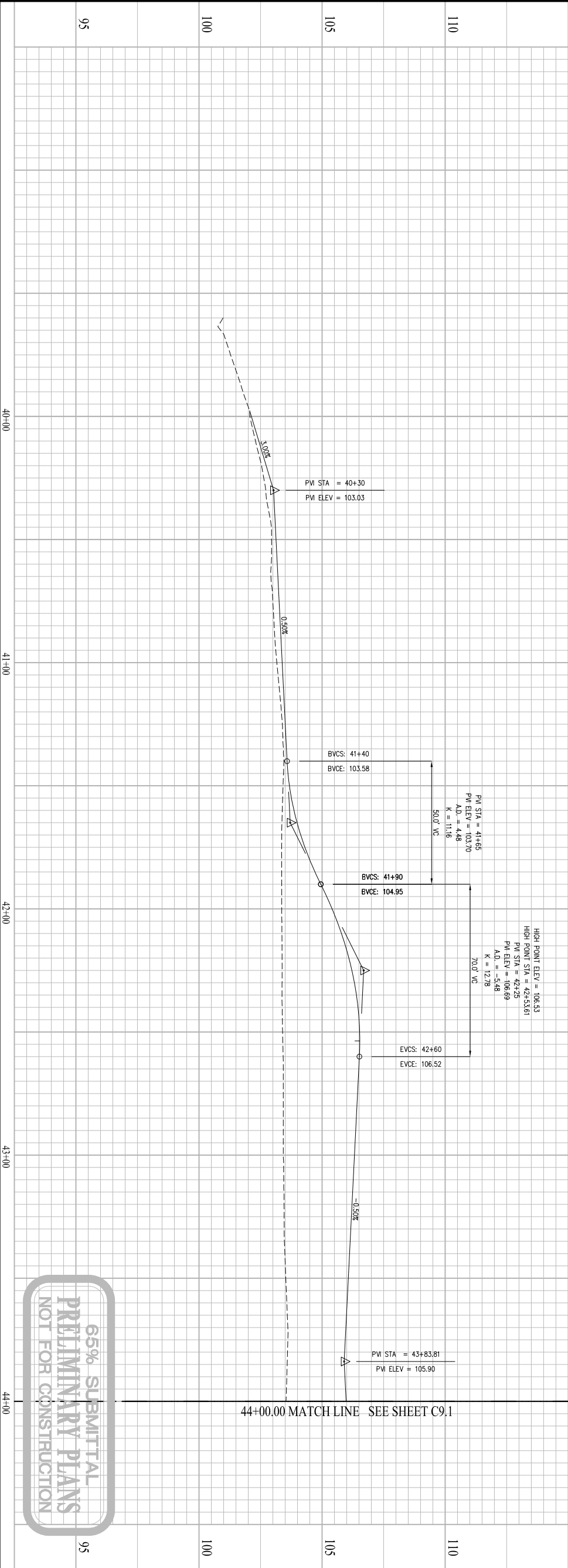


DIAL TOLL FREE
1-800-227-2600
AT LEAST TWO DAYS
BEFORE 100 DMS
UNDERGROUND SERVICE ALERT OF NORTHERN CALIFORNIA



ARELIIOUS WALKER DRIVE

SCALE: HORIZONTAL 1" = 20'
VERTICAL 1" = 2'



65% SUBMITTAL
PRELIMINARY PLANS
NOT FOR CONSTRUCTION

CANDLESTICK POINT

IMPROVEMENT PLANS

ARELIIOUS WALKER DRIVE SURFACE IMPROVEMENTS

CITY AND COUNTY OF SAN FRANCISCO

SUB-PHASE CP-01

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C9.0

SHEET NUMBER

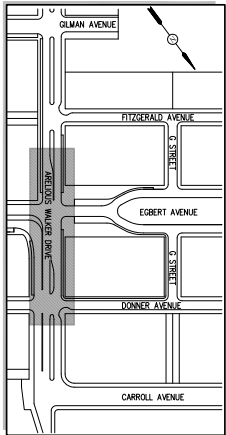
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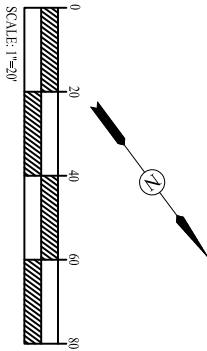
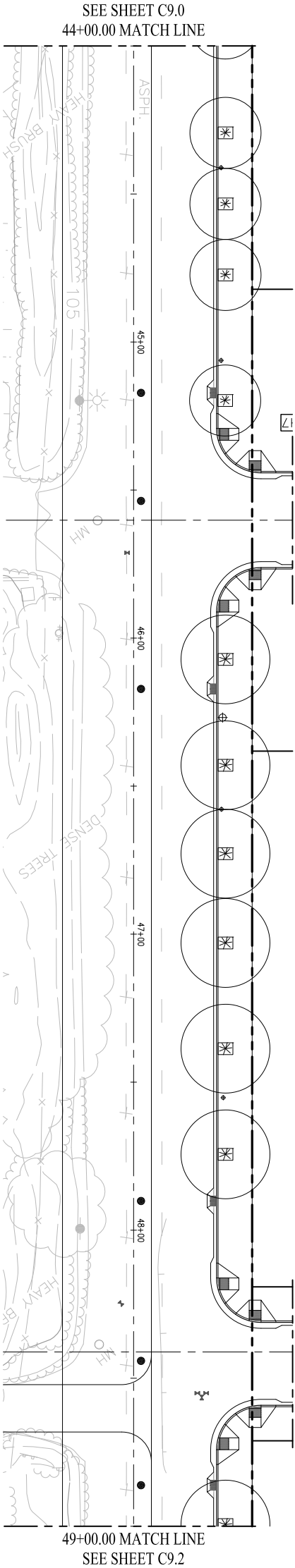


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AT LEAST TWO DAYS
BEFORE 100 DMS
UNDERGROUND SERVICE ALERT OF NORTHERN CALIFORNIA



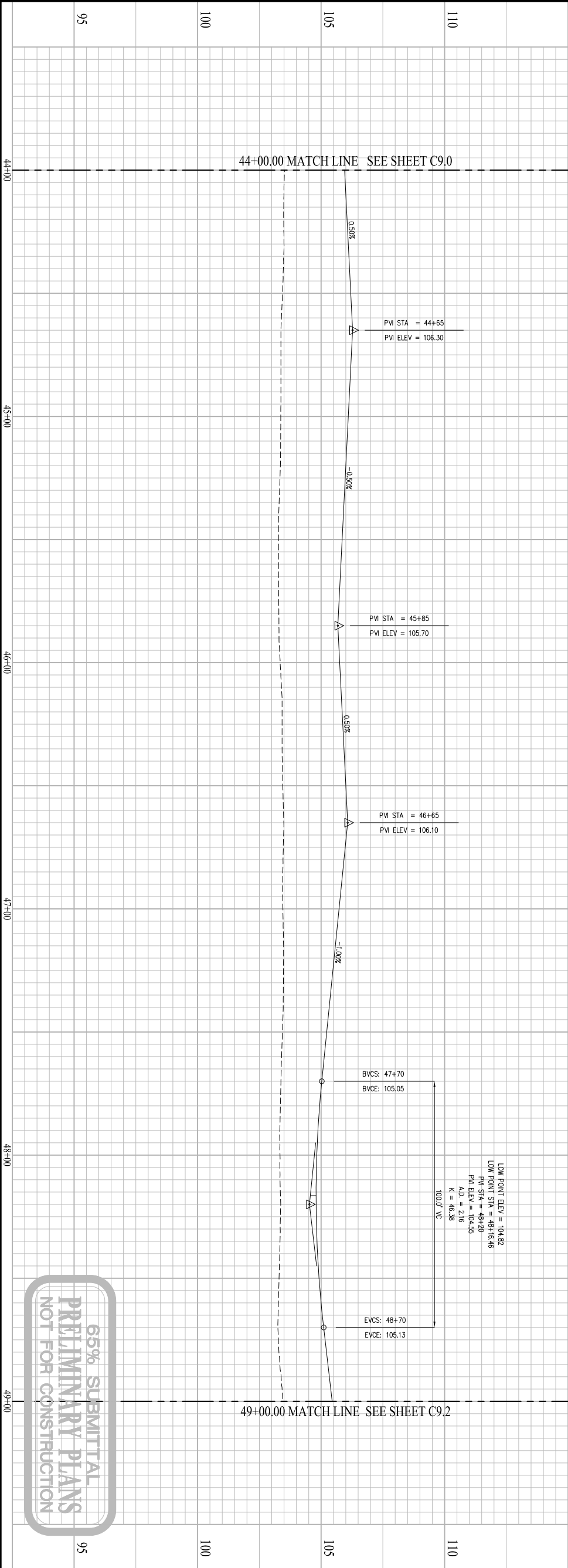
SEE SHEET C9.5
EGBERT AVENUE

SEE SHEET C9.4
DONNER AVENUE



ARELIOS WALKER DRIVE

SCALE: HORIZONTAL 1" = 20'
VERTICAL 1" = 2'



65% SUBMITTAL
PRELIMINARY PLANS
NOT FOR CONSTRUCTION

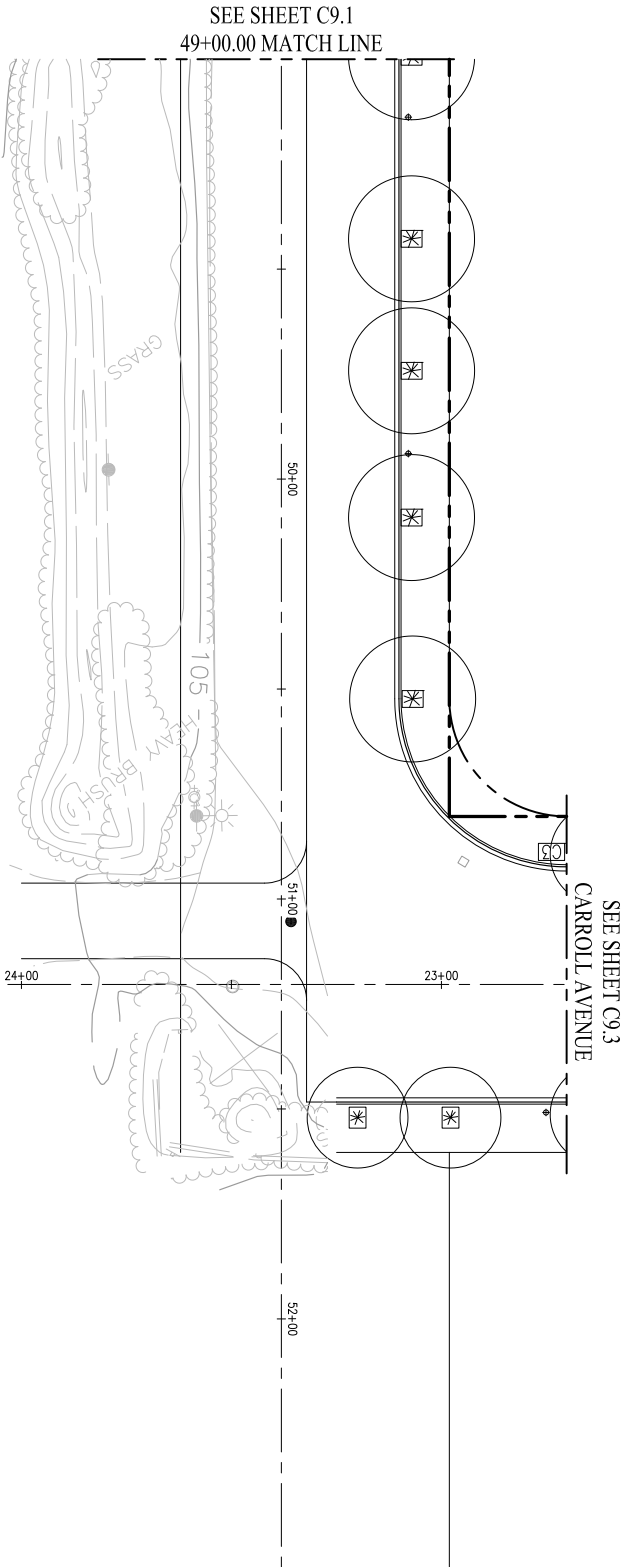
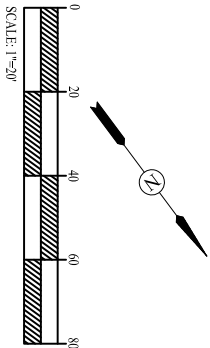
CANDLESTICK POINT IMPROVEMENT PLANS ARELIOS WALKER DRIVE SURFACE IMPROVEMENTS CITY AND COUNTY OF SAN FRANCISCO	SUB-PHASE CP-01	 Carlson, Barbee & Gibson, Inc. CIVIL ENGINEERS • SURVEYORS • PLANNERS 2633 Camino Ramon • San Ramon, CA 94583 Tel 925-866-0322 www.cbang.com			DATE: 09/18/2013	NO.	BY	DATE	REVISIONS	CITY APPROVAL
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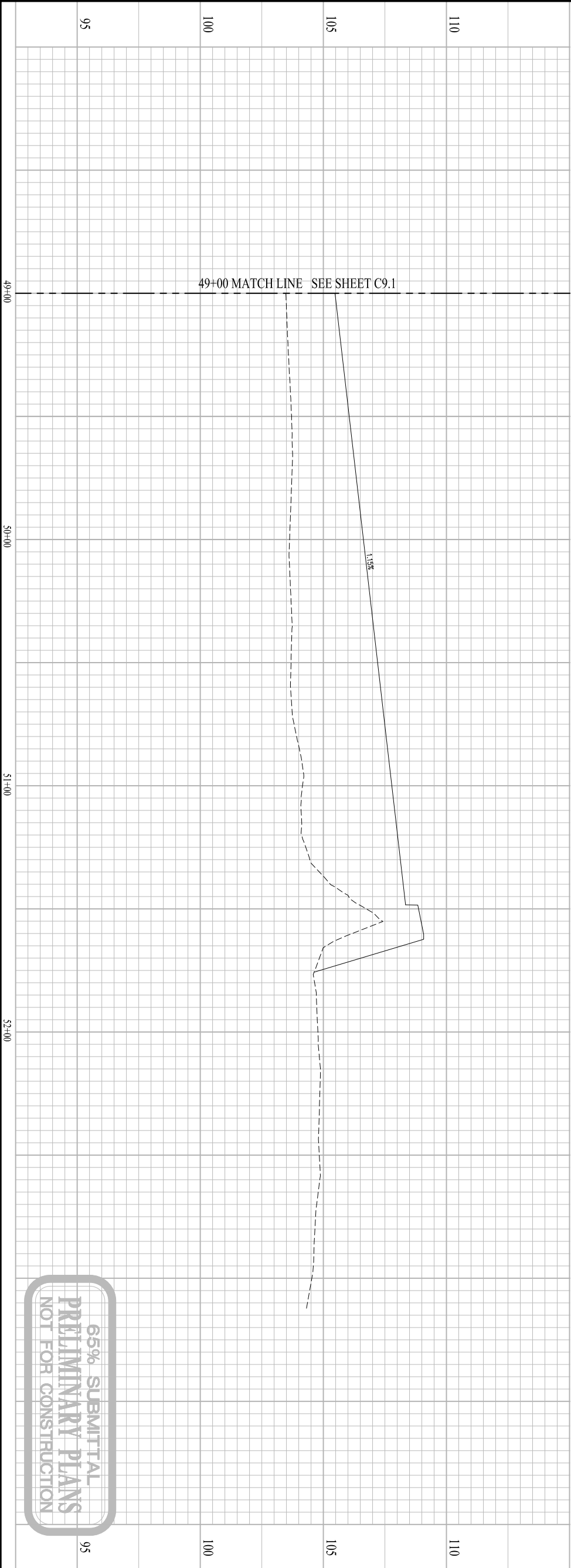
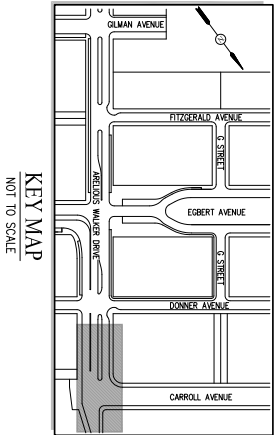


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AT LEAST TWO DAYS
BEFORE 100 DMS

UNDERGROUND SERVICE ALERT OF NORTHERN CALIFORNIA



ARELIIOUS WALKER DRIVE
SCALE: HORIZONTAL 1" = 20'
VERTICAL 1" = 2'



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PRELIMINARY PLANS
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C9.2

JOB NUMBER
1804-030

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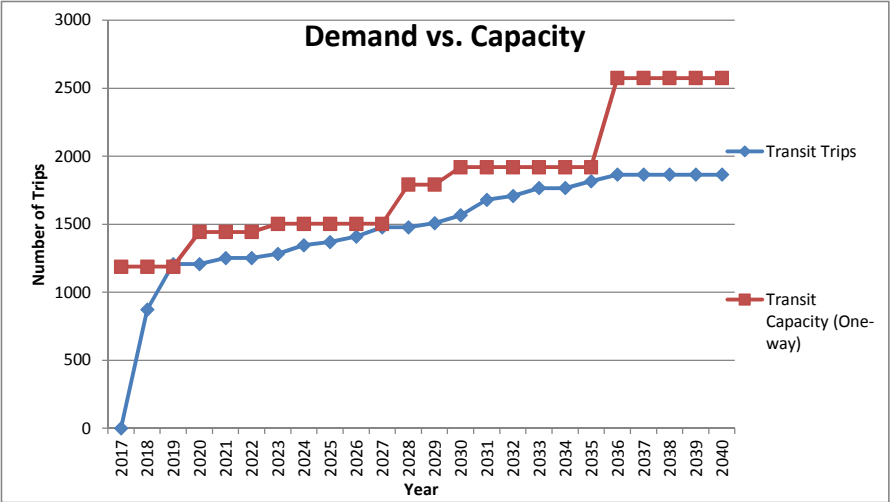
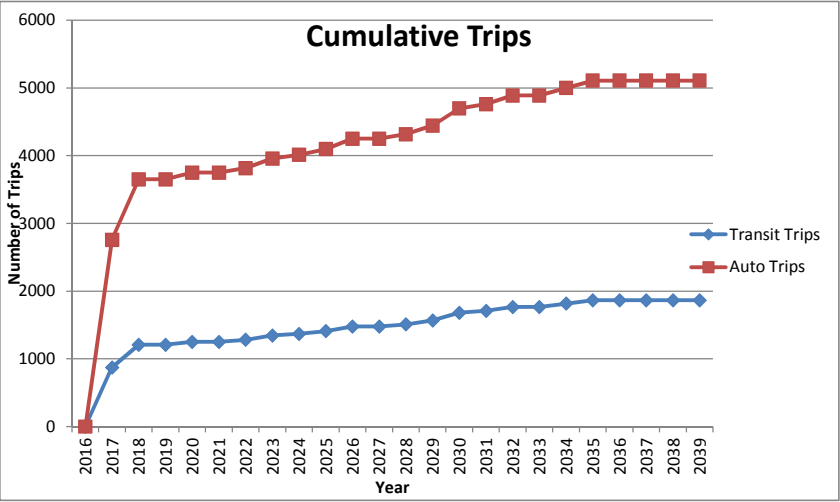


APPENDIX E

Auto and Transit Trip Generation by Year and Transit Phasing Comparison

CP

Trip Rates	Transit	Auto
Residential	0.14	0.31
Office	0.59	1.2
Retail	1.02	3.59
Hotel	0.17	0.36
Community Facilities	0.78	1.6
Parks	0.04	0.04



Land Use (By Year)	Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Land Use																									
Residential (# of units)	0	605	924	0	322	0	215	452	172	280	495	0	215	410	815	205	410	0	360	345	0	0	0	0	0
Office (ksf)	0	175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Retail (ksf)	0	635	125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hotel (# of rooms)	0	220	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Community Facilities (ksf)	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Land Use (Cumulative)	Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Land Use																									
Residential (# of units)	0	605	1529	1529	1851	1851	2066	2518	2690	2970	3465	3465	3680	4090	4905	5110	5520	5520	5880	6225	6225	6225	6225	6225	6225
Office (ksf)	0	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175
Retail (ksf)	0	635	760	760	760	760	760	760	760	760	760	760	760	760	760	760	760	760	760	760	760	760	760	760	760
Hotel (# of rooms)	0	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220	220
Community Facilities (ksf)	0	0	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

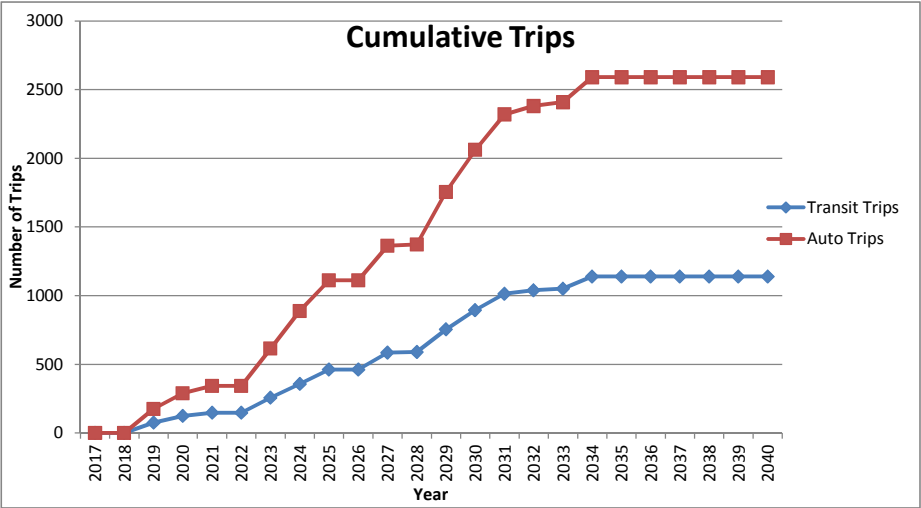
Transit Trips (Cumulative)	Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Land Use																									
Residential	0	85	214	214	259	259	289	353	377	416	485	485	515	573	687	715	773	773	823	872	872	872	872	872	872
Office	0	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103
Retail	0	648	775	775	775	775	775	775	775	775	775	775	775	775	775	775	775	775	775	775	775	775	775	775	775
Hotel	0	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
Community Facilities	0	0	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Total	0	873	1207	1207	1252	1252	1282	1346	1370	1409	1478	1478	1508	1566	1680	1708	1766	1766	1816	1865	1865	1865	1865	1865	1865

Auto Trips (Cumulative)	Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Land Use																									
Residential	0	188	474	474	574	574	640	781	834	921	1074	1074	1141	1268	1521	1584	1711	1711	1823	1930	1930	1930	1930	1930	1930
Office	0	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210
Retail	0	2280	2728	2728	2728	2728	2728	2728	2728	2728	2728	2728	2728	2728	2728	2728	2728	2728	2728	2728	2728	2728	2728	2728	2728
Hotel	0	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
Community Facilities	0	0	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160
Total	0	2757	3651	3651	3751	3751	3817	3958	4011	4098	4251	4251	4318	4445	4698	4761	4888	4888	5000	5107	5107	5107	5107	5107	5107

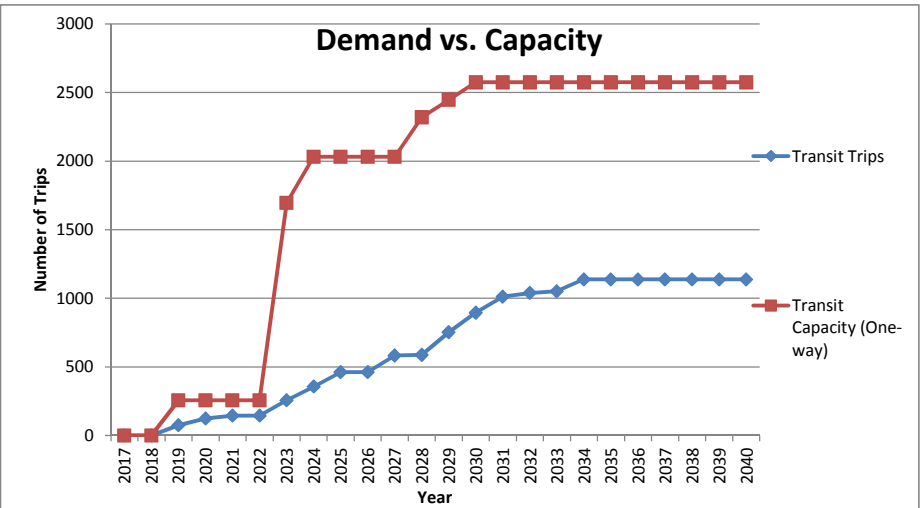
Total Trips (Cumulative)	Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Land Use																									
Residential	0	273	688	688	833	833	929	1134	1211	1337	1559	1559	1656	1841	2208	2299	2484	2484	2646	2802	2802	2802	2802	2802	2802
Office	0	313	313	313	313	313	313	313	313	313	313	313	313	313	313	313	313	313	313	313	313	313	313	313	313
Retail	0	2928	3503	3503	3503	3503	3503	3503	3503	3503	3503	3503	3503	3503	3503	3503	3503	3503	3503	3503	3503	3503	3503	3503	3503
Hotel	0	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116	116
Community Facilities	0	0	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238
Total	0	3630	4858	4858	5003	5003	5099	5304	5381	5507	5729	5729	5826	6011	6378	6469	6654	6654	6816	6972	6972	6972	6972	6972	6972

Transit Capacity (One-way)	Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
		1188	1188	1188	1444	1444	1444	1504	1504	1504	1504	1504	1792	1792	1920	1920	1920	1920	1920	1920	2575	2575	2575	2575	2575

HP



Trip Rates	Transit	Auto
Residential	0.12	0.28
Retail	0.72	2.54
R&D	0.18	0.37
Park	0.02	0.03
Community Facilities	0.68	1.4



Land Use (By Year)	Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Land Use																									
Residential (# of units)		0	0	620	415	185	0	810	380	40	0	0	0	485	385	510	220	100	0						
Retail (ksf)		0	0	0	0	0	0	18	53	5	0	0	0	24	5	0	0	0	0						
R&D (ksf)		0	0	0	0	0	0	0	90	537	0	680.122	24.118	500	505	313.76	0	0	350						
Parks (acres)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Community Facilities (ksf)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37						

Land Use (Cumulative)	Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Land Use																									
Residential (# of units)		0	0	620	1035	1220	1220	2030	2410	2450	2450	2450	2450	2935	3320	3830	4050	4150	4150	4150	4150	4150	4150	4150	4150
Retail (ksf)		0	0	0	0	0	0	18	71	76	76	76	76	100	105	105	105	105	105	105	105	105	105	105	105
R&D (ksf)		0	0	0	0	0	0	0	90	627	627	1307.122	1331.24	1831.24	2336.24	2650	2650	2650	3000	3000	3000	3000	3000	3000	3000
Parks (acres)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Community Facilities (ksf)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	37	37	37	37	37	37

Transit Trips (Cumulative)	Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
	Land Use																								
	Residential	0	0	74	124	146	146	244	289	294	294	294	294	352	398	460	486	498	498	498	498	498	498	498	498
	Retail	0	0	0	0	0	0	13	51	55	55	55	55	72	76	76	76	76	76	76	76	76	76	76	76
	R&D	0	0	0	0	0	0	0	16	113	113	235	240	330	421	477	477	477	540	540	540	540	540	540	540
	Parks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Community Facilities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	25	25	25	25	25	25
	Total	0	0	74	124	146	146	257	356	462	462	584	589	754	895	1013	1039	1051	1139	1139	1139	1139	1139	1139	1139

Auto Trips (Cumulative)	Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
	Land Use																								
	Residential	0	0	174	290	342	342	568	675	686	686	686	686	822	930	1072	1134	1162	1162	1162	1162	1162	1162	1162	1162
	Retail	0	0	0	0	0	0	46	180	193	193	193	193	254	267	267	267	267	267	267	267	267	267	267	267
	R&D	0	0	0	0	0	0	0	33	232	232	484	493	678	864	981	981	981	1110	1110	1110	1110	1110	1110	1110
	Parks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Community Facilities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	52	52	52	52	52	52
	Total	0	0	174	290	342	342	614	888	1111	1111	1363	1372	1754	2061	2320	2382	2410	2591	2591	2591	2591	2591	2591	2591

Total Trips (Cumulative)	Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
	Land Use																								
	Residential	0	0	248	414	488	488	812	964	980	980	980	980	1174	1328	1532	1620	1660	1660	1660	1660	1660	1660	1660	1660
	Retail	0	0	0	0	0	0	59	231	248	248	248	248	326	343	343	343	343	343	343	343	343	343	343	343
	R&D	0	0	0	0	0	0	0	49	345	345	719	733	1008	1285	1458	1458	1458	1650	1650	1650	1650	1650	1650	1650
	Parks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Community Facilities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	77	77	77	77	77	77	77	77
	Total	0	0	248	414	488	488	871	1244	1573	1573	1947	1961	2508	2956	3333	3421	3461	3730	3730	3730	3730	3730	3730	3730

[illegible]

HPX	20 Minutes [1]		12 Minutes [2]	
	Old	New	Old	New
Development:				
Residential (DU)	469	1220	1173	2410
Retail (ksf)	5	0	12.5	71
R&D (ksf)	150	0	375	90
Artists (ksf)	0	0	0	0
Community Facilities (ksf)	0	0	0	0
Office (ksf)	0	0	0	0
Hotel (Rooms)	0	0	0	0
Transit Trip Gen Trigger	115	146	288	304
Approximate Year	2017	2023	2019	2024

[1] Originally contemplated as 20% into Major Phase 1, now proposed as prior to first occupancy of Major Phase 2

[2] Originally contemplated as 50% into Major Phase 1, now proposed as 50% into Major Phase 2

NOTE: Land uses shown are hypothetical and presented for informational use only. Uses represent total land uses projected to be on-line at the end of calendar year in which trigger is reached, and thus may be greater than the land uses that trigger the additional service. Additionally, years identified assume transit service would be implemented when identified triggers are exceeded.

CPX	20 Minutes [1]		15 Minutes [2]		10 Minutes [3]	
	Old	New	Old	New	Old	New
Development:						
Residential (DU)	1630	N/A	3588	1529	5545	4905
Retail (ksf)	0	N/A	353	760	365	760
R&D (ksf)	0	N/A	0	0	70	0
Artists (ksf)	0	N/A	0	0	0	0
Community Facilities (ksf)	0	N/A	0	100	0	100
Office (ksf)	0	N/A	75	150	150	150
Hotel (Rooms)	0	N/A	110	220	220	220
Transit Trip Gen Trigger	164	N/A	838	1193	1514	1608
Approximate Year	2021	N/A	2022	2020	2027	2030

[1] Originally contemplated as initiation of Major Phase 2, but because of substantial development in first years, the CPX will begin at 15-minute frequencies.

[2] Originally contemplated as 50% into Major Phase 2, now proposed as prior to first occupancy of Major Phase 2

[3] Originally contemplated as initiation of Major Phase 3, now proposed as 50% into Major Phase 3

NOTE: Land uses shown are hypothetical and presented for informational use only. Uses represent total land uses projected to be on-line at the end of calendar year in which trigger is reached, and thus may be greater than the land uses that trigger the additional service. Additionally, years identified assume transit service would be implemented when identified triggers are exceeded.

23 Monterey/24 Divisadero

	23 Monterey: 15 Minutes [1]		24 Divisadero: 10 Minutes [2]		24 Divisadero: 7.5 Minutes [3]	
	Old	New	Old	New	Old	New
Development:						
Residential (DU)	469	1220	2406	2935	2498	3320
Retail (ksf)	5	0	45	100	88	105
R&D (ksf)	150	0	975	1831	1313	2336
Artists (ksf)	0	0	48	0	120	0
Community Facilities (ksf)	0	0	0	0	0	0
Office (ksf)	0	0	0	0	0	0
Hotel (Rooms)	0	0	0	0	0	0
Transit Trip Gen Trigger	115	146	643	636	744	810
Approximate Year	2017	2023	2023	2029	2025	2030

[1] Originally contemplated as 20% into Major Phase 1, now proposed as prior to first occupancy of Major Phase 2

[2] Originally contemplated as 20% into Major Phase 2, now proposed 50% into Major Phase 3

[3] Originally contemplated as 50% into Major Phase 2, now proposed as prior to first occupancy of Major Phase 4

NOTE: Land uses shown are hypothetical and presented for informational use only. Uses represent total land uses projected to be on-line at the end of calendar year in which trigger is reached, and thus may be greater than the land uses that trigger the additional service. Additionally, years identified assume transit service would be implemented when identified triggers are exceeded.

48 Quintara

	15 Minutes [1]		10 Minutes [2]	
	Old	New	Old	New
Development:				
Residential (DU)	1	1	1173	2410
Retail (ksf)	0	0	13	71
R&D (ksf)	0	0	375	90
Artists (ksf)	0	0	0	0
Community Facilities (ksf)	0	0	0	0
Office (ksf)	0	0	0	0
Hotel (Rooms)	0	0	0	0
Transit Trip Gen Trigger	1	1	288	304
Approximate Year	2015	2019	2019	2024

[1] Originally contemplated as initiation of Major Phase 1. No change proposed.

[2] Originally contemplated as 50% into Major Phase 1, now proposed 50% into Major Phase 2

NOTE: Land uses shown are hypothetical and presented for informational use only. Uses represent total land uses projected to be on-line at the end of calendar year in which trigger is reached, and thus may be greater than the land uses that trigger the additional service. Additionally, years identified assume transit service would be implemented when identified triggers are exceeded.

44 O'Shaughnessy

	7.5 Minutes [1]		6.5 Minutes [2]	
	Old	New	Old	New
Development:				
Residential (DU)	469	1220	1173	2410
Retail (ksf)	5	0	13	71
R&D (ksf)	150	0	375	90
Artists (ksf)	0	0	0	0
Community Facilities (ksf)	0	0	0	0
Office (ksf)	0	0	0	0
Hotel (Rooms)	0	0	0	0
Transit Trip Gen Trigger	115	146	288	304
Approximate Year	2017	2023	2019	2024

[1] Originally contemplated as 20% into Major Phase 1, now proposed as prior to first occupancy of Major Phase 2

[2] Originally contemplated as 50% into Major Phase 1, now proposed 50% into Major Phase 2

NOTE: Land uses shown are hypothetical and presented for informational use only. Uses represent total land uses projected to be on-line at the end of calendar year in which trigger is reached, and thus may be greater than the land uses that trigger the additional service. Additionally, years identified assume transit service would be implemented when identified triggers are exceeded.

29 Sunset

	10 Minutes [1]		5 Minutes [2]	
	Old	New	Old	New
Development:				
Residential (DU)	2413	N/A	3588	605
Retail (ksf)	141	N/A	350	635
R&D (ksf)	0	N/A	0	0
Artists (ksf)	0	N/A	0	0
Community Facilities (ksf)	0	N/A	0	0
Office (ksf)	30	N/A	75	150
Hotel (Rooms)	44	N/A	110	220
Transit Trip Gen Trigger	433	N/A	838	835
Approximate Year	2021	N/A	2022	2017

[1] Originally contemplated as 20% into Major Phase 2, but because of substantial development in the first years, the 29 Sunset will begin at 5-minute frequencies.

[2] Originally contemplated as 50% into Major Phase 2, now proposed 70% into Major Phase 1

NOTE: Land uses shown are hypothetical and presented for informational use only. Uses represent total land uses projected to be on-line at the end of calendar year in which trigger is reached, and thus may be greater than the land uses that trigger the additional service. Additionally, years identified assume transit service would be implemented when identified triggers are exceeded.

28L - BRT

	8 Minutes [1]		5 Minutes [2]	
	Old	New	Old	New
Development:				
Residential (DU)	4819	4548	6100	5915
Retail (ksf)	166	778	415	836
R&D (ksf)	975	0	1298	627
Artists (ksf)	48	0	120	0
Community Facilities (ksf)	0	100	0	100
Office (ksf)	30	150	75	150
Hotel (Rooms)	44	220	110	220
Transit Trip Gen Trigger	1075	1456	1582	1926
Approximate Year	2021	2023	2022	2028

[1] Originally contemplated as 20% into Major Phase 2 (CP + HP), now proposed to remain 20% of Major Phase 2 CP + 20% of Major Phase 2 HP. Interim routes servicing CP include temporary extension of the 56 Rutland and supplemental shuttles

[2] Originally contemplated as 50% into Major Phase 2 (CP + HP), now proposed prior to occupancy of Major Phase 3 CP and Major Phase 3 HP

NOTE: Land uses shown are hypothetical and presented for informational use only. Uses represent total land uses projected to be on-line at the end of calendar year in which trigger is reached, and thus may be greater than the land uses that trigger the additional service. Additionally, years identified assume transit service would be implemented when identified triggers are exceeded.