

# HARBOR DRIVE SEGMENT BAYSHORE BIKEWAY

PARKING,  
TRAIL LAYOUT,  
AND URBAN  
DESIGN FEATURES

Prepared for:



Unified Port  
of San Diego

Prepared by:



Planning + Landscape Architecture



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This report for **Parking, Trail Layout and Urban Design Features for the Harbor Drive Segment of the Bayshore Bikeway** was prepared for the **Unified Port of San Diego** under the direction of Paul Brown, Senior Asset Manager.

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# 1 Introduction, Project Scope, and Previous Plans

## 1

### Document Organization

This document is composed primarily of graphics and maps addressing the analyses and recommendations of this study. Text is limited to introductory pages at the beginning of each of six major sections and intended to define the content of the graphics that follow. The figures and tables are referenced in the text at the beginning of each section.

### Project Scope

This study was commissioned by the Unified Port of San Diego to examine the feasibility and impacts of developing resulting from the as yet unbuilt section of the Bayshore Bikeway along Harbor Drive between 32nd Street and Park Boulevard.

The scope called for evaluating the impacts of bikeway development on adjacent on-street parking and adjacent off-street parking lots, bikeway layout and design issues, traffic flow and safety, and associated urban design features intended to improve the overall visual and functional environment. The urban design elements are focussed on improving the visual environment, screening industrial areas and providing activation of public spaces. They are also intended to provide a branding for the area and to set a character for the working waterfront.

### Project Study Area

Figure 1 shows the study limits of the project. The study area includes all public rights of way along Harbor Drive, from just slightly south of 32nd Street, northwesterly to Park Boulevard, slightly passed the new pedestrian bridge in downtown San Diego. The study area length is approximately 2.5 miles in length.

Parking issues and reconfigurations are limited to north of Chollas Creek to Sampson Street, a 1.1 mile length. The remaining portion of the study area (1.4 miles) will receive layout site plans and urban design concepts, but will not include any parking lot reconfigurations.

### Previous Planning Efforts

The 2006 “Bayshore Bikeway Plan” prepared by the San Diego Association of Governments (SANDAG) was reviewed prior to undertaking this project to make certain its recommendations were addressed. A few, but important, conditions have changed since the completion of the SANDAG study, and these alterations are noted on the following pages that address the study.

The maps and graphics from the 2006 SANDAG Bayshore Bikeway Plan have been included in this study to make sure the plan’s recommendations are followed wherever possible. However, some conditions have changed and other recommendations found in this study may supersede the concepts shown on these plans. The discussion below indicates where a different approach has been used by this study compared to the original 2006 study.

Figure 2 includes an overall map of the Bayshore Bikeway system, with the study area for this project, overlaid on the map. The figure also includes the proposed cross sections for various segments of the study area. In most cases, the cross sections have been matched with the layout facilities in this plan. However, the City of San Diego did not agree to reducing both travel lanes to 11 feet in width. Based on speeds and the volume of truck traffic, the City required a 13’ outer lane, with the interior lane allowed to be reduced to 11’. In addition, single left turn lanes were required to be 11’ in width, versus an assumed 10’ in width. Finally, the City of San Diego had requested a 6’ on-street bike lane, versus the 5’ indicated in the previous study. A compromise was reached, requiring a 6’ Class 2 lane when next to on-street parking, and a 5’ Class 2 lane when next to a gutter or buffer bio-swale strip.

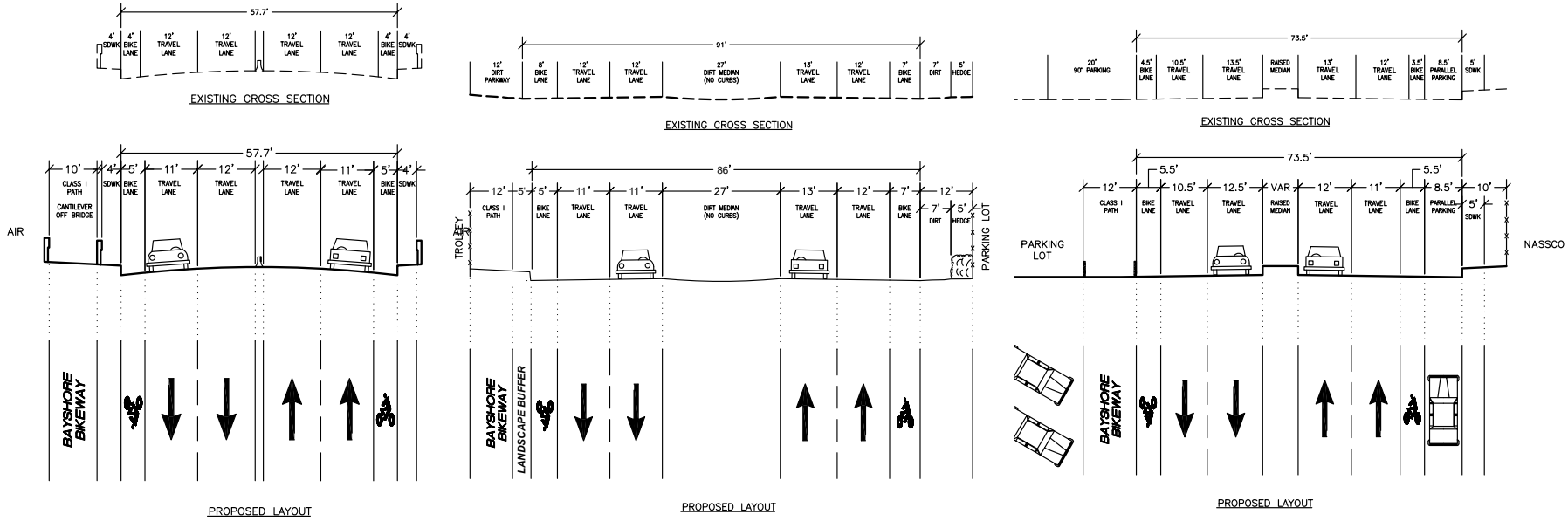
Figures 3 and 4 displays urban design concepts for the project study area. This study did not agree with the use of Acorn lighting standards or more typical banner systems. The character of the working waterfront and Barrio Logan requires a more contextual and local interpretation for streetscape elements. The overall street tree and planting areas as shown in these initial concepts have been more fully defined in this study. Bollard lighting is not recommended because of the spacing requirements and costs. Pedestrian level lighting has been proposed, however. The width of the path proposed in this study is held at a consistent 12 feet. The conceptual plans in the previous study have shown a width that varies, depending on street tree plantings and parkway strips. This approach resulted in hazards in the lane of bike travel, and is better accomplished through continuous buffer strips with street trees, lights and other plant material placed out of the lane of travel.

Figures 5 and 6 show the initial conceptual layout of the Bayshore Bikeway. The connection from the Bayshore Bikeway to the Waterfront Promenade, near the convention center, will not be able to use the south side of the Hilton Hotel, since the hotel was built to the lease line and no accommodation was made for this connection. However, an alternative route has been shown on Figure 5, that could provide a connection from the frontage road to the new sections of the Waterfront Promenade. The rest of the plan view layouts have been followed in general terms, with some minor variations. The use of stamped concrete is not recommended since the extensive use of cobble proposed by this study needs to be taken into the median hardscape areas for consistency of theme.

Figure 1: Bayshore Bikeway - Harbor Drive Segment from Park to 32nd Street

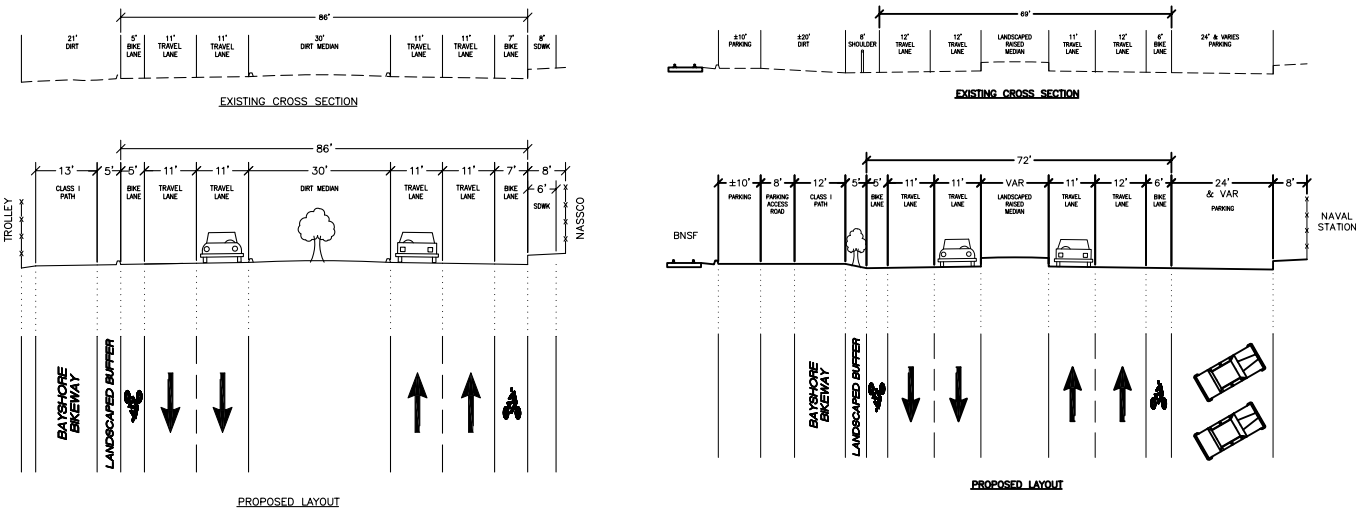


Figure 2: Bayshore Bikeway (2006) Overview Map and Approved Cross Sections



1: Approved Cross Section at Harbor Drive Bridge  
 2: Approved Cross Section between Harbor Dr. Bridge and Cesar Chavez Parkway  
 3: Approved Cross Section between Sampson and 28th Street

All Cross Sections are Looking from the Northwest to the Southeast



4: Approved Cross Section between Cesar Chavez and Sampson Street  
 5: Approved Cross Section between 28th and 32nd Street

Note: These maps and graphics are from the 2006 SANDAG Bayshore Bikeway Plan. They are included here to make sure the plan's recommendations are followed. However, some conditions have changed & other recommendations found in this study may supersede the concepts shown on these plans.

Figure 3: Conceptual Plans & Graphics from the 2006 SANDAG Bayshore Bikeway Plan

Note: These maps and graphics are from the 2006 SANDAG Bayshore Bikeway Plan. They are included here to make sure the plan's recommendations are followed. However, some conditions have changed & other recommendations found in this study may supersede the concepts shown on these plans.

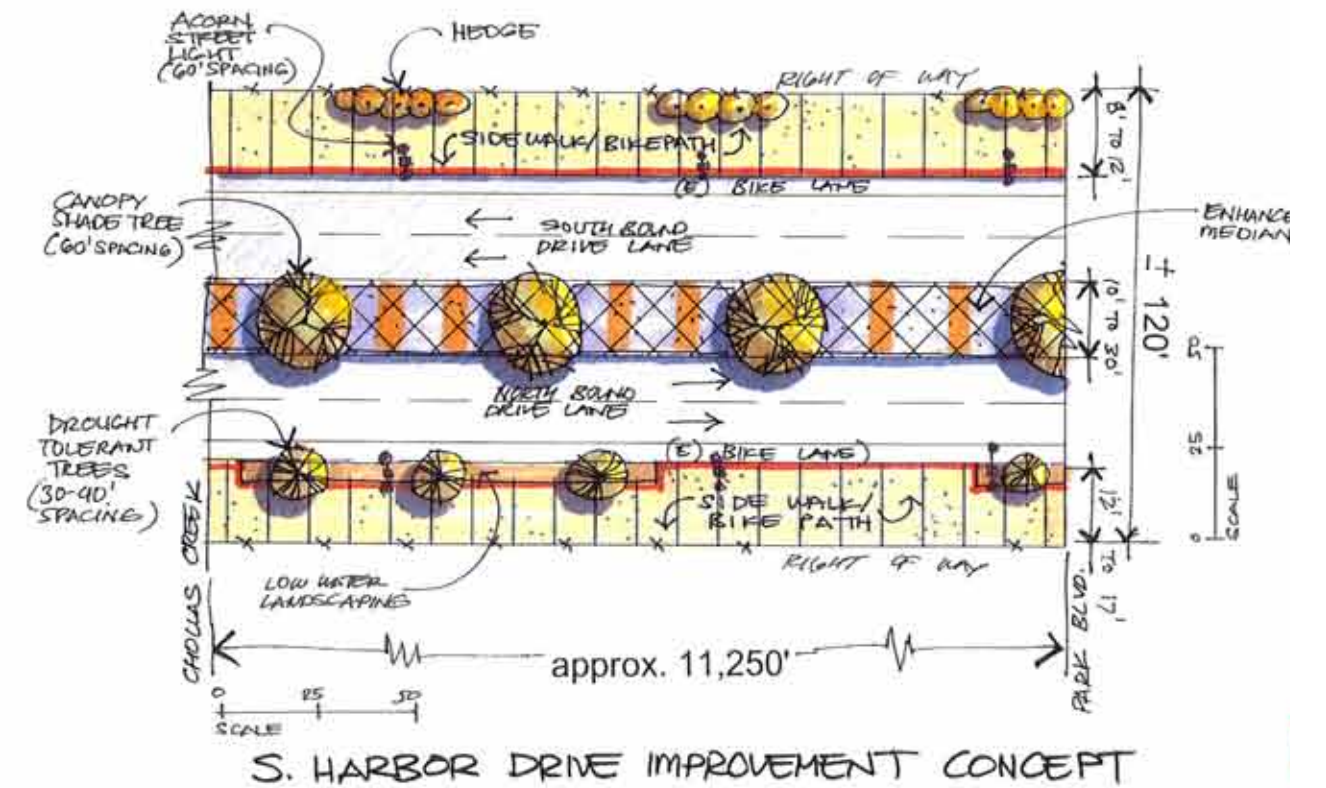
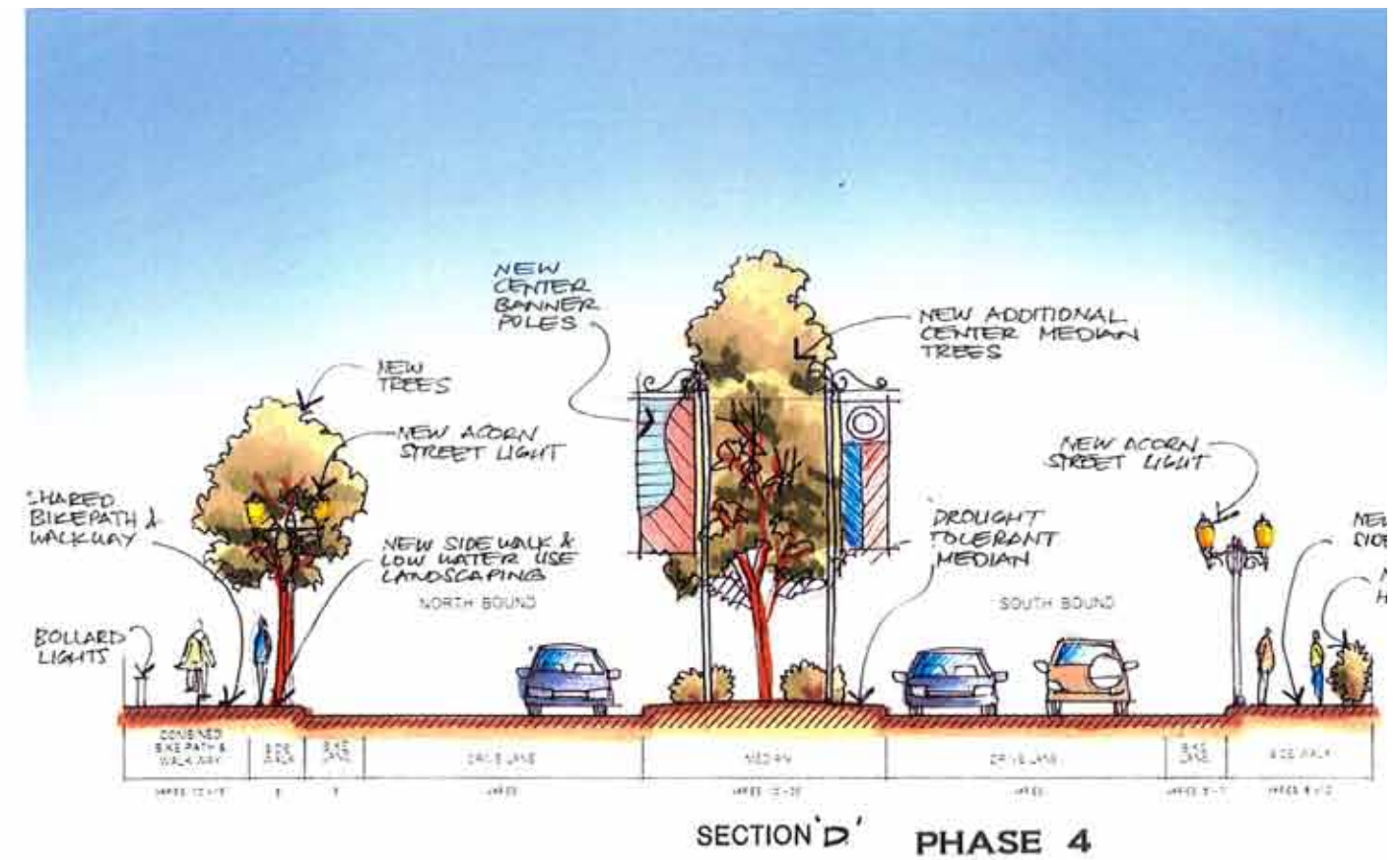
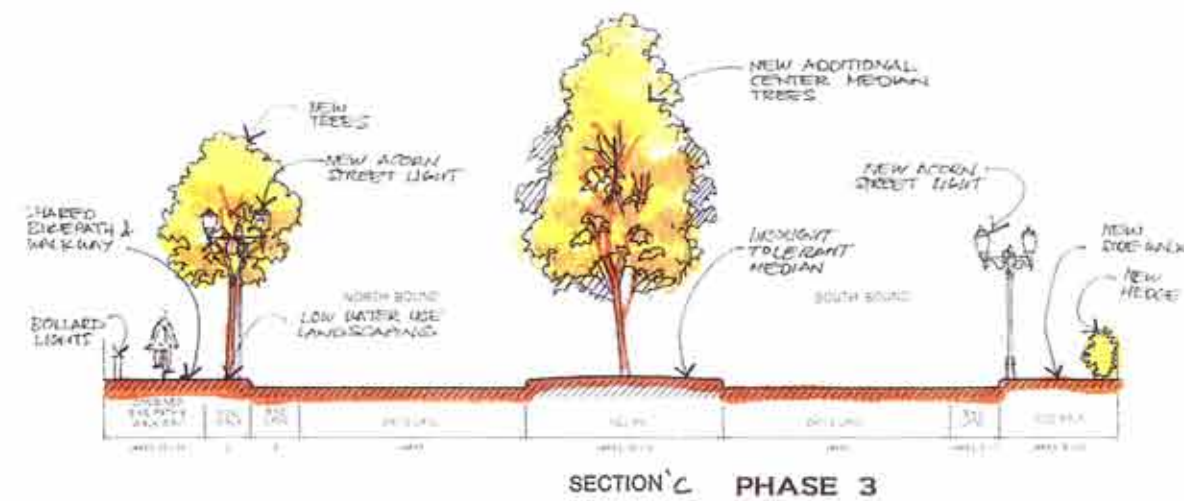
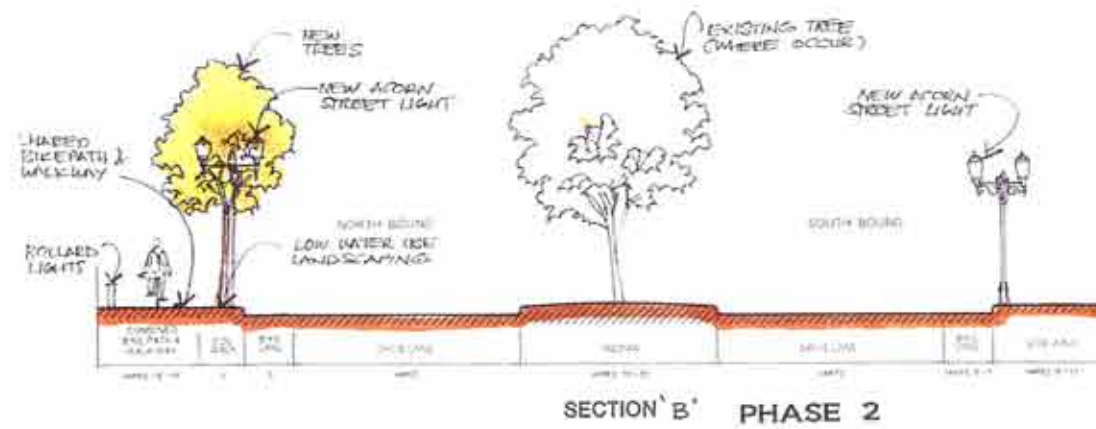
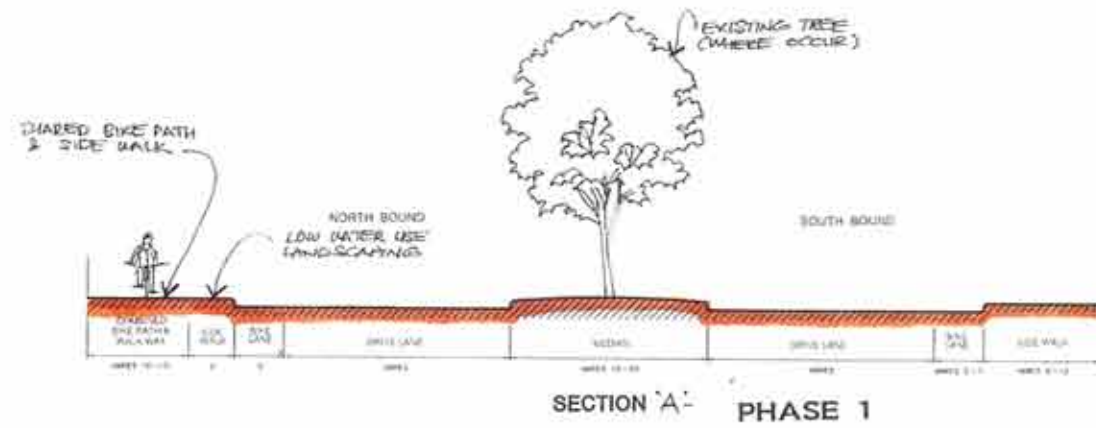
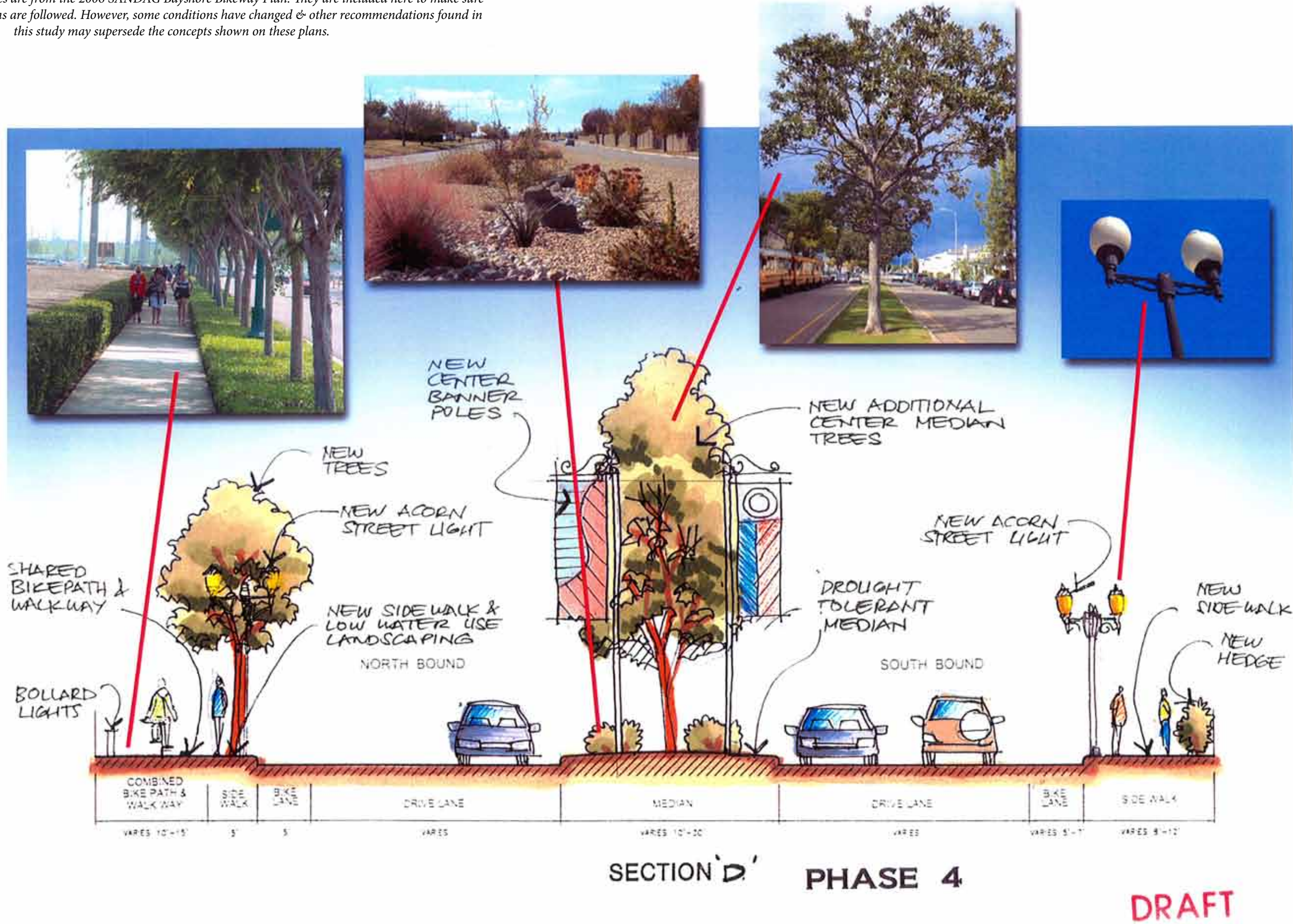
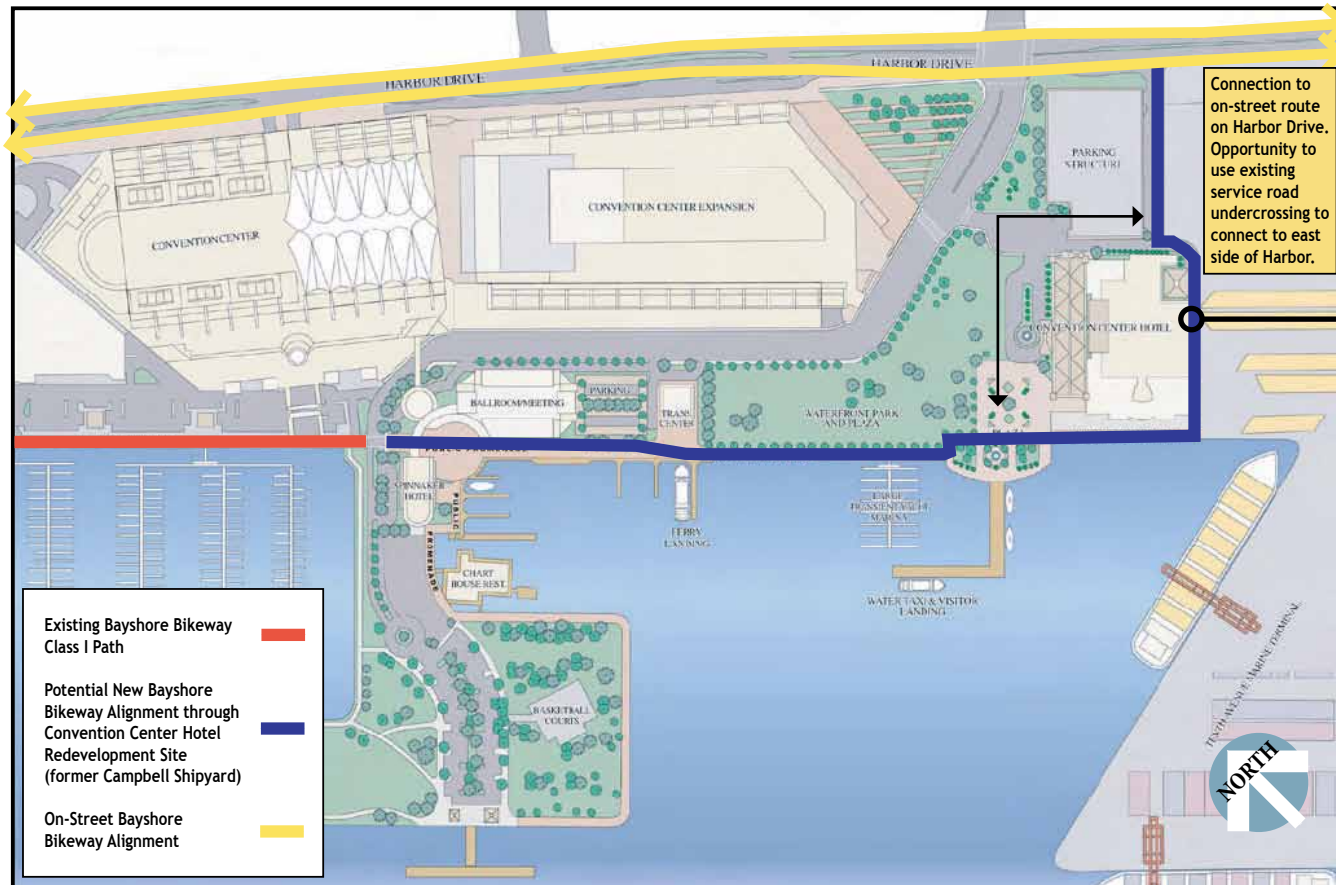


Figure 4: Conceptual Plans & Graphics from the 2006 SANDAG Bayshore Bikeway Plan

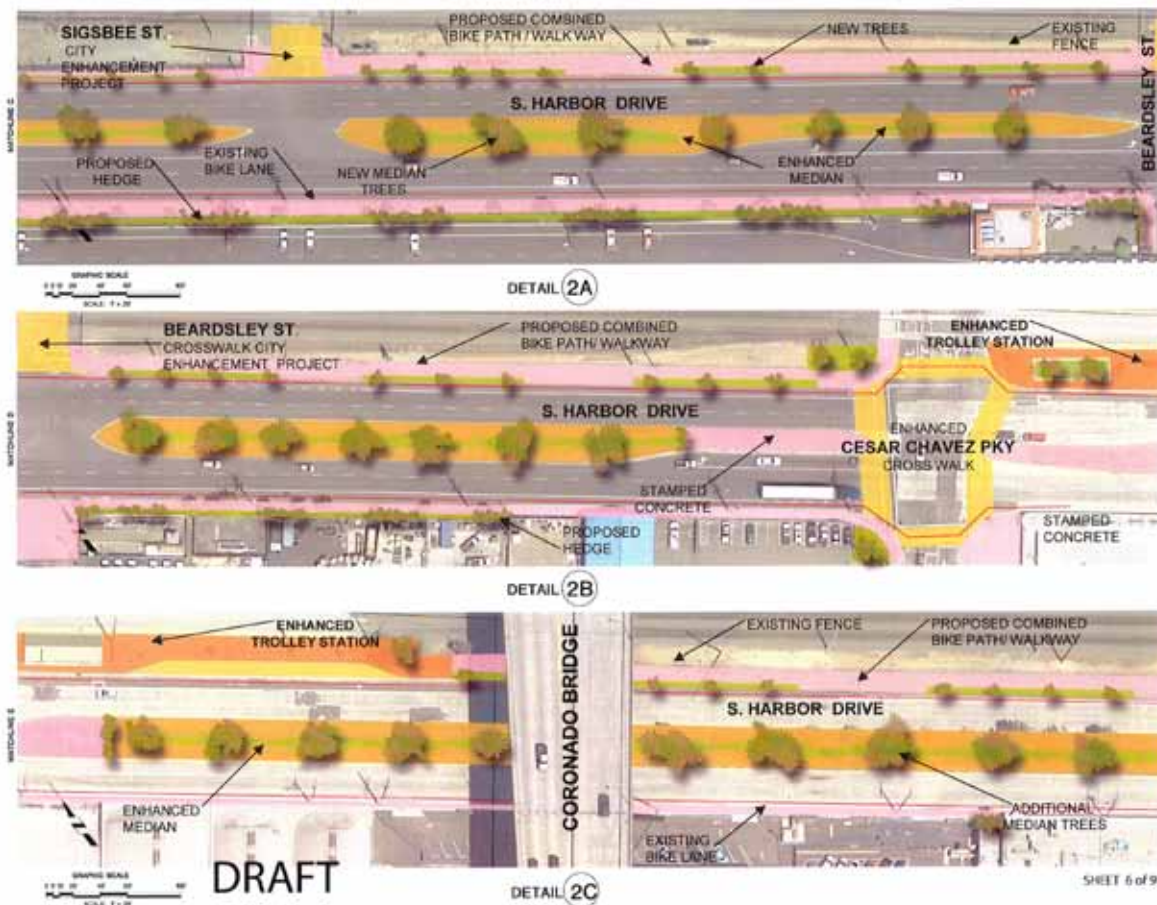
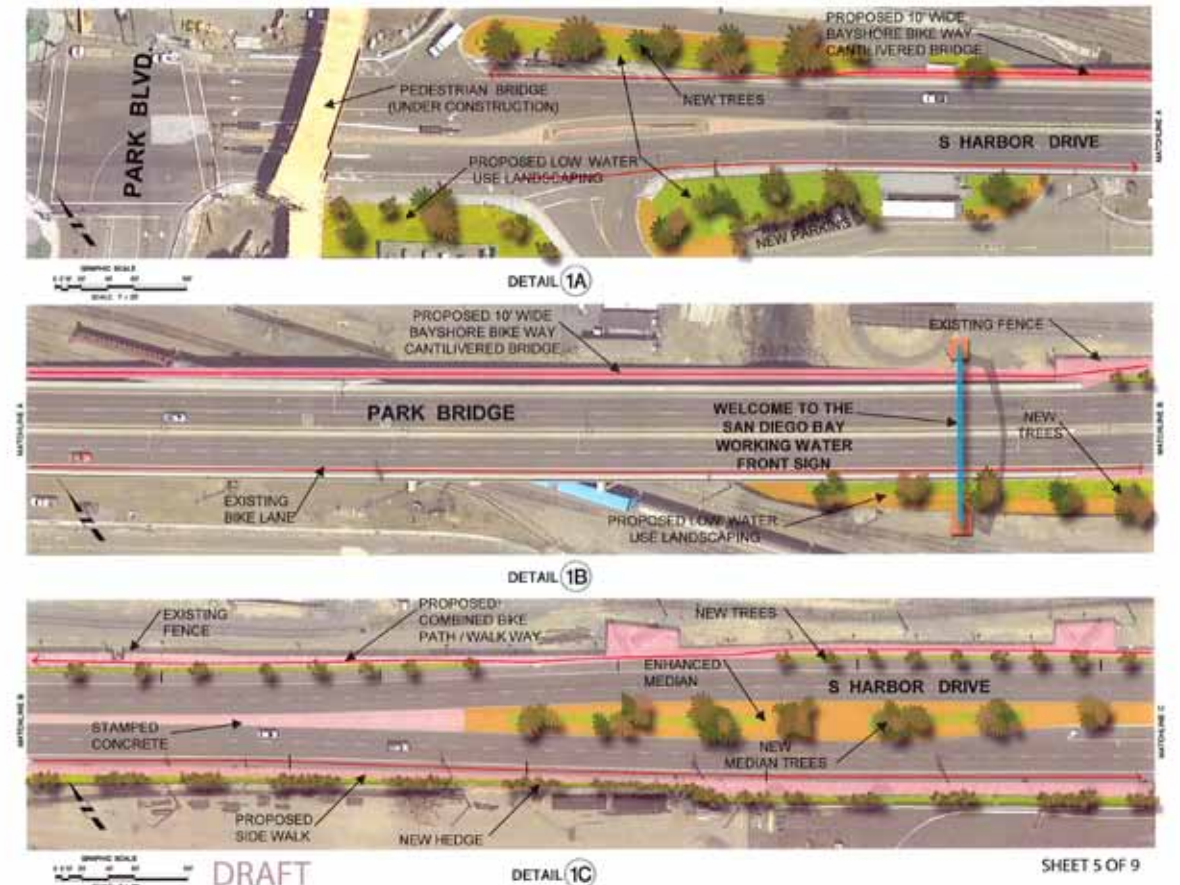
Note: These maps and graphics are from the 2006 SANDAG Bayshore Bikeway Plan. They are included here to make sure the plan's recommendations are followed. However, some conditions have changed & other recommendations found in this study may supersede the concepts shown on these plans.





*Note: The connection between Harbor Drive and the Waterfront along the south edge of the Hilton Hotel is not feasible, but an alternative route between the hotel and the parking structure may be.*

Figure 5: Conceptual Plans & Graphics from the 2006 SANDAG Bayshore Bikeway Plan



*Note: These maps and graphics are from the 2006 SANDAG Bayshore Bikeway Plan. They are included here to make sure the plan's recommendations are followed. However, some conditions have changed and other recommendations found in this study may supersede the concepts shown on these plans.*

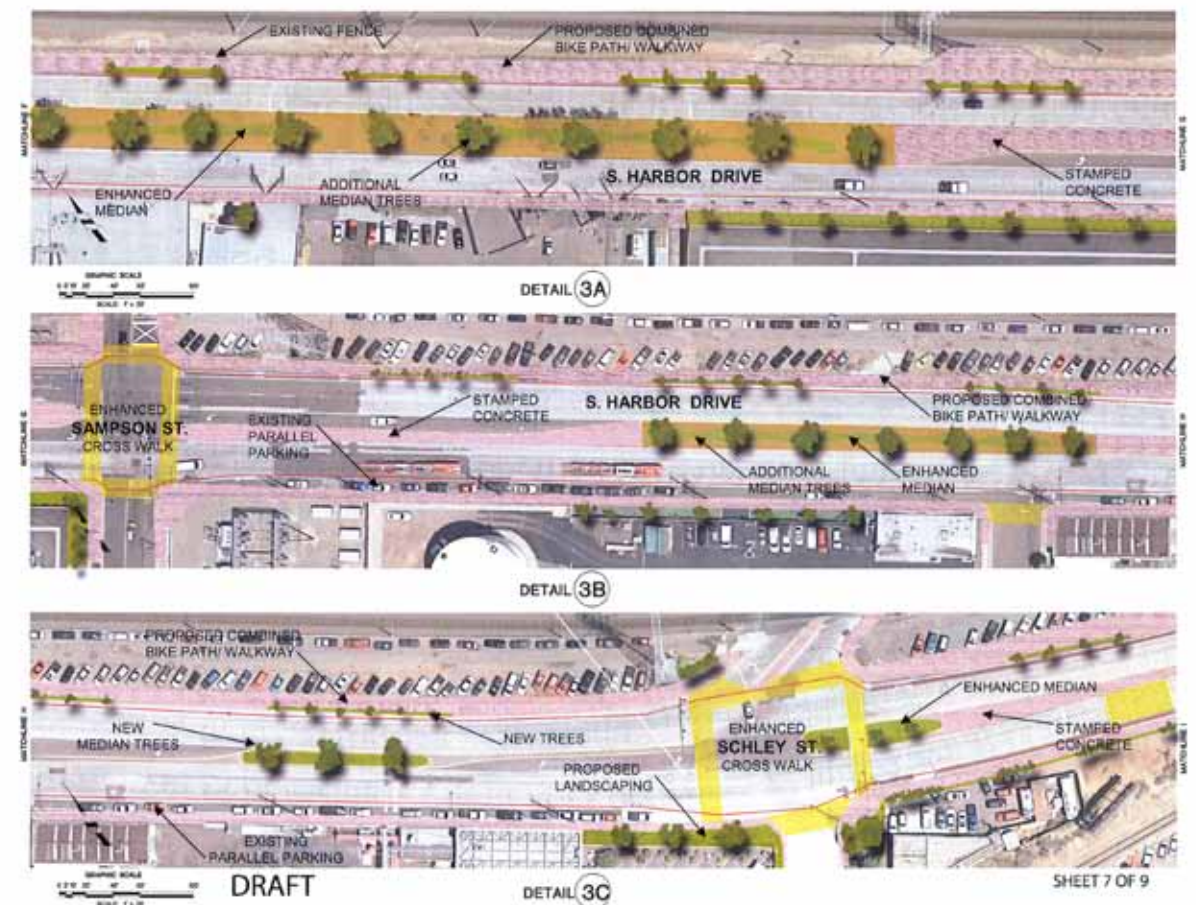
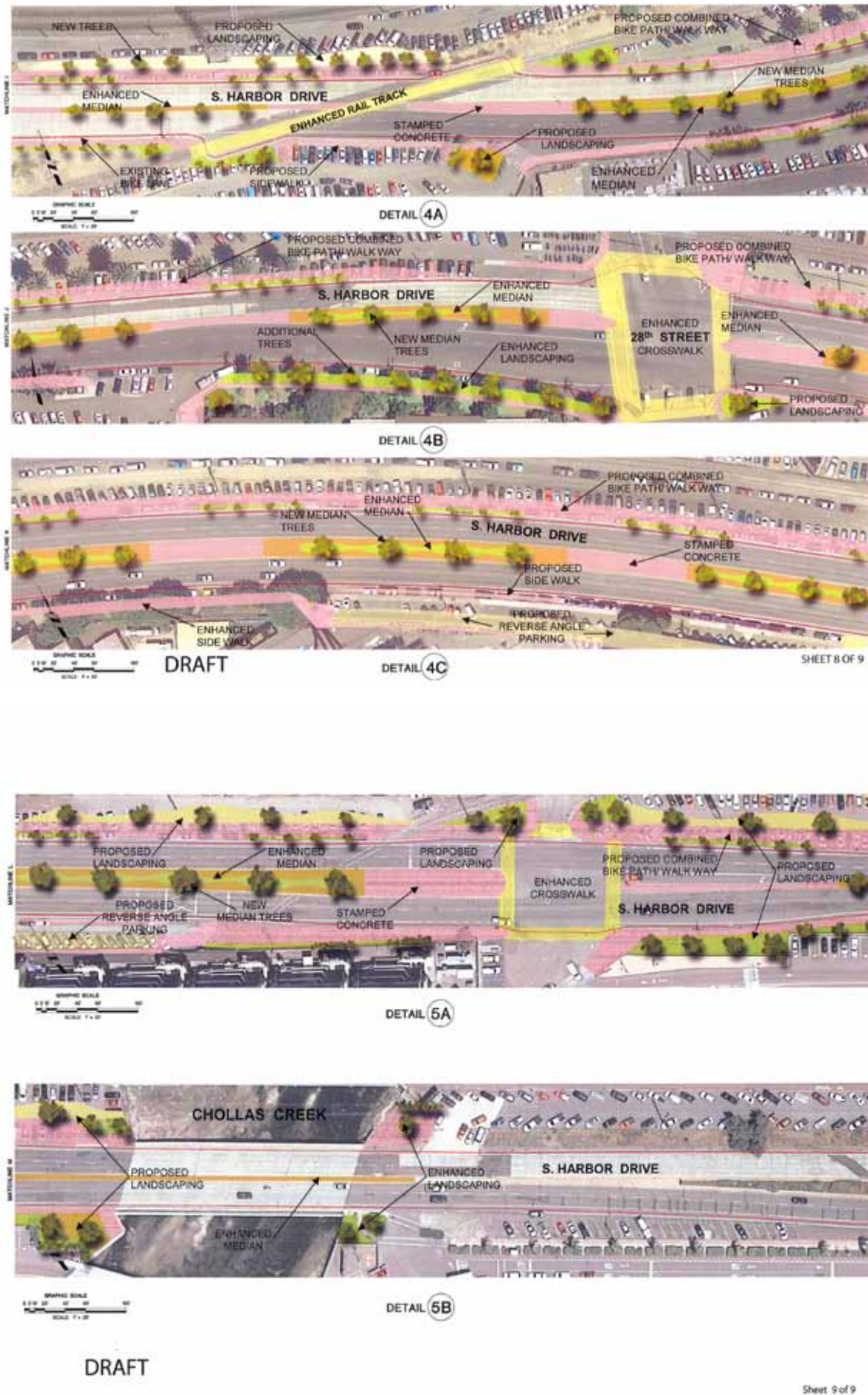


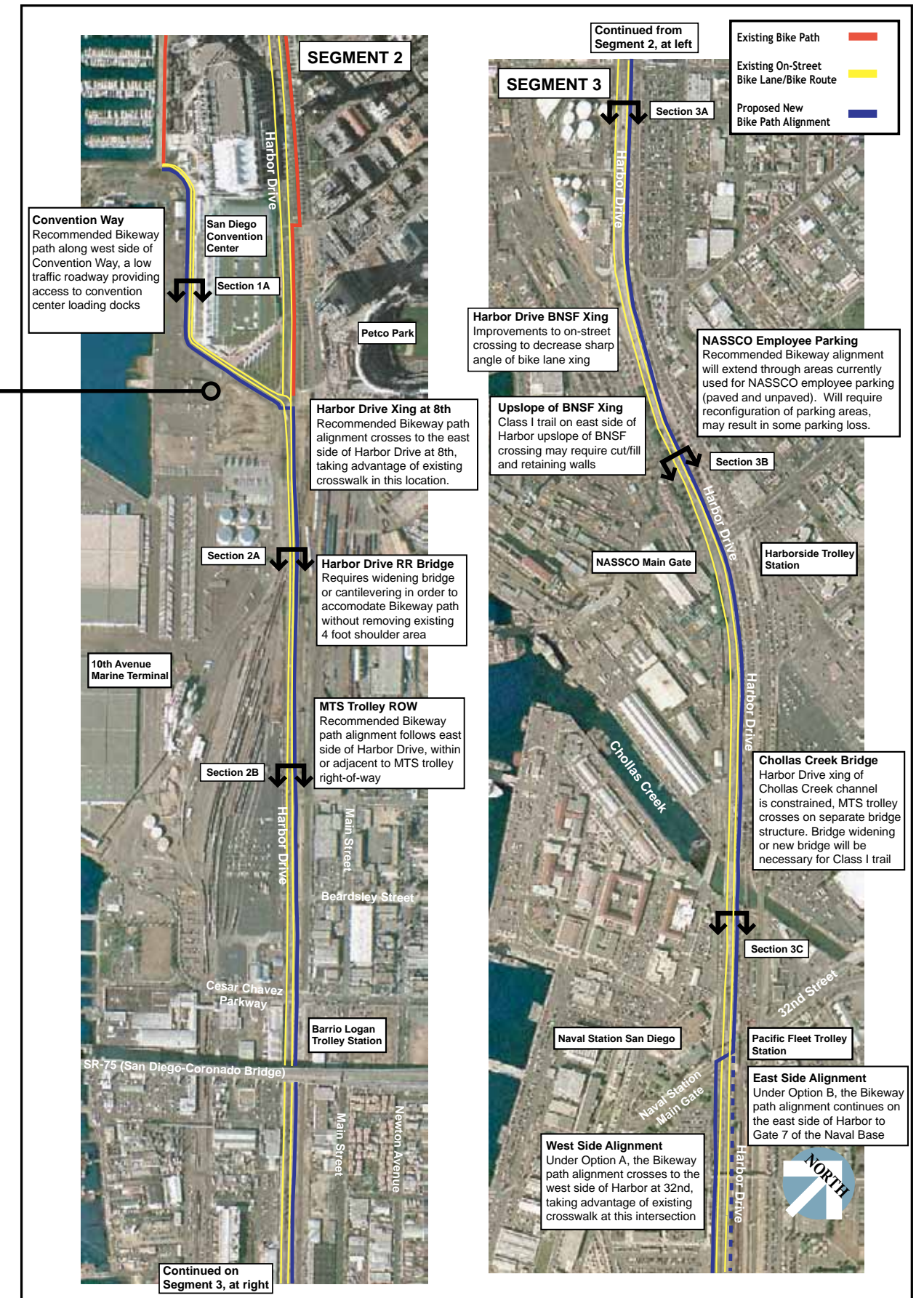


Figure 6: Conceptual Plans & Graphics from the 2006 SANDAG Bayshore Bikeway Plan



*Note: The parking structure, Hilton Hotel and Parking Structure along with the Pedestrian Bridge are not shown in this earlier aerial photo.*

*Note: These maps and graphics are from the 2006 SANDAG Bayshore Bikeway Plan. They are included here to make sure the plan's recommendations are followed. However, some conditions have changed & other recommendations found in this study may supersede the concepts shown on these plans.*



## 2

Existing General  
Conditions**Study Area General Conditions**

The project study area was the segment of Harbor Drive between 32nd Street and Park Boulevard and its immediate vicinity. This segment's adjacent land uses on the bay side include a large Naval base, shipbuilding and repair facilities and other related industrial and maritime activities. Within the southern half, the other side of the roadway is visually dominated by parking lots serving the services on the bay side of the roadway, as well as working rail lines and power transmission towers. The portion north of the SR75 bridge is more mixed use, including a trolley station. The extreme north end transitions into hotel, entertainment, stadium and convention activities. See Figure 7: Context of the Working Waterfront and the Barrio Logan Community.

Overall, the area is dominated by large-scale industrial infrastructure and almost all available ground plane space is occupied by vehicle parking right up to and including the Harbor Drive right-of-way. During typical workday hours, virtually all of this parking is in use by the employees and contractors of primary Port tenants such as NASSCO and BAE. Many different parking configurations are present, ranging from bare dirt lots without parking space markings to more conventional paved lots with marked stalls. Immediately along Harbor Drive, parallel, angled and straight-in parking exists along various segments of the study corridor, often in close proximity to each other.

This variety in parking configuration is due primarily to the various ownerships of the adjacent land and the rail infrastructure that creates irregular parking lot spaces in which the parking configuration has been adapted to fit.

Ownership and easement conditions create convoluted parcel shapes that make efficient parking layout difficult. See Figure 8: Existing Ownership and Figure 9: Existing Easements.

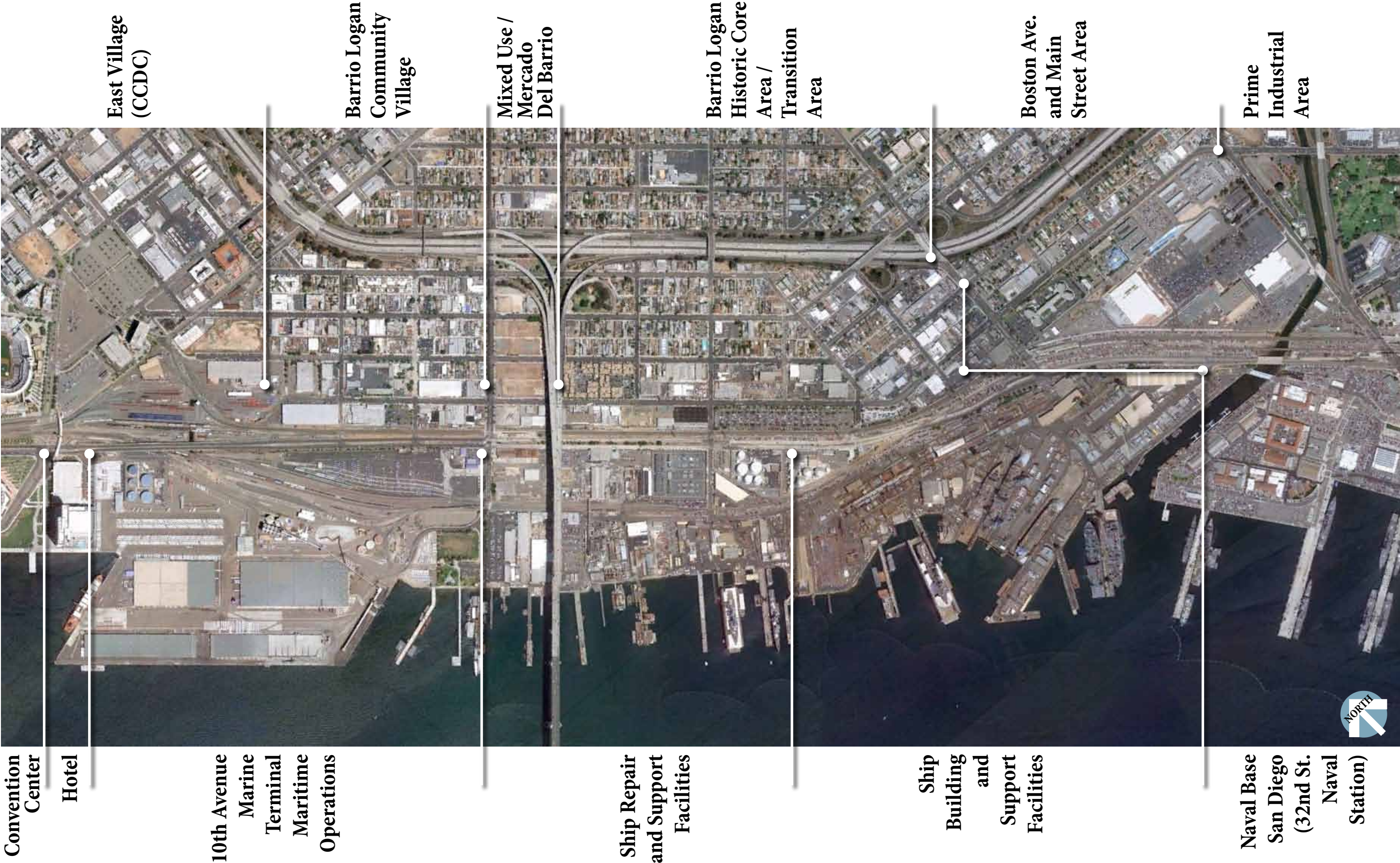
In many cases, this results in layouts that are not consistent with current City of San Diego standards for stall length and width, aisle width or landscaping. Field review and mapping analysis revealed that some of this existing parking actually overhangs into the Harbor Drive right-of-way (refer to Section 3 for more discussion on parking).

Access to and from these parking lots is also often not consistent with current roadway and parking design standards. Some driveways are at mid-block locations or occur closer to existing intersections than current roadway standards allow. Landscaping is virtually nonexistent. See Figure 10: General Character of the Working Waterfront and Figure 11: Parking Conditions.

Drainage is also another significant issue for much of the southern half of this segment. Nearly all of the median within Harbor Drive lacks curbs, gutters or storm drains and, as a result, stormwater runoff forms large pools within the median that evaporate slowly due to limited percolation. Stormwater runoff is generally not controlled to current standards throughout the corridor, including within the parking areas adjacent to Harbor Drive. For example, many of the parking areas used by NASSCO employees immediately adjacent to the roadway are inundated following typical rain events. Even so, the employees still park in these submerged areas and must contend with this standing water for some time following rain events due to the length of time it takes to evaporate.

Another significant issue is roadway surface conditions. Pavement quality varies considerably, but is generally worse within the southern half of the study corridor. While the northern segment's asphalt surface is in fair condition, the remainder of the roadway is a patchwork of concrete and asphalt repair overlays, creating a very uneven surface. Intersections and roadway edges are often not well defined and the pavement quality within the roadway shoulders where cyclists are expected to ride is the poorest of all. Along with relatively high vehicular speeds, oblique rail line crossings and a lack of bikeway facilities, these conditions make cycling through this area less than ideal. See Figure 12: Drainage and Pavement Conditions.

Figure 7: Context of the Working Waterfront & the Barrio Logan Community



**Convention Center**

**Hotel**

**10th Avenue  
Marine  
Terminal  
Maritime  
Operations**

**East Village  
(CCDC)**

**Barrio Logan  
Community  
Village**

**Mixed Use /  
Mercado  
Del Barrio**

**Ship Repair  
and Support  
Facilities**

**Barrio Logan  
Historic Core  
Area /  
Transition  
Area**

**Ship  
Building  
and  
Support  
Facilities**

**Boston Ave.  
and Main  
Street Area**

**Naval Base  
San Diego  
(32nd St.  
Naval  
Station)**

**Prime  
Industrial  
Area**



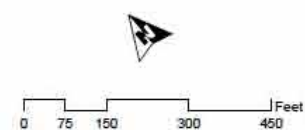
Figure 8: Existing Ownership

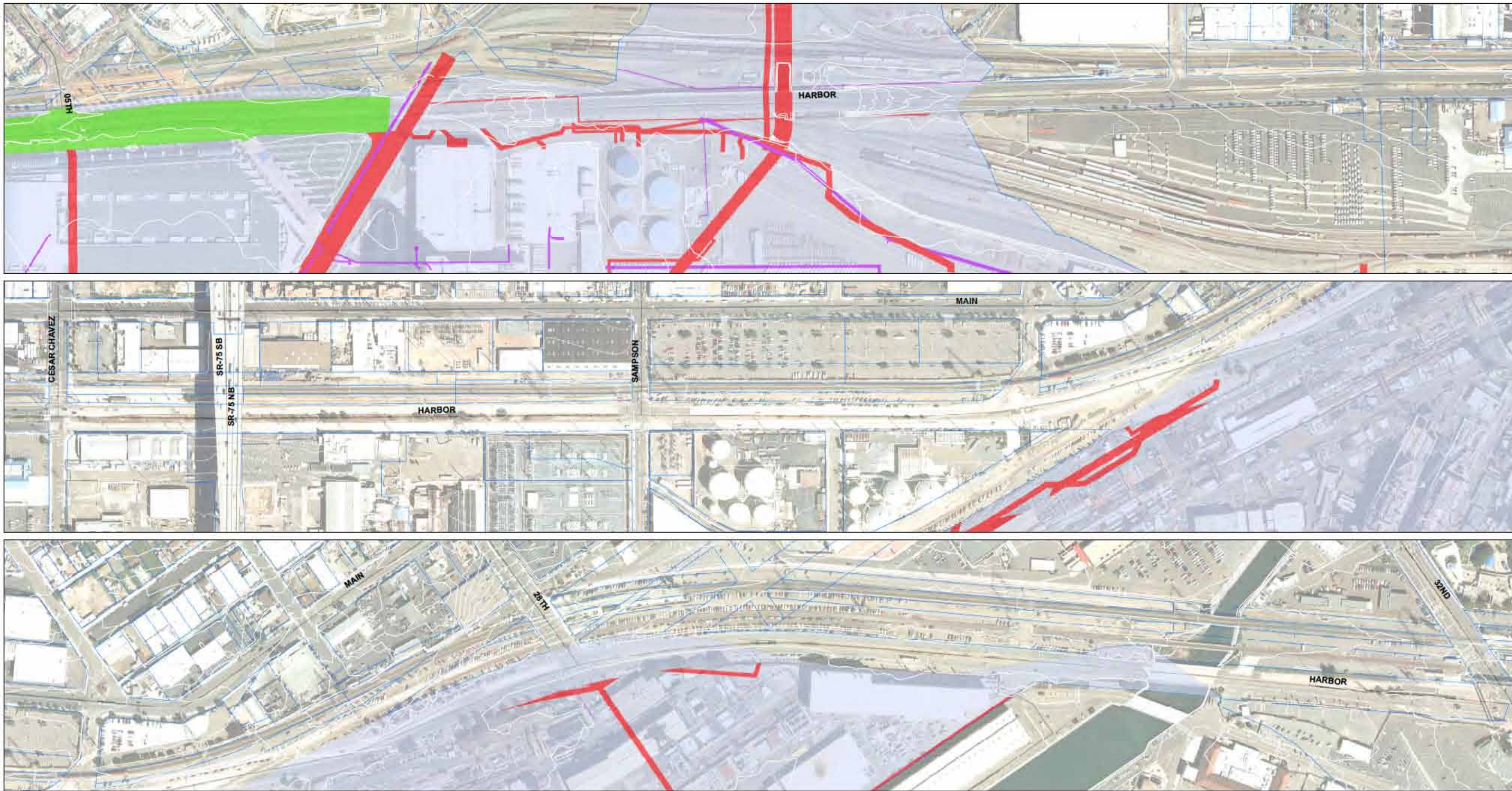


- Legend**
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| <b>Ownership</b>                           | <span style="color: green;">■</span> Railroad | <span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> Parcels                                    |
| <span style="color: orange;">■</span> CCDC | <span style="color: purple;">■</span> SDG&E   | <span style="background-color: lightblue; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> SDUPD Parcels |
| <span style="color: grey;">■</span> NASSCO | <span style="color: yellow;">■</span> US Navy |   |
| <span style="color: red;">■</span> MTS     |   |   |

## Ownership

Data Source: SDU Port District





**Legend**

**Easements**

- Access
- Utilities
- Emergency Exit
- Pedestrian Bridge
- San Diego Gas & Electric
- Street

- Parcels
- SDUPD Parcels

**Easements**

Data Source: SDU Port District

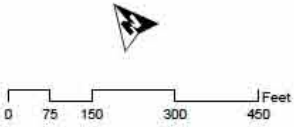


Figure 10: General Character of the Working Waterfront



1  
North side of the Harbor Drive Bridge and Frontage Road underpass



5  
Corridor is dominated by the rail line, industrial uses and large scaled powerline facilities



6  
Parking exists along a major portion of the corridor



8  
All types of parking conditions exist, much of which does not meet industry parking layout standards



9  
Almost all available spaces are filled with parking, especially those south of Sampson



2  
The visual quality of the corridor, drops dramatically at Harbor Drive bridge, going southeasterly



3  
The condition of the road, dominance of on-street parking & higher speeds creates challenges for cyclists



4  
Though some landscaping and screening exists, the corridor is mostly devoid of positive aesthetic elements



7  
The existing rail lines create additional challenges for cyclists



10  
Parallel parking, angled parking and straight in parking all exist along the corridor



1 Nearly all of the median along Harbor Drive in the study area is devoid of curbs, gutters and storm drains



2 Most runoff ponds and eventually evaporates slowly with limited percolation or stormwater collection



3 Many of the adjacent parking areas used by NASSCO, become inundated but are still parked in



4 Several low lying areas become inundated easily after rain



5 The northern segments with asphalt are in fair condition



6 Areas where asphalt has been used over the concrete surface, are in very poor condition



7 The shoulders where most cyclist have to ride, are in very poor condition with safety issues



8 Asphalt overlays have been patched numerous times, creating an even more uneven surface



9 Intersections and road edges are poorly defined



10 Concrete and asphalt conditions are poorest in the middle and southern segment of the corridor

## Overall Goal for Parking

The accommodation of the Bayshore Bikeway Class 1 Multi-use trail will out of necessity cause the removal of parking along Harbor Drive. The existing rights-of-way is not large enough to accommodate a 12-foot wide path along with a 5-foot wide buffer without removing other uses within the right-of-way. A substantial amount of parking can be found within the project study area. Some of this parking is private, some is available for a price and some of the parking is on-street with no restrictions or costs associated with its use.

Initially, the public and private parking in the area was looked at in terms of what it might take to bring all of the parking into conformance with current development standards. A secondary objective for parking was to limit the exit points from parking adjacent to Harbor Drive to decrease the conflicts between bike path users and vehicles entering and exiting the parking spaces. A third objective for analyzing parking was to provide stormwater runoff solutions that would improve water quality. Finally, another objective for parking was to provide a logical, rational layout for parking that would contribute to a positive visual character for the study area. All of these objectives need to be balanced with the primary parking goal of assuring adequate parking in the area, so that adjacent employers, residents and businesses are not negatively affected by excessive parking removals.

## Current Parking Conditions

A parking space count was conducted on a busy weekday and field notes were transferred to the base map to illustrate existing parking facilities. This fieldwork also included mapping major obstructions, as well as both improved and minimally improved driveway access points that could be important in the layout of new facilities. Potential access points near intersections or other improved roadways were also mapped. Prior to any site plan layouts, the team discussed parking standards with the City and the Port District. Agreement was reached on parking stall width and depth and the amount of ADA parking, as well as the frequency of trees per number of parking spaces. Other tasks completed prior to parking lot layout included determining line-of-sight issues due to vertical and horizontal curvatures such as at intersections, along roadway segments and adjacent to existing active rail lines.

Figure 12, Parking Conditions, provides several images that capture the difficult and somewhat chaotic arrangement of parking for several major Port District tenants. NASSCO shipyard, and to a lesser extent BAE, all rely heavily on on-street parking

on both sides of Harbor Drive, as well as the various marginal parking lots found between the railroad tracks and Harbor Drive. Many of these parking lots are owned by NASSCO or leased by NASSCO or BAE from SDG&E, the Railroad Company (BNSF), MTS or other interests. The current haphazard arrangement of parking is not a new condition. The dirt lots squeezed between the tracks have a history of use back into the early 1960s. Though parking demand has likely been increasing from year to year, the supply has remained relatively the same for the past 50 years. Increased car ownership, higher employment levels for the major employers in the area, and other factors all combine to increase the parking demand.

Current conditions include substandard parking surfaces, inadequate drainage, substandard width and depth to spaces, substandard backout aisles and other factors that make it difficult to park in this area. Since the majority of the parking resources are unimproved, the vehicular spacing is often inefficient, with each vehicle operator deciding on the amount of space to leave between vehicles.

According to Table 1: Level 1 Parking Analysis, a total of 2,839 spaces exist in the study area. On-street parking consists of 263 spaces, 160 of which are on the northeast side of the road and 103 on the southwest side of Harbor Drive. As indicated on Table 1 and shown on Figures 13 through 17, a total of 12 lots have been designated, with subsets of the larger lots shown with numbers and letters. Within this total number, 20 spaces are set aside for trolley parking, 125 spaces as part of a “Park and Pay” parcel, then another 830 are in private lots controlled by BAE. This leaves 1,615 spaces under the control of NASSCO. It is likely the majority of the 263 on-street spaces are utilized by NASSCO employees.

## Level One Analysis

A three level analysis was completed for parking in the study area. Level One took a cursory review of the overall geometry of parking lots and indicated if these lots meet current City of San Diego Land Development Code size requirements. Figures 13 through 17 and Table 1 have been color coded to show the likely requirements to bring these spaces up to these standards. This level one analysis has been superseded by Level Two and Level Three approaches, but it is documented here to help determine the level of change that could be required if the City of San Diego was to enforce design standards on these spaces. Table 1 shows that 160 on-street parking on the northeast side would be lost, with about 411 lost in off-street parking if a strict adherence to design standards were maintained. Based on the parking in the study area, this loss represents a little more than

20% of all spaces. However, these numbers were based on quick estimates of total dimensions and are not very accurate. Level Two analysis overlaid parking templates to determine parking spaces lost and should be used as a more accurate number than those resulting from Level One analysis.

## Level Two Analysis

This analysis employed three different scenarios applied to the application of parking standards. Scenario 1 losses would result from a strict enforcement of all parking standards. A total of 742 spaces (530 NASSCO spaces) would be lost. This represents a 26% loss in total parking in the study area. Scenario 2 assumes that a 5% leeway in parking standards were obtained, then only 586 spaces (460 NASSCO spaces) would be lost, or approximately 20% of study area resources. Scenario 3 assumes that only those lots that are close to Harbor Drive would be reconfigured. This approach resulted from meetings with the City of San Diego that indicated they would not pursue upgrades on all lots, but those that triggered reconfiguration of driveways attached to the public right of way would need a permit and would therefore be expected to meet these standards. Quick layouts of these lots were completed and a loss of 380 total spaces (199 NASSCO spaces) representing a 13% loss of parking resources for the study area. The results of Level Three analysis also supersedes Level Two and One results.

## Level Three Analysis

Based on driveway reconfigurations, stormwater runoff requirements, parking lot shade tree requirements and buffering requirements, lots next to Harbor Drive will need to be reconfigured. A substantial number of parking spaces in these lots currently overhang into the public right-of-way and will need to be pulled out of the ROW regardless of if the Bayshore Bikeway project is constructed or not.

Table 3: Level Three, Scenario Four Parking Lot Layouts, should be reviewed in conjunction with the bike path and parking lot layouts shown on Figures 18 through 28 in the next Chapter. This highly accurate parking lot layout process will result in the loss of 75 NASSCO parking spaces, and 181 on-street parking spaces for a total loss of 256 spaces. The table indicates the changes that would need to take place in each parking lot. Overall, the loss of parking would represent a 9% loss in parking spaces found in the study area.



Figure 12: Parking Conditions



1 Both sides of Harbor Drive along the north segments do not allow for on-street parking



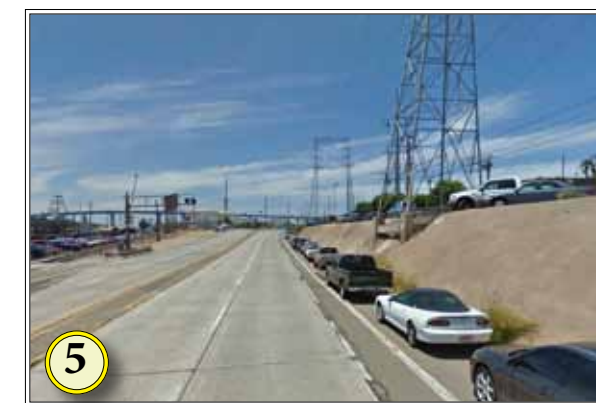
2 The trolley station has a drop-off zone and bus pull-out lane that is no longer used



3 Parallel parking exists along both sides of Harbor Drive along much of the roadway southeast of Sampson



4 Some of the off-street parking actually overhangs the public rights-of-way



5 Off-street parking is used heavily by BAE and NASSCO employees



6 Back in parking exists just north of 28th Street



7 On street parking is within the public rights of way and is used heavily by NASSCO staff



8 A variety of poles, structures and various obstacles do affect the overall parking capacity of the area



9 Parking spaces are squeezed onto NASSCO owned land or leased land from SDG&E or the railroad



10 The southern most segment of the corridor has limited on-street parking

Figure 13: Index- Existing Parking and Initial Parking Analysis



KEY MAP





## LEGEND






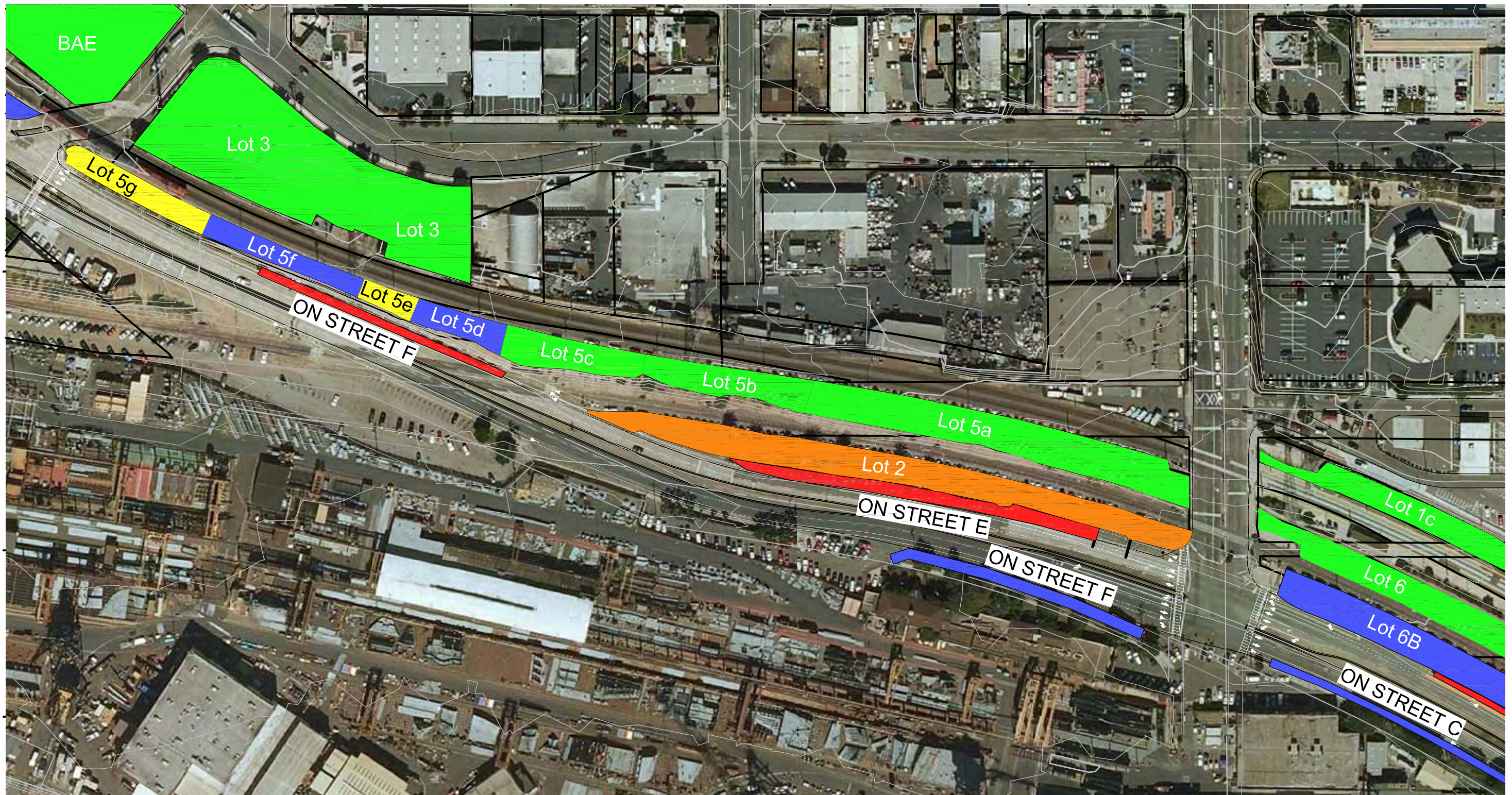





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|  | PARKING WILL REMAIN AS IS, NO MODIFICATIONS  |  | PARKING WITH MAJOR MODIFICATIONS<br>WILL MEET CITY OF SAN DIEGO STANDARDS |
|  | PARKING WITH MINOR MODIFICATIONS WILL<br>MEET CITY OF SAN DIEGO STANDARDS            |  | PARKING WILL BE REMOVED   |
|  | PARKING CAN REMAIN WITH SLIGHT LOSSES,<br>IF CITY OF SAN DIEGO STANDARDS ARE RELAXED |   |   |

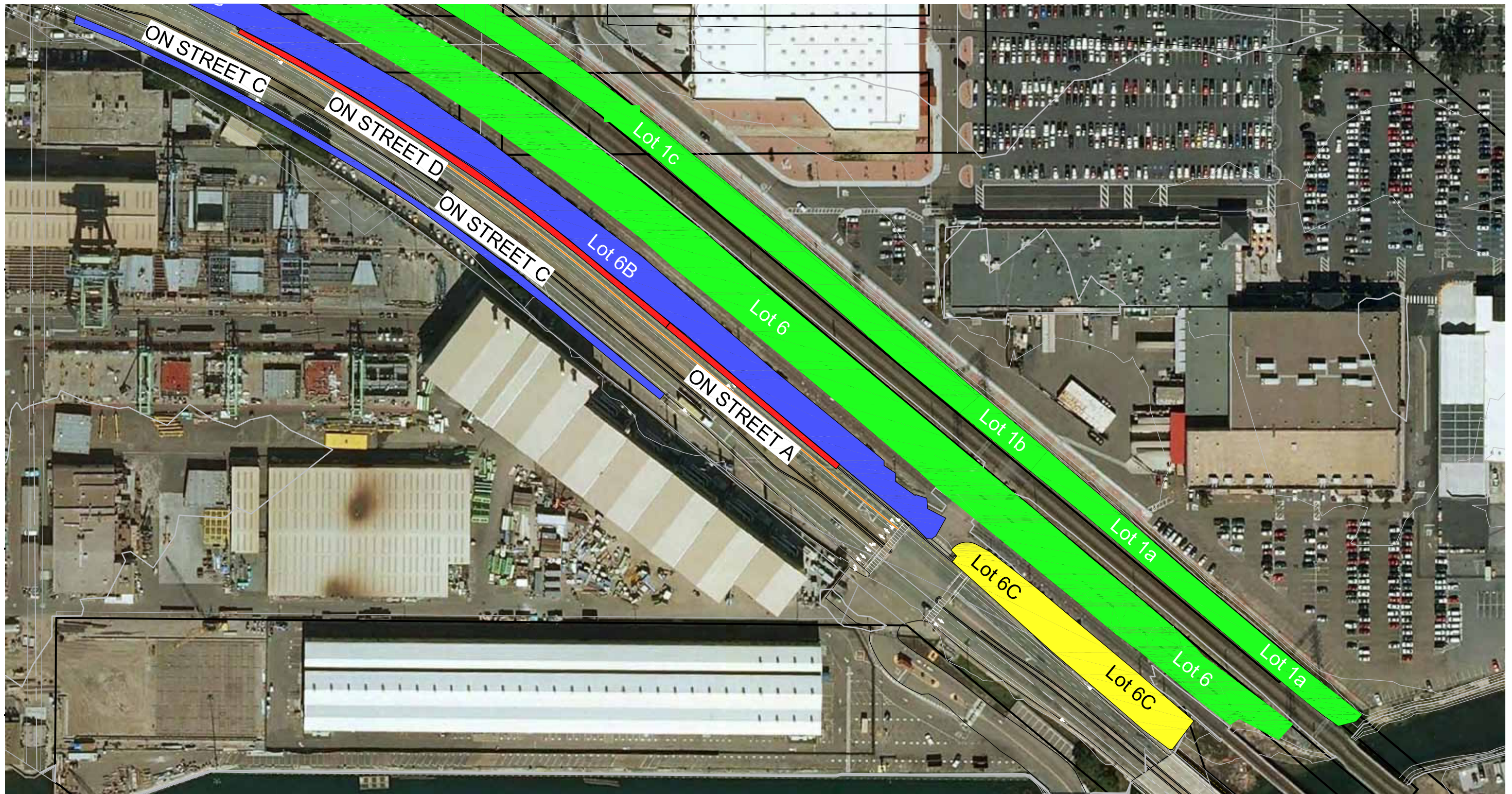


Figure 15: Sheet 2- Existing Parking and Initial Parking Analysis



## LEGEND

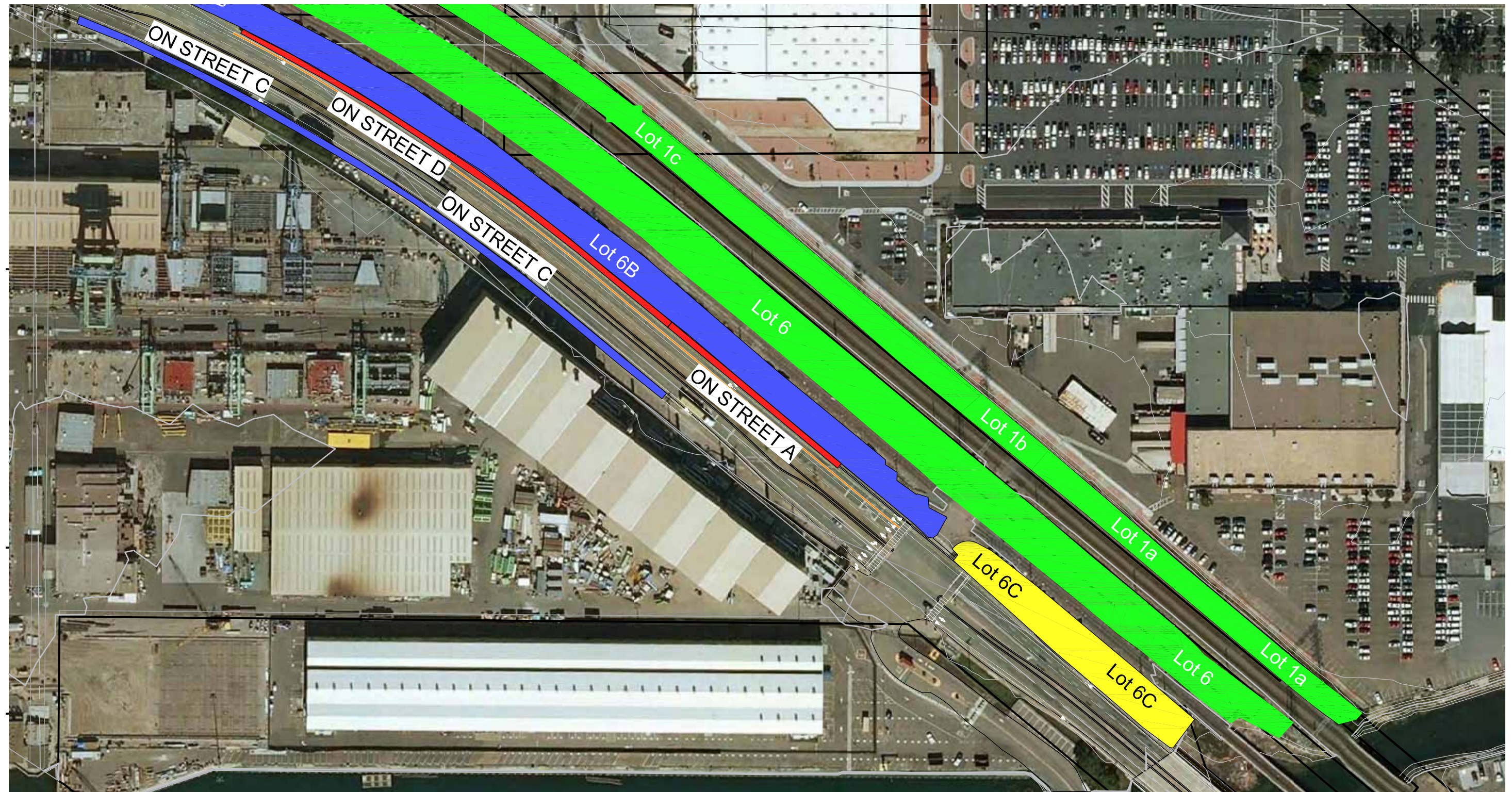
- |   |  |
|---|--|
|  PARKING WILL REMAIN AS IS, NO MODIFICATIONS                                       |  PARKING WITH MAJOR MODIFICATIONS WILL MEET CITY OF SAN DIEGO STANDARDS |
|  PARKING WITH MINOR MODIFICATIONS WILL MEET CITY OF SAN DIEGO STANDARDS            |  PARKING WILL BE REMOVED  |
|  PARKING CAN REMAIN WITH SLIGHT LOSSES, IF CITY OF SAN DIEGO STANDARDS ARE RELAXED |  |



### LEGEND

- |   |  |
|---|--|
| <span style="display: inline-block; width: 20px; height: 10px; background-color: #00FF00; border: 1px solid black;"></span> PARKING WILL REMAIN AS IS, NO MODIFICATIONS                                       | <span style="display: inline-block; width: 20px; height: 10px; background-color: #FFA500; border: 1px solid black;"></span> PARKING WITH MAJOR MODIFICATIONS WILL MEET CITY OF SAN DIEGO STANDARDS |
| <span style="display: inline-block; width: 20px; height: 10px; background-color: #0000FF; border: 1px solid black;"></span> PARKING WITH MINOR MODIFICATIONS WILL MEET CITY OF SAN DIEGO STANDARDS            | <span style="display: inline-block; width: 20px; height: 10px; background-color: #FF0000; border: 1px solid black;"></span> PARKING WILL BE REMOVED  |
| <span style="display: inline-block; width: 20px; height: 10px; background-color: #FFFF00; border: 1px solid black;"></span> PARKING CAN REMAIN WITH SLIGHT LOSSES, IF CITY OF SAN DIEGO STANDARDS ARE RELAXED |  |





## LEGEND

- |   |  |
|---|--|
| <span style="color: green;">■</span> PARKING WILL REMAIN AS IS, NO MODIFICATIONS  | <span style="color: orange;">■</span> PARKING WITH MAJOR MODIFICATIONS WILL MEET CITY OF SAN DIEGO STANDARDS |
| <span style="color: blue;">■</span> PARKING WITH MINOR MODIFICATIONS WILL MEET CITY OF SAN DIEGO STANDARDS              | <span style="color: red;">■</span> PARKING WILL BE REMOVED   |
| <span style="color: yellow;">■</span> PARKING CAN REMAIN WITH SLIGHT LOSSES, IF CITY OF SAN DIEGO STANDARDS ARE RELAXED |  |



Table 1: Level 1 Parking Analysis (superseded by Level 3, see Table 3)

Parking Lot # <small>(See Key Map)</small>	Will be Removed	Major Modification Likely	Can Remain with Some Loss if Standards Relaxed	Minimal Losses Likely	Can Remain As is	Parking Lot Descriptions	Parking Lot Recommendations <small>(See City of San Diego Parking Layout Templates)</small>
1					20	Meets SD standards for single aisle, two-way parking lot. Aisle alternates between 23' and 24'.	Keep as is.
2			125			Aisle varies between 21'-22'. 18' parking bays meet standard.	A-5 (38°) fits throughout, but may be able to achieve 45°.
3		69				Lot consists of 30° parking and 11' one-way drive aisle. Fails to meet SD standards for parking.	D-3 (60°) without parallel parking or D-5 (38°) with parallel parking.
4						Lot consists of 75° parking on one side and parallel on other. U-turn at southeast allows vehicle turnaround and access to angled parking. Lot "organically" laid out with several angle changes and no trees. Parking is substandard for 360' northeast of trolley station. (39 spaces total).	D-5 (38°) functions for lot except northwest side (75 vehicles), which would have to be A-6 (parallel parking).
4A		78					
4B			9				
4C				199			
5					377	Exceeds standards, but land-locked between trolley and freight rail lines. No trees.	A-1 (90° parking) works except northeast portion where B-4 (45° with two-way aisle/parallel) works.
6			80			Lot consists of back-in, 90° and 60° with one-way aisle. Lot also angled at northwest end due to bottleneck created by dead rail tracks. Perpendicular parking on southeast side. May be able to maintain SD standards if changed to 45°.	Lot just shy of C-2 standard (60° parking). However, D-1 (90° with parallel) and C-3 (45°) work.
7					127	Southwest side of lot consists of 90° parking while northeast end is parallel. Lot exceeds SD standards since aisle is two feet wider than required for one-way parking.	D-4 (45° one-way parking) works.
8						Lot consists of one-way angled parking on northeast side. Angles range between 75°, 60°, parallel, and perpendicular from northeast to southwest respectively. Lot fails to meet SD standards due to aisle width variations.	C-3 (45° one-way parking) works.
8A		124				560 feet does not meet standard with 11' drive aisle.	Alternates between D-5 (38° parking) and C-5 (parallel parking).
8B			27			26 parallel spaces meet SD standards. 160 foot strip of parallel parking in middle of lot and 45° strip towards southwest side exceed standards. However, some variety in aisle spacing.	Alternates between D-4 (45° one-way parking isles) for first portion and C-5 (one parallel, one side).
8C			33				
8D				12			
8E			8				
8F				10			
8G			17				
9		93				Lot consists of 75° (180 feet), 45° (110 feet), 60° (360 feet), and parallel (460 feet) from northeast to southwest respectively. Lot does not meet SD standards. However, without palm trees and parallel parking, there is an opportunity for 60° parking.	Close to D-4 (45° one-way aisle), but may have to be D-5 (38° one-way parking).
10					195	80% of interior spaces and all perimeter spaces meet SD standards.	D-4 throughout lot except for north end.
11					830	Some aisles do not meet SD standard due to varying width (22'-23'). Trees along sides, but no trees otherwise.	Very close to SD standard. Keep as is.
12					143	Southwest side consists of 60° spaces while north side is parallel. Lot exceeds SD standards for one-way aisle parking. About one third of lot just shy of 45° SD standards.	Can maintain A-1 (90°) orientation with 90° around perimeter. (May lose spaces in far north corner).
Southwest On-street Parking: B, C, F, I					103	Small percentage of spaces may be lost due to desire for trees along each side of street.	
Northeast On-street Parking: A, D, E, G, H	160					Construction of cycle track will require removal of all on-street spaces.	
<p>Note: Lots 1,10 and 11 (shown in grey) not a focus of study</p> <p>Percentage to Remain: 0% 65% 70% 80% 100%</p> <p>Total per Category: 160 364 299 971 1,045 2,839 = Current Gross Spaces (On &amp; Off / Auto and Motorcycle)</p> <p>Spaces to Remain: 0 237 209 777 1,045 2,268 = Likely Gross Spaces Given Assumptions at Left</p> <p>Loss as Percent: 20.12% KTU+A Planning + Landscape Architecture</p>							

Table 2: Level 2 Parking Analysis (superseded by Level 3, see Table 3)

Level 2 Analysis		Scenario 1				Scenario 2				Scenario 3				NASSCO Counts	
Parking Lot # <small>(See Key Map)</small>	Current Condition Count	Parking Yield if all City Standards Met <small>(See City of San Diego Parking Templates)</small>		Spaces Lost	Loss as Percent	Parking Yield if Most Standards Met <small>(Within 5% Deviation)</small>		Change Needed	Spaces Lost	Loss as Percent	Parking Yield if Unaffected Lots Are Not Upgraded <small>(Harbor Drive Edge Lots Upgraded to full Standard)</small>		Spaces Lost		Loss as Percent
		New Count	Remarks			New Count	Remarks				New Count	Remarks			
1	286	168	Lot 1 sub-divided due to complexity	118	41.3%	179	Lot 1 sub-divided due to complexity		107	37.4%	286	Lot 1 sub-divided due to complexity	0	0%	200
1a	78	30	A-1 (90° 1-sided) parking.	48	61.5%	30	No change from Scenario 1.		48		78	Remains as-is.	0		N/A
1b	9	4	A-1 (90° 1-sided) parking.	5	55.6%	4	No change from Scenario 1.		5		9	Remains as-is.	0		N/A
1c	199	134	D-5 (38°) parking.	65	32.7%	145	D-4 (45° with one-way aisle and parallel parking on one side.)	Additional 1 foot needed (2.5% deviation).	54	27.1%	199	Remains as-is.	0		N/A
2	93	69	D-5 (38°) parking. No parallel parking on northeast side.	24	25.8%	73	D-4 (45° parking - No parallel parking on northeast side.)	Additional 1 foot needed (2.5% deviation).	20	21.5%	69	D-5 (38°) parking. No parallel parking on northeast side.	24	25.8%	85
3	195	176	Lot tallied via aerial photo. Parking spaces lost due to updated landscape and stormwater requirements.	20	10.0%	195	Remains as-is.		0		195	Remains as-is.	0		173
5	231	146	Lot 5 sub-divided due to complexity	85	36.8%	153	Lot 5 sub-divided due to complexity		78	33.8%	223	Lot 5 sub-divided due to complexity	8	3.5%	232
5a	124	69	D-3 (60°) parking.	55	44.4%	75	B-1 (90° with two-way aisle.)	Additional 1 foot needed (2.5% deviation).	49		124	Remains as-is.	0		N/A
5b	27	15	D-4 (45°) parking.	12	44.4%	15	No change from Scenario 1.		12		27	Remains as-is.	0		N/A
5c	33	23	D-4 (45°) parking.	10	30.3%	23	No change from Scenario 1.		10		33	Remains as-is.	0		N/A
5d	12	12	D-4 (45°) parking.	0	0.0%	12	No change from Scenario 1.		0		12	D-4 (45°) parking.	0	0.0%	N/A
5e	8	5	D-4 (45°) parking.	3	37.5%	6	Potential for one additional space with minor code change in length.	Varies.	2	25.0%	5	D-4 (45°) parking.	3	37.5%	N/A
5f	10	10	D-4 (45°) parking.	0	0.0%	10	No change from Scenario 1.		0		10	D-4 (45°) parking.	0	0.0%	N/A
5g	17	12	D-4 (45°) parking.	5	29.4%	12	No change from Scenario 1.		5		12	D-4 (45°) parking.	5	29.4%	N/A
6	377	319	A-1 (90°) two-way parking.	58	15.4%	319	No change from Scenario 1.		58		319	D-4 (45°) parking.	60	15.4%	454
6B	140	130	D-1 (One way parking).	10	7.1%	128	D-4 (45° with one-way aisle and parallel parking on one side.)	Additional 1 foot needed (2.5% deviation).	12	8.6%	130	D-1 (One way parking).	10	7.1%	186
6C	80	53	C-2 (60°) parking.	27	33.8%	53	No change from Scenario 1.		27		53	C-2 (60°) parking.	27	33.8%	80
6T	69	55	D-5 (38°) parking.	14	20.3%	58	D-4 (45° with one-way aisle and parallel parking on one side.)	Additional 1 foot needed (2.5% deviation).	11	15.9%	55	D-5 (38°) parking.	14	20.3%	65
7	143	87	D-3 (60°) parking.	56	39.2%	103	D-1 (90° with one-way aisle and parallel parking on one side.)	Additional 2 feet needed (4% deviation).	40	28.0%	87	D-3 (60°) parking.	56	39.2%	140
TROLLEY	20	18	Parking spaces lost due to updated landscape and stormwater requirements.	2	10.0%	20	Remains as-is.		0		20	Remains as-is.	0		Not Included In Count
PARK & PAY	125	62	A-1 (90°) two-way parking.	63	50.4%	75	A-4 (45° with two-way aisle.)	Additional 1 foot needed (2.5% deviation).	50	40.0%	125	Remains as-is.	0		Not Included In Count
BAE	830	747	Lot tallied via aerial photo. Parking spaces lost due to updated landscape and stormwater requirements.	83	10.0%	830	Remains as-is.		0		830	Remains as-is.	0		Not Included In Count
Southwest On-street Parking: B, C, F, I	105	82	Parking spaces reduced due to updated landscape and stormwater requirements.	23	21.5%	82	No change from Scenario 1.		21		82	No change from Scenario 1.	23		Not Included In Count
Northeast On-street Parking: A, D, E, G, H	160	0	Parking removed.	160	100%	0	No change from Scenario 1.		160		0	No change from Scenario 1.	160		Not Included In Count
2,854		2,112	Scenario 1 Parking Loss =	-742	26.0%	2,268	Scenario 2 Parking Loss =	-586	20.5%	2,474	Scenario 3 Parking Loss =	-380	13.3%	1,615	1615 (NASSCO)**
Count Without Trolley, Pay & Park, BAE & on-street lots =		1,615	NASSCO Parking Loss Scenario 1	-530		NASSCO Parking Loss Scenario 2		-460		NASSCO Parking Loss Scenario 3		-199		*This number indicates NASSCO's applicable parking lots as listed.	

Table 3: Level 3 Parking Analysis

**LEVEL 3 ANALYSIS (SCENARIO 4): ACTUAL PARKING LOT LAYOUTS**

Parking Lot # <i>(See Key Map)</i>	KTU+A Current Condition Count	NAASCO Current Condition Count	Changes Made	Proposed Count of Modified Parking Lots	Spaces Lost (-), spaces gained +	Loss as Percent
<b>NAASCO PARKED LOTS ONLY</b>						
<b>1</b>	286	200	<i>Various existing parking lot arrangements, none adjusted.</i>	286	+0	0.0%
<b>2</b>	93	85	<i>D-4 (45°) parking.</i>	86	-7	-7.5%
<b>3</b>	195	173	<i>Various existing parking lot arrangements, none adjusted.</i>	195	+0	0.0%
<b>5</b>	231	232	<i>Various existing parking lot arrangements, none adjusted.</i>	231	+0	0.0%
<b>6</b>	377	454	<i>A-1 (90°) two-way parking.</i>	319	-58	-15.4%
<b>6B</b>	140	186	<i>D-4 (45°) parking.</i>	190	+50	35.7%
<b>6C</b>	80	80	<i>D-4 (45°) parking.</i>	47	-33	-41.3%
<b>6T</b>	69	65	<i>D-4 (45°) parking.</i>	55	-14	-20.3%
<b>7</b>	143	140	<i>D-4 (45°) parking.</i>	130	-13	-9.1%
<b>NAASCO LOTS ONLY</b>	<b>1,614</b>	<b>1,615</b>		<b>1,539</b>	<b>-75</b>	<b>-4.6%</b>
<b>OTHER SHIPYARD AREA LOTS</b>						
<b>TROLLEY</b>	20		<i>No changes required</i>	20	+0	0.0%
<b>PARK &amp; PAY</b>	125		<i>No changes required</i>	125	+0	0.0%
<b>BAE</b>	830		<i>No changes required</i>	830	+0	0.0%
<b>OTHER SHIPYARD LOTS</b>	<b>975</b>			<b>975</b>	<b>0</b>	<b>0.0%</b>
<b>ON-STREET CITY OF SD PARKING AREAS</b>						
<b>Southwest On-street Parking: B, C, F, I</b>	105		<i>Concept calls for the loss of 16 spaces due to ROW width restrictions. Another 6 spaces were lost due to the requirement for tree planter areas to provide a streetscape edge.</i>	84	-21	20.0%
<b>Northeast On-street Parking: A, D, E, G, H</b>	160		<i>Parking removed to accommodate project 2-way cycle track</i>	0	-160	100%
<b>City of SD ROW SPACES</b>	<b>265</b>			<b>84</b>	<b>-181</b>	<b>-68.3%</b>
<b>ALL LOTS</b>	<b>KTU+A EX. COUNT 2,854</b>	<b>Count Without Trolley, Pay &amp; Park, BAE &amp; on- street lots. (KTU+A's NAASCO Count) 1,615</b>		<b>KTU+A PROPOSED COUNT 2,598</b>	<b>KTU+A PROPOSED LOSSES -256</b>	<b>KTU+A PROPOSED LOSS % -9.0%</b>