4 Recommended Bikeway Layout, Streetscapes and Parking

Recommended Bikeway Layout and Parking Configuration

It was a goal of this project to limit bikeway development impacts on adjacent parking as much as possible, and to strive to confine the footprint of the Bayshore Bikeway along Harbor Drive to fit within the public right-of-way. In addition, the desired configuration included the retention of the existing number of travel lanes on Harbor Drive, as well as the median and turn lanes, new Class 2 bike lanes in both directions and a new Class 1 bike path on the northeast side. All of these features needed to fulfill minimum facility standards, such as mandated travel lane and bicycle facility widths and buffering. Their combined widths constituted a minimum of 112 feet of right-of-way, and ranged up to 120 feet, depending upon available right-of-way.

Prior to the final site plan layout, agreement was reached on parking stall width and depth and the frequency of trees per number of parking spaces. The study parking layouts therefore employed current City of San Diego standards. In the interests of space efficiency, the adjacent parking configurations shown on the following layout sheets emulated as much as possible any existing arrangements, though this was not always possible since much of the existing parking did not meet current City of San Diego standards.

The Bayshore Bikeway was then laid out in detail in conjunction with the parking lot design discussed in the previous section. Ideal and minimum cross-sections were explored with various potential barrier options and a refined site plan was developed for the entire corridor. A three-dimensional model was also created and used for creating a number of the following figures. The base map uses an updated aerial background and an overlay of parcels and rights-of-way developed for use in project analysis. Topographic data were obtained from the Port District and NASSCO.

Accommodating all of the desired features was accomplished by making use of the existing underutilized median width as new roadway surface. This allowed pavement expansion inward, limiting right-of-way impacts. However, this still resulted in the loss of some on-street parking spaces, as well as some within the immediately adjacent parking lots. It should be noted that the exact limits of the right-of-way shown should be considered good approximations only, because while the mapping used for this study was the most accurate available, it should not be relied upon as definitive. Any further engineering and design studies should utilize up-to-date survey base mapping.

The following pages labeled Figures 19 to 28: Recommended Trail Layout and Parking Reconfiguration, are plan view layouts illustrating the desired configuration adapted to fit within the variable right-of-way widths along the Harbor Drive corridor. For an overall key map view of the 10 interconnected sheets of design plans, see Figure 18: Key Map for Recommended Bayshore Bikeway Layout and Parking Reconfiguration. Note that the sheet order runs from southeast to northwest, from 32nd Street to Park Boulevard. They illustrate the recommended configuration, including landscape enhancements and lighting. In the lower left corner of each sheet are enlarged views of street sections with typical dimensions. See Figures 38 to 41: Cross Sections, for more detailed three-dimensional model views of these section locations.

The standard sheet legend color scheme clarifies where median reductions occurred, as well as where various paving types would be installed. In general, roadway and parking lot paving would be asphalt with enhanced paving within sections of the median too narrow for landscaping. The Class 2 bike paths are shown as light gray to distinguish them visually from the travel lanes, but would also be asphalt as in integral part of the Harbor Drive surface. In contrast, the Class 1 bike path (cycle track) itself would be concrete. While more costly than asphalt initially, its life cycle costs should be less due to greater longevity and resistance to uplift. Cycle track crossings of driveways and roadway intersections are shown in green, the accepted color application for such situations. This pavement coloring technique for such transition zones was recently approved for use in California.

These sheets illustrate adjacent parking lot reconfiguration and access points, some of which were relocated to accommodate the Bayshore Bikeway. On Figures 19 through 24, for example, the adjacent parking configuration now reflects current City of San Diego standards. The existing layout immediately adjacent to the roadway was changed from straight-in to angled parking to accommodate the space needed for the Bayshore Bikeway. In general, this resulted in an overall reduction in the number of parking spaces. In addition, existing configurations have generally substandard aisle widths, stall dimensions and access points, and applying current standards to these areas invariably decreased capacity. Some parking spaces were gained, however, due to efficiencies gained from marked parking spots versus allowing the driver to decide on how much space should be left between parked vehicles.

In terms of specific improvements shown on these sheets, the intersection of Belt Street on Figure 20 shows alterations to this location in terms of overall safety and vehicle throughput. Turn lanes were added on Harbor Drive to allow access to the parking lot from both directions, while one-way circulation within the parking lot was retained.

On Figures 21 and 25, additional southbound left turn only lanes were added at 28th Street and Cesar Chavez parkway to reflect the City of San Diego's Barrio Logan Community Plan Update recommendations.

On Figure 22, an existing gunite wall and on-street parallel parking do not provide enough space for the desired configuration. A new retaining wall set further back from the roadway is needed to accommodate the Bayshore Bikeway configuration within this segment. Crossing the existing rail line at this location also required more space than currently exists in order to avoid a less than 90 degree crossing of the tracks.

On Figure 23, a new parking lot access from Harbor Drive was aligned with Sicard Street to replace the existing substandard driveways in this area. Access from southbound Harbor Drive would now occur at a signalized intersection from a designated left turn only lane. Another existing entrance at Schley Street, where drivers are forced to perform unsafe and illegal maneuvers to enter and leave the parking lot, has been changed to one-way for safety and limited space due to an adjacent power line tower.

Figures 27 and 28 show a cycle track cantilevered off an existing bridge over the rail yard southeast of Park Boulevard. This is just one of several potential options to accommodate the Bayshore Bikeway over this bridge, which are addressed later in this section under Figure 31: Alternative Harbor Drive Bridge Modifications.

The parking lot and roadway layout was supplemented with conceptual drainage and stormwater runoff plans by which directional flows were to be intercepted within landscape areas or detention, retention or percolation basins. Where space was particularly restricted, in-line filters in catch basins were considered. Where possible, bio-swales would be used to treat runoff, but it was intended that most runoff would be directed to landscaped bio-swales to supplement irrigation and to keep runoff on site. The latest Regional Water Quality Control Board requirements were addressed as part of this effort.

Optional Roadway Modifications

Figures 29 and 30: Alternative Roadway Modifications and Repair Levels illustrate four options in implementing the Bayshore Bikeway. These are generic sections that apply to the entire corridor and not just a specific location. Starting with Option 1: Minimal Roadway Improvements and ranging through Option 4: Full Roadway Rebuild, they define the various levels of construction that could potentially be considered, from least amount of construction to most comprehensive.

Option 1: Minimal Roadway Improvements, would add new roadway paving only where existing bare dirt median was converted to paved roadway surface. All other roadway surfaces would be retained. Existing roadway crowning would therefore also be retained and the only bio-swales would be outside the right-of-way and within the remaining median.

Option 2: Moderate Roadway Improvements, would be similar to Option 1, but would include bio-swales between the existing roadway and Bayshore Bikeway, as well as make limited improvements to the roadway surface. Existing roadway crowning would be retained.

Option 3: Partial Roadway Rebuild, would be similar to Option 2, except that it would employ the existing roadway surface as a base for regrading the roadway slope to allow surface flows to run into the median bio-swale. Options 3 and 4 differ from Options 1 and 2 by providing the necessary infrastructure to collect runoff from the roadway and funnel it to the median bio-swale, which has a larger capacity than the other bio-swales. Option 3 would also address major pot-holes and other surface damage, including some grinding to reduce major lifts and allow for a complete asphalt overlay.

Option 4: Full Roadway Rebuild, would involve completely demolishing the existing roadway surface and replacing and regrading it to allow for collecting surface flows within the median bio-swale. This option would therefore involve improving the entire roadway surface.

Optional Bridge Modifications

Figure 31: Alternative Harbor Drive Bridge Modifications, specifically addresses how to accommodate Bayshore Bikeway facilities across the existing bridge over the rail yard southeast of Park Boulevard. The bridge currently supports two travel lanes each way with shoulder separating them from a sidewalk on each side. There is a K-rail in the center of the bridge, with a buffer between it and the edge of the inner lanes.

The existing roadway width is retained in Options 1 and 2, but these options do not allow for the desired Class 2 lanes in both directions as well as a Class 1 path. Option 1 retains a sidewalk on the southbound side along with a Class 2 bike lane, but no bike lane on the northbound side, where a 10 foot bike path is intended to be shared with walkers.

Option 2 has no walkway on the southbound side, but does accommodate Class 2 bike lanes in both directions. Like Option 1, walkers would share the Class 1 bike path on the northbound side. This option is able to provide this level of access by moving the K-rail slightly and eliminating its buffer.

Option 3 retains the northbound sidewalk last seen in Option 1, as well as Class 2 bike lanes in both directions, and a shared use Class 1 bike path for use by both cyclists and walkers. It does so by rebuilding the northbound side of the bridge to extend the existing cantilever and increase overall bridge width by about six feet.

Option 4 retains existing basic bridge lane configuration with minor variations, as well as the existing sidewalks, while adding Class 2 bike lanes in both directions and a Class 1 bike path. It does so by adding a cantilever structure for the bike path attached to the bridge substructure, increasing overall width by 11 feet. Some method of cantilevering like this would need to be employed to address the utility conduits that were added to this side of the bridge since the 2006 SANDAG Bayshore Bikeway Study was completed. This cantilever would place users below the existing roadway level and would need to address variations in bridge support structure caused by the oblique alignment of rail lines passing under it.

Overview Perspectives

Figures 32 to 37 are renderings of three-dimensional models of various segments of this corridor to better illustrate the character and extent of recommended development. These figures show the level of landscaping recommended and how the Class 1 bike path would be buffered from the roadway, as well as how crossings of driveways and intersections could be addressed.

Cross Sections & Detailed Perspectives

Figures 38 to 41 are specific segment sections to illustrate how the existing right-of-way would be apportioned to accommodate Bayshore Bikeway development. They relate to the sections noted on Figures 19 to 28: Recommended Trail Layout and Parking Reconfiguration. They were generated from the three-dimensional model developed for this project.

The Section 2 renderings address the Chollas Creek bridge and immediate vicinity, showing how a cantilever hung off the northbound side could accommodate the Class 1 bike path. (The section location is shown on Figure 20.) These illustrations are conceptual in nature, but some sort of cantilever would be needed to accommodate the full breadth of facilities desired. The bridge itself is wide enough to accommodate the existing two travel lanes each way and new Class 2 bike lanes by reducing median width and restriping the resulting paved surface.

The Section 6 renderings illustrate how a section of retaining wall would need to be built at this location to accommodate the existing elevation change between the bikeway and the adjacent parking lot. They also illustrate the existing condition across Harbor Drive where drivers must cross the sidewalk to park their vehicles. Otherwise, the section renderings show the typical bikeway and street configurations for most of the corridor. (The section location is shown on Figure 21.)

The Section 7 renderings illustrate the recommended configuration at the 28th Street intersection, one of the more constrained locations within the study corridor. They also show how colored pavement is planned to be used within the Class 1 bike path at intersections and driveways to make it stand out visually. (The section location is shown on Figure 21.)

The Section 8 renderings illustrate the recommended reconfiguration where some adjacent on-street parking on the bay side of Harbor Drive was removed to accommodate the planned bikeway development. The parking shown on the left side of the sections is off-street. (The section location is shown on Figure 21.)

The Section 11 renderings illustrate how the desired facilities would be accommodated in one of the most constrained segments of the study corridor, directly under the SR75 Coronado Bridge. Adjacent bridge abutments required significant median reduction. (The section location is shown on Figure 25.)

Figure 18: Key Map for Recommended Bayshore Bikeway Layout & Parking Reconfiguration

Figure 19: Sheet 1- Recommended Trail Layout & Parking Reconfiguration

REFER TO SHEET #2

13' CANTILEVERED CYCLE TRACK OVER CHOLLAS CREEK

CITY OF SAN DIEGO R.O.W.

E. HARBOR DRIVE

EXISTING PARKING SPACES: 65

PARKING LOT #6T

PROPOSED PARKING SPACES: 55

REFER TO SECTION #1 4+46.21

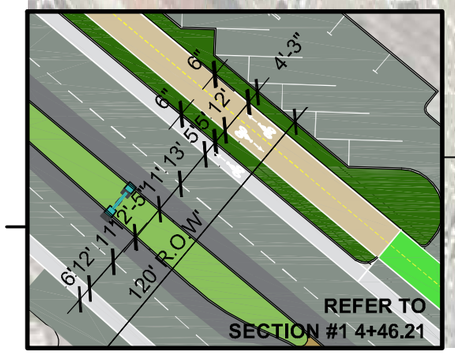
CITY OF SAN DIEGO R.O.W.

S. 32 ND STREET

CITY OF SAN DIEGO R.O.W.

BICYCLE LOOP DETECTOR

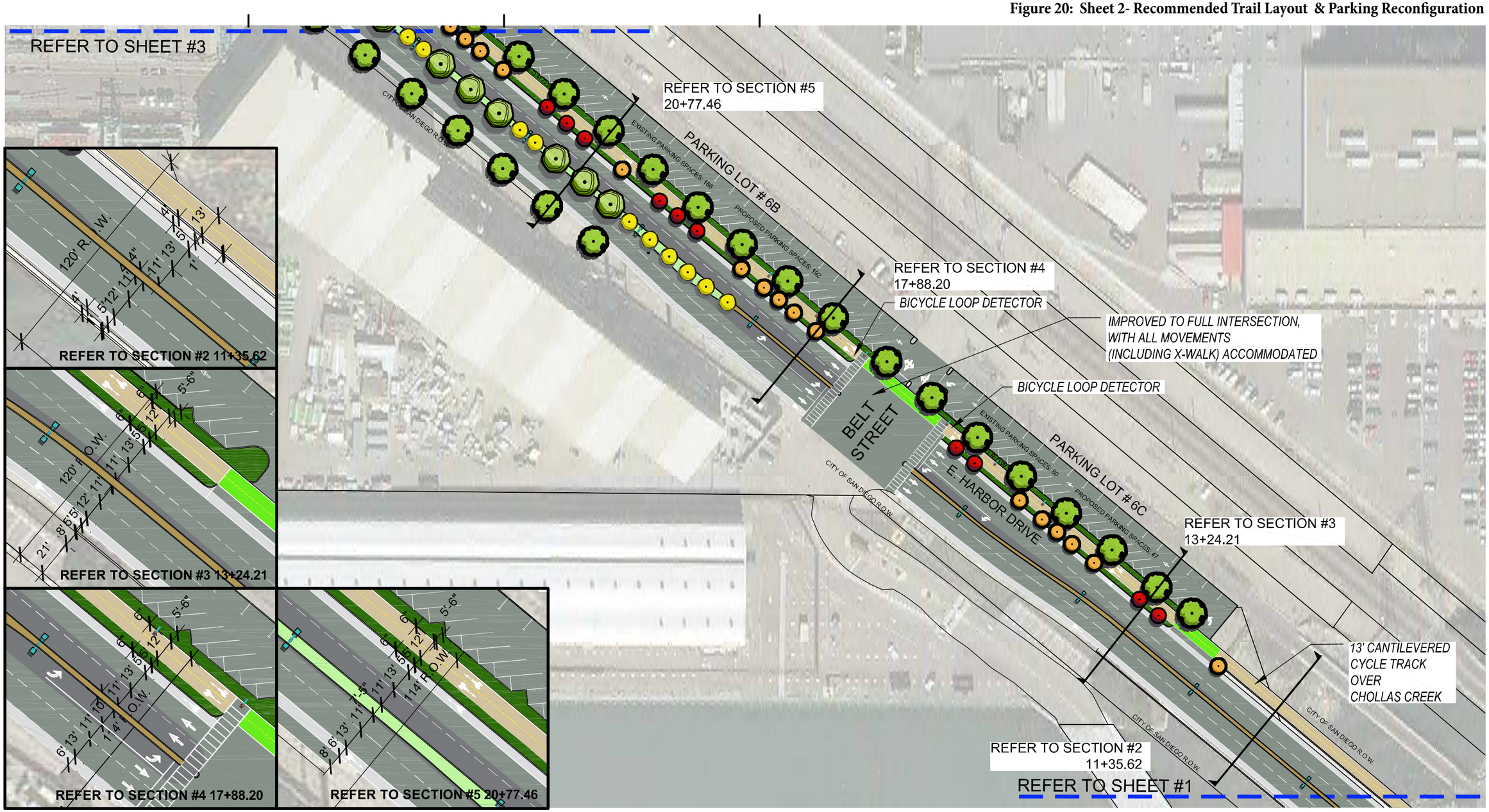
0+00.00



LEGEND

- TWO WAY CYCLE TRACK
- CYCLE TRACK ROAD CROSSING
- LANDSCAPED MEDIAN
- LANDSCAPED BUFFER
- MEDIAN REDUCTION
- CLASS 2 BIKE LANE
- ASPHALT
- ENHANCED PAVING
- PAVEMENT MARKINGS FOR BIKE LANE (TYP.)
- PROPOSED PARKING, STREET OR MEDIAN TREE (TYP.)
- CYCLE TRACK LIGHTS
- MEDIAN LIGHTS

NORTH

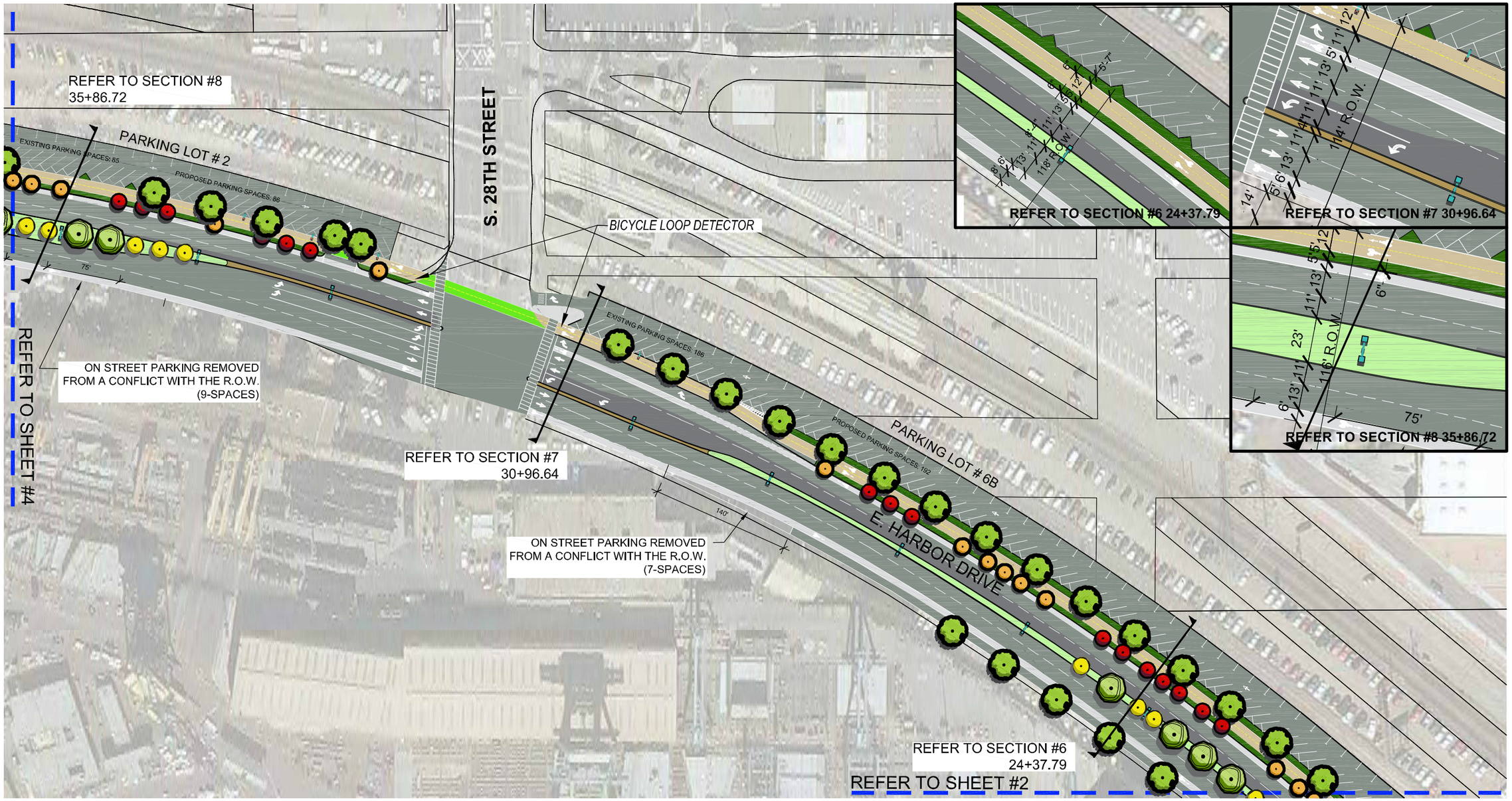


LEGEND

- TWO WAY CYCLE TRACK
- CYCLE TRACK ROAD CROSSING
- LANDSCAPED MEDIAN
- LANDSCAPED BUFFER
- MEDIAN REDUCTION
- CLASS 2 BIKE LANE
- ASPHALT
- ENHANCED PAVING
- PAVEMENT MARKINGS FOR BIKE LANE (TYP.)
- PROPOSED PARKING, STREET OR MEDIAN TREE (TYP.)
- CYCLE TRACK LIGHTS
- MEDIAN LIGHTS

NORTH

Figure 21: Sheet 3- Recommended Trail Layout & Parking Reconfiguration

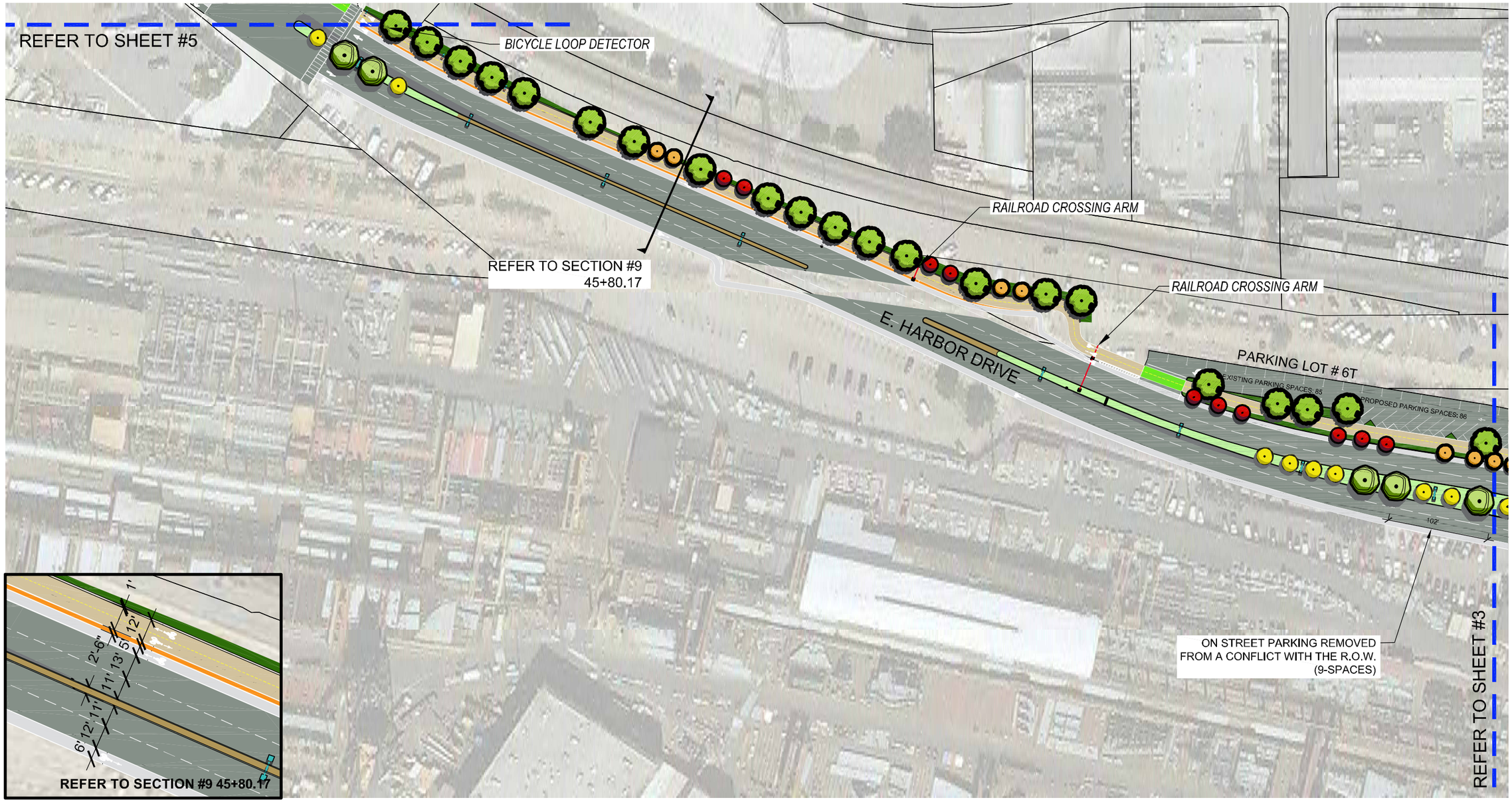


LEGEND

- TWO WAY CYCLE TRACK
- CYCLE TRACK ROAD CROSSING
- LANDSCAPED MEDIAN
- LANDSCAPED BUFFER
- MEDIAN REDUCTION
- CLASS 2 BIKE LANE
- ASPHALT
- ENHANCED PAVING
- PAVEMENT MARKINGS FOR BIKE LANE (TYP.)
- PROPOSED PARKING, STREET OR MEDIAN TREE (TYP.)
- CYCLE TRACK LIGHTS
- MEDIAN LIGHTS

NORTH

Figure 22: Sheet 4- Recommended Trail Layout & Parking Reconfiguration

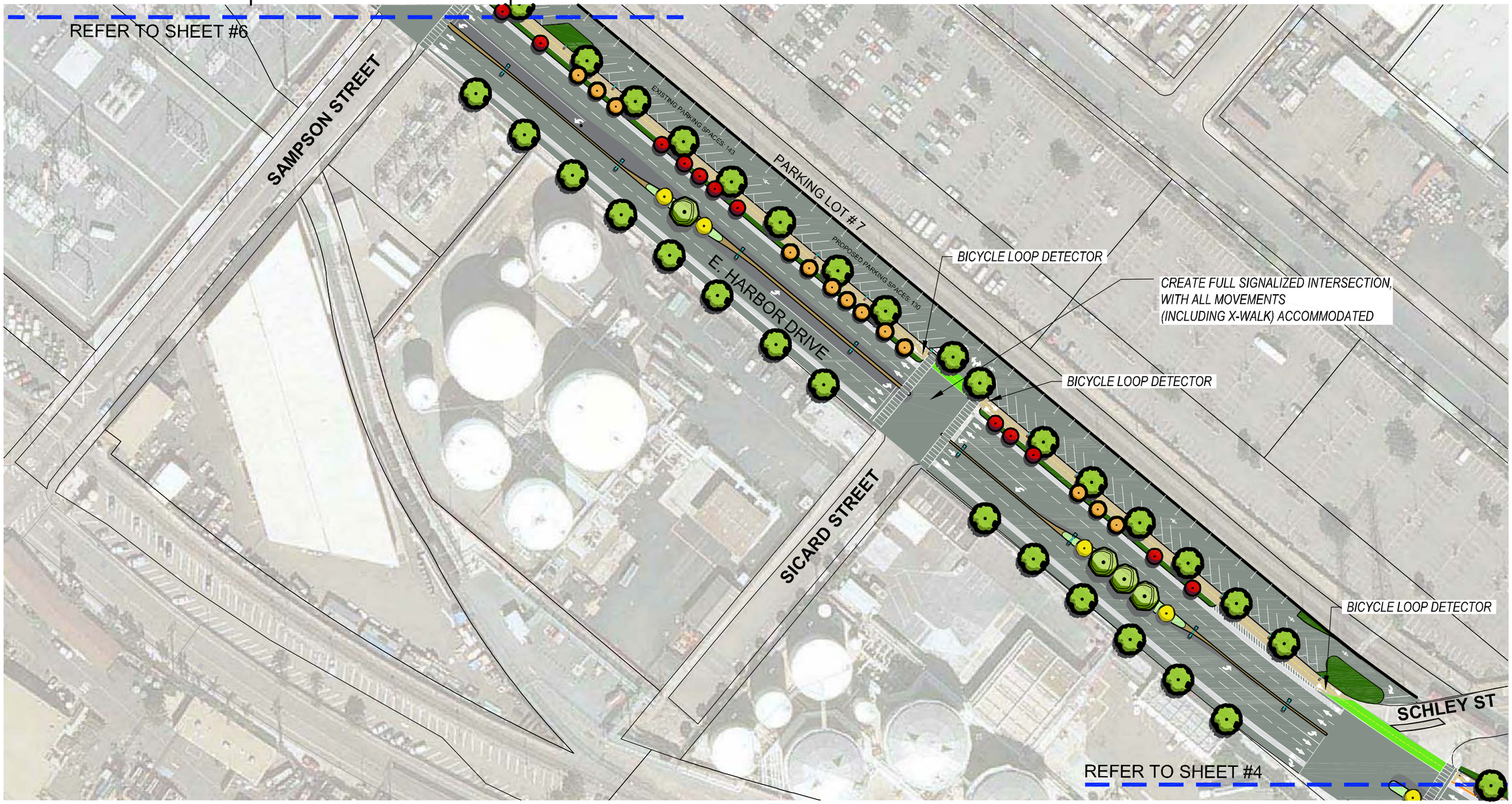


LEGEND

- TWO WAY CYCLE TRACK
- CYCLE TRACK ROAD CROSSING
- LANDSCAPED MEDIAN
- LANDSCAPED BUFFER
- MEDIAN REDUCTION
- CLASS 2 BIKE LANE
- ASPHALT
- ENHANCED PAVING
- PAVEMENT MARKINGS FOR BIKE LANE (TYP.)
- PROPOSED PARKING, STREET OR MEDIAN TREE (TYP.)
- CYCLE TRACK LIGHTS
- MEDIAN LIGHTS

NORTH

Figure 23: Sheet 5- Recommended Trail Layout & Parking Reconfiguration

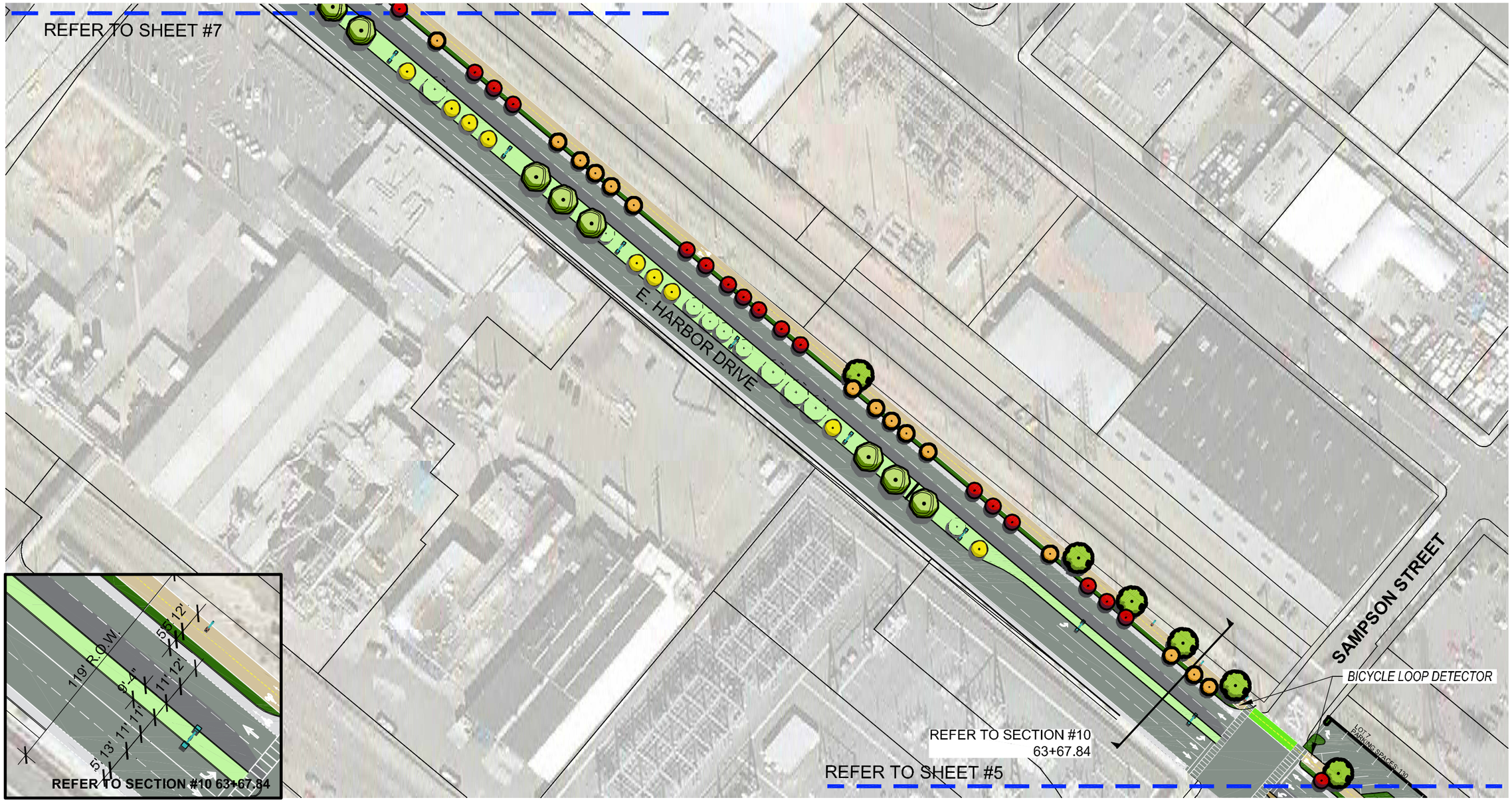


LEGEND

- TWO WAY CYCLE TRACK
- CYCLE TRACK ROAD CROSSING
- LANDSCAPED MEDIAN
- LANDSCAPED BUFFER
- MEDIAN REDUCTION
- CLASS 2 BIKE LANE
- ASPHALT
- ENHANCED PAVING
- PAVEMENT MARKINGS FOR BIKE LANE (TYP.)
- PROPOSED PARKING, STREET OR MEDIAN TREE (TYP.)
- CYCLE TRACK LIGHTS
- MEDIAN LIGHTS

NORTH

Figure 24: Sheet 6- Recommended Trail Layout & Parking Reconfiguration



LEGEND

- TWO WAY CYCLE TRACK
- CYCLE TRACK ROAD CROSSING
- LANDSCAPED MEDIAN
- LANDSCAPED BUFFER
- MEDIAN REDUCTION
- CLASS 2 BIKE LANE
- ASPHALT
- ENHANCED PAVING
- PAVEMENT MARKINGS FOR BIKE LANE (TYP.)
- PROPOSED PARKING, STREET OR MEDIAN TREE (TYP.)
- CYCLE TRACK LIGHTS
- MEDIAN LIGHTS

NORTH

Figure 25: Sheet 7- Recommended Trail Layout & Parking Reconfiguration

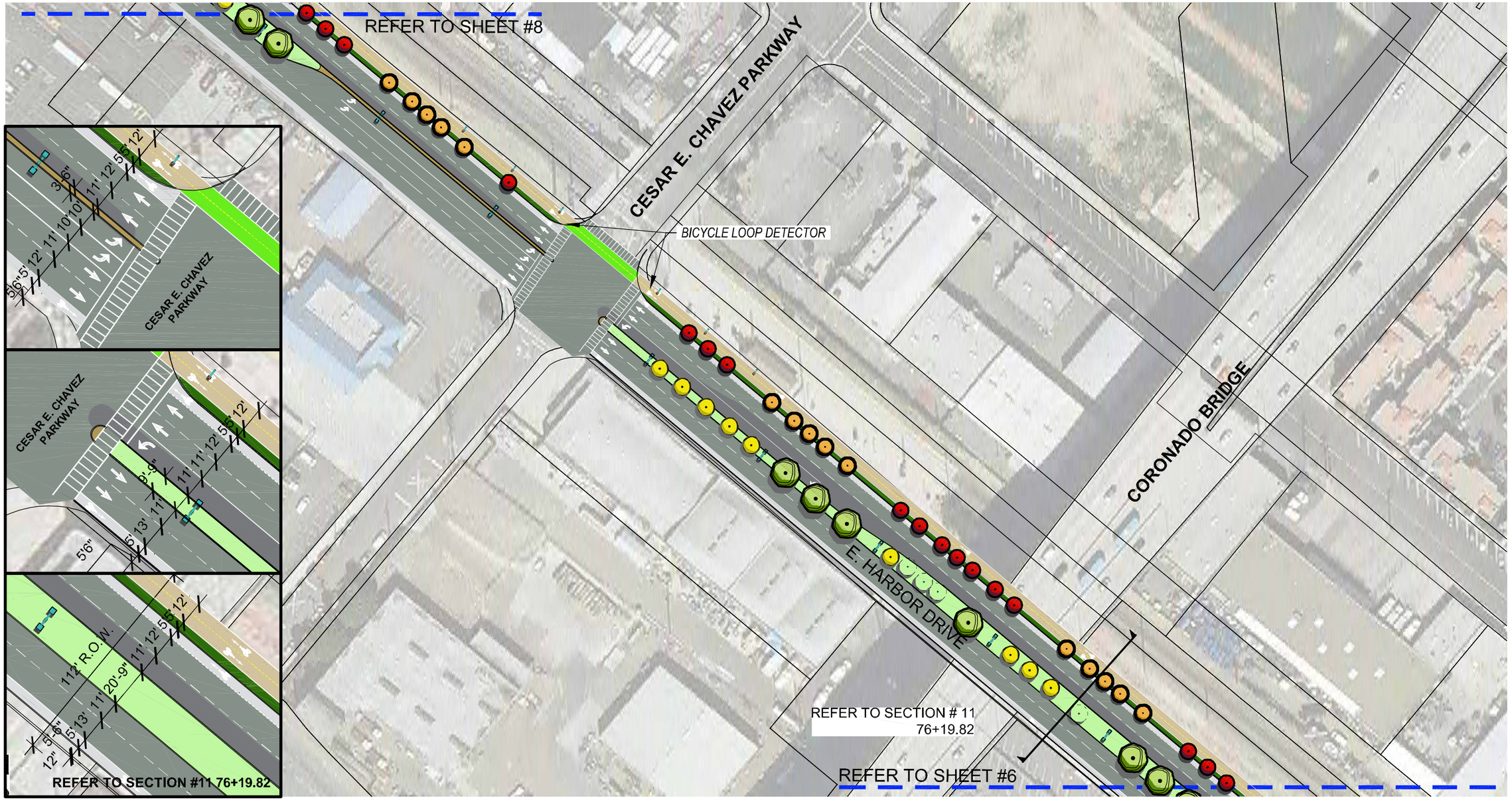
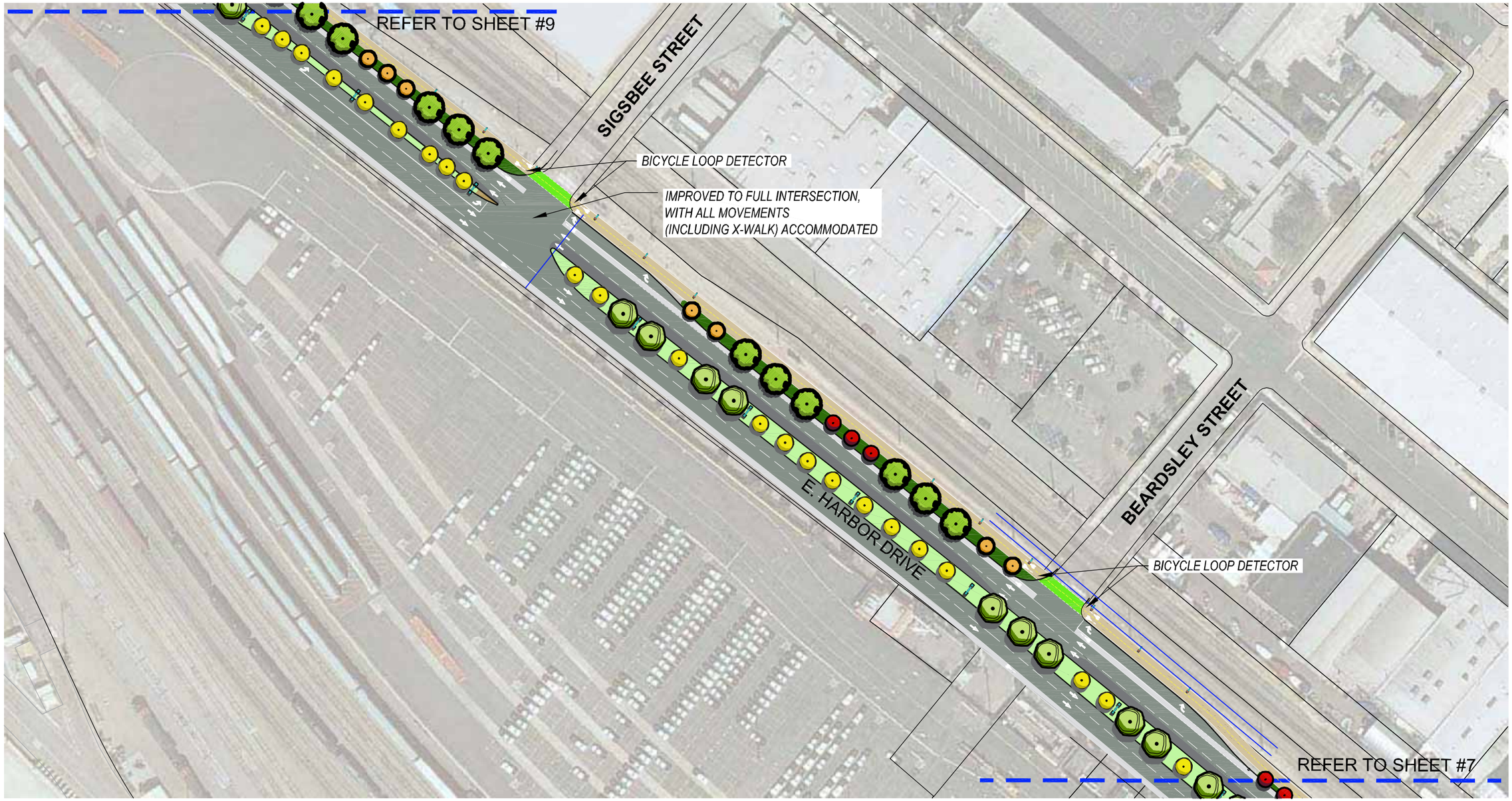


Figure 26: Sheet 8- Recommended Trail Layout & Parking Reconfiguration

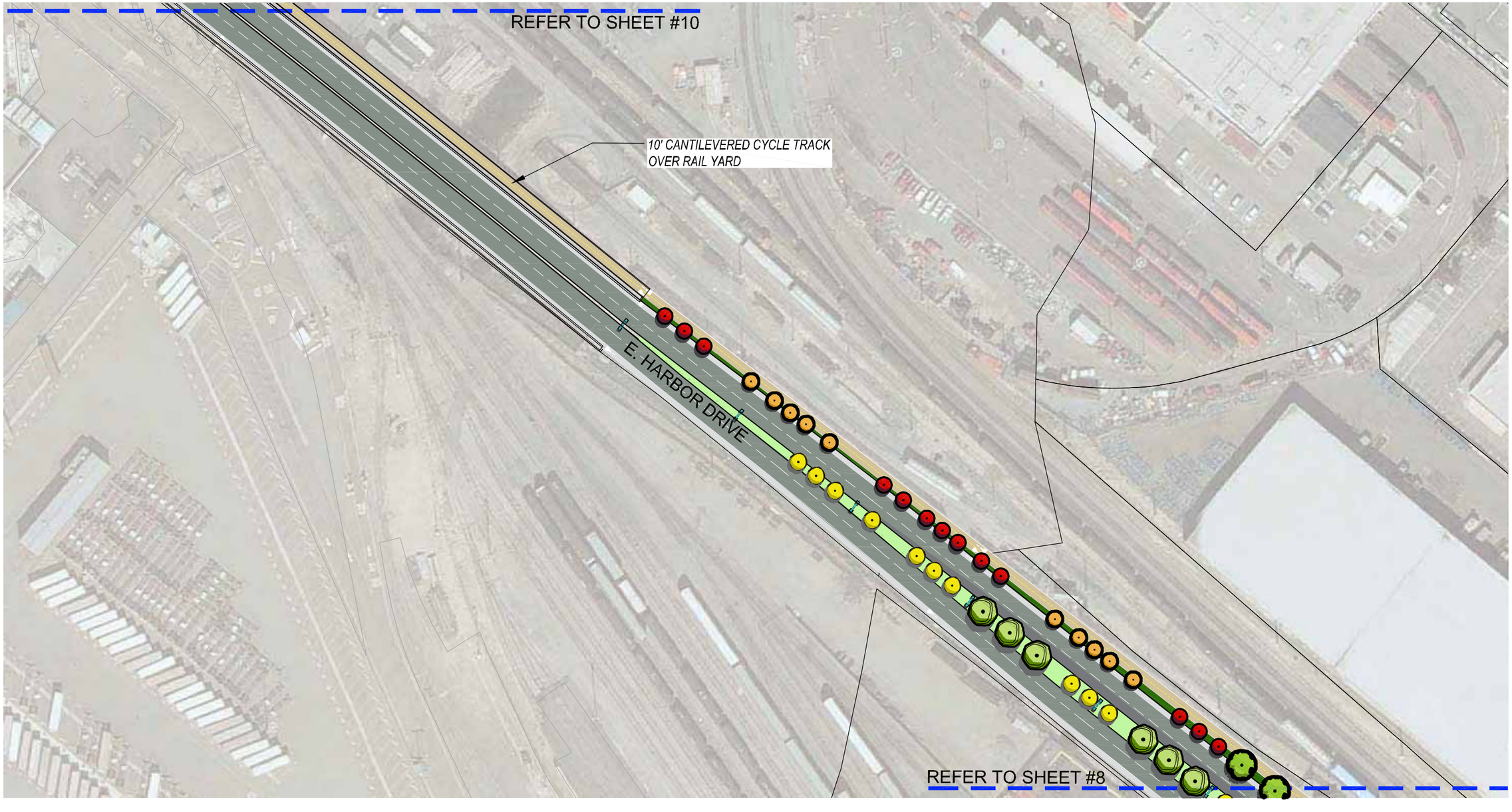


LEGEND

- TWO WAY CYCLE TRACK
- CYCLE TRACK ROAD CROSSING
- LANDSCAPED MEDIAN
- LANDSCAPED BUFFER
- MEDIAN REDUCTION
- CLASS 2 BIKE LANE
- ASPHALT
- ENHANCED PAVING
- PAVEMENT MARKINGS FOR BIKE LANE (TYP.)
- PROPOSED PARKING, STREET OR MEDIAN TREE (TYP.)
- CYCLE TRACK LIGHTS
- MEDIAN LIGHTS

NORTH

Figure 27: Sheet 9- Recommended Trail Layout & Parking Reconfiguration

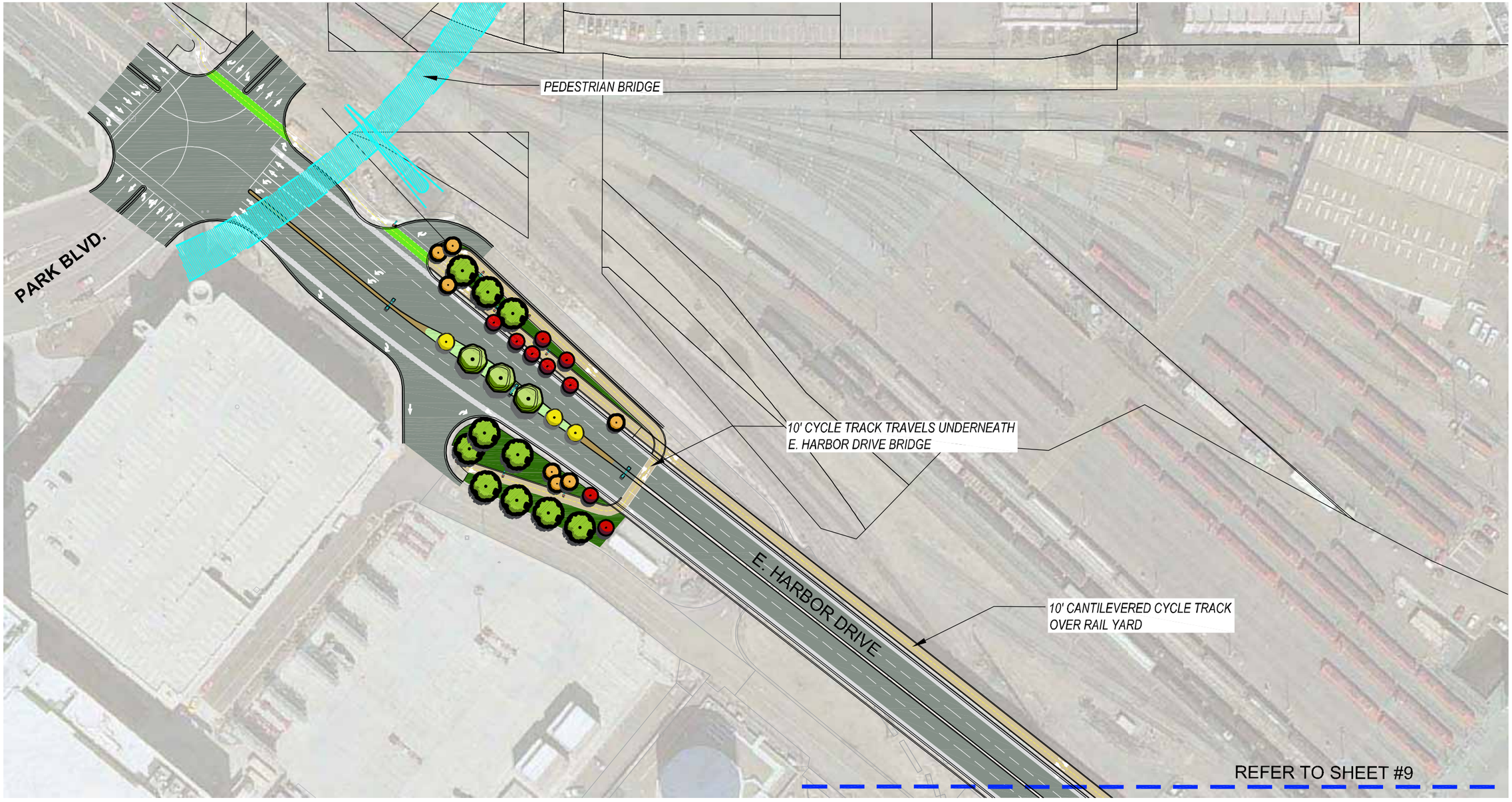


LEGEND

- TWO WAY CYCLE TRACK
- CYCLE TRACK ROAD CROSSING
- LANDSCAPED MEDIAN
- LANDSCAPED BUFFER
- MEDIAN REDUCTION
- CLASS 2 BIKE LANE
- ASPHALT
- ENHANCED PAVING
- PAVEMENT MARKINGS FOR BIKE LANE (TYP.)
- PROPOSED PARKING, STREET OR MEDIAN TREE (TYP.)
- CYCLE TRACK LIGHTS
- MEDIAN LIGHTS

NORTH

Figure 28: Sheet 10- Recommended Trail Layout & Parking Reconfiguration



LEGEND

- TWO WAY CYCLE TRACK
- CYCLE TRACK ROAD CROSSING
- LANDSCAPED MEDIAN
- LANDSCAPED BUFFER
- MEDIAN REDUCTION
- CLASS 2 BIKE LANE
- ASPHALT
- ENHANCED PAVING
- PAVEMENT MARKINGS FOR BIKE LANE (TYP.)
- PROPOSED PARKING, STREET OR MEDIAN TREE (TYP.)
- CYCLE TRACK LIGHTS
- MEDIAN LIGHTS

NORTH