

**JUNE 2015**

# **HONOLULU COMPLETE STREETS IMPLEMENTATION STUDY LOCATION REPORT**

## **Ward Avenue from Halekauwila Street to Beretania Street (FINAL)**



City & County of Honolulu  
Department of Transportation Services

Prepared by  
SSFM International

**SSFM**  
INTERNATIONAL

With  
Blue Zones  
Nelson/Nygaard

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# Summary: Ward Avenue from Halekauwila Street to South Beretania Street

*Primary Urban Center Planning Area, Kakaako Sub-Area, Council District V*

## NEED FOR PROJECT

Ward Avenue from Halekauwila Street to South Beretania Street contains a large shopping center, the Neal Blaisdell Center, and several medical offices, making it a major destination for many users. The future site of the Kakaako rail station plus future transit oriented development will bring even more street users. Today most of Ward Avenue's sidewalks have no buffer between the sidewalk and the street, putting pedestrians directly adjacent to high volume auto traffic. No bicycling facilities exist.

Applying Complete Streets to this location will: 1) provide excellent bicycling facilities, 2) create a vibrant streetscape with trees and landscaping, 3) create safer street crossings, and 4) prepare Ward Avenue for future transit oriented development and investment.

## SUMMARY OF RECOMMENDATIONS

The recommendations for Ward Avenue are intended to improve facilities for walking and bicycling while maintaining auto capacity. The designs will bring streetscaping up to HCDA standards and ensure multimodal access to area destinations. Recommendations include:

- Expand sidewalk width to 10 feet with a 5 foot landscaped buffer.
- Add street trees to protect pedestrians and create a more pleasant walking environment.
- Build a 10 foot wide two-way cycle track with a 2 foot buffer from traffic, bicycle signals, and bike boxes.
- Add curb extensions to shorten crossing distances and reduce turning speed.
- Relocate the Blaisdell Center crosswalk and protect unsignalized crossings with setback stop lines.
- Install a raised median where turn lanes are not needed.



## COST BREAKDOWN

Total: \$6,832,380.52

Design: \$386,738.52

Construction: \$6,445,642.00

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# Part One: Introduction, Study Area, & Need for Project

## **WHAT ARE COMPLETE STREETS?**

Complete Streets is a transportation policy and design approach. It aims to create a comprehensive, integrated network of streets that are safe and convenient for all people whether traveling by foot, bicycle, transit, or automobile, and regardless of age or ability. Complete Streets moves away from streets designed with a singular focus on automobiles towards a design approach that is context-sensitive, multi-modal, and integrated with the community’s vision and sense of place. The end result is a road network that provides safe travel, promotes public health, and creates stronger communities.

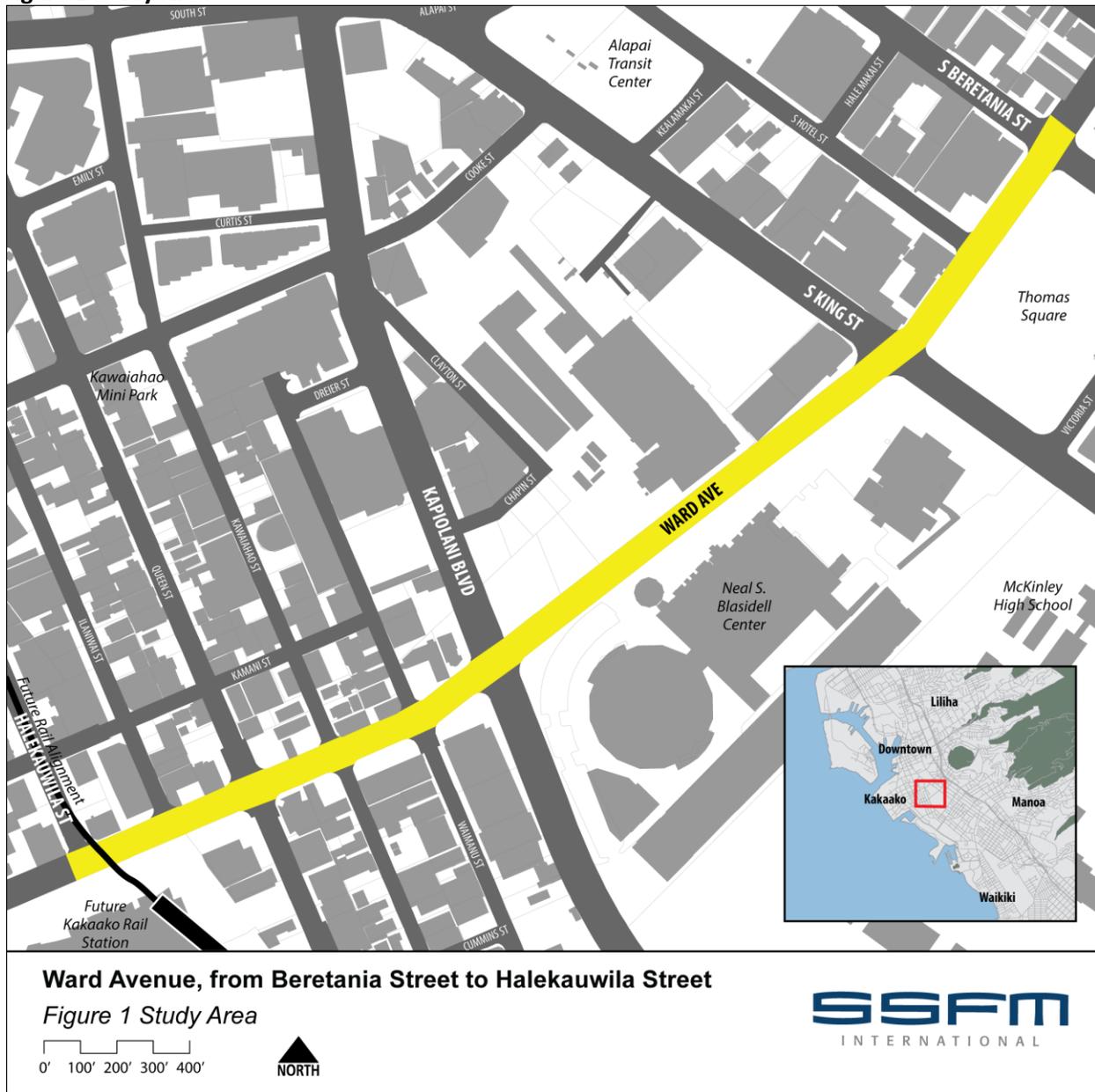
Implementing Complete Streets requires integrating transportation with community planning. Changes are brought about by transforming the built environment. Engineers, planners, architects, landscape architects, and urban design professionals work along with health providers, business leaders, elected officials, community organizations, and residents to promote Complete Streets implementation. Actively engaged community members in Complete Streets are important participants and stakeholders. They help to ensure that efforts are relevant to the community’s use, values, and priorities for the neighborhood.

The State of Hawaii adopted Complete Streets in 2009 and required each County to follow suit. In May 2012, the Honolulu City Council adopted a “Complete Streets” policy and passed Ordinance 12-15. The City and County of Honolulu is now taking aggressive steps to implement Complete Streets by updating policies, applying guidelines during maintenance and paving projects, and designing projects in specific locations. The City and County of Honolulu selected fourteen sites across the island of Oahu for in-depth study to illustrate how Complete Streets can be applied in a specific location. This report describes one of the selected sites and presents recommendations to implement Complete Streets at that location.

## **STUDY AREA**

The subject location of this assessment is Ward Avenue from Halekauwila Street to Beretania Street (Figure 1). It is located in the Primary Urban Center Planning Area, Sub-Area of Kakaako, in City Council District V. Ward Avenue is a major mauka-makai (mountainside-oceanside) corridor running from H-1 to Ala Moana Boulevard. Uses along Ward Avenue range from medical facilities to parks, major shopping centers, and event facilities.

Figure 1 Study Area



## NEED FOR PROJECT

This location was selected for Complete Streets treatment because of its high traffic volumes and numerous major destinations. At the makai end, Ward Avenue is home to a large shopping center between Auahi and Queen Streets. Just mauka of Kapiolani Boulevard sits the Neal Blaisdell community center. Closer to Beretania Street on the west side of Ward Avenue is the Straub Hospital complex.

Ward Avenue already attracts many types of users at all times of day to these residential, employment, retail, and service destinations. A large new residential development at the intersection with Kapiolani Boulevard, plus plans for future rail service in the area make it clear that vibrancy and intensity of use will continue to increase along this already busy corridor.

This presents an opportunity to make Ward Avenue a multimodal hub. Improvements can make the street safer and more attractive for current and future users. Given the high traffic volumes on Ward Avenue, multimodal access will ensure that people can live on and visit the destinations along the corridor without adding a large number of vehicle trips.

Current challenges to walkability include sidewalks that are not well buffered from auto traffic, and that lack shade. Most intersections feature turning lanes, making long crossings for pedestrians. They also feature wide turning radii, increasing the speed at which vehicles can make turns. During a walking audit conducted in 2014, many older adults were observed crossing the street toward the mauka end of Ward Avenue near Straub Hospital. These vulnerable users in particular would benefit from safer and shorter crossings.

No bicycling facilities exist along Ward Avenue. The Oahu Bicycle Plan shows a future bicycle route along it. However, given the high traffic volumes, a signed and shared route alone will not appeal to the majority of bicycle riders.

By adding trees, bicycle facilities, and improved walking facilities, Ward Avenue has the potential to continue to develop without increased congestion.



*The north end of Ward Avenue serves the Hospital and experiences a high volume of pedestrian traffic.*



*The Blaisdell Center between Kapiolani and King Streets is a major pedestrian generator at times.*

## EXISTING LAND USE, TRANSPORTATION FACILITIES, AND USAGE PATTERNS

### ***Land Use, Transportation Facilities and Traffic Accidents***

Figure 2 depicts existing land use, transportation facilities, and traffic accident data within the study area. The makai end of Ward Avenue is within the Kakaako Community Development District. The redevelopment of this area is controlled by the Hawaii Community Development Authority (HCDA), which has established certain streetscape standards. The area makai of Waimanu Street sits within the central Kakaako neighborhood. This is the site of a large shopping center, a portion of which is slated to become a future rail station. The Kapiolani and Thomas Square neighborhoods at Kapiolani Boulevard and near King Street, respectively, are also sub-areas of the Kakaako Community Development District. Mauka of King Street, Ward Avenue contains mixed-use businesses and a historic park, Thomas Square.

Major destinations include the shopping center near Queen Street, the Blaisdell Community Center, Thomas Square Park, and Straub Hospital. Walk and transit scores rank above average (high 80s to low 90s and mid to high 70s respectively) in the areas surrounding the project site, which indicates a favorable pedestrian and transit environment<sup>1</sup>. Continuous sidewalks exist on both sides of the street, but only have buffers toward the mauka end. Crosswalks are generally well-spaced, from 300-475 feet, but three are uncontrolled (two at the Blaisdell Center and one at Ilaniwai Street). Bike scores range from the low to upper 60s, likely due to a lack of bicycle facilities.

For most of its extent, Ward Avenue consists of two lanes per direction plus a turn lane. On-street off-peak parking is present on the Ewa side of the street between Kapiolani Boulevard and King Street.

From 2011-2014, 100 accidents occurred along or adjacent to Ward Avenue, with the highest number at Beretania Street and Ward Avenue. Of the 100 accidents, eight involved bicyclists and 20 involved pedestrians.

### ***Usage Patterns***

Table 1 describes existing usage patterns by pedestrians, bicyclists, vehicles, and transit users in the study area. Data on pedestrian use is not available, however a walking audit conducted in the summer of 2014 indicated anecdotally that there is a high level of pedestrian use, especially mauka of Kapiolani Boulevard. Few cyclists were observed.

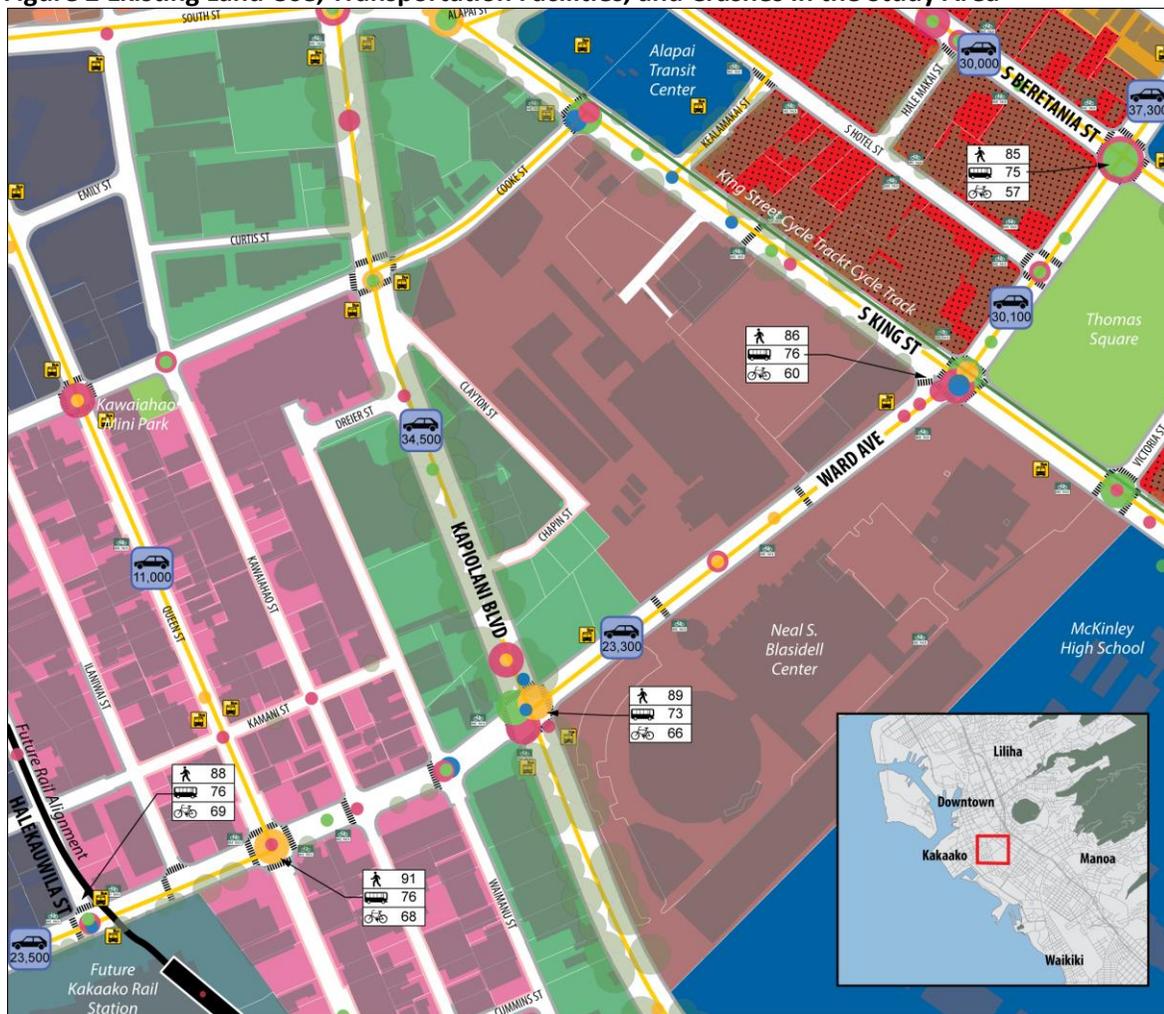
Thirteen bus lines serve the corridor, and ridership is high, with more than 3,000 daily users.

Traffic volumes are high at around 30,000 per day.

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<sup>1</sup> Walk, transit, and bike scores are an index of walkability, transit accessibility, and bikeability (respectively) based on proximity to amenities and destinations (e.g. grocery stores, schools, parks, restaurants, and retail). Walk scores were developed by "Walk Score," a private company ([www.walkscore.com](http://www.walkscore.com)).

Figure 2 Existing Land Use, Transportation Facilities, and Crashes in the Study Area



**Ward Avenue, from Beretania Street to Halekauwila Street**



**Table 1 Existing Usage Patterns along Ward Avenue**

Pedestrian use	High. The Blaisdell Center and Straub Hospital are major trip generators.
Bicycle use	Low
Transit use (Average daily boardings + alightings) (Source: <i>Global Stop Summary by Trip</i> , TheBus, 2012)	<p><u>Stops</u></p> <p>Ward + Halekauwila: 251                      Ward + Kapiolani : 1,089                      Ward + King: 1,009                      Ward + Beretania: 970</p> <p><u>Boardings and Alightings by Route</u></p> <p>Route 1 - 739 (ADR)                      Route 13 - 238 (ADR)                      Route 15 - 138 (ADR)                      Route 1L - 160 (ADR)                      Route 2 - 910 (ADR)                      Route 2L - 80 (ADR)                      Route 3 - 353 (ADR)                      Route 40 - 100 (ADR)                      Route 52 - 93 (ADR)                      Route 53 - 79 (ADR)                      Route 6 - 251 (ADR)                      Route 62 - 13 (ADR)                      Route 9 - 163 (ADR)</p>
Daily Vehicular Volumes (Source: <i>Historical Traffic Station Maps</i> , HDOT, 2013-2009)	<p>Ward Avenue: Hotel Street to Beretania Street (2011) – 31,175                      Beretania Street: Hale Makai Street to Alapai Street (2011) – 30,014                      Beretania Street to Kinau Street (2011) – 34,545                      Ward Avenue: Kapiolani Boulevard to King Street (2011) – 29,573                      Kapiolani Boulevard: Dreier Street to Chapin Street (2013) – 34,532                      Queen Street: Cummins Street to Ward Avenue (2011) – 7,791                      Ward Avenue: Auahi Street to Halekauwila Street (2011) – 23,483</p>
Use by trucks or large vehicles	N/A
Peak periods (Source: <i>Historical Traffic Station Maps</i> , HDOT, 2013)	<p>Ward Avenue: Hotel Street to Beretania Street (2011) - 11:00 AM to 12:00 PM, 4:30 PM to 5:30 PM                      Ward Avenue: Kapiolani Boulevard to King Street (2011) - 7:30 AM to 8:30 AM, 4:15 PM to 5:15 PM                      Beretania Street: Hale Makai Street to Alapai Street (2011) - 7:15 AM to 8:15 AM, 4:15 PM to 5:15 PM                      Queen Street: Cummins Street to Ward Avenue (2011) - 11:00 AM to 12:00 PM, 4:45 PM to 5:45 PM                      Ward Avenue: Auahi Street to Halekauwila Street (2011) - 11:00 AM to 12:00 PM, 1:00 PM to 2:00 PM                      Beretania Street to Kinau Street (2011) - 11:00 AM to 12:00 PM, 3:30 PM to 4:30 PM                      Kapiolani Boulevard: Dreier Street to Chapin Street (2013) - 7:15 AM to 8:15 AM, 4:30 PM to 5:30 PM</p>

<p>Accident History Sources: <i>State of Hawaii Motor Vehicle Accident Reports</i>, Honolulu Police Department, Records Division, 2011-2014</p>	<p>Between 2011 and 2014, 100 crashes occurred along or adjacent to Ward. More than half the crashes involved cars, trucks, or motorcycles only. Eight bicyclists and 20 pedestrians were injured. The most dangerous location was at Beretania and Ward, where 34 crashes occurred. Ward Avenue and King Street and Ward Avenue and Kapiolani Boulevard are the next most dangerous intersections.</p>
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## Part Two: Field Work and Key Findings



*A walking audit brought together 23 leaders from the City and County of Honolulu, State agencies, and community stakeholders including a local employer and Hawaii Bicycling League.*

### **STAKEHOLDER INPUT**

The findings of this report are informed by input received from community stakeholders that participated in a walking audit along Ward Avenue. SSFM International, Inc., and a team of national consultants, including Dan Burden, national walkability expert, led the walking audit on July 17, 2014. The following stakeholders participated in the walking audit:

- City and County of Honolulu Department of Transportation Services (DTS): Mark Garrity, Kelly Cruz, Erron Redoble, Randall Kurashigo, Craig Chung, Chris Sayers, Yamato Milner, Mark Kikuchi, Rika Uechi, Diane Toramoto, Nial Miyata
- Jonathan Tungpalan of Representative Saiki’s office, Carol Fukunaga and Chris Delaney from the City Council office;
- Daniel Alexander of the Hawaii Bicycling League (HBL);;
- Roy Bumgarner and Pam Wood of the Imperial Plaza;
- Isaiah Sato of the Howard Hughes Corporation;
- Serge Krivaby of Oliver McMillan;
- Consultant Team: Mike Packard, Alan Fujimori, and Michael Motoki of SSFM, Dan Burden and Samantha Thomas of Blue Zones, and Stephanie Wright of Nelson Nygaard.

The walk audit group discussed conditions that affect active living, social connectivity, and access to daily needs. The participants noted that the street was unpleasant to walk along due to large intersections, high traffic volumes, and lack of streetscaping and shade. Land uses such as the shopping center at Queen Street with large parking lots fronting the street contribute to the auto-oriented nature of the area. Participants expressed fears about using the unprotected crossings located along the corridor due to the

high traffic volumes and the fact that there are often five lanes (two per direction plus a turn lane) to cross. People were extremely enthusiastic about the idea of adding protected bike lanes along Ward Avenue.



*Participants shared visions, barriers, and opportunities for Complete Streets and safer routes to school along Ward Avenue.*

*Photo descriptions: Top row - Members of DTS and participants experience Ward Avenue; Middle row - Members of the DTS and public explain their ideas and concerns; Bottom row - Walk audit participants learn about the corridor's land use and transportation characteristics before the tour.*

## HONOLULU COMPLETE STREETS PROJECT IMPLEMENTATION STUDY



*During the one hour walking audit of Ward Avenue, many people were observed walking and taking bus transit. Photo descriptions clockwise from top left: New development at intersection with Kapiolani Boulevard; pedestrian and cyclist crossing in a marked crosswalk at a signal; Wide street without pedestrian buffer near Blaisdell Center; Greener and more pleasant walking environment closer to Beretania Street; Woman walking along Thomas Park; High number of transit riders board and alight at Kapiolani Boulevard and Ward Avenue.*

## FINDINGS

This section summarizes key findings based on observations made by the consultant team with input from Department of Transportation Services staff and community stakeholders who participated in the walking audit. These inform the recommendations summarized in the next section.

*Finding: Major new developments and existing trip generators bring many users at all times of the day to Ward Avenue.*

Many pedestrians already use Ward Avenue to access destinations such as the Blaisdell Center, Straub Hospital, and the shopping center. In light of major developments already under construction plus redevelopment that will take place in the Kakaako District, Complete Streets improvements along Ward Avenue have the potential to hugely increase the number of people who access current and future uses by non-driving means.



*This new residential developments at intersections with Kapiolani Boulevard will bring more potential foot and bicycle users to Ward Avenue.*



*The Blaisdell Center attracts users by car and by foot during events.*

*Finding: Key pedestrian crossings are not protected, and sidewalks lack buffers.*

At three locations (two at the Blaisdell Center and one at Ilaniwai Street), crosswalks are unprotected. While a pedestrian warning sign exists, it does not tell motorists that they must stop for pedestrians, per Hawaii law. There are no signalized crossings between King Street and Kapiolani Boulevard, a distance of 1,300 feet, despite heavy pedestrian usage along this corridor. The traffic volumes are, high, at 30,000 per day. Vehicle speeding and platooning between signals is commonplace. These conditions create uncomfortable and potentially hazardous crossing conditions for many users. In addition, the lack of sidewalk buffers along much of the corridor contributes to an unpleasant walking environment. Street trees between the sidewalk and street would provide a buffer from cars as well as shade from the sun.



*At this unsignalized crossing at the Blaisdell Center, pedestrians must cross four lanes of bi-directional traffic.*



*The lack of buffers between the sidewalk and the street makes walking uncomfortable due to lack of shade and proximity to vehicular traffic.*

*Finding: The mauka end of Ward Avenue becomes green and more inviting*

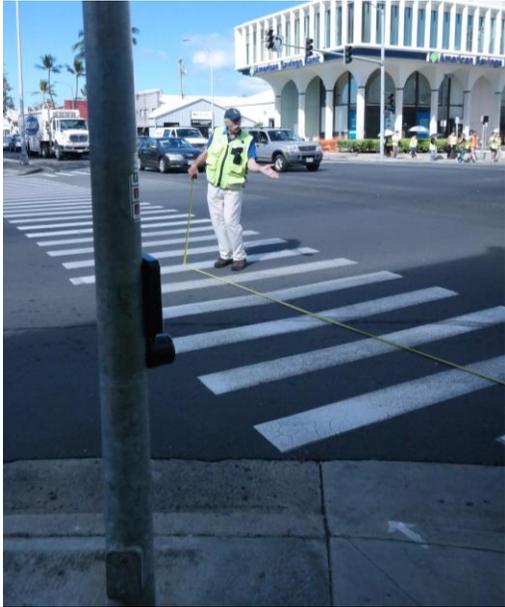
North of King Street, trees and landscaping are more prevalent and make walking much more pleasant. Thomas Square along the Diamond Head side of Ward Avenue is a welcome break from the commercial development and provides shade and comfort. Trees play a powerful role in making walking and bicycling comfortable. Adding streetscaping throughout the corridor would make a significant improvement to multimodal conditions. A 10 foot wide sidewalk plus a 5 foot wide buffer is also required per HCDA design guidelines. Since more than half of the corridor lies under HCDA purview as part of the Kakaako District, achieving these standards throughout the corridor would meet both HCDA standards and Complete Streets goals.



*Along Thomas Square, sidewalks have a landscaped buffer and shade.*

*Finding: Intersection design and wide turning radii make crossings challenging*

Intersections are the main conflict points at which all modes interact. The intersections with Queen Street, King Street, and Kapiolani Boulevard in particular are very wide, with turn lanes and wide turning radii. The larger the turning radius, the longer the crossing distance for pedestrians.



*The intersection of Ward Avenue and Queen Street is wide and creates a very long pedestrian crossing. The intersection of King Street and Kapiolani Boulevard is also very large. Intersections should be kept as compact as possible to increase visibility and reduce the amount of space and time vulnerable users are exposed to auto traffic.*

*Corner radii along Ward Avenue is very large. Smaller radii would lower turning speeds and shorten pedestrian crossings.*

*Finding: Many older adults use the area near the Hospital*

Closer to Beretania Street, the Straub Hospital is a major pedestrian generator. During a walk audit, many older adults were observed crossing Ward Avenue and accessing the hospital complex. Similar to the emphasis on safety placed at schools, older adults are a vulnerable population and benefit from enhanced safety measures such as minimizing crossing distance, lengthening walk signal timing, and making getting on and off the sidewalk easy through ADA-compliant curb ramps.



*Older adults crossing the street by the hospital*

## Part Three: Recommended Application of Complete Streets Concepts

This section describes the recommended application of Complete Streets concepts for Ward Avenue. It includes a written description of recommendations accompanied by illustrative drawings. The Complete Streets principles incorporated are:

- Encourage multiple modes of transportation, particularly walking and biking
- Promote safety for all modes of transportation
- Promote safer street crossings, and
- Strengthen connections to community destinations

### COMPLETE STREETS RECOMMENDATIONS

#### *Conceptual Illustrations of Recommendations*

The recommendations for Ward Avenue are described below and shown on Figures 3 through 8. Table 2 is a summary list of all recommendations, the before and after effect. Drawings of the proposed changes are presented for five segments of Ward Avenue:

- Near Beretania Street (Figure 3)
- From King Street to Blaisdell Center (Figure 4)
- Near Kapiolani Boulevard (Figure 5)
- From Waimanu Street to Queen Street (Figure 6)
- Near Halakauwila Street (Figure 7)
- Near Ala Moana Boulevard (Figure 8)

These recommended changes are described in the following section and summarized in Table 2.

### ***Description of Recommendations***

The recommendations in Figures 3 through 8 are summarized below.

#### **A) Increase pedestrian safety along the corridor.**

- Expand sidewalks to be consistently 10 feet wide on both sides of the corridor.
- Work with City’s Thomas Square redevelopment efforts to provide shared-use path within park.
- At all unsignalized pedestrian crossings, install advanced stop bars 30 feet back from each crosswalk to enhance visibility and safety for pedestrians.
- Reduce curb radii at intersections and use curb extensions.
- Enhance pedestrian entrances to Thomas Square using gateway treatments.
- Install one ADA compliant curb ramp per crosswalk rather than a single ramp at the apex of the curve. This maximizes access by placing ramps in line with the sidewalk and crosswalk, and reduces the distance required to cross the street.

#### **B) Enhance two unsignalized mid-block pedestrian crossings between South King Street and Kapiolani Boulevard**

- Relocate crosswalks to better align with desire lines
- Convert crosswalks to “Z-crossings”.
- Construct raised crossing islands to protect pedestrians and reduce the effective crossing distances.



*Photo of an angled median crossing in Kailua, Oahu.*

**C) Increase safety for bicyclists along the corridor.**

- Install a two-way cycle track (protected bike lanes) between South King Street and Ala Moana Boulevard.
  - Create a 10 foot two-way cycle track on the Diamond Head side of Ward Avenue.
  - Protect the cycle track with a 2 foot wide buffer.
  - Paint conflict areas green when the cycle track crosses driveways and intersections.
  - Install “turning vehicles stop for pedestrians and cyclists” signs to alert motorists turning right across the cycle track to yield.
- Between South Beretania Street and South King Street, transition new cycle track to a 12-foot wide shared-use path and landscape buffer within Thomas Square.
  - Provide a ramp for bicyclists to transition to sidewalk level.
  - Install 10 foot wide landscaping buffer between the existing sidewalk and shared-use path.
  - Retain existing 5 foot wide sidewalk and 3.5 foot buffer on the Diamond Head side.
  - Install signage and pavement markings to delineate proper paths of travel for bicyclists and pedestrians.
- Install bicycle signals at all signalized intersections to improve identified safety or operational problems for people on bicycles.
  - Paint bike boxes so a two-stage left turn can be made by bicyclists.
  - Add a Leading Bicycle Interval (LBI) phase to bicycle signals, giving cyclists a head start into the intersection ahead of turning drivers.

**D) Enhance streetscaping and comfort for all modes of transportation.**

- Install a 10 foot wide landscaping buffer in the areas abutting Thomas Square (see Recommendation C).
- Plant trees on both sides of Ward Avenue throughout the corridor.

**Table 2 Proposed Design Changes to Ward Avenue**

	CURRENT	AFTER RECOMMENDATIONS ARE IMPLEMENTED
Type of Facility	Principal Arterial	Same.
Street Width	64' between Halekauwila Street and Ilaniwai Street. Missing data for other locations (i.e., Ilaniwai Street to King Street.) 36' between King Street and Beretania Street	52' curb to curb Halekauwila Street to King Street; 42' curb to curb King Street to Beretania Street.
Speed Limit	25 mph	Same.
Crosswalk Length (longest)	Ward Avenue and Kapiolani Boulevard (west leg): 93'	Same.
Number of lanes	5 lanes between Halekauwila Street and King Street (2 through NB, 2 through SB, 1 turning lane) Two through in each direction between King Street and Beretania Street.	Addition of 2 protected bike lanes.
Distance to side streets	~250' block spacing between Halekauwila Street and Kapiolani Street ~1,400' between Kapiolani Street and King Street ~350' block spacing between King Street and Beretania Street	Same.
Driveways	7 on east side of street, 10 on west side of street	Same.
Parking	5 on-street stalls (metered) on east side of street fronting Ward Warehouse 24 on-street stalls (metered) on east side of street fronting Neal Blaisdell Center 4 on-street stall (metered) on the west side of street near Ward Warehouse	On-street parking is removed.
Sidewalks	~9' sidewalks on both sides of street between Halekauwila Street and Kapiolani Street ~10' sidewalks on both sides of street between Kapiolani Street and King Street ~4' sidewalk with 3' planting strip on east side of street between King Street and Beretania Street (fronting Thomas square) ~6' sidewalk on west side of street between King Street and Beretania Street Limited sidewalks on side streets between Kapiolani Street and Halekauwila Street	Add 5' streetscape zone adjacent to sidewalk on east side per HCDA Mauka Rules. Ensure sidewalk measures 10' on east side per HCDA Mauka Rules. 12' wide shared-use path through Thomas Square for pedestrian/bike use.
Transit Routes, Stops, Shelters	9 stops.	Same.
Proximity to future rail	Within 0.25 mile radius of Kakaako Station, which is located Between Halekauwila Street and Queen Street (east of Ward Ave).	Same.

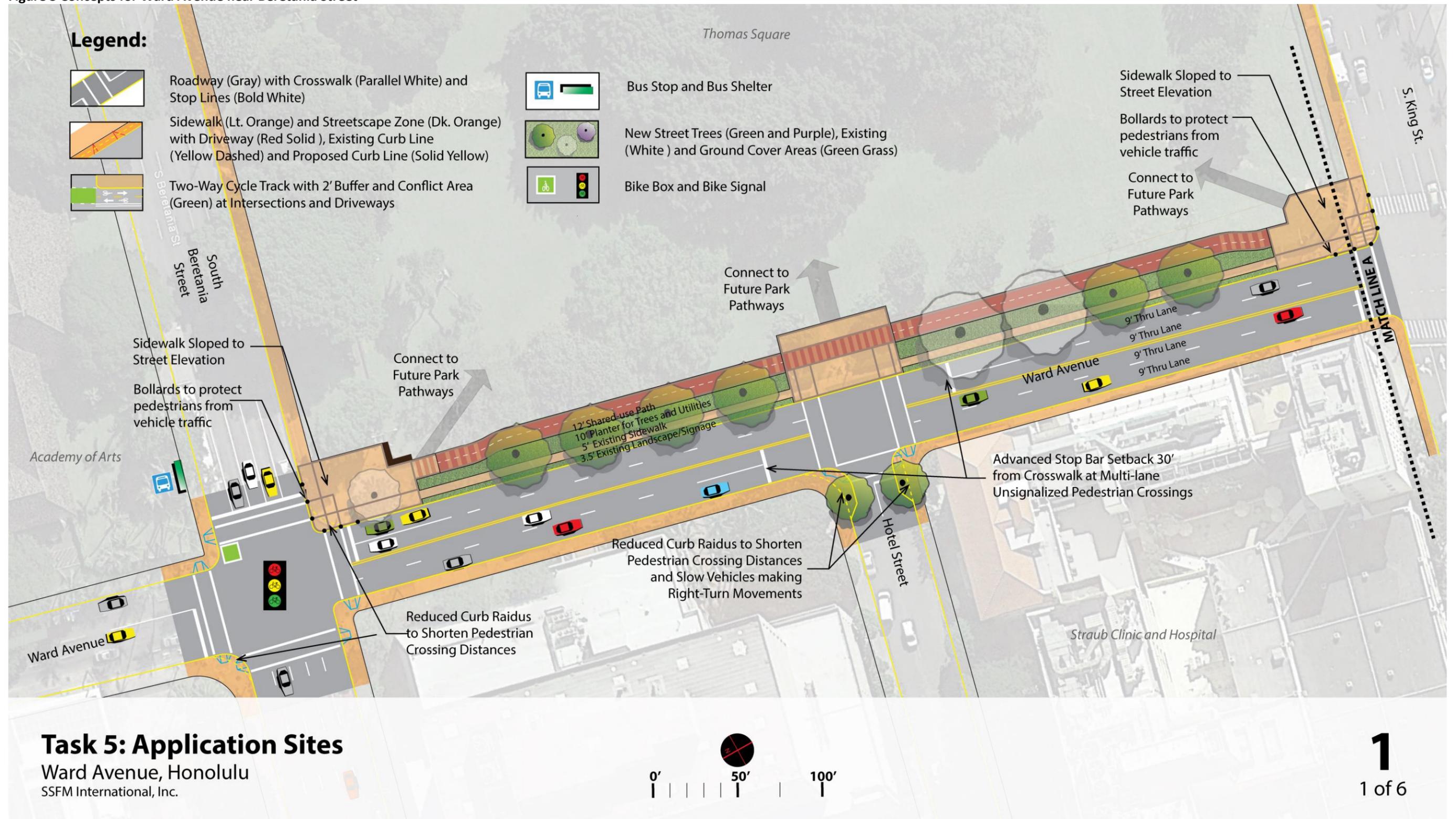
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Bicycle features	Proposed bike route on Ward Ave.	Two way cycle track (protected bike lanes) on Diamond Head side of Ward Avenue with bike boxes for left turns and bike signals. 12' wide shared-use path through Thomas Square for pedestrian/bike use.
Nearby Schools	McKinley High School.	Same.
Nearby Institutions	Honolulu Museum of Art, Neal S. Blaisdell Center, Straub Clinic and Hospital	Same.

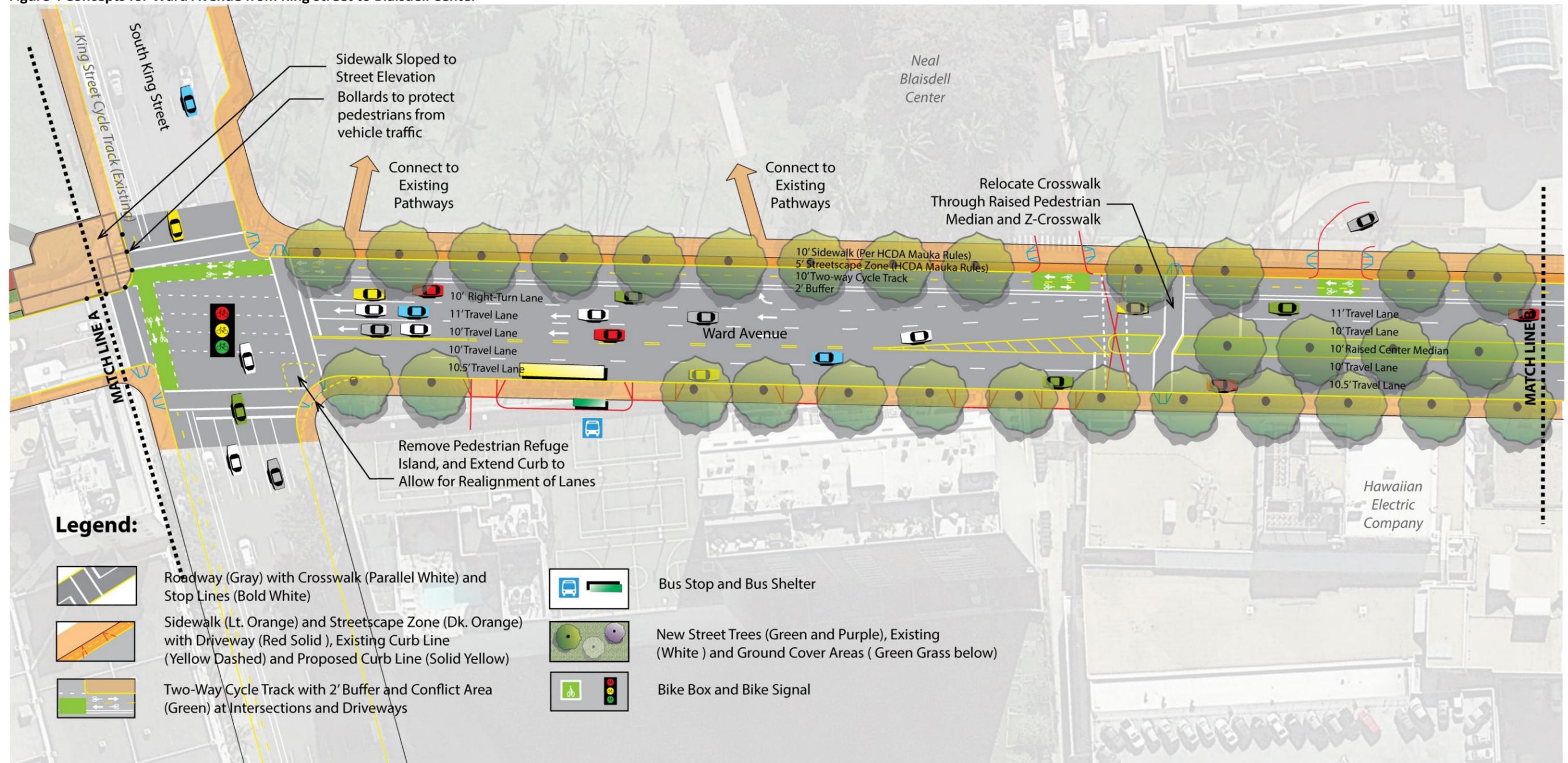
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Figure 3 Concepts for Ward Avenue near Beretania Street



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Figure 4 Concepts for Ward Avenue from King Street to Blaisdell Center



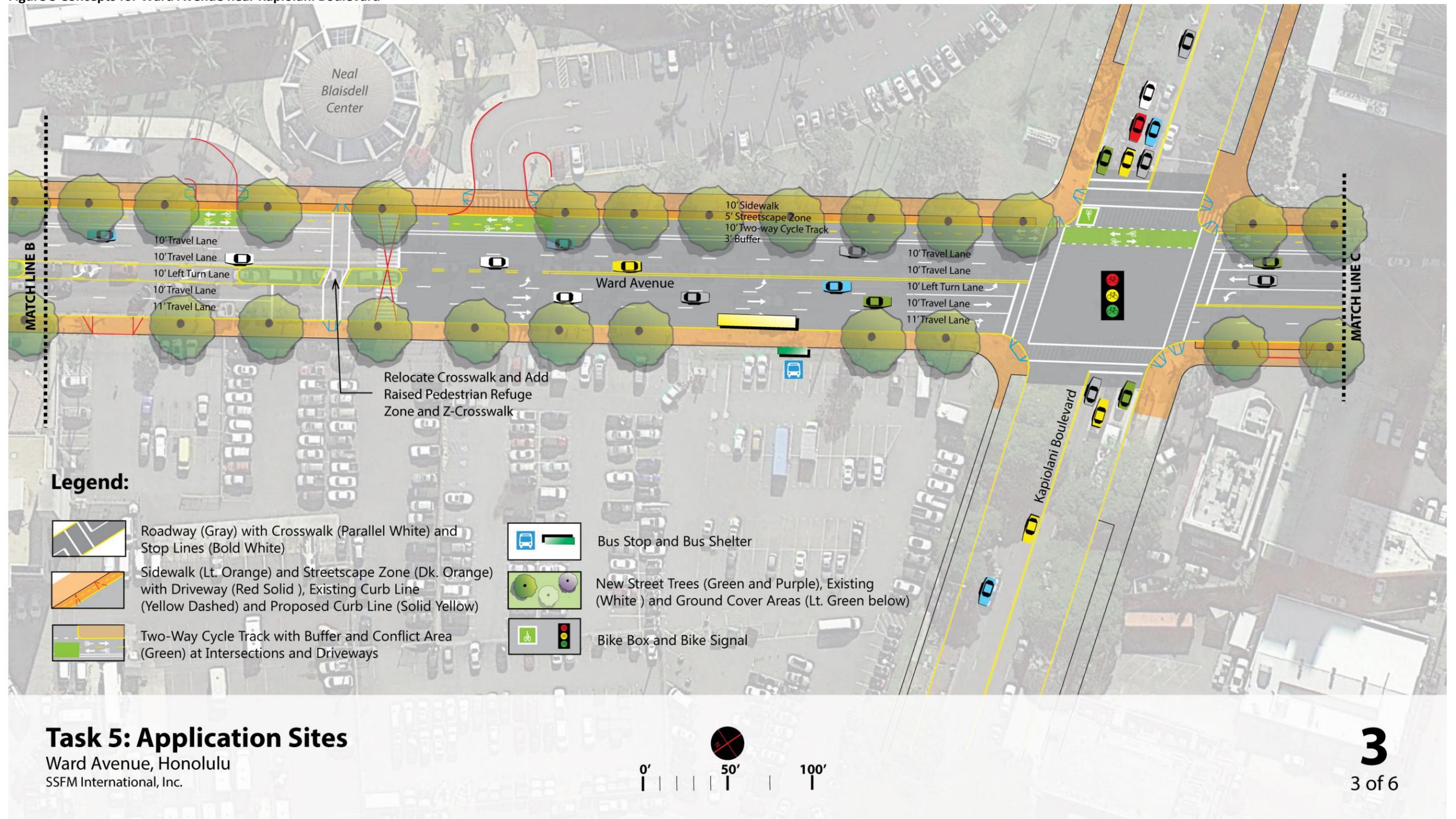
### Task 5: Application Sites

Ward Avenue, Honolulu  
SSFM International, Inc.



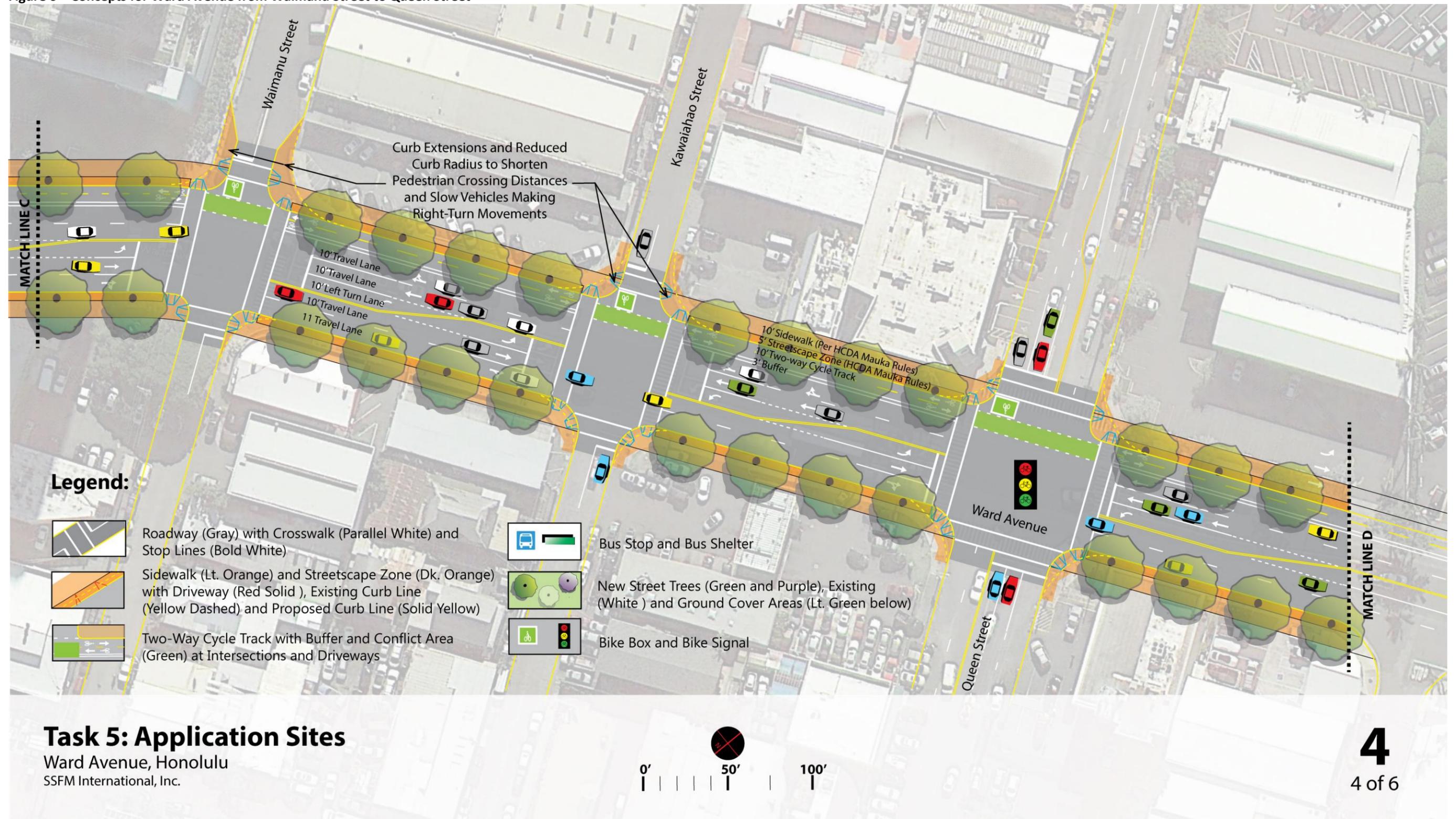
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Figure 5 Concepts for Ward Avenue near Kapiolani Boulevard



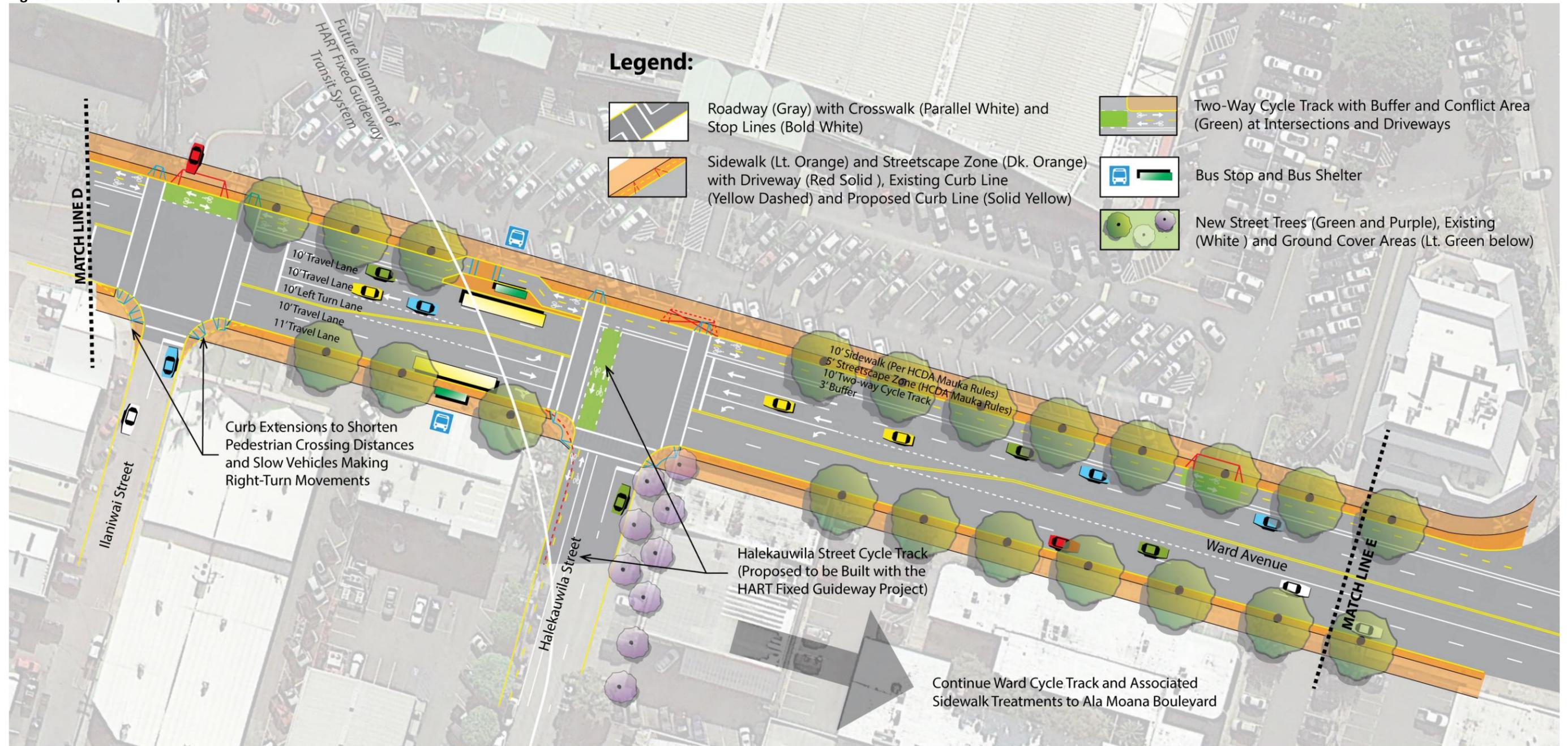
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Figure 6 – Concepts for Ward Avenue from Waimanu Street to Queen Street



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Figure 7 – Concepts for Ward Avenue near Halakauwila Street



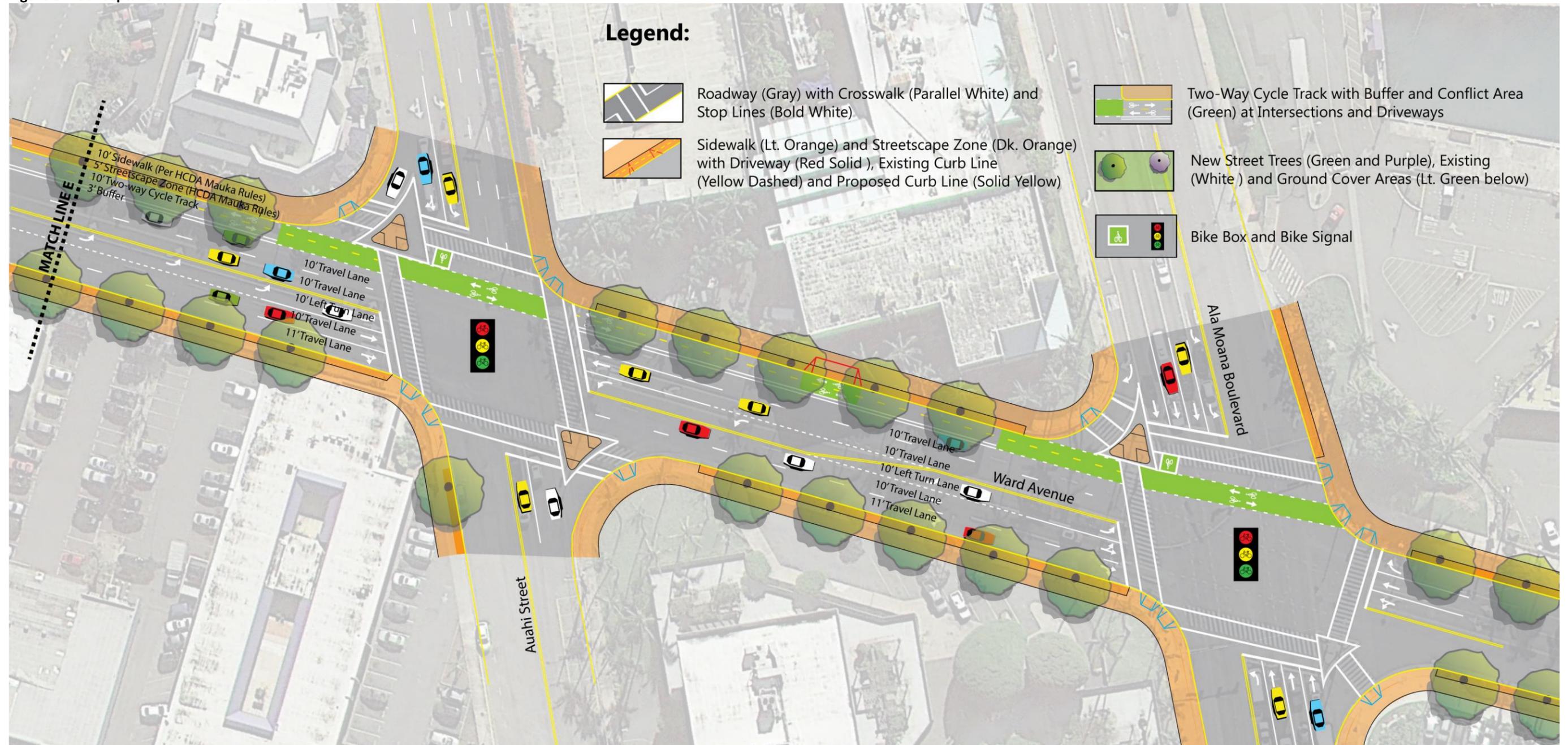
### Task 5: Application Sites

Ward Avenue, Honolulu  
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Figure 8 – Concepts for Ward Avenue near Ala Moana Boulevard



**Task 5: Application Sites**

Ward Avenue, Honolulu  
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## Part Four: Implementation

This section looks at the recommendations and sorts them according to how soon they can be implemented. Near-term actions are those that may be implemented immediately through incorporation into existing City paving, marking, or signage projects or maintenance funding. Mid-term actions are those that may require or warrant a longer planning horizon (1 to 5 years) due to logistical, financial, or other considerations. Longer-term actions are those that may require or warrant an even longer planning horizon (5 years and beyond).

### ***Near-Term Actions (0-1 year):***

#### **A) Increase safety for walking along the corridor.**

- At all unsignalized pedestrian crossings, install advanced stop bars 30 feet back from each crosswalk to enhance visibility and safety for pedestrians.
- Reduce curb radii at intersection using striping and bollards.

#### **B) Enhance two unsignalized mid-block pedestrian crossings that are between South King Street and Kapiolani Boulevard**

- Restripe mid-block crosswalks, and add advanced stop lines that are setback 30 feet.
- Stripe pedestrian refuge islands.



*Photo of a mid-block crossing with advanced stop line on King Street, Honolulu.*

**C) Increase safety for bicyclists along the corridor.**

- Between South King Street and Ala Moana Boulevard, restripe the roadway and include a 10 foot wide cycle track.
  - Restripe and narrow travel lanes as shown in Figures 3-7.
  - Stripe a 10 foot wide two-way cycle track on the Diamond Head side of Ward Avenue
  - Install a two-foot buffer adjacent to the cycle track using striping, and traffic delineator posts.
  - Paint conflict areas green when the cycle track crosses driveways and intersections.
  - Install “turning vehicles stop for pedestrians and cyclists” signs to alert motorists turning right across the cycle track to yield.
- Between South Beretania Street and South King Street temporarily transition to a shared-use path using the existing sidewalk.
  - Install signage and pavement markings indicating the proper path of travel for each mode.
- Paint bike boxes when bicyclists can make left turns so a two-stage turn can be made.



*Photo of a bike box connected to a two-way cycle track in Seattle, WA*

**D) Enhance streetscaping and comfort for all modes of transportation.**

- None

***Mid-Term Actions (1 to 5 years):***

**A) Increase safety for walking along the corridor.**

- Use asphalt concrete A/C berms (or similar) to reduce curb radii at intersection.

**B) Enhance two unsignalized mid-block pedestrian crossings that are between South King Street and Kapiolani Boulevard**

- Use A/C berms (or similar) to define pedestrian refuge islands.
- Restripe as “Z-crossing” and install new curb ramps.

**C) Increase safety for bicyclists along the corridor.**

- Install bicycle signals and protected – only left-turn arrows for makai-bound vehicles, at all signalized intersections.
  - Adjust traffic signal phasing to include a Leading Bicycle Interval phase to bicycle signals.
- Between South Beretania and South King Street, transition new cycle track to a 12-foot wide shared-use path within Thomas Square.
  - Provide a ramp for bicyclists to transition to sidewalk level.
  - As a part of the redevelopment of Thomas Square, install a 10 foot wide landscaping buffer between the sidewalk and shared-use path.
  - Install signage and pavement markings to delineate proper paths of travel for bicyclists and pedestrians.

**D) Enhance streetscaping and comfort for all modes of transportation.**

- Install planters on both sides of Ward Avenue throughout the corridor.

***Longer-Term Actions (5 years and Beyond):***

**A) Increase safety for walking along the corridor.**

- Widen the sidewalk (i.e., the streetscape zone) to 10 feet wide as per HCDA Mauka Rules.
- Reduce curb radii at intersection using concrete curb extensions that are flush to the existing sidewalk.
- Install one ADA compliant curb ramp per crosswalk rather than a single ramp at the apex of the curve.

**B) Enhance two unsignalized mid-block pedestrian crossings that are between South King Street and Kapiolani Boulevard**

- Construct permanent raised crossing islands and center medians.

**C) Increase safety for bicyclists along the corridor.**

**D) Enhance streetscaping and comfort for all modes of transportation.**

- Install pedestrian scale lighting in the landscaping area abutting Thomas Square.
- Install landscaping in raised center medians (see Recommendation B).
- Install a 5 foot wide landscaping buffer between the new sidewalk and new raised cycle track in the areas abutting Thomas Square to separate bicycle and pedestrian modes.

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# Part Five: Cost Sheet

<i>ITEM</i>	<i>UNIT</i>	<i>QUANTITY</i>	<i>UNIT COST</i>	<i>TOTAL COST</i>
<b>Removals/Demo</b>				
Demolish existing sidewalk	Sq. Ft.	16710	\$ 5.00	\$ 83,550.00
Demolish existing Pavement	Sq. Ft.	6270	\$ 8.00	\$ 50,160.00
Erosion Control	L.S.	1	\$ 10,000.00	\$ 10,000.00
<b>Site improvements</b>				
<b>Roadway</b>				
Mill and Overlay existing AC pavement	Sq. Ft.	189950	\$ 6.00	\$ 1,139,700.00
Curb Gutter and Sidewalk	Sq. Ft.	32614	\$ 20.00	\$ 652,280.00
Streetscape	Sq. Ft.	15935	\$ 20.00	\$ 318,700.00
Raised Median	Sq. Ft.	3070	\$ 20.00	\$ 61,400.00
Drainage works	each	12	\$ 14,000.00	\$ 168,000.00
4" Stripe (white/Yellow)	Lin. Ft.	23640	\$ 6.00	\$ 141,840.00
12" stripe (white)	Lin. Ft.	4850	\$ 9.00	\$ 43,650.00
10' Bike lane (Green)	Sq. Ft.	6250	\$ 9.00	\$ 56,250.00
Striping Symbols	each	54	\$ 300.00	\$ 16,200.00
Delineators at 10' spacing	each	223	\$ 100.00	\$ 22,300.00
<b>Intersection</b>				
Traffic Signal Modification	each	5	\$ 350,000.00	\$ 1,750,000.00
<b>Landscaping</b>				
Trees	each	90	\$ 1,000.00	\$ 90,000.00
<b>Misc.</b>				
Traffic Control	L.S.	1	5%	\$ 230,201.50
Mobilization	L.S.	1	10%	\$ 460,403.00
Contingency - 25%			25%	\$ 1,151,007.50
<b>Design</b>				
Design Cost			6%	\$ 386,738.52
<b>TOTAL CONSTRUCTION</b>				<b>\$ 6,445,642.00</b>
<b>TOTAL COST</b>				<b>\$ 6,832,380.52</b>