

Visual Impacts Technical Report Honolulu High-Capacity Transit Corridor Project

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Acronyms Used in this Document

AA	Alternatives Analysis
AVE	Area of Visual Effect
DP	Development Plan
DOT	Department of Transportation
DPP	Department of Permitting and Planning
EIS	Environmental Impact Statement
FTA	Federal Transit Administration
IC	Interchange
OMPO	O‘ahu Metropolitan Planning Organization
OTS	O‘ahu Transportation Study
H-1	Interstate Route H-1 Freeway
TSM	Transportation System Management
UH	University of Hawai‘i

This technical report contains an overview of the purpose for the Visual Impact Assessment, methods used to evaluate potential impacts to the visual environment, a description of the existing environment, a discussion of construction and operational effects of the proposed alternatives, and suggested mitigation strategies for reducing or avoiding negative effects of the proposed alternatives for the Honolulu High-Capacity Transit Corridor Project.

Purpose of Study

The City and County of Honolulu Department of Transportation Services, in coordination with the U.S. Department of Transportation Federal Transit Administration (FTA), will be preparing an Alternatives Analysis (AA) and an Environmental Impact Statement (EIS) to evaluate alternatives that would provide high-capacity transit service on O'ahu. The purpose of this study is to evaluate the visual effects of the various alternatives being proposed. The results of the Visual Impact Assessment will be used in the AA to assist in distinguishing positive or negative aesthetic effects associated with the various alignments.

Methodology

The study included review of related studies that were previously conducted within the study corridor, consultation with agencies and special interest groups, and field surveys to verify literature review findings. In addition, the City and County of Honolulu Department of Planning and Permitting (DPP) and The Outdoor Circle were consulted to obtain additional data, refine the focus for the visual analysis, and elicit the most pertinent concerns that stakeholders had regarding safeguarding the aesthetic environment. Appendices A and B include meeting minutes from the consultations held with DPP and The Outdoor Circle, respectively. Comments received during the public scoping meetings for this project (held in December 2005) and public comments received on previous transportation studies conducted within the project corridor were reviewed to gain perspective on the concerns and ideas that communities, organizations, and businesses have regarding the aesthetic impact of the proposed project. These studies included the following:

- Nimitz Highway Improvements Visual Impact Assessment (March 1997)
- Primary Corridor Transportation Project, Final Environmental Impact Statement (July 2003)
- North South Road Environmental Impact Statement (September 2004)
- Fort Barrette Road Environmental Impact Statement (July 2005)
- Honolulu High-Capacity Transit Corridor Scoping Report (April 2006)

Using simulations for each of the representative viewpoints, an assessment of visual impacts was conducted using criteria based on state and federal preservation requirements. Impacts were evaluated for both the short-term, construction period, and

the long-term operational period. Impacts were also based on potential impacts to resources as reported in the Natural Resources Technical Report, Cultural Resources Technical Report, and Historic Resources Technical Report for this project.

Affected Environment

The island has maintained a majority of its natural open space and scenic resources through preservation and enhancement policies. In general these policies reflect a desire by the community to preserve the island's historic character, design projects that fit the character of the local setting, maintain proper scale and balance between the built environment and its surrounding setting, and limit impacts to scenic resources.

‘Ewa, with a generally open and rural agricultural nature, is slowly transitioning to a more urbanized context with new growth and development supporting the City and County of Honolulu's vision for this area as a second urban center. Similarly, Central O‘ahu, previously in extensive agricultural use, is growing into a more suburban area. The Primary Urban Center encompasses a wide range of land uses and neighborhoods including Pearl Harbor, Honolulu International Airport, Downtown, and Waikīkī.

Scenic resources within the study area include landmarks, significant views and vistas, and view corridors. Below is a list of the National Historic Landmarks and views located within the study corridor that are protected by policy and are considered to be significant scenic resources based on their scale and prominence within the visual environment.

Identified Resources

National Historic Landmarks	Pearl Harbor Pearl Harbor Naval Base Diamond Head Puowaina Crater (Punchbowl)
Significant Views and Vistas	Wai‘anae and Ko‘olau Mountains Pacific Shoreline Downtown Skyline Pearl Harbor Diamond Head

View Corridors

The Panoramic Views Analysis conducted in March 2006 for this project (Appendix C) contains two lists. List 1, No Impact Views includes the view corridors that were considered to be unaffected by the proposed project alignments. The resources in this list are either located outside of the study corridor, are views that are directed away from the study corridor, or are too narrow or too far in the distance to be affected or have an affect on the study corridor. List 2, Views within Study Corridor, identifies the view corridors that are located within the study area and may be affected by the proposed project alignments.

Viewpoints

The existing aesthetic environment within the study corridor was based on the visual quality of representative viewpoints. Table S-1 lists the location and existing visual quality for each of the representative viewpoints.

Table S-1. Existing Visual Quality and Viewer Groups

Viewpoint (V)	Location	Visual Quality	Viewer Group(s) ¹
I. Kapolei to Fort Weaver Road			
V1	Kapolei High School	Moderate	Res
V2	Fort Weaver Road at Honouliuli Bridge	High	C
II. Fort Weaver Road to Aloha Stadium			
V3	Farrington Highway between Pupukahi and Pupupuhi	Moderate	Res
V4	Kamehameha Highway at Acacia Road	Moderate	C
V5	Kamehameha Highway at Kaonohi	Low	Res, B
III. Aloha Stadium to Middle Street			
V6	Aloha Stadium	High	Rec, V
V7	Salt Lake Boulevard at Salt Lake-Moanalua Public Library	Moderate	Res
V8	Kamehameha Highway at Radford Road	Low	C, V
V9	Ke'ehi Lagoon Park	High	Rec, V
IV. Middle Street to Iwilei			
V10	N King Street at Robello Lane	Moderate	Res
V11	Pu'uhale Elementary School	Moderate	Res, B
V12	Nimitz Highway at Kalihi Street	Low	Res, B
V13	Honolulu Community College	Moderate	Res, B
V. Iwilei to UH Mānoa			
V14	O'ahu Market at N King and Kekaulike Streets	High	Res, B
V15	S King Street at Ku'ilei Street	Moderate	Res, B, V
V16	University Avenue and S King Street	High	Res, B, V
V17	Hotel Street and Kekaulike Street	High	Res, B, V
V18	Fort Street Mall and Queen Street	High	Res, V
V19	Aloha Tower Market Place	High	Res, V
V20	Thomas Square	High	Rec
V21	Kūhiō Avenue and Kālainmoku	High	Res, V
V22	Kūhiō Avenue and Lili'uokalani Avenue	High	Res, V
V23	Ala Wai Promenade Diamond Head of McCully Street	High	Res, Rec, V

¹ Res – Residents, C – Commuters, B – Business Owners, Rec – Recreationists, V – Visitors

Visual quality was based on how well an image met visual excellence or high visual quality. Visual excellence was measured using vividness (memorability of the view), intactness

(freedom from encroaching elements), and unity (cohesiveness of an image) as evaluative criteria. If all three criteria were met, an image was rated high for visual quality. If two criteria were met, the viewpoint was rated as moderate for visual quality. If none or only one of the criteria were met, the viewpoint was rated low for visual quality.

Viewer groups that are anticipated to be affected by the proposed project include residents, commuters, business owners, recreationists, and visitors. Most of these groups can be found throughout the corridor with residential areas located adjacent to commercial buildings and commuter corridors traversing recreational and visitor resources. Table S-1 shows the viewer groups represented for each section of the proposed project.

Long-Term and Construction Impacts

Long-term impacts were based on changes in visual quality, viewer sensitivity, changes in the light environment, and inconsistency with policy documents. Short-term construction impacts were based on physical changes to the visual environment as measured by the number of acres of right-of-way needed to accommodate the project footprint. Construction impacts include removal of vegetation during clearing and grubbing operations and storage of large equipment and construction materials. Construction operations will also include the use of barriers, signage, and screening materials for traffic control, safety, privacy, and noise abatement.

Alternative 1: No Build

No construction would occur under the No Build Alternative; therefore, no impacts to visual resources or the existing visual environment would occur.

Alternative 2: Transportation System Management

Long-term Impacts

Alternative 2 consists primarily of operational improvements to the existing bus system, including network and zipper-lane improvements. It would also include some capital improvements that give priority to buses. These improvements would not permanently affect visual resources. In addition, Alternative 2 would also include construction of two transit centers, which would require additional right-of-way.

Construction Impacts

Alternative 2 includes the construction of two transit centers in Pearl City and 'Aiea. Construction activities for Alternative 2 are anticipated to last approximately one to two years during which time elements and conditions of construction would be visible to the public. It is anticipated that construction impacts would be localized to the transit center sites and that additional sites would not be required for use as construction staging or storage areas.

Alternative 3: Managed Lane

Long-term Impacts

Physical Change to Visual Environment

Both the Two-direction and Reversible Options under Alternative 3 would result in similar physical changes to the visual environment because both options would include the construction of an elevated roadway along Kamehameha and Nimitz Highways. The Two-direction option would be wider and would include large transit stops that would not be included in the reversible option.

Change in Visual Quality

Change to visual quality is the difference in an image's vividness, intactness, and unity from the existing or baseline conditions to the simulated future conditions. Changes in visual quality were considered in light of the project's scale and character in context to its surrounding and the effect it would have on scenic resources. The change in visual quality was rated as high, moderate or low depending on what effect the project had on the vividness, intactness, and unity of the existing visual environment.

Both the Two-direction and Reversible Options have the potential for impacts under all of the above criteria. The Two-direction Option for Alternative 3 would result in greater impacts than the Reversible Option because of the proposed structure's increased width. Operational effects for this option would be moderate to high (Table S-2). The Reversible Option would result in moderate effects.

Short-term Impacts

Alternative 3 would have a fairly large construction footprint with construction anticipated to last several years. During that time the elements and conditions of construction would be visible to the public. Construction of a grade-separated structure would require additional equipment that would be much larger and more visible from a greater distance. Alternative 3 would also require additional staging and storage areas. Potential staging areas would include the existing right-of-way as well as properties acquired for the future roadway right-of-way. It is anticipated that construction operations for Alternative 3 would occur 24 hours a day, 7 days a week to minimize overall project costs and to shorten the build-out period. Continuous construction operations would require night-time lighting equipment that could introduce new sources of light and glare in areas where residential neighborhoods are in close proximity to the transportation corridor.

Alternative 4: Fixed Guideway

Long-term Impacts

Physical Change to Visual Environment

Alternative 4 would result in similar physical changes to the visual environment as described under Alternative 3; however, the elevated structure would be narrower. For Alternative 4 these affects would extend along the entire 23 mile corridor (Table S-2).

Table S-2. Summary of Visual Effects

Alternative	Effects¹
Alternative 1: No Build Alternative	
No Build Alternative	None
Alternative 2: TSM Alternative	
TSM Alternative	Low
Alternative 3: Managed Lane Alternative (by section)	
3a. Two-direction Option	
Waiawa IC to Hālawā Stream	Moderate
Hālawā Stream to Pacific Street	Moderate - High
3b. Reversible Option	
Waiawa IC to Hālawā Stream	Moderate
Hālawā Stream to Pacific Street	Moderate
Alternative 4: Fixed Guideway Alternative (by section)	
I. Kapolei to Fort Weaver Road	
Kamokila Boulevard/Farrington Highway	Moderate - High
Kapolei Parkway/North-South Road	Moderate - High
Saratoga Avenue/North-South Road	Moderate - High
Geiger Road/Fort Weaver Road	Moderate - High
II. Fort Weaver Road to Aloha Stadium	
Farrington Highway/Kamehameha Highway	Moderate - High
III. Aloha Stadium to Middle Street	
Salt Lake Boulevard	Moderate
Mauka of the Airport Viaduct	Low - Moderate
Makai of the Airport Viaduct	Low - Moderate
Aolele Street	Low - Moderate
IV. Middle Street to Iwilei	
N King Street	Moderate - High
Dillingham Boulevard	Low - Moderate
V. Iwilei to UH Mānoa	
Beretania Street/S King Street	Moderate - High
Hotel Street/Waimanu Street/Kapi'olani Boulevard	Low - Moderate
Hotel Street/Kawaiaha'o Street/Kapi'olani Boulevard	Low - Moderate
King Street/Waimanu Street/Kapi'olani Boulevard	Low - Moderate
Nimitz Highway/Queen Street/Kapi'olani Boulevard	Low - Moderate
Nimitz Highway/Halekauwila Street/Kapi'olani Boulevard	Low - Moderate
Waikīkī Branch	Low - Moderate

¹ Effects were based on what level of affect (high, moderate, low) an alignment had on visual quality, viewer sensitivity, introduction of light, glare, shade, shadow, and consistency with aesthetic policies. See Table 5-1 for ratings on each of these measures. A percentage scale was used to determine level of impact (high, moderate, low) for change in light, glare, shade, shadow and policy consistency that was based on the number of elements introduced (light, glare, shade, shadow) and number of policy documents the alignment would be inconsistent with. Introduction of 0 to 1 new light conditions was considered low, 2 new conditions was considered moderate, and 3 to 4 new conditions was considered high. Inconsistency with 0 to 2 policy documents was considered low, 3 to 5 policy documents was moderate, and 6 to 8 policy documents was high.

Change in Visual Quality

All of the alignments proposed under Alternative 4 would have the potential for impacts to the character of the existing aesthetic environment, the existing light environment, viewer groups, and aesthetic policies. Operational effects for each alignment are shown in Table S-2.

The elevated guideway structure has the potential to be out of scale or character in settings that are historic, pedestrian-oriented, and low-profile or open. Among the five sections, Section I would have higher operational effects because of the low-profile, open character of the 'Ewa-Kapolei area. On the other hand, impacts within Section V would be lower because of the existing density and number of high-rise structures in the Downtown and Waikīkī areas. Historic districts within Section V have the potential to be similarly affected by a modern, elevated structure as the rural areas within Section I.

Short-term Impacts

Construction impacts for Alternative 4 are similar in detail as those described under Alternatives 2 and 3; however, the impacts would be spread across the entire 23 mile project corridor. Construction for Alternative 4 is anticipated to last several years.

Mitigation

Alternative 1: No Build

No construction would occur under the No Build Alternative; therefore, no impacts to the visual environment would occur. No mitigation is required.

Alternative 2: Transportation System Management

Impacts described for Alternative 2 are not anticipated to be substantial. Construction would be localized to a small area and use of site appropriate design would integrate the transit facilities into the existing environment. Consideration of basic design principles would mitigate impacts to less than substantial by reducing conflicts with sensitive resources and improving the contextual setting of the transit centers.

Alternative 3: Managed Lane

Impacts associated with the Managed Lane Alternative include potential removal or relocation of Exceptional Trees, change in setting of an historic or cultural site or Section 4(f) resource, alteration of mauka (mountain)-makai (ocean) views, introduction of project components that are out of scale or character with their setting, moderate to high viewer response to project changes, introduction of new light sources in sensitive areas, and inconsistency with policy documents. The following design principles are based on common-theme comments regarding aesthetic considerations that were received on this project and previous studies, the reference guide for context sensitive design, and aesthetic policies in each of the governing policy documents and should be considered to help minimize, reduce, or mitigate these impacts.

- Project design should consider a contextual approach so that project elements are functional as well as aesthetically appropriate to their setting.

- Consider alignments that better support the construction of large-scale, elevated components.
- Consult with a multi-disciplined, advisory committee regarding an appropriate design theme.
- Use project components to define spaces and create a “sense of place” that is appropriate in scale and character to its setting.
- Consider design components that help create a human-scale and pedestrian-friendly environment.
- Create opportunities for appropriate and sensitive “show-casing” of project components that are too large-scale to apply minimizing techniques.
- In highly-sensitive settings use design features with materials and shapes that fit the topography and visual setting.
- Look for opportunities to use materials that reflect the Hawai’ian culture and will minimize the potential for vandalism.
- Incorporate appropriate consultation, monitoring, preservation, and documentation measures to minimize impacts to Section 4(f), historic, cultural, and vegetative resources.
- Pursue cooperative agreements with adjacent property owners to finance and maintain landscaping, artwork, or other design features that would improve the visual quality of the project.

Alternative 4: Fixed Guideway

Impacts related to Alternative 4 would be similar in nature to those discussed under Alternative 3. However, impacts for Alternative 4 would be larger in scale due to the longer corridor proposed. Impacts would be spread across the 23 mile corridor and would affect a wider range of resources and communities. The design principles discussed under Alternative 3 would also apply to Alternative 4; however, mitigation would be more extensive for Alternative 4 requiring additional coordination, a longer time-frame for implementation, and more funds.

The City and County of Honolulu Department of Transportation Services (DTS), in coordination with the U.S. Department of Transportation Federal Transit Administration (FTA), has carried out an Alternatives Analysis (AA) to evaluate alternatives that would provide high-capacity transit service on O‘ahu. The primary project study area is the travel corridor between Kapolei and the University of Hawai‘i at Mānoa (UH Mānoa) (Figure 1-1). This corridor includes the majority of housing and employment on O‘ahu. The east-west length of the corridor is approximately 23 miles. The north-south width of the corridor is at most four miles, as much of the corridor is bounded by the Ko‘olau and Wai‘anae Mountain Ranges to the north and the Pacific Ocean to the south.

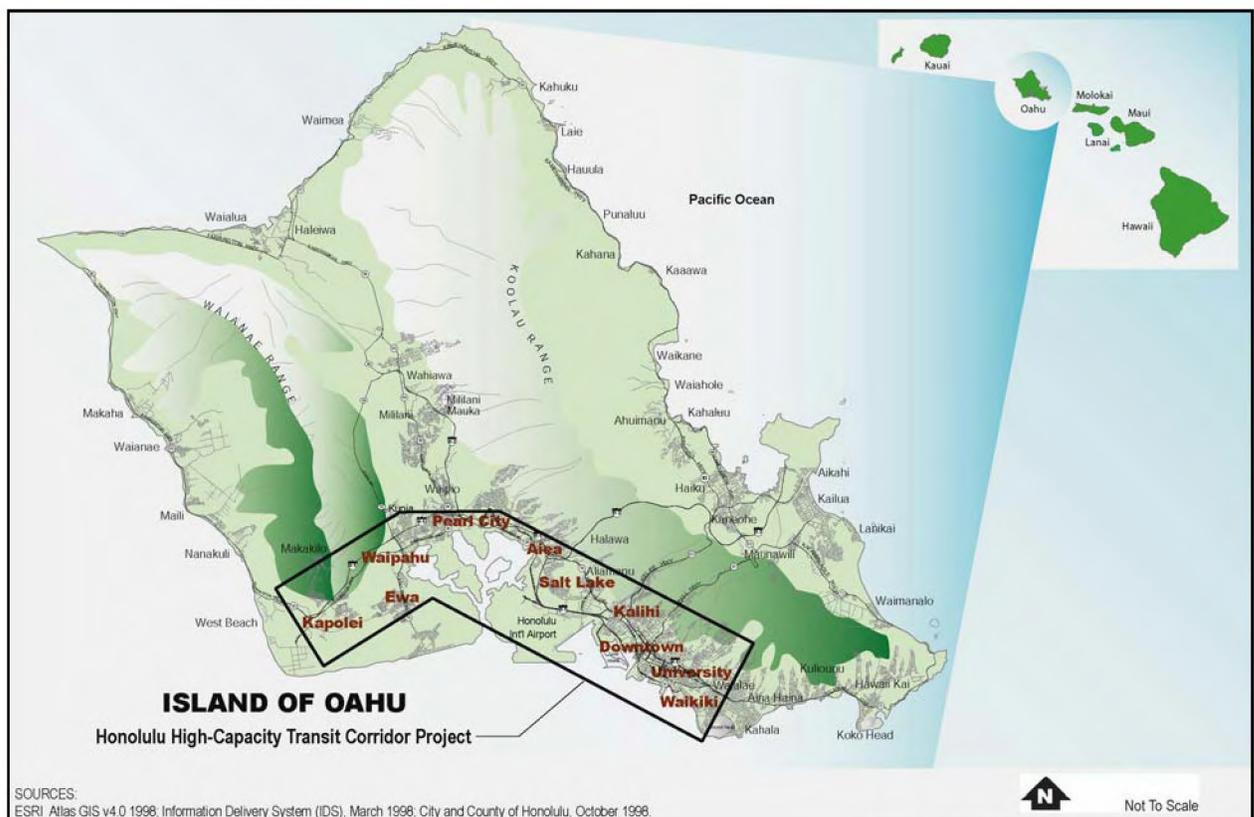


Figure 1-1. Project Vicinity

Project Description

Description of the Study Corridor

The study corridor extends from Kapolei in the west (Wai‘anae or ‘Ewa direction) to the University of Hawai‘i at Mānoa (UH Mānoa) in the east (Koko Head direction), and is confined by the Wai‘anae and Ko‘olau Mountain Ranges to the north (mauka direction) and the Pacific Ocean to the south (makai direction). Between Pearl City and ‘Aiea, the corridor’s width is less than one mile between the Pacific Ocean and the base of the Ko‘olau Mountains.

The General Plan for the City and County of Honolulu directs future population and employment growth to the 'Ewa and Primary Urban Center (PUC) Development Plan areas and the Central O'ahu Sustainable Communities Plan area. The largest increases in population and employment are projected in the 'Ewa, Waipahu, Downtown, and Kaka'ako districts, which are all located in the corridor (Figure 1-2).

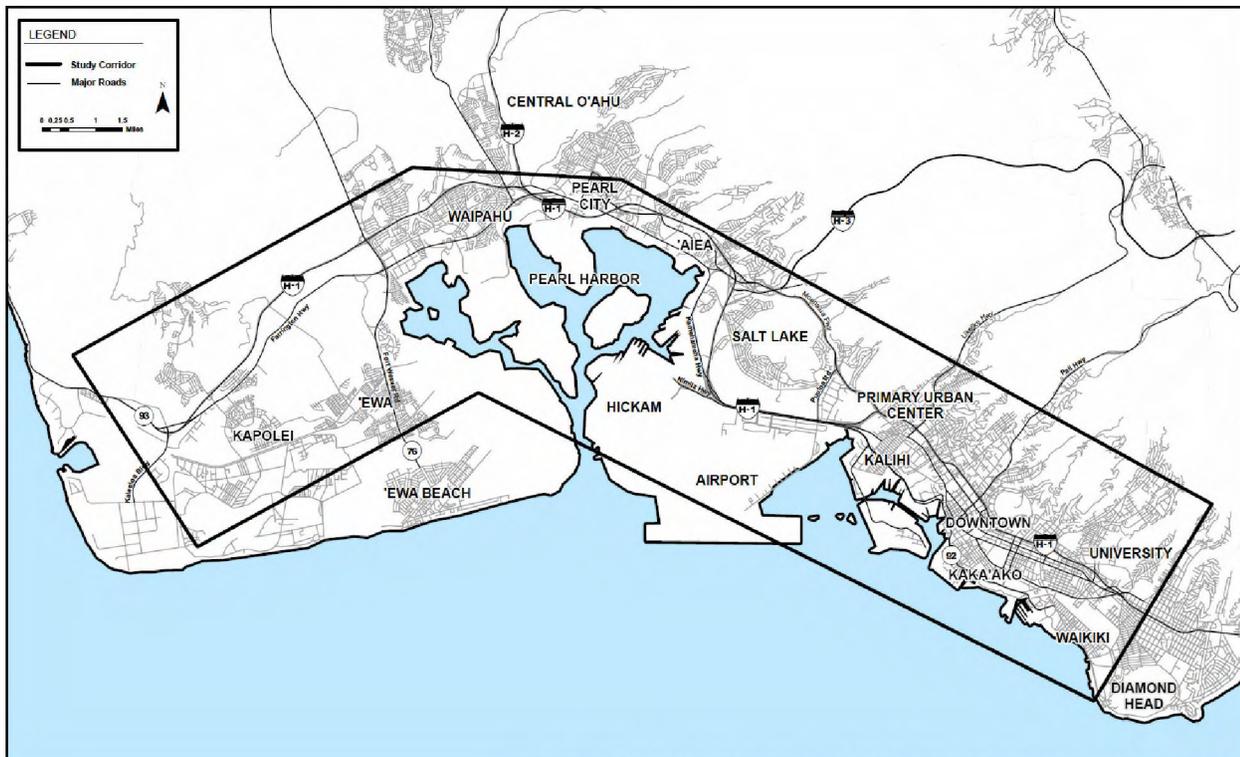


Figure 1-2. Areas and Districts in the Study Corridor

Currently, 63 percent of the 876,200 people living on O'ahu and 81 percent of the 499,300 jobs on O'ahu are located within the study corridor. By 2030 this distribution will increase to 69 percent of the population and 84 percent of the employment as development continues to be concentrated into the PUC and 'Ewa Development Plan areas. Kapolei is the center of the 'Ewa Development Plan area and has been designated as O'ahu's "second city." City and State government offices have opened in Kapolei, and the University of Hawai'i is developing a master plan for a new West O'ahu campus there. The Kalaeloa Community Development District (formerly known as Barbers Point Naval Air Station) covers 3,700 acres adjacent to Kapolei and is planned for redevelopment. The Department of Hawaiian Home Lands is also a major landowner in the area and is planning for residential and retail development. In addition, developers have several proposals to continue the construction of residential subdivisions.

Continuing Koko Head, the corridor follows Farrington and Kamehameha Highways through a mixture of low-density commercial and residential development. This part of the corridor passes through the makai portion of the Central O'ahu Sustainable Communities Plan area.

Farther Koko Head, the corridor enters the PUC Development Plan area, which is bounded by commercial and residential densities that begin to increase in the vicinity of Aloha Stadium. The Pearl Harbor Naval Reserve, Hickam Air Force Base, and Honolulu International Airport border the corridor on the makai side. Military and civilian housing are the dominant land uses mauka of Interstate Route H-1 (H-1 Freeway), with a concentration of high-density housing along Salt Lake Boulevard.

As the corridor continues Koko Head across Moanalua Stream, the land use becomes increasingly dense. Industrial and port land uses dominate along the harbor, shifting to primarily commercial uses along Dillingham Boulevard, a mixture of residential and commercial uses along North King Street, and primarily residential use mauka of the H-1 Freeway.

Koko Head of Nu‘uanu Stream, the corridor continues through Chinatown and Downtown. The Chinatown and Downtown areas, with 62,300 jobs, have the highest employment density in the corridor. The Kaka‘ako and Ala Moana neighborhoods, comprised historically of low-rise industrial and commercial uses, are being revitalized with several high-rise residential towers currently under construction. Ala Moana Center, both a major transit hub and shopping destination, is served by more than 2,000 weekday bus trips and visited by more than 56 million shoppers annually.

The corridor continues to Waikīkī and through the McCully neighborhood to UH Mānoa. Today, Waikīkī has more than 20,000 residents and provides more than 44,000 jobs. It is one of the densest tourist areas in the world, serving approximately 72,000 visitors daily (DBEDT, 2003). UH Mānoa is the other major destination at the Koko Head end of the corridor. It has an enrollment of more than 20,000 students and approximately 6,000 staff (UH, 2005). Approximately 60 percent of students do not live within walking distance of campus (UH, 2002) and must travel by vehicle or transit to attend classes.

Alternatives under Consideration

Four alternatives will be evaluated in the Alternatives Analysis (AA) report. They were developed through a screening process that considered alternatives identified through previous transit studies, a field review of the study corridor, an analysis of current housing and employment data for the corridor, a literature review of technology modes, work completed by the O‘ahu Metropolitan Planning Organization (OMPO) for its Draft 2030 Regional Transportation Plan, and public and agency comments received during a formal project scoping process held in accordance with requirements of the National Environmental Policy Act (NEPA) and the Hawai‘i EIS Law (Chapter 343, Hawai‘i Revised Statutes). The four alternatives are described in detail in the *Honolulu High-Capacity Transit Corridor Project Alternatives Analysis Definition of Alternatives Report* (DTS, 2006a). The alternatives identified for evaluation in the AA report are as follows:

No Build Alternative
Transportation System Management Alternative
Managed Lane Alternative
Fixed Guideway Alternative

Alternative 1: No Build

The No Build Alternative includes existing transit and highway facilities and committed transportation projects anticipated to be operational by 2030. Committed transportation projects are those programmed in the O‘ahu 2030 Regional Transportation Plan prepared by OMPO. The committed highway elements of the No Build Alternative also will be included in the build alternatives (discussed below).

The No Build Alternative’s transit component would include an increase in fleet size to accommodate growth in population, while allowing service frequencies to remain the same as today.

Alternative 2: Transportation System Management

The Transportation System Management (TSM) Alternative would provide an enhanced bus system based on a hub-and-spoke route network and relatively low-cost capital improvements on selected roadway facilities to give priority to buses. The TSM Alternative would include the same committed highway projects as assumed for the No Build Alternative.

Alternative 3: Managed Lane

The Managed Lane Alternative would include construction of a two-lane, grade-separated facility between Waipahu and Downtown Honolulu for use by buses, paratransit vehicles, and vanpool vehicles. High-occupancy vehicles (HOV) and toll-paying, single-occupant vehicles also would be allowed to use the facility provided that sufficient capacity would be available to maintain free-flow speeds for buses and the above-noted paratransit and vanpool vehicles. Variable pricing strategies for single-occupant vehicles would ensure free-flow speeds for high-occupancy vehicles.

Intermediate bus access points would be provided in the vicinity of Aloha Stadium and Middle Street. Buses using the managed lane facility would be restructured and enhanced, providing additional service between Kapolei and other points ‘Ewa of the PUC, as well as Downtown Honolulu and UH Mānoa.

Alternative 4: Fixed Guideway

The Fixed Guideway Alternative would include the construction and operation of a fixed-guideway transit system between Kapolei and UH Mānoa. The system could use any fixed-guideway transit technology approved by FTA and meeting performance requirements, and could be automated or employ drivers.

Station and supporting facility locations are currently being identified and would include a vehicle maintenance facility and park-and-ride lots. Bus service would be reconfigured to bring riders on local buses to nearby fixed-guideway transit stations.

Although this alternative would be designed to be within existing street or highway rights-of-way as much as possible, property acquisition at various locations is expected to

be necessary. Future extensions of the system to Central O‘ahu, East Honolulu, or within the corridor are possible, but are not being addressed in detail at present.

A broad range of modal technologies was considered for application to the Fixed Guideway Alternative, including light rail transit, personal rapid transit, automated people mover, monorail, magnetic levitation (maglev), commuter rail, and emerging technologies still in the developmental stage. Several technologies were selected in an earlier screening process and will be considered as possible options for the fixed-guideway technology. Technologies that were not carried forward from the screening process include personal rapid transit, commuter rail, and the emerging technologies. The screening process is documented in the *Honolulu High-Capacity Transit Corridor Project Screening Report* (DTS, 2006b).

The study corridor for the Fixed Guideway Alternative will be evaluated in five sections to simplify analysis and impact evaluation in the AA process and report. In general, each alignment under consideration within each of the five sections may be combined with any alignment in the adjacent sections.

Each alignment has distinctive characteristics and environmental impacts and provides different service options. Therefore, each alignment will be evaluated individually and compared to the other alignments in each section. The sections that will be evaluated and the alignments being evaluated for each section are listed in Table 1-1. In addition to the combinations of alignments, a shorter 20-mile Alignment also was evaluated.

Table 1-1. Fixed Guideway Alternative Analysis Sections and Alignments

Section	Alignments Being Considered
I. Kapolei to Fort Weaver Road	Kamokila Boulevard/Farrington Highway
	Kapolei Parkway/North-South Road
	Saratoga Avenue/North-South Road
	Geiger Road/Fort Weaver Road
II. Fort Weaver Road to Aloha Stadium	Farrington Highway/Kamehameha Highway
III. Aloha Stadium to Middle Street	Salt Lake Boulevard
	Makai of the Airport Viaduct
	Mauka of the Airport Viaduct
	Aolele Street
IV. Middle Street to Iwilei	North King Street
	Dillingham Boulevard
V. Iwilei to UH Mānoa	Hotel Street/Kawaiaha'o Street/Kapi'olani Boulevard with or without Waikīkī Branch
	Hotel Street/Waimanu Street/Kapi'olani Boulevard with or without Waikīkī Branch
	Nimitz Highway/Queen Street/Kapi'olani Boulevard with or without Waikīkī Branch
	Nimitz Highway/Halekauwila Street/Kapi'olani Boulevard with or without Waikīkī Branch
	Beretania Street/South King Street
	Waikīkī Branch

Project Purpose

The purpose of the Honolulu High-Capacity Transit Corridor Project is to provide improved mobility for persons traveling in the highly congested east-west transportation corridor between Kapolei and UH Mānoa, confined by the Wai‘anae and Ko‘olau Mountain Ranges to the north and the Pacific Ocean to the south. The project would provide faster, more reliable public transportation services in the corridor than those currently operating in mixed-flow traffic. The project would also provide an alternative to private automobile travel and improve linkages between Kapolei, the urban core, UH Mānoa, Waikīkī, and urban areas in-between. Implementation of the project, in conjunction with other improvements included in the 2030 O‘ahu Regional Transportation Plan (ORTP), would moderate anticipated traffic congestion in the corridor. The project also supports the goals of the O‘ahu General Plan and the ORTP by serving areas designated for urban growth.

Project Area Needs

Improved Mobility for Travelers Facing Increasingly Severe Traffic Congestion

The existing transportation infrastructure in the corridor between Kapolei and UH Mānoa is overburdened handling current levels of travel demand. Motorists experience

substantial traffic congestion and delay at most times of the day during both the weekdays and weekends. Average weekday peak-period speeds on the H-1 Freeway are currently less than 20 miles per hour (mph) in many places and will degrade even further by 2030. Transit vehicles are caught in the same congestion. Travelers on O‘ahu’s roadways currently experience 51,000 vehicle hours of delay, a measure of how much time is lost daily by travelers stuck in traffic, on a typical weekday. This is projected to increase to more than 71,000 daily vehicle hours of delay by 2030, assuming implementation of all of the planned improvements listed in the ORTP (except for a fixed guideway system). Without these improvements, the ORTP indicates that daily vehicle-hours of delay could increase to as much as 326,000 vehicle hours.

Current a.m. peak-period travel times for motorists from West O‘ahu to Downtown average between 45 and 81 minutes. By 2030, after including all of the planned roadway improvements in the ORTP, this travel time is projected to increase to between 53 and 83 minutes. Average bus speeds in the system have been decreasing steadily as congestion has increased. Currently, express bus travel times from ‘Ewa Beach to Downtown range from 45 to 76 minutes and local bus travel times from ‘Ewa Beach to Downtown range from 65 to 110 minutes during the peak period. By 2030, these travel times are projected to increase by 20 percent on an average weekday. Within the urban core, most major arterial streets will experience increasing peak-period congestion, including Ala Moana Boulevard, Dillingham Boulevard, Kalākaua Avenue, Kapi‘olani Boulevard, King Street, and Nimitz Highway. Expansion of the roadway system between Kapolei and UH Mānoa is constrained by physical barriers and by dense urban neighborhoods that abut many existing roadways. Given the current and increasing levels of congestion, a need exists to offer an alternative way to travel within the corridor independent of current and projected highway congestion.

Improved Transportation System Reliability

As roadways become more congested, they become more susceptible to substantial delays caused by incidents, such as traffic accidents or heavy rain. Even a single driver unexpectedly braking can have a ripple effect delaying hundreds of cars. Because of the operating conditions in the study corridor, current travel times are not reliable for either transit or automobile trips. To get to their destination on time, travelers must allow extra time in their schedules to account for the uncertainty of travel time. This is inefficient and results in lost productivity. Because the bus system primarily operates in mixed-traffic, transit users experience the same level of travel time uncertainty as automobile users. A need exists to reduce transit travel times and provide a more reliable transit system.

Accessibility to New Development in ‘Ewa/Kapolei/Makakilo as a Way of Supporting Policy to Develop the Area as a Second Urban Center

The General Plan for the City and County of Honolulu projects the highest population growth rates for the island will occur in the ‘Ewa Development Plan area (comprised of the ‘Ewa, Kapolei, and Makakilo communities), which is expected to grow by 170 percent between 2000 and 2030. This growth represents nearly 50 percent of the total

growth projected for the entire island. The Wai‘anae, Wahiawā, North Shore, Windward, Waimānalo, and East Honolulu areas will have population growth of between zero and 16 percent because of this policy, which keeps the country “country.” Kapolei, which is developing as a “second city” to Downtown Honolulu, is projected to grow by nearly 600 percent to 81,100 people, the ‘Ewa neighborhood by 100 percent, and Makakilo by 125 percent between 2000 and 2030. Accessibility to the overall ‘Ewa Development Plan area is currently severely impaired by the congested roadway network, which will only get worse in the future. This area is less likely to develop as planned unless it is accessible to Downtown and other parts of O‘ahu; therefore, the ‘Ewa, Kapolei, and Makakilo area needs improved accessibility to support its future growth as planned.

Improved Transportation Equity for All Travelers

Many lower-income and minority workers live in the corridor outside of the urban core and commute to work in the PUC Development Plan area. Many lower-income workers also rely on transit because of its affordability. In addition, daily parking costs in Downtown Honolulu are among the highest in the United States (Colliers, 2005), further limiting this population’s access to Downtown. Improvements to transit capacity and reliability will serve all transportation system users, including low-income and under-represented populations.

Project Schedule

Projects developed through the FTA New Starts process progress through many stages from system planning to operation of the project. The Honolulu High-Capacity Transit Corridor Project is currently in the Alternatives Analysis phase, which includes defining and evaluating specific alternatives to address the purpose of and need for the project as discussed in this chapter. The anticipated project development schedule for completion of the 20-mile Alignment is shown in Figure 1-3.

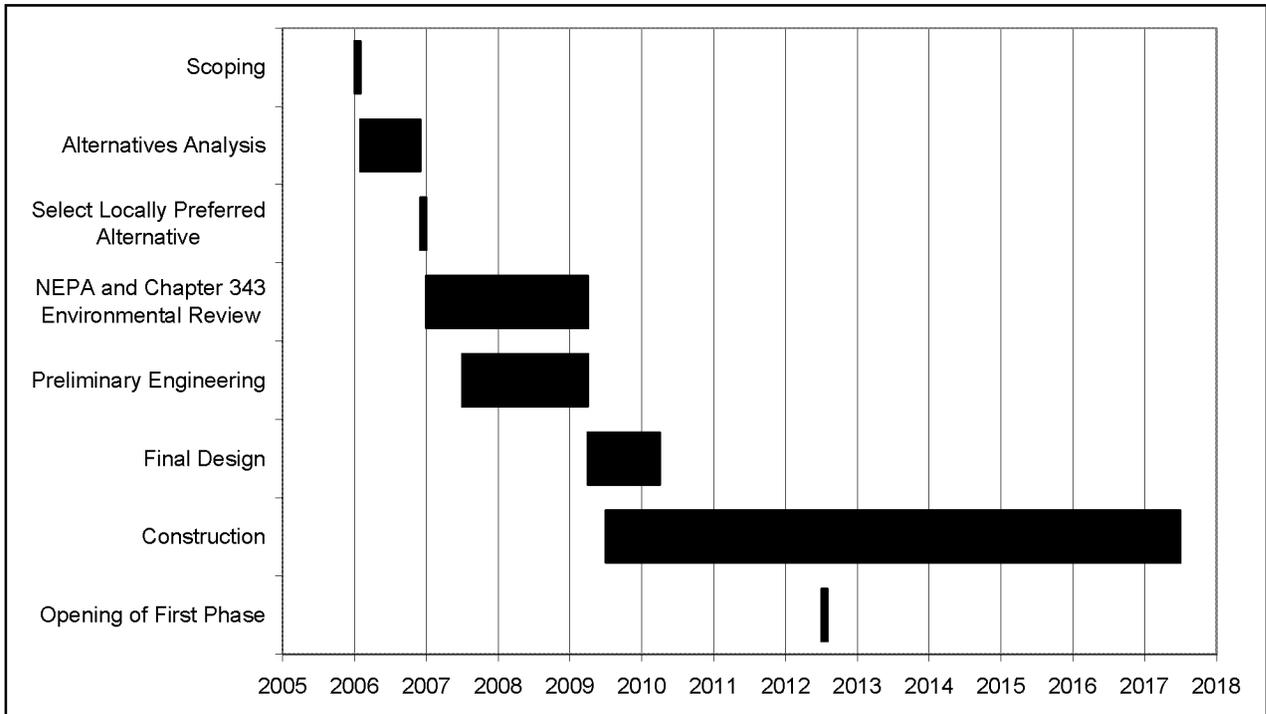


Figure 1-3. Project Schedule

Regulatory Background

Several federal and state laws help to regulate visual quality. The following regulatory policies apply to the evaluation of visual impacts under the proposed alternatives:

The National Environmental Policy Act (NEPA) (42 USC Section 4231) puts regulatory responsibility on the federal government to “use all practicable means” to “assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings.”

The Highway Beautification Act of 1965 (23 CFR-750) provided controls over outdoor advertising and junkyards in order to protect public investment, promote safety, preserve natural beauty, and provide enhanced roadside development to accommodate the traveling public.

Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Sections 6002-6009 places additional emphasis on environmental considerations such as mitigation, enhancement activities, context sensitive solutions, and Section 4(f). It also advances the idea of coordinating public and agency involvement and promoting the use of visualization techniques to improve stakeholder understanding of proposed plans.

U.S. DOT Act, Section 4(f), which has been part of federal transportation law since 1966, applies to agencies within the U.S. DOT and is generally referred to as 49 USC 303. Section 4(f) focuses on the preservation of public park and recreation lands, wildlife and waterfowl refuges, and historic sites to include the preservation of their aesthetic integrity.

Section 106 of the Historic Preservation Act of 1966 furthers the preservation of historic resources, including resources that any Indian Tribe or Native Hawaiian Organization has attached religious and cultural significance to.

The Federal Transit Administration (FTA) published *Circular 9400.1A, Design and Art in Transit Projects* to encourage the use of design and artistic considerations in transit projects. FTA recognizes that specific types of transit projects require an assessment of visual effects. The circular provides guidance on opportunities for incorporating art and design into transit projects.

The State Hawaii Revised Statutes Chapters 6E, 58, and 343 as it pertains to the quality and preservation of historic resources, exceptional trees, and the human environment.

Policy Documents

Public policy documents and ordinances that are applicable to the study area were used as reference documents in obtaining existing information on identified visual resources.

These documents also provide insight into the value local resources have within the community. Objectives, goals, and policies contained within these documents include provisions for protection, enhancement, and development of resources related to the visual integrity and quality of the communities and areas covered by these plans. Referenced plans, ordinances, and studies are cited below.

O‘ahu General Plan (Revised 2002)

The primary focus of aesthetic policies from the *O‘ahu General Plan* is: the preservation of scenic resources, such as mature trees, scenic views and vistas, key landmarks, and historic and cultural features; use of urban design principles that emphasize aesthetic compatibility while meeting functional standards; and review standards to ensure that the character of older communities is maintained while still allowing for new construction and maintenance of older facilities.

‘Ewa Sustainable Communities Plan (August 1997)

Aesthetic policies in the *‘Ewa Sustainable Communities Plan* promote the consideration of compatible setting in order to avoid conflicts with historic context and to preserve the physical integrity of historic or cultural sites. Policies are directed at preservation and enhancement of public views, which include mauka-makai view corridors, panoramic and significant landmark views, natural features, and resources that are a part of the areas heritage.

Significant ‘Ewa Historic and Cultural Resources

Historic Features	Lanikuhonua OR&L Historic Railway ‘Ewa Villages Pearl Harbor National Historic Landmark
Native Hawaiian Cultural and Archaeological Sites	Barbers Point Archaeological District Oneula Archaeological District
Significant Views and Vistas	Distant vistas of the shoreline from the H-1 Freeway above the ‘Ewa Plain Views of the ocean from Farrington Highway between Kahe Point and the boundary of the Wai‘anae Development Plan Area Views of the Wai‘anae Range from H-1 Freeway between Kunia Road and Kalo‘i Gulch and from Kunia road Views of na pu‘u at Kapolei, Pālailai, and Makakilo Mauka and makai views Views of central Honolulu and Diamond Head

Central O‘ahu Sustainable Communities Plan (December 2002)

Key aesthetic policies in the *Central O‘ahu Sustainable Communities Plan* focus on preservation of historic and cultural resources. These resources are seen as the historic

and cultural roots of the community that define the area's unique sense of place. In particular, the protection of visual landmarks, significant vistas, and historic features from the plantation era and earlier periods are identified as key. The policies call for the protection of Kukaniloko with appropriate preservation measures to be determined through consultation with the Hawaiian Council of elders, the State Historical Preservation Officer, and others.

Significant Central O'ahu Historic, Cultural, and Scenic Resources

Historic and Cultural Features	<ul style="list-style-type: none"> OR&L Historic Railway Right-of-Way Waipahu Sugar Mill and surrounding related features Kunia Villages Poamoho Village Pearl Harbor National Historic Landmark
Native Hawaiian Cultural and Archaeological Sites	<ul style="list-style-type: none"> Kukaaniloko Kīpapa Gulch Archaeological Sites Waikele Gulch Archaeological Sites Waikakalaua Gulch Archaeological Sites
Significant Views and Vistas	<ul style="list-style-type: none"> Distant vistas of the shoreline and Pearl Harbor from the H-2 Freeway and Kunia road above the 'Ewa Plain Views of the Wai'anae and Ko'olau Mountains from Kunia Road, Kamehameha Highway, and H-2 Freeway Views of Pearl Harbor from Farrington Highway in the vicinity of Waipahu High School The view of the Waipahu Sugar Mill from Waipahu Depot Road The view of the Wai'anae Mountains from the Waipahu Cultural Garden The view of the Wai'anae Mountains from Mililani High School, from Meheula Parkway near Keaolani Street, and from Mililani District Park The view of Diamond Head and Pearl Harbor from Mililani Recreation Center No. 2 The view of the upper Central O'ahu plains toward Waiahua from the end of Koa Street in Wahiawā The view of West Loch and of the Wai'anae Range from Kamehameha Highway while passing the Central O'ahu Regional Park

Primary Urban Center Development Plan (Draft June 2004)

Key aesthetic policies under the *Primary Urban Center Development Plan* focus on the preservation of historic and cultural sites and panoramic views that include landmarks and the urban skyline. Planning and design, as well as adaptive reuse, are promoted to allow for new uses while preserving historic value. Preservation policies focus on panoramic views that include Downtown as a prominent feature and the Ko‘olau and Wai‘anae Mountain Ranges, Punchbowl, Diamond Head, and Pearl Harbor as natural landmarks. Views along Pearl Harbor, the shoreline, and Pearl Harbor Historic Trail toward the mountains, shoreline, and significant landmarks are emphasized as important.

‘Aiea-Pearl City Livable Communities Plan (May 2004)

Under the *‘Aiea-Pearl City Livable Communities Plan*, specific aesthetic objectives are identified for Kamehameha Highway and include: consistent landscaping; reduction of visual impacts from overhead lines; preservation and enhancement of shoreline views, particularly at key intersections (Kaonohi, Ka‘ahumanu, and Honomanu Streets); protection of shoreline views of Pearl Harbor and other key landmarks such as the Sumida Watercress Farm and Pa‘aiau Fishpond; and enhancement of mauka-makai views, particularly along key streets such as Kaonohi Street, Ka‘ahumanu Street, and Waimano Home Road, natural drainageways such as ‘Aiea Stream, Kalauao Stream, Waimalu Stream, and Waiawa Stream, and ridgelines.

Waipahu Livable Communities Initiative (May 1998)

The *Waipahu Livable Communities Initiative* focuses on maintaining a pedestrian-scale within the town core and preserving the historic plantation theme and cultural heritage of the area.

Waipahu Town Plan (December 1995)

Waipahu Town Plan focuses on the town’s accessibility into and within Waipahu, improvements of the town’s overall appearance, and the promotion and preservation of Waipahu’s plantation and cultural heritage. The plan also integrates a few other methods of transportation for local residents.

Revised Ordinance of Honolulu

Chapter 21, Article 9, Special District Regulations

Special District Regulations include policies that safeguard special features and characteristics of particular districts to allow for their preservation and enhancement. The affected districts for this project include Hawai‘i Capitol (Section 21-9.30), Diamond Head (Section 21-9.40), Punchbowl (Section 21-9.50), Chinatown (Section 2-9.60), Thomas Square (Section 21-9.70), and Waikīkī (Section 21-9.80),

Chapter 41, Article 13, Protective Regulations for Exceptional Trees

Protective Regulations for Exceptional Trees includes regulations that control removal, destruction, or alteration of trees that have been designated “exceptional” and require city council approval for any actions affecting Exceptional Trees.

Previous Studies

Previous studies conducted within the area, were used as reference documents in obtaining existing information on identified visual resources, characterizing the current landscape and views within the proposed project corridor, and identifying local concerns related to preserving the integrity of the visual environment. Referenced plans, ordinances, and studies are cited below.

- Department of Land Utilization Coastal View Study (1987)
- Honolulu Rapid Transit Final Environmental Impact Statement (July 1992)
- Nimitz Highway Improvements Visual Impact Assessment (March 1997)
- Primary Corridor Transportation Project, Final Environmental Impact Statement (July 2003)
- North South Road Environmental Impact Statement (September 2004)
- Fort Barrette Road Environmental Impact Statement (July 2005)
- Honolulu High-Capacity Transit Corridor Scoping Report (April 2006)

Coordination

Prior to initiating the literature search and any field surveys, two separate meetings were held to obtain input from local government and interest groups. The meetings addressed specific areas of concern or interest that should be considered in evaluating existing visual and aesthetic resources and conditions. A meeting with the City and County of Honolulu Department of Planning and Permitting (DPP) that included staff from the planning division and urban design branch was held on February 22, 2006. The discussion focused on the need to evaluate the potential for impacts to protected view corridors as identified in the Development Plan Areas (DP Areas). The DPP was also interested in evaluation of visual impacts within the Special Management Districts such as Chinatown and the Capital District. DPP stated that “public views of importance” as identified in the DP Areas and Special Management Districts should be considered to have a high visual quality. Discussion was also held regarding the importance of public reaction and input into the evaluation of visual and aesthetic quality and impacts. Refer to Appendix A, for the Meeting Minutes which summarize the coordination meeting with the DPP.

A meeting was also held with board members from The Outdoor Circle on February 24, 2006. The meeting included an introduction to the proposed project including potential project alignments and technologies that were currently being considered. The analysis process for Visual Impact Assessment was also introduced in order to give The Outdoor Circle an understanding of the evaluation process and areas that would be considered and evaluated. The Outdoor Circle expressed concern over several of the design elements

including elevated structures and power substations and how they would relate to an urban setting. The Outdoor Circle also stated that it was difficult for the general public to understand the potential impacts of the project without being able to see the proposed changes. The Outdoor Circle expressed interest in being able to provide continued input as additional information became available. Refer to Appendix B, for the Meeting Minutes which summarize the coordination meeting with The Outdoor Circle.

The Visual Impact Assessment considered the primary statutes and regulations applicable to visual impacts and was conducted in accordance with Federal Highway Administration's Technical Advisory T6640.8, Visual Impact Assessment for Highway Projects guidance (FHWA HI-88-054), and Title 23 U.S.C. 109 (h). Preparation of the Visual Impact Assessment followed the basic guidance and format as established by Federal Highway Administration's Memorandum HEV-20 (August 18, 1986) on aesthetics and visual quality and Federal Highway Administration's *Visual Impact Assessment for Highway Projects* (FHWA, 1983) as published by the American Society of Landscape Architects. The assessment provides a comprehensive approach to evaluating visual impacts as they relate to visual quality, viewer response, esthetic resources, and public policy. Within the framework of this approach, various assessment techniques are used to meet the needs of the project, address general community concerns, and evaluate specific resources.

To support the evaluation of each alternative in relationship to the project objectives in the AA, the following elements were evaluated in the Visual Impacts Technical Report:

- Unique or locally/regionally significant visual resource (Vividness)
- Change in the view of visual resources (Intactness)
- Change in visual quality, character or unity
- Consistency with applicable laws, ordinances, regulations, policies or standards

Framework

The framework for the visual assessment involves five steps:

- Definition of the project setting and area of visual effect.
- Identification of scenic resources and viewer groups.
- Depiction of the visual appearance of project alternatives.
- Assessment of the visual impacts of project alternatives.
- Consultation with agencies.

Definition of the Project Setting and Area of Visual Effect

Documenting the existing visual environment sets the framework for evaluation by establishing the baseline condition for comparison of project changes. The existing conditions characterize the relative importance, sensitivity, and quality of the various components within the existing visual environment in terms of land use and community character. The existing conditions identify the Area of Visual Effect (AVE), view corridors, development plan areas, special districts and visually sensitive landmarks. A map was used to illustrate the location of visually sensitive land uses, landmarks, special districts, and development plan areas and their relationship to the proposed project sections and alignments.

Area of Visual Effect

The AVE is the area within which an undertaking may directly or indirectly cause changes in the visual character of the environment (Figure 3-1). The AVE was considered to include the project alignment, areas immediately adjacent to the proposed project alignments (first row uses) as well as view corridors that extended to the mountains, shoreline, Downtown skyline, or other protected and dominant scenic resource (e.g. Pearl Harbor and Diamond Head). These features are protected by public policy documents and are considered unique visual resources.

In locations where acquisitions are anticipated to occur, the AVE extends to the second row uses. At various locations along the proposed alignments there are view corridors that extend towards the mountains, shoreline, or Downtown skyline. At these spot locations the AVE was anticipated to extend beyond the first or second row of uses. Views that extend to these land masses or built environments were considered part of the AVE as long as their general character can be distinguished from the surrounding visual environment. Otherwise, views and images that extend beyond a three mile radius were considered background and not affected by changes in the foreground view-frame. An exhaustive survey of every occurrence where these view corridors are available was not conducted.

View Corridors

A list of protected view corridors within the area of visual effect was obtained from literature review of applicable public policy documents. Additional data regarding view corridors within the study corridor was also obtained from prior studies. Consultation with the City and County DPP provided current information on protected view corridors.

The Panoramic Views Analysis conducted by Hawai'i Design (Appendix C) contains a list of view corridors that have been identified by policy or ordinance as being unique visual resources. The analysis was used to document the existing conditions of the view corridors as well as identify view corridors that were considered to be unaffected by the proposed project. The Panoramic Views Analysis contains two lists. List 1, No Impact Views, includes the view corridors that were considered to be unaffected by the proposed project alignments. The resources in this list are either located outside of the study corridor, are views that are directed away from the study corridor, or are too narrow or too far in the distance to be affected or have an affect on the study corridor. List 2, Views Within Study Corridor, identifies the view corridors that are located within the study area and may be affected by the proposed project alignments. A list of the view corridors and the corresponding panoramic images are included in the study. The Panoramic Views Analysis documents the existing conditions at each view corridor.

A field survey was conducted in March 2006 to confirm data obtained from the literature search and consultation. Field surveys were also used to identify potential view corridors along the alignment for use in developing project simulations.

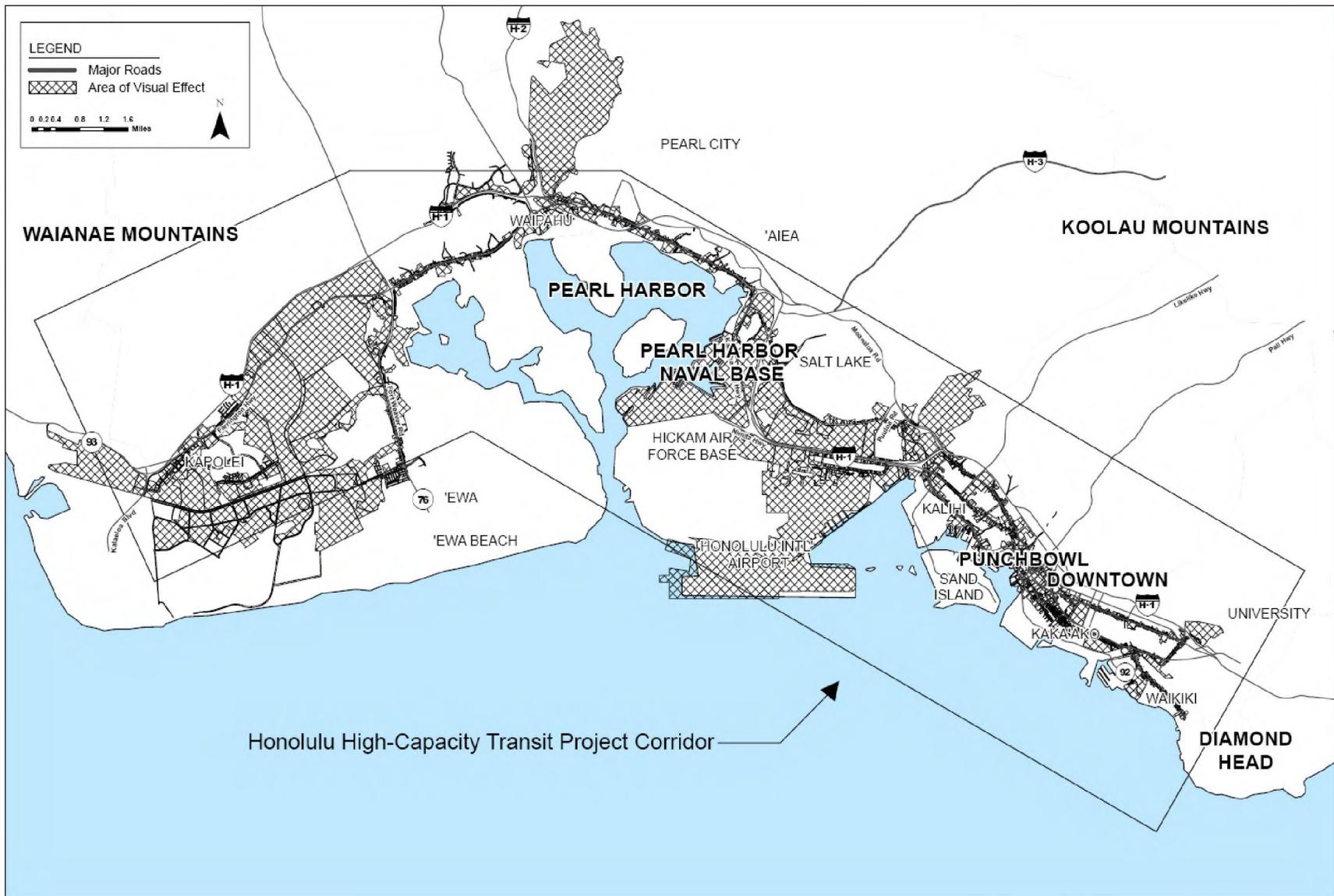


Figure 3-1. Area of Visual Effect

At each geographic location identified as a protected view corridor, existing conditions were photo documented with the photos directionally oriented as prescribed by the written text or verbalized during the consultations. Photographs of existing conditions taken at the respective locations are presented in Appendix C, *Panoramic Views Analysis* (Hawai'i Design, May 2006).

Viewpoints

Using the photo documentation from the field surveys, key viewpoints were selected that represented typical views within the proposed corridor alignment(s) for the alternatives. These key viewpoints incorporated a variety of perspectives (i.e. vehicular, pedestrian, and elevated) and a wide range of visual resources. Several of these viewpoints are also representative of the protected view corridors identified in the *View Corridor Survey* (Appendix C). The representative viewpoints are identified in the discussion under existing conditions for viewpoints. Photos V1 through V23 (Figures 3-2 through 3-7) are the representative viewpoints that were used for purposes of evaluating impacts to resources and visual quality, and consistency with aesthetic policies. The existing visual quality for each viewpoint was determined using the defined attributes as outlined in the Federal Highway Administration's methodology for visual impact assessment. These defined attributes include the following three factors:

Vividness – how memorable the view and its key components are

Intactness – the visual integrity of a view and freedom from encroaching elements

Unity – the visual harmony and cohesiveness of a view

Visual quality for each viewpoint was rated as high, moderate or low. The rating was based on how well the view met visual excellence as measured by the defined attributes. A viewpoint that rated high in all three criteria was considered to have high visual quality. If two criteria were met, the viewpoint was rated as moderate for visual quality. If none or only one of the criteria were met, the viewpoint was rated low for visual quality. Viewpoints V1 through V23 are the representative viewpoints for the proposed project alignments. The existing visual quality for these representative viewpoints is shown in Table 3-1.

Identification of Scenic Resources and Viewer Groups

Scenic Resources

Scenic resources include landmarks, significant views and vistas, historic and cultural sites, and Exceptional Trees. A landmark represents unique characteristics of a place or provides great value to local residents and visitors. Landmarks are also places or structures that have a unique style based on architectural time, artistic merit, and native qualities of Hawai'i. Landmarks represent the heart of the community and those affected by events that took place. Pearl Harbor is considered a historical landmark because of the part it played in the island's history.

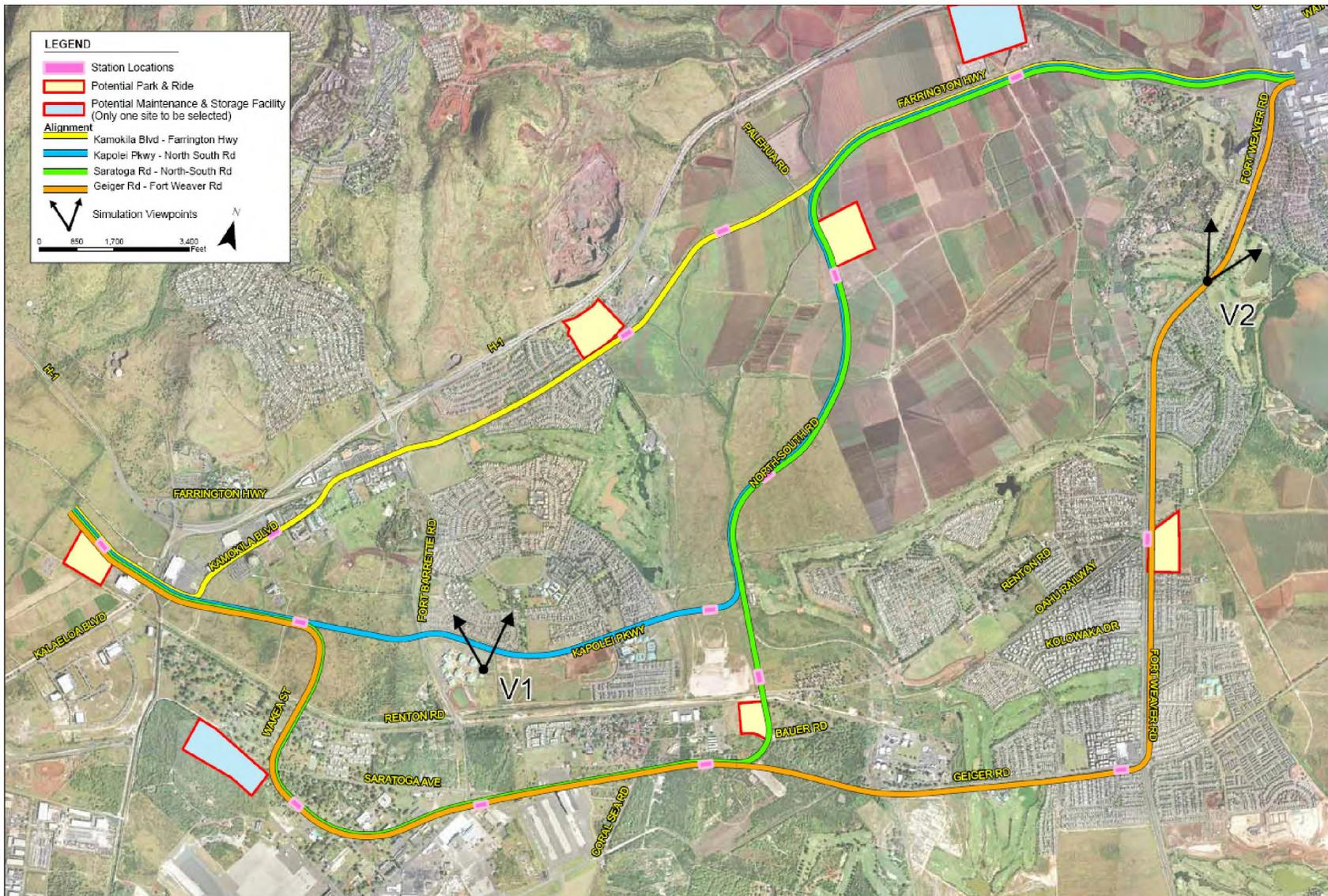


Figure 3-2. Viewpoints Section I

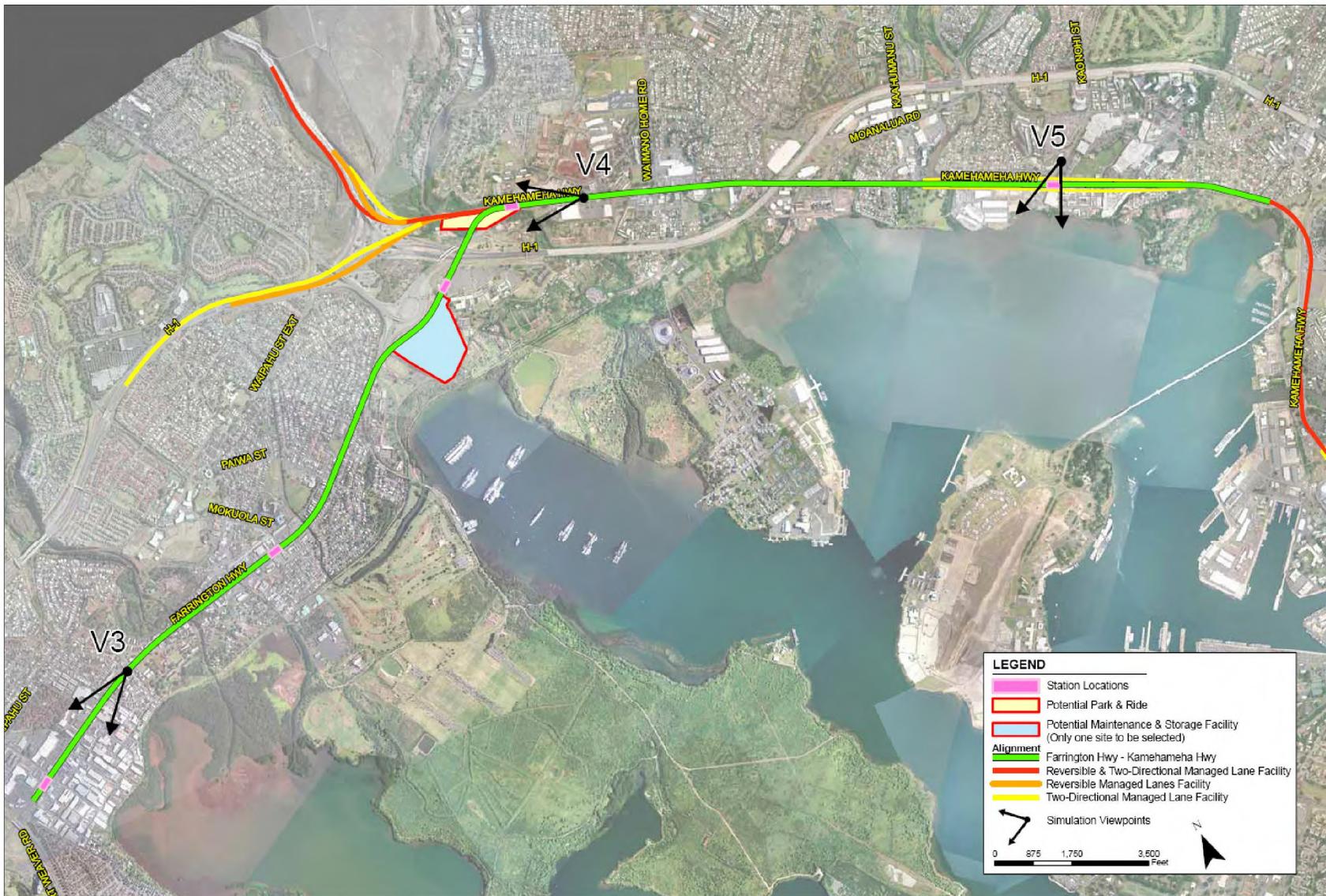


Figure 3-3. Viewpoints Section II

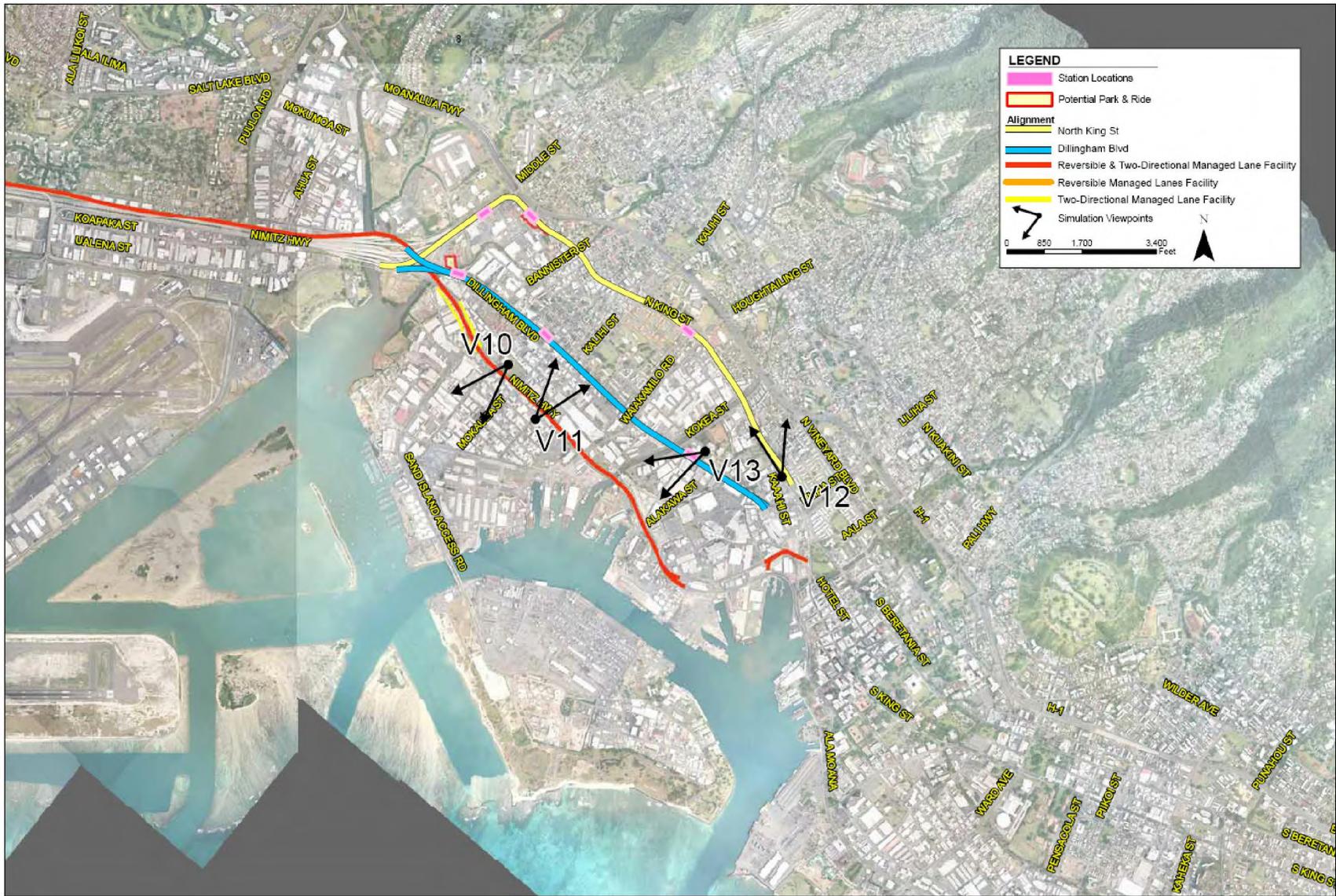


Figure 3-5. Viewpoints Section IV

Table 3-1. Existing Visual Quality and Viewer Groups

Viewpoint (V)	Location	Visual Quality	Viewer Group(s) ¹
I. Kapolei to Fort Weaver Road			
V1	Kapolei High School	Moderate	Res
V2	Fort Weaver Road at Honouliuli Bridge	High	C
II. Fort Weaver Road to Aloha Stadium			
V3	Farrington Highway between Pupukahi and Pupupuhi	Moderate	Res
V4	Kamehameha Highway at Acacia Road	Moderate	C
V5	Kamehameha Highway at Kaonohi	Low	Res, B
III. Aloha Stadium to Middle Street			
V6	Aloha Stadium	High	Rec, V
V7	Salt Lake Boulevard at Salt Lake-Moanalua Public Library	Moderate	Res
V8	Kamehameha Highway at Radford Road	Low	C, V
V9	Ke'ehi Lagoon Park	High	Rec, V
IV. Middle Street to Iwilei			
V10	N King Street at Robello Lane	Moderate	Res
V11	Pu'uhale Elementary School	Moderate	Res, B
V12	Nimitz Highway at Kalihi Street	Low	Res, B
V13	Honolulu Community College	Moderate	Res, B
V14	O'ahu Market at N King and Kekaulike Streets	High	Res, B
V15	S King Street at Ku'ilei Street	Moderate	Res, B, V
V16	University Avenue and S King Street	High	Res, B, V
V17	Hotel Street and Kekaulike Street	High	Res, B, V
V18	Fort Street Mall and Queen Street	High	Res, V
V19	Aloha Tower Market Place	High	Res, V
V20	Thomas Square	High	Rec,
V21	Kūhiō Avenue and Kālainmoku	High	Res, V
V22	Kūhiō Avenue and Lili'uokalani Avenue	High	Res, V
V23	Ala Wai Promenade Diamond Head of McCully Street	High	Res, Rec, V

¹ Res – Residents, C – Commuters, B – Business Owners, Rec – Recreationists, V - Visitors

Significant views and vistas are identified in policy documents that govern the study area and include mauka and makai views as well as views of prominent landmarks. Historic resources include pre-1965 resources on the National Register of Historic Places or on the Hawai'i Register of Historic Places or officially determined eligible for the National Register of Historic Places, as well as historic districts (*Draft Historic and Archeological Technical Report*, September 2006) “Cultural practices were broadly define as : (1) a traditional cultural practice that is being conducted in an urban setting, and (2) traditions,

beliefs, practices, life ways, and societal history of a community and its traditions, arts, crafts, music, and related institutions.

Cultural practices include such broad categories as food, dance, physical practices and health arts, museums, flora, religious practices and gathering places, cultural settings, and festivals and ceremonies” (*Draft Cultural Resources Technical Report*, July 2006). Exceptional Trees are defined as “a tree or grove of trees with historic or cultural value, or which by reason of its age, rarity, location, size, esthetic quality or endemic status has been designated by the city council as worthy of preservation” (*Revised Ordinances of Honolulu*, 1990).

Desktop Inventory

A desktop inventory of existing and readily available policy documents and land use ordinances that affect the proposed project area was conducted in order to obtain relevant data on resources within the study area and policies related to community aesthetics. A literature review of previous relevant visual studies was also conducted, including the Primary Corridor Transportation Project (DTS, July 2003), in order to gain additional data on identified visual resources within the corridor. A review was conducted of the comments contained in these documents that were related to concerns associated with the aesthetic impacts on visual resources from various project components and stages of project development. The comments were considered for their applicability and use in evaluating similar impacts related to the currently proposed project and the potential for minimizing impacts through design changes or project alternatives.

The Visual Impact Assessment also considered information and evaluations contained in the *Land Use, Cultural, Historic, and Natural Resources Technical Reports* as they provided additional information on sensitive land uses, Section 4(f) resources, and Exceptional Trees.

Field Surveys

Field surveys were conducted in December 2005 and May 2006 to confirm data obtained from agencies, special interest groups, and the desktop inventory and to gain an understanding of the area’s natural, manmade, and historic character as it relates to the current visual environment. The field surveys were photo documented to record the existing visual conditions and key views. Field surveys consisted of driving or walking the proposed alignments to confirm visual resource data, understand the visual character of each community within the project corridor, identify viewer groups, and study land uses and topography to help characterize the physical environment.

Viewer Groups

Viewer groups are defined as groups of people potentially exposed to the area of visual affect. Changes in visual character are evaluated by public preference for the established visual character of a regional landscape and viewer group response. Viewer group response involves viewer sensitivity and viewer exposure. Viewer sensitivity is defined as the viewers’ concern for scenic quality and may be shaped by local values and goals.

View exposure is measured by the number of viewers exposed to the resource change, type of view activity, duration of view, and position of the viewer.

Viewer groups are primarily based on their activity while exposed to the area of visual affect. For example, a roadway widening project through a commercial area may be seen by people commuting to and from work, the occasional delivery person or customer, and the daily employee. Within the project study area viewer groups include:

Residents

A group of people that observes the visual environment on a daily basis and for extended periods of time. Residents become very familiar with the local environment and take ownership of that environment. Residents usually have more time to take in surrounding views, and at a fairly leisurely pace. This viewer group is considered to be highly sensitive to changes in the visual environment.

Commuters

A group of people that frequently travel through an area and therefore have familiarity with the existing visual environment. However, this viewer group does not have the same sense of ownership over the views as residential viewer groups do because they do not reside within that environment, they only pass through it. Commuters usually see these views as a secondary focus with their primary focus being on navigating the roadway and traffic. This viewer group is considered to be moderately sensitive to changes in the visual environment.

Business Owners

A group of people that have a vested interest in the visual environment surrounding their operations. Business owners, while not focused on the views outside of their operations, are concerned about any changes to the physical environment that would affect the prosperity of their operations. If business owners perceive that changes in the visual environment would have a negative impact on either the image of their business or the attractiveness of the area to potential customers, they can become concerned over visual changes. Most business owners become somewhat familiar with their surrounding environment and may take some ownership over that environment. This viewer group sees the existing visual environment on a daily basis and for extended periods of time. Business owners are considered to be moderately to highly sensitive to changes in the visual environment.

Recreationists

A group consisting of people who frequent the local parks, hiking trails, bikeways, and watercourses. Recreationists have an expectation of what the condition of the visual environment should be. For many in this group, the primary focus of their activity is to leisurely enjoy a visually attractive resource. Even for those whose primary purpose is to exercise, the expectation is that the surrounding environment would be pleasant and enjoyable. The recreationist viewer group is somewhat familiar with the visual environment surrounding the resources they frequent and may have some sense of ownership over that environment. However, this would be more likely for residents who frequent a local park versus recreationists from various areas using a regional resource.

This viewer group is considered to be moderately sensitive to changes in the visual environment.

Visitors

A group of people that consists of both first time and repeat visitors to the area. Visitors may consist of tourists, delivery or service personnel, or business customers. This viewer group has less familiarity with the specific details of the existing visual environment. However, they tend to have some sensitivity to and expectation of the surrounding environment. Visitors would observe the visual environment on a periodic or one-time basis and would primarily be focused on other activities. The visitors' viewer group is anticipated to have a low sensitivity to changes in the visual environment.

Viewer groups represented for each section of the proposed project are shown in Table 3-1 above.

Visual Appearance of Project Alternatives

Simulations

Using digital paint techniques, photo simulations were developed for each of the key viewpoints. The purpose of the photo simulations was to communicate visual information in a two-dimensional format. Existing visual conditions before project implementation were photo documented and then future conditions were simulated photo-realistically to show project changes. Simulations were also used to represent same or similar view corridors identified in various policy documents as protected resources. In addition, the simulations allowed for a general discussion of potential impacts that occur throughout the corridor, for example changes in shade or shadow patterns and obstruction of mountain or ocean views.

Assessment of Visual Impact

The relative level of impact an alternative or alignment had on the existing visual environment was analyzed in relationship to the quality of the existing visual environment. Evaluation of impacts to visual resources was based on the existing visual integrity of the resource, the visible physical changes that would occur to the resource, and the importance of the visual environment to the integrity of the resource. The analysis considered compatibility with applicable visual policies, viewer sensitivity and response to visual changes, scale and context of the project, and affects on the light environment.

Physical Change to Visual Environment

Physical change brought about by either removal of existing elements, modification of those elements, or introduction of new elements can have both positive and negative visual effects. Positive effects may include landscape beautification or revitalization through new development. Negative effects (impacts) associated with physical change may include removal or modification of aesthetic, historic, or cultural resources or introduction of project elements that are out of character or scale with the surrounding visual environment.

The project footprint and need for additional right-of-way was used as an indicator for potential physical change and provided a comparative measure for determining the impacts of each alignment. If project changes resulted in either the removal of and/or alteration of the aesthetic integrity of aesthetic resources, under Section 4(f) of the U.S. DOT Act, Section 106 of the Historic Preservation Act, and Chapters 6E, 58, and 343 of the State of Hawai'i Revised Statutes, it would be considered a visual impact and would require avoiding the impact, decreasing the severity of the impact or using appropriate mitigation to reduce impacts. Specific impacts to vegetation, exceptional trees, historic and cultural resources and Section 4(f) resources are identified in the following reports:

- *Natural Resources Technical Report* (Parsons Brinckerhoff, Yukie Ohashi Planning Consultant, Steve Nimz & Associates, LLC, 2006)
- *Cultural Resources Technical Report* (Ku'iwalu, 2006)
- *Historic Resources Technical Report* (Mason Architects Inc. 2006)
- *Neighborhoods and Communities Technical Report* (Parsons Brinckerhoff, 2006)

The visual affect associated with project construction is the general change in aesthetic character associated with new construction either within or outside existing right-of-way. The proposed project footprint may not necessarily indicate a permanent, long-term impact since it may include properties set aside for future use as right-of-way or utility easements and may not involve construction activities. A majority of the proposed alignments would remain within the existing right-of-way; therefore, the greatest visual effects would occur within that existing right-of-way.

Construction affects the visual environment by bringing about temporary, short-term physical change within and surrounding the construction site. Construction activities include the removal of vegetation during clearing and grubbing operations and storage of large equipment and construction materials. Potential staging areas would include the existing right-of-way as well as properties acquired for the future roadway right-of-way. Construction operations will also include the use of barriers, signage, and screening materials for traffic control, safety, privacy, and noise abatement. Construction impacts were based on the AVE, which is the existing right-of-way for the proposed project alignments plus additional areas of acquisition, since this area would be used for construction purposes in addition to long-term use by the proposed project.

Change in Visual Quality

Change to visual quality is expressed as a compliment or contrast between vividness, intactness, and unity of the existing or baseline conditions compared to the simulated future conditions. Obstructing or modifying views of a resource that have been identified by either policy documents or other local designation as having significant scenic value was considered to be a visual impact. Changes to resources that would substantially alter the existing visual integrity of the resource, change its physical appearance or cause a change to the visual environment that affects the use of the resource were considered to have a visual impact.

Other considerations included scale, context, and changes in light, glare, shade, and shadow. Physical changes that are anticipated to occur within the existing visual environment were evaluated using the key viewpoint simulations and project plans and profiles. The change in visual quality was rated as high, moderate or low. The rating was based on criteria for visual excellence, vividness (memorability of the view), intactness (freedom from encroaching elements), and unity (cohesiveness of an image). A low visual impact is a slight change to the current conditions in the environment. If physical changes resulted in no changes to the current conditions or affected only one of the three criteria, the viewpoint was rated low for change in visual quality. Mitigation might be required but is not mandated. If physical changes resulted in conditions affecting two criteria, the viewpoint was rated as moderate for change in visual quality. Moderate changes can be mitigated within a five-year timeframe using well known practices such as revegetation. Physical changes that resulted in negative affects under all three criteria were rated high for change in visual quality. A high level of change in visual quality can not be mitigated and is considered to need an alternative project design in order to avoid impacts.

Viewer Response to Visual Change

Also considered in the evaluation of change to visual quality is the impact of the change on viewer groups. Visual impact is the combination of change in visual quality and viewer sensitivity. Viewer sensitivity can increase the perceived level of change. Viewers with lower than average sensitivity are less responsive to change and would not add to the magnitude of perceived change. For example, if the physical changes would cause a moderate level of change in visual quality and would be seen by a few moderately-sensitive viewers, the visual impact would be moderate. However, if the viewer's level of sensitivity is higher or the number of viewers that are exposed to the view increases, the perceived visual impact may also increase. A viewer's perception of change can also be affected by lighting, scale, and focus.

Changes in Light, Glare, Shade, and Shadow

The project's effects on ambient light conditions, sources of light and glare, and existing shade and shadow patterns was also evaluated. Elimination, reduction, or introduction of light sources, glare, shade, or shadow was considered an impact and was evaluated in relationship to the existing light environment. Impacts were evaluated based on how much the existing conditions changed, the affect those changes had on an area's use, and the sensitivity of the affected environment to the changes.

Compatibility with Existing Visual Policies

Project related changes were evaluated in relationship to applicable aesthetic policies, special districts, and land use zones. Proposed project related changes that conflicted with adopted visual policies were considered to have a visual impact.

Consultation with Agencies and Special Interest Groups

In developing the scope and methodology for the visual impact assessment, input and feedback from the DPP and The Outdoor Circle was obtained in order to ensure that local

concerns were incorporated and addressed in the analysis. As discussed under Chapter 2, Coordination, two separate meetings were held with the DPP and The Outdoor Circle to present the approach for this Visual Impact Assessment and ask for feedback and suggestions on the approach, as well as obtain information on specific resources that should be considered as part of the analysis. In addition to these consultations, comments received from the public during, and after, the Public Scoping meetings held on December 13 and 14, 2005, as well as comments received via the project website (www.honolulutransit.org), were reviewed and considered for their applicability and use in providing additional details and information for use in the Visual Impact Assessment.

Existing Conditions

Regional

The island of O‘ahu is one of eight major and 124 minor islands that make up the State of Hawai‘i. All of the Hawaiian islands were originally formed by volcanic eruptions. These eruptions, which occurred approximately 70 million years ago, originated from deep below the ocean’s surface. Since that time, additional volcanic eruptions, severe tropical storms (some with hurricane-force winds), and earthquakes have continued to mold and reshape the Hawaiian Islands into a series of jagged cliffs, steep valleys and gently sloping flatlands. O‘ahu, the home of Honolulu, is the third largest island in Hawai‘i. Two parallel mountain ranges, the Wai‘anae Ridge to the west, and the Koolaus to the east provide a visual landmark and divide the island into two distinct environments. The windward (eastern) side has a lush tropical environment with ferns, tropical plants, and waterfalls. The leeward (western) side, which is where the proposed project would be located, has a more moderate, drier climate and is more sparsely-vegetated compared to the windward side.

Local Development Plan Areas

O‘ahu is divided into eight General Plan Development Areas (DP Areas), which are intended to guide and influence land use and community character. The proposed project affects three of the eight DP Areas (Figure 4-1): ‘Ewa, Central O‘ahu, and the Primary Urban Center. The ‘Ewa DP Area is primarily a low-elevation plain that extends from sea level at the coastline to an elevation of only about 100 feet three to five miles inland. The central ‘Ewa Valley has a moderate temperature supporting tropical plants, trees, and agricultural fields. The ‘Ewa region was once one of O‘ahu’s prime sugarcane cultivation areas, but is now experiencing urban growth as the State, and City and County of Honolulu support development of the region as the “secondary urban center” of O‘ahu. The ‘Ewa DP Area is a mix of older, plantation communities, newer suburban neighborhoods, commercial centers, and open, agricultural land.

The Central O‘ahu area contains the wide fertile plateau that connects the Wai‘anae and Ko‘olau Ranges. This area was previously in extensive agricultural use. It is now a growing suburban area with access facilitated by the H-1 Freeway, Kamehameha Highway, and Moanalua Road. The demands of growth and development within the Central O‘ahu area have affected the natural environment reducing some of its natural assets and replacing them with a built environment. This now suburbanized area consists primarily of residential development and mixed-commercial uses.

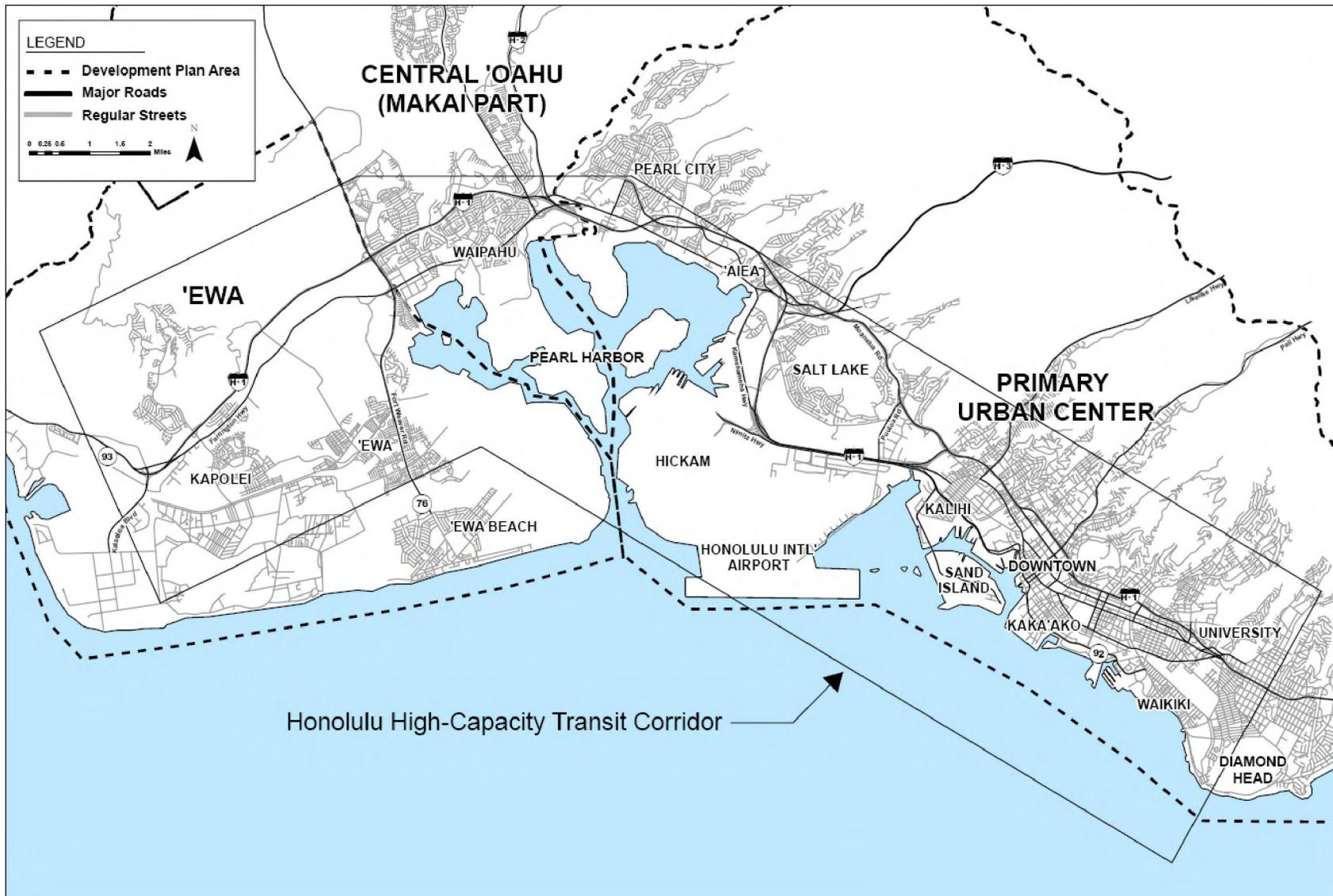


Figure 4-1. Affected DP Areas

The Primary Urban Center extends from Pearl City at the ‘Ewa end to Wai‘alae-Kāhala at the Koko Head end. It is bounded on the north by the Ko‘olau Mountain Range and on the south by the coastline. The Primary Urban Center encompasses a variety of land uses from the Pearl Harbor and Hickam Air Force Bases to the historic Downtown area of Honolulu and the thriving beachfront properties of Waikīkī. The further ‘Ewa end of the Primary Urban Center near Pearl City and Pearl Harbor is a mix of residential and military land uses. The more central portion encompassing the Honolulu International Airport, Ke‘ehi Lagoon, and Sand Island includes residential, commercial, and industrial uses. The most Koko Head end of the Primary Urban Center encompasses the historic Downtown area and Waikīkī where large high-rises mix with the smaller scale residential neighborhoods. Land uses include business, commercial, residential and service. Throughout the Primary Urban Center parks, beaches, and streams offer open space and lush tropical view corridors among the more densely developed areas.

Local Setting

The study corridor was divided into five sections to simplify analysis and evaluation of impacts associated with each alternative and the various alignment options (Figure 4-2).

Section I - from Kapolei to Fort Weaver Road

Section II - from Fort Weaver Road to Aloha Stadium

Section III - from Aloha Stadium to Ke‘ehi Interchange

Section IV - from Ke‘ehi Interchange to Iwilei

Section V - from Iwilei to UH Mānoa

Section I from Kapolei to Fort Weaver Road includes the communities of Kapolei and ‘Ewa. This area is anticipated to house much of O‘ahu's current and future population growth, however, it is still relatively rural with a majority of the area consisting of agricultural cultivation and open space. Views across the ‘Ewa plain are still relatively open allowing for mountain and ocean vistas as well as distant views of the high-rises in the Downtown area (Figure 4-3).

Section II from Fort Weaver Road to Aloha Stadium includes the communities of Waipahu, Pearl City, and ‘Aiea. Waipahu and ‘Aiea originally developed as sugar mill and plantation towns and later became suburban developments housing many of the workers from Downtown Honolulu and Waikīkī. Pearl City was Hawai‘i’s first planned city and suburban development and currently consists primarily of residential development, mixed-use commercial, and military housing and facilities. In general, Section II is characterized by residential neighborhoods surrounding commercial facilities. Mountain and ocean views are still visible from elevated areas, open spaces, and transportation corridors (Figure 4-4).

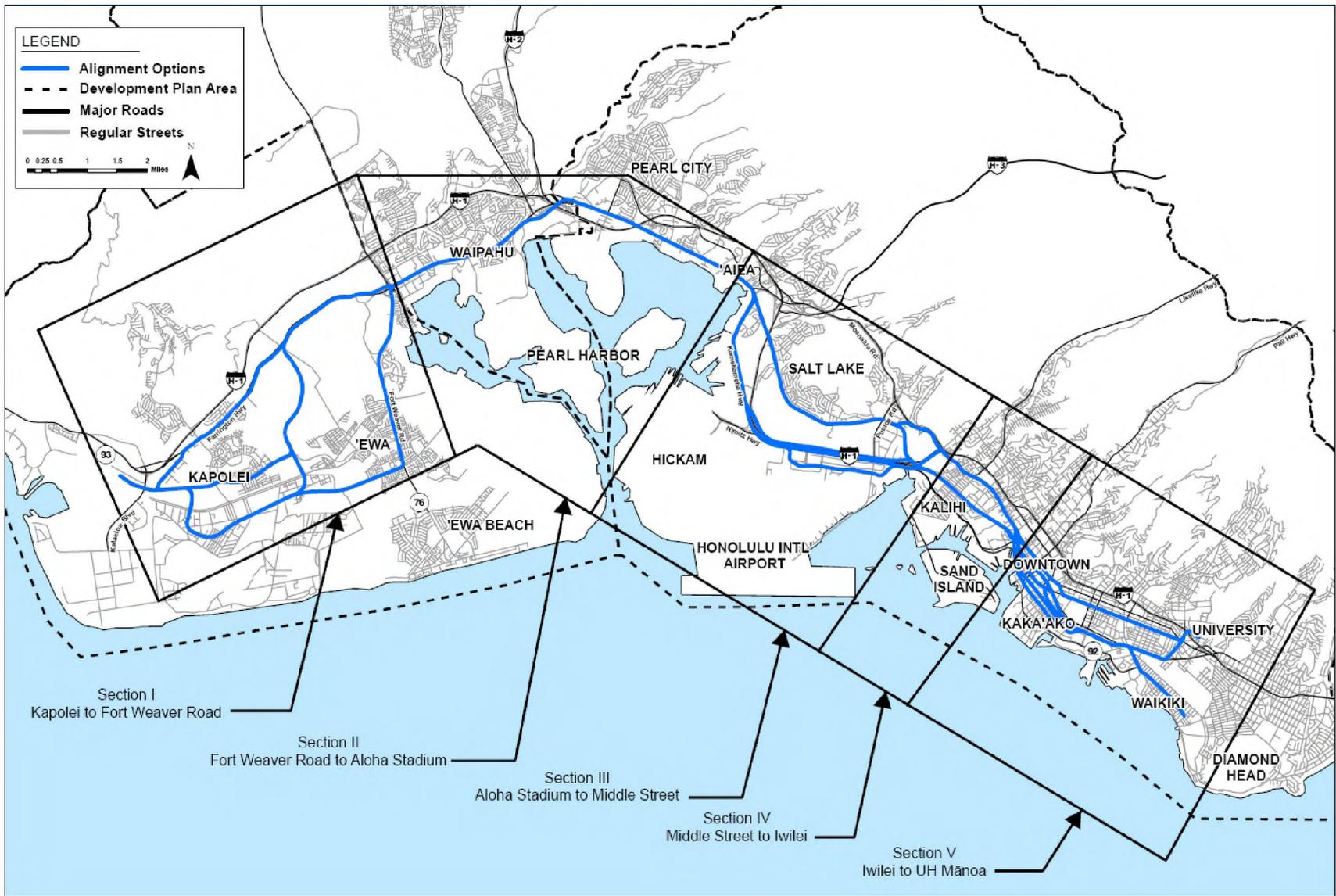


Figure 4-2. Corridor Sections



Figure 4-3. Farrington Highway looking makai across the 'Ewa Plain



Figure 4-4. Farrington Highway looking mauka

Section III from Aloha Stadium to Ke‘ehi Interchange includes the communities of Salt Lake, Moanalua, and the Airport area. The Salt Lake and Moanalua communities consist primarily of residential neighborhoods and supporting commercial uses. The airport area encompasses industrial and commercial service-oriented districts. The Honolulu International Airport and Hickam Airforce Base are both major employment centers and trip generators within Section III. Views within this area are somewhat limited to the immediate surroundings because of the denser development and the size and scale of the many commercial and industrial buildings. Views of the mountains can be seen periodically from elevated locations, transportation corridors, and occasional open spaces (Figure 4-5).



Figure 4-5. Honolulu International Airport looking makai

Section IV from Ke‘ehi Interchange to Iwilei includes the neighborhood community of Kalihi Pālāma, a good portion of which contains waterfront properties housing extensive maritime operations. Business districts with major wholesale and distribution facilities line King Street and Nimitz Highway within this area. The development within this area is relatively dense due to its close proximity to the Downtown area. Views of the mountains and ocean are rare; however the Downtown skyline is visible from several areas (Figure 4-6).

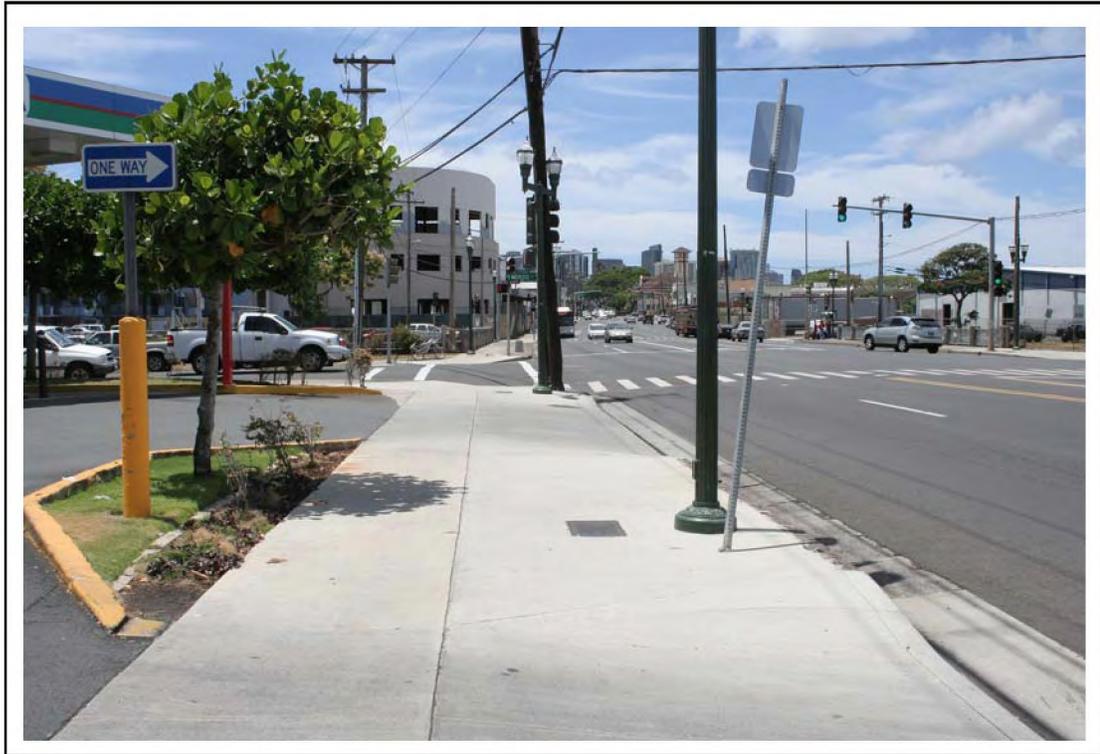


Figure 4-6. Dillingham Boulevard looking Koko Head

Section V from Iwilei to UH Mānoa encompasses seven different communities. The Downtown area is densely developed with high-rise office towers and business districts. Views in this area are limited to ‘Ewa to Kokohead transportation corridors that show Diamond Head, and the occasional park that allows for extended views to the mountains. The Ala Moana/Kaakaako area consists of shopping centers and commercial facilities. Views of the ocean, Diamond Head, and the mountains can be glimpsed periodically among the many buildings and shops and along transportation corridors. The Makiki/Lower Punchbowl/Tantalus area is elevated and provides more extensive views of the ocean and mountains. Waikīkī is densely developed with high-rise condos and hotels. Views are limited to the mauka/makai streets and ‘Ewa/Koko Head streets for mountain, ocean, and Diamond Head views. The beachfront area of Waikīkī however, affords many opportunities for views of the ocean and O‘ahu’s shoreline. McCully/Mo‘ili‘ili has lower density residential and commercial buildings allowing for more frequent views of the mountains and Diamond Head. Diamond Head/Kapahulu/St. Louis Heights are afforded frequent views of the mountains and Diamond Head and island-wide views from elevated areas. Mānoa consists of well-kept residential neighborhoods with views of the Downtown area and surrounding mountains. (Figure 4-7).



Figure 4-7. Kūhiō Avenue at Kanekapolei Street looking Koko Head

Scenic Resources

Landmarks

Below is a list of the major landforms and landmarks located within the study corridor that are considered to be significant scenic resources based on their scale and prominence within the visual environment. In addition to this list, there are numerous community and neighborhood resources that have been designated in local policy documents as having significant scenic, historic, and cultural value.

Identified Resources

National Historic Landmarks	Pearl Harbor Pearl Harbor Naval Base Diamond Head Puowaina Crater (Punchbowl)
Significant Views and Vistas	Wai‘anae and Ko‘olau Mountains Pacific Shoreline Downtown Pearl Harbor Diamond Head

View Corridors

The View Corridor Survey conducted in March 2006 by Hawai'i Design (Appendix C) contains a list of view corridors that have been identified by policy or ordinance as being a unique visual resource. The Survey was used to document the existing conditions of the view corridors as well as identify view corridors that were considered to be unaffected by the proposed project. List 1, No Impact Views, includes the view corridors that were considered to be unaffected by the proposed project alignments. The resources in this list are either located outside of the study corridor, are views that are directed away from the study corridor, or are too narrow or too far in the distance to be affected or have an affect on the study corridor. List 2, Panoramic View Corridor Survey, identifies the view corridors that are located within the study area and may be affected by the proposed project alignments. A list of the view corridors and the corresponding panoramic images are included in the survey. The panoramic survey documents the existing conditions at each view corridor. The survey contains a list of the potentially affected corridors, the corresponding map identifying the location of each resource, and the corresponding panoramic photo of the identified resource.

Viewpoints

Viewpoint 1 (V1)

The existing visual quality for V1 is moderate (Appendix D, Figure D-2). The view is taken from Kapolei High School looking across the campus parking lot towards Kapolei Parkway, Na Pu'u at Kapolei, and Makakilo. The fencing, signs, light standards and hazard markers within the foreground of this viewpoint reduce the integrity of the view by encroaching on the otherwise, simple elements of sky, mountain, and open campus. The mountains provide a distinct image against the open sky and provide a simple symmetry to the openness of the campus. V1 is representative of View Shot Location 3.2c from the *View Corridor Survey* (Appendix C) within the 'Ewa Sustainable Communities Plan area.

Viewpoint 2 (V2)

The existing visual quality for V2 is high (Appendix D, Figure D-1). The well maintained and landscaped setbacks frame the roadway and provide interest and color to the viewpoint. The viewpoint is relatively intact with only a limited number of street utilities encroaching on the view. The simplicity of the elements in this view and distinct character gives this viewpoint a high rating for unity and vividness. V2 is representative of general Community Plan views from the *View Corridor Survey* within the 'Ewa Sustainable Communities Plan area. The vantage point is looking mauka towards Farrington Highway rather than Wai'anae towards Makakilo but is representative of views that include broad expanses of open space within a more natural, country-like setting.

Viewpoint 3 (V3)

The existing visual quality for V3 is moderate (Appendix D, Viewpoint D-3). The manicured and landscaped street median, sidewalks, and setbacks create a fairly unified image. The mix of large, medium, and pedestrian-scale elements within this viewpoint make a pleasant and somewhat memorable view. The utility poles, associated power lines, and amount of on-street parking detract from the view's overall intactness. V3 is representative of View Shot Location 2.1a and 2.1b from the *View Corridor Survey* within the Central O'ahu Sustainable Communities Plan area.

Viewpoint 4 (V4)

The existing visual quality for V4 is moderate (Appendix D, Figure D-4). Views of the mountains and open sky are well balanced by Kamehameha Highway and surrounding urban development creating a fairly vivid image. However, the multi-story residential tower and commercial buildings block views of the mountains and skyline to the right of this viewpoint. Utility poles and associated power lines scattered throughout the view and lack of consistent streetscape enhancements reduce the image's overall intactness and unity.

Viewpoint 5 (V5)

The existing visual quality for V5 is low (Appendix D, Figure D-5). The view lacks distinctive features lowering its vividness and the large number of utility poles and power lines reduces the intactness of the view. The overall view is somewhat unified with simple components consisting of an expansive skyline balanced by an expanse of streetscape. Limited views of Pearl Harbor are visible to the center right of this viewpoint.

Viewpoint 6 (V6)

The existing visual quality for V6 is high (Appendix D, Figure D-6). From this elevated vantage point panoramic views of the mountains, urban skyline, and forest-like vegetation can be seen for some distance. The expansive sky, interesting mix of urban structures and carpet of green created by trees in the foreground and midground of this viewpoint create a distinctly vivid image and a unified view. A few, limited power poles trace through the viewpoint but have little affect on the overall intactness or quality of the view. V6 is also representative of View Shot Location 1.12c and 1.12d within the Primary Urban Center from the *View Corridor Survey*.

Viewpoint 7 (V7)

The existing visual quality for V7 is moderate (Appendix D, Figure D-7). The view is from the Salt Lake-Moanalua Public Library looking across the parking lot towards Salt Lake Boulevard in a Koko Head direction. The landscape enhancements, lack of overhead or street utilities, and simplicity of the view give this viewpoint a relatively high rating for intactness and unity. However, the lack of distinct or memorable features reduces the view's vividness.

Viewpoint 8 (V8)

The existing visual quality for V8 is low (Appendix D, Figure D-8). The view is dominated by roadway and street utilities. Large utility poles and associated power lines reduce the intactness of the view, as does the limited enhancements of this primarily utilitarian transportation corridor. The open sky and green band of large, mature vegetation provides some interest, but overall the view lacks distinct or memorable features reducing its vividness. The openness and simplicity of the view help to provide a fairly unified image.

Viewpoint 9 (V9)

The existing visual quality for V9 is high (Appendix, Figure D-9). Consisting of open views of the mountains, sky, and park this viewpoint is free from encroaching elements and provides a unified and intact view of the natural surroundings. Several large trees provide interest and character within the open grassy fields in the foreground increasing the views vividness. Nimitz Highway, the elevated roadway in the center of this viewpoint, blends into the foot of the mountains located in the distant background. V9 is representative of View Shot Location 4.1.2 from the *View Corridor Survey* within the Coastal View Study area. The vantage point is looking mauka versus makai but is representative of views that encompass both mountain and shoreline resources that are protected by aesthetic policies.

Viewpoint 10 (V10)

The existing visual quality for V10 is moderate (Appendix D, Figure D-10). The viewpoint is from Pu'uhale Elementary School looking makai towards Nimitz Highway (not visible in photo). The view is simple and open with no encroaching elements making it relatively unified and intact. However, the somewhat utilitarian look of the image, with the industrial buildings in the background and limited, non-descript landscaping, creates a view that is only moderately vivid.

Viewpoint 11 (V11)

The existing visual quality for V11 is low (Appendix D, Figure D-11). The viewpoint is located at Kalihi Street looking mauka across Nimitz Highway. This viewpoint is representative of mauka/makai view corridors that are protected by policy documents. The low profile buildings and minimal vegetation allow for open views of the sky and a corridor view of the mountains giving this viewpoint some vividness. The number of light poles, street signage, power poles, and utility lines detract from the view's intactness. The mix of uses along this street and the basically utilitarian function of the area cause the viewpoint to lack unity.

Viewpoint 12 (V12)

The existing visual quality for V12 is moderate (Appendix D, Figure D-12). The viewpoint is located at N King Street near Robello Lane (behind camera) looking mauka across N King Street. The two churches give a distinct character to the streetscape with their spires, color, and architecture. The street trees provide additional color and interest

to the view making it fairly vivid. The simplicity of the street scene and well-kept nature of the neighborhood provide a relatively intact appearance. However, the power poles, street utilities, width of N King Street, and amount of on-street parking reduce the view's overall intactness and unity.

Viewpoint 13 (V13)

The existing visual quality for V13 is moderate (Appendix D, Figure D-13). The viewpoint is makai on Dillingham Boulevard at Honolulu Community College. The low profile structures allow for skyline views and the surrounding trees add color and interest making this viewpoint fairly vivid. The simple structures and landscape enhancements provide a unified image, however the large power lines and communications tower detract from the views intactness.

Viewpoint 14 (V14)

The existing visual quality for V14 is high (Appendix, Figure D-14). V14 is from Thomas Square looking makai towards the intersection of S King Street and Ward Avenue. The broad expanse of open grass framed by the large, unique canopy of trees and mix of palms and urban development create an interesting and vivid view. V14 is representative of views within the Thomas Square Special District.

Viewpoint 15 (V15)

The existing visual quality for V15 is moderate (Appendix D, Figure D-15). The viewpoint is located on S King Street at Ku'ilei Street looking Koko Head. Open and close proximity views of the mountains, the UH Mānoa campus with surrounding vegetation, periodic streetscape enhancements, and colorful, but consistent, architectural style of the surrounding development create a vivid and somewhat unified image. However, the utility poles, power lines, and tall street lights reduce the viewpoint's overall intactness.

Viewpoint 16 (V16)

The existing visual quality for V16 is high (Appendix D, Figure D-16). The viewpoint is located on University Avenue looking makai across S King Street. The open and striking views of the Downtown skyline, located in close proximity to this viewpoint and framed by streetscape enhancements, create a vivid image. The neatly kept urban surroundings provide a unified appearance. The large power poles, overhead wires, and tall street lights encroach slightly on the view but are not out of scale or character in relationship to the dominant urban skyline and thus, do not reduce the image's intactness.

Viewpoint 17 (V17)

The existing visual quality for V17 is high (Appendix D, Figure D-17). The viewpoint is located on Hotel Street near Kekaulike Street looking 'Ewa towards River Street. This viewpoint is representative of views within the Chinatown Special District. The unique architecture, street trees, colorful awnings, and pedestrian-scale signage create an

interesting and vivid image. The neat, well-kept streetscape and consistent street furnishings provide unity and cohesion to the view. No overhead wires, utility poles, or other inconsistent elements are present within this viewpoint creating a lively and intact pedestrian experience.

Viewpoint 18 (V18)

The existing visual quality for V18 is high (Appendix D, Figure D-18). V18 is looking mauka across Ala Wai Park towards Kapi‘olani Boulevard from a position just Koko Head of McCully Street on Ala Wai Promenade. The open view across the canal of the urban skyline and mountains creates a vivid image. The balance between the open expanse of water in the foreground, urban development in the midground, and mountain profile against a clear sky creates a well balanced and unified view. The tall sports field lights and somewhat utilitarian look of the buildings within Ala Wai Park encroach slightly on the view, but are such minor elements in relationship to the large-scale and more striking components within the image that the view remains primarily intact. V18 is representative of View Shot Locations 5.2.3a, 5.2.1a, 5.2.3b, and 5.2.1d from the *View Corridor Survey* within the Diamond Head Special District area.

Viewpoint 19 (V19)

The existing visual quality for V19 is high (Appendix D, Figure D-19). The viewpoint is located on Kekaulike Street looking makai across N King Street from O‘ahu Market. This viewpoint is representative of views within the Chinatown Special District. The open view, lack of overhead utilities, and coordinated street furnishings provide a view that is intact and unified. The paving enhancements, unique architectural treatments, and pedestrian scale amenities create a vibrant and vivid streetscape.

Viewpoint 20 (V20)

The existing visual quality for V20 is high (Appendix D, Figure D-20). The viewpoint is located on Fort Street Mall mauka of Queen Street looking makai. The high-rise structures and mature trees create a unique pedestrian oasis that is further enhanced with pedestrian-scale street furniture, light standards, landscaping, and architectural facades. The consistent building materials and streetscape amenities provide a cohesive and unified image. This viewpoint lacks any encroaching components keeping the image relatively intact.

Viewpoint 21 (V21)

The existing visual quality for V21 is high (Appendix D, Figure D-21). The viewpoint is from Aloha Tower Market looking across Aloha Tower Drive mauka towards Nimitz Highway and Fort Street Mall. The high-rise buildings provide a pleasant backdrop to the mature trees and landscaping creating a vivid image. The pedestrian-scale street furnishings, mid-scale canopy of trees, and large-scale skyscrapers create a balanced and unified view. The area within this view is well-kept and free from encroaching elements keeping the viewpoint intact. This viewpoint is representative of views within the Capitol Special District.

Viewpoint 22 (V22)

The existing visual quality for V22 is high (Appendix D, Figure D-22). This manicured and simple image is free of encroaching elements creating a viewpoint that is unified and intact. V22 is within the Waikīkī area at Kālainmoku and Kūhiō Avenue. The view is looking mauka across Kūhiō Avenue and is representative of views within the Waikīkī Special District. The pedestrian-scale streetscape and lush canopy of mature trees, set against the urban skyline, makes a fairly distinct and vivid image. The clean, manicured, and landscaped streetscene, which is free from encroaching elements, provides a unified and intact visual image.

Viewpoint 23 (V23)

The existing visual quality for V23 is high (Appendix D, Figure D-23). V23 is from Kūhiō Avenue looking Koko Head towards Lili‘uokalani Avenue. This viewpoint is also representative of views within the Waikīkī Special District. The lush vegetation, colorful, pedestrian oriented building facades and streetscape furnishings, framed by the high-rise structures, creates a uniquely distinct pedestrian environment. The landscaping and street furniture enhancements present a unified streetscape scene with no encroaching elements to reduce intactness.

Viewer Groups

Most of the areas within the study corridor are characterized by a variety of mixed uses with views experienced by a mix of viewer groups. However, certain areas within the study corridor may host a larger mix of one or two viewer groups. Section I, which encompasses the ‘Ewa/Kapolei area consists primarily of residences, open agricultural land, and commercial uses. The primary viewer groups within Section I would be residents and businesses owners. Section II encompasses Waipahu, Pearl City, and ‘Aiea and includes the Pearl Harbor area. Land uses consist primarily of big box commercial and residential neighborhoods. However, because the proposed alignments would follow Farrington and Kamehameha Highways, which are both heavily used by commuter traffic, and Pearl Harbor is a primary tourist attraction, the primary viewer groups in Section II are considered to be commuters with residents and visitors being the secondary groups potentially affected. Section III, includes ‘Aiea, Āliamanu/Salt Lake, and the Airport. The proposed alignments follow Salt Lake Boulevard, which hosts a mix of smaller businesses and residential neighborhoods, Kamehameha Highway, which services the Airport area, and Aolele Street, which also services the Airport area. The primary viewer groups within Section III are considered to be residents, business owners, commuters, and visitors. Section IV, which covers Kalihi/Pālana, is a mix of commercial and residential uses. The primary viewer groups are considered to be residents, mostly along N King Street, and business owners along Dillingham Boulevard. Section V encompasses Downtown, Makiki/Lower Punchbowl/Tantalus, Ala Moana/Kaakaako, Mānoa, McCully/Mo‘ili‘ili, Waikīkī, and Diamond Head. These areas consist primarily of mixed-use commercial, government facilities, residential neighborhoods, and tourist services. The primary viewer groups would be residents, business owners, and visitors.

Alternative 1: No Build

No construction would occur under the No Build Alternative; therefore no impacts to visual resources or the existing visual environment would occur.

Alternative 2: Transportation System Management

Long-term Impacts

Alternative 2 consists primarily of operational improvements to the existing bus system, including network and zipper-lane improvements. It would also include some capital improvements that give priority to buses. These improvements would not permanently affect visual resources. In addition, Alternative 2 would also include construction of two transit centers, which would require additional right-of-way.

Construction Impacts

Construction impacts that would be similar for all build alternatives and that would affect the visual environment include the removal of vegetation during clearing and grubbing operations, placement of barriers, signage, and screening materials during construction for traffic control, safety, privacy, and noise abatement, and storage of large equipment and construction materials. These elements are a component of construction operations and affect the existing landscape by changing the visual aesthetics within and surrounding the construction site.

For Alternative 2, it is anticipated that construction impacts would be localized to the transit center sites and that additional sites would not be required for use as construction staging or storage areas. Construction activities for Alternative 2 are anticipated to last approximately one to two years during which time elements and conditions of construction would be visible to the public.

Alternative 3: Managed Lane

Long-term Impacts

Physical changes to the visual environment under Alternative 3 are similar for both the Two-direction and Reversible Facilities because both options would include the construction of an elevated roadway along Kamehameha and Nimitz Highways. The Two-direction option would be wider and would include large transit stops that would not be included in the reversible option.

Physical Change to Visual Environment

Both the Two-direction and Reversible Options under Alternative 3 would result in similar physical changes to the visual environment based on the project footprint. The area of physical change potentially may be greater for the section from Hālawā Stream to Pacific Street, which would require an additional 12.7 acres of right-of-way for the

project footprint compared to the section from Waiawa Interchange to Hālawā Stream, which would require an additional 3.5 acres of right-of-way.

Waiawa IC to Hālawā Stream

Change in Visual Quality

V4 through V6 are the representative viewpoints for the Waiawa IC to Hālawā Stream section of Alternative 3 and were used to evaluate potential impacts to the visual environment. All of the viewpoints used to illustrate the managed lane facility through this section show the elevated structure for the Reversible facility. For the Two-direction Option, the structure would be approximately ten feet wider than what is shown in each of the simulations. The discussion of impacts is geared toward the Reversible Option and where impacts occur; it is anticipated that those impacts would be somewhat greater for the Two-direction Option because of the structure's increased width.

Viewpoint 4 (V4)

Construction of the Managed Lane Facility would alter the composition of V4 (Appendix E, Figure E-1 for simulated view), creating an image that appears less open. Views of the mountains and skyline are partially blocked by the managed lane structure. The large concrete structure makes the viewpoint appear more urbanized and densely developed. The Managed Lane Facility looks slightly heavy in comparison to the surrounding urban development but is overall well-balanced and in good context to the visual environment within this viewpoint. The Facility would introduce new shade and shadow patterns that would affect motorists. These patterns would change throughout the day and seasonally depending on what direction, east-west or north-south, the alignment is running, the time of day, and time of year (in the winter the sun is lower on the horizon, causing structures to cast longer shadows, in the summer the sun is higher, creating shorter shadows). The structures low, wide profile reduces the potential for glare from reflected sun. Glare associated with vehicle headlights is not anticipated to affect motorists or the surrounding development since Kamehameha Highway is already used as a transportation corridor with associated sources of light and glare. The primary viewer group that would be affected by this viewpoint includes commuters. The visual quality change would be considered moderate with the viewer group response to that change also being moderate (Table 5-1).

Viewpoint 5 (V5)

The simulated future condition for V5 (Appendix E, Figure E-2) shows minor impacts to the makai views. Several elements encroach on this viewpoint making it appear very busy and somewhat cluttered. The guideway structure adds another, slightly heavier, component to this already busy view. Although the structure adds to the many vertical elements that reduce the view's intactness and partially block makai views, it is not completely out of scale or character with the surrounding urban environment. Several large, multi-story structures are also located within this viewpoint and vertical power and communication poles already partially block makai views, including those of Pearl Harbor.

Table 5-1. Visual Impacts

Alternative	Quality Change ²	Viewer Response ²	Change in Light, Glare, Shade, Shadow ³	Policy Consistency ⁴
Alternative 1: No Build Alternative				
No Build Alternative	N	N	N	C
TSM Alternative	L	N	N	C
Alternative 3: Managed Lane Alternative (by section)				
3a. Two-direction Option				
Waiawa IC to Hālawā Stream	V4 – M V5 – L V6 – L	V4 - M V5 - M V6 - L	V4 – SE, SW, G V5 - G V6 – N	I(5)
Hālawā Stream to Pacific Street	V8 - H V9 – N V11 – L V12 – H	V8 – M V9 – N V11 – M-H V12 – M-H	V8- SE, SW V9 – N V11 – G V12 – SE, SW,G	I(3)
3b. Reversible Option				
Waiawa IC to Hālawā Stream	V4 – M V5 – L V6 – L	V4 – M V5 – M-H V6 – L-M	V4 – SE, SW, G V5 - G V6 – N	I(5)
Hālawā Stream to Pacific Street	V8 - M V9 – N V11 – L V12 – H	V8 – M V9 – N V11 – M-H V12 – M-H	V8- SE, SW V9 – N V11 – G V12 – SE, SW, G	I(3)
Alternative 4: Fixed Guideway Alternative (by section)				
I. Kapolei to Fort Weaver Road				
Kamokila Boulevard/Farrington Highway	V1 – H V2 - M	V1 – H V2 - M	V1 – SE, SW, L, G V2 – SW	I(3)
Kapolei Parkway/North-South Road	V1 – H V2 - M	V1 – H V2 - M	V1 – SE, SW, L, G V2 – SW	I(3)
Saratoga Avenue/North-South Road	V1 – H V2 - M	V1 – H V2 - M	V1 – SE, SW, L, G, V2 – SW	I(3)
Geiger Road/Fort Weaver Road	V1 – H V2 - M	V1 – H V2 - M	V1 – SE, SW, L, G V2 – SW	I(3)
II. Fort Weaver Road to Aloha Stadium				
Farrington Highway/Kamehameha Highway	V3 – M V4 – H V5 - L	V3 – H V4 – M V5 – M-H	V3 – N V4 – N V5 – G	I(6)
III. Aloha Stadium to Middle Street				
Salt Lake Boulevard	V6 – L V7 - H	V6 – L-M V7 - H	V6 – N V7 – SW	I(3)
Mauka of the Airport Viaduct	V6 – L V8 – M V9 – N	V6 – L-M V8 – M V9 - N	V6 – N V8 – SE, SW V9 - N	I(3)
Makai of the Airport Viaduct	V6 – L V8 – M V9 – N	V6 – L-M V8 – M V9 - N	V6 – N V8 – SE, SW V9 - N	I(3)
Aolele Street	V6 – L V8 – M V9 – N	V6 – L-M V8 – M V9 - N	V6 – N V8 – SE, SW V9 - N	I(3)

Alternative	Quality Change ²	Viewer Response ²	Change in Light, Glare, Shade, Shadow ³	Policy Consistency ⁴
IV. Middle Street to Iwilei				
N King Street	V10 - H	V10 - H	V10 - L, G	I(3)
V. Iwilei to UH Mānoa				
Dillingham Boulevard	V13 - L	V13 - M-H	V13 - G	I(3)
Beretania Street/S King Street	V20 - M V15 - H V16 - H	V20 - M V15 - M-H V16 - M-H	V20 - N V15 - L, G, SE, SW V16 - L, G, SE, SW	I(3)
Hotel Street/Waimanu Street/Kapi'olani Boulevard	V16 - H V17 - L V23 - N	V16 - M-H V17 - M-H V23 - N	V16 - L, G, SE, SW V17 - N V23 - N	I(3)
Hotel Street/Kawaiaha'o Street/Kapi'olani Boulevard	V16 - H V17 - L V23 - N	V16 - M-H V17 - M-H V23 - N	V16 - L, G, SE, SW V17 - N V23 - N	I(3)
King Street/Waimanu Street/Kapi'olani Boulevard	V14 - N V16 - H V23 - N	V14 - N V16 - M-H V23 - N	V14 - N V16 - L, G, SE, SW V23 - N	I(2)
Nimitz Highway/Queen Street/Kapi'olani Boulevard	V14 - M V16 - H V18 - M V23 - N	V14 - M-H V16 - M-H V18 - L-H V23 - N	V14 - N V16 - L, G, SE, SW V18 - N V23 - N	I(3)
Nimitz Highway/Halekauwila Street/Kapi'olani Boulevard	V14 - M V16 - H V18 - L V19 - N V23 - N	V14 - M-H V16 - M-H V18 - L-H V19 - N V23 - N	V14 - N V16 - L, G, SE, SW V18 - N V19 - N V23 - N	I(3)
Waikiki Branch	V21 - L V22 - M	V21 - L V22 - L-H	V21 - N V22 - N	I(3)

¹ N=No Change, L=Low, L-H=Low to Moderate, M=Moderate, M-H=Moderate to High, H=High

² N=None, L=Light, G=Glare, SE=Shade, SW=Shadow

³ C=Consistent, I(#)=Inconsistent with (#) number of policy documents

From this vantage point, the effect of new shade and shadow patterns from the elevated structure would not be evident. Glare, from reflective surfaces and vehicle headlights, is already present within this transportation corridor and would not be compounded by the guideway facility. The primary viewer groups that would be affected by this view include Residents and Business Owners. The visual quality change would be considered low with the viewer group response to that change being moderate to high.

Viewpoint 6 (V6)

The Managed Lane Facility would have a minor affect on the composition and integrity of V6 (Appendix E, Figure E-3). Views of the mountains and urban skyline are not

affected and neither are the trees within this viewpoint. The Managed Lane Facility can be seen as a ribbon of concrete winding out of site to the left of the viewpoint. From this vantage point the structure is primarily hidden by vegetation and is comparable in scale to the surrounding physical features. Viewed from this distance and with the surrounding vegetation the effects of light, glare, and shade or shadows associated with the new structure are not anticipated to have an affect within this viewpoint. The primary viewer groups that would be affected by this view include Recreationists and Visitors. The visual quality change would be considered low with the viewer group response to that change being low to moderate.

Scenic Resources

V4 through V6 include views of the mountains, urban skyline or Pearl Harbor, or a combination of those views. V4 and V6 provide fairly extensive views and/ or close proximity views. V5 has limited and/or distant views of these landmarks. The Managed Lane facility would not alter any of these resources and under most circumstances would not block views. For distant or limited views, scenic resources are viewed as background and not a primary focus. The Managed Lane would have little affect on resources seen at a distance or already somewhat blocked by images in the mid- and foreground of the viewpoint. The Managed Lane facility would also have a limited affect on V6 as it would not block views of scenic resources and would blend into the surrounding environment. V4, which provides a relatively unobstructed view of the mountains and is in fairly close proximity to the resource, would be affected by the Managed Lane facility in that the existing mauka view would be partially blocked.

View Corridors

V4 and V5 represent the protected mauka-makai view corridors and V6 represents the protected Aloha Stadium view corridor. From V4 and V5, the Managed Lane Alternative would partially block the mauka-makai views. From V6, no impact to the protected view corridor would occur. The Managed Lane facility would blend into the surrounding environment and would not block protected views.

Compatibility with Existing Visual Policies

Policy documents affecting the Waiawa Interchange to Hālawā Stream section of Alternative 3 include the *O‘ahu General Plan*, *Central O‘ahu Sustainable Community Plan*, *Primary Urban Center Development Plan*, *‘Aiea-Pearl City Livable Communities Plan*, and *Revised Ordinance of Honolulu*. The Managed Lane Alternative has the potential to be incompatible with these policy documents as follows:

- Affect scenic resources and views (views of Pearl Harbor and shoreline from key intersections)
 - *O‘ahu General Plan* Objective B, Policies 2 and 3
 - *Central O‘ahu Sustainable Communities Plan*, Objective 3.4
 - *Primary Urban Center Development Plan*, Objective 3.1.2
 - *‘Aiea-Pearl City Livable Communities Plan*, Objectives 4.5 and 4.6.1
- Alter or change the integrity of setting of historic resources
 - *Central O‘ahu Sustainable Communities Plan*, Policy 3.4

- *Primary Urban Center Development Plan*, Policy 3.1.2
- Remove, move or alter large mature trees and vegetation
 - *O'ahu General Plan*, Objective A, Policy 9
 - *Revised Ordinance of Honolulu*, Chapter 41, Article 13

Hālawā Stream to Pacific Street

Change in Visual Quality

V8, V9, V10, and V11 are the representative viewpoints for the Hālawā Stream to Pacific Street section of Alternative 3 and were used to evaluate potential impacts to the visual environment. All of the viewpoints used to illustrate the managed lane facility through this section, with the exception of V8, show the elevated structure for the Reversible facility. For the Two-direction Option, the structure would be approximately ten feet wider than what is shown in each of the simulations. V8 shows both the Two-direction structure and the Reversible structure. For the other viewpoints, the discussion of impacts is geared toward the Reversible Option and where impacts occur; it is anticipated that those impacts would be somewhat greater for the Two-direction Option because of the structure's increased width.

Viewpoint 8 (V8)

The Two-direction structure has a major affect on the composition of V8 (Appendix E, Figure E-4). In order to accommodate a transit center at this location, the Two-direction structure expands to approximately 100 feet in width. The width of the structure blocks the skyline and views of the open sky. The structure looks large and heavy creating a permanent shadow over Kamehameha Highway. The shadow would remain over the highway irrespective of season or time of day. The Two-direction structure completely changes the character of this viewpoint making it less open and more confined. There are no impacts to scenic resources within this viewpoint and effects of light and glare are not anticipated to affect viewer groups. The primary viewer groups for this viewpoint include commuters and visitors. The visual quality change would be considered high with the viewer group response to that change being moderate.

Viewpoint 8 (V8)

The Reversible structure introduces a large vertical feature in a setting that previously was very horizontal and low profile (Appendix E, Figure E-5). Although the structure is not out of character with the surrounding urban environment, its scale and dominance within this viewpoint make it out of context with the existing aesthetic environment. The effects of the structure's shade and shadow patterns would influence motorists using the highway. Glare from concrete surfaces and vehicle headlights would not affect motorists within this viewpoint. The primary viewer groups that would be affected by this view include commuters and visitors. The visual quality change would be considered moderate with the viewer group response to that change being moderate.

Viewpoint 9 (V9)

The Managed Lane structure has no affect on the composition and integrity of V9 (Appendix E, Figure E-6). Views of the mountains, skyline, and trees are not affected

and from this vantage point the scale and height of the Managed Lane Facility would not have an affect on the existing aesthetic character of this viewpoint. The effects of the structures potential light, glare, and shadow sources would not affect sensitive visual resources within this viewpoint and are not anticipated to affect evening light conditions since the highway is already a source of light. No change in visual quality would occur; therefore no negative response from the viewer groups is anticipated. The primary viewer groups that would be affected by this view include Recreationists and Visitors.

Viewpoint 10 (V10)

The Managed Lane structure has the potential to provide some interest to V10 (Appendix E, Figure E-7). The existing view lacks any features that create a memorable or vivid image. The Managed Lane Facility would rise just above the buildings in the background providing a unique feature that could give this viewpoint some interest. The structure would not be out of context or scale with the buildings or the open field in the foreground. Provided the structure maintained a well-kept character, it has the potential to be perceived as having only a moderate affect on the existing visual quality. The effects of the structures shade and shadow patterns would not affect sensitive visual resources within this viewpoint. The Managed Lane Facility would be a new source of glare and light from vehicle headlights and safety lighting that could affect the nighttime light environment surrounding the school. The primary viewer groups that would be affected by this view include Residents and Business Owners who are moderately to highly sensitive to changes in the visual environment. The visual quality change would be low with the viewer group response to that change being moderate to high.

Viewpoint 11 (V11)

The simulated future condition for V11 (Appendix E, Figure E-8) shows that the corridor view of the mountains would be reduced to a narrow tunnel. The Managed Lane Structure would partially block the mauka view along this corridor and would appear heavy and somewhat massive in relationship to the scale and character of the surrounding buildings. The structure would create new shade and shadow patterns that would affect motorists on Nimitz Highway. Similar to V4 and V8, glare from concrete surfaces and vehicle headlights are not anticipated to affect motorists or adjacent uses within this viewpoint. The primary viewer group that would be affected by this view includes Business Owners. It is anticipated that some second-story businesses may include residential units in which case the residential viewer group may also be affected. Business Owners are moderately to highly sensitive to visual changes while Residents are highly sensitive. The visual quality change would be high with the viewer group response to that change being moderately-high.

Scenic Resources

V8 provides limited views of distant landmarks, which the Two-direction Option would completely block. The Reversible Option would partially block these views. V9 provides a fairly extensive view of the mountains. The Managed Lane facility would not affect this view. V10 does not include views of protected scenic resources. The mauka view from V11 is in relatively close proximity and is somewhat dominant to the view.

The Managed Lane facility would reduce the openness of this view creating a ‘framed’ view with more limited visibility.

View Corridors

V9 represents the protected Ke‘ehi Lagoon view corridor and V11 represents the protected mauka-makai view corridors. From V9, the Managed Lane Alternative would not affect mauka views. From V11, the Managed Lane Alternative would reduce the openness of the corridor and partially block mauka-makai views.

Compatibility with Existing Visual Policies

Policy documents affecting Section II include the *O‘ahu General Plan, Primary Urban Center Development Plan, ‘Aiea-Pearl City Livable Communities Plan, and Revised Ordinance of Honolulu*. The Managed Lane Alternative has the potential to be incompatible with these policy documents as follows:

- Affect scenic resources and views (potential changes to light environment at Sumida Watercress Farm, partially block mauka views)
 - *O‘ahu General Plan* Objective B, Policies 2 and 3
 - *Primary Urban Center Development Plan*, Objective 3.1.2
 - *‘Aiea-Pearl City Livable Communities Plan*, Objectives 4.5 and 4.6.1
- Conflict with existing aesthetic environment (elevated structure out of scale and character with existing visual environment)
 - *O‘ahu General Plan*, Objective E, Policies 4, 5, and 9
- Alter or change the integrity of setting of historic resources
 - *Central O‘ahu Sustainable Communities Plan*, Policy 3.4
 - *Primary Urban Center Development Plan*, Policy 3.1.2
- Remove, move or alter large mature trees and vegetation
 - *O‘ahu General Plan*, Objective A, Policy 9
 - *Revised Ordinance of Honolulu*, Chapter 41, Article 13

Construction Impacts

Construction impacts for Alternative 3 would be similar in nature to those described under Alternative 2; however the magnitude and level of these impacts would increase due to the size and nature of the construction project. The overall length and size of the affected area would be much larger with the need for additional staging and storage areas. Potential staging areas would include the existing right-of-way as well as properties acquired for the future roadway right-of-way. Construction of a grade-separated structure would require additional equipment that would be much larger in size and more visible from a greater distance. It is anticipated that construction operations for Alternative 3 would occur 24 hours a day, 7 days a week to minimize overall project costs and to shorten the build-out period. Continuous construction operations would require night-time lighting equipment that could introduce new sources of light and glare in areas where residential neighborhoods are in close proximity to the transportation corridor.

Alternative 3 would have a fairly large construction footprint with construction anticipated to last several years; however, the construction activities in any one location would not be ongoing for the entire construction period. During that time the elements and conditions of construction would be visible to the public.

Alternative 4: Fixed Guideway

Long-term Impacts

Physical Change to Visual Environment

Alternative 4 would result in similar physical changes to the visual environment as described under Alternative 3. However, physical changes would be more extensive under Alternative 4 because of the larger project footprint. It would affect a longer corridor and wider range of resources. Construction of the guideway structure could result in removal of and/or alteration of aesthetic resources and/or a change in the aesthetic character of an area.

Section I. Kapolei to Fort Weaver Road

V1 and V2 are the representative viewpoints for Section I and were used to evaluate potential impacts to the visual environment for all four alignments within Section I.

Change in Visual Quality

Viewpoint 1 (V1)

The mauka view of Na Pu‘u at Kapolei and Makakilo, which are protected scenic resources, would be affected by the Kapolei Parkway alignment at V1 (Appendix E, Figure E-9). The elevated structure would be out of character with the surrounding low-profile development. The structure would create new shade and shadow patterns that would affect motorists on Kapolei Parkway and potentially the residential area located mauka of the alignment. The fixed guideway would be a new source of light and glare that could affect the nighttime light environment in this primarily residential area. The primary viewer group that would be affected by this view is Residents who are highly sensitive to visual changes. The visual quality change would be high with the viewer group response to that change also being high.

Viewpoint 2 (V2)

The fixed guideway affects views of the skyline by reducing the openness of the views as seen from V2 (Appendix E, Figure E-10). In general the view from V2 does not change much in that all of the components that make it vivid, intact, and unified remain. No scenic resources would be affected and no impacts to vegetation would occur. The structure is somewhat out of character with the surrounding environment in that its modern appearance does not fit with the open, rural, and country-like character of the area. The guideway structure does provide some interest to the view and its height is well supported by the openness and width of the roadway. The structure's shadow would affect motorists on the roadway. The structure's shadow pattern would change throughout the day and seasonally depending on what direction, east-west or north-south, the alignment is running, the time of day, and time of year. Light and glare associated

with the guideway are not anticipated to have an impact because the roadway is already being used as a transportation corridor with associated sources of light and glare. The primary viewer group that would be affected by this view is Commuters who are moderately sensitive to visual changes. The visual quality change would be moderate with the viewer group response to that change being moderate.

Scenic Resources

V1 includes the mauka view of Na Pu‘u at Kapolei and Makakilo both of which are designated significant views under the *‘Ewa Sustainable Community Plan*. The Fixed Guideway Alternative partially blocks this view and has the potential to block similar views where they exist along each of the optional alignments.

View Corridors

V2 is a typical view along a transportation corridor and represents protected mauka-makai view corridors within Section I. From this viewpoint the Fixed Guideway Alternative has a limited affect on the view corridor. The guideway structure would not block the mauka view and would only slightly reduce the openness of the view.

Compatibility with Existing Visual Policies

Policy documents affecting Section I include the *O‘ahu General Plan*, *‘Ewa Sustainable Community Plan*, and *Revised Ordinance of Honolulu*. The Fixed Guideway Alternative has the potential to be incompatible with these policy documents as follows:

- Remove, move or alter large mature trees and vegetation
 - *O‘ahu General Plan*, Objective A, Policy 9
 - *Revised Ordinance of Honolulu*, Chapter 41, Article 13
- Alter or change the integrity of setting of historic resources
 - *‘Ewa Sustainable Communities Plan*, Objective 3.4
- Affect key landmarks (partially block views of Na Pu‘u and Makakilo)
 - *O‘ahu General Plan*, Objective A, Policy 1; Objective B, Policies 2 and 3
 - *‘Ewa Sustainable Communities Plan*, Objective 3.4
- Conflict with existing aesthetic environment (design inconsistent with existing aesthetic character)
 - *O‘ahu General Plan*, Objective E, Policies 4, 5, and 9
 - *‘Ewa Sustainable Communities Plan*, Objective 3.4

Section II. Fort Weaver Road to Aloha Stadium

Change in Visual Quality

V3 through V5 are the representative viewpoints for Section II and were used to evaluate potential impacts to the visual environment.

Viewpoint 3 (V3)

V3 shows the guideway structure replacing the palm trees in the center median of Farrington Highway (Appendix E, Figure E-11). The structure is not out of scale or character with the surrounding area, which functions primarily as a transportation

corridor with surrounding residential and commercial uses. The guideway structure would not affect existing views of the mountains seen to the right of this image and would have a limited affect on the area's scenic value. The structure's shadow may affect motorists on the roadway depending on the time of day and width of the median in relationship to the width of the structure. Light and glare associated with the fixed guideway should be similar to the existing light and glare conditions along Farrington Highway. The primary viewer group that would be affected by this view is the Residents within the surrounding area. Residents are highly sensitive to visual changes. The visual quality change would be moderate with the viewer group response to that change being high.

Viewpoint 4 (V4)

The guideway structure would have an affect on mauka views from V4 by partially blocking existing open views to the center and left of this image (Appendix E, Figure E-12). The guideway structure narrows the view corridor giving it a more tunnel-like appearance. The scale and height of the structure are not out of character with the adjacent two-story commercial buildings or the multi-story residential tower seen to the right of this image. The guideway structure would create a shade and shadow pattern that would have some affect on motorists using Kamehameha Highway. Light and glare associated with the guideway should be similar to the light and glare conditions already existing along Kamehameha Highway. The primary viewer group that would be affected by this view is Commuters, who are moderately sensitive to visual changes. The visual quality change would be high with the viewer group response to that change being moderate.

Viewpoint 5 (V5)

The simulated future condition for V5 (Appendix E, Figure E-13) are similar to those discussed for this viewpoint under Alternative 3, Managed Lane (Appendix E, Figure 3-2). The facility is well balanced and in good context to the surrounding visual environment. Limited views of Pearl Harbor are still visible just below the fixed guideway facility to the right of the viewpoint. The change in visual quality would be low and the viewer response (Residents and Business Owners) would be moderate to high.

Scenic Resources

V3 through V5 include views of the mountains and Pearl Harbor. From V3 the Fixed Guideway Alternative would not affect mauka views. From V4 the guideway structure would partially block views of the mountains. V5 includes distant views of Pearl Harbor that are somewhat blocked by images in the mid- and foreground of the viewpoint. The Fixed Guideway Alternative would not alter any of these resources and under most circumstances would not block views. For distant or limited views, scenic resources are viewed as background and not a primary focus. The fixed guideway would have little affect on resources seen at a distance or already partially blocked by development.

View Corridors

V3 and V4 are typical views along transportation corridors and represent protected mauka-makai view corridors within Section II. From V3 the Fixed Guideway Alternative has a limited affect on the view corridor. From V4, the Guideway partially blocks views of the mountains. As shown in these two viewpoints, the potential for the Guideway structure to block protected mauka-makai view corridors along sections of the alignment varies throughout the corridor.

Compatibility with Existing Visual Policies

Policy documents affecting Section II include the *O‘ahu General Plan*, *Central O‘ahu Sustainable Community Plan*, *Primary Urban Center Development Plan*, *Waipahu Livable Communities Initiative*, *Waipahu Town Plan*, *‘Aiea-Pearl City Livable Communities Plan*, and *Revised Ordinance of Honolulu*. The Fixed Guideway Alternative has the potential to be incompatible with these policy documents as follows:

- Affect scenic resources and views (partially block views of Pearl Harbor, mountains, and mauka-makai corridor views)
 - *O‘ahu General Plan* Objective B, Policies 2 and 3
 - *Central O‘ahu Sustainable Communities Plan*, Objective 3.4
 - *Primary Urban Center Development Plan*, Objective 3.1.2
 - *‘Aiea-Pearl City Livable Communities Plan*, Objectives 4.5 and 4.6.1
- Alter or change the integrity of setting of historic resources
 - *Central O‘ahu Sustainable Communities Plan*, Policy 3.4
 - *Primary Urban Center Development Plan*, Policy 3.1.2
 - *Waipahu Livable Communities Initiative*, Urban Design Guidelines
 - *Waipahu Town Plan*, Planning Objectives
- Remove, move or alter large mature trees and vegetation
 - *O‘ahu General Plan*, Objective A, Policy 9
 - *Waipahu Town Plan*, Urban Design Guidelines
 - *Waipahu Town Plan*, Planning Objectives
 - *Revised Ordinance of Honolulu*, Chapter 41, Article 13

Section III. Aloha Stadium to Middle Street

Salt Lake Boulevard

Change in Visual Quality

V6 and V7 represent the Salt Lake Boulevard alignment and were used to evaluate potential impacts to the visual environment for Section III. V6 is also representative of all alignment options for Section III.

Viewpoint 6 (V6)

The simulated future condition for V6 (Appendix E, Figure E-14) is similar to what was discussed for this viewpoint under Alternative 3, Managed Lane (Appendix E, Figure E-3). The change in visual quality would be low and the viewer response (Recreationists and Visitors) would be low to moderate.

Viewpoint 7 (V7)

The guideway structure would partially block views of the sky but would not affect designated scenic resources as there are none within this viewpoint (Appendix E, Figure E-15). The multi-story buildings and treeline create a distinct urban profile against the open sky. From V7 the guideway structure would partially block the open sky to the left of this image. The height of the structure would reduce the potential for permanent shade affecting adjacent areas; however it would have an extensive shadow pattern that would affect surrounding areas. The height of the structure would also be out of scale and character with the surrounding area. Although there are multi-story structures within this viewpoint, the area immediately adjacent to the guideway structure consists mostly of single-story, low profile buildings. The modern character of the guideway structure does not blend into this modest, residential neighborhood. The primary viewer group that would be affected by this view is Residents. The visual quality change would be high with the viewer group response to that change being high.

Scenic Resources

V6 includes views of Pearl Harbor, the mountains, and urban skyline. From V6 the Fixed Guideway Alternative would not affect these scenic resources.

View Corridors

V6 represents the protected Aloha Stadium view corridor. Within V6 the Fixed Guideway Alternative has a limited affect on the view. The guideway structure does not block views of Pearl Harbor, the mountains or urban skyline, and only slightly alters the overall visual quality of this image.

Compatibility with Existing Visual Policies

Policy documents affecting Salt Lake Boulevard within Section III include the *O'ahu General Plan*, *Primary Urban Center Development Plan*, and *Revised Ordinance of Honolulu*. The Fixed Guideway Alternative has the potential to be incompatible with these policy documents as follows:

- Alter or change the integrity of setting of historic resources
 - *Central O'ahu Sustainable Communities Plan*, Policy 3.4
 - *Primary Urban Center Development Plan*, Policy 3.1.2
- Remove, move or alter large mature trees and vegetation
 - *O'ahu General Plan*, Objective A, Policy 9
 - *Revised Ordinance of Honolulu*, Chapter 41, Article 13

Mauka and Makai of the Airport Viaduct and Aolele Street

Change in Visual Quality

V6, V8, and V9 are the representative viewpoints for these three alignments and were used to evaluate potential impacts to the visual environment within Section III. The simulated future condition for V6 (Figure E-14) is discussed under 'Change in Visual Quality' for the Salt Lake Boulevard Alignment.

Viewpoint 8 (V8)

The Fixed Guideway Alternative has an affect on the character of V8 (Appendix E, Figure E-16). Similar to the Managed Lane Facility, the Fixed Guideway introduces a large vertical feature in a setting that is primarily horizontal and low profile with the exception of the large power poles. Unlike the Managed Lane Facility however, the taller and narrower profile of the Fixed Guideway allows the view to remain more open, less heavy and with a narrower, more transitory shade and shadow pattern. The transit station, which bridges the roadway at the intersection, appears to support and emphasize the portal-like character of the existing treeline giving it some interest. The primary viewer groups that would be affected by this view include commuters and visitors. The visual quality change would be considered moderate with the viewer group response to that change being moderate.

Viewpoint 9 (V9)

The simulated future condition for V9 (Appendix E, Figure E-17) is similar to what was discussed for this viewpoint under Alternative 3, Managed Lane (Appendix E, Figure E-6). The guideway structure would be slightly more visible as it would be closer to the viewer from this viewpoint, but would have no impact on scenic resources. Impacts associated with shade, shadow, light, and glare are not anticipated. No change in visual quality would occur; therefore, no negative response from the viewer groups is anticipated. The primary viewer groups that would be affected by this view include Recreationists and Visitors.

Scenic Resources

V6 includes views of Pearl Harbor, the mountains, and urban skyline. V9 includes open mauka views. From these viewpoints, the Fixed Guideway Alternative would not affect views of these scenic resources.

View Corridors

V6 and V9 represent the protected Aloha Stadium and Ke‘ehi Lagoon view corridors. Within V6 the Fixed Guideway Alternative has a limited affect on the view. The guideway structure does not block views of Pearl Harbor, the mountains or urban skyline, and only slightly alters the overall visual quality of this image. From V9 the Fixed Guideway Alternative has no affect on visual quality or the protected view corridor.

Compatibility with Existing Visual Policies

Policy documents affecting the three proposed alignments within Section III include the *O‘ahu General Plan*, *Primary Urban Center Development Plan*, and *Revised Ordinance of Honolulu*. The Fixed Guideway Alternative has the potential to be incompatible with these policy documents as follows:

- Conflict with existing aesthetic environment (elevated structure out of scale with existing visual environment)
 - *O‘ahu General Plan*, Objective E, Policies 4, 5, and 9
- Alter or change the integrity of setting of historic resources

- *Primary Urban Center Development Plan*, Policy 3.1.2
- Remove, move or alter large mature trees and vegetation
 - *O‘ahu General Plan*, Objective A, Policy 9
 - *Revised Ordinance of Honolulu*, Chapter 41, Article 13

Section IV. Middle Street to Iwilei

N King Street

Change in Visual Quality

V12 is the representative viewpoint for this alignment and was used to evaluate potential impacts to the visual environment.

Viewpoint 12 (V12)

The simulated future condition for V12 (Appendix E, Figure E-18) shows a heavy, plain concrete structure that seems out of character with the small-scale, unique architecture and colorful streetscape within this viewpoint. The lower profile of the guideway structure keeps it in scale with adjacent buildings, but still blocks the limited mauka views to the left of the image. The structure is cantilevered over the roadway so it is anticipated that the shade and shadow patterns from the structure would be limited to the edge of roadway. The evening light conditions within this mixed-use neighborhood may be affected by sources of light and glare associated with the Fixed Guideway Alternative. The primary viewer group that would be affected by this view is Residents. The visual quality change would be considered high with the viewer group response to that change also being high.

Scenic Resources

From V12 the Fixed Guideway Alternative would block views of the mountains, which are somewhat limited from this viewpoint.

View Corridors

From V12, the Fixed Guideway Alternative would not affect protected view corridors.

Compatibility with Existing Visual Policies

Policy documents affecting the N King Street Alignment within Section IV include the *O‘ahu General Plan*, *Primary Urban Center Development Plan*, and *Revised Ordinance of Honolulu*. The Fixed Guideway Alternative has the potential to be incompatible with these policy documents as follows:

- Affect scenic resources and views (block limited views of mountains)
 - *O‘ahu General Plan* Objective B, Policies 2 and 3
 - *Primary Urban Center Development Plan*, Objective 3.1.2
- Conflict with existing aesthetic environment (guideway structure out of character with existing visual environment)
 - *O‘ahu General Plan*, Objective E, Policies 4, 5, and 9

- Alter or change the integrity of setting of historic resources
 - *Primary Urban Center Development Plan*, Policy 3.1.2
- Remove, move or alter large mature trees and vegetation
 - *O‘ahu General Plan*, Objective A, Policy 9
 - *Revised Ordinance of Honolulu*, Chapter 41, Article 13

Dillingham Boulevard

Change in Visual Quality

V13 is the representative viewpoint for this alignment and was used to evaluate potential impacts to the visual environment.

Viewpoint 13 (V13)

The transit station shown in V13 dominates the view eliminating views of the industrial businesses and storage tanks located across Dillingham Boulevard and the parking in the foreground (Appendix E, Figure E-19). It also somewhat limits views of the open sky. The transit station is not out of scale with its surroundings and somewhat simplifies and enhances the view creating a more intact and distinct image. By using appropriate architecture and landscape enhancements the transit station has the potential to improve the visual environment within this viewpoint. Careful integration of the transit station into the existing setting should also reduce the potential for light, glare, shade, or shadow patterns that might affect the existing light environment. The primary viewer group that would be affected is Residents and Business Owners. It is anticipated that the visual quality change would be low since construction would result, potentially, in an improved visual environment or benefit. However, the viewer’s response to the change would be moderately high.

Scenic Resources

From V13 the guideway structure and transit station would not affect scenic resources.

View Corridors

From V13 the guideway structure and transit station would not affect protected view corridors.

Compatibility with Existing Visual Policies

Policy documents affecting the Dillingham Boulevard Alignment within Section IV include the *O‘ahu General Plan*, *Primary Urban Center Development Plan*, and *Revised Ordinance of Honolulu*. The Fixed Guideway Alternative has the potential to be incompatible with these policy documents as follows:

- Alter or change the integrity of setting of historic resources
 - *Primary Urban Center Development Plan*, Policy 3.1.2
- Remove, move or alter large mature trees and vegetation
 - *O‘ahu General Plan*, Objective A, Policy 9

- *Revised Ordinance of Honolulu*, Chapter 41, Article 13

Section V. Iwilei to UH Mānoa

Beretania Street/S King Street

Change in Visual Quality

V14, V15, and V16 are the representative viewpoints for this alignment and were used to evaluate potential impacts to the visual environment. V16 is also representative of all alignment options for Section V with the exception of the Waikīkī Branch.

Viewpoint 14 (V14)

The simulated future condition for V14 (Appendix E, Figure E-20) shows the guideway structure crossing makai views as it follows S King Street past Thomas Square. The structure partially blocks views beyond the park but does not completely block makai views. The structure is not out of scale or character with the urban environment that surrounds Thomas Square. The structure would have little affect on the existing light environment in relationship to existing sources of light, glare, shade, and shadow along S King Street. The primary viewer group that would be affected by this viewpoint is Recreationists. It is anticipated that the visual quality change would be moderate with viewer response also being moderate.

Viewpoint 15 (V15)

The Fixed Guideway Alternative affects the mauka view corridor by partially blocking views of UH Mānoa and the mountains (Appendix E, Figure E-21). The scale and character of the guideway structure is out of context with the low-profile, modest look of a majority of the surrounding uses and structures. The height of the structure and transit station would create new daytime shade/shadow patterns and may be a source of glare. The nighttime light environment would also be affected by sources of light from the transit station. The primary viewer groups that would be affected are Residents, Business Owners, and Visitors. The visual quality change would be high with a viewer group response of moderate to high.

Viewpoint 16 (V16)

The Fixed Guideway Alternative fits into the overall context of V16 (Appendix E, Figure E-22). Set against the high-rise profile of the downtown area, the guideway structure appears more proportional in scale to the multi-story buildings seen in the background. However, the fixed guideway partially blocks views of the urban skyline. The structure and transit station, just overhead, would produce new shade and shadow patterns that would affect the daytime light environment. In addition, the large concrete surfaces have the potential to cause reflective glare during daytime hours. Lighting associated with the transit station would affect the nighttime light environment in the surrounding area. The primary viewer groups that would be affected are Residents, Business Owners, and Visitors. The visual quality change would be high with a viewer group response of moderate to high.

Scenic Resources

V15 and V16 include views of the mountains and urban skyline. From these viewpoints, the Fixed Guideway Alternative would partially blocks views of these resources. V14 is representative of the Thomas Square Special District area. From V14 the Fixed Guideway Alternative would not be out of scale or character with the surrounding urban environment as seen from within the park.

View Corridors

V15 represents mauka-makai view corridors. From this viewpoint the guideway structure would partially block views of the mountains.

Compatibility with Existing Visual Policies

Policy documents affecting the Beretania Street/S King Street alignment within Section V include the O‘ahu General Plan, Primary Urban Center Development Plan, and Revised Ordinance of Honolulu. The Fixed Guideway Alternative has the potential to be incompatible with these policy documents as follows:

- Conflict with existing aesthetic environment (elevated structure out of scale with existing visual environment)
 - *O‘ahu General Plan*, Objective E, Policies 4, 5, and 9
- Alter or change the integrity of setting of historic resources
 - *Primary Urban Center Development Plan*, Policy 3.1.2
- Remove, move or alter large mature trees and vegetation
 - *O‘ahu General Plan*, Objective A, Policy 9
 - *Revised Ordinance of Honolulu*, Chapter 41, Article 13

Hotel Street/Waimanu Street/Kapi‘olani Boulevard and Hotel Street/Kawaiaha‘o Street/Kapi‘olani Boulevard

Change in Visual Quality

V16 and V17, and V18 are the representative viewpoints for these two alignments and were used to evaluate potential impacts to the visual environment. The simulated future condition for V16 (Figure E-22) is discussed under ‘Change in Visual Quality’ for the Beretania Street/S King Street Alignment.

Viewpoint 17 (V17)

The simulated future condition for V17 (Appendix E, Figure E-23) shows the Fixed Guideway Alternative operating at-grade using a street track and catenary-wire system. The Fixed Guideway Alternative does not introduce any new structures that would block views with the exception of the catenary wires, which would result in a minor visual intrusion. The only source of light and glare would be from the trains themselves, which would be similar to the light conditions produced by current street traffic. The catenary wires would produce new shadow patterns, but those would be minimal. The primary viewer groups that would be affected are Residents, Business Owners, and Visitors. The visual quality change would be low with a viewer group response of moderate to high.

Viewpoint 18 (V18)

The simulated future condition for V18 (Appendix E, Figure E-24) has no effect on the composition or integrity of this viewpoint. Views of the trees, urban skyline, and mountains are not affected. From V18 the scale and height of the guideway structure would have no effect on the existing aesthetic character of this view. Light, glare, and shadow associated with the elevated structure would not affect sensitive visual resources and are not anticipated to affect evening light conditions due to the existing urban environment surrounding the guideway structure. No change in visual quality would occur; therefore no negative response from the viewer groups is anticipated. The primary viewer groups that would be affected by this view include Recreationists, Residents, and Visitors.

Scenic Resources

V16 and V18 include views of the urban skyline and mountains. From V16, the Fixed Guideway Alternative would partially block these views. From V18, there would be no impact to the view. V17 represents the Chinatown Special District and V18 represents the Diamond Head Special District. From both viewpoints the Fixed Guideway Alternative would not block or alter resources or be out of scale or character with the surrounding visual environment.

View Corridors

V18 represents the protected Diamond Head view corridor. From this viewpoint the Fixed Guideway Alternative would not affect protected views.

Compatibility with Existing Visual Policies

Policy documents affecting the Hotel Street/Waimanu Street/ Kapi‘olani Boulevard and Hotel Street/Kawaiaha‘o Street/Kapi‘olani Boulevard alignment within Section V include the O‘ahu General Plan, Primary Urban Center Development Plan, and Revised Ordinance of Honolulu. The Fixed Guideway Alternative has the potential to be incompatible with these policy documents as follows:

- Conflict with existing aesthetic environment (elevated structure out of scale with existing visual environment)
 - *O‘ahu General Plan*, Objective E, Policies 4, 5, and 9
- Alter or change the integrity of setting of historic resources
 - *Primary Urban Center Development Plan*, Policy 3.1.2
 - *Revised Ordinance of Honolulu*, Chapter 21, Article 9, Section 21-9.60
- Remove, move or alter large mature trees and vegetation
 - *O‘ahu General Plan*, Objective A, Policy 9
 - *Revised Ordinance of Honolulu*, Chapter 41, Article 13

King Street/ Waimanu Street/ Kapi‘olani Boulevard

Change in Visual Quality

V16, V18, and V19 are the representative viewpoints for this alignment and were used to evaluate potential impacts to the visual environment. The simulated future condition for V16 (Figure E-22) is discussed under ‘Change in Visual Quality’ for the Beretania Street/S King Street Alignment. The simulated future condition for V18 (Figure E-24) is discussed under ‘Change in Visual Quality’ for the Hotel Street/Waimanu Street/Kapi‘olani Boulevard Alignment.

Viewpoint 19 (V19)

The simulated future condition for V19 (Figure E-25) has no affect on the composition or integrity of this viewpoint. The Fixed Guideway Alternative would run underground in a tunnel through this part of Chinatown.

Scenic Resources

V16 and V18 include views of the urban skyline and mountains. From V16, the Fixed Guideway Alternative would partially block these views. From V18, there would be no impact to the view. V19 represents the Chinatown Special District and V18 represents the Diamond Head Special District. From both viewpoints the Fixed Guideway Alternative would not block or alter resources or be out of scale or character with the surrounding visual environment.

View Corridors

V18 represents the protected Diamond Head view corridor. From this viewpoint the Fixed Guideway Alternative would not affect protected views.

Compatibility with Existing Visual Policies

Policy documents affecting the King Street/Waimanu Street/Kapi‘olani Boulevard alignment within Section V include the *O‘ahu General Plan, Primary Urban Center Development Plan*, and *Revised Ordinance of Honolulu*. The Fixed Guideway Alternative has the potential to be incompatible with these policy documents as follows:

- Alter or change the integrity of setting of historic resources
 - *Primary Urban Center Development Plan*, Policy 3.1.2
 - *Revised Ordinance of Honolulu*, Chapter 21, Article 9, Section 21-9.60
- Remove, move or alter large mature trees and vegetation
 - *O‘ahu General Plan*, Objective A, Policy 9
 - *Revised Ordinance of Honolulu*, Chapter 41, Article 13

Nimitz Highway/Queen Street/Kapi‘olani Boulevard

Change in Visual Quality

V16, V18, V19, and V20 are the representative viewpoints for this alignment and were used to evaluate potential impacts to the visual environment. The simulated future condition for V16 (Figure E-22) is discussed under ‘Change in Visual Quality’ for the Beretania Street/S King Street Alignment. The simulated future condition for V18

(Figure E-24) is discussed under ‘Change in Visual Quality’ for the Hotel Street/Waimanu Street/Kapi‘olani Boulevard and King Street/Waimanu Street/Kapi‘olani Boulevard Alignments.

Viewpoint 19 (V19)

The simulated future condition for V19 (Figure E-26) shows the Fixed Guideway structure crossing the makai view down Kekaulike Street in Chinatown’s O‘ahu Market. The structure does not completely block the makai view, but it does introduce a vertical plane that reduces the openness of the view. The scale and character of the structure is somewhat out of character with the pedestrian-oriented environment created by the Market’s architecture and streetscape. Some of the taller vertical features in the background of this viewpoint, such as the large white building to the left, the palm trees, and the multi-story structure to the right of this viewpoint help the guideway structure fit into the overall image. Light, shade, and shadow would not have an affect on the area from this vantage point. Depending on the materials used for the guideway structure, reflective glare may be an issue. The primary viewer groups that would be affected are Residents and Business Owners. It is anticipated that the visual quality change would be moderate with viewer response being moderately-high.

Viewpoint 20 (V20)

The simulated future condition for V20 (Figure E-27) shows the dual, stacked guideway structure crossing over Fort Street Mall as it follows Queen Street through the Downtown area. Passing through the trees, the guideway structure partially blocks views of Aloha tower and somewhat reduces the openness of this view. The structure is not out of scale or character with the surrounding multi-story buildings and urban environment. Surrounded by tall buildings and vegetation, the guideway structure would have little affect on the existing light environment. The primary viewer groups that would be affected are Residents and Visitors. The visual quality change would be moderate with a viewer group response of low to high.

Scenic Resources

V16 and V18 include views of the urban skyline and mountains. From V16, the Fixed Guideway Alternative would partially block these views. From V18, there would be no impact to the view. V20 includes views of Aloha Tower. From V20, the Fixed Guideway Alternative would partially block these views. V19 represents the Chinatown Special District and V18 represents the Diamond Head Special District. From V20, the Fixed Guideway Alternative would be slightly out of scale and character with the existing visual environment. From V18, the Fixed Guideway Alternative would not block or alter resources or be out of scale or character with the surrounding visual environment.

View Corridors

V19 and V20 represent protected mauka-makai view corridors and V18 represents the protected Diamond Head view corridor. From V19 and V20, the Fixed Guideway

Alternative would partially block makai views. From V18, there are no impacts to the protected view corridor.

Compatibility with Existing Visual Policies

Policy documents affecting the Nimitz Highway/Queen Street/Kapi‘olani Boulevard alignment within Section V include the *O‘ahu General Plan, Primary Urban Center Development Plan*, and *Revised Ordinance of Honolulu*. The Fixed Guideway Alternative has the potential to be incompatible with these policy documents as follows:

- Affect scenic resources and views (partially block urban skyline and makai views)
 - *O‘ahu General Plan* Objective B, Policies 2 and 3
 - *Primary Urban Center Development Plan*, Objective 3.1.2
 - *Revised Ordinance of Honolulu*, Chapter 21, Article 9, Section 21-9.60
- Conflict with existing aesthetic environment (elevated structure out of scale and character with existing visual environment)
 - *O‘ahu General Plan*, Objective E, Policies 4, 5, and 9
 - *Revised Ordinance of Honolulu*, Chapter 21, Article 9, Section 21-9.60
- Alter or change the integrity of setting of historic resources
 - *Primary Urban Center Development Plan*, Policy 3.1.2
 - *Revised Ordinance of Honolulu*, Chapter 21, Article 9, Section 21-9.60
- Remove, move or alter large mature trees and vegetation
 - *O‘ahu General Plan*, Objective A, Policy 9
 - *Revised Ordinance of Honolulu*, Chapter 41, Article 13

Nimitz Highway/Halekauwila Street /Kapi‘olani Boulevard Change in Visual Quality

V16, V18, V19, V20 and V21 are the representative viewpoints for this alignment and were used to evaluate potential impacts to the visual environment. The simulated future condition for V16 (Figure E-22) is discussed under ‘Change in Visual Quality’ for the Beretania Street/S King Street Alignment. The simulated future condition for V18 (Figure E-24) is discussed under ‘Change in Visual Quality’ for the Hotel Street/Waimanu Street/Kapi‘olani Boulevard Alignment. The simulated future condition for V19 (Figure E-26) is discussed under ‘Change in Visual Quality’ for the Nimitz Highway/Queen Street/Kapi‘olani Boulevard.

Viewpoint 20 (V20)

The simulated future condition for V20 (Appendix E, Figure E-28) shows the elevated guideway structure crossing over Fort Street Mall as it follows Nimitz Highway/Halekauwila Street through the Downtown area. Just visible through the trees, the guideway structure slightly blocks views of Aloha tower. The structure blends into the surrounding environment and fits within the context of the image. The structure would not affect the light environment from this vantage point. The primary viewer groups would be Residents and Visitors. The visual quality change would be low with a viewer response of low to high.

Viewpoint 21 (V21)

The Fixed Guideway Alternative would have very little affect on the quality of V21 (Figure E-29). The guideway structure would not block scenic resources or vistas. The elevated guideway and transit station are just visible beyond the trees, blending into the surrounding environment. Its size and scale are not out of character with the surrounding high-rise, urban environment. The guideway structure would have little affect on the existing light environment in relationship to existing sources of light, glare, shade, and shadow along Nimitz Highway. No change in visual quality would occur; therefore no negative response from the viewer groups is anticipated. The primary viewer groups that would be affected by this view include Residents and Visitors.

Scenic Resources

V16 includes views of the urban skyline and V20 includes views of Aloha Tower. From both of these viewpoints, the Fixed Guideway Alternative would partially block these views. V18 represents the Diamond Head Special District, V19 represents the Chinatown Special District, and V21 represents the Hawai'i Capitol Special District. From V19, the Fixed Guideway Alternative would be slightly out of scale and character with the existing visual environment. From V18 and V21, the Fixed Guideway would not block or alter resources or be out of scale or character with the surrounding visual environment.

View Corridors

V19 and V20 represent protected mauka-makai view corridors and V18 represents the protected Diamond Head view corridor. From V19 and V20, the Fixed Guideway Alternative would partially block makai views. From V18, there are no impacts to the protected view corridor.

Compatibility with Existing Visual Policies

Policy documents affecting the Nimitz Highway/Halekauwila Street /Kapi'olani Boulevard alignment within Section V include the *O'ahu General Plan, Primary Urban Center Development Plan*, and *Revised Ordinance of Honolulu*. The Fixed Guideway Alternative has the potential to be incompatible with these policy documents as follows:

- Affect scenic resources and views (partially block makai views)
 - *O'ahu General Plan* Objective B, Policies 2 and 3
 - *Primary Urban Center Development Plan*, Objective 3.1.2
 - *Revised Ordinance of Honolulu*, Chapter 21, Article 9, Section 21-9.60
- Conflict with existing aesthetic environment (elevated structure out of scale and character with existing visual environment)
 - *O'ahu General Plan*, Objective E, Policies 4, 5, and 9
 - *Revised Ordinance of Honolulu*, Chapter 21, Article 9, Section 21-9.60
- Alter or change the integrity of setting of historic resources
 - *Primary Urban Center Development Plan*, Policy 3.1.2
 - *Revised Ordinance of Honolulu*, Chapter 21, Article 9, Section 21-9.60

- Remove, move or alter large mature trees and vegetation
 - *O‘ahu General Plan*, Objective A, Policy 9
 - *Revised Ordinance of Honolulu*, Chapter 41, Article 13

Waikīkī Branch

Change in Visual Quality

V22 and V23 are the representative viewpoints for this alignment and were used to evaluate potential impacts to the visual environment.

Viewpoint 22 (V22)

The Fixed Guideway Alternative would have a limited affect on the quality of V22 (Appendix E, Figure E-30). The guideway structure crosses the mauka view corridor, but from this vantage point the view is already blocked by vegetation and high-rises. The structure is not out of scale with the surrounding environment and while the structure’s plain concrete appearance lacks interest, it does not detract from the lush and colorful character of the Waikīkī area. The guideway structure would have little affect on the existing light environment because of the number of existing sources of glare, light, shade, and shadow within this area. The primary viewer groups that would be affected by this viewpoint are Residents and Visitors. It is anticipated that the visual quality change would be low with viewer response being low to high.

Viewpoint 23 (V23)

The Fixed Guideway Alternative would affect the scale and context of V23 (Appendix E, Figure E-31). From V23 the large columns and height of the guideway structure make the view seem less open with the structure looking heavy and slightly out of scale with the pedestrian-oriented streetscape. The trees, street lights, decorative building facades, and doorway awnings create an interesting, pedestrian-scale environment against the high-rise structures that edge Kūhiō Street. The plain concrete mass of the guideway structure intrudes slightly on this environment making it less intact. However, the guideway structure would not affect designated scenic resources and new light, shade, and shadow patterns created by the structure are not anticipated to have much effect within this area due to the number of existing sources of light, shade, and shadow. Depending on the materials used to construct the guideway, reflective glare could be an issue. The primary viewer groups that would be affected by this viewpoint are Residents and Visitors. It is anticipated that the visual quality change would be moderate with viewer response being low to high.

Scenic Resources

V22 and V23 represent the Waikīkī Special District. From V22, the Fixed Guideway Alternative would not block or alter resources or be out of scale or character with the surrounding visual environment. From V23, the Fixed Guideway Alternative would be out of scale with the existing visual environment.

View Corridors

V22 represents protected mauka-makai view corridors. From V22, the Fixed Guideway Alternative would not have an affect on the mauka view, which is already partially blocked by high-rises and vegetation.

Compatibility with Existing Visual Policies

Policy documents affecting the Waikīkī Branch within Section V include the *O‘ahu General Plan*, *Primary Urban Center Development Plan*, and *Revised Ordinance of Honolulu*. The Fixed Guideway Alternative has the potential to be incompatible with these policy documents as follows:

- Conflict with existing aesthetic environment (elevated structure out of scale with existing visual environment)
 - *O‘ahu General Plan*, Objective E, Policies 4, 5, and 9
 - *Revised Ordinance of Honolulu*, Chapter 21, Article 9, Section 21-9.80
- Alter or change the integrity of setting of historic resources
 - *Primary Urban Center Development Plan*, Policy 3.1.2
- Remove, move or alter large mature trees and vegetation
 - *O‘ahu General Plan*, Objective A, Policy 9
 - *Revised Ordinance of Honolulu*, Chapter 41, Article 13

Construction Impacts

Construction impacts for Alternative 4 would be similar to those described under Alternatives 2 and 3, however, the impacts would be spread over a greater area and the intensity of construction would increase with additional phases and operational sequences. In addition to the equipment and storage needs listed under Alternative 3, the tunnel options proposed for Alternative 4 would require excavation equipment, delivery mechanisms for transporting excavated materials, and approved storage sites and/or off-site disposal areas. The additional equipment and storage needs would have the potential for aesthetic impacts outside of the project corridor.

Alternative 4 would have a fairly large construction footprint (approximately 23 miles) with construction anticipated to last several years. During that time the elements and conditions of construction would be visible to the public.

Secondary and Cumulative

Secondary impacts, also called indirect impacts, are impacts that are caused by the project, but are removed in time and/or distance from the proposed project. Indirect effects may include changes in land use, development patterns, and growth rates. Whether these indirect effects are a result of the project depends on “the size of the area affected, extent to which growth is controlled by existing land use regulations, community and environmental goals and priorities, and the extent to which future development is certain to occur” (*Indirect and Cumulative Impact Analysis*, January 2006).

If a project will not cause direct or indirect impacts it can not contribute to a cumulative impact. A project's incremental impacts are a necessary component of cumulative impacts. Cumulative impacts are the additive effects of the proposed project with other past, present, and reasonably foreseeable actions. "Reasonably foreseeable actions are those that are likely (or reasonably certain) to occur, and although they may be uncertain, they are not purely speculative" (*Indirect and Cumulative Impact Analysis*, January 2006). Actions that were considered under cumulative impacts for this project included mid-range and long-range projects listed in the Draft O'ahu Regional Transportation Plan to include island-wide, congestion relief, and transit projects. Other actions considered were projects listed in the Transportation for O'ahu 2025 Final Report including Kunia Road/Fort Weaver Road Corridor, Fort Barrette Road/Makakilo Drive Corridor, Interstate H-1 Interchange Improvements, Farrington Highway Corridor, and Kapolei Parkway Corridor. Development projects that were considered included the Ala Moana-Sheridan Community Plan, the 'Ewa Development Plan, and projects programmed for the 'Ewa Plain area (DHHL, UH-West O'ahu Campus, East Kapolei Area, Mehana).

Alternative 1: No Build

No construction would occur for this project under the No Build Alternative; therefore, no direct or indirect impacts to visual resources or the existing visual environment would occur.

Alternative 2: Transportation System Management

Construction of the Pearl City Transit Center and the 'Aiea Transit Center is not anticipated to result in direct or indirect impacts on visual resources or the existing visual environment due to the small scale and localized nature of this alternative. It is anticipated that context-sensitive design and location of the two transit centers would be considered along with the existing setting and community character resulting in a beneficial affect in paving, landscaping, and architectural treatments on-site and within the immediate area.

Alternative 3: Managed Lane

The Managed Lane Alternative does not introduce a new travel corridor, but primarily utilizes existing transportation right-of-way. Some additional right-of-way would be required to accommodate the project footprint; however, it is not anticipated to cause changes in development patterns or induce new growth. Both options for Alternative 3 would introduce a new elevated structure within existing urbanized areas. The increased intensity of use as a transportation corridor and the change in visual character of the area as a result of the size and scale of the managed lane structure has the potential to change or influence economic factors that determine the mix of uses along the corridor. The secondary effect of this change is a difference in land use patterns immediately adjacent to the project area. The change in land use patterns has the potential to affect the esthetic character and design of some areas.

Alternative 3, in conjunction with large transportation and urban development projects, has the potential to change the existing visual environment as a result of increased

urbanization and changes in land use patterns. Cumulatively, these development projects would result in a denser, more urbanized setting.

Alternative 4: Fixed Guideway

The Fixed Guideway Alternative introduces a new, elevated transportation corridor in areas that are currently both rural in nature and densely urbanized. Alternative 4 is not anticipated to result in additional growth, since the transportation and development projects considered in conjunction with this project are not dependent on the completion of this project. However, land uses and development patterns would be influenced by the location of transit stations and the transit alignment. The secondary effect of the alternative would be redevelopment and changes in land use patterns along the project corridor and at transit station locations resulting in a change in aesthetic character and design of these areas.

Alternative 4, in conjunction with large transportation and urban development projects, has the potential to change the existing visual environment as a result of development of open space areas and construction of multi-story structures. Urbanization and development of the 'Ewa DP area is the planned goal for this area. Additional development and expansion of transportation systems and housing throughout Central O'ahu and the Primary Urban Center is also a goal of the City and County of Honolulu. Construction of these large transportation and urban development projects would alter visual resources by replacing open, undeveloped areas with housing, commercial, and public facility developments and increasing density in urbanized areas with construction of multi-story structures. The Fixed Guideway Alternative would contribute to the change in the visual landscape caused by the overall urbanization anticipated in the 'Ewa Plain and throughout Central O'ahu and the Primary Urban Center. Cumulatively, these development projects would result in a denser, more urbanized setting.

Mitigation measures listed below focus on preserving visual resources and enhancing project design to comply with applicable policies. The mitigation identifies potential techniques or design considerations that could provide solutions to achieving an attractive project from a viewer's perspective and designing components that are appropriate to the visual setting. Specific mitigation measures designed to resolve specific impacts will be addressed once the Locally Preferred Alternative has been selected by the City Council.

Alternative 1: No Build

No construction would occur under the No Build Alternative; therefore no impacts to the visual environment would occur. No mitigation is required.

Alternative 2: Transportation System Management

Impacts described for Alternative 2 are not anticipated to be substantial. Construction would be localized to a small area and use of context-sensitive design would integrate the transit facilities into the existing environment. Consideration of basic design principles would mitigate impacts to less than substantial by reducing conflicts with sensitive resources and improving the contextual setting of the transit centers.

Alternative 3: Managed Lane

Impacts associated with the Managed Lane Alternative include potential removal or relocation of Exceptional Trees, change in setting of an historic or cultural site or Section 4(f) resource, alteration of mauka-makai views, introduction of project components that are out of scale or character with their setting, moderate to high viewer response to project changes, introduction of new light sources in sensitive areas, and inconsistency with policy documents. The following design principles are based on common-theme comments regarding aesthetic considerations that were received on this project and previous studies, the reference guide for context sensitive design, and aesthetic policies in each of the governing policy documents and should be considered to help minimize, reduce, or mitigate these impacts.

- Project design should consider a contextual approach so that project elements are functional as well as aesthetically appropriate to their setting.
- Consider alignments that better support the construction of large-scale, elevated components.
- Consult with a multi-disciplined, advisory committee regarding an appropriate design theme.
- Use project components to define spaces and create a “sense of place” that is appropriate in scale and character to its setting.

- Consider design components that help create a human-scale and pedestrian-friendly environment.
- Create opportunities for appropriate and sensitive “show-casing” of project components that are too large-scale to apply minimizing techniques.
- In highly-sensitive settings use design features with materials and shapes that fit the topography and visual setting.
- Look for opportunities to use materials that reflect the Hawai’ian culture and will minimize the potential for vandalism.
- Incorporate appropriate consultation, monitoring, preservation, and documentation measures to minimize impacts to Section 4(f), historic, cultural, and vegetative resources.
- Pursue cooperative agreements with adjacent property owners to finance and maintain landscaping, artwork, or other design features that would improve the visual quality of the project.

Alternative 4: Fixed Guideway

Impacts related to Alternative 4 would be similar in nature to those discussed under Alternative 3. However, impacts for Alternative 4 would be larger in scale due to the longer corridor proposed. Impacts would be spread across the 23 mile corridor and would affect a wider range of resources and communities. The design principles discussed under Alternative 3 would also apply to Alternative 4; however, mitigation would be more extensive for Alternative 4 requiring additional coordination, a longer time-frame for implementation, and more funds.

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Appendix A DPP Coordination Meeting Minutes

Honolulu High-Capacity Transit Corridor Project

Meeting Minutes

Date of Meeting: Wednesday, 22 February, 2006
2:00 p.m. **Location:** DTS Conference Room, 3rd Floor

Subject: Visual Coordination Meeting with DPP

Attendees: Faith Miyamoto, DTS
Bob Stanfield, Patrick Seguirant, Bonnie Arakawa, DPP
Lawrence Spurgeon, Theresa Dickerson, PB
Joel Kurokawa, Chris Kimura, Hawaii Design

- DPP initiated the meeting with the statement that there are Development Plans (DP's) for most of the areas along the proposed project corridor and these DP's identify public view corridors that are to be protected. Most of these view corridors are along the roadway and highway systems. The Visual Impact Assessment (VIA) would need to provide disclosure of impacts to these view corridors.
- DPP also stated that view corridors within the Ewa Plain would be important to consider, as well as established height limitations in the Waipahu area. The VIA also needs to consider visual impacts and shoreline access issues within the Special Management Districts (SMD's). Obstruction of views and esthetic impacts also need to be considered for historic districts such as Chinatown and the Capital District.
- DPP mentioned that the Housing and Community Development Agency (HCDA) regulates the Kakaako Special Management Area (SMA) and views within that area.
- PB asked whether the view corridors identified in the DP's have been updated recently.
- DPP replied that the view corridors were, in general, carried over from the '92 DP update. Conceptual mapping in each DP identifies the location of the view corridors, which should be compared to the text listing of view corridors. It's possible that there won't be a 100% match, so both the maps and the text listing need to be looked at.
- DPP stated they were concerned about using a numeric rating scale for evaluating visual quality. DPP wasn't sure that the rating scale was meaningful and wanted to know why it was being used. DPP felt that a better approach would be to provide a list of sites that are considered visually sensitive and then use simulations to show how these sites would be affected by the proposed alignments and technologies.
- DPP stated that the VIA is a subjective process and as such, wanted to know how it could be quantified. DPP felt that public reaction to existing views and visual changes are more important than an "expert" rating of visual quality and visual quality changes. DPP felt that treating the VIA as an analytical process was dangerous and that showing simulations of proposed changes had more value in being able to determine a project's level of impact.
- DPP stated that a description of impact was more important than a quantification of impact and that all views identified in the DP's as "public views of importance" should be considered of high visual quality.
- PB explained that the numeric rating scale is a method that correlates with an approach used by several federal agencies and the U.S. DOT for evaluating visual quality. The method uses criteria that tend to match the public's judgment of visual quality. PB agreed that the process tends to assume a region-wide analysis that

may not always be sensitive to local issues or concerns. PB also agreed that visual simulations were a good tool for assisting the public in understanding impacts and that obtaining public opinion was important in identifying local areas of concern. However, PB cautioned that the public have also been suspect of the use of visual simulations, suggesting that the images are “doctored” to show positive results and that the views that are simulated don’t represent anyone’s “backyard” view. PB stated that they have included visual simulations as part of the analysis process, and as a tool in assisting the public in understanding potential project impacts.

- PB stated that resources identified in public policy documents are considered to have high priority when assessing visual impacts. However, in addition to resources already identified in policy documents as having high visual quality, NEPA also requires evaluation of other resources that add to the quality of the visual environment such as parks, cultural and historic resources, and local views.
- DPP suggested using large focus groups to come up with visual quality ratings instead of professional judgment. DPP stated that the analysis should separate the two kinds of resources, those that are already identified in policy documents as important and other resources required for consideration under NEPA. DPP added that what is important about visual resources is their shared value to the community.
- DPP stated that if the visual assessment method requires the use of a rating process, that was fine, but the method needs to be expanded to include community concerns. DPP suggested that the visual assessment identify and speak to the sense of community since this is the manifestation of changes in visual quality. DPP restated that the method should be expanded to consider the community’s views.
- PB agreed that using focus groups has the advantage of obtaining information on local concerns and issues related to the visual environment. PB stated that a meeting was scheduled with The Outdoor Circle to gather public input on aesthetic issues and determine whether there are special resources that should be considered during the visual analysis. The meeting was also going to be used to gain information on what resources have particular value within the community.
- PB agreed to discuss visual resources identified in public policy documents as a separate item in the analysis.
- DPP stated that part of the problem is that the visual assessment method was an embedded practice and has become a federal expectation. DPP reiterated that the idea of using professional judgment to assign a value scale to a resource ignores the political reality. DPP suggested that the value scale would only work if there was an advisory panel to provide the ranking before and after. DPP stated that if the assessment method was following a federal process then PB needs to explain that. However DPP felt that the assessment method is a crude sorting device particularly for use in Hawaii where resources are named and identified at a very fine scale.
- PB asked if DPP was aware of a better method for evaluating visual impacts or was there something else that could be done to improve the assessment method and still meet federal requirements. PB questioned how the level of impact could be assessed if the visual quality of a resource wasn’t already established by policy.
- DPP asked if there was flexibility in the assessment method in order to incorporate local concerns.
- PB affirmed that there was flexibility in the method to include local issues.

- DPP stated that the view corridors as identified in the development plans are important and the question of whether there are any impacts to these corridors should be considered. DPP suggested that visual simulations should be shown to as many people as possible to get a consensus on the perceived level of impact. DPP stated that they make a distinction between public views and private views and DPP does not protect private views.
- PB cautioned that the protection of local views has been upheld by recent case law and that federal regulations and policies provide for protection of the visual environment as a whole, inclusive of the surrounding community.
- DPP was interested in any example where private views have been protected on a federal project.
- DPP stated that the development plans can be used to define the important views. DPP suggested that PB rely on a local advisory panel to make assessments on the quality of each view. DPP also suggested that PB show everything in a graphic format and not try to quantify it.
- Discussion concluded with a statement from DPP that the identified view corridors are an important visual resource. However, there was general agreement that other resources should also be considered. DPP suggested that the discussion of resources should be separated into two categories, those already identified in policy documents and those that are determined to be special to the community. The consensus was that impacts within the corridor should be quantified, but that a general discussion regarding impacts to the identified view corridors should also be included.

Actions Required: 1. None

Distribution

File: #16434A

By: Theresa Dickerson

Appendix B TOC Coordination Meeting Minutes

Date of Meeting: Friday, 24 February, 2006 10:30 a.m. **Location:** The Outdoor Circle, 1314 S. King Street, Suite 306

Subject: Visual Coordination Meeting with Board Members of The Outdoor Circle

Attendees: Pete Dyer, Susan Spander, Mary Steiner, Kathy Whitmire, Steve Mechler, TOC JoAnn Best, Alexandra Avery, Betsy Connors, LKOC & TOC

Faith Miyamoto, DTS
Lawrence Spurgeon, Theresa Dickerson, PB
Joel Kurokawa, Chris Kimura, Hawaii Design

- PB initiated the meeting by walking through the changes proposed under Alternatives 3 and 4 using aerials that showed the proposed alignments.
- PB continued the presentation by describing the US Department of Transportation (DOT) process for assessing visual impacts using methods established by the Federal Highway Administration (FHWA).
- PB stated that the US DOT process considers changes in the quality of locally important views and visual resources as having a potential for both positive and negative impacts. Therefore views and visual resources that have been identified as important to the community will be evaluated and changes to those resources will be considered as potential impacts. One resource that will be considered in the evaluation is the protected viewplanes identified within each development plan area.
- PB also mentioned that historic and cultural resources will also be considered in the evaluation of potential impacts to the visual environment.
- PB continued to describe the visual impacts assessment process by describing the first step in the process which looks at the existing visual environment. This step identifies components within the community that demonstrate a high quality of visual value.
- PB concluded the initial presentation by asking if The Outdoor Circle (TOC) had any questions on the alternatives or visual impact assessment process.
- TOC responded by saying that the FHWA process was very confusing and difficult to understand.
- PB asked how the process and/or the visual assessment could be presented so that the public would be able to understand the process and what the potential visual impacts might be.
- TOC stated that pictures and visual simulations were very important in helping people understand what was happening. TOC said that the public understands pictures.
- TOC asked what information would go to the City Council to help them with their decision on potential alternatives for the transit system.
- PB responded that the Alternative Analysis (AA), which includes a comparison of the potential impacts of all alternatives, would be provided to the City Council for their review and decision. The AA would include both the positive and negative impacts associated with all of the alternatives.
- TOC suggested that PB use comments received from the public on other projects such as Nimitz, since they would probably be similar to the concerns that would be voiced for the transit project.

- PB confirmed that they would review and consider pertinent comments on visual impacts received from other projects within the study area.
- The meeting continued with TOC voicing several concerns regarding the potential transit system including:
 - Graffiti on elevated structures
 - Design elements in an urban setting, such as second or third floor views of elevated structures
 - Visual impacts of high fly-over structures
- TOC stated that views of and specific mitigation for transit power stations needs to be discussed in the AA.
- TOC suggested that under-grounding of street utilities should be considered as part of the transit improvements.
- TOC asked if PB could provide information on other systems in other areas so that the public could see how transit would work in Oahu. TOC also asked that PB consider any good mitigation measures used elsewhere that could be used for the transit project.
- PB responded that these suggestions would be considered where possible.
- The meeting was concluded with TOC stating that they would like to, and are interested in, providing additional input and suggestions as the process moves forward and more information becomes available.

Actions Required: 1. None

Distribution

File: #16434A

By: Theresa Dickerson

List 1

No Impact Views

2.0 Central Oahu Sustainable Communities Plan

- 2.1 The View of the Waipahu Sugar Mill from Waipahu Depot Road
The Transit alignment is makai of Waipahu Depot Road.
- 2.2 The View of the Waianae Mountains from the Waipahu Cultural Gardens
The View of the Waianae Mountains is mauka of the alignments.

3.0 Ewa Sustainable Communities Plan

- 3.1 Views of Central Oahu and Diamond Head from H-1
The views of Central Oahu are looking away from the alignments.
The views from H-1 are too far from the alignments to see them.

4.0 Coastal View Study

- 4.1 Lagoon Drive to Diamond Head (Exhibit 13)
 - 4.1.1 Ala Moana Boulevard continuous Coastal Views from Kewalo Basin to Ala Wai Canal
No alignments go down Ala Moana Boulevard between Kewalo Basin and Ala Wai Canal.
 - 4.1.2 Beachwalk intermittent views makai from Hale Koa and Reef Hotel
The view from these sites makai are looking away from the alignments and the buildings of Waikiki obstruct the alignment views.
 - 4.1.3 Kapiolani Park beach views westerly
From Kapiolani Park, views not obstructed by the Waikiki hotels, are of Campbell Industrial Park in the far distance.
- 4.3 Campbell Industrial Park to Iriquois Point (Exhibit 15)
 - 4.3.1 No impacts, all alignments mauka of Coastal view shed, all views look makai.

5.0 City and County of Honolulu Land Use Ordinance Special Districts

- 5.1 Hawaii Capital Special District
 - 5.1.1 YWCA and grounds
Located away from alignments.
 - 5.1.2 Mabel Smythe Building
No alignment in area.

- 5.1.3 Harkness Nurses Home
No alignment in area.
- 5.1.4 Board of Water Supply Building
No alignment in area.
- 5.1.5 Arcade Building
Located on Merchant Street, no alignment in area
- 5.1.6 1919 Hawaiian Electric Company Building
No alignment in area.
- 5.2 Diamond Head Special District
 - 5.2.1 Date Street from Manoa-Palolo Drainage Canal to Kapahulu Avenue
Beyond alignment boundary.
 - 5.2.2 Kilauea Avenue from Elepaio Street to 12th Avenue
Beyond alignment boundary.
 - 5.2.3 Ala Wai Golf Course
Beyond alignment boundary.
- 5.3 Punchbowl Special District
 - 5.3.1 Interstate from Liliha Street to Royal Elementary School eastward
View corridor too narrow and directed toward Punchbowl only.
 - 5.3.2 Interstate from Kewalo Street to Pensacola Street westward
View corridor too narrow and side views blocked by buildings.
 - 5.3.3 Roosevelt High School and Stevenson Elementary School
Buildings surrounding sites obstruct views.
 - 5.3.4 Makiki Cemetery to Punchbowl
This area is mauka of Punchbowl crater, views obstructed by physical feature.
 - 5.3.5 Vineyard Boulevard from Liliha to Central Intermediate
Buildings obstruct makai views toward alignments.
- 5.4 Chinatown Special District
 - 5.4.1 Within the historic core precinct, new structures shall not exceed 40 feet
Alignment down Hotel Street only.
- 5.5 Thomas Square/ Honolulu Academy of Arts Special District
 - 5.5.1 Views from the Honolulu Academy courtyards skyward
View irrelevant to alignment.
- 5.6 Waikiki Special District
 - 5.6.1 Views of Diamond Head from Ala Wai Boulevard between McCully Street and Kapahulu Avenue
This view looks away from alignment and beyond alignment boundary.

- 5.6.2 Mauka views from the portions of the following streets mauka of Kuhio Avenue:
 - 5.6.2a. Nohonani Street and Kuhio Avenue looking mauka
 - 5.6.2b. Nahua Street and Kuhio Avenue looking mauka
 - 5.6.2c. Kanekapolei Street and Kuhio Avenue looking mauka
 - 5.6.2d. Kaiolu Street and Kuhio Avenue looking mauka
 - 5.6.2e. Lewers Street and Kuhio Avenue looking mauka
 - 5.6.2f. Walina Street and Kuhio Avenue looking mauka
 - 5.6.2g. Seaside Avenue. and Kuhio Avenue looking mauka
 - 5.6.2h. Liliuokalani Avenue. and Kuhio Avenue intersection looking east
 - 5.5.2i. Kuhio Avenue. looking east
Views look mauka from alignment which is on Kuhio Avenue.

List 2 Views within Study Corridor

1.0 Primary Urban Center Development Plan

- 1.1 Mauka view from Sand Island
 - 1.1a. Sand Island looking mauka across Honolulu Harbor
 - 1.1b. Sand Island looking at Downtown Honolulu
- 1.2 Mauka view corridors from Pier 1-Aloha Tower
 - 1.2a. Aloha Tower looking at Downtown Honolulu
 - 1.2b. Aloha Tower looking north
- 1.3 Mauka view corridor from Kakaako Waterfront Park
 - 1.3a. Kakaako Park Lookout looking mauka
 - 1.3b. Kakaako Park looking west from west end of park
 - 1.3c. Kakaako Park looking mauka
 - 1.3d. Kakaako Park looking east toward Kewalo Basin
- 1.4 Mauka view corridor from Kewalo Peninsula
 - 1.4a. Kewalo Basin Park looking mauka
- 1.5 Mauka view corridor from Ala Moana Park (Magic Island)
 - 1.5a. Ala Moana Park-Magic Island looking west and mauka
 - 1.5b. Ala Moana Park looking mauka from the southwest breakwater of Magic Island
 - 1.5c. Ala Moana Park looking mauka from the southeast breakwater of Magic Island
 - 1.5d. Ala Moana Beach Park looking east towards Waikiki
- 1.6 Mauka view corridor from Fort DeRussy and the Ala Wai Promenade
 - 1.6a. Fort DeRussy - Kalia Road looking mauka
 - 1.6b. Ala Wai Boulevard and Wainani Way at promenade looking mauka
 - 1.6c. Ala Wai Boulevard and Liliokalani Boulevard at promenade looking mauka
 - 1.6d. Ala Wai Boulevard and Kanekapolei Boulevard at promenade looking mauka
 - 1.6e. Ala Wai Boulevard and Kalanimoku Street at promenade looking mauka
 - 1.6f. Ala Wai Boulevard and Pau Street at promenade looking mauka
- 1.7 Makai views from Leahi (Diamond Head)
 - 1.7a. Leahi (Diamond Head) looking west
- 1.8 Makai views from Puowaina (Punchbowl) and toward Leahi (Diamond Head)
 - 1.8a. Punchbowl Lookout southwest makai views
 - 1.8b. Punchbowl Lookout southeast makai views
 - 1.8c. Punchbowl Cemetery looking west from western end of crater

- 1.9 Tantalus toward Leahi (Diamond Head)
 - 1.9a. Puu Ualakaa State Park looking makai
 - 1.9b. Puu Ualakaa State Park looking east
 - 1.9c. Puu Ualakaa State Park Lookout looking west
- 1.10 Lagoon Drive view toward Diamond Head
 - 1.10a. Lagoon Drive looking east toward Diamond Head
- 1.11 Makai views from Aliamanu area
 - 1.11a. Tripler Medical Facility parking lot looking makai
 - 1.11b. Tripler Medical Facility looking south
 - 1.11c. Tripler Medical Facility looking west
- 1.12 Kamehameha Highway west from Aloha Stadium
 - 1.12a. Kamehameha Highway north towards Salt Lake Boulevard
 - 1.12b. Salt Lake Boulevard and Kamehameha Highway looking towards Ford Island
 - 1.12c. Aloha Stadium North Concourse looking northwest
 - 1.12d. Aloha Stadium South concourse looking makai

2.0 Central Oahu Sustainable Communities Plan

- 2.1 Views of Pearl Harbor from Farrington Highway in the vicinity of Waipahu High School
 - 2.1a. Farrington Highway heading towards Waipahu High School
 - 2.1b. Farrington Highway at Waipahu High School - No views of Pearl Harbor
- 2.2 The View of West Loch and of the Waianae Range from Kamehameha Highway while passing the Central Oahu Regional Park
 - 2.2a. Views from Central Oahu Regional Park towards Pearl Harbor
 - 2.2b. Views from Central Oahu Regional Park towards Makakilo
 - 2.2c. Makai view from Central Oahu Regional Park

3.0 Ewa Sustainable Communities Plan

- 3.1 Distant vistas of the shoreline from the H-I Freeway above the Ewa Plain
 - 3.1a. Distant vistas of Pearl Harbor from the H-I Freeway above the Ewa Plains
 - 3.1b. Distant vistas of Koolau Range and Diamond Head from the H-I Freeway above the Ewa Plain
- 3.2 Views of Na Pu'u at Kapolei, Palailai, and Makakilo
 - 3.2a. View of Na Puu at Kapolei looking west from across park
 - 3.2b. View mauka from Roosevelt Road toward Makakilo
 - 3.2c. View of Na Puu at Kapolei and Makakilo from Kapolei High School
 - 3.2d. Makakilo Drive at service station looking toward Diamond Head and Kapolei
 - 3.2e. Makakilo Drive looking east toward Koolau Mountain Range
 - 3.2f. Makakilo Heights looking at Kapolei development

4.0 Coastal View Study

- 4.1.1 Lagoon Drive to Diamond Head
 - 4.1.1a. Lagoon Drive and Iolana Street looking east
 - 4.1.1b. Lagoon Drive looking mauka from Honolulu Fire Department Training Center
 - 4.1.1c. Lagoon Drive looking mauka showing typical landscaping along roadway
- 4.1.2 Keehi Lagoon Beach Park views easterly
 - 4.1.2. Kihei Lagoon Park looking east
- 4.1.3 Sand Island views mauka (See Primary Urban Center)
 - 4.1.3 Sand Island mauka views across Honolulu Harbor
- 4.1.4 Ala Moana Beach Park (Magic Island) views mauka
 - 4.1.4a. Ala Moana Park (Magic Island) mauka views from edge of park
 - 4.1.4b. Ala Moana Park (Magic Island) mauka views from south (makai) end of park
- 4.1.5 Ala Moana Blvd intermittent views makai thru downtown
 - 4.15 Ala Moana Blvd intermittent views makai thru downtown

4.2 Waipahu to Aloha Stadium

- 4.2.1 Kamehameha Highway views makai thru Blaisdell Park
 - 4.2.1. Kamehameha Highway views makai thru Blaisdell Park
- 4.2.2 Kamehameha Highway intermittent views makai thru Richardson Park
 - 4.2.2a. Kamehameha Highway intermittent views west thru Richardson Park
 - 4.2.2b. Kamehameha Highway entry to Ford Island
- 4.2.3 Kamehameha Highway intermittent views makai from Keehi Lagoon Beach Park to Nimitz Highway
 - 4.2.3a. Kamehameha Highway intermittent views makai from Kalaloa Street
 - 4.2.3b. Kamehameha Highway intermittent views makai from Makalapa Drive

5.0 City and County of Honolulu Land Use Ordinance Special Districts

- 5.1 Hawaii Capitol Special District
 - 5.1.1 Beretania Street between Alapai Street and Alakea Street
 - 5.1.1a. Beretania Street mauka towards Board of Water Supply buildings
 - 5.1.1b. Beretania Street makai from Lauhala Street
 - 5.1.1c. Beretania Street makai from across State Capitol Building
 - 5.1.2 The Hotel Street Mall between Alapai Street and Richards Street
 - 5.1.2. Richards Street and Hotel Street east toward State Capitol Building
 - 5.1.3 Hotel Street between Richards Street and Alakea Street

- 5.1.3. Hotel Street west from across Richards Street
- 5.1.4 King Street between South Street and Alakea Street
 - 5.1.4. Kapiolani Boulevard and King Street Intersection looking east
- 5.1.5 Kapiolani Boulevard at the intersection of South Street and King Street
 - 5.1.5. Kapiolani Boulevard and King Street Intersection west
- 5.1.6 Ala Moana Boulevard between Punchbowl Street and the Capitol District boundary
 - 5.1.6. Ala Moana Boulevard looking mauka between Punchbowl Street and Capitol District line
- 5.1.7 Mililani Street and Mall between Halekauwila Street and King Street
 - 5.1.7. Queen Street and Mililani Street Mall looking makai
- 5.1.8 Punchbowl Street between Beretania Street and Ala Moana Boulevard
 - 5.1.8a. Punchbowl Street and Queen Street looking mauka
 - 5.1.8b. Punchbowl Street and Halekawila Street looking makai
- 5.1.9 South Street between King Street and Pohukaina Street
 - 5.1.9a. Halekawila Street looking makai
 - 5.1.9b. South Street and Halekawila Street looking makai
 - 5.1.9c. South Street and Ala Moana Boulevard mauka
- 5.1.10 Richards Street between Halekauwila Street and Beretania Street
 - 5.1.10. Richards Street and Queen Street mauka
- 5.1.11 Alapai Street between King Street and Beretania Street
 - 5.1.11a. Alapai Street and Beretania Street looking makai
 - 5.1.11b. Alapai Street between King Street and Beretania Street looking east
- 5.1.12 State Capitol view from 5th floor
 - 5.1.12a. State Capitol mauka view
 - 5.1.12b. State Capitol makai view
- 5.1.13 Kawaihau Church and grounds
 - 5.1.13. Queen Street looking mauka at Kawaihau Church and grounds
- 5.1.14 Hale Auhau
 - 5.1.14. Hale Auhau looking makai from across Queen Street
- 5.1.15 Aliiolani Hale
 - 5.1.15. Aliiolani Hale looking mauka from across Queen Street
- 5.1.16 U.S. Post Building
 - 5.1.16. U.S. Postal Building looking mauka from Queen Street
- 5.1.17 Aloha Tower
 - 5.1.17a. Aloha Tower looking north

- 5.1.17b. Aloha Tower looking toward Downtown
- 5.1.18 Royal Brewery
- 5.1.19 Old Kakaako Fire Station
 - 5.1.18-19. Royal Brewery Building and Old Kakaako Fire Station on Queen Street
- 5.1.20 Hale Auhau, Aliiolani Hale and Kapuaiwa Building
 - 5.1.20. Hale Auhau, Aliiolani Hale and Kapuaiwa Building looking west from the corner of Queen Street and Punchbowl Street

5.2 Diamond Head Special District

- 5.2.1 Ala Wai Boulevard from McCully Street to Kapahulu Boulevard
 - 5.2.1a. Ala Wai Boulevard and Wainani Way at promenade looking mauka
 - 5.2.1b. Ala Wai Boulevard and Liliokalani Boulevard at promenade looking mauka
 - 5.2.1c. Ala Wai Boulevard and Kanekapolei Boulevard at promenade looking mauka
 - 5.2.1d. Ala Wai Boulevard and Kalanimoku Street at promenade looking mauka
 - 5.2.1e. Ala Wai Boulevard and Pau Street at promenade looking mauka
- 5.2.2 Ala Moana Beach, including Magic Island
 - 5.2.2. Ala Moana Park looking mauka from the southeast breakwater of Magic Island
- 5.2.3 Ala Wai Park
 - 5.2.3a. McCully Bridge looking mauka up McCully Street
 - 5.2.3b. Ala Wai Park looking mauka from Ala Wai Promenade

5.3 Chinatown Special District - Views of Harbor (Sec. 21-9.60-1)

- 5.3.1 Retain makai view corridors as a visual means of maintaining the historic link between Chinatown and the harbor
 - 5.3.1a. View corridor down Nuuanu Ave toward Harbor
 - 5.3.1b. View corridor down Maunakea Street toward Harbor
 - 5.3.1c. View west on Ala Moana Boulevard of link between Harbor and Chinatown
 - 5.3.1d. View of Harbor from across Ala Moana Boulevard
 - 5.3.1e. River Street and King Street looking west
- 5.3.2 Maunakea Street and Nuuanu Avenue makai
 - 5.3.2a. Mauna Kea Street and Hotel Street looking makai
 - 5.3.2b. Nuuanu Street and Hotel Street looking makai
- 5.3.3 Street level view along River Street in an Ewa direction, including Aala Park, is an important public viewing area. (Added by Ord 99-12)
 - 5.3.3a. River Street makai from Kalikimakakila Mall walkway
 - 5.3.3b. River Street mauka from Kalikimakakila Mall walkway

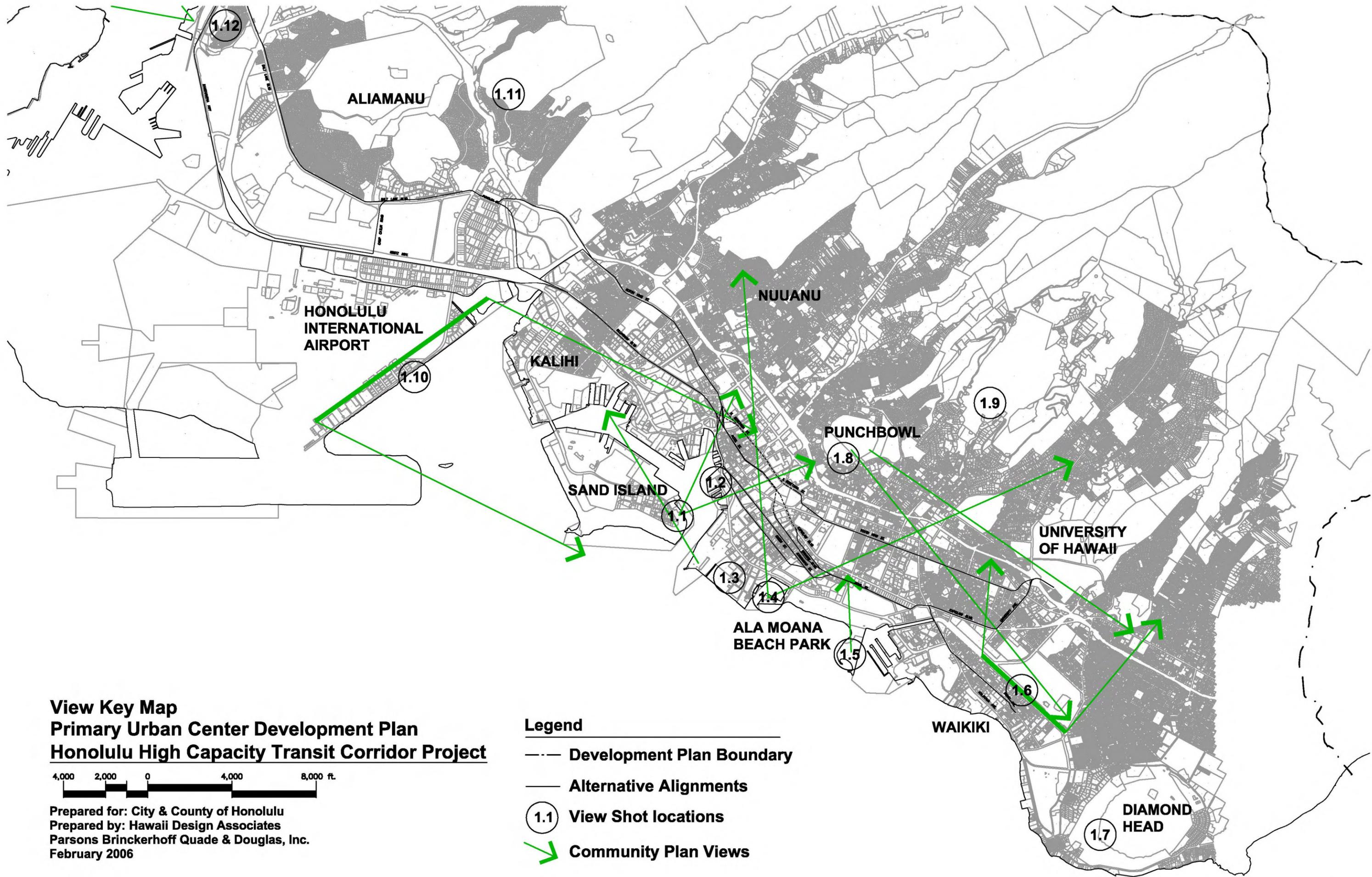
- 5.3.3c. River Street looking makai to Hotel Street
- 5.3.3d. Looking mauka up Nuuanu Stream
- 5.3.3e. River Street looking mauka to Beretania Street
- 5.3.3f. River Street and N. Beretania Street looking west

5.4 Thomas Square/Honolulu Academy of Arts Special District

- 5.4.1 Views of Thomas Square from Ward Avenue., Victoria Street, Beretania Street, Hotel Street, Young Street, King Street, the Neal Blaisdell Center from Thomas Square
 - 5.4.1a. Looking mauka from Blaisdell Concert Hall to Thomas Square Park
 - 5.4.1b. Victoria Street and Young Street looking west at Thomas Square Park
 - 5.4.1c. Looking at Blaisdell Concert Hall from Victoria Street
 - 5.4.1d. King Street and Ward Avenue looking mauka
 - 5.4.1e. King Street and Ward Avenue looking west
- 5.4.2 Views of the Honolulu Academy of Arts and the Neal S. Blaisdell Center from Thomas Square
 - 5.4.2a. Hotel Street and Ward Avenue looking east
 - 5.4.2b. Looking at Art Academy from across Beretania Street

5.5 Waikiki Special District

- 5.5.1 Views of Ala Wai Yacht Harbor from Ala Moana Park (Magic Island Park)
 - 5.5.1a. Ala Wai Yacht Harbor from Ala Moana Park (Magic Island)
 - 5.5.1b. Diamond Head and Waikiki from Ala Moana Park (Magic Island)
 - 5.5.1c. Diamond Head from Kapahulu groin



View Key Map
Primary Urban Center Development Plan
Honolulu High Capacity Transit Corridor Project



Prepared for: City & County of Honolulu
 Prepared by: Hawaii Design Associates
 Parsons Brinckerhoff Quade & Douglas, Inc.
 February 2006

Legend

- Development Plan Boundary
- Alternative Alignments
- 1.1 View Shot locations
- Community Plan Views



1.1a. Sand Island looking mauka across Honolulu Harbor



1.1b. Sand Island looking at Downtown Honolulu



1.2a. Aloha Tower looking at Downtown Honolulu



1.2b. Aloha Tower looking north

Primary Urban Center
Panoramic View Analysis-Sand Island & Aloha Tower Views
Honolulu High Capacity Transit Corridor Project

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1.3a. Kakaako Park Lookout looking mauka



1.3b. Kakaako Park looking west from west end of park



1.3c. Kakaako Park looking mauka



1.3d. Kakaako Park looking east toward Kewalo Basin

Primary Urban Center
Panoramic View Analysis-Kakaako Park Views
Honolulu High Capacity Transit Corridor Project

Prepared for: City & County of Honolulu
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1.5c. Ala Moana Park looking mauka from the southeast breakwater of Magic Island



1.5d. Ala Moana Beach Park looking east towards Waikiki



1.6a. Fort DeRussy - Kalia Road looking mauka

Primary Urban Center
Panoramic View Analysis-Ala Moana Park & Fort DeRussy Views
Honolulu High Capacity Transit Corridor Project

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1.6b. Ala Wai Boulevard & Wainani Way at promenade looking mauka



1.6c. Ala Wai Boulevard & Lillokalani Boulevard at promenade looking mauka



1.6d. Ala Wai Boulevard & Kanekapolei Boulevard at promenade looking mauka

Primary Urban Center
Panoramic View Analysis-Ala Wai Promenade Views
Honolulu High Capacity Transit Corridor Project

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1.6e. Ala Wai Boulevard & Kalanimoku Street at promenade looking mauka



1.6f. Ala Wai Boulevard & Pau Street at promenade looking mauka



1.7. Leahi (Diamond Head) looking west

Primary Urban Center
Panoramic View Analysis-Ala Wai Promenade & Leahi (Diamond Head) Views
Honolulu High Capacity Transit Corridor Project

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1.8a. Punchbowl Lookout southwest makai views



1.8b. Punchbowl Lookout southeast makai views



1.8c. Punchbowl Cemetery looking west from western end of crater

Primary Urban Center
Panoramic View Analysis-Puowaina (Punchbowl) Views
Honolulu High Capacity Transit Corridor Project

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1.9a. Puu Ualakaa State Park looking makai



1.9b. Puu Ualakaa State Park looking east



1.9c. Puu Ualakaa State Park Lookout looking west



1.10. Lagoon Drive looking east toward Diamond Head

**Primary Urban Center
Panoramic View Analysis-Puu Ulakaa State Park-Tantalus Views
Honolulu High Capacity Transit Corridor Project**

Prepared for: City & County of Honolulu
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1.11a. Tripler Medical Facility parking lot looking makai



1.11b. Tripler Medical Facility looking south



1.11c. Tripler Medical Facility looking west

Primary Urban Center
Panoramic View Analysis--Aliumanu makai from Tripler Medical Hospital Views
Honolulu High Capacity Transit Corridor Project

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1.12a. Kamehameha Highway north towards Salt Lake Boulevard



1.12b. Salt Lake Boulevard & Kamehameha Highway looking towards Ford Island



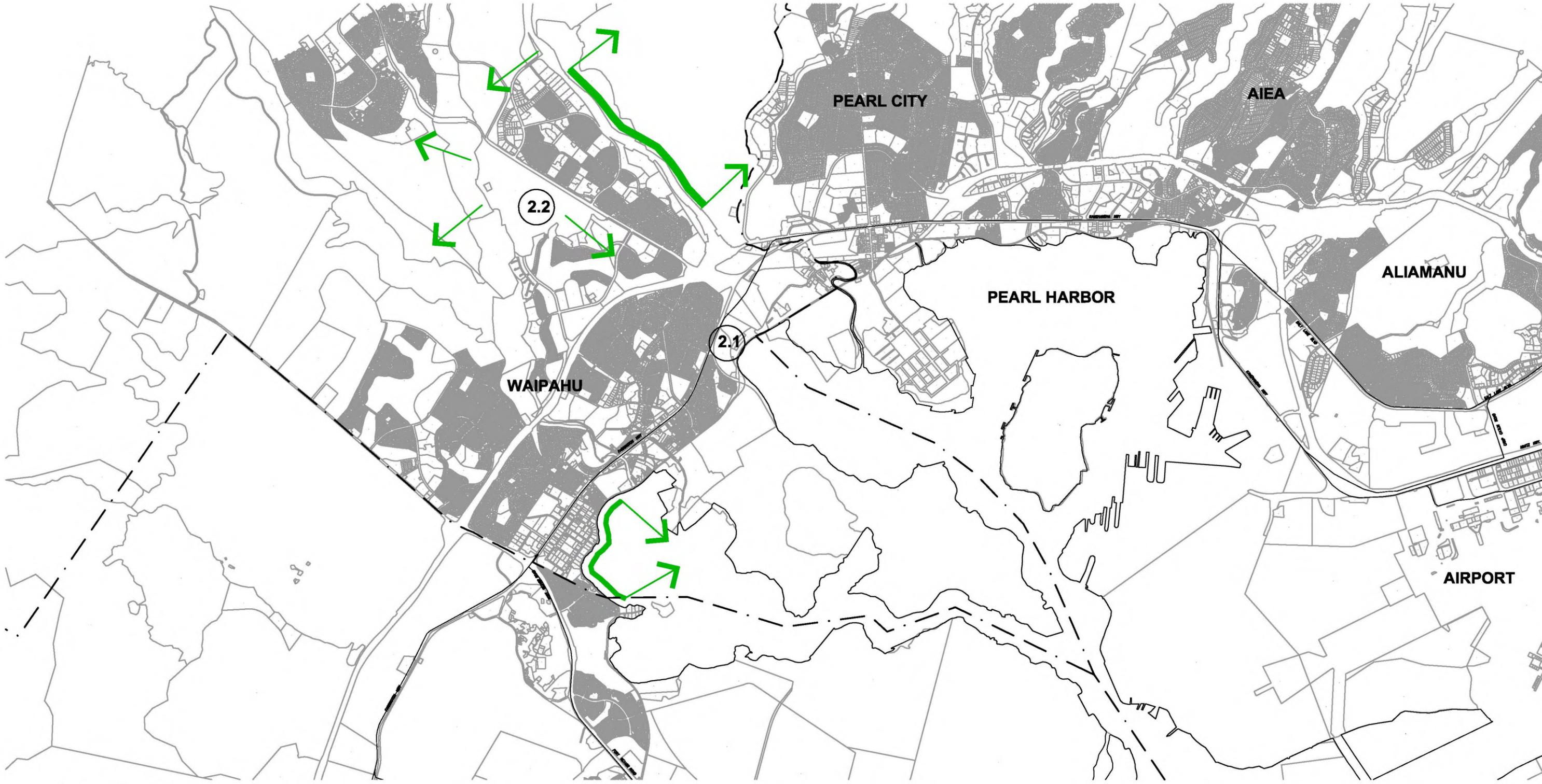
1.12c. Aloha Stadium North Concourse looking northwest



1.12d. Aloha Stadium South concourse looking makai

Primary Urban Center
Panoramic View Analysis-Kamehameha Highway west from Aloha Stadium Views
Honolulu High Capacity Transit Corridor Project

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View Key Map
Central Oahu Sustainable Communities Plan
Honolulu High Capacity Transit Corridor Project



Prepared for: City & County of Honolulu
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Legend

- Community Plan Boundary
- Alternative Alignments
- 2.1 View Shot locations
- Community Plan Views



2.1a. Farrington Highway heading towards Waipahu High School



2.1b. Farrington Hwy. at Waipahu High School - No views of Pearl Harbor



2.2a. Views from Central Oahu Regional Park towards Pearl Harbor



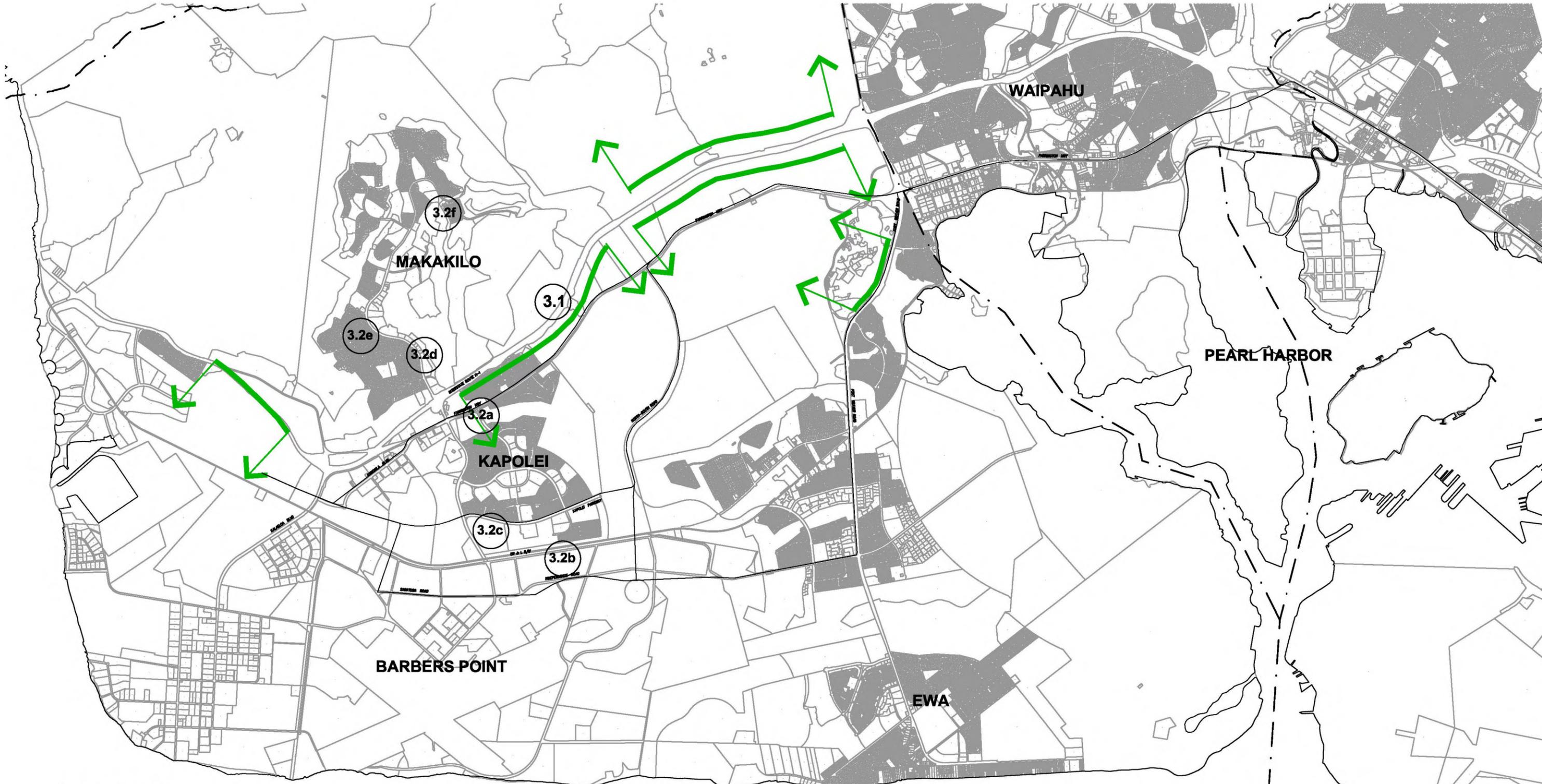
2.2b. Views from Central Oahu Regional Park towards Makakilo



2.2c. Makai view from Central Oahu Regional Park

**Central Oahu Sustainable Communities Plan
Panoramic View Analysis
Honolulu High Capacity Transit Corridor Project**

Prepared for: City & County of Honolulu
Prepared by: Hawaii Design Associates
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View Key Map
Ewa Sustainable Communities Plan
Honolulu High Capacity Transit Corridor Project



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Legend

- Community Plan Boundary
- Alternative Alignments
- 3.1 View Shot locations
- Community Plan Views



3.1a. Distant vistas of Pearl Harbor from the H-I Freeway above the Ewa Plains



3.1b. Distant vistas of Koolau Range & Diamond Head from the H-I Freeway above the Ewa Plains



3.2a. View of Na Puu at Kapolei looking west from across park



3.2b. View mauka from Roosevelt Road toward Makakilo

**Ewa Sustainable Communities Plan
Panoramic View Analysis
Honolulu High Capacity Transit Corridor Project**

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3.2c. View of Na Puu at Kapolei and Makakilo from Kapolei High School



3.2d. Makakilo Drive at service station looking toward Diamond Head & Kapolei



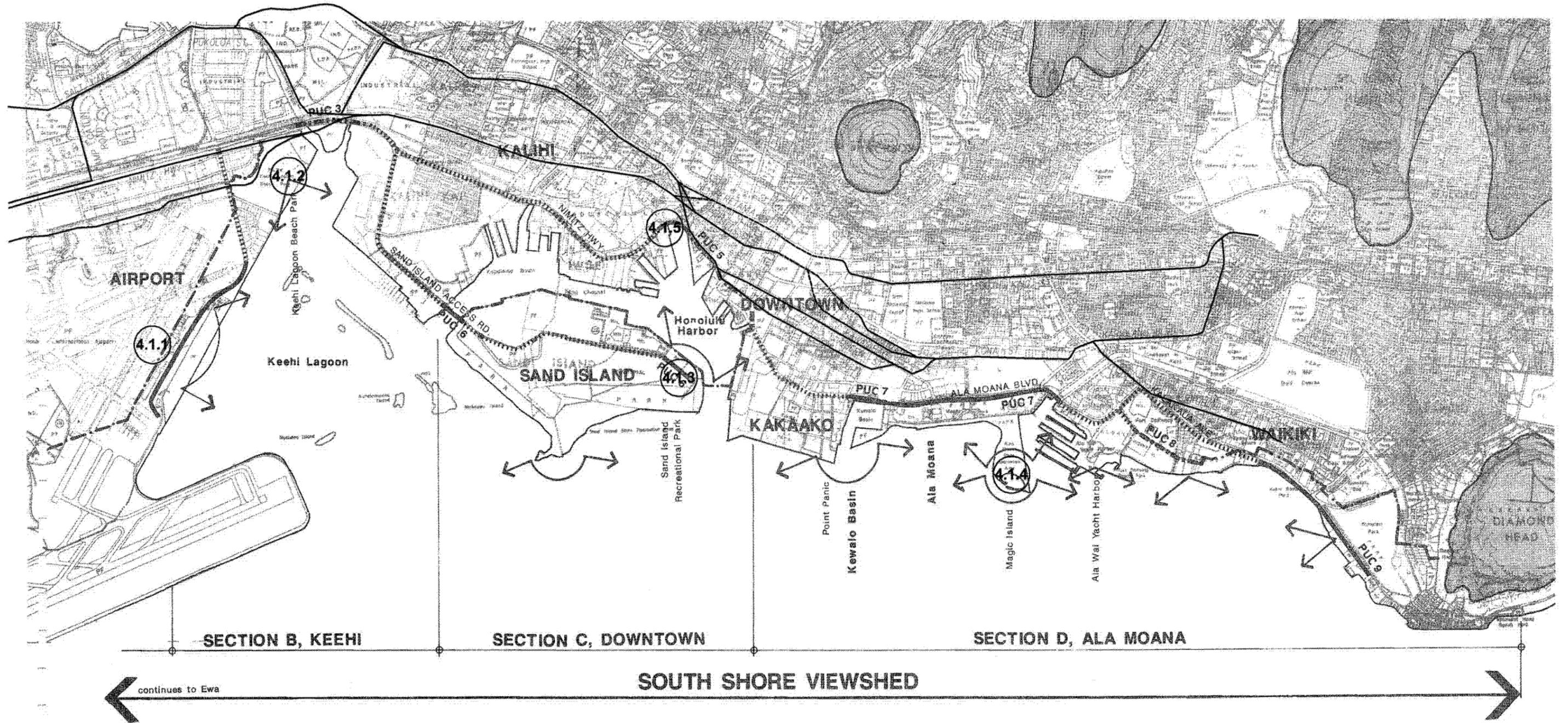
3.2e. Makakilo Drive looking east toward Koolau Mountain Range



3.2f. Makakilo Heights looking at Kapolei development

**Ewa Sustainable Communities Plan
Panoramic View Analysis
Honolulu High Capacity Transit Corridor Project**

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Legend

- Alternative Alignments
- 4.1.1 View Shot locations
- ↘ Coastal View Study Views

**View Key Map
Coastal View Study - Airport to Diamond Head
Honolulu High Capacity Transit Corridor Project**



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4.1.1a. Lagoon Drive and Iolana Street looking east



4.1.1b. Lagoon Drive looking mauka from Honolulu Fire Department Training Center



4.1.1c. Lagoon Drive looking mauka showing typical landscaping along roadway



4.1.2. Kihei Lagoon Park looking east

**Coastal View Study-Lagoon Drive to Diamond Head
Panoramic View Analysis
Honolulu High Capacity Transit Corridor Project**

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4.1.3. Sand Island mauka views across Honolulu Harbor



4.1.4a. Ala Moana Park (Magic Island) mauka views



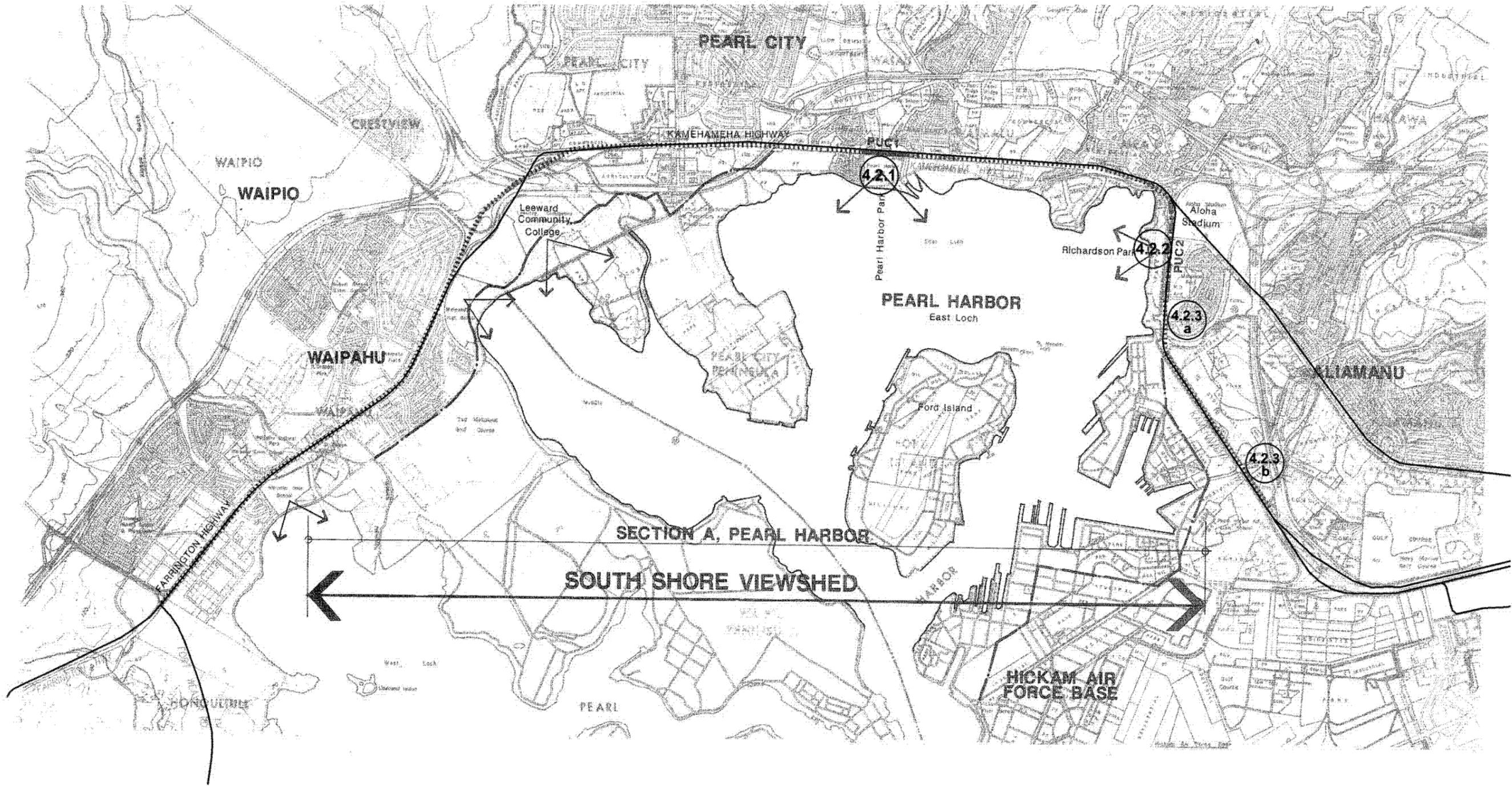
4.1.4b. Ala Moana Park (Magic Island) mauka views

Coastal View Study-Lagoon Drive to Diamond Head
Panoramic View Analysis
Honolulu High Capacity Transit Corridor Project

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4.1.5. Ala Moana Boulevard intermittent views makai thru downtown



Legend

- Alternative Alignments
- ⊙ 4.2.1 View Shot locations
- ↘ Coastal View Study Views

View Key Map
Coastal View Study - Waipahu to Salt Lake
Honolulu High Capacity Transit Corridor Project



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4.2.1. Kamehameha Highway & Kaahumanu Street views makai thru Blaisdell Park



4.2.2a. Kamehameha Highway intermittent views west thru Richardson Park



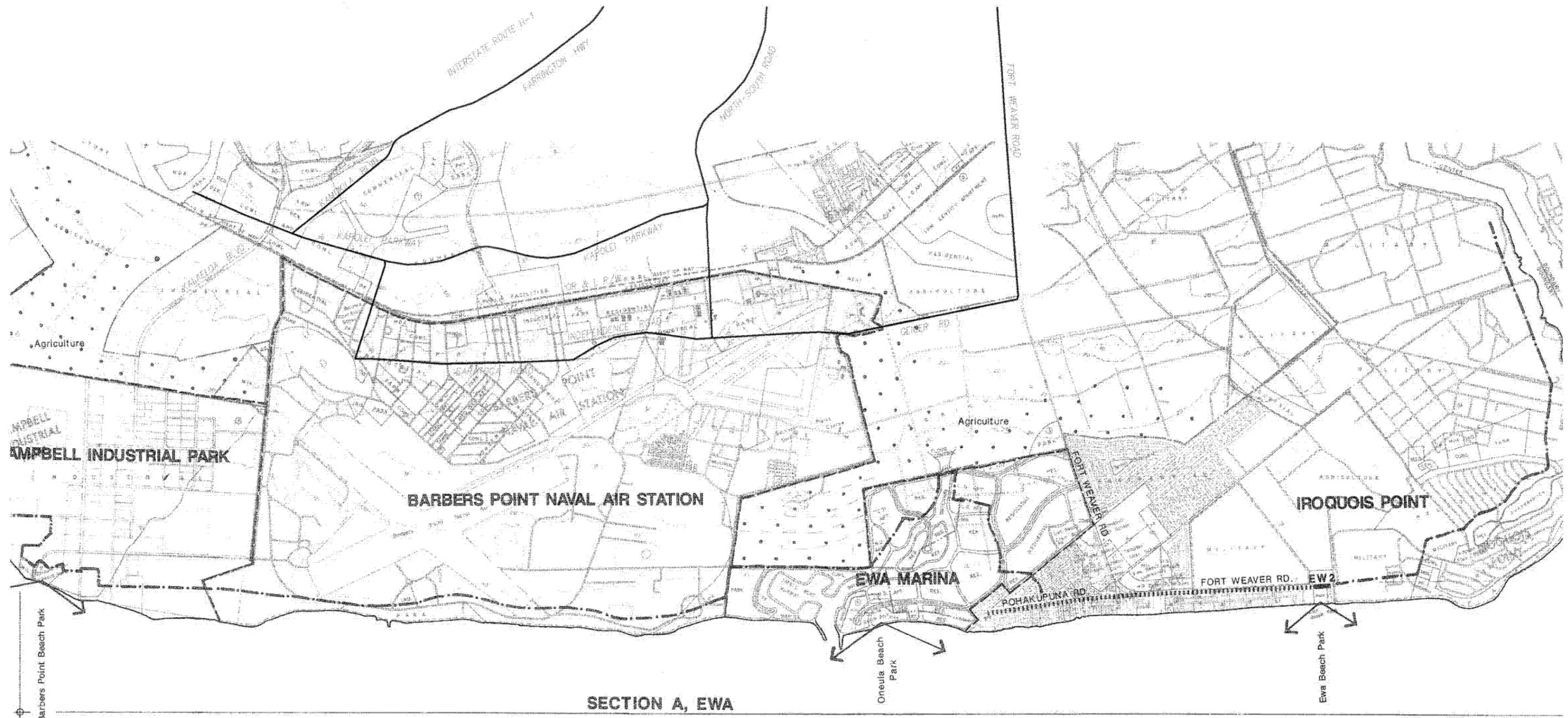
4.2.2b. Kamehameha Highway entry to Ford Island



4.2.3a. Kamehameha Highway intermittent views makai from Kalaloa Street



4.2.3b. Kamehameha Highway intermittent views makai from Makalapa Drive



SECTION A, EWA

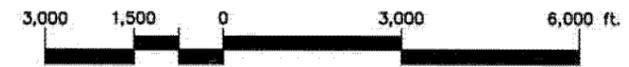
SOUTH SHORE VIEWSHED

continues to Diamond Head

Legend

- Alternative Alignments
- ④.3 View Shot locations
- ↘ Coastal View Study Views

**View Key Map
Coastal View Study -
Campbell Industrial Park to Iroquois Point
Honolulu High Capacity Transit Corridor Project**

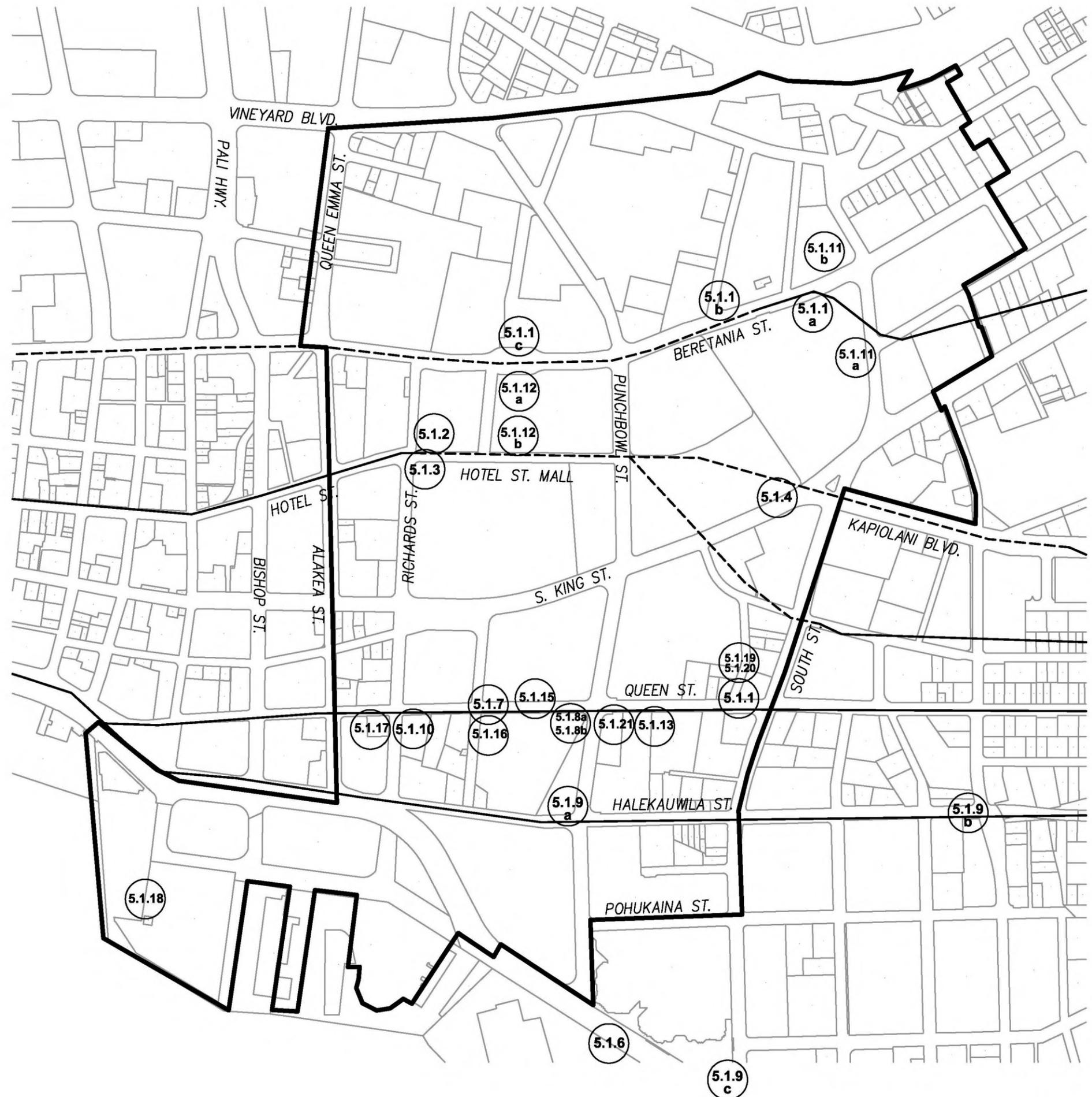


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No photo documentation is being provided for this area as all proposed alignments are mauka of this coastal viewshed.

Legend

- Special District Boundary
- Alternative Alignments
- - -** Underground Alignments
- 5.1.1 View Shot locations



**Photo Key Map
Hawaii Capitol Special District
Honolulu High Capacity Transit Corridor Project**



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5.1.1a. Beretania Street mauka towards Board of Water Supply buildings



5.1.1b. Beretania Street makai from Lauhala Street



5.1.1c. Beretania Street makai from across State Capitol Building



5.1.2. Richards Street and Hotel Street east toward State Capitol Building



5.1.3. Hotel Street west from across Richards Street



5.1.4. Kapiolani Boulevard & King Street Intersection looking east



5.1.5. Kapiolani Boulevard & King Street Intersection west

**Hawaii Capitol Special District
Panoramic View Analysis
Honolulu High Capacity Transit Corridor Project**

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5.1.6. Ala Moana Boulevard looking mauka between Punchbowl Street and Capitol District line



5.1.7. Queen Street & Mililani Street Mall looking makai



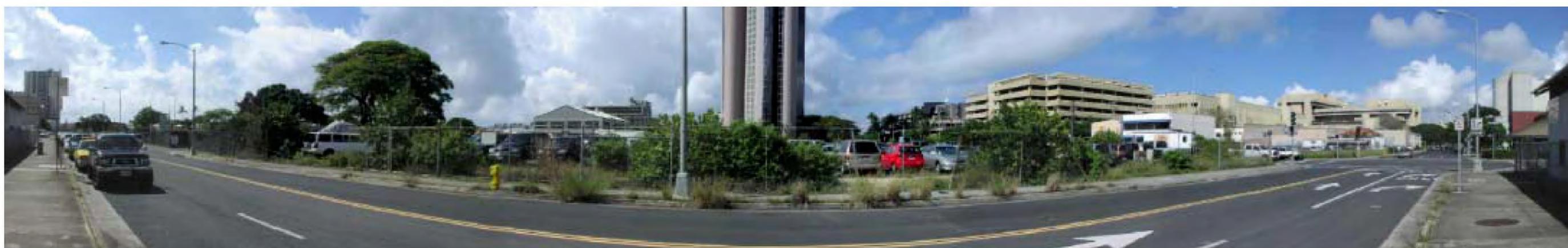
5.1.8a. Punchbowl Street & Queen Street looking mauka



5.1.8b. Punchbowl Street & Halekawila Street looking makai



5.1.9a. Halekawila Street looking makai



5.1.9b. South Street & Halekawila Street looking makai

**Hawaii Capitol Special District
Panoramic View Analysis
Honolulu High Capacity Transit Corridor Project**

Prepared for: City & County of Honolulu
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February 2006



5.1.9c. South Street & Ala Moana Boulevard mauka



5.1.10. Richards Street & Queen Street mauka



5.1.11a. Alapai Street & Beretania Street looking makai



5.1.11b. Alapai Street between King Street & Beretania Street looking east

**Hawaii Capitol Special District
Panoramic View Analysis
Honolulu High Capacity Transit Corridor Project**

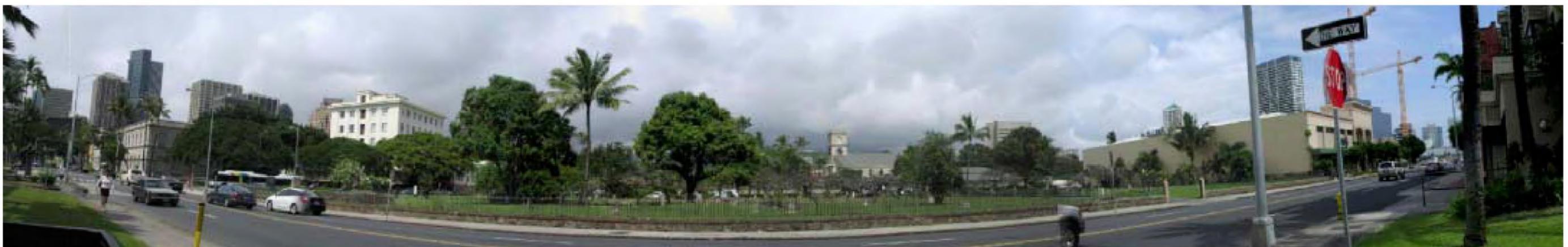
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5.1.12a. State Capitol mauka view



5.1.12b. State Capitol makai view



5.1.13. Queen Street looking mauka at Kawaiahao Church & grounds

**Hawaii Capitol Special District
Panoramic View Analysis
Honolulu High Capacity Transit Corridor Project**

Prepared for: City & County of Honolulu
Prepared by: Hawaii Design Associates
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5.1.14. Hale Auhau looking makai from across Queen Street



5.1.15. Aliiolani Hale & Kapuaiwa Building looking mauka from across Queen Street



5.1.16. U.S. Postal Building looking mauka from Queen Street

**Hawaii Capitol Special District
Panoramic View Analysis
Honolulu High Capacity Transit Corridor Project**

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5.1.17. Aloha Tower looking north



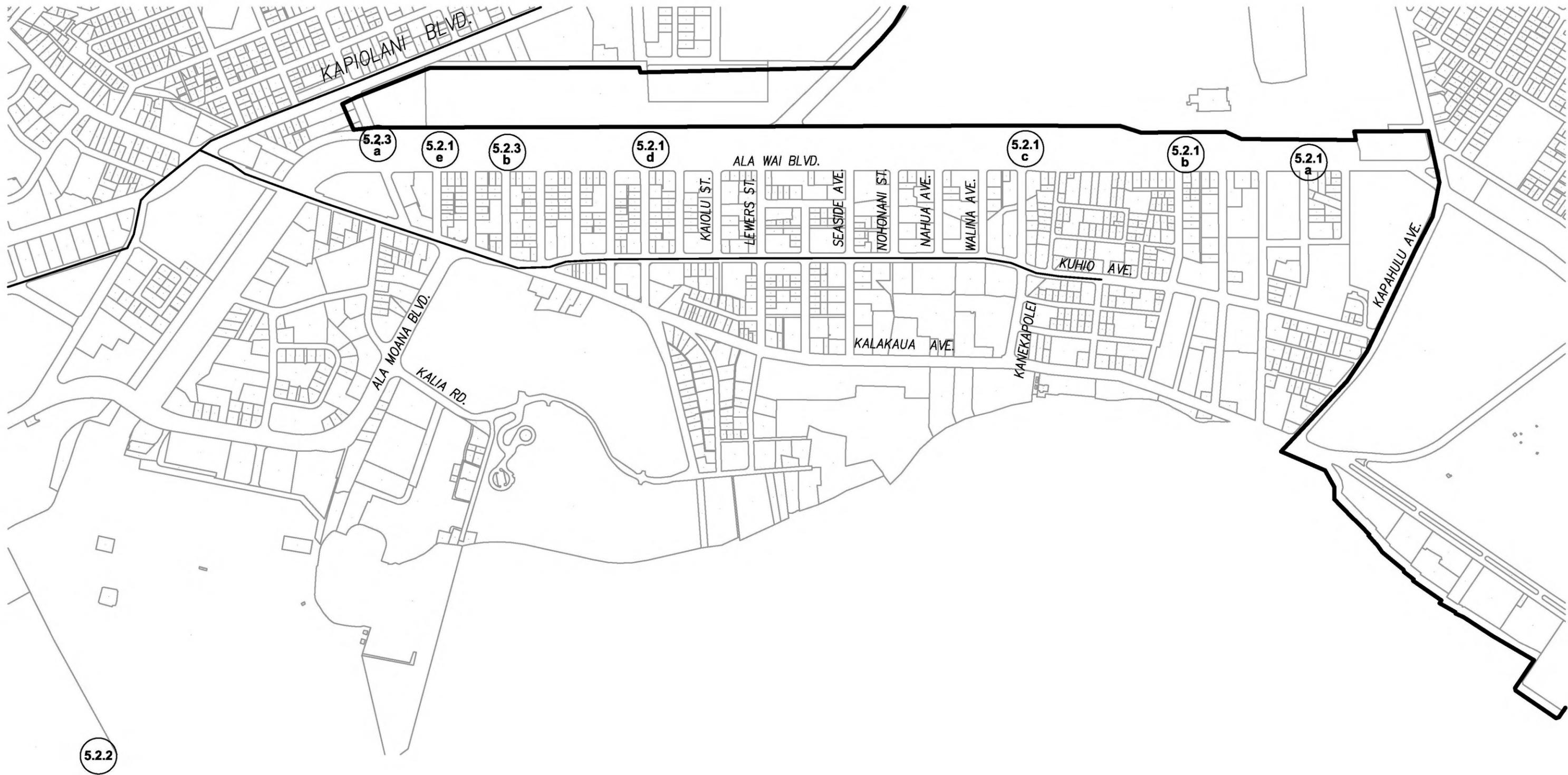
5.1.18-19. Royal Brewery Building and Old Kakaako Fire Station on Queen Street



5.1.20. Hale Auhau, Aliolani Hale and Kapuaiwa Building looking west from the corner of Queen Street and Punchbowl Street

**Hawaii Capitol Special District
Panoramic View Analysis
Honolulu High Capacity Transit Corridor Project**

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**Photo Key Map
Diamond Head Special District
Honolulu High Capacity Transit Corridor Project**



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Legend

-  **Special District Boundary**
-  **Alternative Alignments**
-  **5.5.1 View Shot Locations**



5.2.1a. Ala Wai Boulevard & Wainani Way at promenade looking mauka



5.2.1b. Ala Wai Boulevard & Liliokalani Boulevard at promenade looking mauka



5.2.1c. Ala Wai Boulevard & Kanekapolei Boulevard at promenade looking mauka



5.2.1d. Ala Wai Boulevard & Kalanimoku Street at promenade looking mauka



5.2.1e. Ala Wai Boulevard & Pau Street at promenade looking mauka



5.2.2. Ala Moana Park looking mauka from the southeast breakwater of Magic Island



5.2.3a. McCully Bridge looking mauka up McCully Street



5.2.3b. Ala Wai Park looking mauka from Ala Wai Promenade

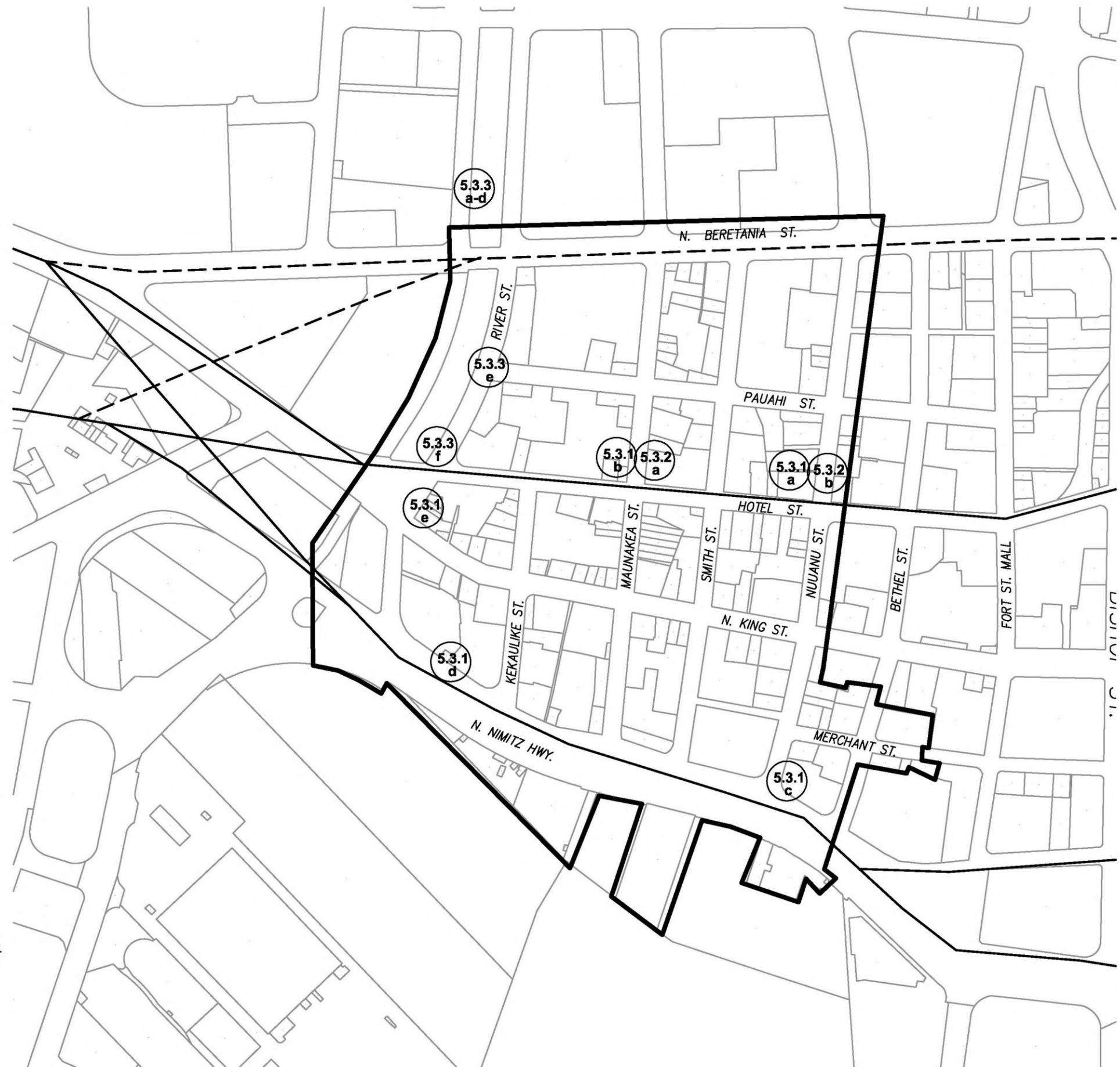
Legend

— Special District Boundary

— Alternative Alignments

- - - Underground Alignments

5.3.1 View Shot locations



**Photo Key Map
Chinatown Special District
Honolulu High Capacity Transit Corridor Project**



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Prepared by: Hawaii Design Associates
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5.3.1a. View corridor down Nuuanu Avenue toward harbor



5.3.1b. View corridor down Maunakea Street toward harbor



5.3.1c. View west on Ala Moana Boulevard of link between harbor and Chinatown



5.3.1d. View of harbor from across Ala Moana Boulevard



5.3.1e. River Street & King Street looking west

**Chinatown Special District
Panoramic View Analysis
Honolulu High Capacity Transit Corridor Project**

Prepared for: City & County of Honolulu
Prepared by: Hawaii Design Associates
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5.3.2a. Mauna Kea Street & Hotel Street looking makai



5.3.2b. Nuuanu Street & Hotel Street looking makai



5.3.3a. River Street makai from Kalikimakakila Mall walkway



5.3.3b. River Street mauka from Kalikimakakila Mall walkway



5.3.3c. River Street looking makai to Hotel Street



5.3.3d. Looking mauka up Nuuanu Stream



5.3.3e. River Street looking mauka to Beretania Street



5.3.3f. River Street & N. Beretania Street looking west

**Chinatown Special District
Panoramic View Analysis
Honolulu High Capacity Transit Corridor Project**

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Legend

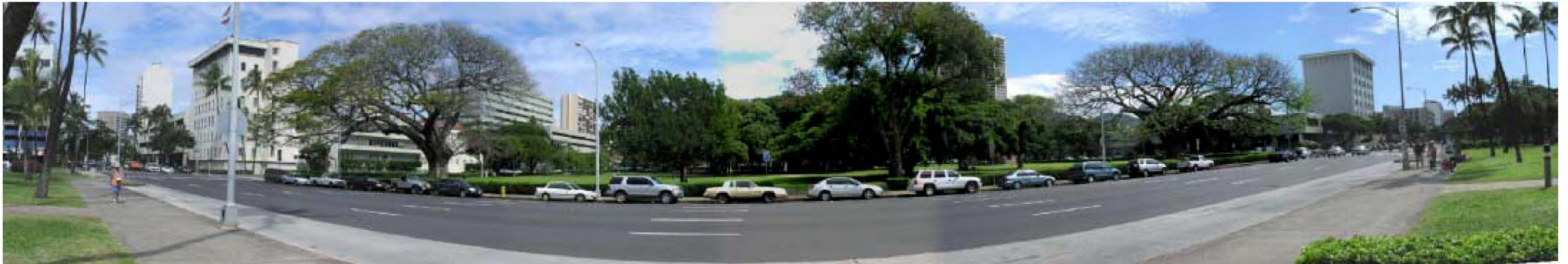
-  **Special District Boundary**
-  **Alternative Alignments**
-  **Underground Alignments**
-  **View Shot locations**



**Photo Key Map
Thomas Square Special District
Honolulu High Capacity Transit Corridor Project**



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Prepared by: Hawaii Design Associates
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5.4.1a. Looking mauka from Blaisdell Concert Hall to Thomas Square Park



5.4.1b. Victoria Steet & Young Street looking west at Thomas Square Park



5.4.1c. Looking at Blaisdell Concert Hall from Victoria Street

**Thomas Square Special District
Panoramic View Analysis
Honolulu High Capacity Transit Corridor Project**

Prepared for: City & County of Honolulu
Prepared by: Hawaii Design Associates
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February 2006



5.4.1d. King Street & Ward Avenue looking mauka



5.4.1e. King Street & Ward Avenue looking west



5.4.2a. Hotel Street & Ward Avenue looking east



5.4.2b. Looking at Art Academy from across Beretania Street

**Thomas Square Special District
Panoramic View Analysis
Honolulu High Capacity Transit Corridor Project**

Prepared for: City & County of Honolulu
Prepared by: Hawaii Design Associates
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February 2006



**Photo Key Map
 Waikiki Special District
 Honolulu High Capacity Transit Corridor Project**



Prepared for: City & County of Honolulu
 Prepared by: Hawaii Design Associates
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Legend

- Special District Boundary
- Alternative Alignments
- (5.5.1)** View Shot Locations



5.5.1a. Ala Wai Yacht Harbor from Ala Moana Park (Magic Island)



5.5.1b. Diamond Head & Waikiki from Ala Moana Park (Magic Island)



5.5.1c. Diamond Head from Kapahulu groin

**Waikiki Special District
Panoramic View Analysis
Honolulu High Capacity Transit Corridor Project**

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5.5.2a. Nohonani Street & Kuhio Avenue looking mauka



5.5.2b. Nahua Street & Kuhio Avenue looking mauka



5.5.2c. Kanekapolei Street & Kuhio Avenue looking mauka



5.5.2d. Kaiolu Street & Kuhio Avenue looking mauka



5.5.2e. Lewers Street & Kuhio Avenue looking mauka



5.5.2f. Walina Street & Kuhio Avenue looking mauka



5.5.2g. Seaside Avenue & Kuhio Avenue looking mauka



5.5.2h. Liliuokalani Avenue & Kuhio Avenue intersection looking east



5.5.2i. Kuhio Avenue looking east

**Waikiki Special District
Panoramic View Analysis
Honolulu High Capacity Transit Corridor Project**

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Appendix D Viewpoints Existing Conditions



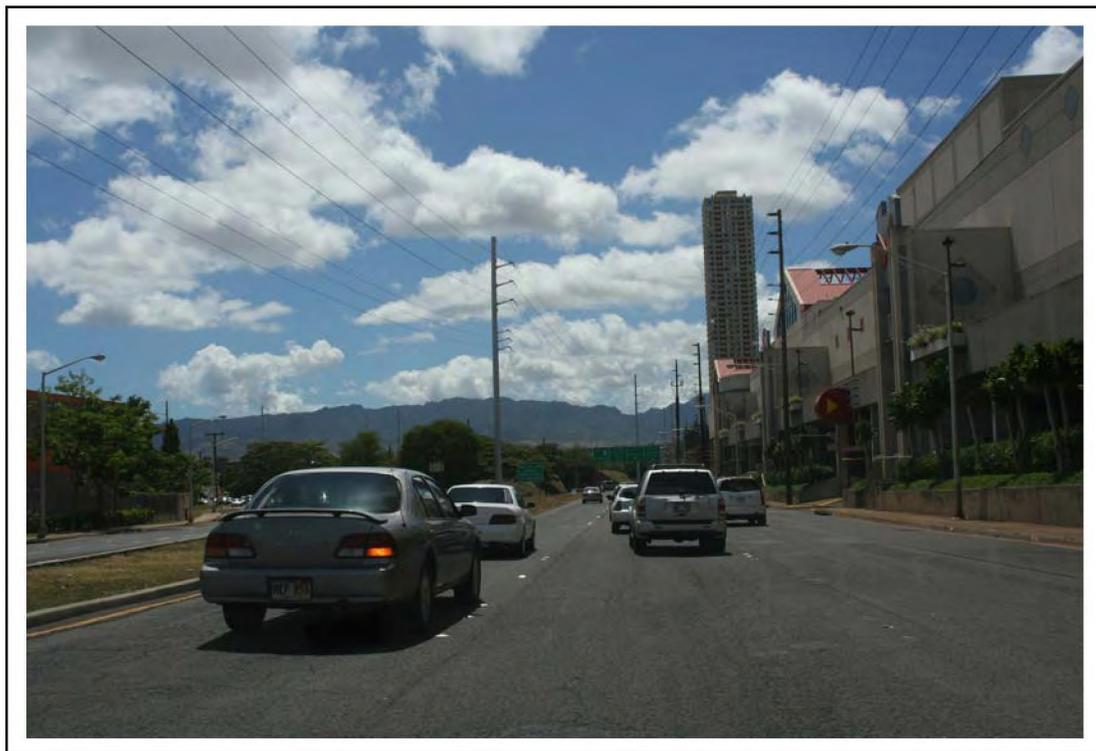
**D-1. Viewpoint 1 (V1) – Existing Condition
Kapolei High School looking mauka**



**D-2. Viewpoint 2 (V2) – Existing Condition
Fort Weaver Road looking mauka**



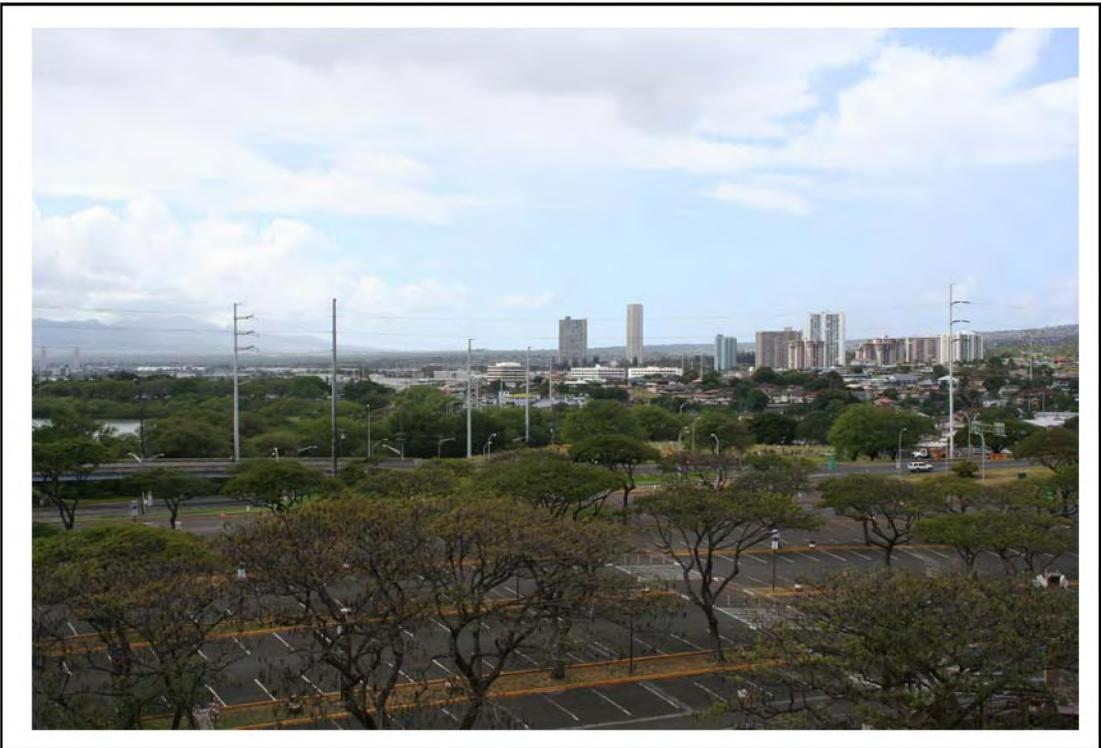
**D-3. Viewpoint 3 (V3) – Existing Condition
Farrington Highway looking Koko Head**



**D-4. Viewpoint 4 (V4) – Existing Condition
Kamehameha Highway at Acacia Street looking Ewa**



**D-5. Viewpoint 5 (V5) – Existing Condition
Kamehameha Highway at Kaonohi Street looking makai**



**D-6. Viewpoint 6 (V6) – Existing Condition
Aloha Stadium looking Ewa**



**D-7. Viewpoint 7 (V7) – Existing Condition
Salt Lake Boulevard looking Koko Head**



**D-8. Viewpoint 8 (V8) – Existing Condition
Kamehameha Highway at Radford Road looking Ewa**



**D-9. Viewpoint 9 (V9) – Existing Condition
Keehi Lagoon Park looking mauka**



**D-10. Viewpoint 10 (V10) – Existing Condition
Puuhale Elementary School looking makai**



**D-11. Viewpoint 11 (V11) – Existing Condition
Kalihi Street looking mauka**



**D-12. Viewpoint 12 (V12) – Existing Condition
N King Street looking mauka**



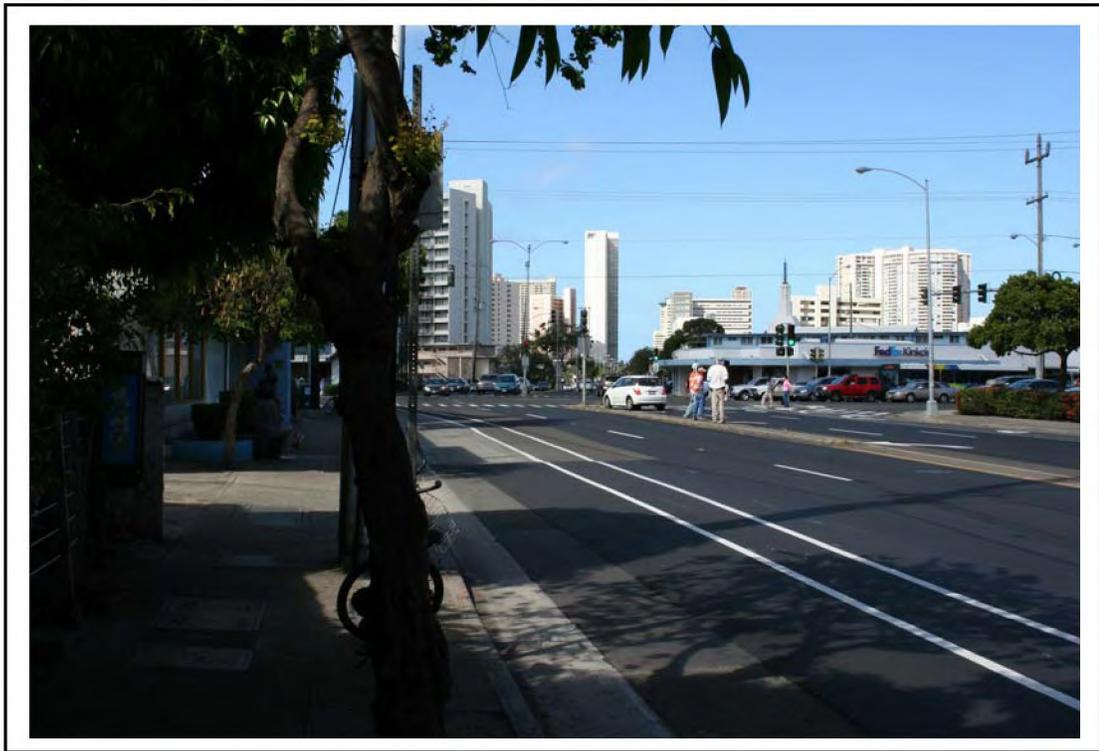
**D-13. Viewpoint 13 (V13) – Existing Condition
Honolulu Community College looking mauka**



**D-14. Viewpoint 14 (V14) – Existing Condition
Thomas Square looking makai**



**D-15. Viewpoint 15 (V15) – Existing Condition
S King Street looking Koko Head**



**D-16. Viewpoint 16 (V16) – Existing Condition
University Avenue looking makai**



**D-17. Viewpoint 17 (V17) – Existing Condition
Chinatown looking Ewa**



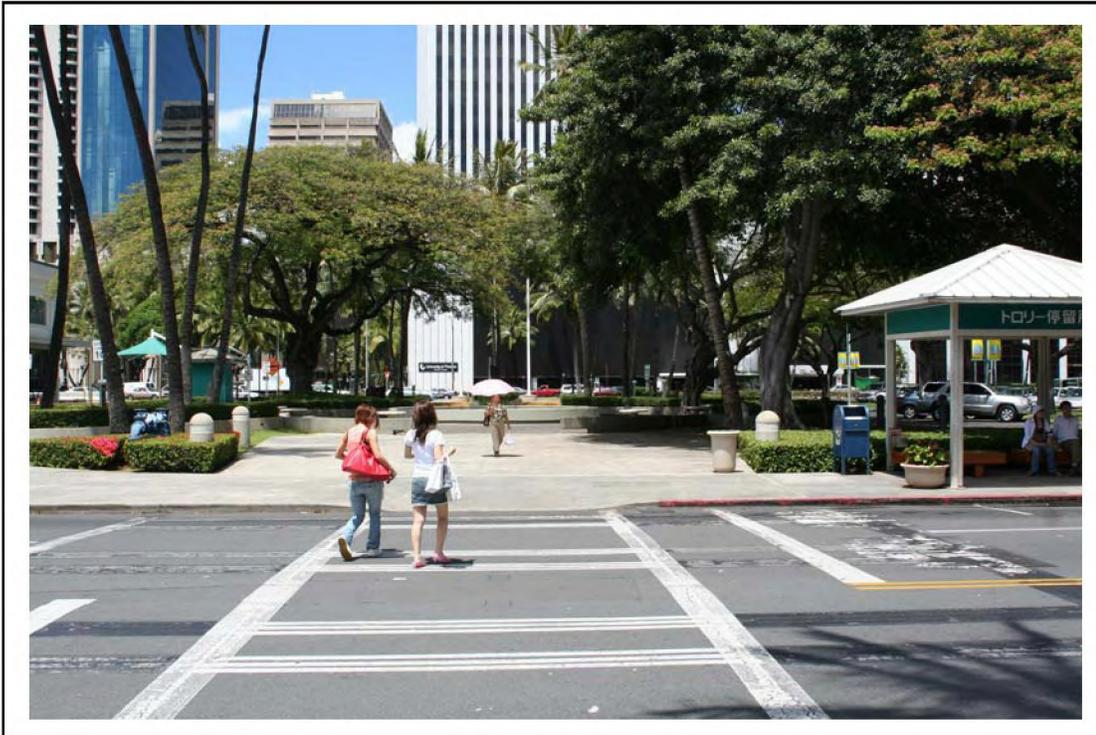
**D-18. Viewpoint 18 (V18) – Existing Condition
Ala Wai Boulevard looking mauka**



**D-19. Viewpoint 19 (V19) – Existing Condition
Oahu Market looking makai**



**D-20. Viewpoint 20 (V20) – Existing Condition
Fort Street Mall looking makai**



**D-21. Viewpoint 21 (V21) – Existing Condition
Aloha Tower Market Place looking mauka**



**D-22. Viewpoint 22 (V22) – Existing Condition
Kuhio Avenue looking mauka**



**D-23. Viewpoint 23 (V23) – Existing Condition
Kuhio Avenue looking Koko Head**

Appendix E Viewpoints Simulated Conditions

Alternative 3: Managed Lane

Representative Viewpoints - V4, V5, V6, V8, V9, V10, V11



**E-1. Viewpoint 4 (V4) – Simulated Future Condition
Kamehameha Highway at Acacia Street looking Ewa**



**E-2. Viewpoint 5 (V5) – Simulated Future Condition
Kamehameha Highway at Kaonohi Street looking makai**



**E-3. Viewpoint 6 (V6) – Simulated Future Condition
Aloha Stadium looking Ewa**



**E-4. Viewpoint 8 (V8) – Simulated Future Condition
Kamehameha Highway at Radford Road looking Ewa**



**E-5. Viewpoint 8 (V8) – Simulated Future Condition
Kamehameha Highway at Radford Road looking Ewa**



**E-6. Viewpoint 9 (V9) – Simulated Future Condition
Keehi Lagoon Park looking mauka**



**E-7. Viewpoint 10 (V10) – Simulated Future Condition
Puuhale Elementary School looking makai**



**E-8. Viewpoint 11 (V11) – Simulated Future Condition
Kalihi Street looking mauka**

Alternative 4: Fixed Guideway

***Representative Viewpoints – V1, V2, V3, V4, V5, V6, V7, V8, V9,
V12, V13, V14, V15, V16, V17, V18, V19, V20, V21, V22, V23***



**E-9. Viewpoint 1 (V1) – Simulated Future Condition
Kapiolani Parkway looking mauka**



**E-10. Viewpoint 2 (V2) – Simulated Future Condition
Fort Weaver Road looking mauka**



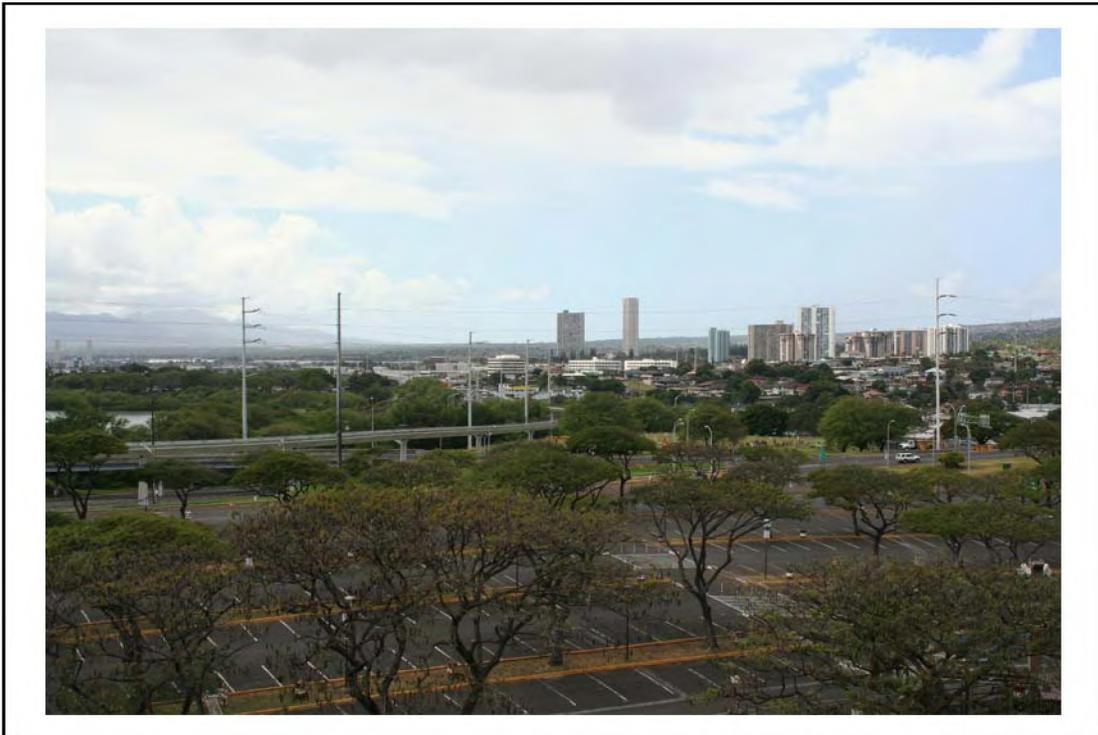
**E-11. Viewpoint 3 (V3) – Simulated Future Condition
Farrington Highway looking Diamond Head**



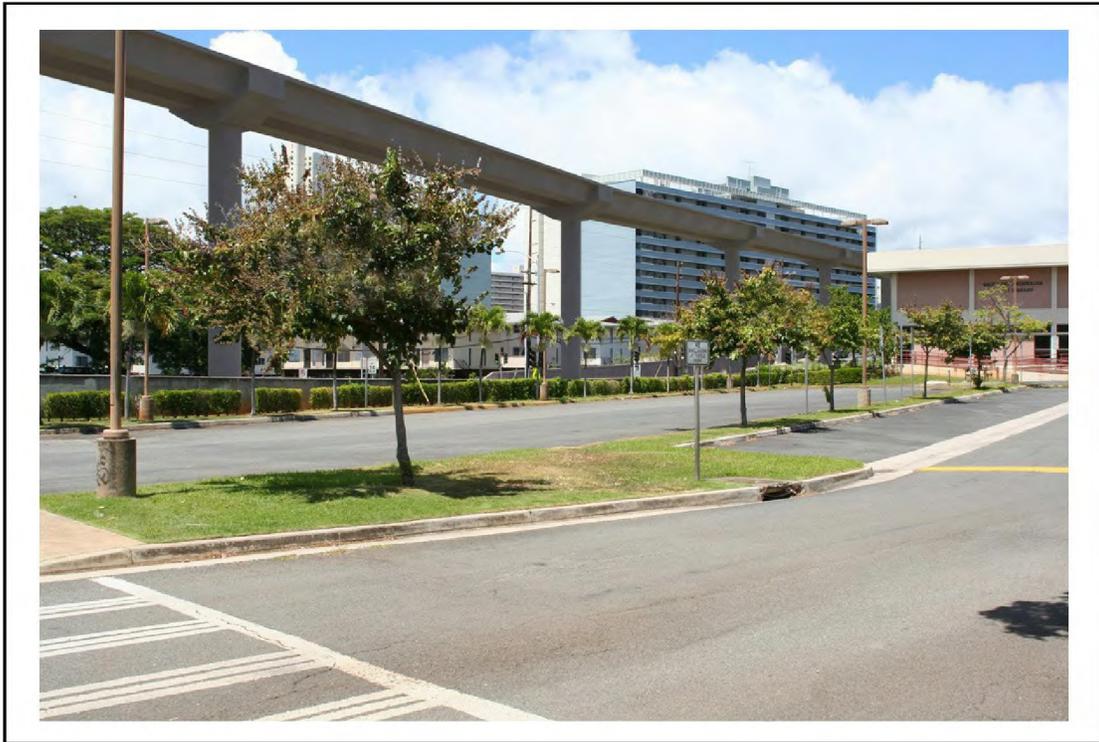
**E-12. Viewpoint 4 (V4) – Simulated Future Condition
Kamehameha Highway at Acacia Street looking Ewa**



**E-13. Viewpoint 5 (V5) – Simulated Future Condition
Kamehameha Highway at Kaonohi Street looking makai**



**E-14. Viewpoint 6 (V6) – Simulated Future Condition
Aloha Stadium looking Ewa**



**E-15. Viewpoint 7 (V7) – Simulated Future Condition
Salt Lake Boulevard looking Diamond Head**



**E-16. Viewpoint 8 (V8) – Simulated Future Condition
Kamehameha Highway at Radford Road looking Ewa**



**E-17. Viewpoint 9 (V9) – Simulated Future Condition
Keehi Lagoon Park looking mauka**



**E-18. Viewpoint 12 (V12) – Simulated Future Condition
N King Street looking mauka**



**E-19. Viewpoint 13 (V13) – Simulated Future Condition
Honolulu Community College looking mauka**



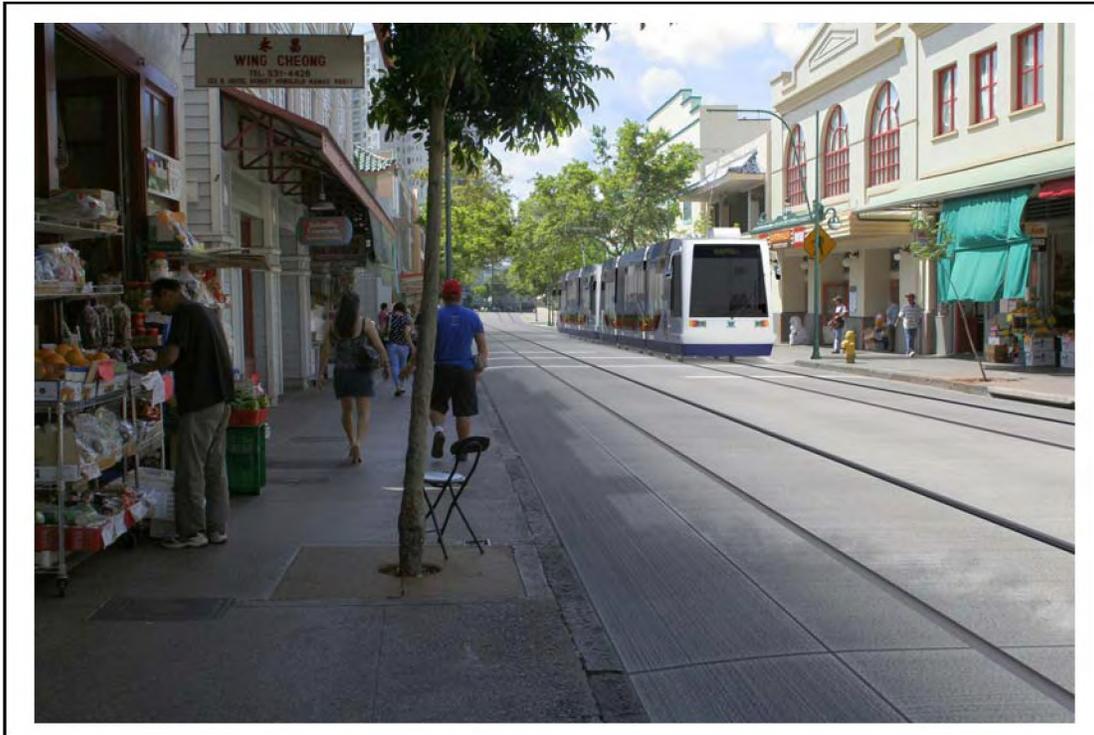
**E-20. Viewpoint 14 (V14) – Simulated Future Condition
Thomas Square looking makai**



**E-21. Viewpoint 15 (V15) – Simulated Future Condition
S King Street looking Diamond Head**



**E-22. Viewpoint 16 (V16) – Simulated Future Condition
University Avenue looking makai**



**E-23. Viewpoint 17 (V17) – Simulated Future Condition
Chinatown looking Ewa**



**E-24. Viewpoint 18 (V18) – Simulated Future Condition
Ala Wai Boulevard looking mauka**



**E-25. Viewpoint 19 (V19) – Simulated Future Condition
Oahu Market looking makai
King Street/Waimanu Street/Kapiolani Boulevard Alignment**



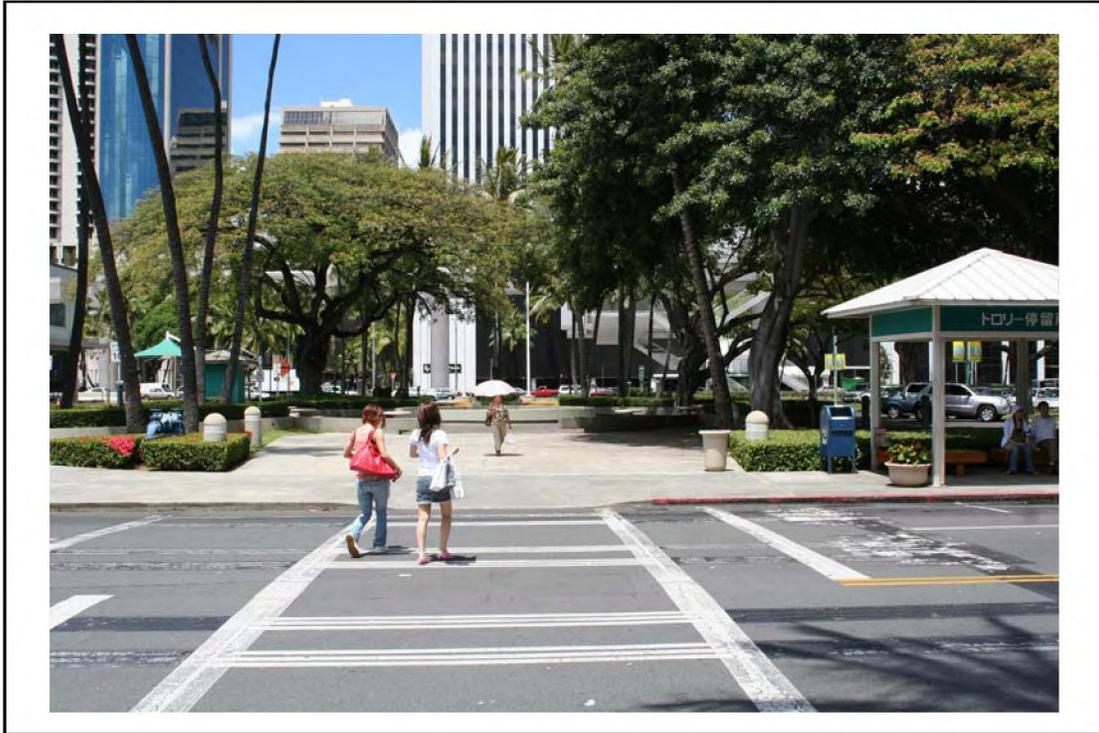
**E-26. Viewpoint 19 (V19) – Simulated Future Condition
Oahu Market looking makai
Nimitz Highway/Queen Street/Kapiolani Boulevard Alignment**



**E-27. Viewpoint 20 (V20) – Simulated Future Condition
Fort Street Mall looking makai
Nimitz Highway/Queen Street/Kapiolani Boulevard Alignment**



**E-28. Viewpoint 20 (V20) – Simulated Future Condition
Fort Street Mall looking makai
Nimitz Highway/Halekauwila Street/Kapiolani Boulevard**



**E-29. Viewpoint 21 (V21) – Simulated Future Condition
Aloha Tower Market Place looking mauka**



**E-30. Viewpoint 22 (V22) – Simulated Future Condition
Kuhio Avenue looking mauka**



**E-31. Viewpoint 23 (V23) – Simulated Future Condition
Kuhio Avenue looking Diamond Head**