

**Addendum 03 to the
Transportation Technical Report
Honolulu High-Capacity Transit Corridor Project**

June 11, 2010

Prepared for:
City and County of Honolulu

Summary

This Addendum supplements materials in the *Honolulu High-Capacity Transit Corridor Project Transportation Technical Report* dated August 15, 2008. Unless stated otherwise in this Addendum, the background, methodology, and affected environment descriptions in the Transportation Technical Report also apply to this Addendum. In any case where this Addendum differs from the technical report, or Addenda 01 or 02, the information in this Addendum supersedes that of the technical report and Addenda 01 and 02.

The information presented in this Addendum reflects refinement of the Airport Alternative that was evaluated in the Draft Environmental Impact Statement (EIS). During the preparation of the Final EIS, it was noted that the Airport Layout Plan (ALP) for Honolulu International Airport, upon which the alignment was based, did not comply with Federal Aviation Administration (FAA) regulations for the runway protection zone on runway 22L/4R. The ALP showed a 1,000-foot runway protection zone where the requirement is for 1,700 feet. Although there are existing buildings within its limits, incompatible objects and activities are prohibited from being developed in the runway protection zone. Coordination with the FAA and HDOT Airports Division subsequent to the Draft EIS identified the need for the guideway to transition from Aolele Street to Ualena Street at the extension of Ohohia Street, which is about 2,000 feet 'Ewa of the Lagoon Drive Station, to avoid effects to the central portion of the runway protection zone.

This Addendum reflects updates to column placement resulting from the transition in alignment and an additional parking study that was conducted in March 2010 near the Lagoon Drive area.

1

Background

Replace	The following are modifications of and replace Section 1.3—Alternatives Figure 1-3—Fixed Guideway Transit Alternative Features (Kapolei to Fort Weaver Road) Figure 1-4—Fixed Guideway Transit Alternative Features (Fort Weaver Road to Aloha Stadium) Figure 1-5—Fixed Guideway Transit Alternative Features (Aloha Stadium to Kalihi) Figure 1-6—Fixed Guideway Transit Alternative Features (Kalihi to UH Mānoa)
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1.3 Alternative Description

The Project will include the construction and operation of a grade-separated fixed guideway transit system between East Kapolei and Ala Moana Center. All parts of the system will either be elevated or in exclusive right-of-way. Steel-wheel-on-steel-rail transit technology has been selected through a comparative process based on the ability of various transit technologies to cost-effectively meet project requirements. The total guideway length for the Project will be approximately 20 miles and will include 21 stations. Proposed station locations and other project features are shown on Figure 1-3 through Figure 1-6. The eventual guideway length,

including planned extensions, would be approximately 34 miles and would include 34 stations.

The Project will begin by following North-South Road and other future roadways to Farrington Highway (Figure 1-3). The guideway will follow Farrington Highway Koko Head on an elevated structure and continue along Kamehameha Highway to the vicinity of Aloha Stadium (Figure 1-4).

The Project will continue along Kamehameha Highway makai past Aloha Stadium to Nimitz Highway and turn makai onto Aolele Street. It will then follow Aolele Street, Ualena Street, and Waiwai Loop Koko Head to reconnect to Nimitz Highway near Moanalua Stream and continuing to the Middle Street Transit Center (Figure 1-5). Koko Head of Middle Street, the guideway will follow Dillingham Boulevard to the vicinity of Ka'aahi Street and then turn Koko Head to connect to Nimitz Highway in the vicinity of Iwilei Road.

The alignment will follow Nimitz Highway Koko Head to Halekauwila Street, then along Halekauwila Street past Ward Avenue, where it will transition to Queen Street and Kona Street. Property on the mauka side of Waimanu Street will be acquired to allow the alignment to cross over to Kona Street. The guideway will run above Kona Street through Ala Moana Center.

Planned extensions could connect at both ends of the corridor and to the Salt Lake neighborhood as future projects. At the Wai'anae end of the corridor, the alignment would follow Kapolei Parkway to Wākea Street and then turn makai to Saratoga Avenue. The guideway would continue on future extensions of Saratoga Avenue and North-South Road. The Salt Lake extension would connect between Aloha Stadium and the Middle Street Transit Center following Salt Lake Boulevard. At the Koko Head end of the corridor, the alignment would veer mauka from Ala Moana Center to follow Kapi'olani Boulevard to University Avenue, where it would again turn mauka to follow University Avenue over the H-1 Freeway to a proposed terminal facility in UH Mānoa's Lower Campus. A branch line with a transfer point at Ala Moana Center or the Hawai'i Convention Center into Waikīkī would follow Kalākaua Avenue to Kūhiō Avenue to end near Kapahulu Avenue (Figure 1-6).

In addition to the guideway, the Project will require the construction of stations and supporting facilities. Supporting facilities include a maintenance and storage facility, transit centers, park-and-ride facilities, and traction power substations (TPSS). The maintenance and storage facility would either be located between North-South Road and Fort Weaver Road or near Leeward Community College (Figure 1-3 and Figure 1-4). Some bus service will be reconfigured to transport riders on local buses to nearby fixed guideway transit stations. To support this system, the bus fleet will be expanded.

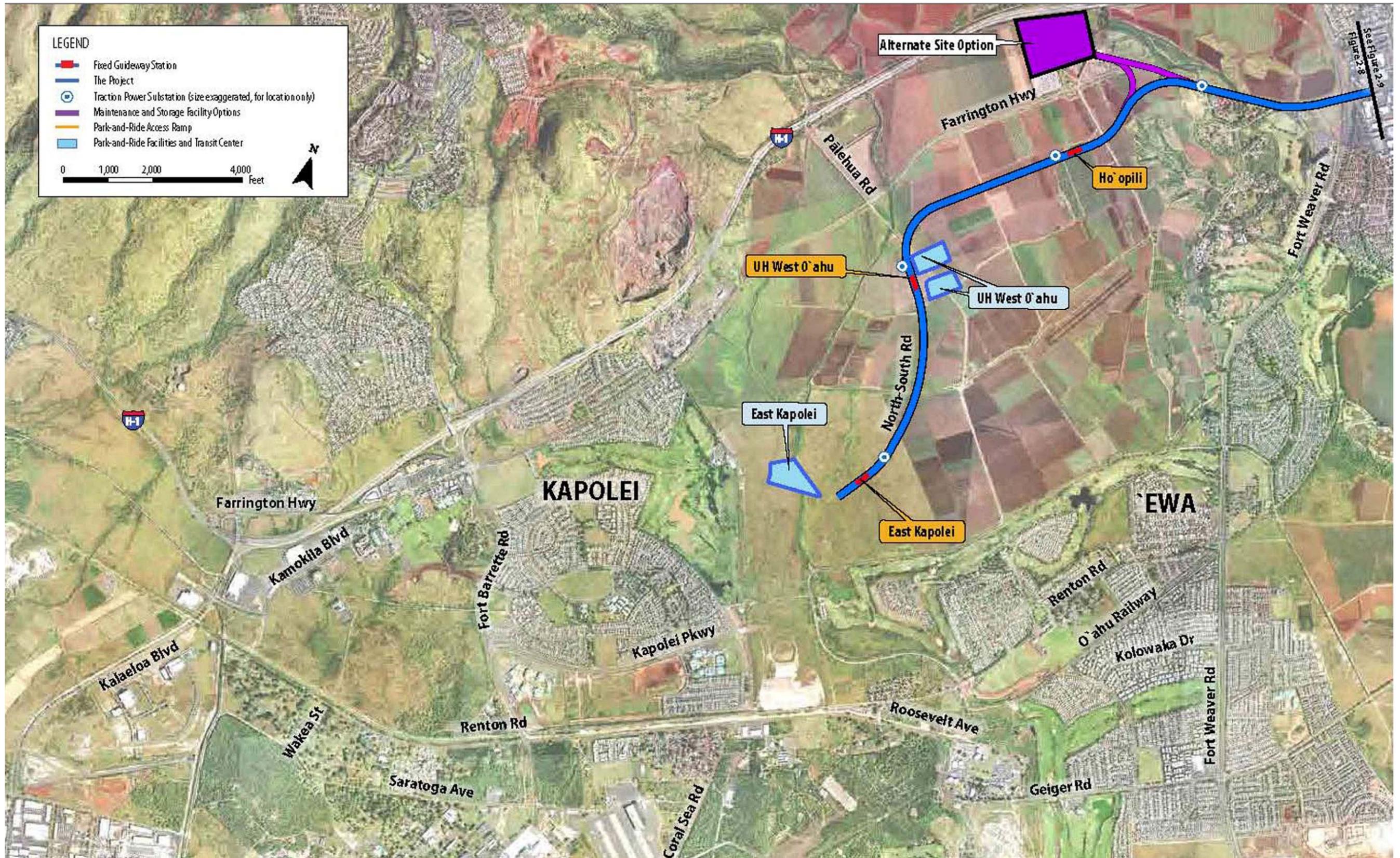
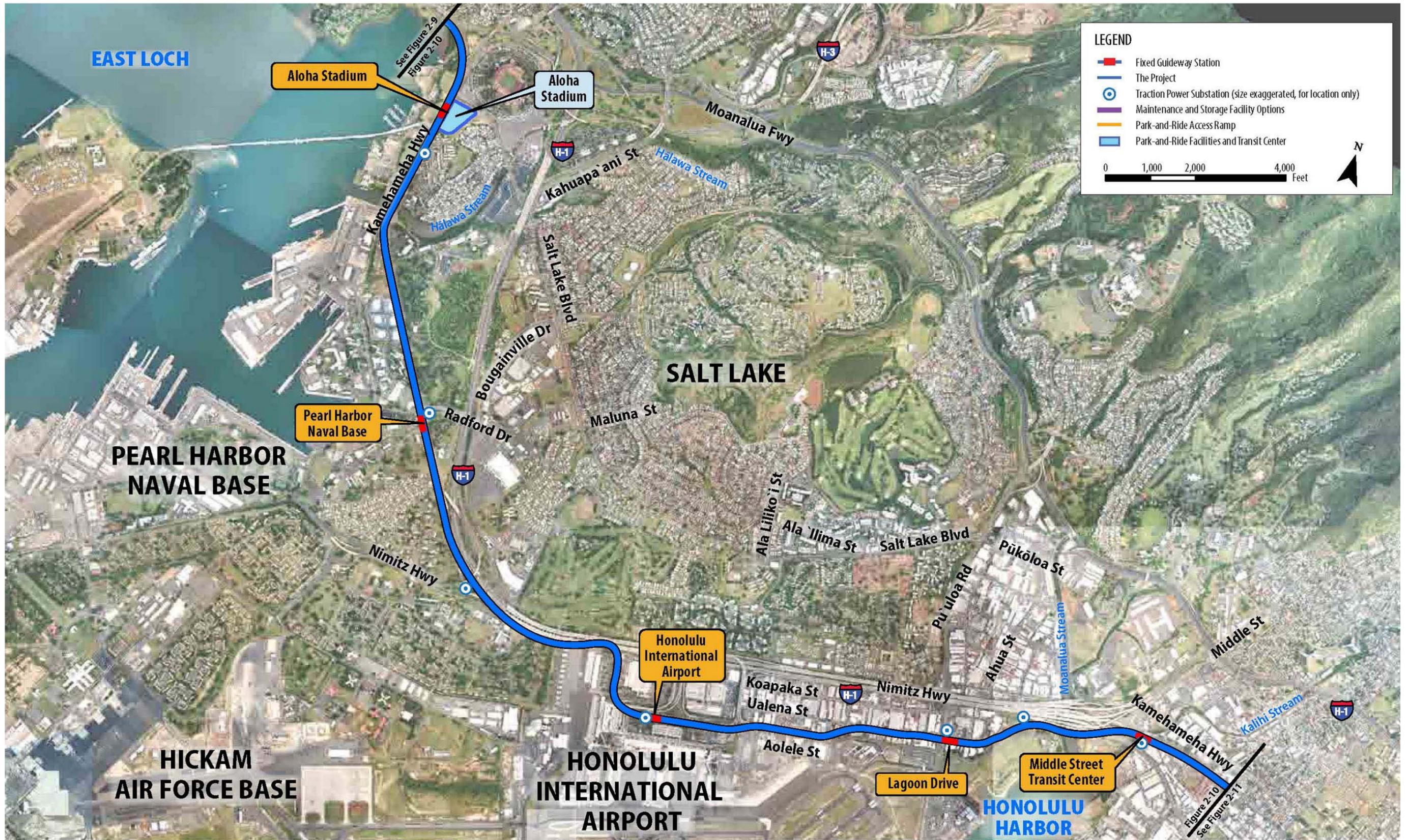


Figure 1-3: Fixed Guideway Transit Alternative Features (East Kapolei to Fort Weaver Road)



Figure 1-4: Fixed Guideway Transit Alternative Features (Fort Weaver Road to Aloha Stadium)



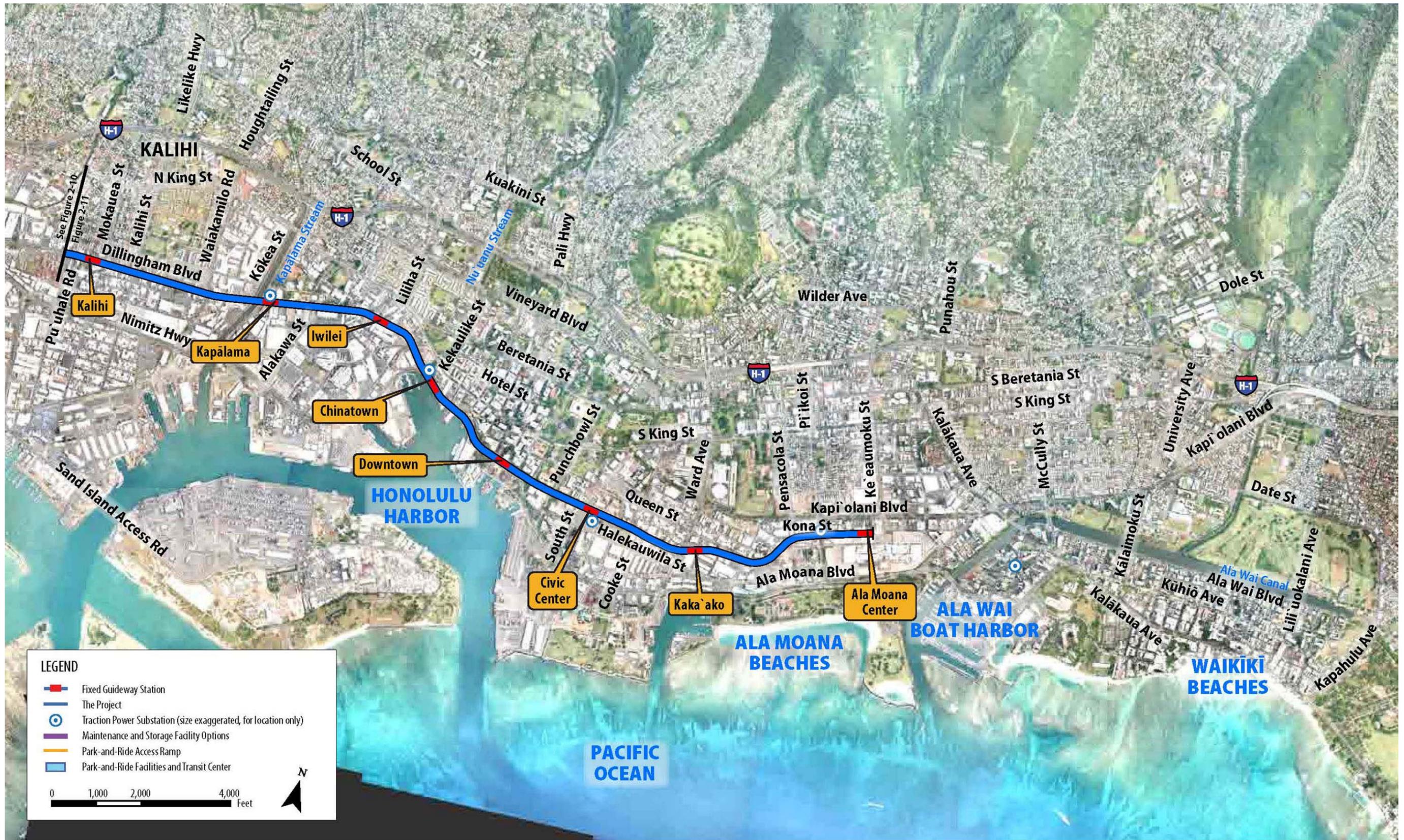


Figure 1-6: Fixed Guideway Transit Alternative Features (Kalihi to Ala Moana Center)

Add	The following supplements and is added to the end of Section 2.3.2—Traffic Data Collection
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In March 2010, additional traffic counts were taken at the intersection of Lagoon Drive and Koapaka Street and the intersection of Lagoon Drive and Ualena Street/Waiwai Loop. Counts were taken during three time periods: between 6:30 a.m. and 8:30 a.m., between 11:00 a.m. and 1:00 p.m., and from 3:00 p.m. to 5:00 p.m. on two consecutive weekdays. These counts measured the percentage of heavy vehicle traffic using these roadways. Results of the traffic counts are provided in Section 3 of this Addendum.

Replace	The following is a modification of and replaces Section 2.3.5—Parking Information
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2.3.5 Parking Information

Information on existing parking supply and costs in the study corridor was obtained from the City's Department of Transportation Services and augmented by field surveys. Estimated lost parking spaces resulting from the Project were identified with a review of conceptual design plans for both on-street and off-street spaces.

A usage survey of on-street parking spaces affected by the Project was conducted in June 2008, April 2009, and March 2010. The surveys noted usage of on-street public parking spaces on and near the alignment and one off-street private (paid) parking lot adjacent to the alignment. Counts were taken in the morning, afternoon, and evening on weekdays and Saturdays.

A review of parking costs in Honolulu and other U.S. cities was based on the 2008 North America Central Business District Parking Rate Survey conducted by Colliers International.

The travel demand forecasting model was used to estimate potential spillover parking at fixed guideway stations that will not have park-and-ride facilities.

3

Existing Conditions and Performance

Replace The following paragraph and table is a modification of and replaces
Section 3.1.2—Islandwide Mode of Travel from Addendum 02

Approximately 60,000 daily trips are made by air passengers. Of these trips, 36 percent are made by shuttle bus and 27 percent are by private automobile (Table A2-3).

Table A2-3: Ground Access Trips by Air Passengers

Mode	Daily Person Trips	Percent
Private Automobile Trips	16,300	27%
Transit	700	1%
Taxi	9,700	16%
Tour bus	12,000	20%
Shuttle Bus	21,400	36%
<i>Total Trips by Air Passengers</i>	<i>60,100</i>	<i>100%</i>

Source: O'ahuMPO Travel Demand Forecasting Model
 Trips rounded to the nearest hundred

Replace The following table is a modification of and replaces
Table 3-12—TheBus 2009 Vehicle Inventory in Addendum 2 to the Transportation Technical Report

Table 3-12: TheBus 2009 Vehicle Inventory

Year	Make	Propulsion	Length	Bus Number Series	Seating Capacity	Standing Capacity ¹	Total Capacity	Quantity
1993	TMC T70608	Conventional Diesel	35'	51 - 62	35	14	49	12
1993	TMC	Conventional Diesel	40'	202 - 283	43	25	68	23
1994	Gillig	Conventional Diesel	40'	601 - 659	46	25	71	59
1995	Gillig	Conventional Diesel	40'	660 - 699	45	25	70	37
1995	Gillig	Conventional Diesel	40'	740 - 773	45	25	70	34
1996	Gillig	Conventional Diesel	40'	774 - 795	45	25	70	22
1997	Gillig	Conventional Diesel	40'	301 - 347	45	25	70	47
1998	Gillig	Conventional Diesel	40'	348 - 365	45	25	70	18
1998	Gillig	Conventional Diesel	40' LF	366 - 368	40	25	65	3
1998	Gillig 30/96 TB	Conventional Diesel	30'	40 - 49	29	15	44	10
2000	New Flyer	Conventional Diesel	60' LF	70 - 99	58	45	103	30
2000	Gillig	Conventional Diesel	40'	801 - 835	45	25	70	33
2001	Chance	Conventional Diesel	29' LF	30 - 39	23	15	38	9

Year	Make	Propulsion	Length	Bus Number Series	Seating Capacity	Standing Capacity ¹	Total Capacity	Quantity
2002	Gillig	Conventional Diesel	40'	836 - 853	45	25	70	18
2002	Chance RT-50x	Conventional Diesel	29' LF	25 - 29	23	15	38	5
2002	New Flyer	Conventional Diesel	60' LF	100 - 115	58	45	103	16
2003	Gillig	Conventional Diesel	40'	854 - 868	45	25	70	15
2003	New Flyer	Hybrid	60' LF	116 - 131	58	45	103	16
2004	Gillig	Conventional Diesel	40' LF	501 - 555	40	25	65	55
2004	New Flyer	Hybrid	60' LF	132 - 141	58	45	103	10
2006	New Flyer	Hybrid	40' LF	901 - 940	37	25	62	40
2007	New Flyer	Clean Diesel	60' LF	142 - 150	57	72	129	9
2009	New Flyer	Hybrid	60' LF	151 - 160	57	45	102	10
Total								531

Source: City and County of Honolulu/TheBus Replacement Program; June 2009

LF = Low Floor

¹ Standing capacity based on manufacturer's data

Replace The following is a modification of and replaces
Section 3.4—Freight

The movement of goods and products is important to O'ahu's economic vitality. Ocean transportation delivers most imported food, building materials, manufactured goods, and energy products. Ocean transportation, shipbuilding and repair, commercial fishing, ocean recreation (as operated by the Division of Land and Natural Resources, Division of Boating and Ocean Recreation), and other support industries are the main activities in O'ahu's commercial harbors.

The harbors are widely used by a variety of interests, from major cargo carriers to commercial fishermen to charter boat operators with a single vessel. O'ahu's three commercial harbors are Honolulu Harbor, Kalaeloa Barbers Point Harbor, and Kewalo Basin. Operation of Kewalo Basin was transferred from HDOT to the Hawai'i Community Development Authority in March 2009. Charter boat operations only occur at Kewalo Basin. Downtown Honolulu and government offices grew around Honolulu Harbor. A network of highways connects this harbor with outlying areas. Freight also enters O'ahu via Honolulu International Airport, which is in the study corridor.

Trucks carrying freight enter and exit Honolulu Harbor on Nimitz Highway and Ala Moana Boulevard and use all major highways and freeways on O'ahu. Heavily used freight routes include Nimitz Highway, the H-1 Freeway, Kalihi Street, Ala Moana Boulevard, and near the airport and surrounding industrial area. These major

roadways are also used by transit vehicles, so delays that automobiles and transit experience along major corridors are also experienced by truck traffic.

The results of the March 2010 traffic counts conducted along Lagoon Drive are summarized in Table A3-1:

Table A3-1: Heavy Vehicle Percentages on Lagoon Drive

Time of Day	% Heavy Vehicles at Intersection of Lagoon Drive and Koapaka Street	% Heavy Vehicles at Intersection of Lagoon Drive and Ualena Street/Waiwai Loop
6:30 a.m. – 8:30 a.m.	12%	28%
11:00 a.m. – 1:00 p.m.	10%	18%
3:00 p.m. – 5:00 p.m.	7%	12%
Total	10%	19%

Add The following is a new section added to the end of Section 3 of the Transportation Technical Report
3.7 Airport Facilities

3.7 Airport Facilities

Honolulu International Airport is a multi-modal transportation hub located approximately 4 miles west of Downtown Honolulu. The airport is owned and operated by HDOT and includes 4,520 acres of land and water. The airport has four active runways; is served by 27 international and domestic carriers, 3 interisland airlines, and 4 commuter airlines; and serves more than 20 million air passengers each year. In addition, the airport is an international gateway for air freight activity between the United States and Pacific Rim countries. It has more than 450,000 square feet of warehouse space and more than 1 million square feet of cargo ramp area. Cargo facilities at the airport are located at five different sites in the airport complex. There are nine cargo terminal buildings. The airport provides the primary access to Hawai'i from elsewhere in the world and serves both domestic and international travelers.

At any given daytime or evening hour, an estimated 10,000 people are in the airport complex as passengers, employees, or visitors. Approximately 15,000 people work at the airport every day and another 20,000 depend on the airport daily for their livelihood.

The airport has four active runways for land-based aircraft operations and two sealanes for seaplane operations. Runway 8L/26R is an east/west runway that is 12,300 feet long and 150 feet wide. Runway 8R/26L (also known as the Reef Runway) is 12,000 feet long and 200 feet wide. These are the two primary runways for commercial operations at the airport. Runway 4R/22L is 9,000 feet long and 150 feet wide and is used primarily for arrivals on runway 4R during night time hours. Parallel Runway 4L/22R is 6,700 feet long and 150 feet wide and is used primarily by general aviation aircraft. Arrivals on 22L/22R and departures on 4L/4R together account for less than 10 percent of total operations, most of which are smaller,

general aviation aircraft. The airport is used in various runway configurations so that aircraft can operate safely by taking off and landing into the wind as much as possible. Additional information on airport facilities is available in Appendix G.

Air passengers and employees have multiple transportation choices to get to and from the airport. Primary modes include private auto, rental car, taxicab, public transit (TheBus), charter bus, shuttle bus, and van service. Existing public transit service to the airport consists of routes 19, 20, and 31. Parking options include garage (\$13 per day) and economy surface (\$10 per day). Short-term parking and valet parking are also available. A cell-phone waiting lot is provided for those picking up airline passengers.

4 *Future Conditions and Effects—No Build Alternative*

<i>No Change</i>

5 *Future Build Alternatives Conditions and Performance*

The information contained in this section of Addendum 03 updates Section 5 information from the Transportation Technical Report in regards to column placement between the Honolulu International Airport and Middle Street Transit Center Stations. The alignment in this area has transitioned since the Draft EIS to avoid the central portion of the runway protection zone. This transition did not have any significant adverse effects on the transportation system.

Change The following are modifications of and replace
Table 5-20—TheBus Routes Service Station Locations—Middle Street to Kapālama and
Table 5-21—TheBus Routes Service Station Locations—Iwilei to Ala Moana Center

5.4.5 Bus Access at Fixed Guideway Stations

Table 5-20: TheBus Routes Serving Station Locations—Middle Street to Kapālama

Station Area	2007 Bus Routes	Airport Alternative Bus Routes
Middle Street Transit Center	A, B, 1, 2, 16, 31, 32, 203 (plus C, 9, 40/A, 42, 43, 52, 62 on Kamehameha)	A, 1, 2, B, 40/A, 52, 85/A, 86/A, 301, 302, 303, 304, 305, 306
Kalihi	C, 9, 10, 40/A, 42, 43, 52, 62	40/A, 52, 85/A, 86/A, 305
Kapālama	C, 9, 40/A, 42, 43, 52, 62	40/A, 52

Sources: For current bus routes, *TheBus public schedules in effect December 2007*; for future bus routes, *Bus Service Network developed for the Build Alternatives*.

Table 5-21: TheBus Routes Serving Station Locations—Iwilei to Ala Moana Center

Station Area	2007 Bus Routes	Airport Alternative Bus Routes
Iwilei	No routes directly serve this location. Routes on King and Iwilei	2, 13, 40/A, 52, 54 On King Street: A, 1 On Iwilei Road: 4, 19
Chinatown	This station location is two blocks from the main transit streets of Hotel and King.	
Downtown	E, F2, F3, 88A, 19, 20, 55, 56, 57, 65	17, 19, 55, 56, 57/A, 65, 88A
Civic Center	6, 42, 85, 85A, 88, 89	6, 13, 88, 89
Kaka'ako	6	6
Ala Moana Center	C, 5, 6, 8, 17, 18, 19, 20, 23, 40, 40A, 43, 52, 53, 55, 56, 57/A, 62, 65, 88A (A, 3, 9 on Kapi'olani; E, F3, 42, 98A on Ala Moana Boulevard.)	5, 6, 7, 8, 9, 17, 18, 23, 40/A, 52, 88A (A and 3 on Kapi'olani; 19 on Ala Moana Boulevard.)

Sources: For current bus routes, *TheBus public schedules in effect December 2007*; for future bus routes, *Bus Service Network developed for the Build Alternatives*.

Change

The following are modifications of and replace
Section 5.6.1—Effects of Guideway Placements on Roadway and Sidewalk Capacity (Subsection “Kapolei” through “Table 5-31,” inclusive)
Table 5-28—Column Placement Effects—Kapolei
Table 5-29—Column Placement Effects—Waipahu to Aloha Stadium
Table 5-30—Column Placement Effects—Aloha Stadium to Middle Street (Salt Lake) [delete]
Table 5-31—Column Placement Effects—Aloha Stadium to Middle Street (Airport)
Table 5-32—Column Placement Effects—Middle Street to Iwilei
Table 5-33—Column Placement Effects—Iwilei (Downtown Honolulu) to Ala Moana Center

During Final Design, the relationship of travel lanes, shoulders, sidewalks, and horizontal clearances to obstructions, such as columns, will be considered together in determining the final widths of each item. Some lane widths could increase from what is shown in the following tables. Permits for construction will not be approved unless a roadway facility is safe and acceptable to the responsible transportation agency. Lane widths will meet AASHTO and HDOT standards and will not be a hazard for larger trucks.

Kapolei

This section of the proposed alignment will generally travel from Farrington Highway and end at Fort Weaver Road. Three stations are planned along this alignment. Table 5-28 summarizes the column placement for the rail alignment at key locations along this segment, including the facility’s potential effects.

Table 5-28: Column Placement Effects—Kapolei

Street/Intersection	Column Placement	Summary of Potential Effects
Fort Weaver Road and Farrington Highway at all existing signalized intersections	Roadside	Expand median by 9 feet for column placement. Reduce existing through lanes to 11 feet and left turn lanes to 10 feet.

Waipahu to Aloha Stadium

The proposed alignment will travel from West Loch Station at Farrington Highway and Leokū Street to the vicinity of Aloha Stadium. Potential transportation effects from column placement along this section include:

- Farrington Highway at Leokū Street and Waipahu Depot Road—these locations do not have a median wide enough for the fixed guideway columns. To expand the median and subsequently fit the columns, the existing through travel lanes will need to be reduced to 11 feet and left-turn lanes reduced to 10 feet.
- At the non-signalized intersection of Farrington Highway and Moloalo Street, the left-turn pockets on both approaches may need to be removed.

- Left turn pockets at a non-signalized intersection on Farrington Highway between Paiwa Street and Kahualii Street may need to be closed due to column placement and sight distance requirements.
- Columns will not fit in the median along Kamehameha Highway between Acacia Road and Waimano Home Road/Lehua Avenue. To expand the median by 7 feet, the through lanes will be reduced to 11 feet and the left-turn lanes reduced to 10 feet.
- At Kamehameha Highway and Pu'u Momi Street, through lanes and left-turn lanes will be reduced to 11 feet.
- The median between Kuleana Road and the entrance to the Boat House (just Koko Head of Honomanu Street) will not be wide enough to fit columns. To expand the median, through lanes and left-turn lanes will be reduced to 11 and 10 feet, respectively.

Table 5-29 summarizes column placement and potential effects at key locations along this segment.

Table 5-29: Column Placement Effects—Waipahu to Aloha Stadium

Street/Intersection ID	Column Placement	Summary of Potential Effects
Farrington Highway and Kunia Road	Roadside/ Median	Median will need to be expanded by 9 feet to fit fixed guideway. Existing through lanes will be reduced to 11 feet and left-turn lanes to 10 feet.
Farrington Highway and Leokū Street	Median	Median will not be wide enough on eastbound approach (needs to be expanded by 7 feet). Existing through lanes will be reduced to 11 feet and left-turn lanes will be reduced to 10 feet.
Farrington Highway and Waipahu Depot Road	Median	Median will need to be expanded by 6 feet to accommodate columns (both eastbound and westbound approaches). Existing left-turn lanes will be preserved. Existing through lanes will be reduced to 11 feet and left-turn lanes to 10 feet.
Farrington Highway and Moloalo Street	Median	Intersection currently not signalized. Intersection will become right in–right out only; left turn pockets will be eliminated due to sight distance requirements.
Farrington Highway and Awamoku Street	Median	Median will fit fixed guideway. Intersection currently unsignalized. Intersection will become right in–right out only; left turn pockets will be eliminated due to sight distance requirements.
Farrington Highway and Paiwa Street	Median	Median width will not fit columns. Will need to decrease all lane widths to widen median. Existing left-turn lanes will be preserved. Existing through lanes will be reduced to 11 feet and left-turn lanes to 10 feet.
Farrington Highway ~ left turn midblock between Paiwa Street and Kahualii Street	Median	Intersection will become right in–right out only; left turn pockets will be eliminated due to sight distance requirements.
Farrington Highway and Kahualii Street	Median	Median will need to be expanded by 10 feet (both eastbound and westbound approaches). Will need to reduce existing through lanes to 11 feet and left-turn lanes to 10 feet.

Table 5-29: Column Placement Effects—Waipahu to Aloha Stadium (continued)

Street/Intersection ID	Column Placement	Summary of Potential Effects
Kamehameha Highway and Acacia Road	Median	Columns will not fit in existing roadway. Median will need to be expanded by 7 feet. Will need to reduce through lanes to 11 feet and left-turn lanes to 10 feet, preserve left-turn lanes.
Kamehameha Highway and Waimano Home Road/Lehua Avenue	Median	Columns will not fit in existing roadway. Median will need to be expanded by 7 feet. Will need to reduce through lanes to 11 feet and left-turn lanes to 10 feet, preserve left-turn lanes.
Kamehameha Highway and Pu'u Momi Street	Median	Columns will not fit in existing roadway. Median will need to be expanded. Plan to reduce existing through and left-turn lanes to 11 feet.
Kamehameha Highway ~ left turns on Kamehameha Highway midblock between Pu'u Momi Street and Pu'u Poni Street	Median	Will eliminate left turn.
Kamehameha Highway and Pu'u Poni Street	Median	Columns will fit in existing median. Plan to reduce existing through and left-turn lanes to 11 feet.
Kamehameha Highway ~ left turn on Kamehameha Highway midblock between Pu'u Poni Street and Kuleana Road	Median	Will eliminate 'Ewa bound/makai bound left turn.
Kamehameha Highway and Kuleana Road	Median	Columns will not fit in existing median. Reduce through and left-turn lanes to 11 feet.
Kamehameha Highway ~ left turn on Kamehameha Highway midblock between Kuleana Road and Kaluamoi Drive	Median	Will eliminate left turns.
Kamehameha Highway and Kaluamoi Drive	Median	Columns will not fit in existing median. Reduce through lanes to 11 feet and left-turn lanes to 10 feet.
Kamehameha Highway and Ka'ahumanu Street	Median	Columns will not fit in existing median. Median will need to be expanded. Reduce through lanes to 11 feet.
Kamehameha Highway and Hekaha Street	Median	Columns will not fit in existing median. Median will need to be expanded. Reduce through lanes to 11 feet and left-turn lanes to 10 feet.
Kamehameha Highway and Kanuku Street	Median	Columns will not fit in existing median. Median will need to be expanded. Reduce through lanes to 11 feet and left-turn lanes to 10 feet.
Kamehameha Highway and Kaonohi Street	Median	Columns will not fit in existing median. Median will need to be expanded. Reduce through lanes to 11 feet and left-turn lanes to 10 feet.
Kamehameha Highway and Lipoa Place	Median	Columns will not fit in existing median. Median will need to be expanded. Reduce through lanes to 11 feet. Introduce 10-foot split left-turn lane.
Kamehameha Highway and Pali Momi Street	Median	Columns will not fit in existing median. Median will need to be expanded. Reduce through lanes to 11 feet and northbound left-turn lanes to 10 feet. Increase southbound left-turn lane to 11 feet.

Table 5-29: Column Placement Effects—Waipahu to Aloha Stadium (continued)

Street/Intersection ID	Column Placement	Summary of Potential Effects
Kamehameha Highway and 'Aiea Kai Place	Median	Columns will not fit in existing median. Reduce through lanes to 11 feet and left-turn lanes to 10 feet.
Kamehameha Highway and McGrew Loop—Honomanu Street	Median	Columns will not fit in existing median. Median will need to be expanded. Reduce through lanes to 11 feet and left-turn lanes to 10 feet.
Kamehameha Highway and Entrance to Boathouse	Median	Will eliminate left turn onto Kamehameha Highway.

Aloha Stadium to Middle Street (Airport)

This alignment will generally travel from Aloha Stadium along Kamehameha Highway to the H-1 Freeway and continue makai of the Airport Viaduct to Aolele Street, turning toward the Airport along Aolele Street, transitioning to Ualena Street near an extension of Ohohia Street, which is about 2,000 feet 'Ewa of Lagoon Drive, through Ke'ehi Lagoon Beach Park, and continuing to Dillingham Boulevard via Lagoon Drive over Ke'ehi Interchange to Kamehameha Highway at Middle Street. Four station locations are proposed along this alignment. The following describes potential effects along this alignment option:

- A wide median will be constructed in portions of Kamehameha Highway from Salt Lake Boulevard to the H-1 Freeway where the medians are narrow. To fit columns, lane widths will be reduced.
- The median at intersections between Radford Drive/Makalapa Gate and Center Drive along Kamehameha Highway will not be wide enough to fit columns. Through lanes and left-turn lanes will be reduced to 11 and 10 feet, respectively.

Table 5-31 summarizes the column placement for the rail alignment at key locations along this segment. It describes each intersection and the column placement and summarizes the facility's potential effect.

Table 5-31: Column Placement Effects—Aloha Stadium to Middle Street (Airport)

Street/Intersection ID	Column Placement	Summary of Potential Effects
Kamehameha Highway from Kalaloa Street to Center Drive	Median	Reduce existing through lanes to 11 feet and left-turn lanes to 10 feet. Reconstruct mauka shoulder.
Aolele Street	Side	Reduce existing through lanes. Reconstruct curb returns for vehicular turning movements. Reconstruct shoulders.
Ualena Street/Waiwai Loop	Median	Columns will be placed in center of existing roadway. A center left-turn lane will be created between columns.

Middle Street to Iwilei

This alignment will generally travel from the Ke'ehi Interchange to Iwilei via Kamehameha Highway and Dillingham Boulevard. Three station locations are proposed along this alignment. The following describes potential effects along this alignment option:

- At Kamehameha Highway and Middle Street, the fixed guideway coming from the Airport over the H-1 Freeway exit ramp will cross over and align along the median of the roadway. Eastbound lanes will be reduced from 14 to 12 feet and westbound lanes (currently 12 feet) will be maintained.
- Column placement along the section of Kamehameha Highway and Laumaka Street and Dillingham Boulevard between Laumaka Street and Ka'aahi Street will require the addition of a new median. On the makai side of the roadway, 10 feet of additional right-of-way will be acquired to preserve all through and left-turn lanes.
- On Dillingham Boulevard, between the intersections with Ka'aahi Street and King Street, one makai-bound left-turn lane will be added for buses to turn left into Ka'aahi Street. A mauka-bound right-turn lane will be added from Dillingham Boulevard into King Street. This will require acquiring additional right-of-way.

Table 5-32 summarizes the column placement for the rail alignment and potential effects at key locations along this segment.

Table 5-32: Column Placement Effects—Middle Street to Iwilei

Intersection(s)	Column Placement	Summary of Potential Effects
Kamehameha Highway and Middle Street	On future median	Fixed guideway from the Airport will align along the median of the roadway. Eastbound lanes will be reduced from 14 to 12 feet. Westbound lanes (currently 12 feet) will be maintained. Signal modification may be necessary to account for left-turn phasing.
Kamehameha Highway at Gaspro	On future median	Existing median will need to be expanded by 6 feet. Eastbound roadway width will be reduced from 42 to 36 feet (three 12-foot lanes). No lane removal. Signal modification may be necessary to account for left-turn phasing.
Kamehameha Highway and Laumaka	On future median	No median exists; need 10 feet for median. All lanes will be maintained by acquiring right-of-way on the makai side of the roadway. Signal modification may be necessary to account for left-turn phasing.
Dillingham Boulevard from Laumaka to Ka'aahi	On future median	Acquire approximately 10 feet of additional right-of-way on makai side of roadway to accommodate new median and maintain all through and left-turn lanes. Signal modification may be necessary to account for left-turn phasing.
Dillingham Boulevard Kapālama Bridge	On future median	No median exists; need 10 feet for median. All lanes will be maintained by acquiring 10 feet of additional right-of-way, and widening of bridge on the makai side will be required.
Dillingham Boulevard from Kohou to Costco rear parking	On future median	All through and left-turn lanes will be preserved by acquiring 10 feet of additional right-of-way on the makai side of the roadway.
Dillingham Boulevard from Ka'aahi Street to King Street	None	Add makai-bound left-turn lane for buses to turn into Ka'aahi. Add mauka-bound right turn lane from Dillingham into King Street; this will require acquiring right-of-way.

Iwilei (Downtown Honolulu) to Ala Moana Center

This part of the alignment will generally travel from Downtown Honolulu to Ala Moana Shopping Center via Ka'aahi Street, Nimitz Highway, Halekauwila Street, and Kona Street. Six station locations are proposed along this alignment, including the Iwilei Station. The following describes potential effects along this alignment option:

- On Nimitz Highway at Maunakea, Smith, Nu'uauu, Bethel, Fort, Bishop, Alakea, and Halekauwila Streets, the existing median will need to be widened to accommodate columns. Travel lane and turn-lane widths,

where reduced, will be to 11 feet and 10 feet minimum, respectively, but all lanes will be preserved.

- Column placement on Halekauwila Street from Ala Moana Boulevard to Ward Avenue will result in the loss of most on-street parking spaces.
- The columns along Kona Street from Pensacola to Pi'ikoi Street will be on both sides of the roadway. This will result in a loss of most on-street parking spaces.
- Between Pi'ikoi Street and Ke'eaumoku Street, three tracks are proposed on the guideway. This will require columns to be placed on both sides of the street and in the median. Through lanes will be reduced to a minimum of 11 feet and turn lanes to a minimum of 10 feet.

Table 5-33 summarizes the column placement for the rail alignment and potential effects at key locations along this segment.

Table 5-33: Column Placement Effects—Iwilei (Downtown Honolulu) to Ala Moana Center

Intersection(s)	Column Placement	Summary of Potential Effects
Nimitz Highway from Maunakea Street to Halekauwila Street	Median	Lane widths, where reduced, will be to a minimum of 11 feet for the through lanes and 10 feet for turn lanes. All lanes will be preserved.
Halekauwila Street and South Street	Side	Exclusive 'Ewa-bound right-turn-only lane will be removed.
Kona Street and Kona Iki Street	Median	Through lanes reduce to a minimum of 11 feet and turn lanes to a minimum of 10 feet. Median location will be shifted.

Add The following supplements and is added to the end of **Section 5.6.2—Traffic Effects in Station Areas with Park-and-Ride Facilities Aloha Stadium Station**

The Project will not have an effect on traffic conditions near the Aloha Stadium Station during normal peak periods. However, during major events at Aloha Stadium, there will be an increase in the number of pedestrians walking between the stadium and the shared-use parking lot containing the fixed guideway station. To minimize the effect on traffic and to ensure safety, the City will coordinate with the Stadium Authority to provide staff and/or resources as needed to help manage the flow of pedestrians walking between Aloha Stadium and the station entrance during major events.

Change	The following are modifications of and replace Section 5.8.1—Removal of Existing Parking Capacity Table 5-54—Potential Effects on Parking due to Fixed Guideway Column Placements
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5.8 Effects on Parking

5.8.1 Removal of Existing Parking Capacity

It is estimated that approximately 173 on-street and 690 off-street parking spaces will be removed as a result of the Project. Parking spaces will be removed primarily to accommodate guideway column placement or station entrance locations. About a third of the off-street spaces to be removed are in locations already planned for major redevelopment. A summary of locations where parking will be removed by the Project, including effects and mitigation, is shown in Table 5-54.

Off-street parking supply affected by the Project is scattered throughout the project corridor and is exclusively on private property. The parking spaces will be acquired as part of additional right-of-way needed to construct the guideway or stations consistent with the requirements of the *Uniform Relocation Assistance and Real Property Acquisition Policies Act* (CFR 1970).

On-street parking affected by the Project is concentrated in three areas—near the Lagoon Drive and Iwilei Stations and in Kaka’ako along Halekauwila Street. To analyze the effect of losing on-street parking capacity, field surveys of existing parking spaces and use along the study corridor were conducted in June 2008 and April 2009. The surveys examined usage of on-street parking spaces during weekdays and Saturdays. Another parking survey was completed in March 2010 for the area near the Lagoon Drive Station.

The results of the field surveys indicated that most on-street parking spaces to be removed by the Project are currently occupied at least part of the day, although the extent of parking demand varies depending on location and regulation (time limits, meters, etc.). The largest demand for parking generally occurs on weekdays in the morning and afternoon. The surveys also found that alternative parking was generally available within one block of the parking spaces to be removed. The approach to mitigating the effects of lost parking is addressed in Section 6.

Loading Zones

The following three loading zones are part of the on-street parking supply that will be affected by the Project (Table 5-54)—a freight loading zone on Ka’aahi Street, a passenger loading zone on Halekauwila Street near South Street, and a passenger loading zone on Halekauwila Street near Kamani Street. The mitigation program described in Section 6 addresses the effect on loading zones.

Table 5-54: Potential Effects on Parking and Loading Zones due to Fixed Guideway Column and Station Placement

Roadway or Station Name	Cross Street From	Cross Street To	Column Placement	Anticipated Parking Spaces Removed			Description of Effect
				On-Street Mauka	On-Street Makai	Off-Street	
Farrington Highway	Leokū Street	Leokane Street	Median			21	Parking spaces will be removed from large retail parking lot for placement of station entrance. Affected spaces are far from store entrance, near Farrington Highway, and represent a small percentage of total.
Moloalo Street	ʻEwa end of street	Mokuola Street	Median		4		Makai station entrance will require removal of some on-street parking spaces on frontage road.
Ala Ike Street/Leeward Community College Station	–	–	At-grade			N/A	Station will be built on mauka end of existing parking lot. Spaces will be replaced at an alternate location on campus. The City will coordinate with Leeward Community College during final design to relocate parking. There will be no net loss.
Kamehameha Highway	H-1/H-2 Interchange	Moanalua Freeway	Median			79	Widening of right-of-way to accommodate the guideway will affect some existing off-street parking spaces (makai side) currently serving retail businesses. Removed parking represents a small percentage of available parking.
Pearlridge Station	–	–	Median			43	Mauka and makai station entrances will require removal of off-street parking
Aloha Stadium parking lot			Side			4	Placement of columns supporting guideway will require removal of four off-street parking spaces in the main parking lot, close to Kamehameha Highway, away from the stadium entrance.
Aloha Stadium overflow parking lot	–	–	Side			N/A	Existing gravel overflow lot will be transformed into rail station, bus transit center, and shared use park-and-ride lot. Current parking configuration will change.
Honolulu International Airport Ala Onaona Street	Ala Auana Street	Parking garage exit lanes	Side			111	Construction of the station entrance will require removal of 111 of the approximately 175 spaces in the economy parking lot. the entire lot will be closed during construction; 50 spaces will be restored once construction is complete.
Ualena Street	Ohohia Street	Lagoon Drive	Median	30			Guideway will require removal of all on-street parking along the mauka side of Ualena Street.
Lagoon Drive	Ualena Street	Koapaka Street	N/A	8			On-street parking spaces will be removed to accommodate new bus stop to serve Lagoon Drive station.
Waiwai Loop	–	–	Median	15	15	7	Guideway will require removal of all on-street parking along both sides of Waiwai Loop and some off-street parking.
Keʻehi Lagoon Beach Park						N/A	Approximately three spaces will be relocated within the Park.
Dillingham Boulevard	Laumaka Street	Puʻuhale Road	Median			13	OCCC parking will be affected by the realignment of Dillingham Boulevard.

Table 5-54: Potential Effects on Parking and Loading Zones due to Fixed Guideway Column and Station Placement (continued)

Roadway or Station Name	Cross Street From	Cross Street To	Column Placement	Anticipated Parking Spaces Removed			Description of Effect
				On-Street Mauka	On-Street Makai	Off-Street	
Dillingham Boulevard	Mokauea Street	Kalihi Street	Median			16	Existing parking spaces used by businesses will be removed along the makai side of Dillingham Boulevard due to the realignment of the roadway.
Dillingham Boulevard	Kalihi Street	McNeill Street	Median			20	Existing parking lot used by several retail businesses will be reconfigured to accommodate the roadway realignment, resulting in a reduced number of parking spaces.
Dillingham Boulevard	McNeill Street	Waiakamilo Road	Median			26	Reconfiguration of existing parking lot to accommodate road widening will result in a loss of parking spaces serving various retail food establishments. Parking parallel to Dillingham Boulevard occurring in front of retail auto service store will be removed.
Dillingham Boulevard	Waiakamilo Road	Kohou Street	Median		2	10	Existing parking lot used by retail store will require reconfiguration to accommodate the road widening resulting in a loss of parking spaces. Some on-street parking along Colburn Street will also be lost due to widening.
Dillingham Boulevard	Kohou Street	Alakawa Street	Median			30	Parking spaces will be removed from parking lot for placement of station entrance. Affected spaces currently serve retail restaurant and businesses.
Ka'aahi Street	Dillingham Boulevard	End of existing road	Side	8	9		Some existing on-street parking will need to be removed for station. Survey found parking spaces (which are currently free with no time limit) to be heavily used (over 75% full) throughout the day.
Halekauwila Street	Punchbowl Street	South Street	Side	8	13		Guideway will require removal of on-street parking on Halekauwila. Survey found most spaces (which are metered) to be moderately used (50-75% full) on weekdays and mostly unused (less than 25% full) on Saturdays.
Halekauwila Street	South Street	Keawe Street	Side	9	6		Guideway will require removal of on-street parking on Halekauwila. Survey found most spaces to be mostly unused (less than 25% full) most days/times.
Halekauwila Street	South Street	Keawe Street	Off-street			35	Placement of station entrance will require the removal of a small percentage (less than 10%) of the existing off-street parking. Survey found the parking lot (paid) to be lightly used (25-50% full) most days/times.
Halekauwila Street	Coral Street	Cooke Street	Side		2		Guideway will require removal of on-street parking on Halekauwila. Survey found most spaces lightly to moderately used (25-75% full) most days/times.
Halekauwila Street	Cooke Street	Kamani Street	Side	17	27	5	Guideway will require removal of on-street and some off-street parking on Halekauwila. Survey found parking spaces (which are currently free with no time limit) to be heavily used (over 75% full) throughout the day.

Table 5-54: Potential Effects on Parking and Loading Zones due to Fixed Guideway Column and Station Placement (continued)

Roadway or Station Name	Cross Street From	Cross Street To	Column Placement	Anticipated Parking Spaces Removed			Description of Effect
				On-Street Mauka	On-Street Makai	Off-Street	
Kaka'ako Station	Ward Avenue	Queen Street	Off-street			183	Guideway and station will require removal of some of the off-street parking serving large retail businesses at Ward Shopping Center (some of the large retail businesses will also be removed). Parking to be removed represents a small percentage (less than 10%) of the total off-street parking in the area.
Kona Street	Pensacola Street	Pi'ikoi Street	Median			88	Placement of columns supporting the guideway will require removal of a few of the off-street parking spaces in this segment.
Freight Loading Zones							
Ka'aahi Street	Dillingham Boulevard	End of existing road	Side	N/A			Freight loading zone will be relocated nearby.
Passenger Loading Zones							
Halekauwila Street	'Āhui	Kamani Street	Side	N/A			Passenger loading zone used for day care facility will be relocated nearby on Ilaniwai Street from Cooke Street to Kamani Street.
Ilaniwai Street	Cooke Street	Kamani Street	N/A	N/A			Some of the existing on-street parking will be converted to passenger loading zones during the A.M. and P.M. peak periods to accommodate the lost passenger loading zone on Halekauwila Street from 'Āhui to Kamani Street.
Halekauwila Street	Punchbowl Street	South Street	Side	N/A			Passenger loading zone will be relocated nearby.
Totals				95	78	691	

Add The following is a new section and is added to the end of the Transportation Technical Report
Section 5.10 Effects to Airport Facilities

5.10 Effects to Airport Facilities

The elevated project guideway alignment through the airport was developed in consideration of the Honolulu International Airport Draft Master Plan (HDOT 2009) and the Airport Layout Plan for Honolulu International Airport (HDOT 1995) to minimize effects on existing and future airport facilities and aviation activities. Support columns will be located to maintain normal roadway movements and minimize effects to parking, car rental operations, lei stands, freight movement, and other business interests near the airport.

Specifically, the guideway alignment minimizes the effect on current and future operations at the airport. The guideway alignment avoids the new Mauka Terminal

and airplane ramp planned for the location of the existing commuter terminal parking lot. A total of approximately 2 acres of airport land will be needed to accommodate the placement of elevated guideway support columns and for a passenger station on airport property. A station entrance building will be constructed near the overseas parking garage on what is now a surface economy parking lot just 'Ewa of the parking garage exit lanes, fronting Ala Onaona Street, near the existing lei stands on Aolele Street. As shown in Table 5-54, approximately 110 of the 175 spaces will be permanently closed in this lot to accommodate the station. The Honolulu International Airport Station will serve airline passengers and employees of the airport and other businesses. It will be connected to the overseas and interisland terminals with ground-level pedestrian walkways. Access to local buses and TheHandi-Van will be provided at the station's entrance.

Based on discussions with both HDOT-Airports Division and the United States Postal Service (USPS), DTS has refined the alignment to minimize overall impact to both facilities. Other design measures have been taken to minimize impact to airport facilities. DTS will continue to coordinate with HDOT-Airports Division and USPS on final alignment and design as the Project moves forward.

Continuing Koko Head, the alignment exits the airport on Aolele Street and then transitions to Ualena Street at an extension of Ohohia Street, which is about 2,000 feet 'Ewa of the Lagoon Drive Station. The alignment traverses airport property but does not preclude future commercial uses.

The guideway will pass near the end of runways 22R/4L and 22L/4R. Due to the proximity of the guideway to the runways, FAA Form 7460-1, Notice of Proposed Construction or Alteration, will be submitted to the FAA prior to construction. Preparation of the necessary submittal materials has begun with assistance from HDOT-Airports Division staff. Honolulu International Airport Operations has evaluated the project impact and verified that it does not affect airport operations. The evaluation completed by FAA is included in Appendix G of this Addendum.

The Lagoon Drive Station has been located at the intersection of Waiwai Loop and Lagoon Drive. It will serve nearby businesses and employees in the area, including Māpunapuna and Salt Lake, and provide access to Ke'ehi Lagoon Beach Park. Local buses and TheHandi-Van will provide service to the station. Temporary construction-related effects at and near the airport are discussed in Section 7.

The FAA has specific horizontal and vertical clearance requirements for the runways at Honolulu International Airport. Due to the proximity of the Project to runways 22R/4L and 22L/4R, the following clearance requirements were evaluated for the elevated project guideway, including the Lagoon Drive Station—building restriction line, runway protection zone, approach surface, and the transitional surface. The refinement in project alignment was made to avoid the central portion of the runway protection zone. As shown in Figure A3-1, the Project will pass through the less-restrictive controlled activity area. The FAA has indicated this is acceptable. The airspace evaluation confirmed that the Project is consistent with requirements of the building restriction line, approach surface, and transitional surface regulations. Results of the evaluation are shown in Appendix G. In addition, the Airport Layout

Plan was updated in cooperation with HDOT and FAA to show the Project alignment and stations, and a copy is included in Appendix G. The City will coordinate with FAA to obtain the necessary permits and approvals related to construction at or near the airport.

5.10.1 Agency Coordination

The City has been coordinating with FAA, HDOT-Airport Division, and FTA to address the effects of the alignment on the airport, including future expansion as proposed in the Airport Master Plan and FAA requirements. As a result of coordination, the decision was made to refine the project routing to avoid the runway protection zone and any impacts that would be created by mitigations, such as relocating the runway to move the runway protection zone away from the Project if it were to remain on Aolele Street.

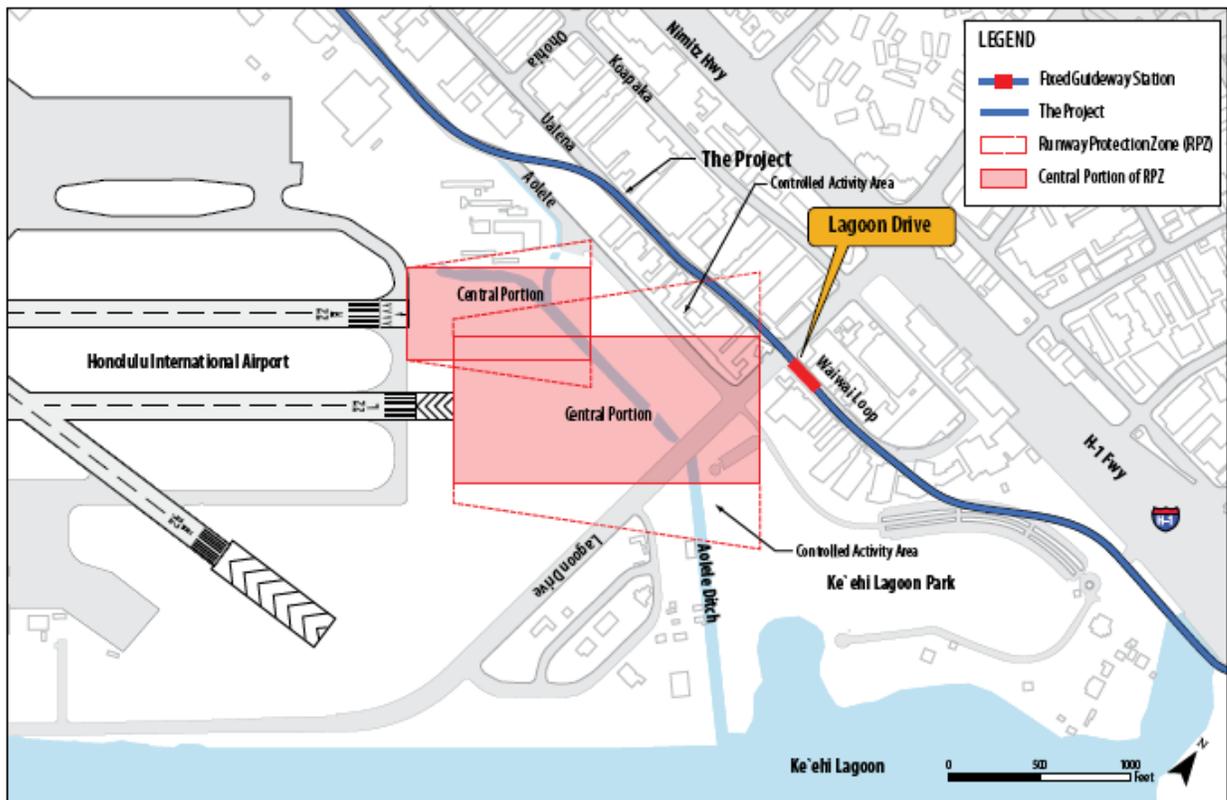


Figure A3-1: Airport Runway Protection Zone

6 Mitigation of Long-Term Transportation Effects

Change	The following is a modification of and replaces Section 6.1—Mitigation of Traffic-Related Effects in Addendum 02
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6.1 Mitigation of Traffic-Related Effects

Park-and-ride, kiss-and-ride, and feeder bus activity will affect traffic at six intersections near the East Kapolei, UH West O‘ahu, Pearl Highlands, and Ala Moana Station areas. Table A2-2 shows traffic conditions with the planned mitigation measures. Planned mitigation measures are as follows:

- North-South Road and East-West Connector Road (East Kapolei Station)—widening the northbound (or mauka-bound) direction of North-South Road to provide dual left-turn lanes, three through lanes, and one right-turn lane. The length of the dual left-turn lanes is a minimum of 210 feet.
- North-South Road and Future Road B (UH West O‘ahu Station)—widening the westbound (or Waianae-bound) direction of Road B to provide two left-turn lanes, one through lane, and one right-turn lane. The length of the dual left-turn lanes is a minimum of 240 feet.
- Kamehameha Highway at Waihona Street (Pearl Highlands Station)—widening the north leg (southbound approach) of the Kamehameha Highway to have a separate right-turn and a combined through and left-turn lane (total of two southbound lanes into the intersection).
- Farrington Highway and Waiawa Road/Pearl Highlands Station park-and-ride driveway (Pearl Highlands Station)—installation of a new traffic signal that will be coordinated with adjacent signals at the Farrington Highway eastbound and Waiawa Road intersection.
- Kamehameha Highway and Kuala Street (Pearl Highlands Station)—signalizing ‘Ewa-bound Kamehameha Highway at Kuala Street and widening Koko Head-bound Kamehameha Highway from one to two lanes.
- Kona Street and Ke‘eaumoku Street (Ala Moana Center Station)—signalizing this intersection will reduce the delay at this location. Because of the proximity of this intersection to the signalized intersection at Kapi‘olani Boulevard and Ke‘eaumoku Street, the signals will be coordinated to enhance traffic flows and prevent additional effects at other locations.
- To minimize the effect on traffic and ensure safety during major events at Aloha Stadium, the City will coordinate with the Stadium Authority to provide staff and/or resources as needed to help manage the flow of pedestrians walking between Aloha Stadium and the station entrance.

- To mitigate for additional merging traffic on the H-2 northbound on-ramp at Kamehameha Highway, the City will restripe the section of H-2 near the ramp merge area to provide a parallel merge lane that will continue for approximately 500 feet across an existing bridge.

Table A2-2: Mitigation Effects on Traffic near Project Stations with Park-and-Ride Facilities and Bus Transit Centers

Station	Intersection		Control*	Peak Hour	2007 Existing Conditions		2030 No Build Alternative		2030 The Project		With Mitigation ¹		
					Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	
East Kapolei	North-South Road	&	East-West Road ²	S	A.M.	N/A	N/A	34	C	46	D	41	D
					P.M.	N/A	N/A	36	D	61	E	38	D
UH West Oahu	North-South Road	&	Road B ³	S	A.M.	N/A	N/A	55	D	74	E	54	D
					P.M.	N/A	N/A	45	D	46	D	46	D
Pearl Highlands	Kamehameha Highway	&	Waihona Street/Pearl Highlands Station Park-and-Ride Driveway ⁴	TWSC/S ₅	P.M.	>400	F	122	F	217	F	111	F
Pearl Highlands	Kamehameha Highway	&	Kuala Street	TWSC	A.M.	70	F	75	F	>400	F	13	B
					P.M.	>400	F	>400	F	>400	F	251	F
Pearl Highlands	Farrington Highway	&	Waiawa Street/Pearl Highlands Station Park-and-Ride Driveway ⁶	TWSC	A.M.	30	D	76	F	>400	F	34	C
					P.M.	29	D	30	D	>400	F	34	C
Ala Moana Center	Kona Street	&	Ke'eaumoku Street	AWSC	A.M.	7	A	185	F	317	F	117	F
					P.M.	13	B	255	F	487	F	250	F

*S = Signal Control TWSC = Two-Way Stop-Controlled AWSC = All Way Stop Controlled sec = seconds N/A = road does not exist in 2007

¹ Mitigation measures are discussed in Section 3.4.6

² Future 2030 lane configuration without mitigation assumed for North-South Road at East-West Connector Road: NB: one left-turn lane, three through lanes, one right-turn lane; SB: one left-turn lane, three through lanes, one right-turn lane; EB: one left-turn lane, one through lane, one right-turn lane; WB: two left-turn lanes, one through lane, one right-turn lane.

³ Future 2030 lane configuration without mitigation assumed for North-South Road at Road B: NB: single left-turn lane, three through lanes, single right turn lane; Southbound: dual left-turn lanes, three through lanes, single right-turn lane; Westbound: single left-turn lane, one through lane, dual right-turn lanes; EB: single left turn lane, one through lane, single right-turn lane.

⁴ With the Project, lane configuration without mitigation assumed for park-and-ride driveway: dual left-turn lane, single through lane, single right-turn lane.

⁵ In 2007, Waihona Street currently provides a single left-turn lane and a right-turn lane and is controlled by stop signs. Traffic on Kamehameha Highway is currently uncontrolled. Under future 2030 conditions, the T-intersection of Waihona Street & Kamehameha Highway is assumed to be signalized, both without and with the Project. It is also assumed future planned Central Mauka Road will provide a direct connection to Kamehameha Highway eastbound through a grade-separation project rather than a direct connection to the intersection of Waihona Street & Kamehameha Highway.

⁶ With the Project, this park-and-ride driveway will be limited to right-in and right-out access only.

Change	The following is a modification of and replaces Section 6.2—Mitigation of Parking-Related Effects in Addendum 02
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6.2 Mitigation of Parking-related Effects

6.2.1 Removal of Off-street Parking

Approximately 690 private, off-street parking spaces will be removed to accommodate right-of-way needed along the 20-mile length of the corridor. Acquisition will be in accordance with the requirements of the U.S. *Uniform Relocation Assistance and Real Property Acquisition Policies Act*. All landowners will be paid fair-market value for the land, including the value of the parking spaces. The City does not plan to generally replace all private, off-street parking purchased and removed for construction of the Project. However, the City will work with landowners to replace parking as appropriate. As stated in Table 5-54, all displaced parking spaces at Leeward Community College will be relocated on the Leeward Community College campus. The City will coordinate with the college during final design to relocate parking. Additionally, all displaced parking spaces at Ke'ehi Lagoon Beach Park will be relocated within the park. No other mitigation is planned.

6.2.2 On-street Parking

Based on the results of the parking utilization surveys, parking is generally available within one block to accommodate people currently using the 173 on-street parking spaces that will be removed by the Project. As a result, these on-street parking spaces will generally not be replaced by the City. However, some new on-street parking spaces will be created by construction of the Project in the same approximate locations as the streets are rebuilt after construction. The number and location of new parking spaces to be created by construction of the Project will depend on the final configuration of the guideway and station footprints. New parking spaces will be designated as short-term, long-term, or loading zones, depending on the need, as determined by the City.

6.2.3 Spillover Parking

The approach to mitigating the effects of spillover parking will be unique to each station area. The City will conduct surveys to determine the extent of spillover parking demand near stations and implement one or more mitigation strategies as needed. Strategies include, but are not limited to, the following:

- Parking restrictions (where parked cars cause safety or congestion problems)
- Parking regulation (e.g., meters, time limits, or other methods to encourage turnover)
- Permit parking (e.g., resident or employee parking)

- Shared parking arrangements (at locations where parking is available but dedicated to another purpose, such as retail centers, office uses, or places of worship)

The specific mitigation strategies and the schedule for implementation will be determined as the stations are opened. Parking surveys will be conducted prior to starting construction of a station, and again within six months after opening of the station. Results of the surveys will be used to determine the appropriate mitigation strategy, which will be selected by the City and implemented as soon as feasible. Follow-up surveys will be conducted by the City to determine if the mitigation strategies are effective. Additional mitigation measures will be implemented by the City as needed.

6.2.4 Loading Zones

The freight loading zone on Ka'aahi Street will be removed by the City when construction begins in the area, and a temporary freight loading zone will be established nearby for the duration of construction. A new permanent loading zone will be installed once construction is complete. The passenger loading zone on Halekauwila Street near South Street will be removed as construction begins in the area, but a temporary loading zone will be installed nearby for the duration of construction. A new passenger loading zone will be installed in the same general location when the Project is completed. The passenger loading zone on Halekauwila Street near Kamani Street will be relocated to a new permanent location during construction to ensure safe access to the daycare facility. This new passenger loading zone will be nearby on Ilaniwai Street from Cooke Street to Kamani Street. Some of the existing on-street parking on Ilaniwai Street will be converted to passenger loading zones during the a.m. and p.m. peak periods to accommodate the lost passenger loading zone on Halekauwila Street near Kamani Street.

Change The following is a modification of and is added to the end of
Section 7.2—Construction-Related Effects on Transit Service

The Project will be constructed in the following four phases and opened as each phase is completed:

- East Kapolei to Pearl Highlands (rail service in this phase will be opened in three parts as stations are completed)
- Pearl Highlands to Aloha Stadium
- Aloha Stadium to Middle Street
- Middle Street to Ala Moana Center

This phased opening approach will require interim changes to bus transit service to complement the fixed guideway service. The operating time periods and headways provided by the rail service affects the degree to which bus services will be modified to complement the Project. Bus service modifications will be additive from one opening segment to the next, except as noted in each phase description (provided below). Phased openings will also affect the number of buses traveling to stations and the associated traffic and pedestrian effects from that bus service. Additionally, rail service levels will be adjusted to match ridership demand during the phased openings.

The identified phased openings and corresponding transit service changes are described as follows. An adjustment in the service hours described below may be needed for cut-over work to extend the rail line to the next phase. Additional information regarding bus routes during phased openings is provided in Appendix H of this Addendum.

Phase 1a: Waipahu to Leeward Community College

Three stations will be open for Phase 1a rail service—West Loch, Waipahu Transit Center, and Leeward Community College. Rail service will be provided during the midday on Saturdays and Sundays only.

Routes operating westbound on the H-1 Freeway during the PM period will utilize the new contraflow lane between Radford Drive and the Waiawa Interchange. Route 41 will be modified to operate along North-South Road providing access for ‘Ewa and Kapolei residents to the UH West O‘ahu Campus. Route 418 will be added to provide connections via Kapolei Parkway between ‘Ewa neighborhoods and Kapolei.

Phase 1b: East Kapolei to Leeward Community College

Three stations will be added to those identified in Phase 1a—East Kapolei, UH West O‘ahu, and Ho‘opili. Rail service will be provided during the weekdays with 15-minute headways between the hours of 8 a.m. and 6 p.m. Bus service in Kapolei will include a modification to Route 418 to connect to the East Kapolei Station, and

Route C will provide service to the East Kapolei and UH West O'ahu Stations serving the North-South Road accessing the H-1 Freeway from the North-South Road Interchange.

Phase 1c: East Kapolei to Pearl Highlands

Phase 1c rail service adds the Pearl Highlands Station operating on weekdays with 15-minute headways between the hours of 8 a.m. and 6 p.m. Bus service changes will include the implementation of two new routes in Kapolei taking advantage of new roadway connections. Route 416 will provide new service for Ko 'Olina and West Kapolei connecting to the Kapolei Transit Center. Route 417 operating on the Makakilo Drive extension will provide direct access for Makakilo residents to the UH West O'ahu and East Kapolei Stations continuing to the Kapolei Transit Center.

New Route 50 will operate between Mililani Transit Center and the Waipahu Transit Center and Station. Other Central O'ahu transit service changes will include the implementation of the Wahiawā route restructuring—current Routes 62 and 72 will be replaced with Routes 51, 511, 512, and 513 serving the Wahiawā Transit Center and nearby communities, including Whitmore Village and Schofield Barracks. CountryExpress! Route D will provide limited stop service connecting the Wahiawā Transit Center, Mililani, and Waipi'o transfer point at Ka 'Uka with Downtown Honolulu. New Route 441 will connect the Waiawa and Koa Ridge neighborhoods with the Pearl Highlands Station and businesses in Pearl City. Pearl City Route 73 will be reoriented to serve the Pearl Highlands Station, ceasing service to Leeward Community College.

Phase 2: East Kapolei to Aloha Stadium

The Pearlridge and Aloha Stadium Stations are added to the rail service in Phase 2. The operating periods are extended and will provide more frequent service. The line will operate on weekdays with 10-minute service between the hours of 6 a.m. and 10 a.m. and 4 p.m. and 8 p.m. and 20-minute midday service. Twenty-minute service will be provided on Saturdays and Sundays between the hours of 8 a.m. and 6 p.m.

Bus service changes will include truncating Routes A, 20, and 32 at Aloha Stadium. Route D will provide a stop at the Pearl Highlands Station, and Routes 44, 502, and 511 will offer more frequent service. The completion of the Project through the 'Aiea and Pearl City corridor will provide the opportunity to implement a restructuring of transit services in the area. Routes 54 and 71 will be replaced with a restructured Route 53 and Routes 543, 545, 546, and 548, all serving the Pearlridge Station. Thirty-minute peak and off-peak service will be provided on Routes 543, 545, and 546. Route 548 will offer more frequent service than the replaced Route 54 with 15-minute peak and 30-minute off-peak service. Route 53 will provide 20-minute peak and 30-minute off-peak service.

Phase 3: East Kapolei to Middle Street

Four stations will be added in Phase 3—Pearl Harbor Naval Base, Honolulu International Airport, Lagoon Drive, and Middle Street Transit Center. The operating periods and frequency of the line will be the same as in Phase 2. Bus service modifications will include more frequent peak period service (15-minute) on Route 41. Route 43 will be replaced by the rail service. More frequent peak-period service will be provided on Routes 501 and 502 in Mililani. Route D will be truncated at the Pearl Highlands Station and Routes 83 and 84 will provide 30-minute peak-period service to the Pearl Highlands Station.

Community-oriented bus services in the Salt Lake, Airport, and Kalihi areas will be restructured to feeder routes offering more frequent service and travel opportunities via timed connections at the Aloha Stadium and Middle Street Transit Centers. Routes PH1, PH2, PH3, and 16 will be replaced with Route 311, serving Moanalua, Salt Lake, and the Honolulu International Airport Station; Route 312, serving Pearl Harbor Naval Base; Route 313, serving Hickam Air Force Base; and Route 314, serving the Aloha Stadium Station. Routes 312, 313, and 314 will provide 15-minute peak and 30-minute off-peak service. Route 311 will provide 30-minute peak and 60-minute off-peak service. Route 20 will be replaced with more frequent service on Route 19, which will terminate at Honolulu International Airport and provide 15-minute peak and off-peak service.

Routes A and 9 will be truncated at the Middle Street Transit Center and Station. Routes A and 1 will provide more frequent service (10-minute peak and off-peak) from the Middle Street Transit Center. Kalihi Routes 7, 10, and 32 will be replaced with Route 301, serving Māpunapuna, Salt Lake, and Foster Village; Route 303, serving Kalihi Valley Homes; Route 304, serving ʻĀlewa Heights, Pauoa, and Palama; Route 305, serving Kalihi Valley and Kalihi Kai; and Route 306, serving Māpunapuna and Lagoon Drive. These five routes will all provide connections at the Middle Street Transit Center and Station.

Phase 4: East Kapolei to Ala Moana Center

The final construction phase occurs between Middle Street and Ala Moana Center and includes the following stations—Kalihi, Kapālama, Iwilei, Chinatown, Downtown, Civic Center, Kakaʻako, and Ala Moana Center. Rail service will operate on weekdays with 5-minute headways from 6 a.m. to 10 a.m. and 4 p.m. and 8 p.m. and with 15-minute headways from 10 a.m. to 4 p.m. Rail service will operate with 15-minute headways on Saturdays and Sundays between 8 a.m. and 6 p.m. Upon completion of this phase, bus service will be restructured.

Change The following is a modification of and replaces
Table 7-1—Bus Routes Affected by Construction

Table 7-1 Bus Routes Affected by Construction

Minor effects	Direct Effects
7, 10, 44, 74, 201, 202, PH1, PH2, PH3, PH4, PH5, PH6	5, 6, 8, 9, 11, 17, 18, 19, 20, 23, 31, 32, 40, 40A, 42, 43, 52, 53, 55, 56, 57, 57A, 62, 65, 71, 73, 88A, 434, A, C, E

Change The following is a modification of and replaces
Table 7-2—Potential Peak Period Temporary Lane Closures during Construction

**Table 7-2 Potential Peak Period Temporary Lane Closures During Construction—
 Airport Alternative**

Roadway Name	Cross Street From	Cross Street To	Number of Lanes	Number of Lanes to be Temporarily Closed ¹	
				Kapolei Bound	Koko Head Bound
Farrington Highway	Makamaka Place	Waipahu Depot Road	5	1	0
Kamehameha Highway	Acacia Road	Boathouse Entrance	6 ²	0	1
Kamehameha Highway	Salt Lake Boulevard	Center Drive	5 ²	1 ³	1
Salt Lake Boulevard	Kamehameha Highway		4	1	0
Kamehameha Highway	Radford Drive		5 ⁴	1	1
Nimitz Highway	Valkenburgh		3 ⁵	0	1
Ualena Street	Ohohia Street	Lagoon Drive	2	1	0
Waiwai Loop	Lagoon Drive	Curve	2	1	0
Kamehameha Highway	Middle Street	Laumaka Street	5	1	1
Dillingham Boulevard ⁶ and Kamehameha Highway	Laumaka Street	Ka'aahi Street	4	1	1
Dillingham Boulevard	Ka'aahi Street	King Street	5	0	1
Nimitz Highway	River Street	Fort Street	8	1	1
Ala Moana Boulevard	Bishop Street	Halekauwila Street	6	0	1
Halekauwila Street	Punchbowl Street	South Street	2	1	0
Halekauwila Street	Keawe Street	Ward Avenue	2	0	1
Kona Street	Pensacola Street	Pi'ikoi Street	2	1	0
Kona Street	Pi'ikoi Street	Ke'eaumoku Street	4	2	1

¹Additional closures could occur in short segments and/or during off-peak travel periods.

²Kamehameha Highway narrows to four lanes around the Moanalua Freeway Interchange.

³One Kapolei bound lane will be closed at Kamehameha Highway and Center Drive only

⁴One Town-bound lane will be closed to replace the left-turn lane. One 'Ewa-bound lane will be closed to replace the left-turn lane.

⁵The left-turn lane in the Town-bound direction will be closed and replaced with an option left-turn/through lane.

⁶Left turn lanes along Dillingham Boulevard will also be temporarily closed during construction.

Change The following is a modification of and replaces
Section 7.4—Construction-Related Effects on Parking

Approximately 230 on-street parking spaces will be temporarily affected by project construction. Table 7-3 identifies the locations where on-street parking will be temporarily unavailable at various points along the alignment. Parking spaces will be unavailable primarily during construction of foundations and columns, and spaces may not be lost all at once. On-street parking by construction workers will not be permitted near work sites. During the actual hours of work, only those vehicles absolutely necessary for construction shall be allowed within the safety zone or allowed to stop or park on the shoulder of the roadway with the approval of the City.

Because of the limited amount of parking available to residents and businesses in and around construction sites, construction workers will not be allowed to park their personal vehicles in the public right-of-way.

In addition, some off-street parking spaces will be temporarily unavailable during construction. This temporary effect will generally last three to six months. Contractors will need approval from business owners before private lots can be used for parking. Construction workers also will not use commercial parking facilities if doing so reduces available parking for customers or employees of that business. Contractors will need approval from business owners before private lots can be used for parking.

Add The following supplements and is added to the end of
**Section 7.7.1—Maintenance of Traffic Plan
Streets and Highways**

During construction of the Project, the City will minimize disruption to freight movement by limiting road and lane closures and timing work along busy freight routes to avoid conflicts with truck traffic. When construction reaches roadways frequented by heavy truck traffic, detour plans prepared as part of the Maintenance of Traffic (MOT) Plan will also account for truck traffic. Additionally, in areas with significant truck traffic, the City will work with businesses to maintain access to properties taking into account their particular vehicular needs.

In addition, Intelligent Transportation System (ITS) applications will be implemented to make travel through and around work zones safer and more efficient. Several ITS strategies will be used, including the following:

- Traveler Information—the collection, processing, and dissemination of traffic conditions, “event” information (e.g., construction, incidents), information on alternative travel modes and links to other traveler services.

Information is broadcast to motorists that are en route as well as through pre-trip options, such as web, phone, and media outlets.

- Arterial Traffic Management—modification of the signal system along some roadways will be needed in conjunction with implementation of planned detour routes.
- Incident Management—includes rapid identification of an incident, rapid response to secure the incident scene, and subsequent removal of associated vehicles from travel lanes and restoration of lane capacity.

As construction moves through a neighborhood, residents and businesses will be informed of the type and duration of construction activities and what provisions will be made to minimize disruption to daily activities. Additionally, an extensive public information program will be implemented to provide motorists with a thorough understanding of the location and duration of construction activities, as well as anticipated traffic conditions. ITS information regarding traveler information or incident management will be distributed both through daily and instant public involvement means. The project website will continue to be the primary information source for up-to-date project information. In addition, the project hotline and newsletter, local newspapers, radio and/or television spots, news releases, instant messaging lists, and flyers may be used to provide information to the public.

Change	The following is a modification of and replaces Section 7.7.1—Maintenance of Traffic Plan Transit
---------------	---

Transit

The MOT Plan will determine when and where changes in bus services could be needed and will include transportation demand management elements, as provided in the Transit Mitigation Program (TMP). Identification of potential changes to bus routes and service resulting from Project construction will be coordinated with TheBus. Changes in bus service could include improving frequencies on existing routes or adding new routes that circumvent specific construction areas. The City will make adjustments as needed to TheHandi-Van operations resulting from access limitations.

Change	The following is a modification of and replaces Section 7.7.1—Maintenance of Traffic Plan Parking
---------------	---

Parking

Where existing parking is disrupted by construction, signs will be posted directing people to nearby locations with available parking. The public will be kept aware of upcoming work locations, and information will be available on the project website

about parking disruptions and alternatives. The City will coordinate with property and business owners regarding the timing of construction and other issues to minimize disruption to off-street parking.

Loading Zones

Where passenger and freight loading zones are removed for construction, temporary loading zones will be established nearby. The public will be kept aware of upcoming work locations, and information will be available on the project website about loading zone disruptions and alternatives.

Change The following is a modification of and replaces
Section 7.8.4—Aloha Stadium to Middle Street (Airport)

7.8.3 Aloha Stadium to Middle Street

This part of the alignment will generally travel from Aloha Stadium along Kamehameha Highway to the H-1 Freeway and continue along makai of the Airport Viaduct to Aolele Street, transitioning to Ualena Street at an extension of Ohohia Street, which is approximately 2,000 feet 'Ewa of the Lagoon Drive Station, through Ke'ehi Lagoon Beach Park and continuing over Ke'ehi Interchange to Kamehameha Highway at Middle Street. Four station locations are proposed along this alignment.

Table 7-7 provides a summary of construction-related traffic effects for the rail alignment at key locations along this segment.

Change The following is a modification of and replaces
Table 7-7— Construction Related Effects on Aloha Stadium to Middle Street Segment (Airport)

Table 7-7: Construction-related Effects on Aloha Stadium to Middle Street Segment

Intersection/Roadway Segment	Column Placement	Effects
Kamehameha Highway and Salt Lake Boulevard ('Ewa)	Roadside	One left-turn lane onto Kamehameha Highway will be closed.
Salt Lake Boulevard and Kamehameha Highway (Diamond Head)	Roadside	The right-turn lane and one of two left-turn lanes onto Salt Lake Boulevard will be closed.
Kamehameha Highway and Kalaloa Street	Median	No impacts (a temporary left-turn lane will be created in the median to replace the closed left-turn onto Arizona Memorial Place).
Kamehameha Highway and Hālawā Drive/Arizona Street	Median/ Roadside	One eastbound lane on Kamehameha Highway will be closed.
Kamehameha Highway and Radford Drive/Makalapa Gate	Median	One eastbound and one westbound lane on Kamehameha Highway will be closed.
Kamehameha Highway and Center Drive	Median	One eastbound and one westbound lane on Kamehameha Highway will be closed.
Kamehameha Highway ramp to Nimitz Highway		One eastbound lane will be closed.
Nimitz Highway and Valkenburgh Street	Roadside	One eastbound lane on Nimitz Highway will be closed.
Nimitz Highway and Main Street	Roadside	This intersection will not be affected by construction.
Nimitz Highway and Elliott Street	Roadside	This intersection will not be affected by construction.
Aolele Street and Paiea Street	Roadside	Left-turn from terminal to car rentals will be closed.
Ualena Street from Ohohia Street to Lagoon Drive	Median	One Kapolei bound lane will be closed during construction.
Waiwai Loop from Lagoon Drive to curve	Median	One Kapolei bound lane will be closed during construction.

Add

The following is a supplement and is added as a new section to the Transportation Technical Report
Section 7.9—Construction-related Effects on Airport Facilities and Mitigation

7.9 Construction-related Effects on Airport Facilities and Mitigation

7.9.1 Construction-related Effects on Airport Facilities

Construction of the Project will have temporary effects on airport facilities and notification of any short-term obstructions (e.g., cranes and gantries) will be made to the appropriate parties. Temporary lane closures on Ualena Street and Waiwai Loop could cause short-term delays to trucking and deliveries at airport-related facilities. The economy surface parking lot will be closed during construction of the Honolulu International Airport Station, and other nearby roadways could be temporarily affected when support columns and guideway sections are transported and installed. Additionally, lei stand parking may be temporarily relocated during construction.

7.9.2 Mitigation Measures for Construction-related Effects on Airport Facilities

The City will continue to work with the airport to minimize disruption to travelers and businesses during construction of the guideway and stations. To the extent possible, all roadways will be kept open and access will be maintained. The economy parking lot will be completely closed during construction. Where existing parking is disrupted by construction, signs will be posted directing people to nearby locations with available parking. If the lei stand parking area needs to be relocated, signs will direct customers to the temporary parking area and from there to the lei stands.

8 Future Build Alternatives Plus Planned Extensions Conditions and Performance

No Change

References

Add The following are new references applicable to this Addendum

- CFR 1970 Code of Federal Regulations. 1970. 49 CFR 24. *Uniform relocation assistance and real property acquisition for federal and federally assisted programs* (Uniform Relocation Assistance and Real Properties Acquisition Policies Act).
- HDOT 1995 State of Hawai'i Department of Transportation. 1995. *Honolulu international airport layout plan*.
- HDOT 2009 State of Hawai'i Department of Transportation. 2009. *Honolulu international airport master plan update*.

Acronyms

Add The following are new acronyms applicable to this Addendum

- ALP Airport Layout Plan
- FAA Federal Aviation Administration
- USPS United States Postal Service

Appendix A **LOS Thresholds**

No Change

Appendix B **Feeder Bus Routes and Service Levels at Fixed Guideway Stations**

No Change

Appendix C
Screenline and LOS Worksheets

No Change

Appendix D
**A.M. Two-Hour Peak Period Transit Trips,
Origin-Destination Format**

No Change

Appendix E
Pearl Highlands HCS Analysis Results

No Change No change to Appendix E in Addendum 2

Appendix F
Operational and Safety Report

No Change No change to Appendix F in Addendum 2

Appendix G
**Honolulu International Airport Plan
and Airspace Evaluation**

Add Add new Appendix G in its entirety, attached

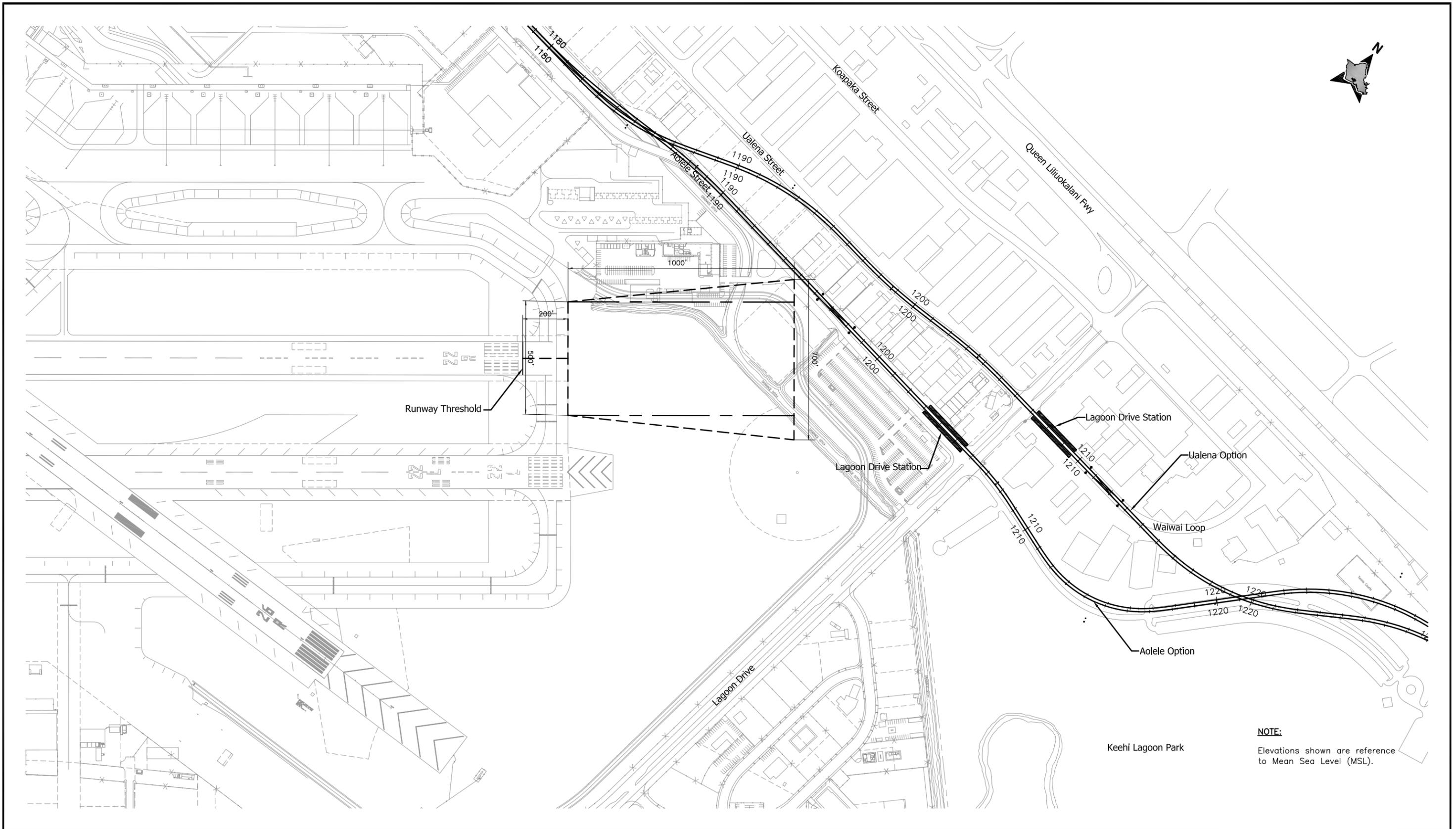
Appendix H
Bus Route Changes during Phased Openings

Add	Add new Appendix H in its entirety, attached
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Appendix G
***Honolulu International Airport Plan
and Airspace Evaluation***

This appendix contains information about Honolulu International Airport, including the Airport Layout Plan and drawings that support an airspace evaluation by showing how the Project meets FAA requirements, including the Runway Protection Zone and Approach and Transitional Surfaces. The following documents and reports are included:

- RPZ and Glideslope Drawings
- Draft Updated Airport Layout Plan (2010)
- FAA Evaluation of Airport Rail Transit Alignment Options



NOTE:
Elevations shown are reference to Mean Sea Level (MSL).



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HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

Scale:

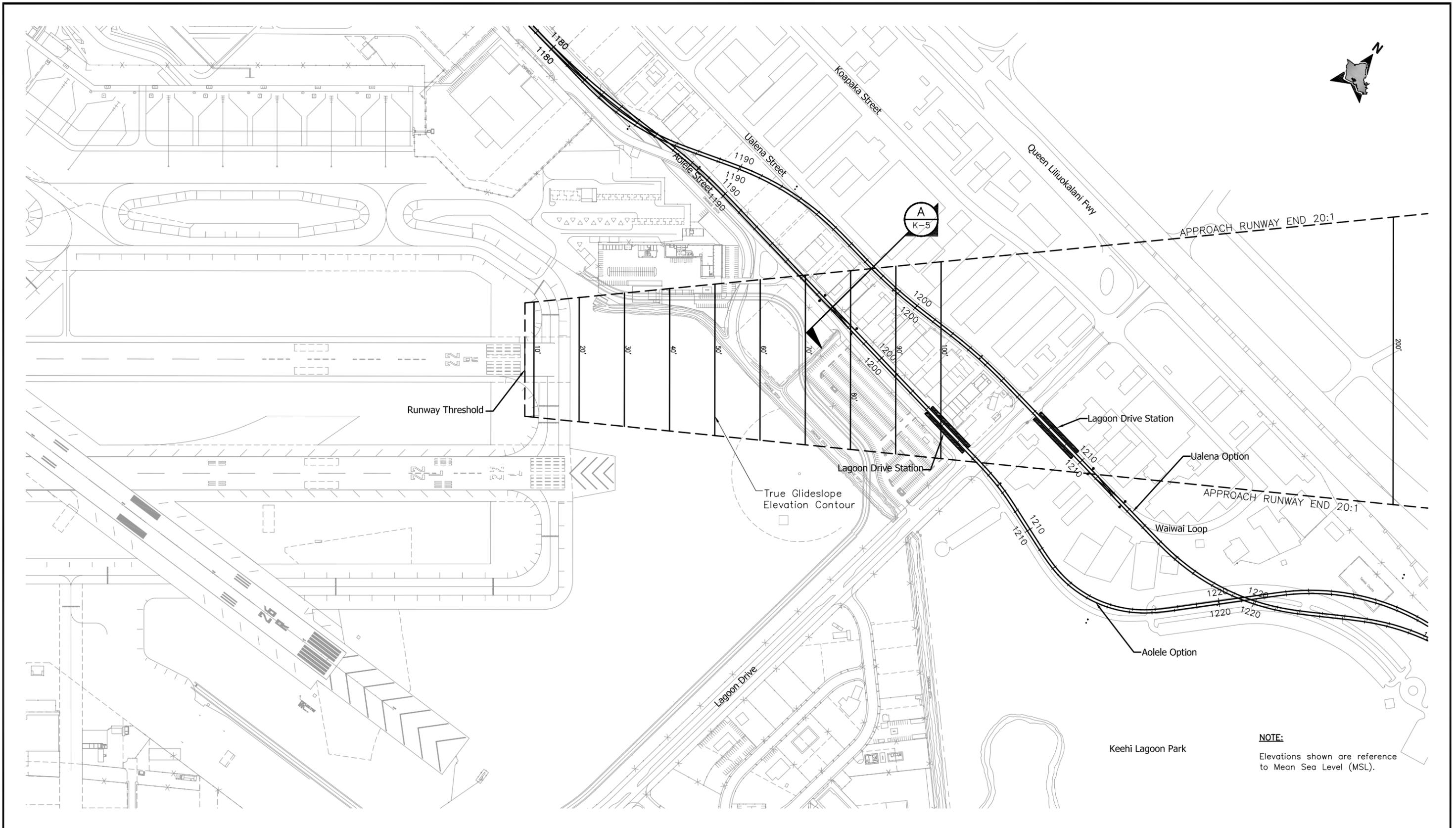


**RUNWAY PROTECTION ZONE PLAN
RUNWAY 22R**

Page No. 1 of 8

Drawing No. **K-1**

Date: 03/25/10



NOTE:
Elevations shown are reference to Mean Sea Level (MSL).



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HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

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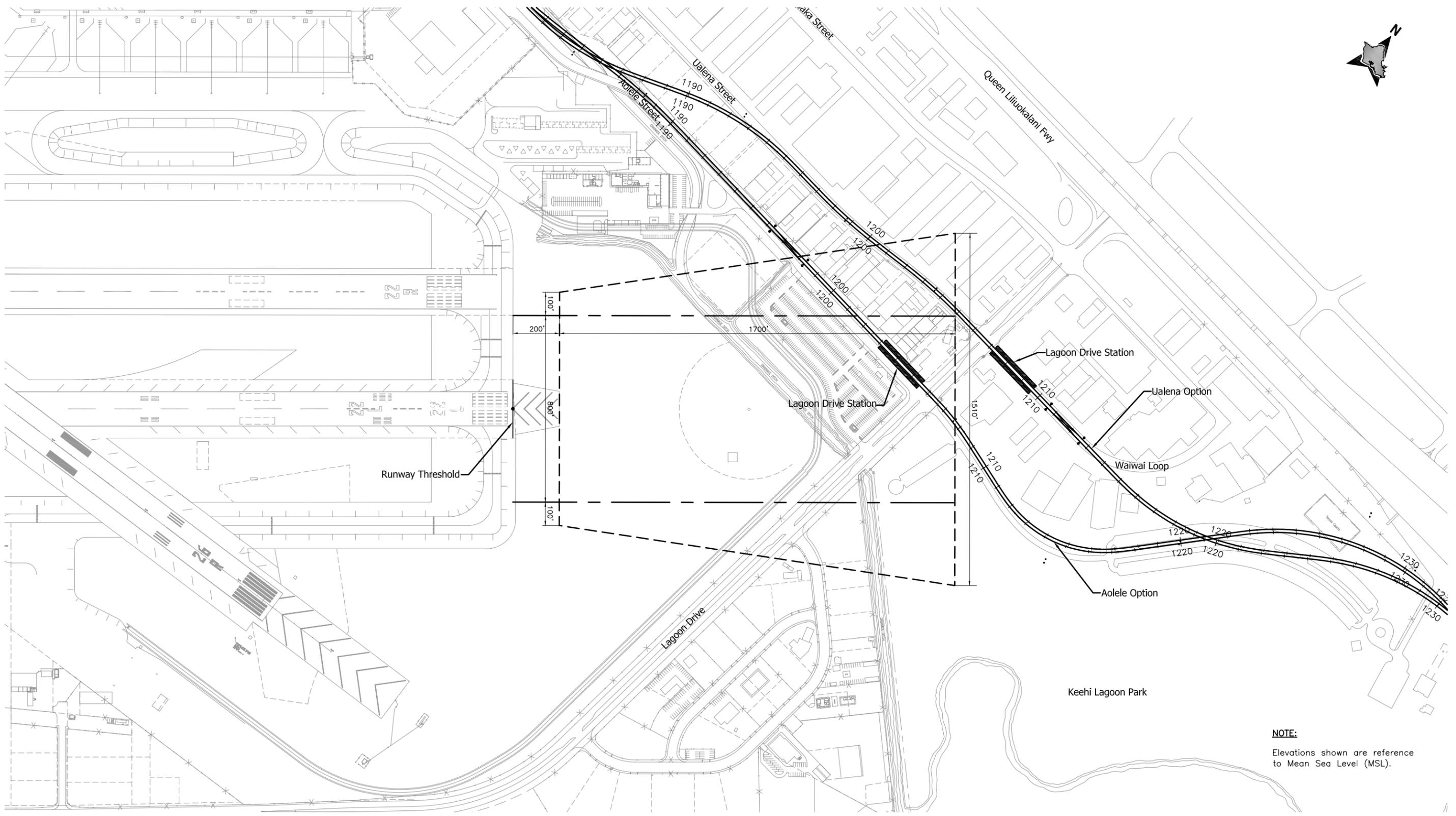
**GLIDESLOPE APPROACH PLAN
RUNWAY 22R**

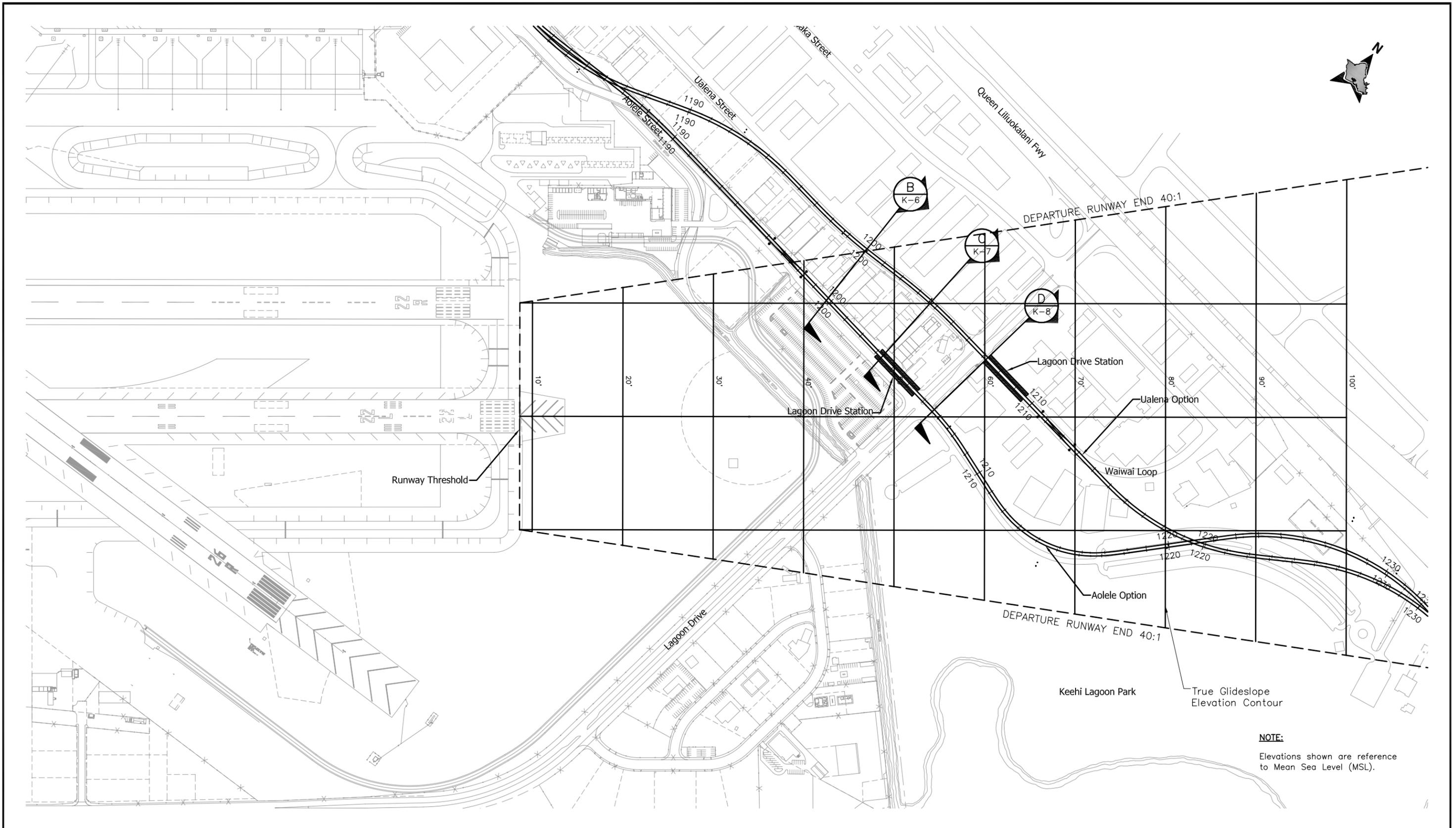
Page No. 2 of 8

Drawing No.

K-2

Date: 03/25/10



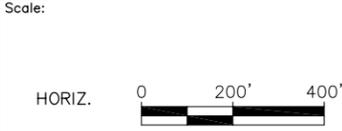


NOTE:
Elevations shown are reference to Mean Sea Level (MSL).



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RAPID TRANSIT DIVISION

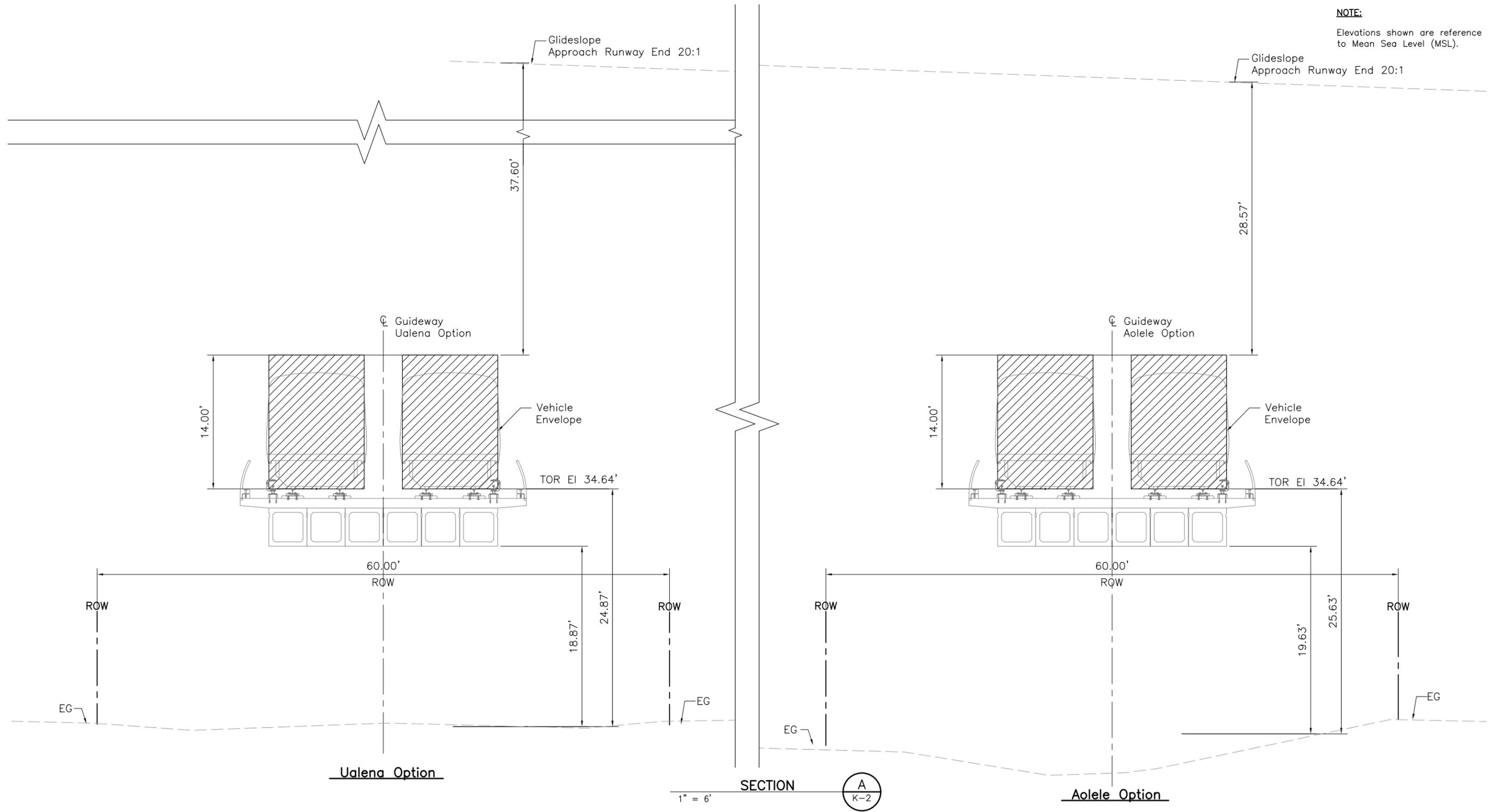
HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT



**GLIDESLOPE DEPARTURE PLAN
RUNWAY 22L**

Page No. 4 of 8
Drawing No. **K-4**
Date: 03/25/10

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RAPID TRANSIT DIVISION

HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

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**SECTIONS
GLIDESLOPE RUNWAY 22R**

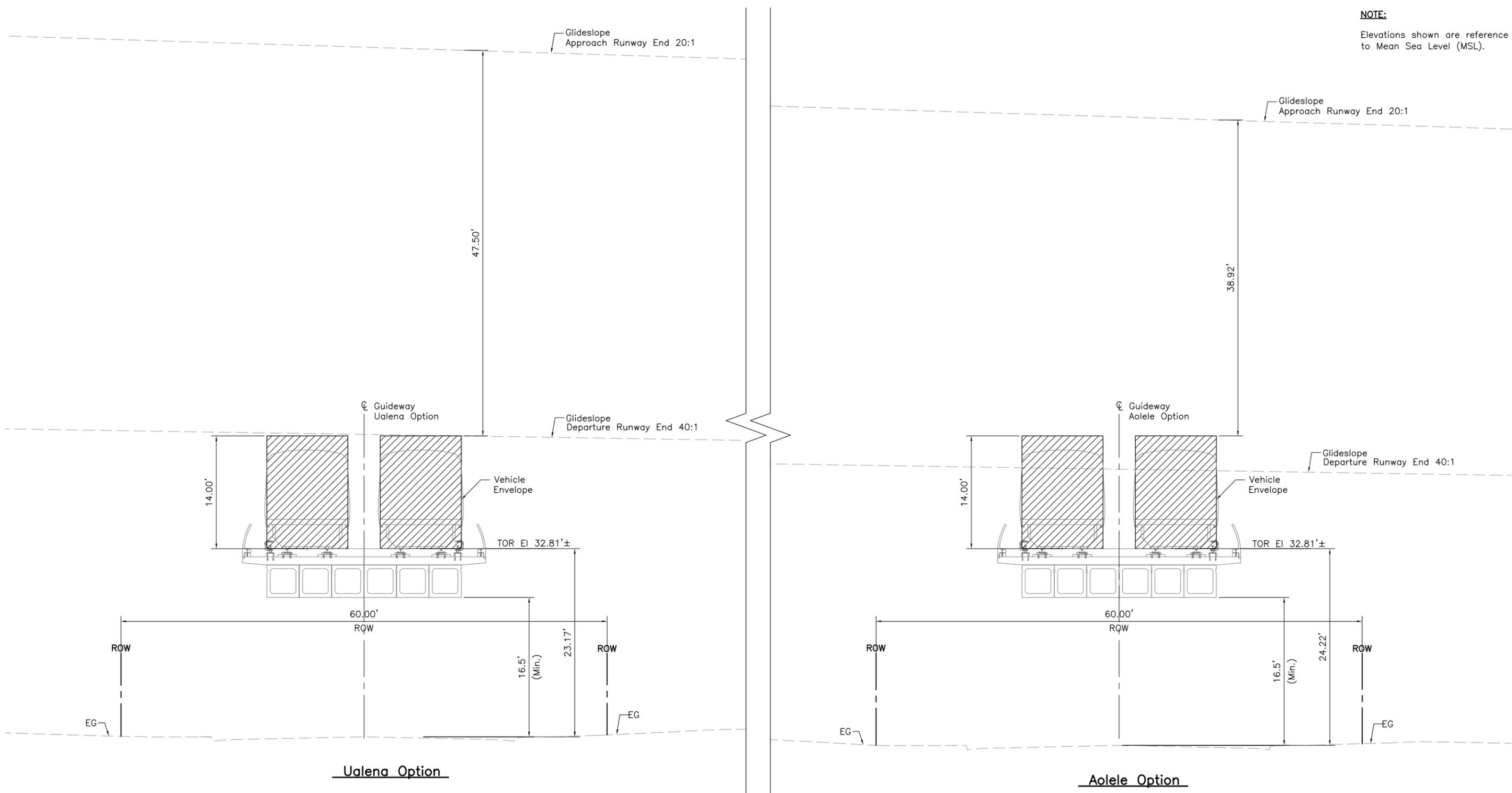
SHEET 1 OF 1

Page No. 5 of 8

Drawing No. **K-5**

Date: 03/25/10

NOTE:
Elevations shown are reference to Mean Sea Level (MSL).

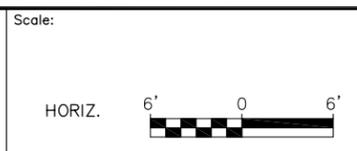


SECTION B
K-4
1" = 6'



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DEPARTMENT OF TRANSPORTATION SERVICES
RAPID TRANSIT DIVISION

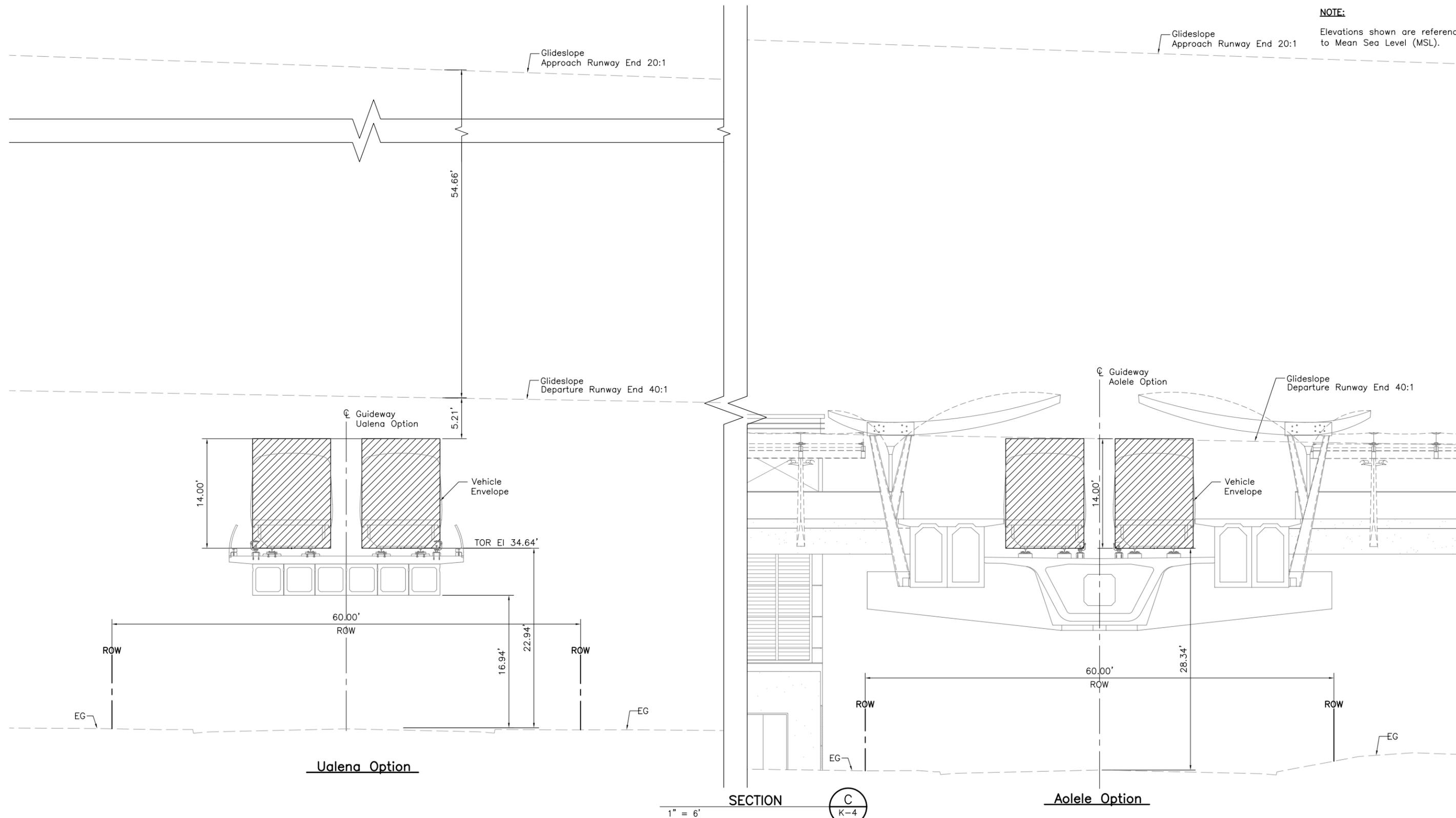
HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT



SECTIONS
GLIDESLOPE RUNWAY 22L
SHEET 1 OF 3

Page No.	6 of 8
Drawing No.	K-6
Date:	03/25/10

NOTE:
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HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT

Scale:



**SECTIONS
GLIDESLOPE RUNWAY 22L**

SHEET 2 OF 3

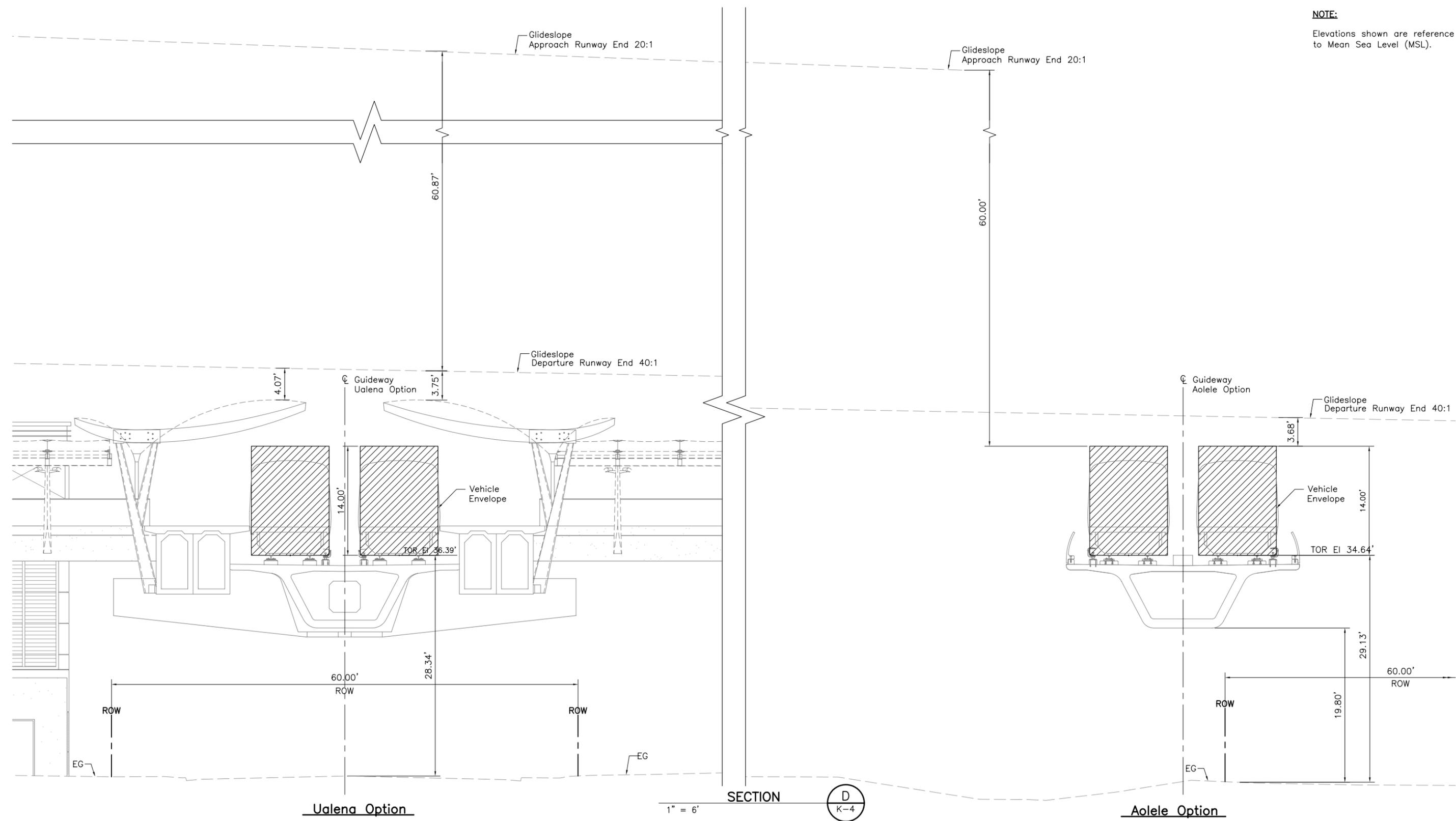
Page No. 7 of 8

Drawing No.

K-7

Date: 03/25/10

NOTE:
Elevations shown are reference to Mean Sea Level (MSL).



The proposed rail transit alignment is indicated on Sheet 4. The guideway alignment has been designed to avoid existing and planned airport improvements. Further mitigation may be required to address issues arising during refinement of the project design.



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HONOLULU INTERNATIONAL AIRPORT
LOCATION PLAN
NO SCALE

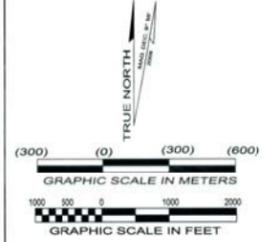
DSGN.	DRWN.	CHKD.	APPD.
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KEY PLAN / NOTES :



VICINITY MAP
NO SCALE

THE PREPARATION OF THIS EXHIBIT WAS FINANCED IN PART THROUGH AN AIRPORT IMPROVEMENT GRANT FROM THE FEDERAL AVIATION ADMINISTRATION UNDER THE PROVISIONS OF SECTION 535 OF THE AIRPORT AND AIRWAYS IMPROVEMENT ACT AS AMENDED BY THE AIRPORT AND AIRWAYS SAFETY EXPANSION ACT OF 1987.



- NOTES:
- COORDINATES AND AZIMUTHS REFERENCED TO NAD 83 (HARN)
 - AZIMUTHS TURNED CLOCKWISE FROM TRUE SOUTH
 - ELEVATIONS REFERENCED FROM MEAN SEA LEVEL
 - THE DRAWINGS IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION AND NAVIGATIONAL PURPOSES
 - THE MASTER IMAGE IS FROM HONOLULU, HI, AERIAL, IF IT IS A LOW RESOLUTION IMAGE OF THE HOOT, HONOLULU, HI, DATED 2007 AND IS USED FOR DISPLAY PURPOSES ONLY.

DRAFT

NO.	DATE	REVISIONS

DEPARTMENT OF TRANSPORTATION
STATE OF HAWAII

APPROVED: *H. S. ...*
DIRECTOR OF TRANSPORTATION DATE

PROJECT TITLE :
AIRPORT LAYOUT PLAN
HONOLULU INTERNATIONAL AIRPORT
HONOLULU, OAHU, HAWAII

PROJECT NO. :
AO1011-08

SHEET TITLE :
OVERALL AIRPORT LAYOUT

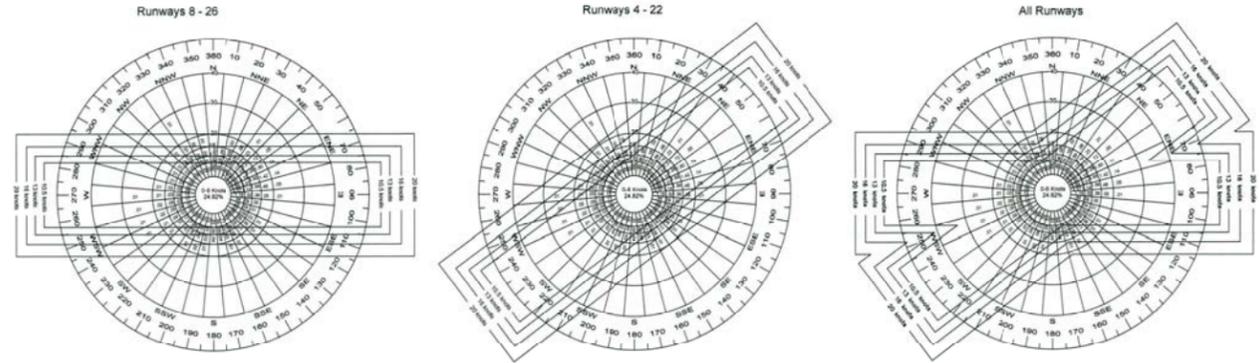
DATE : APRIL 20 2010	SHEET 1
DWG. NO. :	OF 14 SHEETS

SOURCE:
NOAA National Climatic Data Center
Honolulu International Airport(WBAN 22521) HNL/PHNL
Weather Observations: 114,801
Period of Observation 1998-2008

WIND ROSE

ALL WEATHER WIND COVERAGE

RUNWAY	10.5 KNOTS	13 KNOTS	16 KNOTS	20 KNOTS
4 - 22	98.31%	99.395%	99.91%	99.99%
8 - 26	95.615%	98.965%	99.86%	99.995%
Combined	99.151%	99.807%	99.852%	99.99%



LEGEND	AIRPORT DATA	
	EXISTING	ULTIMATE
AIRPORT PROPERTY LINE (APL)	---	---
BUILDING RESTRICTION LINE (BRL)	---	---
OBJECT FREE AREA (OFA)	---	---
EXTENDED RUNWAY SAFETY AREA (ERSA)	---	---
OBSTACLE FREE ZONE (OFZ)	---	---
OBSTACLE FREE LINE (OFL)	---	---
AIRPORT PAVEMENT	---	---
BUILDINGS (BLDG. NO.)	---	---
BUILDINGS TO BE REMOVED	---	---
FENCING	---	---
CONTOURS	---	---
HELIPADS	---	---
RUNWAY PROTECTION ZONE (RPZ)	---	---
WIND SOCKS	---	---
HOLD LINE	---	---

AIRPORT REFERENCE POINT (ARP)	LATITUDE	EXISTING	ULTIMATE
COORDINATES (NAD 83 - HARN)	LONGITUDE	21°18'19"N	21°19'19"N
AIRPORT ELEVATION (ABOVE MEAN SEA LEVEL)		13'	13'
AIRPORT REFERENCE CODE		D - VI	D - VI
MEAN MAXIMUM TEMPERATURE (HOTTEST MONTH)		85° F	85° F



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HONOLULU INTERNATIONAL AIRPORT
LOCATION PLAN
NO SCALE

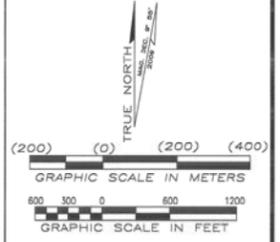
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KEY PLAN / NOTES :



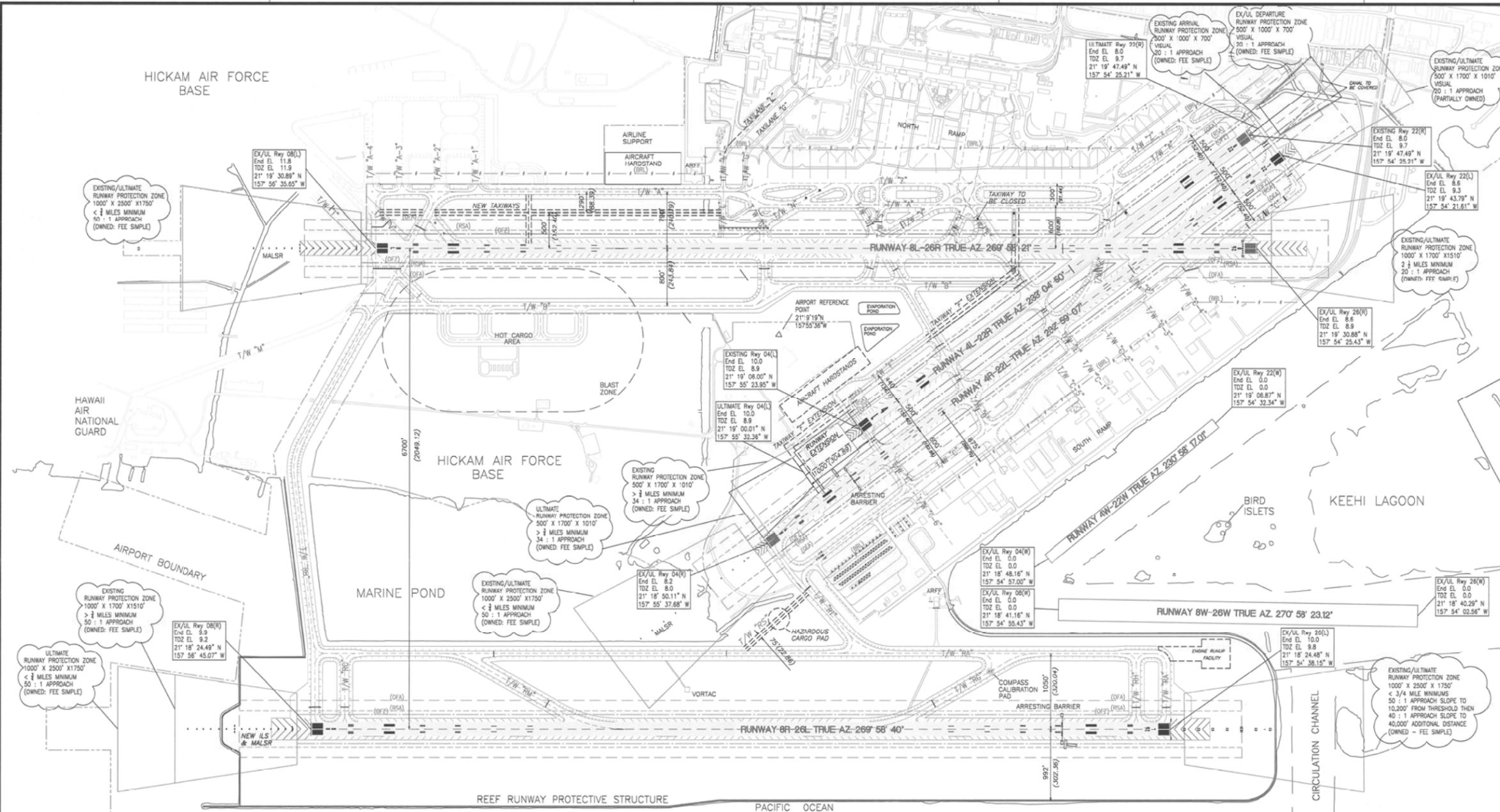
VICINITY MAP
NO SCALE

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- NOTES:
- COORDINATES AND AZIMUTHS REFERENCED TO NAD 83
 - AZIMUTHS TURNED CLOCKWISE FROM TRUE SOUTH
 - ELEVATIONS REFERENCED FROM MEAN SEA LEVEL
 - THE DRAWINGS IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION AND NAVIGATIONAL PURPOSES

DRAFT



RUNWAY IDENTIFIERS	EXISTING		ULTIMATE		EXISTING		ULTIMATE		EXISTING		ULTIMATE		EXISTING		ULTIMATE	
	08 L	26 R	08 L	26 R	08 R	26 L	04 L	22 R	04 R	22 L	04 R	22 L	08 W	26 W	04 W	22 W
CRITICAL AIRCRAFT	B747-400		B747-400		B 747-400 / C-5A		A330		B737-900		B747-400		C208		DHC-6	
APPROACH CATEGORY - DESIGN GROUP	D - V		D - V		D - V / C - V		D - V		D - V		D - V		A - B		A - B	
WINGSPAN (FT)	213.0		213.0		213.0 / 222.7		177.4		170.3		213.0		52.1		52.1	
UNDERCARRIAGE WIDTH (FT)	36.1		36.1		N/A		26.6		18.8		36.1		11.7		11.7	
APPROACH SPEED (KNOTS)	157		157		135		155		141		157		80		80	
MTOW (LBS)	910,000		910,000		837,000		1,240,000		187,700		910,000		NONE		NONE	
RUNWAY LENGTH (FT) X WIDTH (FT)	12,300 X 150		12,300 X 150		12,000 X 200		12,000 X 200		6,952 X 150		9,000 X 150		5,000 X 300		3,000 X 150	
EFFECTIVE GRADIENT (%) - LONGITUDINAL	0.032		0.032		0.01		0.01		0.039		0.017		0.00		0.00	
MAXIMUM GRADIENT (%) - LONGITUDINAL	0.30		0.30		0.15		0.15		0.21		0.43		0.00		0.00	
WIND COVERAGE (%)	98.04		98.04		98.04		98.17		98.17		98.17		96.04		96.04	
RUNWAY END COORDINATES - LATITUDE (N)	21° 19' 30.88"		21° 19' 30.88"		21° 18' 24.48"		21° 18' 24.48"		21° 19' 06.07"		21° 19' 47.49"		21° 18' 41.16"		21° 18' 40.29"	
RUNWAY END COORDINATES - LONGITUDE (W)	157° 56' 35.65"		157° 54' 25.43"		157° 56' 45.07"		157° 54' 38.15"		157° 55' 23.95"		157° 54' 25.21"		157° 54' 55.43"		157° 54' 32.34"	
(NAD 83 - HARN)																
RUNWAY ELEVATIONS - END	11.8		8.6		9.9		10.0		10.0		8.0		8.6		8.6	
TOUCHDOWN ZONE	11.9		8.9		9.2		9.8		9.2		9.7		8.0		9.3	
HIGHPOINT	12.1		12.1		10.0		10.5		10.5		9.3		0.0		0.0	
LOWPOINT	8.2		8.2		9.1		9.1		7.8		7.8		0.0		0.0	
LINE OF SIGHT REQUIREMENT MET	YES		YES		YES		YES		YES		YES		YES		YES	
RUNWAY SURFACE TYPE	ASPHALT - GROOVED		ASPHALT - GROOVED		ASPHALT - GROOVED		ASPHALT - GROOVED		ASPHALT - GROOVED		ASPHALT - GROOVED		WATER DEPTH 9 FT - 50 FT		WATER DEPTH 50 FT	
PAVEMENT STRENGTH	100(S)/200(O)/400(O)/780(O)		100(S)/200(O)/400(O)/780(O)		80(S)/170(O)/400(O)/780(O)		80(S)/170(O)/400(O)/780(O)		100(S)/200(O)/400(O)/850(O)		100(S)/200(O)/400(O)/850(O)		NONE		NONE	
APPROACH VISIBILITY MINIMUMS	< 3/4 MILE		< 3/4 MILE		> 3/4 MILE		> 3/4 MILE		> 3/4 MILE		> 3/4 MILE		NONE		NONE	
RSA LENGTH BEYOND RUNWAY END (FT)	1,000		1,000		1,000		1,000		1,000		1,000		1,000		1,000	
WIDTH (FT)	500		500		500		500		500		500		500		500	
OFA LENGTH BEYOND RUNWAY END (FT)	1,000		1,000		1,000		1,000		1,000		1,000		1,000		1,000	
WIDTH (FT)	800		800		800		800		800		800		800		800	
OFZ LENGTH BEYOND RUNWAY END (FT)	200		200		200		200		200		200		200		200	
WIDTH (FT)	400		400		400		400		400		400		400		400	
TAKEOFF DISTANCE AVAILABLE (TODA)	12,300		12,300		12,000		12,000		12,000		9,000		9,000		9,000	
TAKEOFF RUN AVAILABLE (TORA)	12,300		12,300		12,000		12,000		12,000		9,000		9,000		9,000	
ACCELERATE-STOP DISTANCE AVAILABLE (ASDA)	12,300		12,300		12,000		12,000		12,000		9,000		9,000		9,000	
LANDING DISTANCE AVAILABLE (LDA)	12,300		12,300		12,000		12,000		12,000		9,000		9,000		9,000	
HOLD SHORT DISTANCES	9,600		NONE		NONE		NONE		NONE		NONE		NONE		NONE	
DIST TO HOLDBARS / SIGNS FROM CENTERLINE	280		280		280		280		280		280		280		280	
FAR PART 77 CAT.	PIR		PIR		C		C		PIR		PIR		PIR		PIR	
APPROACH SLOPE	50 : 1		20 : 1		34 : 1		50 : 1		34 : 1		50 : 1		20 : 1		20 : 1	
APPROACH / RUNWAY LIGHTING	MALSR / HIRL		REIL / HIRL		MALSR / HIRL		REIL / HIRL		MALSR / HIRL		REIL / HIRL		MALSR / HIRL		REIL / HIRL	
RUNWAY MARKING	PRECISION		PRECISION		PRECISION		NON-PRECISION		PRECISION		NON-PRECISION		PRECISION		NON-PRECISION	
NAVIGATIONAL AIDS	ILS / GPS		NONE		ILS / GPS		GPS		NONE		ILS / GPS		NONE		NONE	
VISUAL AIDS	VASI 6		VASI 6		VASI 6		PAPI 4		NONE		VASI 4		NONE		NONE	
STD. SEPARATION RWY C-L TO TWY C-L	500		500		1,000		1,000		500		500		500		500	
STD SEP. RWY C-L TO FIXED/MOVABLE OBJ	400		400		400		400		400		400		400		400	
TAXIWAY OFA WIDTH (FT)	320		320		386		386		320		320		320		320	
SAFETY AREA WIDTH (FT)	214		214		262		262		214		214		214		214	
WINGTIP CLEARANCE (FT)	53		53		62		62		53		53		53		53	
SURFACE TYPE	ASPHALT		ASPHALT		ASPHALT		ASPHALT		ASPHALT		ASPHALT		ASPHALT		ASPHALT	

NO. DATE REVISIONS

DEPARTMENT OF TRANSPORTATION
STATE OF HAWAII

APPROVED: *[Signature]* 4-20-10
DIRECTOR OF TRANSPORTATION DATE

PROJECT TITLE :
AIRPORT LAYOUT PLAN
AT
HONOLULU INTERNATIONAL AIRPORT
HONOLULU, OAHU, HAWAII

PROJECT NO. :
AO1011-08

SHEET TITLE :
AIRFIELD PLAN

DATE :
APRIL 20 2010

DWG. NO. :
2
OF 14 SHEETS



Airports Division
Department of Transportation
State of Hawaii



LOCATION PLAN
NO SCALE

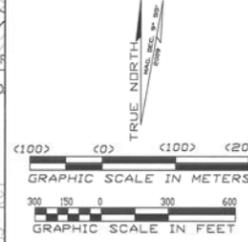
DSGN.	DRWN.	CHKD.	APPD.

KEY PLAN / NOTES :



VICINITY MAP
NO SCALE

THE PREPARATION OF THIS EXHIBIT WAS FINANCED IN PART THROUGH AN AIRPORT IMPROVEMENT GRANT FROM THE FEDERAL AVIATION ADMINISTRATION UNDER THE PROVISIONS OF SECTION 505 OF THE AIRPORT AND AIRWAYS IMPROVEMENT ACT AS AMENDED BY THE AIRPORT AND AIRWAYS SAFETY EXPANSION ACT OF 1987.



- NOTES:
1. COORDINATES AND AZIMUTHS REFERENCED TO NAD 83
 2. AZIMUTHS TURNED CLOCKWISE FROM TRUE SOUTH
 3. ELEVATIONS REFERENCED FROM MEAN SEA LEVEL
 4. THE DRAWINGS IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION AND NAVIGATIONAL PURPOSES

DRAFT

NO.	DATE	REVISIONS

DEPARTMENT OF TRANSPORTATION
STATE OF HAWAII

APPROVED:
M. H. Sullivan 4-21-10
DIRECTOR OF TRANSPORTATION DATE

PROJECT TITLE :

AIRPORT LAYOUT PLAN
AT
HONOLULU INTERNATIONAL AIRPORT
HONOLULU, OAHU, HAWAII

PROJECT NO. :

AO1011-08

SHEET TITLE :

AIRPORT PLAN
1 OF 5
NORTHWEST

DATE :

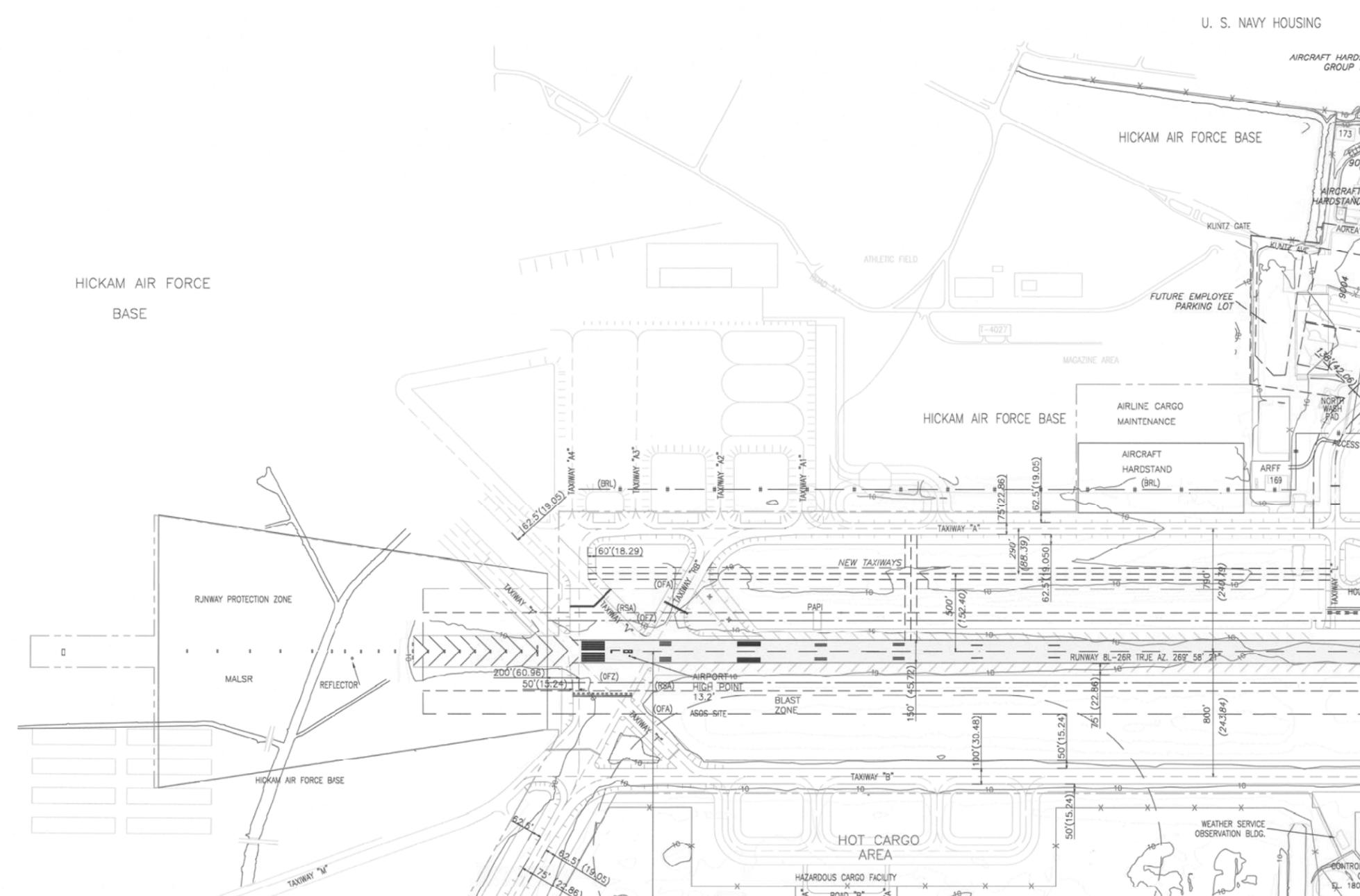
APRIL 20 2010

DWG. NO. :

SHEET

3

OF 14 SHEETS



BLDG NO.	USE
169	ARRF (CFR) STATION #1
173	

HICKAM AIR FORCE
BASE

U. S. NAVY HOUSING

HICKAM AIR FORCE BASE

HICKAM AIR FORCE BASE

RUNWAY PROTECTION ZONE

MALSR

HICKAM AIR FORCE BASE

HOT CARGO AREA

HAZARDOUS CARGO FACILITY

WEATHER SERVICE
OBSERVATION BLDG.

CONTROL TOWER
CL. 180.44



Airports Division
Department of Transportation
State of Hawaii



LOCATION PLAN
NO SCALE

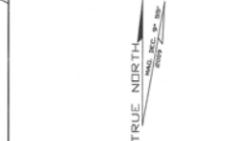
DSGN. DRWN. CHKD. APPD.

KEY PLAN / NOTES :



VICINITY MAP
NO SCALE

THE PREPARATION OF THIS EXHIBIT WAS FINANCED IN PART THROUGH AN AIRPORT IMPROVEMENT GRANT FROM THE FEDERAL AVIATION ADMINISTRATION UNDER THE PROVISIONS OF SECTION 505 OF THE AIRPORT AND AIRWAYS IMPROVEMENT ACT AS AMENDED BY THE AIRPORT AND AIRWAYS SAFETY EXPANSION ACT OF 1987.



GRAPHIC SCALE IN METERS

GRAPHIC SCALE IN FEET

- NOTES
- COORDINATES AND AZIMUTHS REFERENCED TO NAD 83
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 - THE DRAWING IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION AND NAVIGATIONAL PURPOSES

DRAFT

NO. DATE REVISIONS

DEPARTMENT OF TRANSPORTATION
STATE OF HAWAII

APPROVED: *M. H. S.* 4-21-10
DIRECTOR OF TRANSPORTATION DATE

PROJECT TITLE :

AIRPORT LAYOUT PLAN
AT
HONOLULU INTERNATIONAL AIRPORT
HONOLULU, OAHU, HAWAII

PROJECT NO. :

AO1011-08

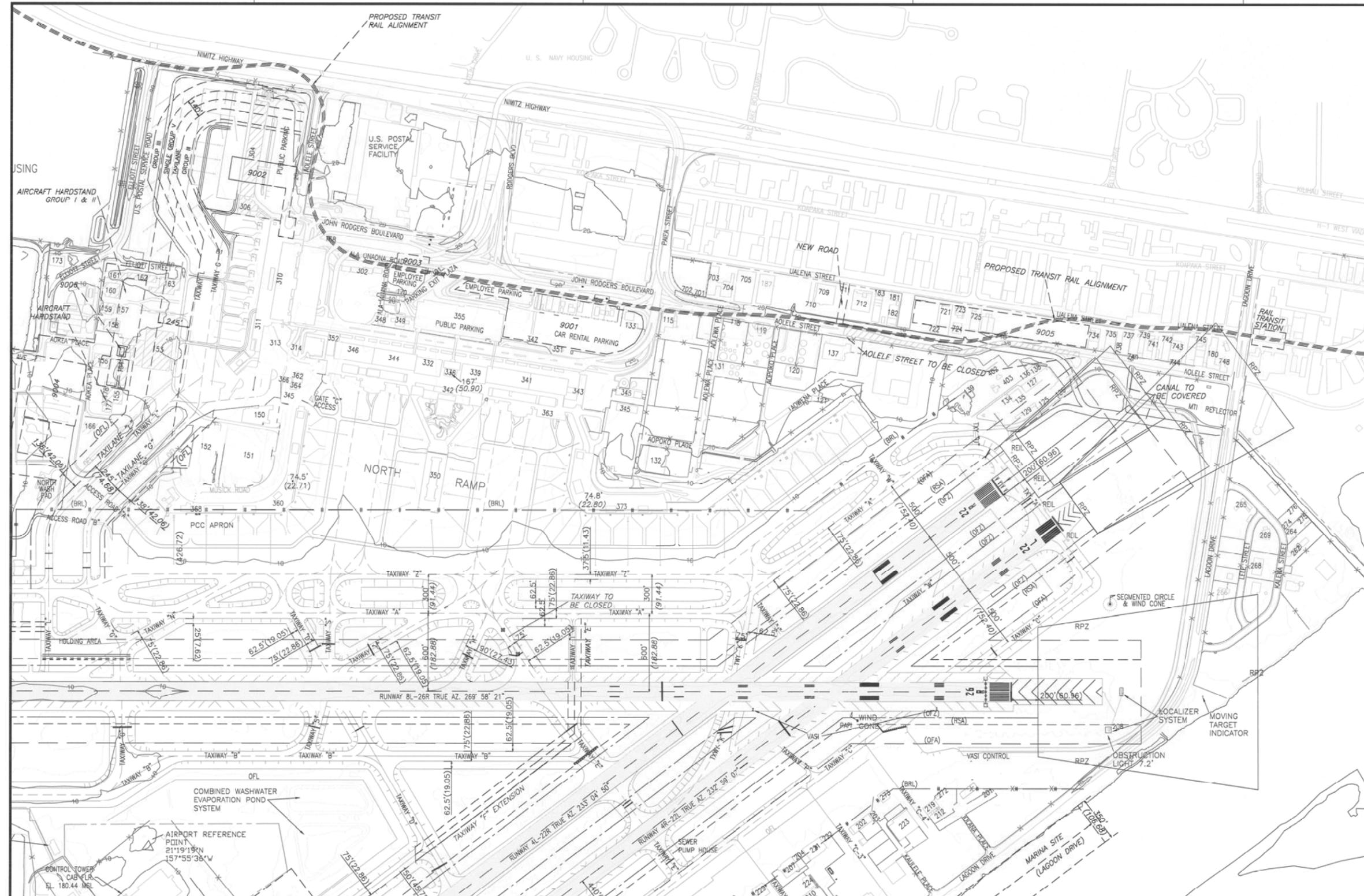
SHEET TITLE :

AIRPORT PLAN
2 OF 5
NORTHEAST

DATE : **APRIL 20 2010**

DWG. NO. :

SHEET **4**
OF 14 SHEETS



BLDG NO.	USE	BLDG NO.	USE	BLDG NO.	USE	BLDG NO.	USE	BLDG NO.	USE
115	Enterprise Rent A Car	155	Aloha Air Cargo	207	Century Aviation	310	Inter-Island Terminal	399	Office Bldg 2 stories (Auto Shop)
118	Hawaii Fueling Facilities Corporation	156		208	FAA Localizer	311	Inter-Island Terminal Extension	397	KW Auto Body Warehouse & Workshop
119	Office Building	157		212		312	Ewa Concourse Extension	398	Store and Warehouse
120		158		213	NCA/DCI Accessory Repair, Waikali Air & Trans Air	313	Diamond Head Concourse	399	Warehouse & Shop
121		159		214	Emery Air, Bradley Air, Pacific Air, FAX Cargo Svc.	314		740	Warehouse
122		160		215	Makani Kai Helicopters	315	Airport Operations Tower	741	Auto Body Office and Warehouse
123		161		216	Island Air	316		742	Workshop
124		162		217	Air Service Hawaii	317		743	Commercial Shelving Warehouse
125		163	HAL Cargo Building	218	Office	318		744	Commercial Shelving Warehouse
126		164		219	VIP Transportation Office	319		745	Warehouse Architectural Woods, etc.
127		165		220		320	Commuter Terminal	746	United Airlines Cargo
128	Utility Building	166		221		321		747	Budget Car Sales
129	Northwest Cargo	167		222		322		748	Mid Pacific Steel Warehouse
130		168		223		323		749	Generator Building
131		169		224		324		8001	Royal Hawaiian Movers Warehouse
132		170		225		325		8002	Royal Hawaiian Movers Warehouse
133		171		226		326		8003	Royal Hawaiian Movers Warehouse
134		172		227		327		8004	Proposed C&C of Honolulu Rail Station
135		173		228		328		8005	Hawaiian Airlines Cargo & Maintenance
136		174		229		329		8006	Air Cargo, Inspection & Treatment Facilities
137		175		230		330		8007	Pilot Ready Facility
138		176		231		331			
139		177		232		332			
140		178		233		333			
141		179		234		334			
142		180		235		335			
143		181		236		336			
144		182		237		337			
145		183		238		338			
146		184		239		339			
147		185		240		340			
148		186		241		341			
149		187		242		342			
150	International In-Flight Catering Company	188		243		343			
151		189		244		344			
152	Continental Airlines	190		245		345			
153	Hawaiian & Aloha Maint. Facility	191		246		346			
154		192		247		347			
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		194		249		349			
		195		250		350			
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				284		384			



Federal Aviation Administration

Memorandum

Date: April 7, 2010
To: Mr. Carl Bausch, Supervisory Environmental Protection Specialist, Office of Planning and Environment, Federal Transit Administration
From: Acting Manager, Airports Division, AWP-600
Subject: Honolulu International Airport Rail Transit Alignment Options Review Information

The Federal Aviation Administration (FAA) is providing the attached information that reviews the five proposed rail transit alignment options at Honolulu International Airport (HNL). The Federal Transit Administration (FTA) is the lead federal agency for the Environmental Impact Statement (EIS) for the transit rail project on the Island of Oahu. The FAA is a Cooperating Agency on the portion of the rail project at HNL and this information is provided as part of our review of the alignment options for inclusion in the FTA EIS.

The information includes a review of the City and County of Honolulu's (CCH) preferred alignment on Aolele Street as it passes on airport property. Our information shows the significant airport and operational impacts and costs that result from the Aolele Street alignment. The other four alignments do not result in the same type of significant impacts.

This attached information is based on the proposed project information provided by CCH prior to the March 17, 2010, meeting at the airport. To date no further project proposals have been provided by CCH.

We request that the preliminary EIS document be provided for our review prior to any publication. Please let me know if any additional information is needed.

Please contact Peter Ciesla from my office at (310) 725-3612, if you have any questions on this information.

Debbie Roth

Attachment

Federal Aviation Administration Input for the Federal Transit Administration Honolulu High-Capacity Transit Corridor Project Environmental Impact Statement

Evaluation of Honolulu International Airport Rail Transit Alignment Options

Introduction

The Federal Aviation Administration (FAA) is assigned responsibilities pursuant to 49 USC 40101 et seq., for civil aviation and regulation of air commerce in the interests of aviation safety and efficiency. The FAA is a Cooperating Agency on the Honolulu High-Capacity Transit Corridor Project (HHCTP) Environmental Impact Statement (EIS), in accordance with 40 Code of Federal Regulations (CFR) Part 1501.6(a)(1), since it has special expertise and jurisdiction by law to approve proposed development at Honolulu International Airport (HNL). As a Cooperating Agency on this EIS, FAA will use the HHCTP EIS documentation to comply with its own requirements under the National Environmental Policy Act (NEPA) for federal actions. The FAA will also use the EIS to support a subsequent decision(s) and federal actions including unconditional approval of the portion of the Airport Layout Plan (ALP) depicting the proposed rail alignment at HNL and potential federal funding for the eligible portion of the proposed rail alignment.

The November 2008 HHCTP Draft EIS evaluated three fixed guideway transit alternatives. Two of the alternatives (Airport Alternative and the Airport and Salt Lake Alternative), included a rail alignment through HNL property. The Airport Alternative was selected as the preferred alternative by the Honolulu City Council, when it passed Resolution 08-261 on January 28, 2009, which identifies that planning, engineering, design, and construction should be completed for the Airport Alternative. Figure 1 shows the City and County of Honolulu's (CCH) proposed rail alignment through HNL.

The FAA and the Hawaii Department of Transportation Airports Division (HDOT-A) have examined CCH's proposed alignment to determine its effect on the safe and efficient operation of the airport. The proximity of the proposed rail alignment would result in potential impacts to Runways 4L/22R and 4R/22L, and affect the planned future air cargo expansion on the northeastern area of HNL. A proposal was made by CCH to shift Runway 4R/22L and the associated taxiway to the south, and Runway 22R be lowered to indicate use of this runway by slower aircraft in Aircraft Approach Category A and B. This proposed runway shift would result in further affects to the airport, including the need to relocate the visual and electronic navigational aids for Runway 4R/22L, and will be discussed in more detail later in this section of the EIS.

The State of Hawaii, through HDOT-A owns and operates HNL as the airport sponsor. Decisions to develop an airport are the responsibility of the local airport sponsor and not the FAA or FTA. Therefore HDOT has the ultimately responsibility to approve any proposed transit alignment through the airport. HDOT must make their decision based on an alignment that does not result in adverse impacts to safety of aircraft and airport operations. Further the proposed alignment must comply with FAA airport design standards described in FAA Advisory Circular 150/5300-13, *Airport Design*. HDOT-A

identifies their plans for any proposed airport changes by updating an ALP. The updated ALP is submitted for a formal review by the FAA to ensure compliance with airport standards and to ensure there are no airspace conflicts. The updated ALP is shown in this appendix to the Final EIS and shows the alignment approved by HDOT-A. FAA's review and approval of HDOT-A's ALP is part of its federal oversight responsibilities and also ensures compliance with various grant-in-aid obligations held by the State of Hawaii under the Airport Improvement Program.



Figure 1 – CCH Proposed Rail Alignment at Honolulu International Airport

The following sections describe the aircraft operations at HNL, possible transit alignments through or near HNL and evaluates these alignments for potential impacts to HNL.

Description of HNL Aircraft Operations

HNL is the largest commercial service airport in the State of Hawaii and is the gateway for interisland, mainland and international flights to the state. The airport is part of the State of Hawaii Airport System and is owned and operated by the State of Hawaii. HNL also functions as a joint military-civilian airport in which Hickam Air Force Base shares airfield facilities with HNL. In 2008, HNL accommodated almost 288,000 aircraft operations. For the purposes of this EIS, FAA defines an aircraft operation as “one takeoff or one landing” by an aircraft.

HNL has four active paved runways for land based aircraft operations and two sealanes for seaplane operations. FAA's Air Traffic Control operates the runways at HNL as a system that is interdependent to fulfill its statutory mission to ensure the safe and efficient use of navigable airspace. Runways at airports are designated using magnetic directional headings to the nearest 10 degree increments. Thus a north/south oriented runway having a magnetic headings of 180 degrees (for operations to the south) and 360 degrees (for operations to the north). The zero is not used when marking runways. Therefore runway

designations in the United States use a single or two digit numbering system. At HNL, Runway 8L/26R is an east/west runway that is 12,300 feet long and 150-foot wide. This runway is the primary runway for daytime arrivals. This runway is equipped with electronic and visual navigational aids to assist pilots arriving into HNL during low visibility conditions. Runway 8R/26L (also known as the Reef Runway) is 12,000 feet long and 200 feet wide and is used mainly for aircraft departures.

HNL also has two parallel crosswind runways oriented in a northeast/southwest configuration. Runway 4R/22L is 9,000 feet long and 150 feet wide. This runway is equipped with an instrument landing system providing pilots with both vertical and horizontal guidance on approach during low visibility conditions. Runway 4R/22L is used primarily for arrivals during the night time hours (7 p.m. to 7 a.m.) as a noise abatement measure to reduce adverse noise impacts to the populated areas around HNL. This runway is also used for aircraft departures during Kona wind conditions. Parallel Runway 4L/22R is 6,952 feet long by 150 feet wide and is used primarily by general aviation aircraft (aircraft other than scheduled commercial air carriers and the military).

Sealane 8W/26W is 5,000 feet long by 300-foot wide. Sealane 4W/22W 3,000 feet long by 150 feet wide. Neither of the Sealanes have any electronic instrumentation for use by seaplanes. All approaches must be made using visual cues. Figure 2 is an airport diagram of HNL and shows the runway configuration at the airport.

The FAA provides Air Traffic Control services to pilots of aircraft through a variety of air traffic control facilities throughout the United States. At the airport, FAA provides these services through its Airport Traffic Control Tower (ATCT). After aircraft have departed the airport, FAA helps pilots maintain adequate separation both vertically and horizontally from its Terminal Radar Control (TRACON) facility. Once an aircraft has passed through the airspace controlled by the TRACON, the Air Route Traffic Control Center provides air traffic control services.

At HNL, the airport is used in various runway configurations so that aircraft can operate safely by taking off and landing into the wind as much as possible.

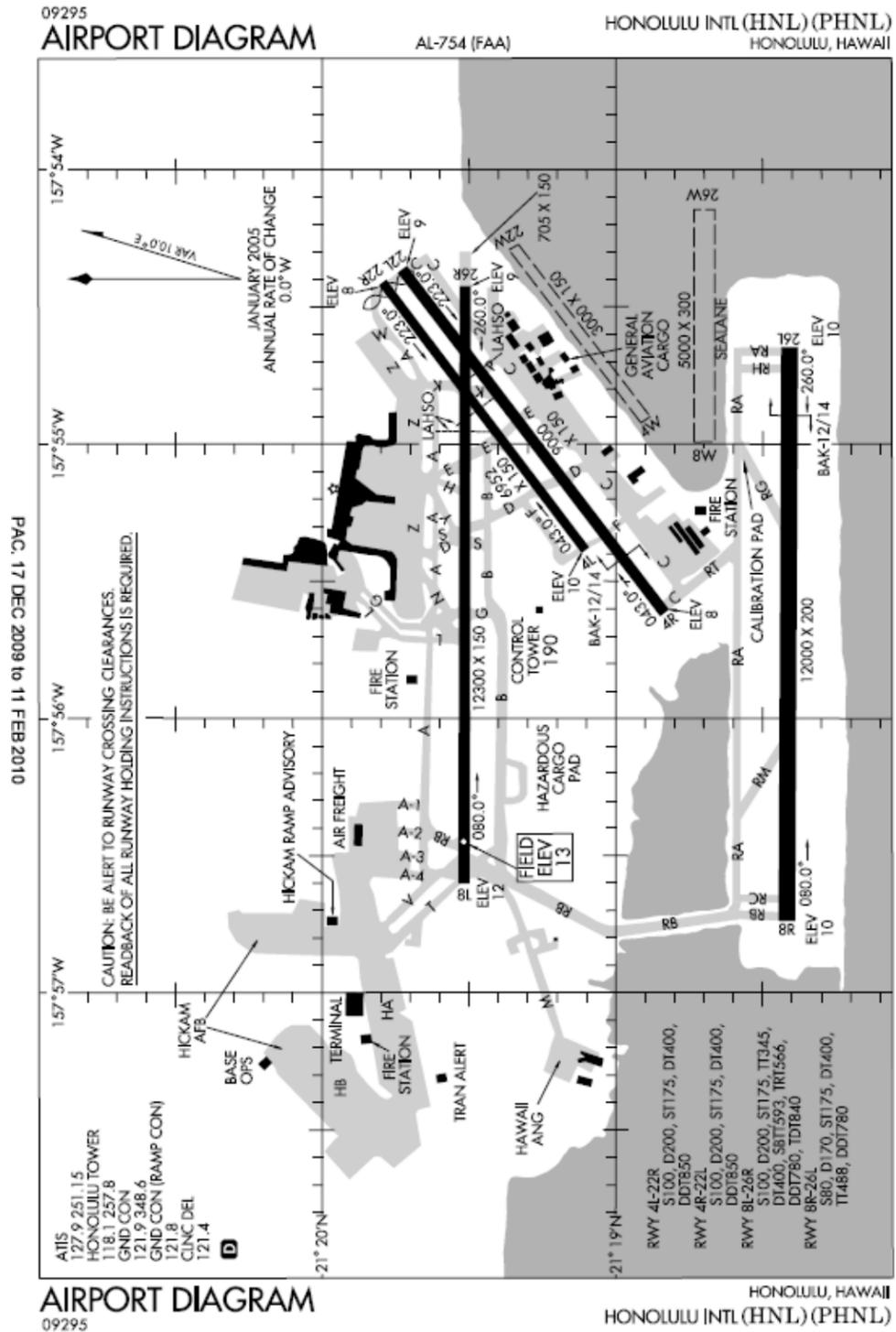


Figure 2, HNL Airport Diagram

HNL Aircraft Departures - Trade Wind Conditions. Under typical trade wind conditions, with winds from the northeast, the airport is configured in a west to east flow. HDOT's November 2004 Noise Exposure Map document reports the trade wind configuration is used about 89 percent of the time. Large Jet or propeller driven aircraft use Runways 8L and 8R departing to the east. Upon departing the runway, the aircraft turn right to remain offshore of Downtown Honolulu, than will either turn right to westward destinations or continue east to eastward destinations.

Also, during trade wind conditions, small aircraft will depart from Runways 4R and 4L to the north east. After they pass the end of the runway, pilots flying west of the airport will turn left and travel west along a route north of Pearl Harbor. Aircraft bound for the eastern part of the island or to the other islands east of Oahu will travel east above the H-1 freeway.

HNL Aircraft Arrivals. During trade wind conditions, arriving jet or large propeller driven aircraft will arrive at HNL using Runway 8L during the day and Runway 4R during the evening and night hours.

In an effort to reduce adverse noise impacts on noise sensitive land uses, westbound aircraft (coming from origination points to the east, such as the continental United States) enter HNL airspace from the northeast and pass over the Koolaus east of Manoa Valley. Once over the south shore of Oahu, the aircraft turns right and remains about five miles off-shore traveling parallel to the shore, until turning right to a final straight-in leg to Runway 8L. The right turn is generally initiated west of Kalaeloa Airport (formerly Naval Air Station Barbers Point).

Interisland jet aircraft from the east typically will remain off-shore of Waikiki and turn right to a final approach to Runway 8L through the Pearl Harbor Channel. During the evening or at night, these aircraft fly further offshore, and then turn right to a final straight-in approach to Runway 4R or 4L. Eastbound aircraft would perform a straight-in approach to Runway 8L or remain offshore until turning left into Runway 4R or 4L. Small aircraft arriving from the east following the H-1 Freeway alignment and make several left turns to land onto Runway 4R or 4L. Small aircraft from the west usually fly north of Pearl Harbor, typically along Kamehameha Highway and perform a series of turns to land on Runway 4R or 4L.

Aircraft Departures - Kona Wind Conditions. The November 2004 HDOT Noise Exposure Map document reports Kona wind configurations are used about 11 percent of the time. During Kona Wind flow (east to west) the large and heavy aircraft depart to the west using Runways 26R and 26L, and to the southwest using Runway 22L. Small aircraft use either Runway 22R or 22L will make a right turn and similarly fly north of Pearl Harbor or over the H-1 freeway if traveling in a eastward direction.

Aircraft Arrivals - Kona Wind Conditions. Arrivals for large and heavy jet aircraft is constrained to one queue for Runways 26L and 26R, to minimize the aircraft noise impacts from over flights of Downtown Honolulu and navigational obstructions east of

HNL. Aircraft arriving at HNL during Kona wind conditions will remain offshore of Diamond Head on a 304 degree heading based on the localizer navigational aid at the east end of Runway 8L/26R. As the aircraft approach within two to three miles of the Airport, the majority of the aircraft make a left turn to their final approach to Runway 26L. Some of the interisland aircraft make a right turn then a left turn to final approach to Runway 26R. Typically, the small and general aviation propeller aircraft approaching from the east follow the H-1 corridor and make a left turn to a final approach to Runway 22R or 22L. Propeller aircraft approaching from the west stay north of Pearl Harbor and make a right turn to a final approach to Runways 22R or 22L.

These flight routes have been established in conjunction with HDOT-A's informal preferential runway use plan at HNL to reduce aircraft noise impacts on various noise sensitive land uses on Oahu. The two major objectives of the informal preferential runway use plan are to:

- Departures: Minimize adverse noise impacts on communities east of the Airport by using the Runway 8R (Reef Runway) which allows jet aircraft departures over the ocean; and
- Arrivals: To reduce the noise impact over the Ewa Plains by shifting evening and night arrivals to Runways 4R and 4L.

HNL Daily Average Hourly Arrivals/Departures. The table below shows the current estimated average arrivals and departures at HNL by the hour of the day. During the nighttime hours shown highlighted from 7:00 p.m. to 7:00 a.m., noise abatement procedures are in place to shift arrivals from the primary daytime arrival Runway 8L onto Runway 4R. As shown below most of the flights at HNL occur during the day time hours. The majority of the flights occur between 9 a.m. and 6 p.m. local time. The peak time occurs between 11 a.m. and 2:00 p.m.

Current Estimated Average Daily Arrivals/Departures Per Hour at HNL

TIME HST	TOTAL PER HOUR
07-0800	38.43
08-0900	40.35
09-1000	51.42
10-1100	50.90
11-1200	65.03
12-1300	46.93
13-1400	59.83
14-1500	57.77
15-1600	48.51
16-1700	47.00
17-1800	46.41
18-1900	38.25
19-2000	38.49
20-2100	29.79
21-2200	28.88
22-2300	15.49
23-0000	12.58
00-0100	5.61
01-0200	5.25
02-0300	8.06
03-0400	7.67
04-0500	8.69
05-0600	17.55
06-0700	20.77
Total	789.66

HNL Hourly Acceptance Rates. The current capacity for HNL to accommodate aircraft arrivals and departures is identified by the hourly arrival/departure acceptance rates. During the Trade Wind conditions in which Runways 4 and 8 are the primary arrival/departure runways, the maximum number of arrivals/departures that HNL can handle before flight delays are encountered is shown below. The acceptance rate is shown during Visual Meteorological Conditions (VMC), when visual landings and departures can be made, and during Instrument Meteorological Conditions (IMC), when instrument landings and departures must be made. During Kona Wind Conditions, which occurs approximately 11 percent of the time, Runways 22 and 26 are the primary arrival and departure runways. These Kona Wind conditions can last up to 5 - 7 days at a time. It is important to note that when one of the runways is closed, as shown below, the acceptance rate for aircraft arrivals and departures is even further reduced.

Since HNL has both parallel and intersecting runways, the operation of the runways is complex and interdependent. FAA's Air Traffic Controllers at the HNL ATCT manage use of Runways 8R and 8L, and 4R and 4L as a system to maintain safe and efficient

aircraft arrivals and departures by the various types of aircraft operating at the airport. Runway 8L is a primary arrival runway because it is 12,300 feet long and has an ILS capability. It is also the closest runway to the passenger terminal building reducing aircraft taxi time, thus minimizing aircraft fuel usage and engine emissions. Runway 8R is used primarily for departures.

The following information shows the various arrival/departure acceptance rates at HNL for both VMC and IMC conditions. The IMC acceptance rate is lower due to the need to maintain increased in-trail aircraft separation distances for safety purposes due to the reduced visibility:

HNL Airport Arrival/Departure Hourly Acceptance Rates

Trade Wind Conditions

Runway 4 and 8 configuration, all runways open: VMC-60, IMC-30

Runway 4 and 8 configuration, one runway closed: VMC-45, IMC-30

Kona Wind Conditions

Runway 22 and 26, all runways open: VMC-45, IMC-30

Runway 22 and 26, one runway closed: VMC-30, IMC-15

HNL Runway Total Operations Summary. The Runway Total Operations Summary table below shows the number of flights from the Part 150 Study 2008 forecast data. The data is reasonably consistent with current operations. Although the actual number of flights at HNL has decreased due, in part, to the overall downturn in the national economy, the relative percentage for runway arrival/departure use is expected to remain the same. It is important to note the importance of Runways 8L and 4R, which are the only runways that have navigation equipment for instrument landings at HNL. Runway 8L is the primary arrival runway during the day and Runway 4R is the primary runway for arrival at night. Of the total number of arrivals at HNL, 50.9% of the arrivals occur on Runway 8L and 30.3 % of the arrivals occur on Runway 4R. The remaining arrivals are distributed on the other runways. To reduce the amount of people subject to aircraft noise at night, HDOT-A has implemented noise abatement procedure where between 7:00 p.m. to 7:00 a.m. aircraft use Runway 4R as the primary arrival runway.

Runways Total Operations Summary								
Runway ID	Arrival Operations	Arrival Percent	Departure Operations	Departure Percent	T&G* Operations	T&G* Percent	Total Operations	Percent Of Total
04L	11,319.0	7.5%	10,908.6	7.3%	-	0.0%	22,227.7	7.4%
04R	45,477.9	30.3%	14,170.5	9.4%	-	0.0%	59,648.4	19.9%
08L	76,450.5	50.9%	57,572.9	38.3%	-	0.0%	134,023.4	44.6%
08R	1,079.7	0.7%	51,566.1	34.3%	-	0.0%	52,645.8	17.5%
22L	1,755.3	1.2%	6,705.2	4.5%	-	0.0%	8,460.6	2.8%
22R	1,634.0	1.1%	98.7	0.1%	-	0.0%	1,732.8	0.6%
26L	6,443.6	4.3%	2,943.0	2.0%	-	0.0%	9,386.6	3.1%
26R	6,129.9	4.1%	6,191.6	4.1%	-	0.0%	12,321.5	4.1%
Totals	150,290.0	100.0%	150,156.8	100.0%	-	0.0%	300,446.8	100.0%

* One Touch-and-Go = Two Operations

FAA Role in Supporting Airport Development

The federal government through the FAA provides support in developing civil airports by authorizing grants to local communities to assist in the development of airport facilities. These grants-in-aid also contain grant assurances that obligate the State of Hawaii as the airport sponsor, to operate and maintain its airport facilities safely and efficiently in accordance with specified conditions. This FAA grant funding represents an investment by the American public. The FAA does not attempt to control and direct the operation of airports. This is the responsibility of the State of Hawaii as the airport owner or sponsor. However, when the airport sponsor accepts federal funds, they also obligate themselves to ensure that the public interest is well served by the federal investment.

The State of Hawaii, as the sponsor for HNL cannot unilaterally convert airport land to non-aeronautical uses nor allow a degradation of the airport's utility based on its contractual obligations to the FAA. There are a number of grant-in-aid assurances that apply to this situation:

- Assurance 5, Rights and Powers: The sponsor will not take any action that will deprive it of its rights and powers to comply with its contractual obligations to the federal Government.
- Assurance 19, Operation and Maintenance: The sponsor will not cause or permit any activity or action on the obligated airport that would interfere with its use for airport purposes.
- Assurance 20, Hazard Removal and Mitigation: The sponsor will prevent the establishment or creation of any future airport hazard.

- Assurance 22, Economic Nondiscrimination: The sponsor will make the airport available for all kinds and classes of aeronautical activities on reasonable terms and without unjust discrimination. The sponsor is obligated to make the airport available for aeronautical activities.

- Assurance 29, Airport Layout Plan (ALP): The sponsor will not make or permit any changes to the airport or any of its facilities that are not in conformity with the FAA-approved ALP or which might in the opinion of the FAA adversely affect the safety, utility, or efficiency of the airport.

These assurances obligate HDOT-A to ensure they do not allow uses that would result in any interference to current and future aviation uses at the airport, and that the primary use of airport property is maintained for aeronautical uses. A proposed rail alignment on the airport cannot interfere or prevent future uses of the airport for aeronautical activities. The notion of payment for the transit rail by a non-airport sponsor or repayment of grant funds back to the FAA does not eliminate the grant-in-aid obligations on the part of the airport sponsor.

The transit rail line would provide important transportation benefits for members of the public to be able to access HNL. However, an alignment through the airport must not impair the important function provided by HNL to also serve the air transportation needs of the State of Hawaii. The two modal systems; airport and rail need to complement each other and be mutually beneficial.

The EIS also needs to consider whether an alignment may impact other protected resources such as having direct or constructive use of public parks and recreational properties protected by Section 4(f) of the Department of Transportation (DOT) Act. Although a public park is located outside of airport property, an alignment through the airport that has direct or constructive use of the adjacent park would lead to a Section 4(f) impact. The EIS would need to address that there are no feasible alternatives to impacting the park and that all reasonable measures have been taken to mitigate these impacts.

Description of Alignment Options for Rail Transit at HNL

The CCH evaluated five potential alignment options for the transit rail through the HNL. These five options include the Aolele Street Option, the Ualena Street Option, the Koapaka Street Option, the Makai H-1 Option, and the H-1 Median Option. The entire route would be on an elevated platform. Four of the five airport alignment options use a common portion on HNL property near the HNL passenger terminal. The option along the H-1 median does not use airport property. The Aolele Street, Ualena Street, Koapaka Street, and Makai H-1 options would have the same entry to the airport in the northwest section of HNL and have a connecting station near the existing airport parking garage, see Figure 3. These four options have different alignments to the east of the HNL Airport Station and each of the option segments is approximately 1.6 miles in length. These alignment options are described below.



Figure 3 – Proposed rail alignment on the northwest side of Honolulu International Airport common to a four of the five optional alignments evaluated (Source: City and County of Honolulu)

Aolele Street Option

The Aolele Street Option is the alignment that has been proposed as the CCH preferred alignment through the eastern portion of HNL. This option has been presented as the HNL alignment in the November 2008 Draft EIS, as shown in Figure 1. The rail line would enter airport property on the northwest section of the HNL and an airport station would be located adjacent to the existing parking garage at HNL, see Figure 3. The rail alignment would continue east and cross onto Aolele Street where it would run along the Mauka side of the road, see Figure 4a. The Lagoon Drive Station has been relocated west of the previously planned site location along Aolele Street. The rail line continues along Aolele Street through HNL airport property until it reaches Lagoon Drive, see Figure 4b. After Lagoon Drive, the alignment would cross into Ke’ehi Lagoon Beach Park.



Figure 4a, Aolele Street Option (Source: City and County of Honolulu)



Figure 4b, Aolele Street Option, continued (Source: City and County of Honolulu)

Ualena Street Option

The Ualena Street Option proceeds from the HNL parking garage area, heads eastbound and initially proceeds on Aolele Street and then transitions north toward Ualena Street, see Figure 5a. The airport boundary is on the Makai side of Ualena Street, so the transition from Aolele Street to Ualena Street would cross from airport property to off-airport property once the alignment is on Ualena Street. The alignment transition would affect land that is currently being leased at HNL. The Lagoon Drive Station would be built near Lagoon Drive. After Lagoon Drive, the alignment would go onto Waiwai Loop road, see Figure 5b. The alignment would cross and affect several businesses before reaching Ke'ehi Lagoon Beach Park. The alignment would run along the park road and then run alongside the H-1 Freeway.



Figure 5a, Ualena Street Option (Source: City and County of Honolulu)

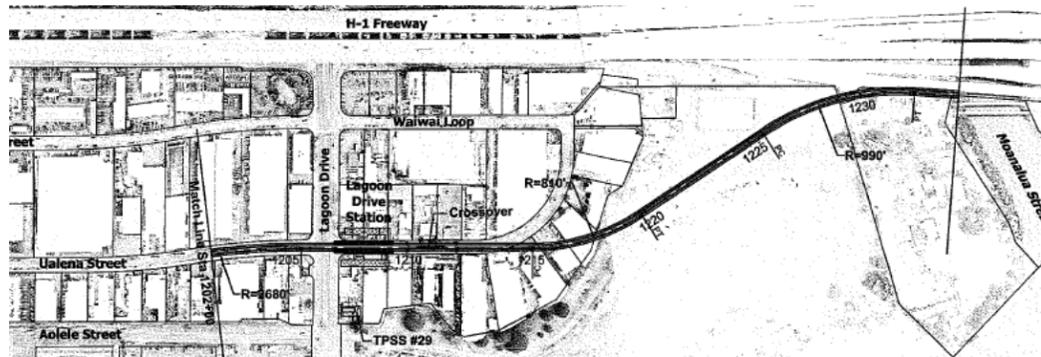


Figure 5b, Ualena Street Option, continued (Source: City and County of Honolulu)

Koapaka Street Option

The Koapaka Street Option would follow the same initial entry into HNL on the northwest side of the airport, with a station located close to the parking garage. The alignment would then head east and then north to transition onto an easterly alignment along Koapaka Street as shown in Figures 6a and 6b. The Lagoon Drive Station would be built adjacent to Lagoon Drive. The alignment would cross alongside of the northern edge of the park to minimize impacts to the park.

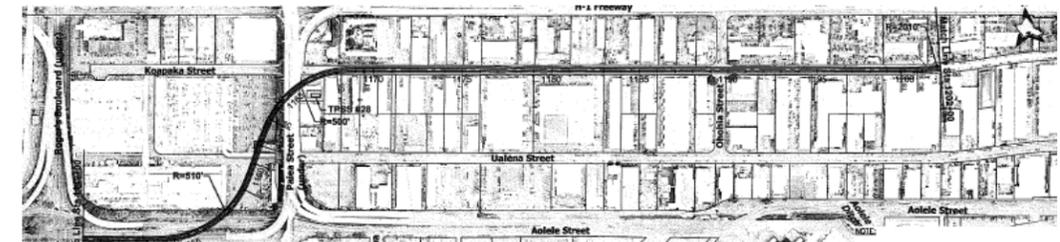


Figure 6a, Koapaka Street Option (Source: City and County of Honolulu)

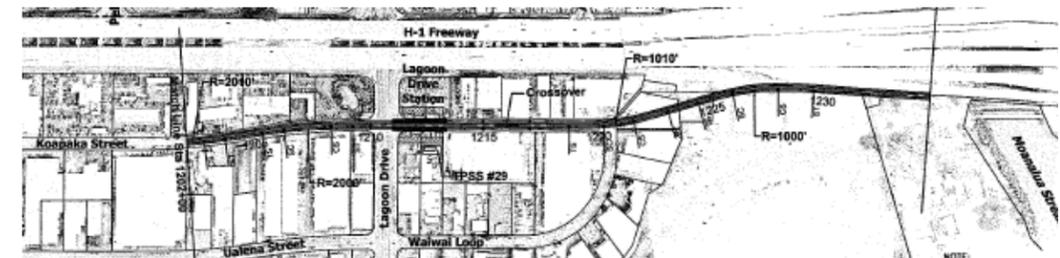


Figure 6b, Koapaka Street Option, continued (Source: City and County of Honolulu)

Makai H-1 Option

The Makai H-1 Option would follow the same initial entry into HNL on the northwest side of the airport, with a station located close to the parking garage. The alignment would then head east and then north to transition onto an easterly alignment along the makai side of the freeway.

H-1 Median Option

The H-1 Median option would have the rail alignment within the median of the H-1 freeway. This is the only option that would not have the rail alignment crossing through HNL. Therefore, there would be no anticipated impacts to HNL.

Evaluation of Airport Impacts for the HNL Rail Transit Alignment Options

The following information discusses the evaluation of the five HNL design option alignments and the potential impacts. The option alignments were evaluated based in the potential impacts to the airport. The FAA also conducted a preliminary safety review of the proposed alignments to determine if any safety risks are associated with a particular alignment.

Aolele Street Option

The Aolele Street rail alignment would penetrate the runway protection zones (RPZ) for the approach ends of Runway 22L and 22R. FAA Advisory Circular (AC) 150/5300-13, *Airport Design*, Paragraph 212, indicates the RPZ’s function is to enhance the protection of people and property on the ground. The RPZ is trapezoidal in shape and centered about the extended runway centerline. AC 150/5300-13 provides the required dimensions for an RPZ, which is based on the type of aircraft using the runway and the approach visibility minimum associated with that runway end. The RPZ for the Runway 22L and 22R ends is 1700 feet long and the rail line would cross through these RPZ’s.

The proposed rail alignment on Aolele Street would also sever a portion of HNL property, which has been planned since 1998 for future air cargo use. This area is being leased for revenue production uses and the rail alignment would permanently limit the potential use of this area for future aviation uses. The rail project would be a non-aeronautical use of airport land, which in accordance with grant conditions, the land is obligated to be maintained for aeronautical uses. The rail alignment would prevent aircraft access to this property and prevent any future air cargo improvements that have been planned at the airport. Construction of the proposed transit system through this portion of HNL property would also result in an economic loss to the State of Hawaii in developing HNL property to its highest and best use. FAA encourages airport sponsors to become as self-sufficient as possible in order to reduce the economic burden on the surrounding communities. The loss of potential future revenue to HDOT has not been fully evaluated.

CCH has proposed that HDOT reclassify Runway 22R to recognize its use by slower airplanes in Aircraft Approach Category A/B, so the RPZ for the approach end of Runway 22R can be reduced in size to 1,000 feet long instead of the current 1,700 foot length. This is based on the runway’s current shorter length compared to Runway 22L and its common use by general aviation aircraft.

CCH has proposed that Runway 4R/22L be extended to the south by 460 feet to allow the RPZ on the Runway 22L end to shift to the south, so the proposed train is no longer in the central portion of the RPZ. CCH also proposes that declared distances be used on this runway to mitigate the loss of the existing Runway Safety Area (RSA) on the departure approach end of Runway 22L that meets FAA Airport Design Standards. Figure 7 shows the CCH’s proposed Runway 4R/22L mitigation, where the runway is extended to the south by 460 feet. FAA airport design standards require a 1,000 foot long RSA on the departure end and a 600 foot long RSA beyond the arrival end of the runway. Therefore depending on the direction of flight, the takeoff run available (TORA) and the landing distance available (LDA) for an aircraft is pre-established to ensure that appropriate RSA distances are maintained.

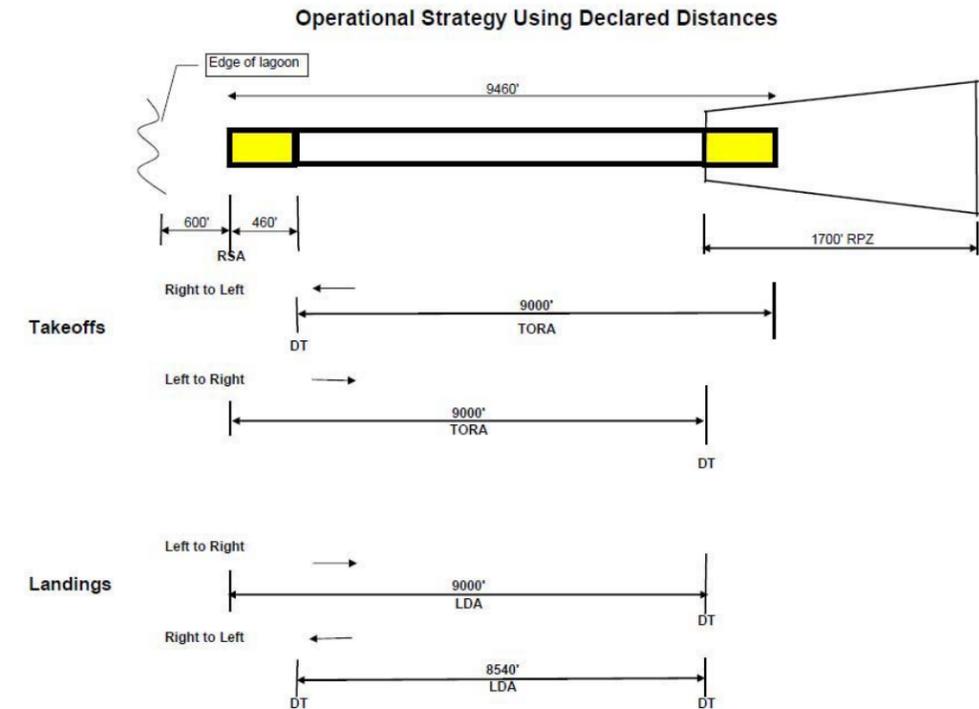


Figure 7, CCH Proposed Runway 4R/22L Runway Safety Area Mitigation (Source: City and County of Honolulu)

Generally the FAA does not support use of declared distances as a means to mitigate adverse impacts to runways that currently meet design standards caused by the introduction of a new penetration of the RSA or RPZ. The use of declared distances is used when there are circumstances beyond the control of the airport that prevent the airport from meeting FAA Airport Design Standards. As indicated in above, HDOT-A as the airport sponsor has grant-in-aid assurances with the FAA requiring HDOT-A to prevent the introduction of any proposed development that is known to have an adverse impact on aviation use of the airport. The FAA AC 150/5300-13, in Appendix 14 states that:

“The purpose of declared distances in airport design is to provide an equivalent runway safety area (RSA), runway object free area (ROFA), or runway protection zone (RPZ) in accordance with the design standards in Chapters 2 and 3 at existing constrained airports [emphasis added] where it is otherwise impracticable to meet standards by other means. Declared distances are also employed when there are obstructions in the runway approaches and/or departure surface that are beyond the ability of the airport owner to remove and result in a displaced runway threshold or change in the departure end of the runway (DER).”

The use of declared distances as “mitigation” where there is a proposed development that will affect a runway, is generally not an acceptable means to allow impacts to a runway that currently meets FAA airport design standards. HDOT action, as the airport sponsor, along with any subsequent FAA approval of such a proposal would set a precedent contrary to FAA’s Congressional mandate to ensure all RSA at airports that hold a certificate under 14 CFR Part 139 meet FAA Airport Design Standards, where practicable, by 2015. CCH’s proposal to use of declared distances would reduce the total landing distance available on Runway 22L. This is done to provide a Runway Safety Area for the departure end of Runway 22L that meets FAA Airport Design Standards. The application of declared distances in this manner is contrary to the guidance in FAA’s Advisory Circular.

Although the FAA does not support the use declared distances in this type of situation, the FAA and HDOT-A conducted a careful evaluation of the potential impacts based on the CCH’s proposed mitigation to shift Runway 4R/22L to the south and using declared distances.

Under this scenario, construction of the additional runway pavement to the south of the existing physical approach end of Runway 4R would also require relocation of the visual and electronic navigational equipment used on the runway. It would also require relocation of critical power and communication cables that are located south of Runway 4R and 4L. Runway 4R is one of only two runways at HNL that are equipped with an Instrument Landing System (ILS). An ILS runway has various electronic and visual navigational equipment that are sited for the particular runway to allow aircraft operations during low visibility conditions. Siting and placement of the navigational aids is a critical component to ensure the equipment is capable of providing the necessary visual and electronic signals needed for safe aircraft operations. Instrument approach procedures are also developed based on the existing runway thresholds. Any change to the location of the runway thresholds will require the relocation of navigational equipment, signage and development of new approach and departure procedures. These changes are costly and require extensive coordination with FAA. The associated relocations and costs are identified later in this section of the EIS.

The following discusses the short term construction impacts and also other associated impacts that will affect the airport from this proposal to shift Runway 4R/22L.

Airport Impacts During Construction of Runway 4R/22L Shift:

HNL handles a wide array of aircraft and aircraft performances, varying from the single-engine Cessna aircraft to the Hawaii Air National Guard F-15 fighters. The existing runway configuration allows keeping the smaller and slower general aviation traffic separated from the high performance military and heavy jet (defined as aircraft capable of being 300,000 lbs or more) air carrier traffic. The use of a secondary runway such as Runway 4R is necessary to keep the flow of air traffic into and out of HNL efficient and safe. Runway 4R is also one of two runways with instrument approaches to the airport.

It is also critical for Land and Hold Short Operations (LAHSO) which increases the landing rate at the airport. This operation allows the simultaneous landings of foreign heavy air carriers on Runway 8L and domestic air carriers on Runway 4R, thereby maintaining the efficient and safe flow of air traffic into the airport. As the efficiency of arrival traffic increases, the easier it becomes to allow departures to take off. During construction, when Runway 4R/22L is closed, all arrivals will need to be flowed to a single arrival runway. The steady stream of inbound aircraft does not allow the air traffic controller to allow aircraft departures from that runway as freely had some of the arrivals been sequenced to another secondary runway.

Runway 4R is also one of only two runways at HNL with an ILS available for use during conditions when visual landings cannot be conducted. Runway 8L is the primary arrival runway at HNL. Runway 8L is the only other ILS runway at HNL. When the ILS for Runway 8L is not available due to maintenance, repairs or mishap, then Runway 4R is the only ILS runway available for landings at HNL. Any construction on Runway 4R/22L will reduce HNL’s instrument runway capability down to one runway, and increases aircraft delays during poor visibility periods. Since there would be no backup ILS runway, any problems with the 8L ILS runway could force a situation where arrivals would have to be diverted to other islands during inclement weather conditions. There is no other air carrier capable airport that could accommodate air carrier operations on the Island of Oahu during inclement weather. Consideration may need to be given to installing ILS equipment on Runway 4L/22R or 8R/26L (Reef Runway), while construction is being performed on Runway 4R/22L.

Runway 4R also serves as the main arrival runway at HNL from 7 p.m. to 7 a.m. in order to reduce adverse noise impacts to noise sensitive land uses to the west of the airport. Arrivals into Runway 4R are over the ocean, while arrivals into 8L final approach fly over residential areas (Ewa, Iroquois Point). During construction, when Runway 4R/22L would be closed, all night time arrival traffic (excluding small light aircraft) would be rerouted to Runway 8L. Based on current operations data, it is estimated that approximately 24 nightly flights from Runway 4R would be shifted to Runway 8L. Additional aircraft operations during the night time on Runway 8L would increase the number of people exposed to adverse noise impacts in the residential communities west of the airport.

The United States Air Force maintains a Barrier Arresting Kit (BAK)-12/14 system on the approach end of Runway 4R for emergency recovery of high performance military tactical jet aircraft. The importance of this safety system cannot be understated. During construction of Runway 4R/22L, this safety system would not be available. The approach end of Runway 26L also has a BAK-12/14 arresting barrier system. However, if that system were engaged due to an emergency fighter jet recovery, with Runway 4R closed, all arrivals and departures to/from HNL would have to use Runway 8L. The result of this scenario would be extensive delays to all users (arrivals and departures), extreme increase in workload on the air traffic controllers, and no backup arresting barrier system on the airport for the military.

During closure of Runway 4R for construction, all arrival aircraft, other than the small light aircraft which can be assigned to Runway 4L, will be sequenced to land on Runway 8L. This single stream of arrivals will result in arrival delays to the users, as well as departure delays because the steady stream of arrivals will not allow departures off Runway 8L. This results in all departures being taken to Runway 8R and these aircraft having to cross Runway 8L, increasing the opportunity for runway incursions to occur. LAHSO operations will not be available, thereby increasing aircraft delays at HNL. Workload on the air traffic controllers will increase in order to maintain this single stream of arrivals. The increased taxi requirements and the extensive delays will result in increased fuel costs to the airlines and increased aircraft engine emissions due to longer taxi times.

Construction on Runway 4R/22L would involve excavation and extensive work on the runway, as well as the re-wiring and reinstallation of all the runway lighting systems associated with the runway. Runway 4R/22L has High Intensity Runway Lights (HIRL), Runway 4R has Precision Approach Path Indicators (PAPI) that will need to be relocated. Runway 22L has Runway End Identifier Lights (REIL) and Visual Approach Slope Indicators (VASI) that will need to be relocated.

CCH's proposal would also require the extension of parallel Taxiway C to the new approach end of Runway 4R, the resultant closure of Taxiway C abeam Taxiway RT (the parallel taxiway for the Runway 8R/26L [Reef Runway]) will shut off access for all departures taxiing to Runway 8R from the south ramp. UPS, FEDEX, and any other private jets on the south ramp would have to cross Runways 4R and 4L to get in line on Taxiway RB for departure to Runway 8R. The longer taxi route will again increase fuel costs to the users, increase in aircraft engine emissions. Further, additional runway crossings would increase the opportunities for runway incursions.

Under this scenario, general aviation and air taxi aircraft on the south ramp would be impacted heavily. When Runway 4R is closed, all aircraft arrivals and departures must use the 7,000 foot long Runway 4L. As is the case on Runway 8L, with all the arrivals on Runway 4L, there will be extensive delays for departures off that runway. Aircraft can only depart during opportunities between arrivals on Runway 4L. Airport usage efficiency would be reduced due to the steady stream of arrivals on Runway 8L, and the same requirement that aircraft departures occur between arrivals to Runway 8L (due to intersecting of these runways). FAA's ATCT must ensure that adequate time is provided after aircraft have landed or departed for aircraft wake turbulence to dissipate for safety reasons. Thus, opportunities for timely departures from Runway 4L will be extremely reduced. The result will be extensive delays to the users.

Runway 22L is heavily used for takeoffs during Kona Wind conditions, which occurs approximately 11 percent of the time annually. Kona Wind conditions exist when the prevailing winds blow from the southwest. During the Kona Wind conditions the loss of Runway 22L as departure runway for large aircraft affects the efficient operations at the airport. During IMC conditions operations would be reduced by 50 percent from 30 to 15 arrivals/departures per hour.

During Kona Wind conditions, when HNL is on the Runway 22 and 26 use configuration, and Runway 4R/22L closed during construction, all light general aviation aircraft would arrive and depart on Runway 22R. Again, with a single stream of arrivals to a single runway, and the need to ensure adequate time for aircraft wake turbulence to dissipate the opportunities for timely departure diminish. Also, due to the traffic congestion on Runway 22R, and the fact that it intersects with Runway 26R, Runway 26R will not be available to relieve some of the arrival traffic to Runway 26L. All other arrivals will be sequenced to Runway 26L, again creating a single stream of arrivals to a single runway, translating to extensive delays to arrivals. The departures will have delays, as they no longer have Runway 22L to depart from. Due to the shorter length of Runway 22R, all heavy jet departures will have to depart from Runway 26L, which is already heavily restricted due to the single stream of arrivals, all arriving on that runway. The resultant closure of Taxiway C abeam Taxiway RT will limit access for aircraft taxiing to Runway 26L for departures. Departures from Runway 26R would be an option, with an increase in noise levels to Iroquois Point and Ewa Beach. This would also require close coordination with Kalaeloa Airport due to the close proximity of that airport. Again, the users would incur increased fuel costs due to delays. Aircraft engine emissions would increase as well.

Other Airport Impacts:

There are also other impacts from the shift in Runway 4R/22L that will result and require further airport changes as noted below:

The existing Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR) for Runway 4R is positioned to the south of the runway and consists of stations with flashing and stationary light bars that direct aircraft towards the runway threshold. These light stations extend out approximately 2400 feet beyond the Runway 4R threshold. A proposed extension of the Runway 4R/22L to the south would require that the MALSR also be extended. This would also require new light stations in the environmentally sensitive lagoon area south of the runway. This area is designated by the State of Hawaii as conservation land and any use will need a conservation use permit, and potential U.S. Army Corps permit and Clean Water Act permit. The State of Hawaii Land Use laws sets out four major land use divisions within the state: Conservation, Agriculture, Rural and Urban. The use of Conservation lands are regulated by the State of Hawaii, Board of Land and Natural Resources. In addition, coordination with the U.S. Fish and Wildlife Service regarding any federally listed threatened and endangered species and any Coastal Zone development issues would need to be addressed.

The extension of the MALSR light stations would overlap onto the taxiway for Runway 8R/26L and conflict with aircraft operations. Options to maintain a full MALSR would require additional surveys to determine if in-pavement approach lights are feasible and requires a safety analysis. If these options are not possible, maintaining a full length MALSR would require relocating Taxiway RA 460 feet south. Relocating Taxiway RA,

in turn may also require that a key airport navigational aid, the HNL Very High Frequency Omnidirectional Radio Range and Tactical Air Navigation (VORTAC) be moved. The siting of the VORTAC is extremely critical and the availability for suitable locations appears limited. Any location change would also require changes to flight procedures based on the VORTAC's position. It would also require flight fixes and airways to also be updated. This would result in additional cost for the CCH's preferred alignment option and time needed to develop, prepare the necessary NEPA documentation and flight check the new procedures. Any relocation of Taxiway RA and VORTAC would be extremely costly as shown in Table 1 below.

If a full MALSR is not put in place, it will require the approach lighting system to be down graded to a MALSR, without the runway alignment indicator lights. This would raise the minimum altitude requirements for the instrument approaches to Runway 4R, resulting in diminished flight services available to the users compared to what is available today. This would limit the instrument approaches to 3/4 of a mile visibility rather than having the 1/2 mile capability that currently exists for the ILS.

The impact of a future reduction in Runway 4's instrument capability from a 1/2 mile to a 3/4 mile visibility minimum will result in some large carrier and military aircraft not being able to use Runway 4R, especially at night and would require that another arrival runway be used. Since Runway 8L has an ILS capability, it would experience an increased number of night time arrivals that are not being experienced today. This would be a direct result from shifting Runway 4R/22L to the south and not having a full MALSR installed. Based on current operations data, there are approximately 24 night time arrivals on Runway 4R. It can be assumed that anywhere from 30% to 70% of these arrivals may choose to use Runway 8L for operational necessity or the need to take advantage of the ILS capability and close proximity to the terminal. This would result in anywhere from 7 to 17 additional flights on Runway 8L on any given night, depending on the weather and visibility conditions, as well as air carrier procedures. This would represent a significant permanent new change in night time noise impacts to residential communities west of the airport that will need to be disclosed.

Based on the November 2004 Part 150 Noise Compatibility Program Study prepared by HDOT-A, there are a significant number of people and residences that would experience a permanent increase in noise level from aircraft operations at HNL. The State of Hawaii land use compatibility guidelines are even more sensitive than federal guidelines due to warm climate and open air design of homes on the island.

According to the Part 150 Study, there are 3,565 (1,956 civilian and 1,609 military) people affected by aircraft noise in the 65-70 Daytime/Nighttime Noise Average (DNL) contour. Based on an average of 4 people per dwelling unit, 891 residences in the 65-70 DNL are affected. The number of people affected within the 60-65 DNL is 27,177 people (18,827 civilian and 8,350 military). Therefore 6,794 residences within the 60-65 DNL are affected. Based on current noise impact maps, a total number of 30,742 people and 7,685 residences would be affected. It is estimated that approximately \$57 million would be required to mitigate these noise impacted residences. These estimates are

based 2004 studies and new noise maps would need to be developed to show the current and future number of people and residences affected.

The increase in aircraft noise levels would enlarge the size of the areas with elevated noise levels. The enlarged noise impact area will result in an even larger number of people adversely impacted by the aircraft noise. Scientific studies have shown that more people are highly annoyed by aircraft noise during the night time. As discussed in the previous paragraph, the increase in flights and noise levels will increase the number of people affected by aircraft noise and increase the number of residences needing sound insulation. Additional detailed noise modeling will be necessary to provide data to determine the number of noise sensitive land uses that would be affected.

The extended Runway 4R/22L would also require an additional exit taxiway; otherwise landing aircraft will remain on the runway longer in order to clear at the end and will reduce the landing rate on 4R. Also the departure rate for aircraft on Runway 8R will be reduced, since light aircraft on a left downwind to the relocated runway 4R would likely overfly runway 8R to line up for a landing.

The instrument approach procedures associated with Runway 4R are the ILS RUNWAY 4R, RNAV Y, RNAV Z, VOR/DME or TACAN or GPS-B, VOR or TACAN 4R. Moving the approach end of the runway may affect the vertical guidance of the approach procedures, resulting in the re-charting of the instrument approach procedures, and possible environmental studies associated with the new flight paths. The new runway thresholds will need to have to be surveyed. It is estimated that once the runway and NAVAID facility data is prepared, it will take approximately 18 months for the new instrument procedures to be completed and published.

The main and back-up power and communications cables for the Honolulu Control Facility (HCF) and the HNL airfield electrical vault duct banks are located to the south of the Runways 4L/4R would require relocation. The HCF is a critical facility that provides combined control of en-route air traffic, arrivals, departures, and over-flights in and around the numerous airports of the Hawaiian Island chain, as well as to aircraft from the U.S. Mainland, Asia, South Pacific, New Zealand and Australia. The runway extension construction would need to ensure no disruption of power and communications capability for this critical facility.

The costs for the Runway 4R/22L extension, associated requirements for relocation of NAVAIDS and other related costs has been identified in Table 1 below. These costs are significantly more than the \$20 million estimate initially provided by the consultant for CCH. These include costs of (1) rerouting the power/communication duct bank located south of Runway 4R and 4L, (2) extension of Runway 4R/22L to the south by 460 feet, (3) installation of NAVAID's and (4) costs to maintain a full MALSR and current ILS capability. As discussed above, to maintain the current ILS 1/2 mile minimum for Runway 4R requires moving Taxiway RA to the south and relocation of the VORTAC. The cost of shifting the taxiway and VORTAC will be approximately \$82.6 million.

Since the VORTAC siting criteria is critical to its operation, it is not known if a suitable location elsewhere on the airport would be available.

**Table 1, Runway 4R/22L Extension and NAVAID Relocation Estimate
Maintains Current ILS ½ Mile Minimum
(IN THOUSANDS)**

Item	Estimate
(1) HCF Power/Communication Duct Bank Rerouting	\$4,608
(2) 4R/22L Runway/Taxiway Construction	
Extend Runway 4R end, 460 feet by 150 feet, rated for 850,000 double dual tandem wheel loadings Runway 4R end edge lights, threshold lights, signs, markings, etc. Relocate Runway 4R/22L edge lights (1/2 runway length, 4,500 feet) Relocate Vault X and Z duct banks at Runway 4R end, including HECO and HTEL Connector taxiway 4R end, 1,300 feet by 75 feet, rated for 850,000 double dual tandem wheel loadings Connector taxiway 4R end edge lights, hold lines, signs, markings, etc. Connector taxiway 22L end, 400 feet by 75 feet, rated for 850,000 double dual tandem wheel loadings Connector taxiway 22L end edge lights, hold lines, signs, markings, etc. State Environmental	
Total 4R/22L Runway/Taxiway Construction Source HDOT-A (Includes Design and Construction Contingency)	\$23,584
(3) 4R/22L NAVAID Installation	
Install PAPI-4 for Runway 4R Install PAPI-4 for Runway 22L Install REIL for Runway 22L New Runway 22L lighting Modify Runway 4R Medium Intensity Approach Lights with Runway Alignment Indicator Lights (MALSR) to a MAL S New Instrument Landing System	
Total 4R/22L NAVAID Installation Source FAA (Includes Construction Contingency and Reimbursable Cost)	\$11,022
Total Costs to Shift Runway 4R/22L and Associated Actions	\$39,214
(4) Cost to Maintain Current Runway 4R MALSR and ILS at ½ Mile Minimum Capability and VORTAC Relocation	
Taxiway RA Relocation/VORTAC Relocation/ Full MALSR (source FAA)	\$82,582
Total Airport Costs if VORTAC can be relocated	\$121,796
Estimated Lost Opportunity Cost for Loss of Airport Cargo Area	\$6,000
Total Cost of Airport Impacts	\$127,796

As discussed above, if the VORTAC cannot be relocated and a full MALSR cannot be installed, the ILS minimums on Runway 4R would be increased and result in additional noise impacts to residential communities near HNL due to the shift in aircraft, which would result in additional noise mitigation costs. Table 2 shows these costs.

**Table 2, Runway 4R/22L Extension and NAVAID Relocation Estimate
Runway 4R ILS Downgraded to ¾ Mile Minimum
(IN THOUSANDS)**

Item	Cost
Total Costs to Shift Runway 4R/22L and Associated Actions (same as above)	\$39,214
Estimated Noise Mitigation to Homes Impacted by Added Noise on Runway 8L	\$57,000
Estimated Lost Opportunity Cost for Loss of Airport Cargo Area	\$6,000
Total Cost of Airport Impacts	\$102,214

Construction of the additional runway length on Runway 4R/22L and relocation of the navigational equipment will take up to approximately 8 months to complete. Development of new flight procedures may also take up to 18 months to complete.

CCH provided their rail construction and property acquisition costs for the alignment options to FTA for review. FTA's engineering consultant reviewed this information and updated these cost estimates. These updated FTA rail cost estimates are used in this report to show the costs of the rail alignment options and property acquisition costs.

The cost of constructing this 1.6 mile portion of the rail alignment would be approximately \$200.2 million, plus a range of \$102.2 million to \$127.8 million for airport related costs including the extension of Runway 22L/4R and relocation of navigational aids. The HNL rail line would be constructed in the third phase of the overall construction. This portion of the project is estimated to take about 2-3 years to complete. The portion of the alignment on Aolele Street has relatively open access with few utility issues. The alignment would require access through Ke'ehi Lagoon Beach Park, which is a public park and would require a DOT Act Section 4(f) determination by FTA for potential impacts.

The FAA convened a Preliminary Safety Analysis (PSA) Panel on February 24, 2010, to review the alignment options. The PSA Panel's mission was to collect potential National Airspace System (NAS) impacts for the alignment options, and to record any and all impacts requiring additional safety risk analysis. The PSA panel identified the need for new flight procedures, approaches and revisions as a result of the Runway 4R/22L shift due to the Aolele Street option. There were numerous visual and electronic navigational aids identified for relocation. There is insufficient room for the full MALSR and results

in an impacted ILS. The possibility to adversely impact the VORTAC as well as numerous additional impacts to the NAS were flagged for additional risk assessment.

Ualena Street Option

The Ualena Street Option would avoid the central portion of the RPZ for Runway 22L, but not for Runway 22R. The FAA has met with HDOT-A and airline representatives to discuss a change to the Runway 22R RPZ to an Aircraft Approach Category A/B, which would reduce the length of the RPZ from 1,700 feet to 1,000 feet. Runway 4L/22R is the shortest runway at HNL and used primarily for general aviation aircraft. Since the RPZ is based on the type of aircraft flying the approach to that runway, this change would reflect the current slower aircraft that are using this runway, and allow for a reduction of the RPZ length. With this change the rail alignment would not affect the Runway 22R RPZ. HDOT-A and the airline representatives have no objection to reducing the Runway 22R RPZ to an Aircraft Approach Category A/B. The results from February 24, 2010, PSA Panel indicated that based on the assumption of a 42-foot above ground level (AGL) gross obstacle height, no NAS impacts were anticipated.

The Ualena Street rail alignment would limit a portion of the area planned for future air cargo. Six business properties that are leased on airport land would be affected the rail alignment transition from Aolele Street to Ualena Street. The cost of construction for this 1.6 mile portion of the alignment is estimated by CCH at approximately \$265.1 million.

Koapaka Street Option

The portion of the rail alignment along Koapaka Street is off HNL airport property in the vicinity of the approach ends of Runway 22L and 22R and would not adversely affect the use of these runways or affect any leased airport properties. The results from February 24, 2010, PSA Panel indicated that based on the assumption of a 42-foot above ground level (AGL) gross obstacle height, no NAS impacts were anticipated. The cost to construct this 1.6 mile portion of the rail alignment is estimated by CCH at \$295.6 million.

Makai H-1 Option

This alignment would not create any adverse impacts to airport operations or changes to the runways at HNL. The results from February 24, 2010, PSA Panel indicated that based on the assumption of a 42-foot above ground level (AGL) gross obstacle height, no NAS impacts were anticipated. The cost to construct this 1.6 portion of the rail alignment is estimated by CCH at \$324 million.

H-1 Median Option

Similar to the Makai H-1 option, the H-1 Median Option would not create any impacts to airport operations or require changes to runway operations at HNL. The results from February 24, 2010, PSA Panel indicated that based on the assumption of a 42-foot above

ground level (AGL) gross obstacle height, no NAS impacts were anticipated. CCH provided a rough cost estimate of approximately \$500 million for the 1.6 mile portion of the alignment, since they did not prepare a planning profile for this alignment.

Summary of Options and Impacts

The following table summarizes the airport impacts for the various alignment options on or near HNL.

The CCH proposed use of HNL airport property along Aolele Street and proposed airport impact mitigation is contrary to FAA Airport Design Standards. It would require extensive and complex runway modifications and relocation of navigational equipment for Runway 4R/22L. It has the potential to reduce the existing ILS capability on Runway 4R and results in significant adverse short-term impacts to airport operations and instrument arrivals on Runway 4R. While FAA could ensure a safe operation under this option, the efficiency of airspace utilization would be reduced. Reduction in airspace utilization efficiency is contrary to FAA's statutory mission to ensure the safe and efficient use of navigable airspace in the United States. Under this option, during the construction period, night time aircraft operations would increase over noise sensitive communities while Runway 4R/22L is closed.

A proposed extension of the Runway 4R/22L to the south would require the relocation of the MALSR. This would also require new light stations in the environmentally sensitive lagoon area south of the runway. Further environmental study will be required to disclose potential impacts. Additional coordination with U.S. Army Corps, the State of Hawaii, Board of Land and Natural Resources and the U.S. Fish and Wildlife Service is required and may delay finalizing the FTA EIS.

The Aolele Street Option would also render an approximate 28 acre portion of airport property unusable for any further aviation uses. This would prevent HDOT from being able to develop this part of HNL property to its highest and best use. Further, there would be a loss of future revenue that would come from future planned air cargo activity on this parcel. The increase in approach minimums for Runway 4R would also result in a permanent increase in aircraft noise impacts to noise sensitive land uses west of HNL due to increased usage of Runway 8L, especially at night. Mitigation of new noise impacts would cause the State of Hawaii and CCH to incur an additional financial burden that does not occur under the other HNL alignment options.

An alignment on Ualena Street would be less costly than the Aolele Street alignment, and with a Runway 22R RPZ reclassification to Aircraft Approach Category of A/B, would not affect the airport, but would limit a portion of the area identified for future air cargo use. An alignment on Koapaka Street would cost more to construct than the Ualena Street option. A Koapaka alignment would be outside the RPZ for Runway 22L and 22R and would not impact airport operations or sever airport property from future planned air cargo use. Both the Makai H-1 and H-1 Median Options would not result in any impacts to airport operations.

HDOT-A as the airport sponsor has grant-in-aid obligations that require submission of an ALP showing any proposed development to the FAA for review and approval. Any proposed rail alignment on HNL property must be shown on the updated ALP.

HNL Rail Alignment Options Impacts

	Aolele Street	Ualena Street	Koapaka Street	Makai H-1	H-1 Median
Airport Impacts	-Penetration of the 1700 foot RPZ for Runway 22L - CCH proposal to shift Runway 4R/22L 460 feet to the south is not a standard practice for FAA - Full MALSR unlikely without significant costs while lack of full MALSR results in higher ILS minimums and degrades instrument capability on Runway 4R/22L - New MALS results in new light stations in environmentally sensitive conservation area -Estimated up to 17 additional night time flights on Runway 8L and increased noise over residential communities west of the airport if full MALSR not installed - RPZ penetration for approach end of Runway 22R. - Reclassification of Runway 22R	-Penetration of 1700 foot RPZ for Runway 22R. - Reclassification of Runway 22R RPZ to Aircraft Approach Category A/B. - 6 airport parcels impacted by guideway alignment transition from Aolele Street to Ualena Street - A portion of the planned air cargo area would be limited from future use	-No impacts to runways or safety areas - Rail line is off airport property in the approach for Runways 22R and 22L	-No impacts to runways or safety areas - Rail line is off airport property in the approach for Runways 22R and 22L	-No impacts to runways or safety areas - Rail line is off airport property in the approach for Runways 22R and 22L

	Aolele Street	Ualena Street	Koapaka Street	Makai H-1	H-1 Median
	RPZ to Aircraft Approach Category A/B. - Aolele alignment limits any future aviation use of approximately 28 acres of airport property, part of which is planned by airport sponsor for cargo use and prevents direct aircraft access to properties mauka of Aolele Street				
Business Impacts / Property Acquisitions/ Relocations	- No impacts to existing businesses that lease land from HDOT - Lost opportunity for future revenue generating potential for cargo use of airport property	- 6 leased airport business properties taken	- No airport leased business properties taken	- No airport leased business properties taken	-No airport properties affected
Time to Construct	- Runway shift would need to occur before rail construction - Up to 8 months for airport construction - New flight procedures development can start prior to runway construction and take up to 18 months to complete -Runway work is subject to limited construction scheduling on an active operating	- Rail construction through the airport is planned to start 2015 and go through 2016	- Rail construction through the airport is planned to start 2015 and go through 2016	- Rail construction through the airport is planned to start 2015 and go through 2016	- No airport rail alignment

	Aolele Street	Ualena Street	Koapaka Street	Makai H-1	H-1 Median
	airport - Rail construction through the airport is planned to start 2015 and go through 2016				
Construction	- Airport construction would disrupt airport operations, require runway closure and additional flights on the other runways - Increased noise impacts to communities west of the airport during night time hours, with additional 24 flights from Runway 4R -Increased air traffic work load -Would require coordination with HDOT-Airports for construction	- No airport operational disruption from rail construction	- No airport operational disruption from rail construction	- No airport operational disruption from rail construction	- No airport rail alignment
Total Cost to construct 1.6 mile rail segment and other costs	\$302.4 to \$328 million (\$200.2* million for rail cost, plus \$102.2 million to \$127.8 million airport associated costs)	\$265.1* million for rail cost and property acquisition	\$295.6* million for rail cost and property acquisition	\$324* million for rail cost and property acquisition	\$500** million rough estimate for rail cost

* Cost estimate provided by CCH

** CCH rough cost estimate, since H-1 median rail corridor alignment/profile not developed

Bus Route Changes during Phased Openings

Table H-1. Changes to Local Bus Service with Implementation of Phase 1A—Waipahu to Leeward Community College

Route	Service Characteristics					Transit Centers and Rail Stations Served
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
41	Connects 'Ewa Beach with Kapolei	Connects 'Ewa Beach with Kapolei via an alignment change	Route provides 30-minute peak and midday service		Route 41 will travel from Kapolei Transit Center to left on Wākea, right on Kamokila to Farrington, right on UHWO connection road, right on UHWO Road B, left on East West Arterial, right on North-South Road, right on new development access road between Kapolei Parkway and Roosevelt, right on new development access road connecting back to right on Kapolei Parkway, left on Keone'ula Blvd, right on Fort Weaver Road, right on Kaamilo, to right on Kapolei Parkway to return to Kapolei Transit Center along same alignment.	Kapolei Transit Center, 'Ewa Beach Transit Center
418 ³		Connects 'Ewa, Kalaeloa, and Kapolei with Kapolei Transit Center		Route provides 30 minute peak and 60 minute midday service	Route 418 provides local service from Kapolei TC via Wākea, right on Kamokila to Farrington, right on Kealanani, left on Kamaaha, right on Kaiau, left on Malu Ohai, left on Kapolei Parkway, left on Kolowaka, right on Fort Weaver, right on Geiger to East-West Spine (Saratoga), left on Enterprise, right on Yorktown, right on Lexington, left on Wākea, left on Roosevelt, right on Kamokila and right onto Kapolei Parkway to return to the TC.	Kapolei Transit Center

¹Listed frequencies are averaged for the time period

²Current routes as of May 2010

³New route

Table H-2. Changes to Local Bus Service with Implementation of Phase 1B—East Kapolei to Leeward Community College

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
A	Connects Waipahu with UH Mānoa	Modified to operate between Waipahu Transit Center and UH Mānoa	Route provides 15 minutes in peak and midday periods		Route A will provide limited stop service between the Waipahu Transit Center and UH Mānoa.	Waipahu Transit Center Station, Middle Street Transit Center, Ala Moana Transit Center (via Kapi'olani)
C	Connects Mākaha Beach with Ala Moana via Kapolei	Connects Mākaha Beach with Ala Moana via Kapolei with a modification in Kapolei to service North-South Road	Route provides 30 minutes in peak and midday periods		Route C will provide limited stop service between Mākaha and Ala Moana. The route will operate via Farrington Highway to Kalaeloa Blvd and to Kapolei Parkway serving the Kapolei Transit Center. The route will continue from the transit center along Kapolei Parkway to left on the North-South Road entering H-1 and continuing via the current alignment.	Waianae Transit Center, Kapolei Transit Center, East Kapolei Station, UH West Oahu Station, Middle Street Transit Center (from Dillingham), Ala Moana Transit Center
41	Connects 'Ewa Beach with Kapolei	Connects 'Ewa Beach with Kapolei via an alignment change	Route provides 30 minute peak and midday service		Route 41 will travel from Kapolei Transit Center to left on Wākea, right on Kamokila to Farrington, right on UHWO connection road, right on UHWO Road B, left on East West Arterial, right on North-South Road, right on new development access road between Kapolei Parkway and Roosevelt, right on new development access road connecting back to right on Kapolei Parkway, left on Keone'ula Blvd, right on Fort Weaver Road, right on Kaamilo, to right on Kapolei Parkway to return to Kapolei Transit Center along same alignment.	Kapolei Transit Center, 'Ewa Beach Transit Center

Table H-2. Changes to Local Bus Service with Implementation of Phase 1B—East Kapolei to Leeward Community College (continued)

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
418 ³		Connects 'Ewa, Kalaeloa, and Kapolei with Kapolei Transit Center		Route provides 30 minute peak and 60 minute midday service	Route 418 provides local service from Kapolei TC via Wākea, right on Kamokila to Farrington, right on Kealanani, left on Kamaaha, right on Kaiau, left on Malu Ohai, left on Kapolei Parkway, left on North-South Road to serve East Kapolei Station, returning to left on Kapolei Parkway, left on Kolowaka, right on Fort Weaver, right on Geiger and right on Kapolei Parkway to return to the Kapolei Transit Center.	Kapolei Transit Center, East Kapolei Station
433	Connects Waipi'o and Waikele with Waipahu Transit Center	Connects Waipi'o and Waikele with Waipahu Transit Center	Route provides 30 minute peak and midday service		Route will be extended to the Koa Ridge transit stop just mauka of Ka Uka Blvd in the Koa Ridge Development.	Waipahu Transit Center Station

¹Listed frequencies are averaged for the time period

²Current routes as of May 2010

³New route

Table H-3. Changes to Local Bus Service with Implementation of Phase 1C—East Kapolei to Pearl Highlands

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
A	Connects Waipahu with UH Mānoa	Modified to operate between Waipahu Transit Center and UH Mānoa	Route provides 15 minutes in peak and midday periods		Route A will provide limited stop service between the Waipahu Transit Center and UH Mānoa.	Waipahu Transit Center Station, Pearl Highlands, Middle Street Transit Center, Ala Moana Transit Center (via Kapī'olani)
C	Connects Mākaha Beach with Ala Moana via Kapolei	Connects Mākaha Beach with Ala Moana via Kapolei with a modification in Kapolei to service North-South Road	Route provides 30 minutes in peak and midday periods		Route C will provide limited stop service between Mākaha and Ala Moana. The route will operate via Farrington Highway to Kalaeloa Blvd and to Kapolei Parkway serving the Kapolei Transit Center. The route will continue from the transit center along Kapolei Parkway to left on the North-South Road entering H-1 and continuing via the current alignment.	Waianae Transit Center, Kapolei Transit Center, East Kapolei Station, UH West Oahu Station, Middle Street Transit Center (from Dillingham), Ala Moana Transit Center
41	Connects 'Ewa Beach with Kapolei	Connects 'Ewa Beach with Kapolei via an alignment change	Route provides 30 minute peak and midday service		Route 41 will travel from Kapolei Transit Center to left on Wākea, right on Kamokila to Farrington, right on UHWO connection road, right on UHWO Road B, left on East West Arterial, right on North-South Road, right on new development access road between Kapolei Parkway and Roosevelt, right on new development access road connecting back to right on Kapolei Parkway, left on Keone'ula Blvd, right on Fort Weaver Road, right on Kaamilo, to right on Kapolei Parkway to return to Kapolei Transit Center along same alignment.	Kapolei Transit Center, 'Ewa Beach Transit Center

Table H-3. Changes to Local Bus Service with Implementation of Phase 1C—East Kapolei to Pearl Highlands (continued)

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
50 ³		Connects Mililani with Waipi'o, Waikele and Waipahu		Service will operate 30 minutes in the peak and midday periods	Westbound from Mililani Transit Center the route will operate on Meheula, right onto H-2 South, Exit 2 "Ka Uka Blvd/Waipi'o", left on Moaniani, left Waipi'o Uka, left Lumikula, right Lumiaina, left Managers Drive to right on Hikimoe. The route returns to Mililani from Waipahu TC via left on Waipahu Depot Road, left on Farrington Hwy, left on Mokuola to Managers Drive following the rest of the alignment in reverse.	Mililani Transit Center, Waipahu Transit Center
51 ³		Connects Wahiawa with downtown Honolulu via Kamehameha Highway		Service will operate 15 minutes in the peak and 30 minutes in the midday periods	Route will operate from the Wahiawa Transit Center at California and Cane via California to Kamehameha Highway operating along the current Route 62 alignment to downtown Honolulu.	Wahiawa Transit Center, Pearl Highlands Station, Middle Street Transit Center (from Dillingham Blvd.), Ala Moana Transit Center
62	Connects Wahiawa with downtown Honolulu via Kamehameha Highway	Restructured, see Routes 51 and 511	Route provides 20 minute peak and 32 minute midday service			

Table H-3. Changes to Local Bus Service with Implementation of Phase 1C—East Kapolei to Pearl Highlands (continued)

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
72	Connects Whitmore Village, Wahiawa and Schofield Barracks	Restructured, see Routes 512 and 513	Route provides 70 minute peak and midday service			
73	Connects LCC and Pearl City	Route will be modified to serve the Pearl Highlands Station	Route provides 30 minute peak and midday service		The route will terminate at the Pearl Highlands Station instead of LCC.	Pearl Highlands Station
416 ³		Connects Ko 'Olina and West Kapolei with Kapolei Transit Center		Will operate 30 minutes in the peak and midday periods	Route 416, from Ko 'Olina will travel Ali'inui to Kapolei Parkway serving the Kapolei Transit Center.	Kapolei Transit Center
417 ³		Connects Makakilo with UH West Oahu, East Kapolei Station and Kapolei Transit Center		Will operate 30 minutes in the peak and midday periods	Route 417 continues from Makakilo to UHWO TC via the continuation of Makakilo Drive to the North-South Road. The route serves the UHWO and the East Kapolei Station continuing to the Kapolei Transit Center via Kapolei Parkway. The route continues as Route 411 at the Kapolei Transit Center.	UH West Oahu Station, East Kapolei Station, Kapolei Transit Center

Table H-3. Changes to Local Bus Service with Implementation of Phase 1C—East Kapolei to Pearl Highlands (continued)

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
418 ³		Connects 'Ewa, Kalaeloa, and Kapolei with Kapolei Transit Center		Route provides 30 minute peak and 60 minute midday service	Route 418 provides local service from Kapolei TC via Wākea, right on Kamokila to Farrington, right on Kealanani, left on Kamaaha, right on Kaiau, left on Malu Ohai, left on Kapolei Parkway, left on North-South Road to serve East Kapolei Station, returning to left on Kapolei Parkway, left on Kolowaka, right on Fort Weaver, right on Geiger and right on Kapolei Parkway to return to the Kapolei Transit Center.	Kapolei Transit Center, East Kapolei Station
433	Connects Waipi'o and Waikele with Waipahu Transit Center	Connects Waipi'o and Waikele with Waipahu Transit Center	Route provides 30 minute peak and midday service		Route will be extended to the Koa Ridge transit stop just mauka of Ka Uka Blvd in the Koa Ridge Development.	Waipahu Transit Center Station
441 ³		Connects Waiawa Development with Pearl Highlands		Service will operate 30 minutes in the peak and midday periods	Route 441 will traverse through the Waiawa development and be anchored on the west side at the Koa Ridge transit stop. The route will travel H-2 to the Pearl Highlands Station continuing to the shopping areas in Pearl Highlands, via Kamehameha to left on Acacia to Kuala, right on Waimano Home Road, right on Kamehameha to Waiawa.	Pearl Highlands Station
511 ³		Connects Wahiawa Heights with Wahiawa Transit Center		Service will operate 30 minutes in the peak and midday periods	Eastbound from Wahiawa Transit Center route travels right on Cane, left California, left Puninoni, left Nonohe, right California to California and Grand View. The route returns to the transit center via California to right on Lehua and right on Center.	Wahiawa Transit Center

Table H-3. Changes to Local Bus Service with Implementation of Phase 1C—East Kapolei to Pearl Highlands (continued)

Route	Service Characteristics					Transit Centers and Rail Stations Served
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
512 ³		Connects Whitmore Village with Wahiawa		Service will operate 30 minutes in the peak and midday periods	Route travels from the Wahiawa Transit Center via right on Cane, right on California, right Anoni, right Kilani, left Kamehameha, right Whitmore to Whitmore and Nani Ihi. The route returns to the Wahiawa Transit Center via the reverse alignment turning left from California to Lehua and right on Center.	Wahiawa Transit Center
513 ³		Connects Schofield Barracks with Wahiawa		Service will operate 30 minutes in the peak and midday periods	Route travels from the Wahiawa Transit Center via right on Cane, right on California, left on Kamehameha, right on Wilikina and left into Schofield Barracks along the Route 72 current alignment returning to Wahiawa Transit Center via the reverse alignment turning left from California to Lehua and right on Center.	Wahiawa Transit Center

¹Listed frequencies are averaged for the time period

²Current routes as of May 2010

³New route

Table H-4. Changes to Local Bus Service with Implementation of Phase 2—East Kapolei to Aloha Stadium

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
A	Connects Waipahu with UH Mānoa	Modified to operate between Aloha Stadium and UH Mānoa	Route provides 15 minutes in peak and midday periods	Route will provide 10 minute peak and 15 minute midday service	Route A will provide limited stop service between Aloha Stadium and UH Mānoa.	Aloha Stadium, Middle Street Transit Center, Ala Moana Transit Center (via Kapi'olani)
C	Connects Mākaha Beach with Ala Moana via Kapolei	Connects Mākaha Beach with Ala Moana via Kapolei with a modification in Kapolei to service North-South Road	Route provides 30 minutes in peak and midday periods		Route C will provide limited stop service between Mākaha and Ala Moana. The route will operate via Farrington Highway to Kalaeloa Blvd and to Kapolei Parkway serving the Kapolei Transit Center. The route will continue from the transit center along Kapolei Parkway to left on the North-South Road entering H-1 and continuing via the current alignment.	Waianae Transit Center, Kapolei Transit Center, East Kapolei Station, UH West Oahu Station, Middle Street Transit Center (from Dillingham), Ala Moana Transit Center
D ³		New route connecting Wahiawa, Mililani and Waipi'o with the Pearl Highlands and downtown Honolulu		Service will operate 30 minutes in the peak and off-peak periods	Route D serves the Wahiawa Transit Center at California and Cane, traveling to Kamehameha, turning left onto Leilehua Golf Course Road to serve the Park-and-Ride Lot located at the Armory, accessing H-2 south to the Mililani Mauka Park-and-Ride Lot, returning to H-2 to Ka Uka to serve Koa Ridge transit stop, continuing on H-2 to Pearl Highlands Station. The route will continue from Pearl Highlands to downtown Honolulu via Kamehameha to left on Acacia, right on Kuala to Moanalua to access eastbound H-1 exiting at Vineyard to downtown Honolulu via Liliha and King Street.	Wahiawa Transit Center, Wahiawa Park-and-Ride Lot, Mililani Mauka Park-and-Ride Lot, Pearl Highlands Station

**Table H-4. Changes to Local Bus Service with Implementation of Phase 2—East Kapolei to Aloha Stadium
(continued)**

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
20	Connects Waikiki with Aiea	Route will be modified to operate between Aloha Stadium and Waikiki	Route provides 40 minute peak and midday service	Service will operate 20 minutes in the peak and 30 minutes in the midday periods	Route 20 will operate along its current alignment between Waikiki and Aloha Stadium.	Aloha Stadium, Ala Moana Transit Center
32	Connects Middle Street Transit Center with Salt Lake, Foster Village neighborhoods and Pearlridge Shopping Center	Route will be modified to operate between Middle Street Transit Center and Aloha Stadium	Route provides 30 minute peak and 60 minute midday service	Route provides 30 minute peak and midday service	Route 32 will operate along its current alignment between Middle Street Transit Center, terminating at the Aloha Stadium Transit Center.	Aloha Stadium, Middle Street Transit Center
41	Connects 'Ewa Beach with Kapolei	Connects 'Ewa Beach with Kapolei via an alignment change	Route provides 30 minute peak and midday service		Route 41 will travel from Kapolei Transit Center to left on Wākea, right on Kamokila to Farrington, right on UHWO connection road, right on UHWO Road B, left on East West Arterial, right on North-South Road, right on new development access road between Kapolei Parkway and Roosevelt, right on new development access road connecting back to right on Kapolei Parkway, left on Keone'ula Blvd, right on Fort Weaver Road, right on Kaamilo, to right on Kapolei Parkway to return to Kapolei Transit Center along same alignment.	Kapolei Transit Center, 'Ewa Beach Transit Center

**Table H-4. Changes to Local Bus Service with Implementation of Phase 2—East Kapolei to Aloha Stadium
(continued)**

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
44	Connects 'Ewa Beach with Waipahu		Route provides 60 minute peak and midday service	Route will operate 30 minutes in the peak and midday periods	No change	'Ewa Beach Transit Center, West Loch
50 ³		Connects Mililani with Waipi'o, Waikele and Waipahu		Service will operate 30 minutes in the peak and midday periods	Westbound from Mililani Transit Center the route will operate on Meheula, right onto H-2 South, Exit 2 "Ka Uka Blvd/Waipi'o", left on Moaniani, left Waipi'o Uka, left Lumikula, right Lumiaina, left Managers Drive to right on Hikimoe. The route returns to Mililani from Waipahu TC via left on Waipahu Depot Road, left on Farrington Hwy, left on Mokuola to Managers Drive following the rest of the alignment in reverse.	Mililani Transit Center, Waipahu Transit Center
51 ³		Connects Wahiawa with downtown Honolulu via Kamehameha Highway		Service will operate 15 minutes in the peak and 30 minutes in the midday periods	Route will operate from the Wahiawa Transit Center at California and Cane via California to Kamehameha Highway operating along the current Route 62 alignment to downtown Honolulu.	Wahiawa Transit Center, Pearl Highlands Station, Middle Street Transit Center (from Dillingham Blvd.), Ala Moana Transit Center
53	Connects Pacific Palisades with downtown Honolulu and Ala Moana	Route will be modified to operate on Moanalua Road from Pearlridge	Route provides 20 minute peak and 37 minute midday service	Route will operate 15 minutes in the peak and 30 minutes in the midday periods	Route will operate its current alignment from Pacific Palisades to Pearlridge, turning left onto Kaonohi and right on Moanalua to continue to Red Hill and its current alignment to Ala Moana.	Pearlridge, Ala Moana Transit Center

**Table H-4. Changes to Local Bus Service with Implementation of Phase 2—East Kapolei to Aloha Stadium
(continued)**

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
54	Connects Pearl City with downtown Honolulu	Restructured, see Routes 53 and 548	Route provides 38 minute peak and 60 minute midday service			
62	Connects Wahiawa with downtown Honolulu via Kamehameh a Highway	Restructured, see Routes 51 and 511	Route provides 20 minute peak and 32 minute midday service			
71	Connects Newtown and Pearlridge	Restructured, see 545	Peak period service			
72	Connects Whitmore Village, Wahiawa and Schofield Barracks	Restructured, see Routes 512 and 513	Route provides 70 minute peak and midday service			
73	Connects LCC and Pearl City	Route will be modified to serve the Pearl Highlands Station	Route provides 30 minute peak and midday service		The route will terminate at the Pearl Highlands Station instead of LCC.	Pearl Highlands Station

Table H-4. Changes to Local Bus Service with Implementation of Phase 2—East Kapolei to Aloha Stadium (continued)

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
416 ³		Connects Ko 'Olina and West Kapolei with Kapolei Transit Center		Will operate 30 minutes in the peak and midday periods	Route 416, from Ko 'Olina will travel Ali'inui to Kapolei Parkway serving the Kapolei Transit Center.	Kapolei Transit Center
417 ³		Connects Makakilo with UH West Oahu, East Kapolei Station and Kapolei Transit Center		Will operate 30 minutes in the peak and midday periods	Route 417 continues from Makakilo to UHWO TC via the continuation of Makakilo Drive to the North-South Road. The route serves the UHWO and the East Kapolei Station continuing to the Kapolei Transit Center via Kapolei Parkway. The route continues as Route 411 at the Kapolei Transit Center.	UH West Oahu Station, East Kapolei Station, Kapolei Transit Center
418 ³		Connects 'Ewa, Kalaehoa, and Kapolei with Kapolei Transit Center		Route provides 30 minute peak and 60 minute midday service	Route 418 provides local service from Kapolei TC via Wākea, right on Kamokila to Farrington, right on Kealanani, left on Kamaaha, right on Kaiau, left on Malu Ohai, left on Kapolei Parkway, left on North-South Road to serve East Kapolei Station, returning to left on Kapolei Parkway, left on Kolowaka, right on Fort Weaver, right on Geiger and right on Kapolei Parkway to return to the Kapolei Transit Center.	Kapolei Transit Center, East Kapolei Station
433	Connects Waipi'o and Waikele with Waipahu Transit Center	Connects Waipi'o and Waikele with Waipahu Transit Center	Route provides 30 minute peak and midday service		Route will be extended to the Koa Ridge transit stop just mauka of Ka Uka Blvd in the Koa Ridge Development.	Waipahu Transit Center Station

Table H-4. Changes to Local Bus Service with Implementation of Phase 2—East Kapolei to Aloha Stadium (continued)

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
441 ³		Connects Waiawa Development with Pearl Highlands		Service will operate 30 minutes in the peak and midday periods	Route 441 will traverse through the Waiawa development and be anchored on the west side at the Koa Ridge transit stop. The route will travel H-2 to the Pearl Highlands Station continuing to the shopping areas in Pearl Highlands, via Kamehameha to left on Acacia to Kuala, right on Waimano Home Road, right on Kamehameha to Waiawa.	Pearl Highlands Station
502 ³		Connects Mililani with Mililani Transit Center		Service will operate 60 minutes in the peak and midday periods	Route alignment will remain the same as current Route 504, however the route will be provided by regular fixed route service.	Mililani Transit Center
504	Connects Mililani with Mililani Transit Center	Renamed, see Route 502	Operates 66 minutes in the peak and 70 minutes in the midday periods			
511 ³		Connects Wahiawa Heights with Wahiawa Transit Center		Service will operate 30 minutes in the peak and midday periods	Eastbound from Wahiawa Transit Center route travels right on Cane, left California, left Puninoni, left Nonohe, right California to California and Grand View. The route returns to the transit center via California to right on Lehua and right on Center.	Wahiawa Transit Center

**Table H-4. Changes to Local Bus Service with Implementation of Phase 2—East Kapolei to Aloha Stadium
(continued)**

Route	Service Characteristics					Transit Centers and Rail Stations Served
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
512 ³		Connects Whitmore Village with Wahiawa		Service will operate 30 minutes in the peak and midday periods	Route travels from the Wahiawa Transit Center via right on Cane, right on California, right Anoni, right Kilani, left Kamehameha, right Whitmore to Whitmore and Nani Ihi. The route returns to the Wahiawa Transit Center via the reverse alignment turning left from California to Lehua and right on Center.	Wahiawa Transit Center
513 ³		Connects Schofield Barracks with Wahiawa		Service will operate 30 minutes in the peak and midday periods	Route travels from the Wahiawa Transit Center via right on Cane, right on California, left on Kamehameha, right on Wilikina and left into Schofield Barracks along the Route 72 current alignment returning to Wahiawa Transit Center via the reverse alignment turning left from California to Lehua and right on Center.	Wahiawa Transit Center
543 ³		Connects Kaonohi to Pearlridge		Service will operate 30 minutes in the peak and midday periods	Route 543 provides all-day service for residents along Kaonohi. From the Pearlridge Station, the route travels Kaonohi to Kaonohi/Kahapili. The return trip follows Kaonohi/Kahapili, to right on Kahapili, right on Kaonohi, left on Moanalua, right on Pali Momi, right on Kamehameha to right on Kaonohi.	Pearlridge Station
545 ³		Connects Royal Summit and Newtown with Pearlridge		Service will operate 30 minutes in the peak and midday periods	Route 545 replaces portions of shuttle Route 71. Route 545 offers all day service connecting Newtown with the Pearlridge Station. Westbound the route travels Kaonohi, to left on Moanalua, right on Ka'ahele, left on Ainanui to Ainanui and Ka'ahele. Eastbound the route travels from Ainanui and Ka'ahele, to right on Ka'ahele, right on Komo Mai, right on Hapaki, left on Piki, left on Nahele, right on Komo Mai, left on Kaahumanu, left Kamehameha to left on Kaonohi.	Pearlridge Station

**Table H-4. Changes to Local Bus Service with Implementation of Phase 2—East Kapolei to Aloha Stadium
(continued)**

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
546 ³		Route 546 offers new service to the growing residential areas along Kaahumanu.		Service will operate 30 minutes in the peak and midday periods	From the Pearlridge Station the route travels Kaonohi to right on Moanalua, right on Pali Momi, right on Kamehameha to right on Kaahumanu to the turnaround prior to the gated community at the end of Kaahumanu. The route returns to the Pearlridge Station via the same alignment to left on Kaonohi.	Pearlridge Station
548 ³		Connects Pearl City communities with Pearlridge		Service will operate 15 minutes in the peak and 30 minutes in the midday periods	Route 548 is a combination of the upper and lower loops of the current Route 54 tails. By combining the two loops, intending passengers can catch any Route 548 bus and know they will get to their destination. Counterclockwise from the Pearlridge Station the route travels Kaonohi to left on Moanalua, right on Ka'ahele, left on Komo Mai, left on Kaahumanu, right on Ho'okanike, right on Ho'omalua, left on Komo Mai, right on Ho'omoana, left on Ho'olaule'a, left on Waimano Home Road, right on Kuahaka, right on Noelani, right on Ho'olaule'a, left on Ho'omalua, right on Noelani, right on Kaahumanu and left on Kamehameha to left on Kaonohi. Clockwise the route follows the same alignment in reverse.	Pearlridge Station

¹Listed frequencies are averaged for the time period

²Current routes as of May 2010

³New route

Table H-5. Changes to Local Bus Service with Implementation of Phase 3—East Kapolei to Middle Street

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
A	Connects Waipahu with UH Mānoa	Modified to operate between Middle Street and UH Mānoa	Route provides 15 minutes in peak and midday periods	Route will provide 10 minute peak and midday service	Route A will provide limited stop service between Middle Street Transit Center and UH Mānoa. The route will operate via Middle Street to King Street and Kapi'olani Blvd and University Avenue to Sinclair Circle at the University.	Middle Street Transit Center, Ala Moana Transit Center (via Kapi'olani)
C	Connects Mākaha Beach with Ala Moana via Kapolei	Connects Mākaha Beach with Ala Moana via Kapolei with a modification in Kapolei to service North-South Road	Route provides 30 minutes in peak and midday periods		Route C will provide limited stop service between Mākaha and Ala Moana. The route will operate via Farrington Highway to Kalaeloa Blvd and to Kapolei Parkway serving the Kapolei Transit Center. The route will continue from the transit center along Kapolei Parkway to left on the North-South Road entering H-1 and continuing via the current alignment.	Waianae Transit Center, Kapolei Transit Center, East Kapolei Station, UH West Oahu Station, Middle Street Transit Center (from Dillingham), Ala Moana Transit Center
D ³		New route connecting Wahiawa, Mililani and Waipi'o with the Pearl Highlands rail station		Service will operate 30 minutes in the peak and off-peak periods	Route D serves the Wahiawa Transit Center at California and Cane, traveling to Kamehameha, turning left onto Leilehua Golf Course Road to serve the Park-and-Ride Lot located at the Armory, accessing H-2 south to the Mililani Mauka Park-and-Ride Lot, returning to H-2 to Ka Uka to serve Koa Ridge transit stop, continuing on H-2 to Pearl Highlands Station.	Wahiawa Transit Center, Wahiawa Park-and-Ride Lot, Mililani Mauka Park-and-Ride Lot, Pearl Highlands Station

Table H-5. Changes to Local Bus Service with Implementation of Phase 3—East Kapolei to Middle Street (continued)

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
PH1 (93A)	Connects Waianae Coast with Pearl Harbor and Hickam Air Force Base	Modified to serve UH West Oahu Station. Pearl Harbor and Hickam Air Force Base service will be provided by Routes 312 and 313.	Peak period service	Peak period service	Route is modified to serve UH West Oahu via H-1 to North-South Road interchange, left on Farrington and right onto TC access road. Return to Waianae in reverse.	Waianae Transit Center, UH West Oahu Station
PH2/ Ph3 (83A)	Connects Wahiawa and Mililani with Pearl Harbor and Hickam Air Force Base	Modified to serve Pearl Highlands Station. Pearl Harbor and Hickam Air Force Base service will be provided by Routes 312 and 313.	Peak period service	Peak period service	Routes are modified to serve Pearl Highlands via H-2 and dedicated ramp to facility.	Wahiawa Transit Center, Mililani Transit Center, Pearl Highlands Station
1	Connects East Honolulu with Downtown Honolulu and Kalihi	No change to route	Route provides 12 minute peak and midday service	Route provides 10 minute peak and midday service		Middle Street Transit Center and Station, Hawaii Kai Park-and-Ride

Table H-5. Changes to Local Bus Service with Implementation of Phase 3—East Kapolei to Middle Street (continued)

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
7	Serves Kalihi Valley	Restructured, see new Routes 303 and 305	Route provides 15 minute peak and 40 minute midday service			
9	Connects Pālolo with Pearl Harbor	Modified to connect Pālolo with Middle Street Transit Center and Station. Pearl Harbor service will be provided by new Route 312.	Route provides 19 minute peak and 45 minute midday service		The route will operate along its current alignment from Pālolo to Middle Street Transit Center where it will terminate.	Middle Street Transit Center and Station, Ala Moana Transit Center (from Kapi'olani Blvd.)
10	Serves Kalihi and 'Ālewa Heights	Restructured, see Route 304	Route provides 40 minute peak and 75 minute midday service			
16	Connects Moanalua Valley with Kalihi Transit Center	Restructured, see Route 311	Peak period service			

Table H-5. Changes to Local Bus Service with Implementation of Phase 3—East Kapolei to Middle Street (continued)

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
19	Connects Waikiki with the Honolulu International Airport and Hickam Air Force Base	Restructured route will connect Waikiki with Honolulu International Airport	Route provides 30 minute peak and 40 minute midday service	Service will operate 15 minutes in peak and midday periods	Westbound from Waikiki, the route will follow its current alignment to left on Rodgers to the Airport Station. The route returns via the same routing continuing along Route 19's current alignment to Waikiki with the exception that the Route does not circle Ala Moana Center instead staying on Ala Moana Blvd.	Ala Moana Transit Center (from Ala Moana Blvd.), Airport Station
20	Connects Waikiki with Aiea	Route will be replaced with rail line	Route provides 40 minute peak and midday service			
32	Connects Middle Street Transit Center with Salt Lake, Foster Village neighborhoods and Pearlridge Shopping Center	Restructured, see Route 301	Route provides 30 minute peak and 60 minute midday service			

Table H-5. Changes to Local Bus Service with Implementation of Phase 3—East Kapolei to Middle Street (continued)

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
41	Connects 'Ewa Beach with Kapolei	Connects 'Ewa Beach with Kapolei via an alignment change	Route provides 30 minute peak and midday service	Service will operate 15 minutes in the peak and 30 minutes in the midday periods	Route 41 will travel from Kapolei Transit Center to left on Wākea, right on Kamokila to Farrington, right on UHWO connection road, right on UHWO Road B, left on East West Arterial, right on North-South Road, right on new development access road between Kapolei Parkway and Roosevelt, right on new development access road connecting back to right on Kapolei Parkway, left on Keone'ula Blvd, right on Fort Weaver Road, right on Kamaile, to right on Kapolei Parkway to return to Kapolei Transit Center along same alignment.	Kapolei Transit Center, 'Ewa Beach Transit Center
43	Connects Waipahu with Ala Moana	Route will be replaced with rail line	Route provides 30 minute peak and midday service			
44	Connects 'Ewa Beach with Waipahu		Route provides 60 minute peak and midday service	Route will operate 30 minutes in the peak and midday periods	No change	'Ewa Beach Transit Center, West Loch
50 ³		Connects Mililani with Waipi'o, Waikele and Waipahu		Service will operate 30 minutes in the peak and midday periods	Westbound from Mililani Transit Center the route will operate on Meheula, right onto H-2 South, Exit 2 "Ka Uka Blvd/Waipi'o", left on Moaniani, left Waipi'o Uka, left Lumikula, right Lumiaina, left Managers Drive to right on Hikimoe. The route returns to Mililani from Waipahu TC via left on Waipahu Depot Road, left on Farrington Hwy, left on Mokuola to Managers Drive following the rest of the alignment in reverse.	Mililani Transit Center, Waipahu Transit Center

Table H-5. Changes to Local Bus Service with Implementation of Phase 3—East Kapolei to Middle Street (continued)

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
51 ³		Connects Wahiawa with downtown Honolulu via Kamehameha Highway		Service will operate 15 minutes in the peak and 30 minutes in the midday periods	Route will operate from the Wahiawa Transit Center at California and Cane via California to Kamehameha Highway operating along the current Route 62 alignment to downtown Honolulu.	Wahiawa Transit Center, Pearl Highlands Station, Middle Street Transit Center (from Dillingham Blvd.), Ala Moana Transit Center
53	Connects Pacific Palisades with downtown Honolulu and Ala Moana	Route will be modified to operate on Moanalua Road from Pearlridge	Route provides 20 minute peak and 37 minute midday service	Route will operate 15 minutes in the peak and 30 minutes in the midday periods	Route will operate its current alignment from Pacific Palisades to Pearlridge, turning left onto Kaonohi and right on Moanalua to continue to Red Hill and its current alignment to Ala Moana.	Pearlridge, Ala Moana Transit Center
54	Connects Pearl City with downtown Honolulu	Restructured, see Routes 53 and 548	Route provides 38 minute peak and 60 minute midday service			
62	Connects Wahiawa with downtown Honolulu via Kamehameha Highway	Restructured, see Routes 51 and 511	Route provides 20 minute peak and 32 minute midday service			

Table H-5. Changes to Local Bus Service with Implementation of Phase 3—East Kapolei to Middle Street (continued)

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
71	Connects Newtown and Pearlridge	Restructured, see 545	Peak period service			
72	Connects Whitmore Village, Wahiawa and Schofield Barracks	Restructured, see Routes 512 and 513	Route provides 70 minute peak and midday service			
73	Connects LCC and Pearl City	Route will be modified to serve the Pearl Highlands Station	Route provides 30 minute peak and midday service		The route will terminate at the Pearl Highlands Station instead of LCC.	Pearl Highlands Station
84/ 84A	Connects upper and lower Mililani with downtown Honolulu	Trips will be added providing direct service to the Pearl Highlands Station	Peak period service	Peak period service	Added trips will be modified to serve Pearl Highlands via H-2 and dedicated ramp to facility.	Mililani Transit Center, Pearl Highlands Station

Table H-5. Changes to Local Bus Service with Implementation of Phase 3—East Kapolei to Middle Street (continued)

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
301 ³		Route 301 provides service between the Middle Street Station and Transit Center and Salt Lake, Foster Village and Makalapa.		Service will operate 30 minutes in the peak and midday periods	Westbound from the Middle Street Transit Center and Station, the route travels right on Middle Street, left on Kaua to Damon, Kikowaena, left on 'Āhua, right on Pūkōloa to Salt Lake, right on Ala Napunani, left on Likini, left on Ala Liliko'i, right on Salt Lake, right on Likini Place, left Likini, right on 'Aila, left on Āliamanu, right on Wanaka, left on Miko, right on Ukana, left on Keaka, right on Pakini, right on Punihi, right on Hālupa, left on Hāloa, right on Ala Oli, right on Salt Lake to Aloha Stadium Transit Center. The route returns to Middle Street Transit Center via the same alignment.	Middle Street Transit Center and Station, Aloha Stadium Station and Transit Center
303 ³		Route 303 provides a direct connection for Kalihi Valley Homes to the Middle Street Transit Center		Service will operate 15 minutes peak and 30 minutes midday periods	The alignment along with Route 305 is part of a revised current Route 7 via eastbound from Kalihi Transit Center and Middle Street Station, the route travels right on Middle Street to School, left on Kamehameha IV, left on Kalena to Kalena and 'Alu. The route returns via Kalena and 'Alu, to Kalena, right on 'Alu, right on Likelike to Kamehameha IV, right on School to Middle Street to the Kalihi Transit Center.	Middle Street Transit Center and Station

Table H-5. Changes to Local Bus Service with Implementation of Phase 3—East Kapolei to Middle Street (continued)

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
304 ³		Connects Alewa Heights, Pauoa, Palama with Middle Street Transit Center		Service will operate 15 minutes peak and 30 minutes midday periods	Eastbound from the Middle Street Transit Center, the route travels Middle Street, right on King, left on Houghtailing, left on Hillcrest, right on Keālia, right on Makanani to Lolena and Iholena, left on Judd, left on Nu‘uanu, left on Wyllie, left on ‘Ālewa to left on Ho‘omaikai, right on Kualono, right on Kalikimaka to Kalikimaka and ‘Ālewa. The route returns to the Middle Street Transit Center via Kalikimaka, right on ‘Ālewa, right on Wyllie, right on Nu‘uanu, right on Judd, right on Iholena to Lolena and Makanani, left on Keālia, left on Hillcrest, right on School, left on Houghtailing, right on King to Kua, left on Middle to the transit center.	Middle Street Transit Center and Station
305 ³		Connects Kalihi Valley and Kalihi Kai with Middle Street Transit Center		Service will operate 15 minutes peak and 30 minutes midday periods	Eastbound from the Middle Street Transit Center the route travels left on Middle Street, left on Kamehameha/Dillingham, right on Mokauea, left on Auiki, left on Kalihi to Likelike to Kalihi and Ahuahu. The route returns to the Middle Street Transit Center along the same alignment.	Middle Street Transit Center and Station
306 ³		Connects Mapunapuna and Lagoon Drive with Middle Street Transit Center and Lagoon Drive Station		Service will operate 60 minutes peak and midday periods	Northbound from Lagoon Drive and Palekona route travels along Lagoon Drive. The route will cross Nimitz to Pu‘uloa Rd, right on Pūkōloa, right Māpunapuna, left Awa‘awaloa, left ‘Āhua to Kikowaena to access road to Middle Street TC and Station. Same alignment in opposite direction.	Middle Street Transit Center and Station, Lagoon Drive Station

Table H-5. Changes to Local Bus Service with Implementation of Phase 3—East Kapolei to Middle Street (continued)

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
311 ³		New route connecting Moanalua Valley with Salt Lake and the Airport		Service will operate 15 minutes in peak and 30 minutes in midday periods	Mauka bound from the airport the route travels Paiea, left to Aolele, right on Rodgers, right on Nimitz, left on Camp Catlin, left on Arizona, left on Salt Lake, right on Ala Liliko'i, right Ala 'Ilima, left on Ala Napunani, right Ala Aolani, right Moanalua, left Ala Kapuna, left Moanalua to serve the Kaiser Foundation Hospital, left Ala Napunani, left Ala Aolani to Ala Aolani and Ala Uwila. The return trip follows from Moanalua Valley via Ala Aolani, right on Moanalua (again serving Kaiser), left Ala Kapuna, left Moanalua, right Ala Napunani, right Ala 'Ilima, left Ala Liliko'i, left Salt Lake, right Arizona, right Camp Catlin, right Nimitz and left on Rodgers to rail station.	Airport Station
312 ³		New route connecting Pearl Harbor destinations with Aloha Stadium rail station. Route 312 replaces Route 9 and Express bus service. State Holiday service would be provided on a much reduced schedule.		Service will operate 15 minutes in peak and 30 minutes in midday periods	Route 312 will provide all day connections from the Aloha Stadium Station to Pearl Harbor destinations via Kamehameha to right on Arizona, left on Neches, right on North Road, left on Kūāhua, right on Jarvis, right on Northampton to Simms, right on Vincennes, right on North Road, right on Pearl Harbor Blvd, to Club Road, Safeguard and Central continuing to Landing C. The route returns to Aloha Stadium Station via the same alignment.	Aloha Stadium Station

Table H-5. Changes to Local Bus Service with Implementation of Phase 3—East Kapolei to Middle Street (continued)

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
313 ³		Connects Hickam Air Force Base with Pearl Harbor Station		Route will operate 20 minute peak and 30 minute midday period service	Route travels from Pearl Harbor Station via Kamehameha to Nimitz, right on Elliott to serve Hickam Air Force Base replacing Route 19 service following the Route 19 alignment from Nimitz and Elliott returning in the morning peak period via Nimitz to right on Valkenburgh, left on Radford and left on Kamehameha. In the PM peak period, the route travels to Pearl Harbor Station via Nimitz to Kamehameha to right on Radford and right on Valkenburgh. Between the hours of 9 PM and 5 AM, the route accesses Hickam Air Force Base through the main gate on O'Malley Boulevard.	Pearl Harbor Station
314 ³		Connects Ford Island with Aloha Stadium Station and Arizona Memorial		Route provides 15-minute all day service between Aloha Stadium Station and the Arizona Memorial and 30-minute peak and 60-minute mid-day service to Ford Island	Route 314 serves Aloha Stadium Station after circulating through Ford Island, continuing on Salt Lake Blvd to right on Bougainville, right on Radford Drive, right on Kamehameha to the Arizona Memorial continuing to Aloha Stadium and Ford Island. Two-way directional loop.	Aloha Stadium Station, Pearl Harbor Station
416 ³		Connects Ko 'Olina and West Kapolei with Kapolei Transit Center		Will operate 30 minutes in the peak and midday periods	Route 416, from Ko 'Olina will travel Ali'inui to Kapolei Parkway serving the Kapolei Transit Center.	Kapolei Transit Center

Table H-5. Changes to Local Bus Service with Implementation of Phase 3—East Kapolei to Middle Street (continued)

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
417 ³		Connects Makakilo with UH West Oahu, East Kapolei Station and Kapolei Transit Center		Will operate 30 minutes in the peak and midday periods	Route 417 continues from Makakilo to UHWO TC via the continuation of Makakilo Drive to the North-South Road. The route serves the UHWO and the East Kapolei Station continuing to the Kapolei Transit Center via Kapolei Parkway. The route continues as Route 411 at the Kapolei Transit Center.	UH West Oahu Station, East Kapolei Station, Kapolei Transit Center
418 ³		Connects 'Ewa, Kalaelo, and Kapolei with Kapolei Transit Center		Route provides 30 minute peak and 60 minute midday service	Route 418 provides local service from Kapolei TC via Wākea, right on Kamokila to Farrington, right on Kealanani, left on Kamaaha, right on Kaiu, left on Malu Ohai, left on Kapolei Parkway, left on North-South Road to serve East Kapolei Station, returning to left on Kapolei Parkway, left on Kolowaka, right on Fort Weaver, right on Geiger and right on Kapolei Parkway to return to the Kapolei Transit Center.	Kapolei Transit Center, East Kapolei Station
433	Connects Waipi'o and Waikele with Waipahu Transit Center	Connects Waipi'o and Waikele with Waipahu Transit Center	Route provides 30 minute peak and midday service		Route will be extended to the Koa Ridge transit stop just mauka of Ka Uka Blvd in the Koa Ridge Development.	Waipahu Transit Center Station
441 ³		Connects Waiawa Development with Pearl Highlands		Service will operate 30 minutes in the peak and midday periods	Route 441 will traverse through the Waiawa development and be anchored on the west side at the Koa Ridge transit stop. The route will travel H-2 to the Pearl Highlands Station continuing to the shopping areas in Pearl Highlands, via Kamehameha to left on Acacia to Kuala, right on Waimano Home Road, right on Kamehameha to Waiawa.	Pearl Highlands Station

Table H-5. Changes to Local Bus Service with Implementation of Phase 3—East Kapolei to Middle Street (continued)

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
501	Connects Mililani Mauka with Mililani	Connects Mililani Mauka with Mililani	Operates 55 minutes in AM peak and 65 minutes in midday and PM peak periods	Service will operate 30 minutes in the peak and 60 minutes in the midday periods	Route alignment will remain the same, however the route will be provided by regular fixed route service.	Mililani Transit Center, Mililani Mauka Park-and-Ride Lot
502 ³		Connects Mililani with Mililani Transit Center		Service will operate 30 minutes in the peak and 60 minutes in the midday periods	Route alignment will remain the same as current Route 504, however the route will be provided by regular fixed route service.	Mililani Transit Center
504	Connects Mililani with Mililani Transit Center	Renamed, see Route 502	Operates 66 minutes in the peak and 70 minutes in the midday periods			
511 ³		Connects Wahiawa Heights with Wahiawa Transit Center		Service will operate 30 minutes in the peak and midday periods	Eastbound from Wahiawa Transit Center route travels right on Cane, left California, left Puninoni, left Nonohe, right California to California and Grand View. The route returns to the transit center via California to right on Lehua and right on Center.	Wahiawa Transit Center
512 ³		Connects Whitmore Village with Wahiawa		Service will operate 30 minutes in the peak and midday periods	Route travels from the Wahiawa Transit Center via right on Cane, right on California, right Anoni, right Kilani, left Kamehameha, right Whitmore to Whitmore and Nani Ihi. The route returns to the Wahiawa Transit Center via the reverse alignment turning left from California to Lehua and right on Center.	Wahiawa Transit Center

Table H-5. Changes to Local Bus Service with Implementation of Phase 3—East Kapolei to Middle Street (continued)

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
513 ³		Connects Schofield Barracks with Wahiawa		Service will operate 30 minutes in the peak and midday periods	Route travels from the Wahiawa Transit Center via right on Cane, right on California, left on Kamehameha, right on Wilikina and left into Schofield Barracks along the Route 72 current alignment returning to Wahiawa Transit Center via the reverse alignment turning left from California to Lehua and right on Center.	Wahiawa Transit Center
543 ³		Connects Kaonohi to Pearlridge		Service will operate 30 minutes in the peak and midday periods	Route 543 provides all-day service for residents along Kaonohi. From the Pearlridge Station, the route travels Kaonohi to Kaonohi/Kahapili. The return trip follows Kaonohi/Kahapili, to right on Kahapili, right on Kaonohi, left on Moanalua, right on Pali Momi, right on Kamehameha to right on Kaonohi.	Pearlridge Station
545 ³		Connects Royal Summit and Newtown with Pearlridge		Service will operate 30 minutes in the peak and midday periods	Route 545 replaces portions of shuttle Route 71. Route 545 offers all day service connecting Newtown with the Pearlridge Station. Westbound the route travels Kaonohi, to left on Moanalua, right on Ka'ahele, left on Ainanui to Ainanui and Ka'ahele. Eastbound the route travels from Ainanui and Ka'ahele, to right on Ka'ahele, right on Komo Mai, right on Hapaki, left on Piki, left on Nahele, right on Komo Mai, left on Kaahumanu, left Kamehameha to left on Kaonohi.	Pearlridge Station
546 ³		Route 546 offers new service to the growing residential areas along Kaahumanu.		Service will operate 30 minutes in the peak and midday periods	From the Pearlridge Station the route travels Kaonohi to right on Moanalua, right on Pali Momi, right on Kamehameha to right on Kaahumanu to the turnaround prior to the gated community at the end of Kaahumanu. The route returns to the Pearlridge Station via the same alignment to left on Kaonohi.	Pearlridge Station

Table H-5. Changes to Local Bus Service with Implementation of Phase 3—East Kapolei to Middle Street (continued)

Route	Service Characteristics					
	Service Coverage		Service Frequencies ¹		Routing Description (with Project)	Transit Centers and Rail Stations Served
	Current ²	Proposed with the Project	Current ²	Proposed with the Project		
548 ³		Connects Pearl City communities with Pearlridge		Service will operate 15 minutes in the peak and 30 minutes in the midday periods	Route 548 is a combination of the upper and lower loops of the current Route 54 tails. By combining the two loops, intending passengers can catch any Route 548 bus and know they will get to their destination. Counterclockwise from the Pearlridge Station the route travels Kaonohi to left on Moanalua, right on Ka'ahele, left on Komo Mai, left on Kaahumanu, right on Ho'okanike, right on Ho'omalua, left on Komo Mai, right on Ho'omoana, left on Ho'olaule'a, left on Waimano Home Road, right on Kuahaka, right on Noelani, right on Ho'olaule'a, left on Ho'omalua, right on Noelani, right on Kaahumanu and left on Kamehameha to left on Kaonohi. Clockwise the route follows the same alignment in reverse.	Pearlridge Station

¹Listed frequencies are averaged for the time period

²Current routes as of May 2010

³New route