Addendum 02 to the Transportation Technical Report Honolulu High-Capacity Transit Corridor Project

October 1, 2009

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 Addendum 01), the information in this Addendum supersedes that of the technical report and Addendum 01.

The information presented in this Addendum reflects refinement of travel forecasting in accordance with direction from the Federal Transit Administration (FTA). Refinements were made by adding an updated air passenger model, defining more realistic drive access modes to project stations, and recognizing a more robust off-peak non-home-based direct demand element based on travel surveys in Honolulu. Updated data from the travel forecasting model resulted in increased projected demand at park-and-ride facilities, as well as an increase in drop-off/pick-up activity (kiss-and-ride) at stations. The intersection-level traffic analysis was reevaluated using the higher numbers. Section 2, Methodology, includes additional information regarding the changes to travel forecasting and intersection analysis that are reflected in the Final Environmental Impact Study (EIS).

Changes in this Addendum also reflect additional analysis conducted in response to public comments received during the Draft EIS review period, including those relating to parking effects. Lastly, information related to column placement for the fixed guideway has been revised based on further design of the Project.

The Final EIS was changed to reflect identification of the Airport Alternative as the Project and Preferred Alternative for the Honolulu High-Capacity Transit Corridor Project. The Salt Lake alignment is now considered a possible future extension along with West Kapolei, UH Manoa, and Waikiki. The term "Project" refers to the Fixed Guideway Transit Alternative via the Airport that was evaluated in the Draft EIS. Sections 5, 6, 7, and 8 in this Addendum only reflect updated information for the Project.

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)**

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 and then follow Aolele Street Koko Head to reconnect to Nimitz Highway near Moanalua Stream and continuing to the Middle Street Transit Center (Figure 1-5). Stations will be constructed at Aloha Stadium, Pearl Harbor Naval Base, Honolulu International Airport, and Lagoon Drive.

Koko Head of Middle Street, the guideway will follow Dillingham Boulevard to the vicinity of Kaʻaahi 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 Waiʻanae 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 Kapiʻolani 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 Hawaiʻi 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.

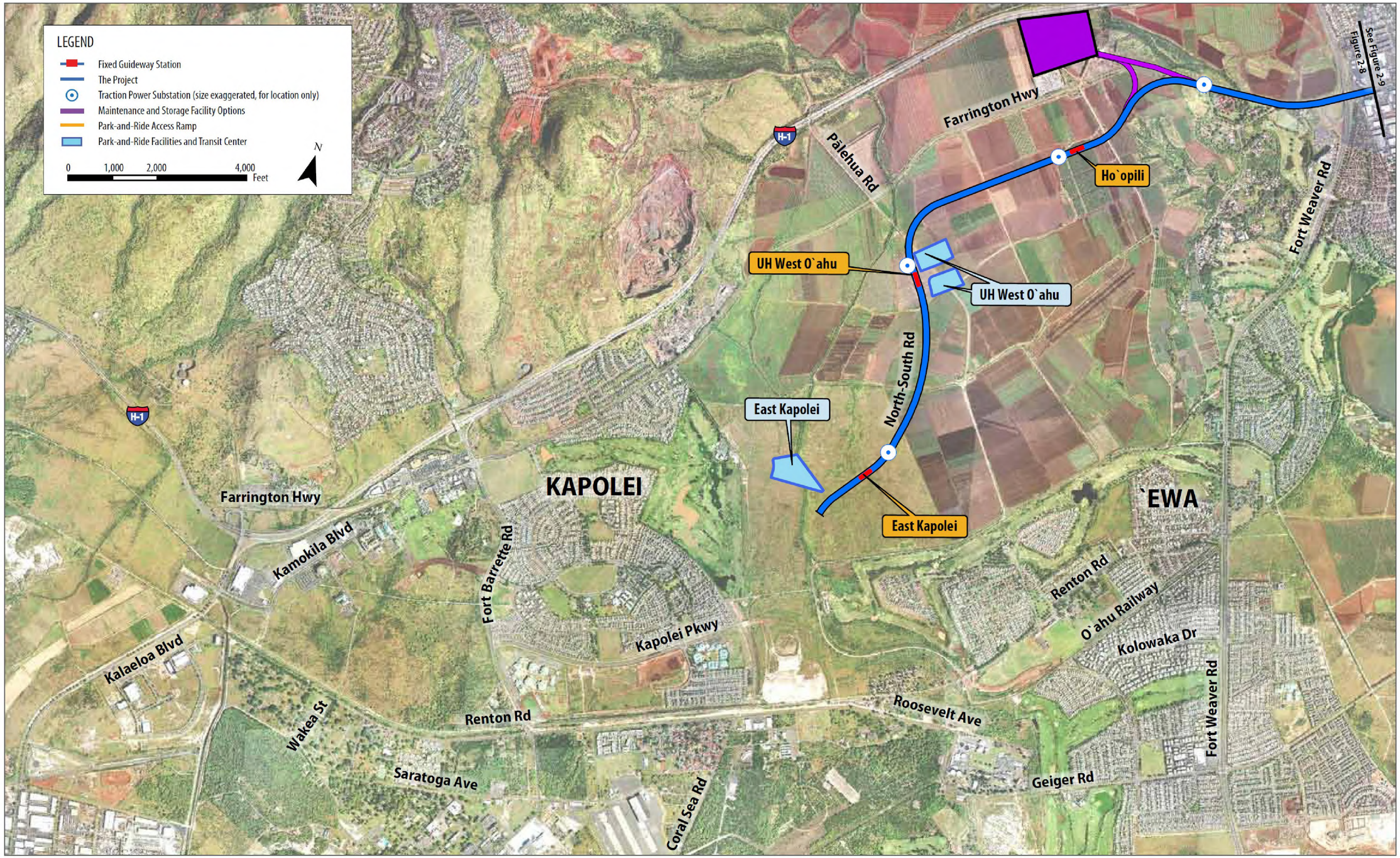

Figure 1-3: Fixed Guideway Transit Alternative Features (East Kapolei to Fort Weaver Road)

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

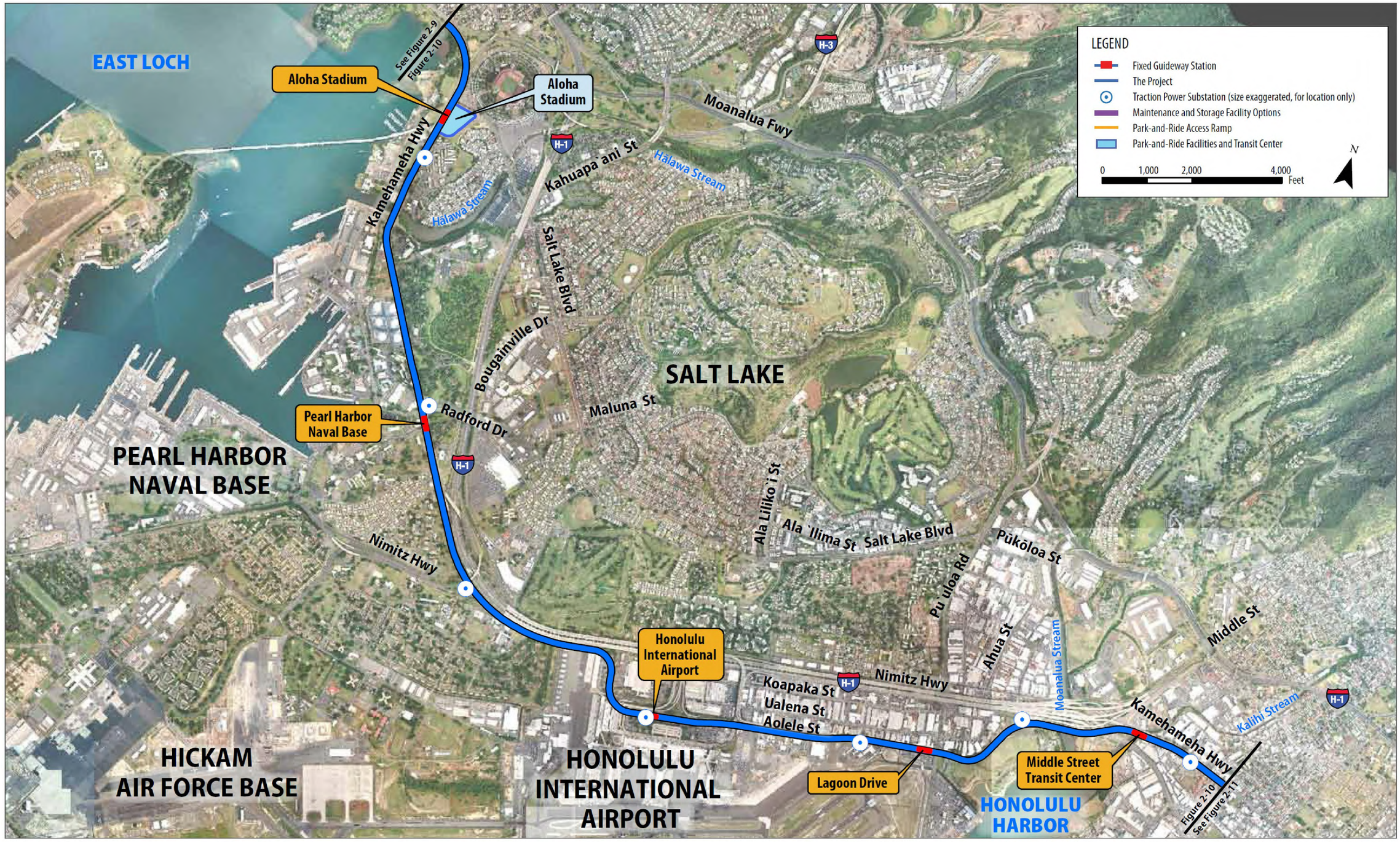

Figure 1-5: Fixed Guideway Transit Alternative Features (Aloha Stadium to Kalihi)

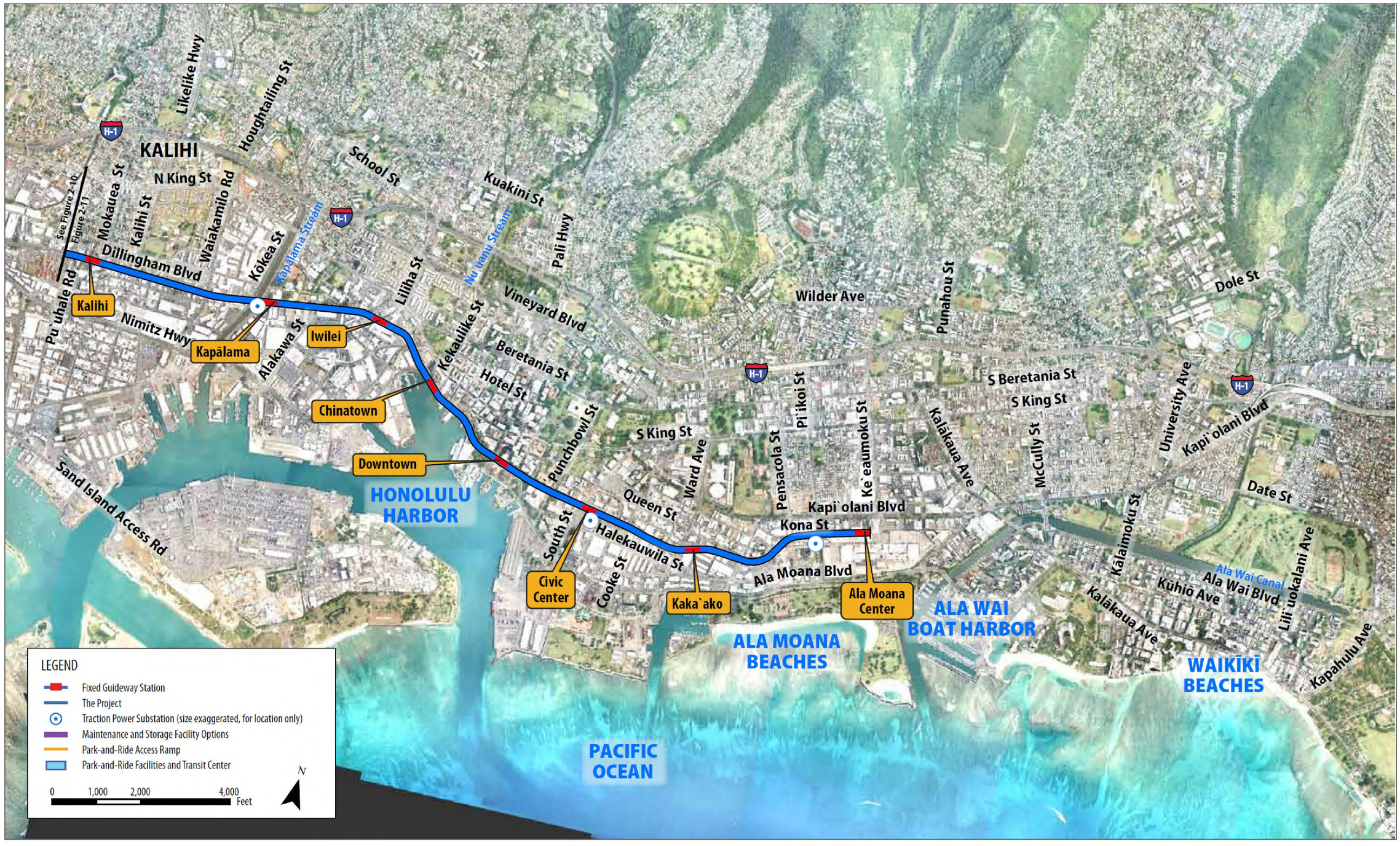

Figure 1-6: Fixed Guideway Transit Alternative Features (Kalihi to Ala Moana Center)

Add	The following supplements and is added before the last paragraph of **Section 2.1—Analytical Tools and Data Sources**

Ridership projections for the forecast year of 2030 have been developed using the travel demand model, which was calibrated and validated to current year conditions. The model is updated by O'ahuMPO approximately every five years to reflect changes in land use, socioeconomic conditions, and transportation network improvements. The model is approved by the O'ahuMPO Technical Advisory Committee. The model is based upon a set of realistic input assumptions regarding land use and demographic changes between now and 2030 and expected transportation levels-of-service on both the highway and public transit system. Before it is used in forecasting, the model is calibrated against empirically collected traffic and transit ridership information and then validated against current counts to be sure it properly represents travel activity in the transportation system. Sensitivity tests (e.g., changing highway speeds or transit fares) are performed to ensure the results are stable and predictable within reasonable expectations of consistency. Based upon the model and these key input assumptions, approximately 116,000 trips per day are expected to use the rapid transit system on an average weekday in 2030. Since the Draft EIS was published, the travel demand model has been refined by adding an updated air passenger model, defining more realistic drive access modes to project stations, and recognizing a more robust off-peak non-homebased direct demand element based on travel surveys in Honolulu.

The Project is one of the first in the country to design and undertake an uncertainty analysis of this type of travel forecast. The uncertainty analysis evaluates the variability of the forecast by establishing probabilistic upper and lower limits of ridership projections. FTA has worked closely with the City during this work effort. A variety of factors were considered in the uncertainty analysis, including the following:

- Variations in assumptions regarding the magnitude and distribution patterns of future growth in the 'Ewa end of the corridor
- The impact of various levels of investment in highway infrastructure
- The expected frequency of service provided by the Project
- Park-and-ride behavior with the new system in place
- The implications on ridership of vehicle and passenger amenities provided by the new guideway vehicles

Given all the factors considered, the anticipated limits for guideway ridership in 2030 are expected to be between 105,000 to 130,000 trips per day, bracketing the official forecast of 116,000 riders a day used for all calculations.

Additional detail on methodology, input, and model coding is documented in the *Honolulu High-Capacity Transit Corridor Project Addendum 01 to the Travel*

Demand Forecasting Results Report (RTD 2009j), *Honolulu High-Capacity Transit Corridor Project Model Development, Calibration, and Validation Report* (RTD 2009k), and *Honolulu High-Capacity Transit Corridor Project Travel Forecasting Results and Uncertainties Report* (RTD 2009l). Recognizing the variability of input data, the results reflect the best estimate of the travel forecasts consistent with guidance from the FTA.

Add	The following supplements and is added to the beginning of **Section 2.3.3—Traffic Analysis Methodology**

Highway Capacity Manual (HCM) methodology is considered state-of-the-practice when assessing traffic effects and is appropriate for verifying the effect of proposed mitigation measures on the transportation system. The HCM methodology provides a high level of confidence in the reporting of observed and forecast traffic conditions in the study area when identifying potential effects or deficiencies of a roadway system. It was determined and agreed with the City and County that the most appropriate approach to analyzing intersection level of service was the use of the HCM methodology applied in the SYNCHRO software.

The HCM methodology takes into account various roadway characteristics, including signal timing plans, intersection geometry, vehicle movements and pedestrian movements, and storage bay lengths. Other conventional methodologies, like Intersection Capacity Utilization (ICU) and Circular 212, do not account for parameters such as signal timings and the multi-modal nature of this corridor. HCM reports the delay experienced by vehicles traveling through an intersection and determines intersection operating conditions for varying ranges of delay. In congested areas and on roadways with closely spaced intersections, the HCM methodology employed in the SYNCHRO software considers upstream and downstream operations (i.e., queuing effects that extend from one intersection to the next). Queue lengths can be estimated for each turning movement to better model the actual traffic operating conditions to ascertain whether queuing extends between locations.

HCM is also the basis for the analysis of unsignalized intersections, of which there are 46 in the study corridor. Other methodologies, such as ICU and Circular 212, are not applicable for unsignalized intersection analysis. Using HCM for both types of intersections allows for a consistent approach to the analysis across the whole corridor. While the HCM methodology has limitations, it works well for corridor level analysis. Where saturated conditions were found, further analysis was performed using micro simulation models to evaluate more detailed conditions.

Add	The following supplements and is added to the end of **Section 2.3.4—Localized Traffic Analysis at and near Stations**

A supplementary traffic analysis was conducted for the Final EIS to determine whether any new effects would arise with the updated ridership and mode of access forecasts (May 21, 2009) at each of the proposed guideway transit stations.

Additional analysis assessed effects from project traffic due to an increase in demand for park-and-ride, kiss-and-ride, and bus operations, and examined the potential for spillover parking. The new analysis was undertaken only for the Airport Alternative (the Project).

Development of Intersection Peak Hour Turning Movements

The methodology used to conduct localized station area traffic impact analysis was consistent with the approach applied in the Draft EIS. Based on the mode of access data, park-and-ride and kiss-and-ride daily person trip productions and attractions (P&A) were provided for each station with park-and-ride facilities. (The home end of a trip is a production regardless of whether it represents the origin or destination of the trip. The non-home end of a home-based trip is the attraction. For a non-home-based trip (neither origin nor destination is at home) production and attraction are synonymous with origin and destination.) The P&A numbers were converted to daily origin and destination vehicle trip projections and subsequently into peak hour numbers for the stations. The converted origin/destination vehicle trip projections for the park-and-ride, potential spillover and kiss-and-ride rail transit patrons for each station are summarized in Table A2-1.

Table A2-1: Daily Park-and-Ride and Kiss-and-Ride Vehicle Trip Generation for Selected Station Traffic Analysis

Station	Formal Park-and-Ride Lots			Spillover Parking Demand			Kiss-and-Ride		
	In	Out	Total	In	Out	Total	In	Out	Total
East Kapolei	1,231	1,231	2,462	–	–	–	380	380	760
UH-West O'ahu	584	584	1,168	–	–	–	255	255	510
Pearl Highlands	2,682	2,682	5,364	–	–	–	592	592	1,184
Aloha Stadium	1,389	1,389	2,778	–	–	–	109	109	218
West Loch	–	–	–	97	97	194	503	503	1,006
Pearlridge	–	–	–	49	49	98	234	234	468
Middle Street Transit Center	–	–	–	28	28	56	137	137	274
Iwilei	–	–	–	105	105	210	515	515	1,030
Downtown/Aloha Tower	–	–	–	–	–	–	11	11	22
Ala Moana Center	–	–	–	217	217	434	886	886	1,772

Bus transit feeder service projections were used to project the number of additional buses that will be attracted to the station area under the Project. Table A2-2 shows the estimated peak hour vehicle trip generation for each station. These trips were subsequently assigned to the roadway network intersections in the station areas.

Table A2-2: Peak Hour Vehicle Trip Generation for Each Station

Stations with Park-and-Ride Lots	Park-and-Ride				Kiss-and-Ride				Bus Transit Vehicle Trips				Total			
	A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak	
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
East Kapolei	492	0	0	492	152	152	152	152	29	29	29	29	673	181	181	673
UH West O'ahu	233	0	0	233	102	102	102	102	29	29	29	29	364	131	131	364
Pearl Highlands	1,073	0	0	1,073	237	237	237	237	47	47	52	47	1,357	284	289	1,357
Aloha Stadium	556	0	0	556	44	44	44	44	30	30	30	30	630	74	74	630
Stations without Park-and-Ride Lots	**Spillover Parking**				**Kiss-and-Ride**				**Bus Transit Vehicle Trips**				**Total**			
	A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak	
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
West Loch	39	0	0	39	201	201	201	201	32	32	32	32	272	233	233	272
Pearlridge	19	0	0	19	94	94	94	94	31	31	31	31	144	125	125	144
Middle Street Transit Center	11	0	0	11	55	55	55	55	52	44	44	52	118	99	99	118
Downtown/Aloha Tower	0	0	0	0	4	4	4	4	20	22	18	24	24	26	22	28
Ala Moana Center	87	0	0	87	354	354	354	354	74	74	74	74	515	428	428	515
Iwilei	42	0	0	42	206	206	206	206	22	22	22	22	270	228	228	270

Project Impact Criteria

Project effects were analyzed using the approach applied in the Draft EIS. The criteria used for both of these analyses are as follows:

- If an intersection is operating at level of service (LOS) D and degrades to LOS E or worse with the addition of traffic from the Project, then the Project is considered to have a significant adverse effect at this location.
- If an intersection is operating at LOS E or F under the No Build scenario and the Project adds delay to this intersection, then the Project is considered to be contributing to a cumulative effect.

Pearl Highlands Station Analysis

Analysis was conducted to determine potential traffic effects of the proposed Pearl Highlands station park-and-ride and transit center on the existing H-1/H-2 Freeway interchange and nearby highways. Year 2030 No Build Alternative volumes for the freeway mainline, ramps, and nearby highways were estimated by applying a growth rate to existing counts. The growth rate was derived from project travel demand model plots for Existing Year and Year 2030. Build scenario volumes were developed based on anticipated trip volumes to and from the rail station, as well as examination of project travel demand model plots of the No Build and Build scenarios. Ramp merge and weave sections were analyzed using HCS software (version 5.21).

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

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 and again in April 2009. 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.

Change The following is a modification of and replaces **Table 3-1—Existing Daily Islandwide Person Trips (Year 2007)**

Table 3-1: Existing Daily Islandwide Person Trips (Year 2007)

Purpose of Trip	Daily Person Trips	Percent
Trips by Residents		
1. To and from work	933,000	29%
2. While at work	173,300	5%
3. To and from school/university	288,200	9%
4. To and from shopping/other	995,000	31%
5. Do not end at work or home	401,800	12%
Total Trips by Residents	*2,791,200*	*86%*
Other Trips		
6. Trips by truck	44,700	1%
7. Ground access trips by air passengers	60,000	2%
8. Trips by visitors	364,400	11%
Total Daily Person Trips	*3,260,200*	*100%*

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

Change The following is a modification of and replaces **Table 3-2—Islandwide Mode Split Estimates—Residents (Year 2007)**

Table 3-2: Islandwide Mode Split Estimates—Residents (Year 2007)

Mode	Daily Resident Person Trips	Percent
Private Automobile Trips	2,291,800	82%
Transit Trips	166,400	6%
Bike and Walk Trips	333,000	12%
Total Daily Resident Person Trips	*2,791,200*	*100%*

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

Add	The following paragraph and table supplement and are added to the end of **Section 3.1.2—Islandwide Mode of Travel**

Approximately 60,000 daily trips are made by air passengers. Of these trips, 36 percent are made by shuttle bus and 26 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	26%
Transit	700	15%
Taxi	9.700	3%
Tour bus	12,000	20%
Shuttle Bus	21,400	36%
Total Trips by Air Passengers	*60,100*	*100%*

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

Add	The following paragraph and table supplement and are added to the beginning of **Section 3.1.3—Transit Travel Patterns**

More than 180,000 trips occur on transit daily (transit trips include transfers; information on boardings, or the number of times someone gets on a transit vehicle, is provided below under Transit Ridership—Systemwide). As shown in Table A2-4, 90 percent of transit trips are made by residents. Transit trips originating or ending at work account for half of all daily transit trips. Trips by visitors account for nearly 10 percent of all daily transit trips.

Table A2-4: Daily Transit Trips by Trip Purpose—2007

Purpose of Trip	Daily Person Transit Trips	Percentage of Total Daily Transit Trips
Trips by Residents		
To and from work	85,300	46.2%
While at work	8.700	4.7%
To and from school/university	27,200	14.7%
To and from shopping/other	41,200	22.3%
Do not end at work or home	4,000	2.2%
Total Trips by Residents	*166,400*	*90.1%*
Other Trips		
Ground access trips by air passengers	700	0.4%
Trips by visitors	17,600	9.6%
Total Daily Trips (All)	*184,700*	*100%*

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

Change The following is a modification of and replaces the second and third paragraphs and Table 3-6 of
Section 3.1.5—Vehicle Miles Traveled, Vehicle Hours Traveled, and Vehicle Hours of Delay

Table 3-6 summarizes the islandwide total daily VMT, VHT, and VHD in 2007 by facility type on the street and highway system. As indicated in the table, the model determined that total daily VMT on the system is approximately 11.2 million miles. VMT on freeways and highways (including mainline sections and ramps) comprises approximately 58 percent of the daily total. (Freeways involve some separation from other roads, while highways can include at-grade access to other roads.)

Total daily VHT on the system is estimated at approximately 326,000 hours, with travel on the freeways and highways representing about 44 percent of the total. Total daily delay is estimated at approximately 72,000 hours, with trips on freeways and highways contributing approximately 50 percent of the total hours of delay.

Table 3-6: Islandwide Travel Statistics on the Street and Highway System (Year 2007)

Facility Type	Daily VMT		Daily VHT		Hours of Delay	
Freeways	5,150,100	46%	117,400	36%	32,400	45%
Highways	1,308,000	12%	25,200	8%	3,500	5%
Arterial	3,289,500	29%	110,600	34%	16,100	22%
Collector	1,245,800	11%	50,400	15%	8,700	12%
Local	239,000	2%	22,100	7%	11,100	15%
Total	*11,232,400*	*100%*	*325,700*	*100%*	*71,800*	*100%*

Source: O'ahuMPO Travel Demand Forecasting Model
Rounded to nearest thousand

Change The following is a modification of and replaces the first, second, and third paragraphs of
Section 3.2.2—Existing Transit Services
TheBus Routes

As of July 1, 2009, TheBus operates a total of 100 routes. Of these routes, 96 are fixed routes and 4 are deviation routes (operated by the paratransit division). Of the 96 fixed routes, 5 are limited-stop routes (Route 1L, *CityExpress!* A, *CityExpress!* B, *CountryExpress!* C, and *CountryExpress!* E) and 32 are peak-period, peak-direction-only express routes. Figures 3-10a, 3-10b, and 3-10c illustrate TheBus routes within the study corridor. These routes are effective as of 2008.

Until July 2009, there were five feeder bus routes for TheBoat, which provided commuter ferry service and operated only during the a.m. and p.m. peak periods on limited schedules. These routes were discontinued on July 1, 2009, along with TheBoat.

The 100 bus routes serve about 3,800 bus stops. Passenger amenities include approximately 980 passenger shelters and 2,400 benches.

Change	The following is a modification of and replaces **Section 3.2.2—Existing Transit Services** **TheBoat Service**

TheBoat Service

In September 2007, the City began offering a commuter ferry service between West O'ahu (Kalaeloa Harbor) and Downtown Honolulu (Aloha Tower Marketplace). TheBoat ferry service was available during weekdays with three trips in the morning and three trips in the evening. Each one-way trip was scheduled to take one hour. Table 3-11 describes scheduled trips for TheBoat. Figure 3-11 illustrates TheBoat route and feeder bus routes associated with TheBoat. TheBoat service was discontinued starting July 2009 as a cost-cutting measure. Ridership attributable to TheBoat was minor and would not have any substantial effect on the results of the traffic model. Most passengers likely switched to TheBus when TheBoat was discontinued.

Change	The following is a modification of and replaces **Section 3.2.2—Existing Transit Services** **TheBus Vehicle Inventory** **Table 3-12—TheBus 2007 Vehicle Inventory**

TheBus Vehicle Inventory

TheBus fixed-route fleet consists of 531 buses. The fleet includes 91 vehicles that are 60-foot articulated buses; 403 vehicles that are 40-foot buses; and 37 vehicles that are less than 40 foot, as shown in Table 3-12. TheBus has a total of 76 hybrid buses and 9 clean diesel buses.

The fixed-route service has 424 vehicles operating in maximum service, which are deployed from two maintenance and storage bases (Pearl City and Kalihi/Middle Street).

Table 3-12: TheBus 2009 Vehicle Inventory

Year	Make	Propulsion	Length	Bus Number Series	Seating Capacity	Quantity
1993	TMC T70608	Conventional Diesel	35'	51 - 62	35	12
1993	TMC	Conventional Diesel	40'	202 - 283	43	18
1994	Gillig	Conventional Diesel	40'	601 - 659	45	59
1995	Gillig	Conventional Diesel	40'	660 - 699	45	39
1995	Gillig	Conventional Diesel	40'	740 - 773	45	34
1996	Gillig	Conventional Diesel	40'	774 - 795	45	22
1997	Gillig	Conventional Diesel	40'	301 - 347	45	47
1998	Gillig	Conventional Diesel	40'	348 - 365	45	18
1998	Gillig	Conventional Diesel	40' LF	366 - 368	40	3
1998	Gillig 30/96 TB	Conventional Diesel	30'	40 - 49	29	10
2000	New Flyer	Conventional Diesel	60' LF	70 - 99	58	30
2000	Gillig	Conventional Diesel	40'	801 - 835	45	34
2002	Gillig	Conventional Diesel	40'	836 - 853	45	19
2001	Chance	Conventional Diesel	29' LF	30 - 39	23	10
2002	Chance RT-50x	Conventional Diesel	29' LF	25 - 29	23	5
2002	New Flyer	Conventional Diesel	60' LF	100 - 115	58	16
2003	Gillig	Conventional Diesel	40’	854 - 868	45	15
2004	Gillig	Conventional Diesel	40' LF	501 - 555	40	55
2003	New Flyer	Hybrid	60' LF	116 - 131	58	16
2004	New Flyer	Hybrid	60' LF	132 - 141	58	10
2006	New Flyer	Hybrid	40' LF	901 - 940	37	40
2007	New Flyer	Clean Diesel	60' LF	142 - 150	58	9
2009	New Flyer	Hybrid	60' LF	151 - 160	58	10
Total Buses in Inventory						***531***

Source: City and County of Honolulu/TheBus Replacement Program; June 2009
LF = Low Floor

Change	The following is a modification of and replaces **Section 3.2.2—Existing Transit Services TheBoat Vehicle Inventory**

TheBoat service was provided by two 149-passenger vessels that were operated by HMS-PAC NAV, Inc. and contracted to the City with a third boat as a spare. They were passenger-only vessels and do not accommodate vehicles.

Change The following is a modification of and replaces
Table 3-13: TheHandi-Van Vehicle Inventory

Table 3-13: TheHandi-Van 2007 Vehicle Inventory

Year	Make	Length (feet)	Bus Number Series	Seating Capacity	Wheelchair Positions	Quantity
1999	ElDorado/Ford	23.25'	1800	18	6	2
1999	ElDorado/Ford	21.25'	1900	7	2	6
2001	ElDorado/Ford	25'	1100	18	6	37
2002	ElDorado/Ford	19.5'	1231	6	2	4
2002	ElDorado/Ford	25'	1200	18	6	26
2004	ElDorado	19.5'	1419	6	2	2
2004	ElDorado/GMC	25'	1400	18	6	9
2006	ElDorado/Ford	25'	2600	10	5	32
2007	ElDorado/Ford	25'	2700	12	5	20
2008	ElDorado/Ford	25'	2800	12	5	10
2008	GMC	17'	2811	4	1	18
Total Vehicles In Inventory						***166***

Source: City and County of Honolulu/TheHandi-Van Replacement Program; June 2009

Change The following is a modification of and replaces the last paragraph and Table 3-14 under
Section 3.2.2—Existing Transit Services
TheBus and TheBoat Fare Structure

Table 3-14 also provides information regarding the current breakdown of ridership by fare type. At 41 percent of total ridership, monthly adult pass holders predominate, followed by senior/disabled riders at 27 percent. Considering the various discounts available, the average fare paid is $0.95 per person trip.

Table 3-14: TheBus and TheBoat Fare Structure

Fare Category	Current Fare[1]	Percentage of Riders by Fare[2]
Adult	$2.25	12%
Youth	$1.00	5%
Senior/Disabled	$1.00	27%
Transfer	$0.00	7%
Monthly Adult Pass	$50.00	41%
Monthly Youth Pass	$25.00	6%
Monthly Senior/Disabled Pass	$5.00	(included with Senior/Disabled)
Annual Adult Pass	$550.00	(included with Monthly Adult Pass)
Annual Youth Pass	$275.00	(included with Monthly Youth Pass)
Annual Senior/Disabled Pass	$30.00	(included with Senior/Disabled)

[1] Fares as of July 1, 2009
[2] *Source: 2007 City and County of Honolulu records*
Percentages do not add up to 100% since table does not include minor fare categories such as Visitor Pass and UPASS.

Change The following is a modification of and replaces **Figure 3-12—TheBus Annual Average Operating Speed in Miles per Hour**

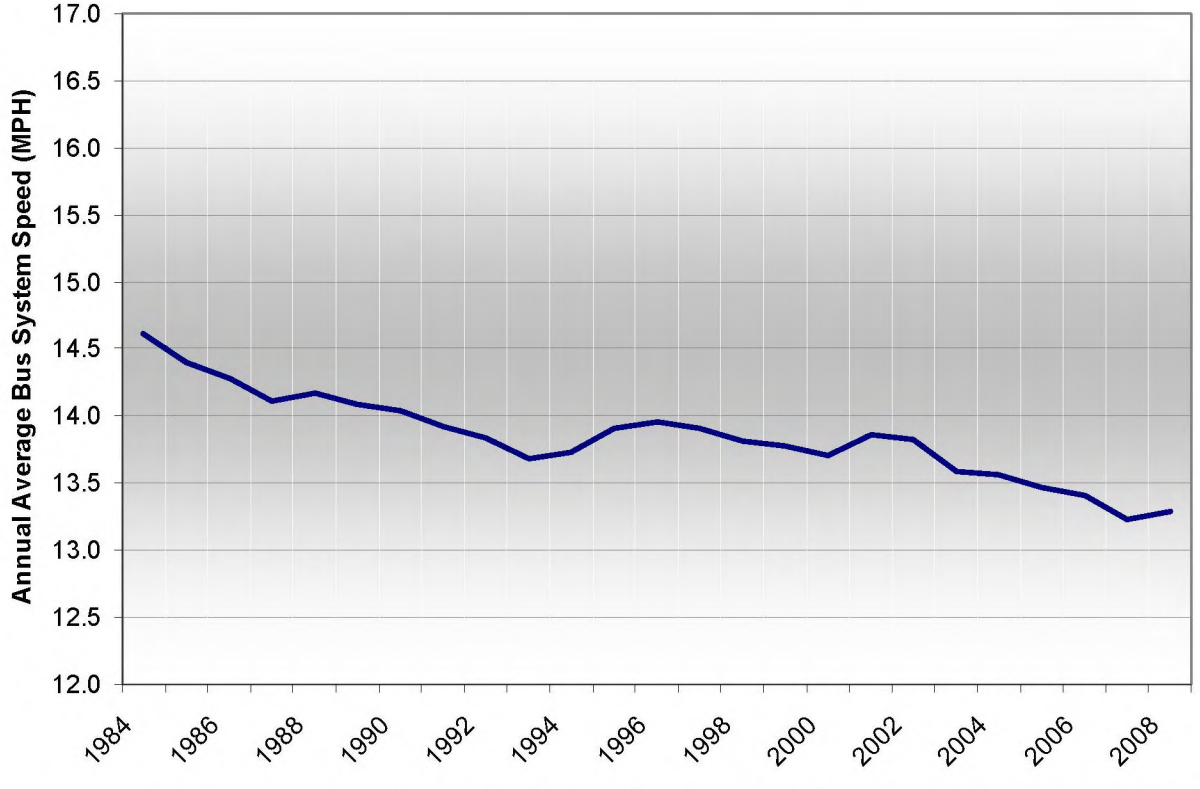

Figure 3-12: TheBus Annual Average Operating Speed in Miles per Hour—1984 to 2008

Change	The following is a modification of and replaces **Section 3.2.5—Public Transit System Performance** **Access to Stations**

Access to Stations

Currently, access to transit service is dominated by walking and by transferring from other bus routes. According to the on-board survey conducted in December 2005 and January 2006, 88 percent of passengers walked to access TheBus. Ninety-five percent of the urban population lives within one-quarter mile of a bus line. With regards to drive access to transit, there are currently more park-and-ride spaces than demand. The on-board survey revealed that 1 percent of passengers accessed TheBus by bicycle. More than 1,000 bikes are taken on TheBus daily for a monthly average of about 30,000 bikes.

Add	The following is a modification of and replaces the first paragraph of **Section 3.2.6—Other Transit Services** **Commuter Express**

LOTMA contracted with Polynesian Adventure Tours Gray Line Hawai'i to provide commuter service for Central O'ahu to Downtown Honolulu and Waikīkī using tour buses. This service was provided weekdays only, on the schedule summarized in Table 3-19 and Table 3-20, according to LOTMA's website. The Commuter Express service was suspended in December 2008.

Add	The following supplements and is added to the end of **Section 3.2.6—Other Transit Services** **Mililani Trolley**

In addition, E Noa Corporation operates the Waikiki Trolley, with 4 routes serving Honolulu, East Oahu, Ala Moana Shopping Center, and other shopping and tourist areas. The fleet of 50 trolleys serves areas as far west as Bishop Museum and as far east as Sea Life Park.

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

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, and Ala Moana Boulevard. 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.

4 Future Conditions and Effects—No Build Alternative

Change	The following are modifications of and replace **Section 4.1.1—Transit Improvements** **Table 4-1—No Build Alternative Transit Service Improvements**

4.1.1 No Build Transit Improvements

Transit services included in the No Build Alternative would consist of existing bus routes as well as programmed bus service improvements. These improvements would include route alignment and service frequency modifications. The No Build Alternative transit service improvements are summarized in Table 4-1. There would be small increases in Rapid Bus and Trunk routes and a slight decrease in Express routes. The biggest increase in service would involve Feeder service, which would grow from 36 routes in 2009 to 46 in 2030. To accommodate service growth, the bus fleet size would increase from 531 vehicles in 2009 to 617 in 2030 or about a 16-percent increase.

Table 4-1: No Build Alternative Transit Service Improvements

Element	2009	2030 No Build Alternative
Bus route service type [1]	5 rapid bus routes	6 rapid bus routes
	26 trunk routes	27 trunk routes
	36 routes	46 feeder routes
	33 express routes	32 express routes
Bus fleet size [2]	531 (including spares)	617 (including spares)
Annual revenue vehicle miles bus [2]	17,923,700	22,265,900
Annual revenue vehicle hours bus [2]	1,354,600	1,734,900

[1] Trunk routes include urban and suburban routes; Feeder routes include urban and suburban feeder routes, community circulator routes, and community access routes.

[2] Bus fleet size, annual revenue vehicle bus miles, and annual revenue vehicle bus hours obtained from 2007 National Transit Database. 2030 No Build data is from travel demand forecasting model results.

Change	The following are modifications of and replace **Section 4.2.1—Islandwide Person Trips** **Table 4-3—Islandwide Person Trips (Residents)—2007 and 2030 No Build Alternative**

The O'ahuMPO travel demand forecasting model estimates about 2.8 million person trips are made by residents daily on O'ahu in 2007, as shown in Table 4-3. The total islandwide person trips are expected to increase by over 662,000 trips (24 percent)

between Year 2007 and 2030 No Build Alternative conditions with almost 3.5 million resident person trips in the 2030 No Build Alternative.

Table 4-3: Islandwide Person Trips by Trip Purpose—2007 and 2030

Trip Purpose	2007		2030		Percent Growth from 2007
	Daily Person Trips	Percentage of Total Daily Trips	Daily Person Trips	Percentage of Total Daily Trips	
Trips by Residents					
To and from work	933,000	28.6%	1,127,800	27.9%	20.9%
While at work	173,300	5.3%	218,800	5.4%	26.3%
To and from school/university	288,200	8.8%	356,700	8.8%	23.8%
To and from shopping/other	995,000	30.5%	1,245,700	30.8%	25.2%
Do not end at work or home	401,800	12.3%	504,900	12.5%	25.7%
Total Trips by Residents	2,791,300	85.6%	3,453,900	85.5%	23.7%
Other Trips					
Trips by Truck	44,700	1.4%	51,600	1.3%	15.4%
Ground access trips by air passengers	60,000	1.8%	103,900	2.6%	73.2%
Trips by Visitors	364,400	11.2%	430,700	10.7%	18.2%
Total Daily Trips—All	*3,260,400*	*100%*	*4,040,100*	*100%*	*23.9%*

Source: O'ahuMPO Travel Demand Forecasting Model.
Trips rounded to nearest hundred. Percents may not equal 100 due to rounding.

Change	The following is a modification of and replaces **Table 4-4—Daily Person Trips by Mode—2007 and 2030 No Build Alternative**

Table 4-4: Daily Person Trips by Mode—2007 and 2030 No Build Alternative

Alternative	2007		2030 No Build Alternative		Percentage Growth (2007 to 2030)
	Number	Percent of Total	Number	Percent of Total	
Trips by Residents					
Private Automobile	2,291,800	82.1%	2,815,800	81.5%	22.9%
Transit	166,400	6.0%	205,400	5.9%	23.4%
Bike/Walk	333,000	11.9%	432,800	12.5%	30.0%
Total Trips by Residents	*2,791,200*	*100%*	*3,454,000*	*100%*	*23.7%*
Trips by Visitors					
Automobile–private	116,400	31.9%	160,100	37.2%	37.5%
Transit	17,600	4.8%	19,700	4.6%	11.9%
Bicycle and walk	165,100	45.3%	163,600	38.0%	-0.9%
Taxi	9,300	2.6%	9,700	2.3%	4.3%
Tour bus	56,000	15.4%	77,500	18.0%	38.4%
Total Trips by Visitors	*364,400*	*100%*	*430,600*	*100%*	*18.2%*
Ground Access Trips by Air Passengers					
Automobile—private	16,300	27.1%	27,500	26.5%	68.7%
Transit	700	1.2%	1,200	1.2%	71.4%
Taxi	9,700	16.1%	16,400	15.8%	69.1%
Tour Bus	12,000	20.0%	20,800	20.0%	73.3%
Shuttle Bus	21,400	35.6%	38,000	36.6%	77.6%
Total Trips by Air Passengers	*60,100*	*100%*	*103,900*	*100%*	*72.9%*
Total Daily Trips All – By Mode					
Total Daily Automobile Trips—Private	2,424,500	75.4%	3,003,400	75.3%	23.9%
Total Daily Transit Trips	184,700	5.7%	226,300	5.7%	22.5%
Total Daily Bicycle and Walking Trips	498,100	15.5%	596,400	15.0%	19.7%
Total Daily Trips—Other Modes	*108,400*	*3.4%*	*162,400*	*4.1%*	*49.8%*
Total Daily Trips—All	***3,215,700***	***100%***	***3,988,500***	***100%***	***24.0%***

Source: O'ahuMPO Travel Demand Forecasting Model.
Trips rounded to nearest hundred
Percents may not equal 100 due to rounding.

Add	The following supplements and is added to the end of **Section 4.2.2—Islandwide Mode of Travel**

Transit Trips by Trip Purpose

In 2030, without the Project, transit trips would account for 226,300 of all daily trips islandwide. As shown in Table A2-5, trips by residents would account for 91 percent of daily transit trips. Approximately 50 percent of daily transit trips would either originate or end at work. Trips by visitors would account for approximately 9 percent of daily transit trips. Less than 1 percent of trips would be made by air passengers.

Table A2-5: Transit Trips by Trip Purpose—2007 and 2030 No Build Alternative

Trip Purpose	2007 Existing Conditions		2030 No Build Alternative	
	Daily Person Transit Trips	Percentage of Total Daily Transit Trips	Daily Person Transit Trips	Percentage of Total Daily Transit Trips
Trips by Residents				
To and from work	85,300	46.2%	104,100	46.0%
While at work	8,700	4.7%	10,700	4.7%
To and from school/university	27,200	14.7%	35,100	15.5%
To and from shopping/other	41,200	22.3%	50,500	22.3%
Do not end at work or home	4,000	2.2%	5,000	2.2%
Total Transit Trips by Residents	*166,400*	*90.1%*	*205,400*	*90.8%*
Other Trips				
Ground access trips by air passengers	700	0.4%	1,200	0.5%
Trips by Visitors	17,600	9.5%	19,700	8.7%
Total Daily Transit Trips (All)	*184,700*	*100.0%*	*226,300*	*100.0%*

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

Change	The following are modifications of and replace **Section 4.2.3—VMT, VHT, and VHD** **Table 4-5—Systemwide Daily Travel Statistics—2007 and 2030 No Build Alternative**

4.2.3 VMT, VHT, and VHD

Table 4-5 shows the systemwide VMT, VHT, and VHD in the study corridor in 2007 and the 2030 No Build Alternative. Under 2030 No Build Alternative conditions, approximately 13.6 million VMT per day are projected in the transportation system, including major freeways, highways, arterials, and collectors. This represents an increase of approximately 21 percent (or 2.4 million miles) over 2007 conditions.

VHT is estimated to increase 28 percent by 2030 compared to 2007 levels. Daily VHD is expected to increase by at least 46 percent. VHT and VHD are expected to increase at a higher rate than VMT, because as roadway facilities become oversaturated, travel times through the affected sections increase dramatically.

Table 4-5: Systemwide Daily Travel Statistics—2007 and 2030 No Build Alternative

Facility Type	Daily VMT		Daily VHT		Daily VHD	
	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total
2007 Existing Conditions						
Freeways	5,150,100	46%	117,400	36%	32,400	45%
Highways	1,308,000	12%	25,200	8%	3,500	5%
Arterial	3,289,500	29%	110,600	34%	16,100	22%
Collector	1,245,800	11%	50,400	15%	8,700	12%
Local	239,000	2%	22,100	7%	11,100	15%
Total	11,232,400	100%	325,700	100%	71,800	100%
2030 No Build Alternative						
Freeways	6,188,000	45%	161,200	39%	59,300	57%
Highways	1,425,800	10%	27,100	7%	3,600	3%
Arterial	4,203,100	31%	139,100	33%	17,900	17%
Collector	1,523,500	11%	64,100	15%	12,500	12%
Local	282,700	2%	24,100	6%	11,400	11%
Total	13,623,100	100%	415,600	100%	104,700	100%
Change from Existing Conditions	2,390,700	21%	89,900	28%	32,900	46%

Source: O'ahuMPO Travel Demand Forecasting Model.
Numbers are rounded to nearest thousand
Percents do not equal 100 due to rounding.

Change The following are modifications of and replace the fourth paragraph in **Section 4.3.1 Transit Performance Transit Speed**

In general, transit travel times during the a.m. two-hour peak period (6:00 to 8:00 a.m.) would be longer under the 2030 No Build Alternative when compared to 2007, due to generally slower systemwide transit speeds (Figure 4-2). These slower speeds are attributable to increased traffic along streets and highways on which buses operate. The temporary increase in transit speeds in 2016 is attributable to improved transit operations in the zipper lane on the H-1 Freeway.

Change	The following are modifications of and replace **Figure 4-1—A.M. Peak Period Transit Travel Times** **Figure 4-2—2030 No Build Alternative Bus System Speeds**

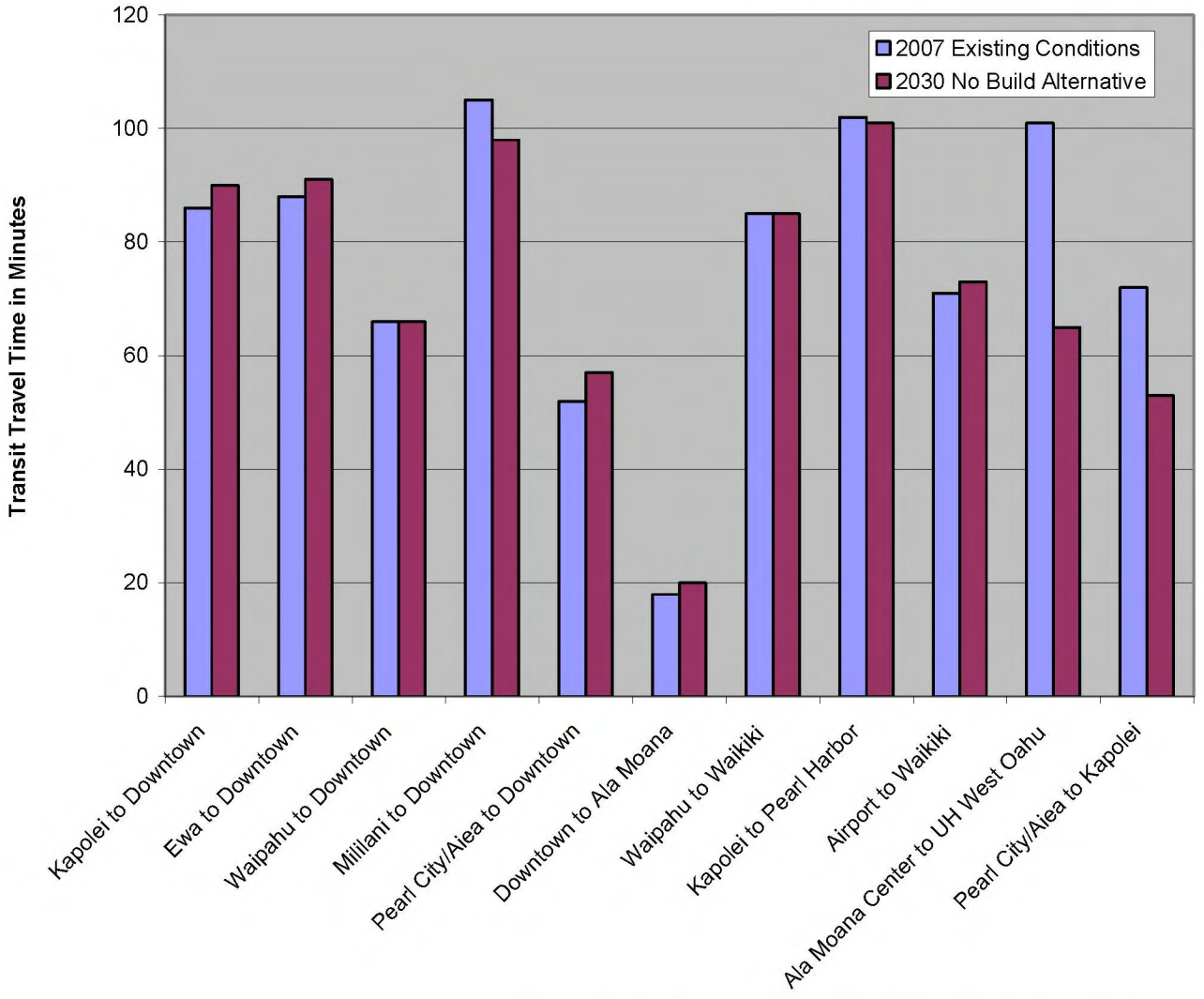

Figure 4-1: A.M. Peak Period Transit Travel Times

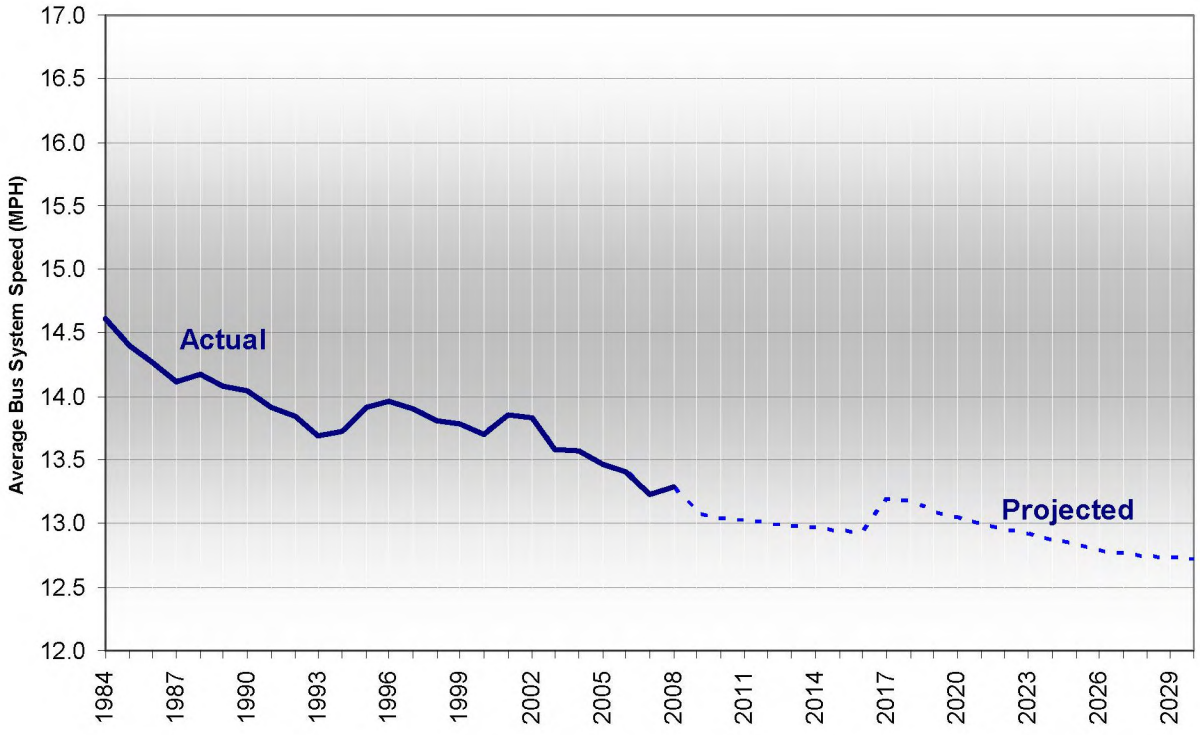

Figure 4-2: 2030 No Build Alternative Bus System Speeds

Change	The following is a modification of and replaces **Table 4-7—Transit Speeds between Select Origins and Destinations—2007 and 2030 No Build Alternative**

Table 4-7: Transit Speeds between Select Origins and Destinations—2007 and 2030 No Build Alternative (in miles per hour)

Alternative	Kapolei to Downtown	`Ewa to Downtown	Waipahu to Downtown	Mililani to Downtown	Pearl City/Aiea to Downtown	Downtown to Ala Moana Center	Waipahu to Waikīkī	Kapolei to Pearl Harbor	Airport to Waikiki	Ala Moana Center to UH West Oahu	Pearl City/Aiea to Kapolei
2007 Existing Conditions	19	15	19	20	15	13	17	22	10	15	15
2030 No Build Alternative	19	15	19	18	13	10	17	10	10	29	18

Change	The following is a modification of and replaces **Table 4-8—Changes in Daily Transit Boardings—2007 and 2030 No Build Alternative**

Table 4-8: Changes in Daily Transit Boardings—2007 and 2030 No Build Alternative

Alternative	Total Transit Boardings
2007 Base Year	252,200
2030 No Build	314,200
% Change from 2007	*25%*

Numbers rounded to nearest hundred.

Change	The following are modifications of Screenlines B through G and replace, in their entirety, **Table 4-11—2030 No Build Alternative Conditions—A.M. Peak Hour Screenline Volumes and LOS** **Table 4-12—2030 No Build Alternative Conditions—P.M. Peak Hour Screenline Volumes and LOS**

Table 4-11: 2030 No Build Alternative Conditions—A.M. Peak Hour Screenline Volumes and LOS

	Screenline/Facility	Year 2005 Conditions			2030 No Build Conditions							
		Facility Number of Lanes	Observed Volume* (vph)	LOS[2]	Facility Number of Lanes	Forecast Volume (vph)[1]	Maximum Volume Threshold[2] A	B	C	D	E	LOS[2]
A	**Kapolei Mauka bound**											
	Kalaeloa Boulevard	2	500	C*	2	790	**	**	1,020	1,480	1,560	C*
	Fort Barrette Road	2	1,340	D	2	1,170	**	**	1,020	1,480	1,560	D
	North-South Road (future roadway)	NA	NA	NA	3	2,300	**	**	1,590	2,230	2,350	E
	Total		*1,840*	*D*		*4,260*						*D*
	Kapolei Makai bound											
	Kalaeloa Boulevard	2	1,340	D	2	1,130	**	**	1,020	1,480	1,560	D
	Fort Barrette Road	2	1,300	D	2	1,580	**	**	1,020	1,480	1,560	F
	North-South Road (future roadway)	NA	NA	NA	3	2,410	**	**	1,590	2,230	2,350	F
	Total		*2,640*	*D*		*5,120*						*F*
B	**‘Ewa Wai‘anae bound**											
	H-1 Freeway	3	3,330	C	3	4,360	1,620	2,630	3,800	4,920	5,590	D
	H-1 Freeway future HOV	NA	NA	NA	1	1,180	515	839	1,213	1,568	1,783	C
	Farrington Highway	1	590	C	2	340	**	200	1,240	1,560	1,640	C
	Fort Weaver Road (SB)	2	1,440	D	2	2,220	**	200	1,240	1,560	1,640	F
	Total		*5,360*	*C*		*8,100*						*D*
	‘Ewa Koko Head bound											
	H-1 Freeway	3	4,130	D	3	3,870	1,620	2,630	3,800	4,920	5,590	D
	H-1 Freeway future HOV	NA	NA	NA	1	1,790	515	839	1,213	1,568	1,783	F
	Farrington Highway	2	210	A	3	210	**	310	1,920	2,340	2,460	B*
	Fort Weaver Road (NB)	2	3,120	F	2	2,770	**	200	1,240	1,560	1,640	F
	Total		*7,460*	*E*		*8,640*						*E*

Table 4-11: 2030 No Build Alternative Conditions—A.M. Peak Hour Screenline Volumes and LOS (continued)

	Screenline/Facility	Year 2005 Conditions			2030 No Build Conditions							
		Facility Number of Lanes	Observed Volume* (vph)	LOS[2]	Facility Number of Lanes	Forecast Volume (vph)[1]	Maximum Volume Threshold[2]					LOS[2]
							A	B	C	D	E	
C	**Waikele Stream 'Ewa bound**											
	H-1 Freeway	4	6,110	D	5	10,070	2,800	4,540	6,570	8,490	9,660	F
	Waipahu Street	1	360	C*	1	300	**	**	440	700	740	C*
	Farrington Highway	2	1,160	C	3	910	**	310	1,920	2,340	2,460	C
	Total		*7,630*	*D*		*11,280*						*E*
	Waikele Stream Koko Head bound											
	H-1 Freeway	4	7,380	E	4	8,460	2,210	3,580	5,180	6,710	7,620	F
	H-1 Freeway future HOV	NA	NA	NA	1	1,560	515	839	1,213	1,568	1,783	D
	Waipahu Street	1	580	D	1	290	**	**	440	700	740	C*
	Farrington Highway	2	1,210	C	3	1,530	**	310	1,920	2,340	2,460	C
	Total		*9,170*	*E*		*11,840*						*E*
D	**Kalauao 'Ewa bound**											
	H-1 Freeway	5	6,840	D	5	7,280	2,800	4,540	6,570	8,490	9,660	D
	Moanalua Road	2	1,130	D	2	1,370	**	**	1,020	1,480	1,560	D
	Kamehameha Highway	3	970	C	3	1,080	**	310	1,920	2,340	2,460	C
	Total		*8,940*	*D*		*9,730*						*D*
	Kalauao Koko Head bound											
	H-1 Freeway	5	10,140	F	5	12,250	2,800	4,540	6,570	8,490	9,660	F
	H-1 Freeway HOV	1	1,740	E	1	1,810	515	839	1,213	1,568	1,783	F
	H-1 Freeway Zipper	1	1,510	D	1	1,160	515	839	1,213	1,568	1,783	C
	Moanalua Road	2	1,390	D	2	1,310	**	**	1,020	1,480	1,560	D
	Kamehameha Highway	3	2,520	F	3	2,450	**	310	1,920	2,340	2,460	E
	Total		*17,300*	*F*		*18,980*						*E*

Table 4-11: 2030 No Build Alternative Conditions—A.M. Peak Hour Screenline Volumes and LOS (continued)

	Screenline/Facility	Year 2005 Conditions			2030 No Build Conditions							
		Facility Number of Lanes	Observed Volume* (vph)	LOS[2]	Facility Number of Lanes	Forecast Volume (vph)[1]	Maximum Volume Threshold[2]					LOS[2]
							A	B	C	D	E	
E	**Salt Lake 'Ewa bound**											
	Moanalua Freeway	4	3,700	C	4	3,420	2,210	3,580	5,180	6,710	7,620	B
	H-1 Freeway	3	2,460	B	4	3,630	2,210	3,580	5,180	6,710	7,620	C
	H-1 Freeway HOV	NA	NA	NA	NA	NA	515	839	1,213	1,568	1,783	NA
	H-1 Freeway Future zipper lane	NA	NA	NA	NA	NA	515	839	1,213	1,568	1,783	NA
	Nimitz Highway	3	1,050	C	3	1,770	**	310	1,920	2,340	2,460	C
	Salt Lake Boulevard	1	330	C*	2	370	**	**	1,020	1,480	1,560	C*
	Total		*7,540*	*C*		*9,190*						*C*
	Salt Lake Koko Head bound											
	Moanalua Freeway	2	3,730	F	2	3,960	1,030	1,680	2,420	3,130	3,560	F
	Moanalua Freeway HOV	1	1,020	C	1	1,750	515	839	1,213	1,568	1,783	E
	H-1 Freeway + Shoulder Express	5	7,600	D	5	7,700	2,800	4,540	6,570	8,490	9,660	D
	H-1 Freeway HOV	1	1,620	E	1	1,640	515	839	1,213	1,568	1,783	E
	H-1 Freeway Zipper	1	1,510	D	1	1,520	515	839	1,213	1,568	1,783	D
	Nimitz Highway	5	1,420	C	5	1,920	**	500	3,160	3,790	3,980	C
	Salt Lake Boulevard	1	520	D	2	830	**	**	1,020	1,480	1,560	C*
	Total		*17,420*	*D*		*19,320*						*D*

Table 4-11: 2030 No Build Alternative Conditions—A.M. Peak Hour Screenline Volumes and LOS (continued)

	Screenline/Facility	Year 2005 Conditions			2030 No Build Conditions							
		Facility Number of Lanes	Observed Volume* (vph)	LOS[2]	Facility Number of Lanes	Forecast Volume (vph)[1]	Maximum Volume Threshold[2]					LOS[2]
							A	B	C	D	E	
F	**Kapālama Canal ‘Ewa bound**											
	Nimitz Highway	2	1,340	D	3	3,590	**	310	1,920	2,340	2,460	F
	Dillingham Boulevard	2	690	C	2	660	**	200	1,240	1,560	1,640	C
	N King Street	2	600	C*	2	840	**	**	1,020	1,480	1,560	C*
	H-1 Freeway	4	7,300	E	4	7,620	2,210	3,580	5,180	6,710	7,620	E
	Hālona Street	2	1,160	C*	2	1,850	**	**	1,220	1,770	1,870	E
	School Street	2	780	C*	2	850	**	**	1,020	1,480	1,560	C*
	Total		*11,870*	*D*		*15,410*						*E*
	Kapālama Canal Koko Head bound											
	Nimitz Highway	4	3,210	F	3	2,580	**	310	1,920	2,340	2,460	F
	Nimitz Flyover (future facility)	NA	NA	NA	2	1,420	1,030	1,680	2,420	3,130	3,560	B
	Dillingham Boulevard	2	1,400	D	2	1,390	**	200	1,240	1,560	1,640	D
	N King Street	2	1,340	D	2	1,400	**	**	1,020	1,480	1,560	D
	Olomea Street	2	1,950	F	2	2,430	**	**	1,220	1,770	1,870	F
	H-1 Freeway	4	9,490	F	5	10,670	2,800	4,540	6,570	8,490	9,660	F
	School Street	2	1,580	F	2	1,690	**	**	1,020	1,480	1,560	F
	Total		*18,970*	*F*		*21,580*						*E*

Table 4-11: 2030 No Build Alternative Conditions—A.M. Peak Hour Screenline Volumes and LOS (continued)

	Screenline/Facility	Year 2005 Conditions			2030 No Build Conditions							
		Facility Number of Lanes	Observed Volume* (vph)	LOS[2]	Facility Number of Lanes	Forecast Volume (vph)[1]	Maximum Volume Threshold[2]					LOS[2]
							A	B	C	D	E	
G	**Ward Avenue 'Ewa bound**											
	H-1 Freeway	3	7,290	F	3	7,380	1,620	2,630	3,800	4,920	5,590	F
	Beretania Street	5	2,790	C*	5	3,300	**	**	3,170	4,450	4,690	D
	Kapi'olani Boulevard	4	1,920	C*	4	2,560	**	**	2,110	2,970	3,130	D
	Ala Moana Boulevard	3	1,800	C	3	2,150	**	310	1,920	2,340	2,460	D
	Total		*13,800*	*E*		*15,390*						*E*
	Ward Avenue Koko Head bound											
	H-1 Freeway	3	5,740	F	4	6,810	2,210	3,580	5,180	6,710	7,620	E
	Kīna'u Street	3	1,250	C*	3	1,150	**	**	1,900	2,670	2,810	C*
	S King Street	5	2,080	C*	5	2,800	**	**	3,170	4,450	4,690	C*
	Kapi'olani Boulevard	2	710	C*	2	820	**	**	1,020	1,480	1,560	C*
	Ala Moana Boulevard	3	1,610	C	3	1,740	**	310	1,920	2,340	2,460	C
	Total		*11,390*	*E*		*13,320*						*D*

Table 4-11: 2030 No Build Alternative Conditions—A.M. Peak Hour Screenline Volumes and LOS (continued)

	Screenline/Facility	Year 2005 Conditions			2030 No Build Conditions							
		Facility Number of Lanes	Observed Volume* (vph)	LOS[2]	Facility Number of Lanes	Forecast Volume (vph)[1]	Maximum Volume Threshold[2]					LOS[2]
							A	B	C	D	E	
H	**Mānoa-Pālolo/Ala Wai Canal 'Ewa bound**											
	Ala Moana Boulevard	3	1,460	C	3	1,580	**	310	1,920	2,340	2,460	C
	Kalākaua Avenue	2	1,220	D	2	1,260	**	**	1,020	1,480	1,560	D
	McCully Street (NB)	2	680	C*	2	680	**	**	1,020	1,480	1,560	C*
	Date Street	2	560	C*	2	620	**	**	1,020	1,480	1,560	C*
	Kapi'olani Boulevard	3	3,090	F	3	3,340	**	**	1,590	2,230	2,350	F
	Old Wai'alae Road	3	1,540	C*	3	1,620	**	**	1,900	2,670	2,810	C*
	Dole Street	2	820	C*	2	950	**	**	1,020	1,480	1,560	C*
	H-1 Freeway	3	5,570	E	3	5,740	1,620	2,630	3,800	4,920	5,590	F
	Total		*14,940*	*D*		*15,790*						*E*
	Mānoa-Pālolo/Ala Wai Canal Koko Head bound											
	Ala Moana Boulevard	3	940	C	3	1,010	**	310	1,920	2,340	2,460	C
	Kalākaua Avenue	3	1,110	C*	3	1,190	**	**	1,590	2,230	2,350	C*
	McCully Street (SB)	2	970	C*	2	1,010	**	**	1,020	1,480	1,560	C*
	Date Street	1	320	C*	1	460	**	**	440	700	740	D
	Kapi'olani Boulevard	2	520	C*	2	600	**	**	1,020	1,480	1,560	C*
	S King Street	2	1,530	D	2	1,770	**	**	1,220	1,770	1,870	D
	Dole Street	2	650	C*	2	660	**	**	1,020	1,480	1,560	C*
	H-1 Freeway	3	5,090	E	3	6,020	1,620	2,630	3,800	4,920	5,590	F
	Total		*11,130*	*D*		*12,720*						*E*

[1] Peak-hour traffic count data was obtained from the Hawai'i Department of Transportation (2005).

[2] LOS thresholds were adapted from the Quality/Level of Service Handbook (Florida Department of Transportation 2002). The handbook provides generalized peak-hour two-way volumes for Florida's urbanized areas. A directional split of 50% was applied to the two-way volumes to generate the peak-hour direction volume thresholds for the purpose of this analysis.

* The reported LOS "C*" means C or better and "B*" means B or better.

** LOS thresholds not reported due to type of facility.

Table 4-12: 2030 No Build Alternative Conditions—P.M. Peak Hour Screenline Volumes and LOS

	Screenline/Facility	Year 2005 Conditions			2030 No Build Conditions							
		Facility Number of Lanes	Observed Volume* (vph)	LOS[2]	Facility Number of Lanes	Forecast Volume (vph) [1]	Maximum Volume Threshold [2]					LOS[2]
							A	B	C	D	E	
A	**Kapolei Mauka bound**											
	Kalaeloa Boulevard	2	1,360	D	2	1,260	**	**	1,020	1,480	1,560	D
	Fort Barrette Road	2	1,190	D	2	1,480	**	**	1,020	1,480	1,560	E
	North-South Road (future roadway)	NA	NA	NA	3	1,420	**	**	1,590	2,230	2,350	C*
	Total		*2,550*	*D*		*4,160*						*D*
	Kapolei Makai bound											
	Kalaeloa Boulevard	2	400	C*	2	400	**	**	1,020	1,480	1,560	C*
	Fort Barrette Road	2	1,280	D	2	1,200	**	**	1,020	1,480	1,560	D
	North-South Road (future roadway)	NA	NA	NA	3	1,410	**	**	1,590	2,230	2,350	C*
	Total		*1,680*	*D*		*3,010*						*C*
B	**'Ewa Wai'anae bound**											
	H-1 Freeway	3	4,110	D	3	3,920	1,620	2,630	3,800	4,920	5,590	D
	H-1 Freeway future HOV	NA	NA	NA	1	1,100	515	839	1,213	1,568	1,783	C
	Farrington Highway	1	310	C	2	350	**	200	1,240	1,560	1,640	C
	Fort Weaver Road (SB)	2	2,400	F	2	2,250	**	200	1,240	1,560	1,640	F
	Total		*6,820*	*E*		*7,620*						*D*
	'Ewa Koko Head bound											
	H-1 Freeway	3	4,080	D	3	5,500	1,620	2,630	3,800	4,920	5,590	E
	H-1 Freeway future HOV	NA	NA	NA	1	990	515	839	1,213	1,568	1,783	C
	Farrington Highway	2	620	B	3	290	**	310	1,920	2,340	2,460	B*
	Fort Weaver Road (NB)	2	2,060	F	2	2,450	**	200	1,240	1,560	1,640	F
	Total		*6,760*	*D*		*9,230*						*E*

Table 4-12: 2030 No Build Alternative Conditions—P.M. Peak Hour Screenline Volumes and LOS (continued)

	Screenline/Facility	Year 2005 Conditions			2030 No Build Conditions							
		Facility Number of Lanes	Observed Volume* (vph)	LOS[2]	Facility Number of Lanes	Forecast Volume (vph) [1]	Maximum Volume Threshold [2]					LOS[2]
							A	B	C	D	E	
C	**Waikele Stream 'Ewa bound**											
	H-1 Freeway	4	6,710	E	4	8,450	2,210	3,580	5,180	6,710	7,620	F
	H-1 Freeway future HOV	NA	NA	NA	1	490	515	839	1,213	1,568	1,783	A
	Waipahu Street	1	530	D	1	170	**	**	440	700	740	C*
	Farrington Highway	2	1,280	C	3	1,150	**	310	1,920	2,340	2,460	C
	Total		*8,520*	*E*		*10,260*						*E*
	Waikele Stream Koko Head bound											
	H-1 Freeway	4	4,790	C	5	6,360	2,800	4,540	6,570	8,490	9,660	C
	Waipahu Street	1	420	C*	1	300	**	**	440	700	740	C*
	Farrington Highway	2	790	C	3	640	**	310	1,920	2,340	2,460	C
	Total		*6,000*	*C*		*7,300*						*C*
D	**Kalauao 'Ewa bound**											
	H-1 Freeway	5	8,410	D	4	8,670	2,210	3,580	5,180	6,710	7,620	F
	H-1 Freeway HOV	1	1,530	D	1	1,720	515	839	1,213	1,568	1,783	E
	H-1 Freeway Future Zipper Lane	NA	NA	NA	1	950	515	839	1,213	1,568	1,783	C
	Moanalua Road	2	2,020	F	2	2,060	**	**	1,020	1,480	1,560	F
	Kamehameha Highway	3	2,110	D	3	2,140	**	310	1,920	2,340	2,460	D
	Total		*14,070*	*D*		*15,540*						*E*
	Kalauao Koko Head bound											
	H-1 Freeway	4	5,740	D	5	7,240	2,800	4,540	6,570	8,490	9,660	D
	H-1 Freeway HOV	1	1,360	D	NA	NA	515	839	1,213	1,568	1,783	NA
	Moanalua Road	2	870	C*	2	970	**	**	1,020	1,480	1,560	C*
	Kamehameha Highway	3	1,500	C	3	1,680	**	310	1,920	2,340	2,460	C
	Total		*9,470*	*D*		*9,890*						*D*

Table 4-12: 2030 No Build Alternative Conditions—P.M. Peak Hour Screenline Volumes and LOS (continued)

	Screenline/Facility	Year 2005 Conditions			2030 No Build Conditions							
		Facility Number of Lanes	Observed Volume* (vph)	LOS[2]	Facility Number of Lanes	Forecast Volume (vph) [1]	Maximum Volume Threshold [2]					LOS[2]
							A	B	C	D	E	
E	**Salt Lake 'Ewa bound**											
	Moanalua Freeway	4	5,900	D	4	5,890	2,210	3,580	5,180	6,710	7,620	D
	H-1 Freeway	4	3,550	B	4	3,460	2,210	3,580	5,180	6,710	7,620	B
	H-1 Freeway HOV	1	1,410	D	1	1,320	515	839	1,213	1,568	1,783	D
	H-1 Freeway Future zipper lane	NA	NA	NA	1	810	515	839	1,213	1,568	1,783	B
	Nimitz Highway	3	2,460	F	3	3,150	**	310	1,920	2,340	2,460	F
	Salt Lake Boulevard	1	730	E	2	990	**	**	1,020	1,480	1,560	C*
	Total		*14,050*	*D*		*15,620*						*D*
	Salt Lake Koko Head bound											
	Moanalua Freeway	2	3,330	E	2	3,510	1,030	1,680	2,420	3,130	3,560	E
	Moanalua Freeway HOV	1	240	A	1	960	515	839	1,213	1,568	1,783	C
	H-1 Freeway + Shoulder Express	4	4,500	C	4	4,090	2,210	3,580	5,180	6,710	7,620	C
	H-1 Freeway HOV	1	330	A	1	1,070	515	839	1,213	1,568	1,783	C
	Nimitz Highway	5	1,500	C	5	3,130	**	500	3,160	3,790	3,980	C
	Salt Lake Boulevard	1	350	C*	2	450	**	**	1,020	1,480	1,560	C*
	Total		*10,250*	*D*		*13,210*						*D*

Table 4-12: 2030 No Build Alternative Conditions—P.M. Peak Hour Screenline Volumes and LOS (continued)

	Screenline/Facility	Year 2005 Conditions			2030 No Build Conditions							
		Facility Number of Lanes	Observed Volume* (vph)	LOS[2]	Facility Number of Lanes	Forecast Volume (vph) [1]	Maximum Volume Threshold [2]					LOS[2]
							A	B	C	D	E	
F	**Kapālama Canal ‘Ewa bound**											
	Nimitz Highway	3	1,780	C	3	1,790	**	310	1,920	2,340	2,460	C
	Nimitz Flyover (Future Facility)	NA	NA	NA	2	880	1,030	1,680	2,420	3,130	3,560	A
	Dillingham Boulevard	2	1,460	D	2	1,350	**	200	1,240	1,560	1,640	D
	N King Street	2	1,340	D	2	1,440	**	**	1,020	1,480	1,560	D
	H-1 Freeway	4	7,570	E	4	8,050	2,210	3,580	5,180	6,710	7,620	F
	Hālona Street	2	1,800	E	2	2,230	**	**	1,220	1,770	1,870	F
	School Street	2	1,220	D	2	1,380	**	**	1,020	1,480	1,560	D
	Total		*15,170*	*E*		*17,120*						*E*
	Kapālama Canal Koko Head bound											
	Nimitz Highway	3	2,770	F	3	4,250	**	310	1,920	2,340	2,460	F
	Dillingham Boulevard	2	1,080	C	2	1,100	**	200	1,240	1,560	1,640	C
	N King Street	2	1,110	D	2	1,560	**	**	1,020	1,480	1,560	D
	Olomea Street	2	1,670	D	2	1,890	**	**	1,220	1,770	1,870	F
	H-1 Freeway	4	7,320	E	5	8,040	2,800	4,540	6,570	8,490	9,660	D
	School Street	2	990	C*	2	1,210	**	**	1,020	1,480	1,560	D
	Total		*14,940*	*E*		*18,050*						*D*

Table 4-12: 2030 No Build Alternative Conditions—P.M. Peak Hour Screenline Volumes and LOS (continued)

	Screenline/Facility	Year 2005 Conditions			2030 No Build Conditions							
		Facility Number of Lanes	Observed Volume* (vph)	LOS[2]	Facility Number of Lanes	Forecast Volume (vph) [1]	Maximum Volume Threshold [2]					LOS[2]
							A	B	C	D	E	
G	**Ward Avenue 'Ewa bound**											
	H-1 Freeway	3	6,790	F	3	7,130	1,620	2,630	3,800	4,920	5,590	F
	Beretania Street	5	2,510	C*	5	3,020	**	**	3,170	4,450	4,690	C*
	Kapi'olani Boulevard	2	1,420	D	2	1,620	**	**	1,020	1,480	1,560	F
	Ala Moana Boulevard	3	1,650	C	3	2,190	**	310	1,920	2,340	2,460	D
	Total		*12,370*	*E*		*13,960*						*E*
	Ward Avenue Koko Head bound											
	H-1 Freeway	3	6,150	F	4	7,370	2,210	3,580	5,180	6,710	7,620	E
	Kīna'u Street	4	1,870	C*	4	1,800	**	**	2,540	3,560	3,750	C*
	S King Street	6	3,370	C*	6	3,710	**	**	3,800	5,340	5,630	C*
	Kapi'olani Boulevard	4	1,840	C*	4	2,550	**	**	2,110	2,970	3,130	D
	Ala Moana Boulevard	3	2,120	D	3	2,330	**	310	1,920	2,340	2,460	D
	Total		*15,350*	*D*		*17,760*						*D*

Table 4-12: 2030 No Build Alternative Conditions—P.M. Peak Hour Screenline Volumes and LOS (continued)

	Screenline/Facility	Year 2005 Conditions			2030 No Build Conditions							
		Facility Number of Lanes	Observed Volume* (vph)	LOS[2]	Facility Number of Lanes	Forecast Volume (vph) [1]	Maximum Volume Threshold [2] A	B	C	D	E	LOS[2]
H	**Mānoa-Pālolo/Ala Wai Canal 'Ewa bound**											
	Ala Moana Boulevard	3	1,420	C	3	1,730	**	310	1,920	2,340	2,460	C
	Kalākaua Avenue	2	1,050	D	2	1,080	**	**	1,020	1,480	1,560	D
	McCully Street (NB)	2	1,140	D	2	1,160	**	**	1,020	1,480	1,560	D
	Date Street	1	580	D	1	710	**	**	440	700	740	E
	Kapi'olani Boulevard	3	1,260	C*	3	1,320	**	**	1,590	2,230	2,350	C*
	Old Wai'alae Road	3	1,160	C*	3	1,230	**	**	1,900	2,670	2,810	C*
	Dole Street	2	670	C*	2	690	**	**	1,020	1,480	1,560	C*
	H-1 Freeway	3	5,500	E	3	5,970	1,620	2,630	3,800	4,920	5,590	F
	Total		*12,780*	*D*		*13,890*						*E*
	Mānoa-Pālolo/Ala Wai Canal Koko Head bound											
	Ala Moana Boulevard	3	1,570	C	3	1,750	**	310	1,920	2,340	2,460	C
	Kalākaua Avenue	3	1,870	D	3	1,990	**	**	1,590	2,230	2,350	D
	McCully Street (SB)	2	870	C*	2	920	**	**	1,020	1,480	1,560	C*
	Date Street	2	640	C*	2	750	**	**	1,020	1,480	1,560	C*
	Kapi'olani Boulevard	2	2,140	F	2	2,280	**	**	1,020	1,480	1,560	F
	S King Street	2	2,400	F	2	2,370	**	**	1,020	1,480	1,560	F
	Dole Street	2	960	C*	2	1,000	**	**	1,020	1,480	1,560	C*
	H-1 Freeway	3	5,890	F	3	6,550	1,620	2,630	3,800	4,920	5,590	F
	Total		*16,340*	*E*		*17,610*						*E*

[1] Peak-hour traffic count data was obtained from the Hawai'i Department of Transportation (2005).

[2] LOS thresholds were adapted from the Quality/Level of Service Handbook (FDOT 2002). The handbook provides generalized peak-hour two-way volumes for Florida's urbanized areas. A directional split of 50% was applied to the two-way volumes to generate the peak-hour direction volume thresholds for the purpose of this analysis.

* The reported LOS "C*" means C or better and "B*" means B or better.

** LOS thresholds not reported due to type of facility.

5 Future Build Alternatives Conditions and Performance

The information contained in this section of Addendum 02 updates Section 5 information from the Transportation Technical Report in regards to the Preferred Alternative as discussed in the Final EIS. Only information relating to the Airport Alternative (the Project) has been updated for this Addendum.

Change	The following supplements and is added to the end of **Section 5.1—Transportation Conditions**

5.1.1 Transit Service Improvements

Many of the 2009 Express routes offering a limited number of peak-period, peak-direction trips will be replaced by improved operations offered by the combination of the rail line and higher frequency, all-day, two-directional Feeder services with the Project. The Trunk routes will have improved frequency over the 2009 service levels. The bus service with the Project will provide 20 percent more annual revenue miles of service and 23 percent more annual revenue hours of service than provided in 2007 to complement the rail line.

The Project bus transit services are summarized in Table A2-6. There will be small decreases in the number of Rapid Bus and Trunk routes that will be operated. The decrease in the number of Express routes is due to the implementation of the Project, which will serve as the backbone of the transit network along the corridor. The decrease in the number of Express routes is offset by a higher number of Feeder routes, which will grow from 36 routes in 2009 to 57 in 2030. The bus fleet size will increase from 531 vehicles in 2009 to 588 in 2030, an 11-percent increase, to accommodate service growth.

Table A2-6: Bus Transit Service Comparison

Element	2009	2030 Build Alternative
Bus route service type [1]	5 rapid bus routes	4 rapid bus routes
	26 trunk routes	23 trunk routes
	36 feeder routes	57 feeder routes
	33 express routes	17 express routes
Bus fleet size [2]	531 (including spares)	588 (including spares)
Annual revenue vehicle miles bus [2]	17,923,700	21,551,400
Annual revenue vehicle hours bus [2]	1,354,600	1,669,900

[1] Trunk routes include Urban and Suburban routes; Feeder routes include Urban and Suburban Feeder routes, Community Circulator routes, and Community Access routes.

[2] Bus Fleet Size, Annual Revenue Vehicle Bus Miles, and Annual Revenue Vehicle Bus Hours obtained from 2007 National Transit Database. 2030 No Build and Build data is from travel demand forecasting model results.

Change	The following is a modification of and replaces **Table 5-1—Islandwide Mode Splits—2030 No Build and Build Alternative Conditions**

Table 5-1: Islandwide Mode Splits—2030 No Build and Build Alternative Conditions

Mode	2007 Existing Conditions		2030 No Build Alternative		2030 Airport Alternative	
	Daily Trips	Percent	Daily Trips	Percent	Daily Trips	Percent
Resident Trips						
Private automobile	2,291,800	82.1%	2,815,800	81.5%	2,767,600	80.1%
Transit	166,400	6.0%	205,400	5.9%	255,500	7.4%
Bicycle/walk	333,000	11.9%	432,800	12.5%	431,700	12.5%
Total Resident Trips	*2,791,200*	*100%*	*3,454,000*	*100%*	*3,454,800*	*100%*
Visitor Trips						
Automobile—private	116,400	31.9%	160,100	37.2%	157,800	36.6%
Transit	17,600	4.8%	19,700	4.6%	23,500	5.5%
Bicycle/walk	165,100	45.3%	163,600	38.0%	163,600	38.0%
Taxi	9,300	2.6%	9,700	2.3%	9,500	2.2%
Tour bus	56,000	15.4%	77,500	18.0%	76,200	17.7%
Total Visitor Trips	*364,400*	*100%*	*430,600*	*100%*	*430,600*	*100%*
Ground Access Trips by Air Passengers						
Automobile—private	16,300	27.1%	27,500	26.5%	26,800	25.8%
Transit	700	1.2%	1,200	1.2%	3,500	3.4%
Taxi	9,700	16.1%	16,400	15.8%	15,800	15.2%
Tour Bus	12,000	20.0%	20,800	20.0%	20,800	20.0%
Shuttle Bus	21,400	35.6%	38,000	36.6%	37,000	35.6%
Total Trips by Air Passengers	*60,100*	*100%*	*103,900*	*100%*	*103,900*	*100%*
Total Daily Trips—All (By Mode)						
Automobile —private	2,424,500	75.4%	3,003,400	75.3%	2,952,200	74.0%
Transit trips	184,700	5.7%	226,300	5.7%	282,500	7.1%
Bicycle/walking trips	498,100	15.5%	596,400	15.0%	595,300	14.9%
Trips—other modes	108,400	3.4%	162,400	4.1%	159,300	4.0%
Total Daily Trips—All	*3,215,700*	*100%*	*3,988,500*	*100%*	*3,989,300*	*100%*

Source: O'ahuMPO Travel Demand Forecasting Model.
Rounded to nearest hundred. Percentages may not equal 100 due to rounding.

Change	The following is a modification of and replaces **Section 5.2.2—Mode of Travel**

5.2.2 Mode of Travel

As shown in Table 5-1, the private automobile share of resident trips under the Project will decrease from 81.5 to 80.1 percent and the transit share will increase from 5.9 to 7.4 percent in 2030 compared to the No Build Alternative. Bicycle and walk trips will remain at about 12 percent of all resident trips compared to the No Build Alternative. For trips made by visitors, transit mode share will increase slightly with the Project compared to the No Build Alternative, while private auto share will drop slightly. Visitor bike and walk mode shares will decrease between 2007 and 2030 No Build conditions as more auto-oriented tourist destinations, such as Ko ʻOlina and Turtle Bay, are developed. Other modes will remain the same for the No Build Alternative and the Project. Ground access transit trips by air passengers will increase 2 percent with the Project compared to without it. More than 51,000 fewer vehicle trips will occur daily with the Project.

Add	The following supplements and is added to the end of **Section 5.2.2—Mode of Travel**

Transit Trips by Trip Purpose

In 2030, without the Project, transit trips would account for 226,300 of all daily trips islandwide. As shown in Table A2-7, trips by residents would account for 91 percent of daily transit trips.

Approximately 50 percent of daily transit trips would either originate from or end at work. Trips by visitors would account for approximately 9 percent of daily transit trips. Less than 1 percent of trips would be made by air passengers.

The total number of daily transit trips will increase to 282,500 with the addition of the Project. Trips by residents will continue to account for approximately 90 percent of all daily transit trips. There will be a 4-percent increase in trips originating from or ending at work. Trips by visitors will account for approximately 8 percent of daily transit trips. With the Project, trips by air passengers will increase to 1.2 percent of daily transit trips.

Table A2-7: Transit Trips by Trip Purpose—2007 and 2030 No Build Alternative and the Airport Alternative

Trip Purpose	2007 Existing Conditions		2030 No Build Alternative		2030 Airport Alternative	
	Daily Person Transit Trips	Percentage of Total Daily Transit Trips	Daily Person Transit Trips	Percentage of Total Daily Transit Trips	Daily Person Transit Trips	Percentage of Total Daily Transit Trips
Trips by Residents						
To and from work	85,300	46.2%	104,100	46.0%	140,200	49.6%
While at work	8,700	4.7%	10,700	4.7%	12,200	4.3%
To and from school/university	27,200	14.7%	35,100	15.5%	43,200	15.3%
To and from shopping/other	41,200	22.3%	50,500	22.3%	54,400	19.3%
Do not end at work or home	4,000	2.2%	5,000	2.2%	5,500	1.9%
Total Transit Trips by Residents	*166,400*	*90.1%*	*205,400*	*90.8%*	*255,500*	*90.4%*
Other Trips						
Ground access trips by air passengers	700	0.4%	1,200	0.5%	3,500	1.2%
Trips by Visitors	17,600	9.5%	19,700	8.7%	23,500	8.3%
Total Daily Transit Trips (All)	*184,700*	*100.0%*	*226,300*	*100.0%*	*282,500*	*100.0%*

Change The following is a modification of and replaces the second, third, and fourth paragraphs of
Section 5.2.3—VMT, VHT, and VHD

Table 5-2 shows VMT statistics for No Build and the Project. Under the Project, VMT will decline by 574,100 daily VMT. This decrease represents a 4-percent reduction compared to the No Build Alternative. Freeways and arterials will experience the greatest reductions in VMT.

Table 5-2 also shows VHT for the Project. With the Project, the VHT will decrease systemwide by approximately 31,800 daily hours (8 percent) over the 2030 No Build Alternative.

VHD will decrease systemwide by approximately 18,900 daily hours (18 percent) compared with the 2030 No Build Alternative. Freeways and arterials will experience the greatest reductions in daily VHD.

Change	The following is a modification of and replaces **Table 5-2—Systemwide Daily Travel**

Table 5-2: Systemwide Daily Travel

Alternative	Vehicle Miles Traveled (VMT)	Vehicle Hours Traveled (VHT)	Vehicle Hours of Delay (VHD)
2007 Existing Conditions			
Freeways	5,150,100	117,400	32,400
Highways	1,308,000	25,200	3,500
Arterials	3,289,500	110,600	16,100
Collectors	1,245,800	50,400	8,700
Local	239,000	22,100	11,100
Total	*11,232,400*	*325,700*	*71,800*
2030 No Build Alternative			
Freeways	6,188,000	161,200	59,300
Highways	1,425,800	27,100	3,600
Arterials	4,203,100	139,100	17,900
Collectors	1,523,500	64,100	12,500
Local	282,700	24,100	11,400
Total	*13,623,100*	*415,600*	*104,700*
Percent Change from 2007	*21%*	*28%*	*46%*
Airport Alternative			
Freeways	5,880,100	146,500	49,400
Highways	1,402,800	26,400	3,200
Arterials	4,020,900	129,400	13,800
Collectors	1,472,800	61,000	11,100
Local	272,400	20,500	8,300
Total	*13,049,000*	*383,800*	*85,800*
Percent Change from 2007	*16%*	*18%*	*19%*
Percent Change from No Build	*-4%*	*-8%*	*-18%*

Source: O'ahuMPO Travel Demand Forecasting Model.
Rounded to nearest hundred.

Change	The following are modifications to and replace **5.2.5 Service to Transit-Dependent Households** **Figure 5-1—Transit Dependent Households**

5.2.5 Service to Transit-Dependent Households

Bus service under the No Build Alternative would provide access to areas with high concentrations of transit-dependent households. Transit-dependent communities are defined as areas where 25 percent or more of households do not have vehicles or where 25 percent or more of residents are unable to drive. Compared to 2007 conditions, some increases in transit travel times are projected for travel markets involving transit-dependent households. One example is between Pearlridge and Downtown Honolulu. Other travel markets would experience small reductions in transit travel times.

Under the Project, transit travel time benefits will occur for several communities with high concentrations of transit-dependent households (Figure 5-1). There will be substantial travel time benefits for transit-dependent communities such as Waipahu, West Loch, Waikīkī, Chinatown, and Makakilo.

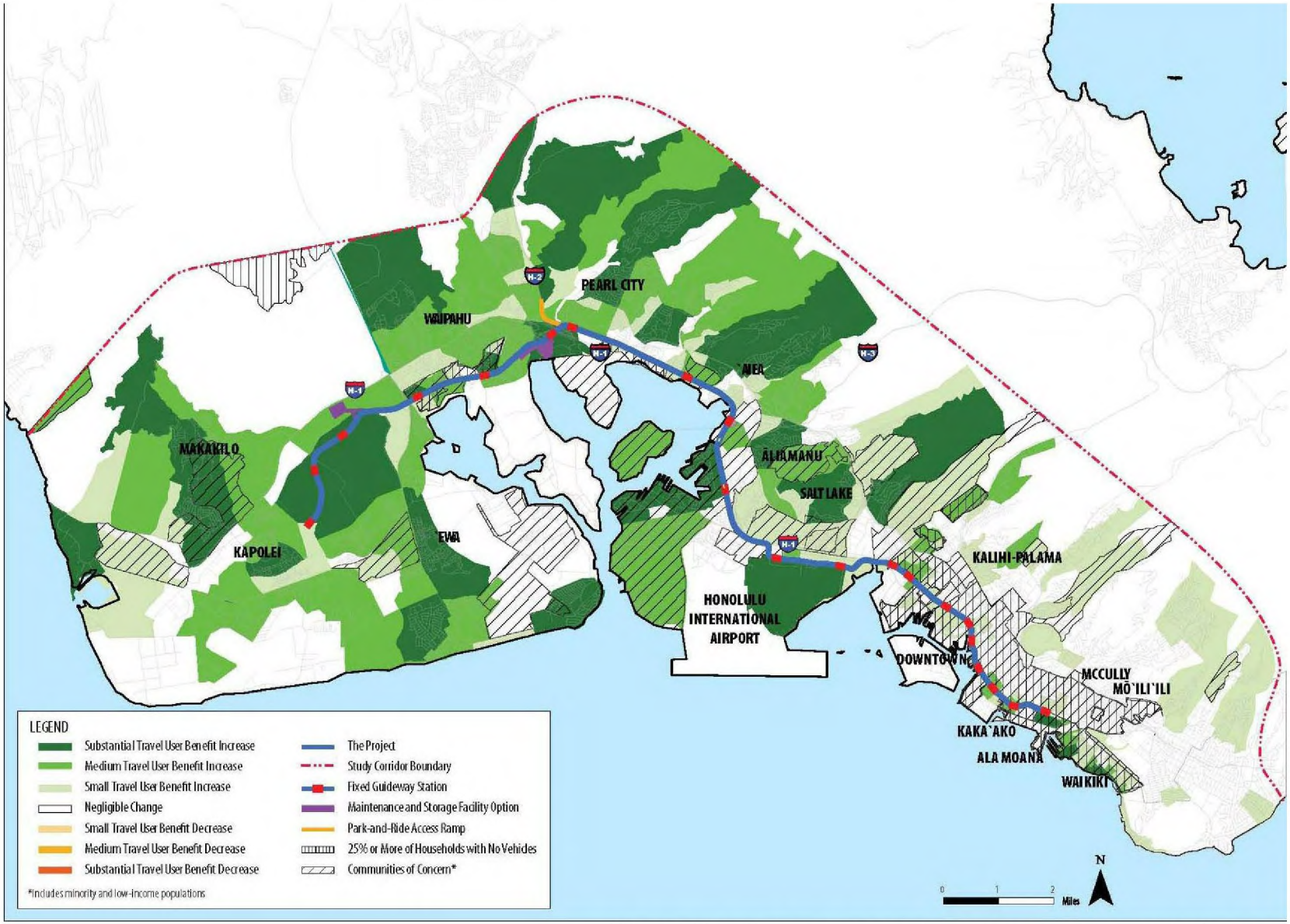

Figure 5-1: Transit-Dependent Households – 2030 Project

Change	The following are modifications of and replace the first, second, and third paragraphs in **Section 5.3.1 Transit Performance** **Transit System Speed** and replace the following figures and table **Figure 5-2—Transit Average Operating Speeds in Miles per Hour—2030 No Build and Build Alternatives** **Table 5-5—AM Two-Hour Peak Period Transit Vehicle Speeds (in miles per hour)** **Figure 5-3—A.M. Peak-Period Transit Travel Times**

Transit System Speed

As a result of growth in traffic congestion and the lack of exclusive right-of-way for transit vehicles, bus speeds have gradually declined over the past several years and would continue to decline under the No Build Alternative. Under the Project, transit riders will experience substantially reduced travel times during the a.m. two-hour peak period (6:00 to 8:00 a.m.) compared to existing conditions and the No Build Alternative. Shorter travel times reflect faster systemwide transit speeds.

The fixed guideway operations will provide faster service compared to bus-only operations. Figure 5-2 compares system-level transit speeds for the No Build Alternative (bus-only) with the Project (bus and rail). Table 5-5 lists transit speeds for the existing conditions, the No Build Alternative, and the Project at selected locations. The temporary increase in transit speeds in 2016 is attributable to improved transit operations due to the planned implementation of a PM zipper lane on the H-1 Freeway.

Figure 5-3 shows 2007 and 2030 travel times between selected travel markets. This information represents the time required to complete a trip from origin to destination and assumes that at least a portion of the trip will be made on the fixed guideway system. Travel-time information for 2030 is presented for the No Build Alternative and with the Project.

As shown in this figure, some transit travel times, such as from Waipahu to Waikīkī and Mililani to Downtown, are projected to improve under the No Build Alternative. These trips would take advantage of extended HOV lanes on the H-1 Freeway, improved operations of the zipper lane (assumed to be limited to vehicles with three or more occupants in the year 2030), and/or the proposed Nimitz Flyover facility (which would give priority to HOVs and transit vehicles).

As shown in Figure 5-3, travel times will improve significantly (up to a 60 percent travel time savings) with the Project as compared to the No Build Alternative. The largest improvement in travel time savings occurs for trips from Kapolei to Pearl Harbor. Even trips to and from Mililani and Waikīkī, which are not along the project alignment, will benefit from reduced travel times when using the guideway. There will also be travel time savings for residents that reverse commute from Ala Moana to UH West Oʻahu or from Pearlridge Center to Kapolei for work.

Table 5-5 shows a significant improvement in transit speeds with the Project. As a result of increased transit speeds with the Project, major reductions in transit travel times will occur for several major markets, such as between developing areas in ʻEwa and Downtown Honolulu. The most significant improvements in transit speeds will be from Kapolei to Pearl Harbor, Pearl City/ʻAiea to Downtown, and Downtown to Ala Moana Center. As demand increases after the fixed guideway system is fully operational, service will gradually be expanded with more frequent and longer trains. This will cause the overall average transit travel time to continue to decrease.

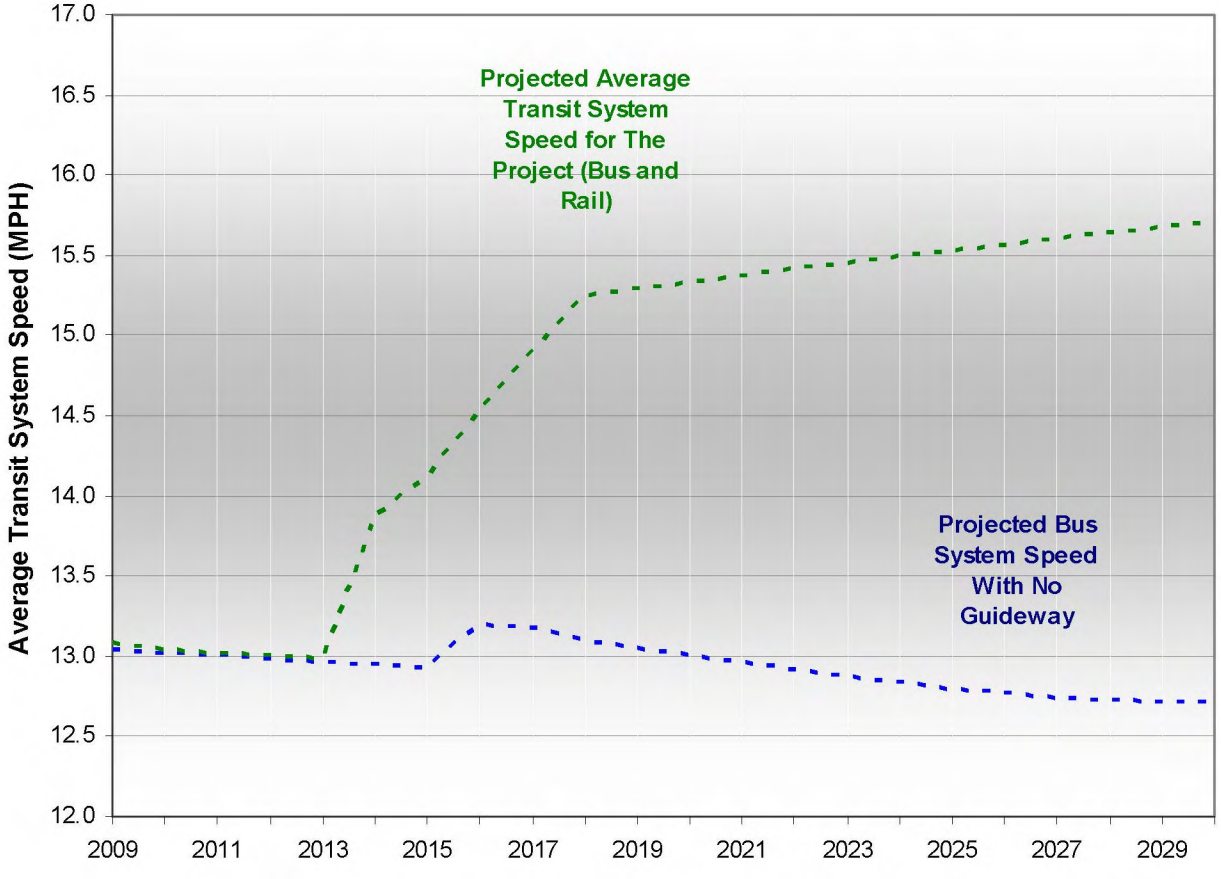

Figure 5-2: Transit Average Operating Speeds in Miles per Hour—2030 No Build and Airport Alternatives

Table 5-5: A.M. Two-Hour Peak Period Transit Vehicle Speeds (in miles per hour)

Alternative	Kapolei to Downtown	ʻEwa to Downtown	Waipahu to Downtown	Mililani to Downtown	Pearl City/ʻAiea to Downtown	Downtown to Ala Moana Center	Waipahu to Waikīkī	Kapolei to Pearl Harbor	Airport to Waikīkī	Ala Moana Center to UH West Oʻahu	Pearl City/ʻAiea to Kapolei
2007 Existing Conditions	19	15	19	20	15	13	17	22	10	15	15
2030 No Build Alternative	19	15	19	18	13	10	17	10	10	29	18
2030 Airport Alternative	28	22	32	30	29	24	25	28	19	31	26

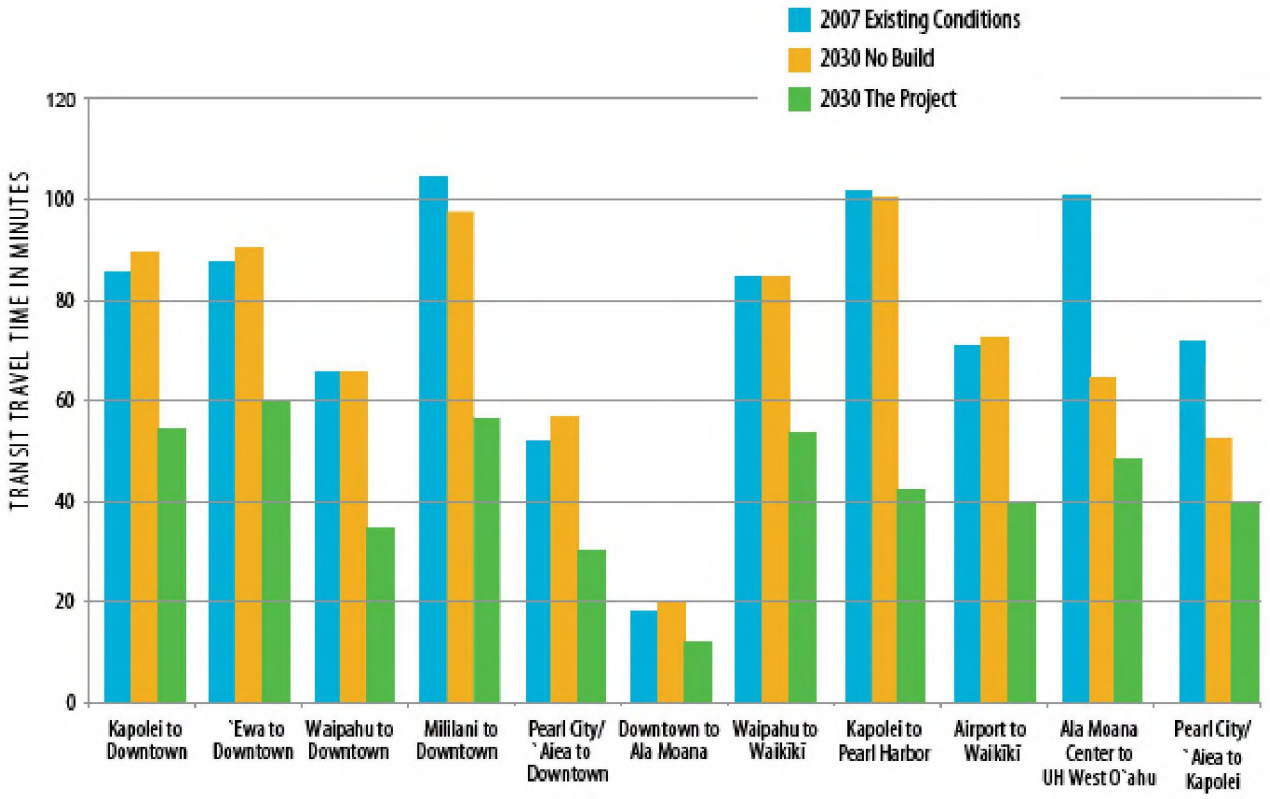

Figure 5-3: A.M. Peak-Period Transit Travel Times
Source: Oʻahu MPO Travel Demand Forecasting Model

Replace	The following paragraphs replace the last paragraph and are added to the end of **Section 5.3.2—Access to Fixed Guideway Stations**

The dominance of non-motorized (walk and bicycle) and bus access to stations indicates that overall accessibility will be broad. This is especially important for riders who do not have access to automobiles. Access to stations by walk, bicycle, and bus service will be complemented by project design criteria that place highest emphasis on walk and bicycle access. Per the design criteria, pedestrian access to stations, including accessible routes, shall be given first priority for reasons of safety.

The importance given to pedestrian access is reflected in design features at project stations. For example, at the Pearl Highlands Station, pedestrian bridges will provide connections between the station entrance and nearby residential and commercial areas. The East Kapolei Station will include an enhanced pedestrian link between the park-and-ride facility and station entrances. For the Honolulu International Airport Station, pedestrian routes will connect the station to the Interisland and Overseas Terminals. Enhanced signage and wayfinding techniques will enable visitors to easily find the rail transit station from the airport terminals. At many stations, the Project will include adding new sidewalks or widening or otherwise improving existing ones.

The design criteria also state that, as a non-motorized mode, bicycles will be given second priority and will be placed over all motorized vehicular access to Project stations. TheHandi-Van and TheBus access will have priority over all other motorized access modes.

RTD will continue to coordinate with HDOT, DPP, and other State or City agencies as appropriate to develop and enhance connections between the stations and the surrounding transportation system.

Change	The following is a modification of and replaces **Table 5-7—Mode of Access to Fixed Guideway Stations**

Table 5-7: Mode of Access to Fixed Guideway Stations—Airport Alternative

Station	Daily Person Trips using Guideway Stations by Mode								
	Walk/Bike		Bus		Kiss-and-Ride		Parking		
	Volume	% Share	Volume	% Share	Volume	% Share	Volume	% Share	Total
East Kapolei	420	6%	5,040	69%	380	5%	1,430	20%	7,270
UH West O'ahu	550	9%	4,750	76%	260	4%	680	11%	6,240
Ho'opili	1,390	77%	130	7%	230	13%	50	3%	1,800
West Loch	670	13%	4,020	76%	500	9%	110	2%	5,300
Waipahu Transit Center	550	18%	2,260	73%	230	7%	50	2%	3,090
Leeward Community College	2,850	89%	300	9%	40	1%	10	0%	3,200
Pearl Highlands	1,500	14%	5,410	51%	590	6%	3,110	29%	10,610
Pearlridge	490	8%	5,080	87%	230	4%	60	1%	5,860
Aloha Stadium	790	20%	1,410	36%	110	3%	1,610	41%	3,920
Pearl Harbor Naval Base	2,750	51%	2,530	47%	130	2%	30	1%	5,440
Honolulu International Airport	3,360	53%	2,910	46%	40	1%	10	0%	6,320
Lagoon Drive	700	23%	2,230	73%	100	3%	20	1%	3,050
Middle Street Transit Center	320	11%	2,320	83%	140	5%	30	1%	2,810
Kalihi	2,180	60%	1,200	33%	200	6%	50	1%	3,630
Kapālama	1,830	82%	330	15%	60	3%	10	0%	2,230
Iwilei	720	21%	2,010	60%	520	15%	120	4%	3,370
Chinatown	1,250	80%	300	19%	10	1%	-	0%	1,560
Downtown	2,830	26%	7,930	74%	10	0%	-	0%	10,770
Civic Center	3,020	77%	880	22%	30	1%	-	0%	3,930
Kaka'ako	2,650	80%	650	20%	20	1%	-	0%	3,320
Ala Moana Center	3,680	16%	17,790	79%	890	4%	250	1%	22,610
Total	*34,500*	*30%*	*69,480*	*60%*	*4,720*	*4%*	*7,630*	*7%*	*116,330*

Change	The following is a modification of and replaces the second paragraph of **Section 5.3.3—Transfers**

With the Project, the rate of transfers will be higher than with the No Build Alternative due to proposed changes in local bus service to provide access to the fixed guideway system. Some existing routes, including peak-period express service, will be altered to avoid duplication with the fixed guideway system. Some local routes will also be rerouted or reclassified as feeder buses to provide better service to the nearest fixed guideway station. The estimated rate of transfer will be 60 percent or about 1.6 transfers per linked trip.

Change	The following is a modification of and replaces the first two paragraphs of **Section 5.3.6—Transit User Benefits**

Transportation system user benefits captures a set of benefits to transit riders—including reductions in walk times, wait times, ride times, number of transfers, costs (converted to time)—in terms of savings in travel time. User benefits associated with a proposed project are a comparison of a given transit alternative compared to a baseline alternative. For the New Starts funding program, FTA requires that user benefits be compared to a baseline alternative that represents the best that can be done to improve transit service in the study corridor without building a fixed guideway transit facility. The "New Starts Baseline Alternative," which is different from the NEPA No Build Alternative, includes all projects in the ORTP except the Project, but it also includes additional bus service comparable to the TSM Alternative used in the Alternatives Analysis. Accordingly, user benefits with the Project are higher when compared to the No Build Alternative (as shown in Table 5-9). This section discusses transit-user benefits of the Project compared to the New Starts Baseline Alternative. Identifying transit user benefits is an effective way to quantify the four key goals of the Project—improved mobility, reliability, access to planned development, and transportation equity.

The main factors in determining benefits are travel time and cost. User benefits are measured in minutes and are a summary measure that incorporates travel-time and cost changes for all modes. In the case of transit, FTA defines differing weights to reflect the effective time of transfers, waiting, in-vehicle travel-time, etc., in addition to costs such as fares, to arrive at a total trip user benefit. These factors are based on empirical evidence from existing systems throughout the country.

Change	The following is a modification of and replaces the first paragraph of **Section 5.3.6—Transit User Benefits** **Corridor Mobility**

The Project will increase average transit speeds by approximately 25 percent compared to 2030 No Build Alternative, leading to higher transit ridership and travel time savings for existing and new transit users. Transit travel times between major

destinations will decrease up to 60 percent compared to the No Build Alternative (Table 5-8). As transit becomes a faster and thus more attractive travel choice, ridership would increase. As shown in Table 5-8, transit ridership will increase by approximately 56,000 trips per day (25 percent) by 2030 with the Project compared to the No Build Alternative, and transit users will save up to 20 million or more equivalent hours of travel time per year by 2030.

Change The following is a modification of and replaces the third paragraph of **Section 5.3.6—Transit User Benefits Corridor Mobility**

Increases in transit ridership will benefit highway users as well by removing drivers from the roadways through better transit service. The Project will reduce traffic congestion and improve mobility compared to the No Build Alternative (Table 5-8). Daily VMT will decrease by 4 percent; VHT will decrease by about 8 percent; and VHD will decrease by 18 percent.

Change The following is a modification of and replaces **Table 5-8—Transit Travel Time, Transit and Highway Performance—Existing Conditions, No Build and Build Alternatives**

Table 5-8: Transit Travel Time, Transit and Highway Performance—Existing Conditions, No Build and Airport Alternatives

Objective	2007 Existing Conditions	Alternative	
		2030 No Build Alternative	2030 Airport Alternative
Transit Travel Time (minutes)			
Waiʻanae to UH Mānoa	128 minutes	121 minutes (1 transfer)	93 minutes (2 transfers)
Kapolei to Ala Moana Center	101 minutes	105 minutes	59 minutes
Transit Performance			
Transit ridership (daily linked trips)	184,700	226,300	282,500
Transit user benefits (hours per year)	n/a	n/a	20,775,000
Highway Performance			
Daily islandwide VMT	11,232,400	13,623,100	13,049,000
Daily islandwide VHT	325,700	415,600	383,800
Daily islandwide VHD	71,800	104,700	85,800

Source: O'ahuMPO Travel Demand Forecasting Model

Change	The following is a modification of and replaces **Section 5.3.6—Transit User Benefits** **Transit User Benefits—Selected Major Travel Markets**

Selected Major Travel Markets

Transit user benefits have been estimated for various travel markets and at the geographic level. With the Project, it is estimated that approximately 20,775,000 hours of user benefits will be generated per year. Greater use of the transit system, higher transit speeds, and the other attributes noted previously will contribute to these user benefits.

User benefits, expressed in terms of hours saved per year, can be identified for specific transit travel markets. Table 5-9 shows estimated benefits for several markets on O'ahu. These benefits range from approximately 274,000 hours per year (for home-based other trips destined to Downtown) to almost 1,769,000 hours per year (for home-based work trips to Downtown Honolulu) when compared to the New Starts Baseline. In addition, user benefits accrue for work trips from 'Ewa and Kapolei, both planned development areas. The cumulative savings of approximately 9,275,000 hours per year compared to the New Starts Baseline Alternative represents just under one-half of the approximately 20,775,000 estimated total annual user benefits that will result from the Project.

Table 5-9 also shows the number of minutes saved per fixed guideway rider per trip. Benefits range from a 28-minute savings for visitor trips from Waikīkī to a 42-minute savings for home-based work trips from Kapolei compared to the New Starts baseline.

As shown in Figure 5-1, the vast majority of islandwide zones will experience some benefit from the Project. Of the zones in the analyzed area, none will experience decreases in user benefits. Concentrations of zones experiencing moderate or major benefits are located in West O'ahu and 'Aiea/Pearl City. In addition, several markets estimated to experience major user benefits will not be located on the alignment. These include Waikīkī, UH Mānoa, and 'Ewa. The Project will benefit users in these areas because residents can access the guideway via local bus service or park-and-rides.

As shown in Figure 5-1, there will be positive user benefits for communities with high concentrations of transit-dependent households (greater than 25 percent of households without automobiles or people able to drive), as well as other defined groups within communities of concern. Data collected and used as indicators for these communities of concern include linguistically isolated households, transit-dependent populations, and areas with public housing and community services. Substantial positive user benefits for communities of concern are shown in or near Waipahu, Pearl Harbor Naval Base, and Ala Moana Center. Overall, many communities of concern receive positive benefits from the Project. No community of concern will experience negative user benefits.

Those areas with high transit dependence, such as Waipahu, Pearl City, ʻAiea, Kalihi, Iwilei, Chinatown, Downtown, Kakaʻako, Ala Moana, and Waikīkī, as shown in Figure 5-1, benefit from more than 35 percent of the total user benefits. With user benefit improvements between planned population and employment areas and for transit-dependent households, the Project supports each of the four Project goals.

Change	The following is a modification of and replaces **Table 5-9—Estimated User Benefits Resulting from 2030 Build Alternatives (in Hours per Day Saved)**

Table 5-9: Estimated Transit User Benefits Resulting from the 2030 Airport Alternative

Key Transit Market[1, 2]	Compared to New Starts Baseline		Compared to No Build Alternative	
	Benefits per Year (hours)	Benefits per Rail Rider per Trip (minutes)	Benefits per Year (hours)	Benefits per Rail Rider per Trip (minutes)
Work trips to Downtown Honolulu	1,769,000	34	1,747,000	34
Visitor trips from Waikīkī	468,000	28	529,000	31
Other trips to Downtown	274,000	31	298,000	34
Work trips to Waikīkī	1,079,000	35	1,029,000	34
Work trips to Kalihi	643,000	30	629,000	29
School trips to UH Mānoa	1,003,000	38	992,000	37
Work trips to Kakaʻako	615,000	32	603,000	31
Work trips Mōʻiliʻili	491,000	35	485,000	35
Work trips from ʻEwa	1,087,000	37	1,147,000	39
Work trips from Kapolei	564,000	42	596,000	45
Work trips from Waipahu	729,000	32	751,000	33
Work trips from Mililani	553,000	37	556,000	37
Subtotal	*9,275,000*	*34*	*9,362,000*	*35*
Other	11,500,000	31	13,256,000	36
Total	*20,775,000*	*32*	*22,618,000*	*35*

Source: OʻahuMPO Travel Demand Forecasting Model

[1] Except for Visitor from Waikīkī, the markets involve home-based travel.

[2] Benefits in overlapping markets are not double counted. Refer to Addendum 01 to the Travel Demand Forecasting Results Report for complete user benefit matrices.

Change	The following is a modification of and replaces the first paragraph of **Section 5.3.6—Transit User Benefits Corridor Travel Reliability**

With the No Build Alternative, travel reliability, as measured by VHD, for both drivers and transit riders would worsen by 2030. Because delay on the system is not predictable from one day to another, reliability for drivers and transit riders using bus transit would also worsen. The large increase (46 percent) in VHD that would occur with the No Build Alternative includes an element of unpredictability that requires special accommodations in travel planning. Average travel times would increase somewhat under the No Build Alternative, but the impact on reliability would be more dramatic, especially in the morning. Morning drivers will need to allocate more time to account for the possibility that delays would occur. These unknowns make it difficult to estimate a trip's duration when scheduling appointments.

Change	The following is a modification of and replaces the third paragraph of **Section 5.3.6—Transit User Benefits Corridor Travel Reliability**

With the Project, reliability for transit riders, as measured by VHD, will increase substantially as trips are shifted from buses operating on streets in mixed traffic and congested freeways to the fixed guideway. With its complete separation from traffic, the service operating on the fixed guideway will provide a predictable travel time. Forty-three percent of transit trips and transit passenger miles will be carried on an exclusive fixed guideway that is not subject to traffic delay (Table 5-10).

Change	The following is a modification of and replaces **Table 5-10—Effectiveness of Alternatives in Improving Corridor Travel Reliability**

Table 5-10: Effectiveness of Alternatives in Improving Corridor Travel Reliability

Objective	2007 Existing Conditions	2030 No Build Alternative	2030 Airport Alternative
Percent of transit trips carried on fixed guideway	0%	0%	43%
Percent of transit passenger miles in exclusive right-of-way	1%	1%	43%

Source: O'ahuMPO Travel Demand Forecasting Model

Change	The following is a modification of and replaces **Section 5.3.6—Transit User Benefits** **Transit User Benefits—Geographic Areas**

Geographic Areas

System-level user effects were analyzed using travel time benefits for islandwide analysis zones. The main factors in determining benefits are transit trip travel time and cost. User benefits maps are used to show which residents gain or lose utility from a project. Areas that will receive user benefits (e.g., a decrease in estimated travel time or cost) as a result of the Project are shown in green. Three shades of green are presented to illustrate benefits: (1) substantial benefits (dark green, top 40 percent of user benefits); (2) medium benefits (medium green, next 30 percent of positive user benefits); and (3) small benefits (light green, next 10 percent of positive user benefits). Areas that will experience negative user benefits are shaded red for substantial negative user benefits, medium orange for medium negative user benefits, and light orange for small negative user benefits. Areas shaded white will not experience either positive or negative user benefits as a result of the Project or are not part of the analyzed area (e.g., Koʻolau and Waiʻanae Mountain Ranges).

As shown in Figure 5-4, the vast majority of islandwide zones will experience some benefit from the Project. Of the zones in the analyzed area, none will experience decreases in user benefits. Concentrations of zones experiencing moderate or major benefits are located in West Oʻahu and ʻAiea/Pearl City. In addition, several markets estimated to experience major user benefits will not be located on the guideway. These include Waikīkī, UH Mānoa, and ʻEwa. The Project will benefit users in these areas because residents can access the guideway via local bus service or park-and-rides.

Change	The following is a modification of and replaces **Figure 5-4—Positive User Benefits of the Build Alternatives Compared to No Build Alternative**

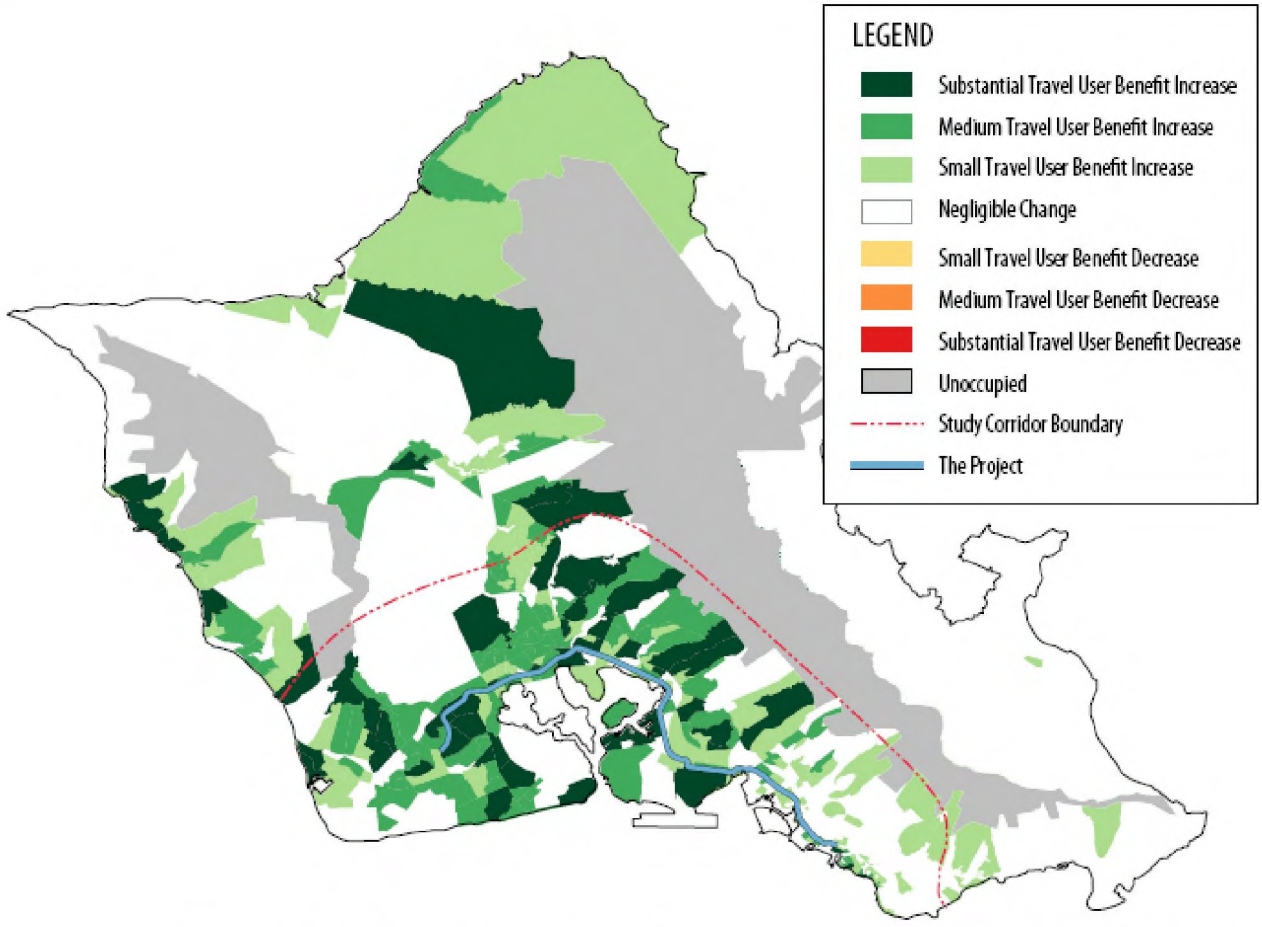

Figure 5-4: Positive User Benefits of the Airport Alternative Compared to the No Build Alternative

Change	The following is a modification of and replaces **Figure 5-5—Communities of Concern and User Benefits for the Build Alternatives compared to the No Build Alternative**

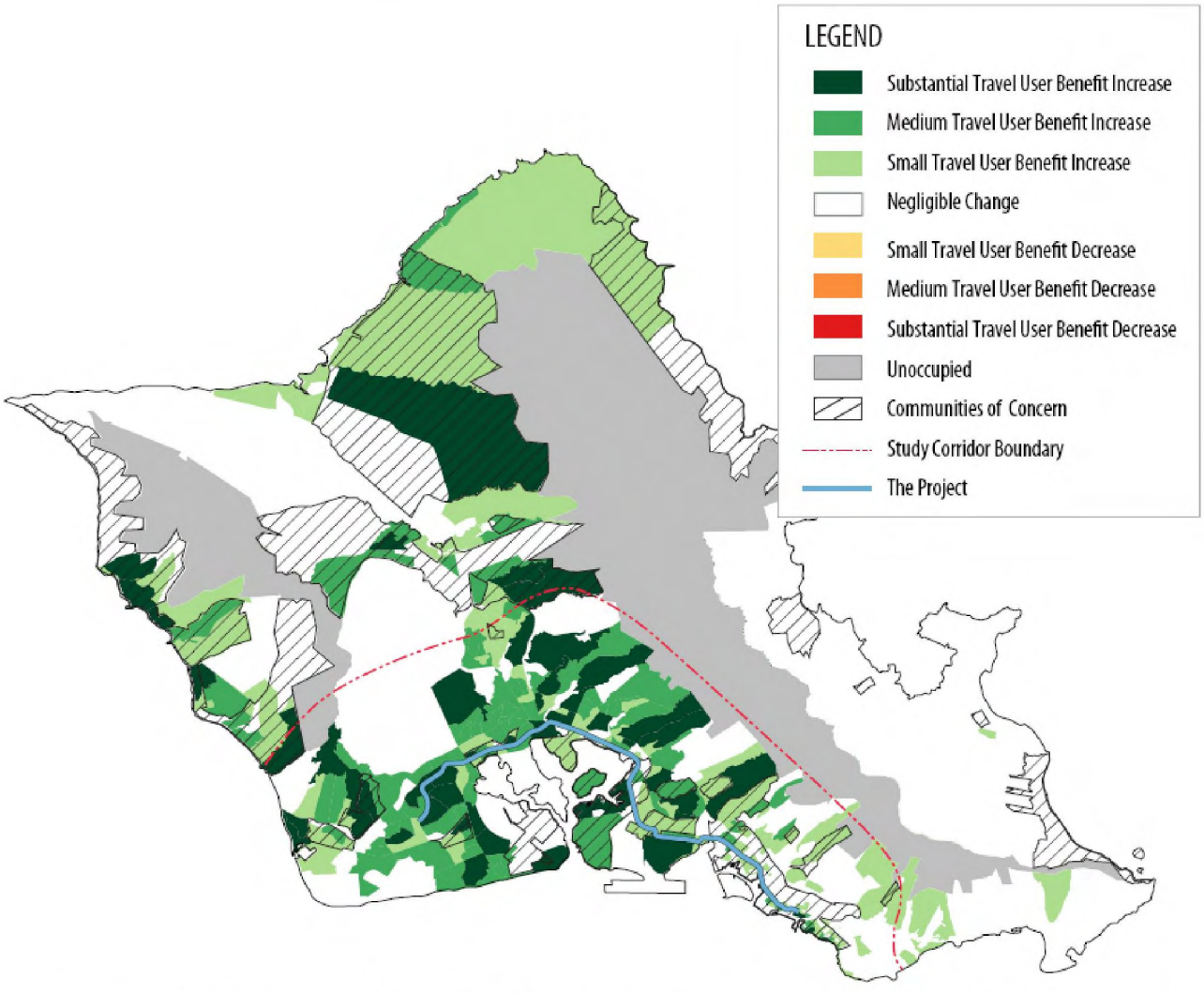

Figure 5-5: Communities of Concern and User Benefits for the Airport Alternative Compared to the No Build Alternative

Change	The following is a modification of and replaces the fourth paragraph of **Section 5.3.6—Transit User Benefits** **Transit Equity**

The Project will provide transit travel-time savings to approximately 65 percent of the islandwide population in 2030 (Table 5-12). Of the 35 percent of the island's population that resides in areas containing concentrations of communities of concern, over half will realize a substantial transit travel-time savings. Data collected and used as indicators for communities of concern include linguistically isolated

households, transit-dependent populations, and areas with public housing and community services. The rest of the island's population residing in areas with concentrations of communities of concern will experience little change in transit travel time as a result of the Project. None of the population will experience an increase in travel times.

Change The following is a modification of and replaces **Table 5-12—Equity Comparison of 2030 Transit Travel-Time Savings for Build Alternatives Compared to the No Build Alternative**

Table 5-12: Equity Comparison of 2030 Transit Travel-Time Savings for the Airport Alternative Compared to the No Build Alternative

Percent of Islandwide Population	That will experience	Percent of Population within Category	
		Within Communities of Concern	Outside Communities of Concern
61%	Travel-time savings compared to the No Build Alternative	34%	66%
39%	Negligible travel-time change compared to the No Build Alternative	36%	64%
0%	Travel-time increase compared to the No Build Alternative	0%	0%

Source: O'ahuMPO Travel Demand Forecasting Model

Change The following is a modification of and replaces the second paragraph of **Section 5.4.1—Transit Ridership—Systemwide**

Ridership numbers are presented in terms of fixed guideway boardings and total transit boardings. Daily transit boardings with the Project will increase over the No Build Alternative by 44 percent.

Change The following is a modification of and replaces **Table 5-13—Daily Transit Boardings for No Build Alternative and Build Alternatives**

Table 5-13: Daily Transit Boardings and Trips for No Build and Airport Alternatives

Alternative	Fixed Guideway Boardings	Total Transit Boardings	Total Transit Trips
2007 Existing Conditions	n/a	252,200	184,700
No Build	n/a	314,200	226,300
Percent Change from 2007		*25%*	*23%*
Airport	116,300	453,400	282,500
Percent Change from 2007	*n/a*	*79%*	*53%*
Percent Change from No Build	*n/a*	*44%*	*25%*

Source: O'ahuMPO Travel Demand Forecasting Model
Rounded to nearest hundred.

Change The following is a modification of and replaces **Figure 5-7—2030 A.M. 2-Hour Peak Period Ridership—Airport Alternative**

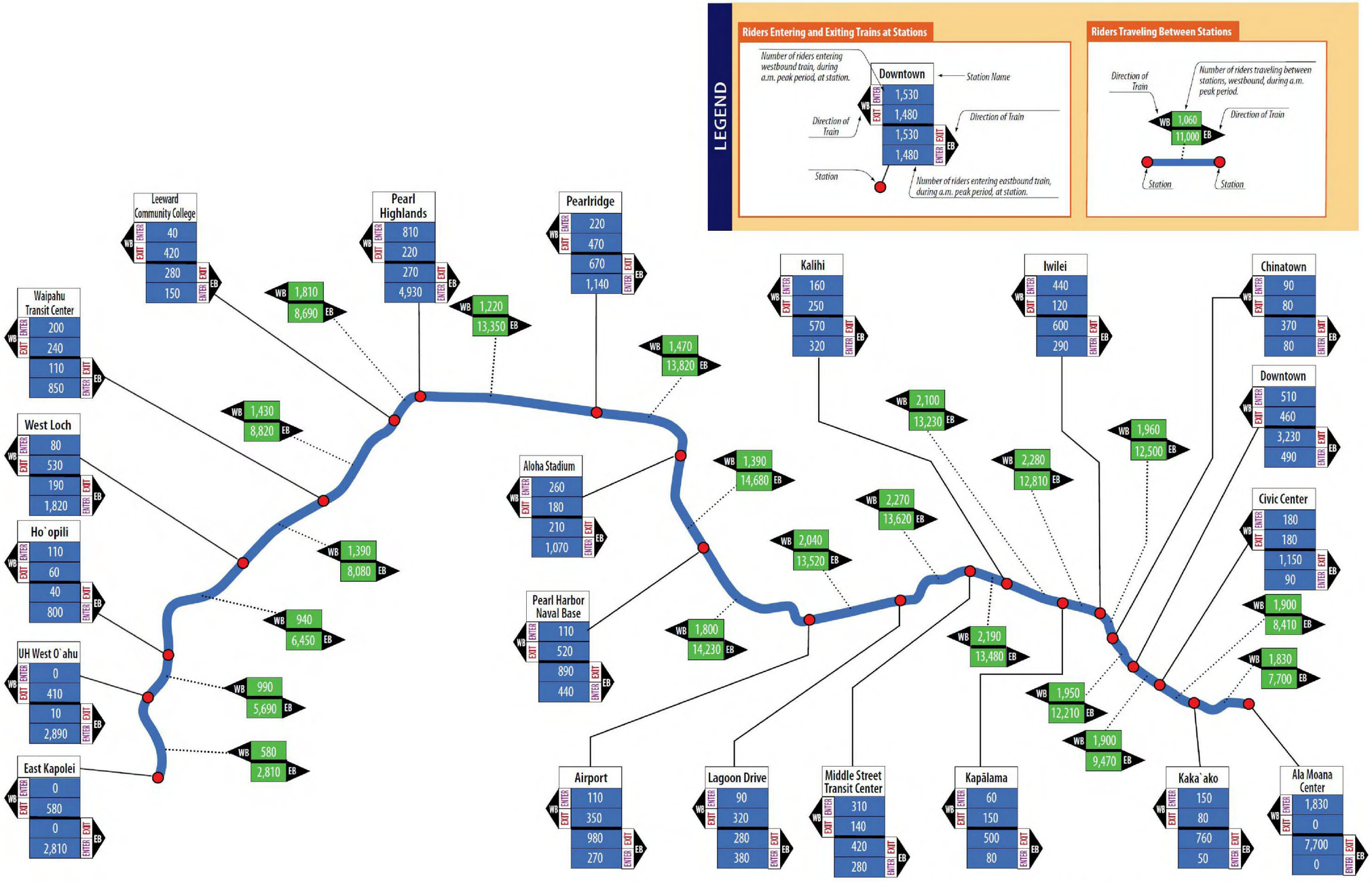

Figure 5-7: A.M. 2-Hour Peak Period Boardings, Alightings, and Link Volumes

Change	The following is a modification of and replaces the second bulleted list (page 5-33) of **Section 5.4.2—Station and Link Volumes**

In the ‘Ewa-bound direction, the Ala Moana Center Station and the Pearl Highlands station have the highest number of boardings. The East Kapolei and West Loch stations will have the highest number of alightings. The highest passenger volume will occur between Iwilei and Kapālama stations.

Change	The following is a modification of and replaces the last two paragraphs of **Section 5.4.2—Station and Link Volumes**

The maximum peak direction (Koko Head) volume during the a.m. two-hour peak period will be about 14,700 passengers in 2030. This is within the fixed guideway system’s currently planned minimum capacity of 17,300 passengers per direction for a 2-hour period. Should higher passenger volumes be realized, the system will be designed to allow the City to add substantially higher capacity by adding vehicles to each train or reducing headways. Such operational adjustments would be evaluated as the system approaches the planned capacity toward 2030.

Figure 5-10 shows the number of daily fixed guideway boardings, alightings, and passenger volumes for each station. For all-day travel, the Ala Moana Center Station and Pearl Highlands Station will experience the highest boardings and alightings. The highest passenger volume will occur between the Middle Street and Lagoon Drive stations with the Project.

Change	The following is a modification of and replaces **Figure 5-10—2030 Daily Ridership—Airport Alternative**

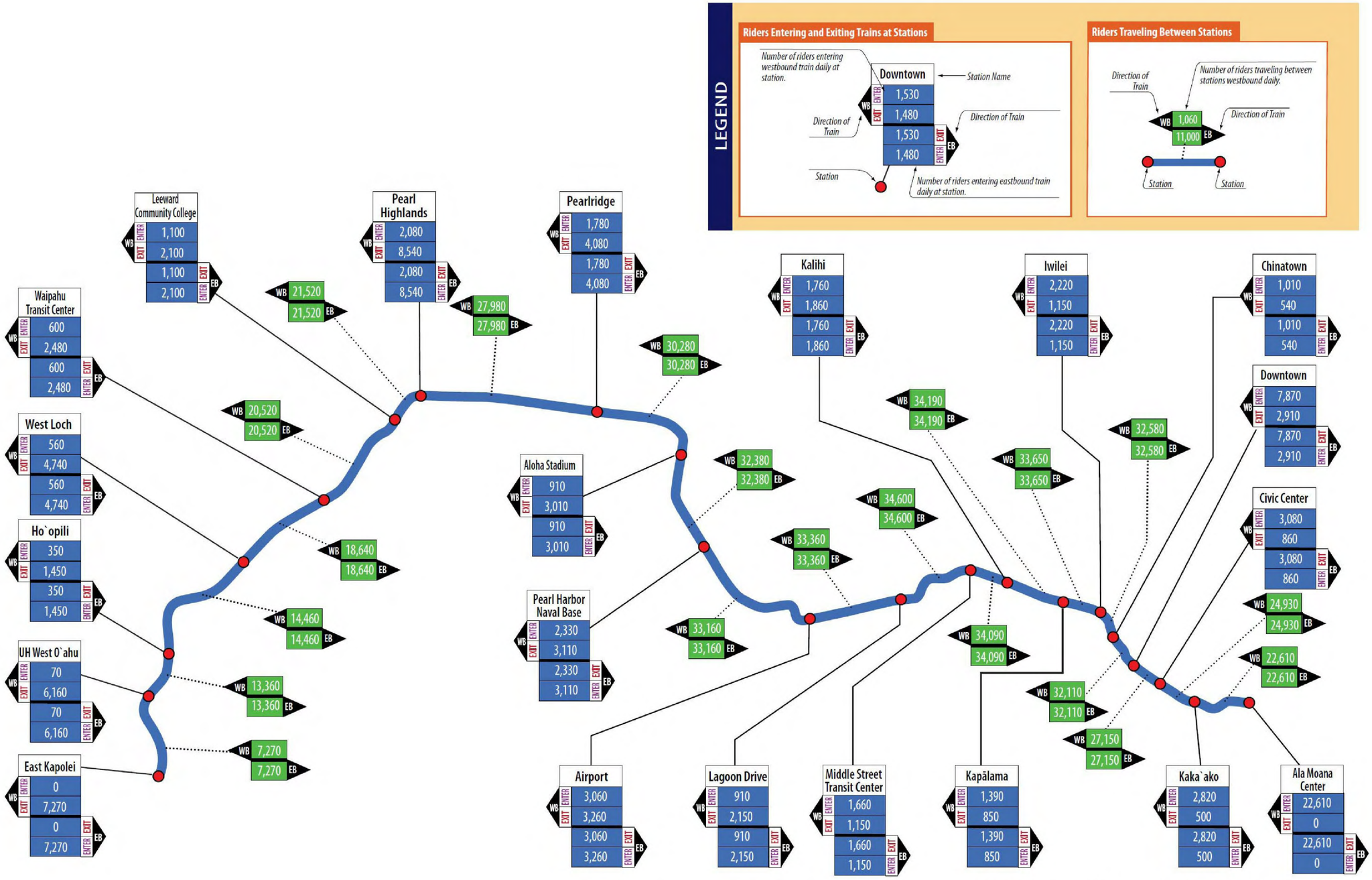

Figure 5-10: Daily Boardings, Alightings, and Link Volumes

Change	The following is a modification of and replaces the first paragraph of **Section 5.4.3—Ridership by Type of Service**

Table 5-14 summarizes the projected breakdown of transit ridership by service type for the No Build Alternative and the Project. Under the No Build Alternative, local bus predominates with 98 percent of total boardings. With the Project, a major shift will occur between local bus ridership and fixed guideway modes of service with fixed guideway accounting for a 26-percent share. Local bus service shares of total transit ridership will decline from 98 percent with the No Build Alternative to nearly 74 percent. This decrease in share of local service indicates that a smaller portion of total system ridership will be relying on bus service primarily operating in mixed traffic.

Change	The following is a modification of and replaces **Table 5-14—Shares of Total Daily Boardings by Transit Service Type (residents and visitors)—2030 No Build and Build Alternatives**

Table 5-14: Shares of Total Daily Boardings by Transit Service Type (residents and visitors)—2007 and 2030 No Build and Airport Alternatives

Alternative	Local Bus		Express Bus		Fixed Guideway		Total
	Number of Boardings	Percent Share	Number of Boardings	Percent Share	Number of Boardings	Percent Share	
2007 Existing Conditions	245,030	97.1%	7,200	2.9%	n/a	n/a	252,230
2030 No Build Alternative	308,710	98.3%	5,370	1.7%	n/a	n/a	314,080
2030 Airport Alternative	335,020	73.9%	2,050	0.5%	116,340	25.7%	453,410

Source: O'ahuMPO Travel Demand Forecasting Model
Numbers rounded to nearest 10.

Change The following is a modification of and replaces **Table 5-16—Total Daily Person Trips by Mode**

Table 5-16: Total Daily Person Trips by Mode

Alternative	Transit	Private Vehicle	Bike/Walk	Total
2007 Existing Conditions	184,700	2,424,500	498,100	3,107,300
Percent of Total	6%	78%	16%	
2030 No Build Alternative	226,300	3,003,400	596,400	3,826,100
Percent of Total	6%	78%	16%	
2030 Airport Alternative	282,500	2,952,200	595,300	3,798,000
Percent of Total	7%	78%	16%	

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

Change The following is a modification of and replaces the fourth and fifth paragraphs of **Section 5.4.4—Changes in Transit and Private Vehicle Demand**

Under the Project, transit mode shares for home-based trips during the a.m. two-hour peak period will substantially increase for most travel pairs compared to the No Build Alternative. For many travel markets, the transit share of trips under the Project will double or triple the share occurring under the No Build Alternative. For example, the transit share of the Kapolei to Downtown Honolulu travel market will increase from 23 percent under the No Build Alternative to 60 percent with the Project. In other words, more than half of the people going from 'Ewa to Downtown to work in the morning will use transit with the Project, compared to only a quarter without the Project.

Substantial increases in transit share will occur for travel markets not directly served by the fixed guideway. For example, the transit share of the Waipahu to Waikīkī market will increase from 8 percent under the No Build Alternative to 36 percent with the Project.

Change The following is a modification of and replaces **Figure 5-12—Transit Shares of Home-Based Work Trips in Two-Hour A.M. Peak Period**

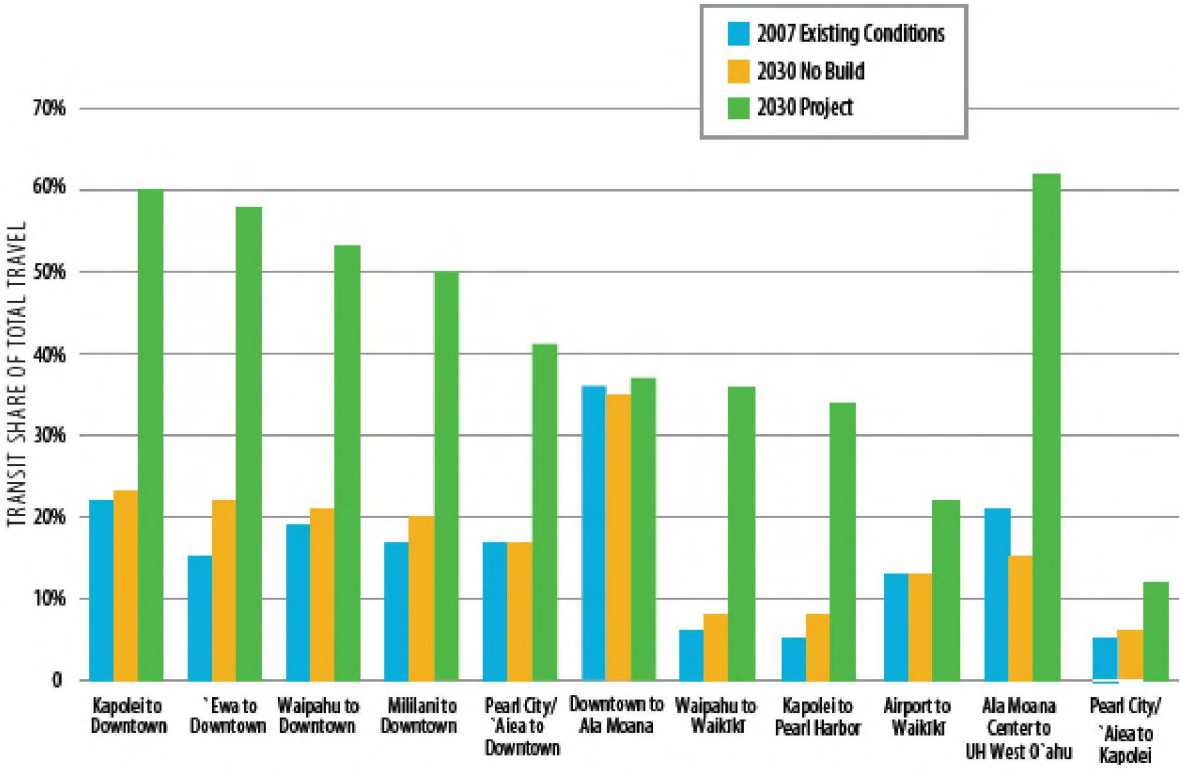

Figure 5-12: Transit Shares of Home-Based Work Trips in the Two-Hour A.M. Peak Period—Airport Alternative

Source: O'ahuMPO Travel Demand Forecasting Model

Change	The following are modifications of and replace **Section 5.4.5—Bus Access at Fixed Guideway Stations** *(from beginning of section through Table 5-21 [page 5-49] inclusive)* **Table 5-17—TheBus Routes Service Station Locations—Kapolei** **Table 5-18—TheBus Routes Service Station Locations—West Loch to Pearlridge** **Table 5-19—TheBus Routes Service Station Locations—Pearlridge to Middle Street** **Table 5-20—TheBus Routes Service Station Locations—Middle Street to Kapālama** **Table 5-21—TheBus Routes Service Station Locations—Iwilei to Ala Moana Center**

5.4.5 Bus Access at Fixed Guideway Stations

Kapolei Stations

Table 5-17 provides an overview of the bus feeder services in each station area in Kapolei. The Leeward bus network was restructured with distinct route functions in 2000. Routes were scheduled to operate on easily identified headways (e.g., service operating every 30 minutes at 15 and 45 minutes past the hour) to make timed connections at transit centers. The fixed guideway operations will benefit from these previous improvements, which will be retained and substantially expanded to serve growth.

Table 5-17: TheBus Routes Serving Station Locations—Kapolei

Station Areas	2007 Bus Routes	Airport Alternative Bus Routes
East Kapolei	No current routes	C, 41, 416, 411/417, 418, 421, 422
UH West O‘ahu	No current routes	C, 41, 93, 411/417, 419, 421
Ho‘opili	No current routes	421

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

New bus services proposed at the East Kapolei, UH West O'ahu and Ho'opili Stations have been designed in conjunction with the development of the fixed guideway system and station locations. Feeder services will provide a dual purpose. They will connect ‘Ewa Plain neighborhoods with the fixed guideway and provide linkages between neighborhoods and local activity centers, such as schools, shopping, entertainment and business opportunities.

Rapid Bus and Trunk routes that now connect transit centers and some neighborhoods with Downtown Honolulu will be replaced by the fixed guideway, as specified in the following descriptions.

East Kapolei

The East Kapolei fixed guideway station area is currently not served by local bus routes; however, station connections will include:

- Route C will provide service en route between the UH West Oʻahu fixed guideway station, Kapolei Transit Center (existing bus transit center), and Waiʻanae neighborhoods.
- New Route 416 will provide connecting service to the East Kapolei fixed guideway station (the planned extensions will not provide this service). The route will be extended from Kapolei Transit Center (existing bus transit center) to avoid a bus-bus-fixed guideway transfer.
- New Route 417 will connect Makakilo, UH West Oʻahu, and the City of Kapolei via North-South Road.
- New Route 418 will provide connecting service to the East Kapolei fixed guideway station (the planned extensions will not provide this service). This will help avoid the potential of the bus-bus-fixed guideway transfer.
- New Route 421 will serve the East Kapolei fixed guideway station from the Hoʻopili Development via the future Hoʻopili Main Road and East-West Road.
- New Route 422 will serve the East Kapolei fixed guideway station from the Hoʻopili Development via the future East-West Road.

UH West Oʻahu

This station location is currently not served by local bus routes; however, new services will include:

- Route C will terminate its service at the UH West Oʻahu fixed guideway station.
- Route 41 will serve UH West Oʻahu via Farrington Highway from Kapolei Transit Center (existing bus transit center) en route to ʻEwa Beach.
- Route 93 will provide frequent 10-minute, peak-period-only trips from Waiʻanae to UH West Oʻahu via Farrington Highway and the H-1 Freeway to the North-South interchange.
- New Route 417 will continue Route 411 service from Makakilo to the UH West Oʻahu fixed guideway station via the extension of Makakilo Drive to the North-South Road.
- New Route 419 will provide connecting service to the UH West Oʻahu fixed guideway station (the planned extensions will not provide this service).
- New Route 421 will serve the new Hoʻopili development via new roads connecting residential, educational, retail, and business.

Ho‘opili

This station location is currently not served by local bus routes. However Route 421 will serve the Ho‘opili Station connecting West Loch in Waipahu with the new development, UH West O‘ahu, a regional mall, and ‘Ewa.

West Loch to Pearlridge

Table 5-18 provides an overview of proposed feeder services at each station. Bus feeder services at stations will be provided along the West Loch to Pearlridge section, except for the Leeward Community College Station.

The following sections describe proposed bus access to station areas in the West Loch to Pearlridge segment of the guideway system.

Table 5-18: TheBus Routes Serving Station Locations—West Loch to Pearlridge

Station Areas	2007 Bus Routes	Airport Alternative Bus Routes
West Loch	A, E, 40/A, 42, 44, 201, 432, 434	40/A, 42, 98A, 415, 421, 422, 432, 434
Waipahu Transit Center	A, E, 40/A, 42, 43, 201, 432, 433, 434	40/A, 42, 50, 432, 433, 434
Leeward Community College	73 on limited schedule (7:36 AM to 2:35 PM)	No bus routes Replaced by Fixed Guideway System
Pearl Highlands	A, 40/A, 42, 62, 73	D, 40/A, 51, 83/A, 84/A, 98, 441
Pearlridge	A, 11, 20, 32, 40/A, 42, 53, 54, 62, 71, 90	40/A, 51, 54, 541, 542, 543, 544, 545, 546, 547, 548

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

Pearl Highlands

Routes A, 40, 40A, 42, 62, and 73 currently pass by the Pearl Highlands fixed guideway station location on Kamehameha Highway. Routes A, 42, and 73 will be replaced by fixed guideway service. Major new connections will be provided to Central O‘ahu, and this station will be the main access point to the fixed guideway for residents of the Central and North Shore communities. Services will include:

- New Route D will provide limited-stop all-day connections to Waipi‘o, Mililani, and Wahiawā.
- New Route 51 will replace Route 62 connecting Wahiawā, Mililani, and Waipi‘o with the Pearl Highlands fixed guideway station via Kamehameha Highway.

- Routes 83 and 83A will offer peak-period service between the fixed guideway at Pearl Highlands and Wahiawā and Waialua and Haleiwa in the North Shore.
- Routes 84 and 84A will offer peak-period service between Mililani Town and the Pearl Highlands fixed guideway station.
- Route 98 will provide peak-period service for Mililani Mauka residents and the Pearl Highlands fixed guideway station.
- New Route 441 will provide connections for the Waiawa development to the fixed guideway via the new Central Mauka Road.

Pearlridge

A number of bus routes currently serve the Pearlridge Center, including Routes A, 11, 20, 32, 40, 40A, 42, 53, 54, 62, 71, and 90. With the fixed guideway, Routes A, 11, 20, 32, 53, 71, and 90 will be discontinued. Route 42 will be truncated at the Waipahu Transit Center and Route 62 will be replaced with Route 51. Route 40/40A will continue to operate as will Route 54 (although Route 54 will have its terminus at the Pearlridge fixed guideway station).

Pearl City and ʻAiea bus routes will be redesigned to provide all-day service into the neighborhoods, replacing current peak-period-only services. The Pearl City/ʻAiea bus transit restructure service area extends from Aloha Stadium and the Makalapa Park neighborhoods in the east to Pearl Highlands in the west. Connecting bus routes will include:

- Route 51 will provide service from Wahiawā terminating at the station.
- Route 541 will provide all-day service between Aloha Stadium, Hālawa Heights, and the Pearlridge Station.
- Route 542 will replace shuttle Route 72 and provide all-day service between Pearlridge and ʻAiea Heights.
- Route 543 will replace shuttle Route 74 and provide all-day service for residents along Kaonohi Street connecting to Pearlridge.
- Route 544 provides new community access service for neighborhoods along Kilinoe Street connecting to the Pearlridge fixed guideway station..
- Route 545 will replace portions of shuttle Route 71 with all-day service to Newtown.
- Route 546, a new route, will connect Pearlridge with growing residential areas along Kaahumanu Street.
- Route 547 will replace Route 53's Pacific Palisades service.
- Route 548 will provide service currently available on the ends of Route 54 in a two-way loop configuration.

Pearlridge to Middle Street

The majority of current TheBus service along this section of the fixed guideway for the Project is provided by predominantly through-routes. The fixed guideway will relieve TheBus system of many vehicle revenue hours of service that will be redeployed to provide effective connections to guideway stations and within the communities being served.

Table 5-19 provides an overview of proposed feeder services at each station. Circulator bus services will connect stations with the Arizona Memorial/Ford Island/Aloha Stadium area, the high-density Salt Lake residential community, Pearl Harbor, Hickam Air Force Base, and the Honolulu International Airport area. The Airport Station will be located on airport property, and pedestrian connections to the airport bus feeder services will be provided at each station along this section.

The following section describes proposed bus access at station areas in the Pearlridge to Middle Street segment of the guideway system.

Table 5-19: TheBus Routes Serving Station Location—Pearlridge to Middle Street

Station Area	2007 Bus Routes	Airport Alternative Bus Routes
Aloha Stadium	A, 11, 20, 32, 40, 40A, 42, 62, 74	40/A, 301, 312, 314, 315, 541
Arizona Memorial	A, 20, 40, 40A, 42, 62	N/S; 40/A, 312, 314, 315
Pearl Harbor Naval Base	9, 11, 20, 40, 40A, 42, 62, 86, 86/A, 95	40/A, 313, 314
Honolulu International Airport	19, 20, 31	19, 302, 311
Lagoon Drive	No current service, routes operate on Nimitz Highway	31, 306 (19 and 40A on Nimitz Highway)
Ala Liliko'i	3 (one long block away) 32	N/S; 301, 311 plus 31 one long block away

Sources: For current bus routes, TheBus public schedules in effect December 2007; for future bus routes, Bus Service Network developed for the Build Alternatives.
N/S = No Station. However, routes are identified that will serve the location.

Lagoon Drive

Current Routes 19, 20, 40, 40A, 42, and 62 will pass near the Lagoon Drive Station site on Nimitz Highway. Routes 19, 40, and 40A will continue to operate. Added service will be provided as follows:

- Route 31 will provide the Salt Lake neighborhood portion of current Route 3. The route will operate between the Lagoon Drive fixed guideway station and Salt Lake neighborhoods.
- Route 306 will connect Lagoon Drive and Mapunapuna with the Middle Street Transit Center and the Lagoon Drive Station. The route will provide local access to airport area businesses and destinations.

Middle Street to Kapālama

Bus feeder services will be provided at each station along the Project's Middle Street Transit Center to Kapālama section. Table 5-20 provides an overview of proposed feeder services at each station as well as current service.

The following sections describe proposed bus access at station areas in the Middle Street to Kapālama segment of the guideway system:

Middle Street Transit Center

Currently, Routes A, B, 1, 2, 16, 31, and 32 directly serve the Middle Street Transit Center. Routes C, 9, 40, 40A, 42, 43, 52, and 62 operate nearby on Kamehameha Highway. Route A will continue to serve the transit center (as its terminus) with the Project, but not with future planned extensions. Routes 1, 2, 40, 40A, and 52 will continue to operate either to the transit center or nearby on Kamehameha Highway.

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.

Additional connecting services at the Middle Street Transit Center will include the following:

- Route 301 will connect the Middle Street Transit Center, Salt Lake, Foster Village, Makalapa, and Aloha Stadium.
- Route 302 will serve the Airport, Middle Street Transit Center, Fort Shafter, Moanalua Gardens, and Tripler Medical Center.
- Route 303 will provide a direct connection for Kalihi Valley Homes to the Middle Street Transit Center.
- Route 304 will be a revision of current Route 10 connecting Kalihi, Liliha, and ʻĀlewa with the Middle Street Transit Center.
- Route 305 will provide all-day, predictable scheduled service to Sand Island, Kalihi Kai, and Kalihi Uka.
- Route 306 will provide connecting service from the Middle Street Transit Center through Māpunapuna and continuing along Lagoon Drive.

- Route 85/85A will provide peak period service connecting Windward communities with the fixed guideway system via Likelike Highway to Kalihi and Dillingham Boulevard terminating at Middle Street Transit Center.
- Route 86/86A will provide peak period service connecting Windward communities with the fixed guideway system via Likelike Highway to Kalihi and Dillingham Boulevard terminating at Middle Street Transit Center.

Kalihi

Currently, Routes C, 9, 10, 40, 40A 42, 43, 52, and 62 serve this location. Service provided by Routes C, 9, 10 42, 43, and 62 in the Kalihi Station area will be replaced by fixed guideway service. In addition to Routes 40, 40A, and 52, feeder bus service will be provided as follows:

- Route 305 will provide all-day service to Sand Island, Kalihi Kai, and Kalihi Uka.
- Route 62 will provide all-day service connecting Kāneʻohe with the fixed guideway at the Kalihi Station via Likelike Highway.
- Route 85/85A will provide peak period service connecting Windward communities with the fixed guideway system via Likelike Highway to Kalihi and Dillingham Boulevard terminating at Middle Street Transit Center.
- Route 86/86A will provide peak period service connecting Windward communities with the fixed guideway system via Likelike Highway to Kalihi and Dillingham Boulevard terminating at Middle Street Transit Center.

Iwilei to Ala Moana Center

Bus feeder services will be provided at each station along the Iwilei to Ala Moana Center section of the Project. Table 5-21 provides an overview of proposed feeder services at each station as well as current service (effective December 2007).

The following sections describe proposed bus access at station areas in the Iwilei to Ala Moana Center segment of the guideway system.

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

Station Areas	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 (plus others on King Street or Iwilei Road)
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 is a modification of and replaces the second paragraph and bullets (page 5-59) of **Section 5.5.2—Peak Period LOS Analysis at Screenlines** **Airport Alternative LOS Analysis**

As shown in Table 5-25, congested operating conditions (LOS E or F) are projected to occur during the a.m. peak hour at the following screenlines:

- Waikele Stream Screenline (both directions)
- Kalauao Screenline (Koko Head direction)
- Kapālama Canal Screenline ('Ewa direction)
- Ward Avenue Screenline ('Ewa direction)

Change	The following are modifications of and replace **Table 5-25—Airport Alternative—A.M. Peak Hour Screenline Volumes and LOS** **Table 5-26—Airport Alternative—P.M. Peak Hour Screenline Volumes and LOS**

Table 5-25: Airport Alternative—A.M. Peak Hour Screenline Volumes and LOS

	Screenline/Facility	2030 No Build Conditions			2030 Airport Alternative						
		Facility Number of Lanes	Forecast Volume (vph)[1]	LOS[2]	Forecast Volume (vph)	Maximum Volume Threshold [2]					LOS[2]
						A	B	C	D	E	
B	**'Ewa Wai'anae bound**										
	H-1 Freeway	3	4,360	D	4,260	1,620	2,630	3,800	4,920	5,590	D
	H-1 Freeway future HOV	1	1,180	C	1,080	515	839	1,213	1,568	1,783	C
	Farrington Highway	2	340	C	320	**	200	1,240	1,560	1,640	C
	Fort Weaver Road (SB)	2	2,220	F	2,150	**	200	1,240	1,560	1,640	F
	Total		*8,100*	*D*	*7,810*						*D*
	'Ewa Koko Head bound										
	H-1 Freeway	3	3,870	D	3,500	1,620	2,630	3,800	4,920	5,590	C
	H-1 Freeway future HOV	1	1,790	F	1,540	515	839	1,213	1,568	1,783	D
	Farrington Highway	3	210	B*	160	**	310	1,920	2,340	2,460	B*
	Fort Weaver Road (NB)	2	2,770	F	2,570	**	200	1,240	1,560	1,640	F
	Total		*8,640*	*E*	*7,770*						*D*
C	**Waikele Stream 'Ewa bound**										
	H-1 Freeway	5	10,070	F	9,760	2,800	4,540	6,570	8,490	9,660	F
	Waipahu Street	1	300	C*	290	**	**	440	700	740	C*
	Farrington Highway	3	910	C	860	**	310	1,920	2,340	2,460	C
	Total		*11,280*	*E*	*10,910*						*E*
	Waikele Stream Koko Head bound										
	H-1 Freeway	4	8,460	F	8,080	2,210	3,580	5,180	6,710	7,620	F
	H-1 Freeway future HOV	1	1,560	D	1,360	515	839	1,213	1,568	1,783	D
	Waipahu Street	1	290	C*	150	**	**	440	700	740	C*
	Farrington Highway	3	1,530	C	1,210	**	310	1,920	2,340	2,460	C
	Total		*11,840*	*E*	*10,800*						*E*

Table 5-25: Airport Alternative—A.M. Peak Hour Screenline Volumes and LOS (continued)

	Screenline/Facility	2030 No Build Conditions			2030 Airport Alternative						
		Facility Number of Lanes	Forecast Volume (vph)[1]	LOS[2]	Forecast Volume (vph)	Maximum Volume Threshold [2]					LOS[2]
						A	B	C	D	E	
D	**Kalauao 'Ewa bound**										
	H-1 Freeway	5	7,280	D	7,120	2,800	4,540	6,570	8,490	9,660	D
	Moanalua Road	2	1,370	D	1,150	**	**	1,020	1,480	1,560	D
	Kamehameha Highway	3	1,080	C	1,050	**	310	1,920	2,340	2,460	C
	Total		*9,730*	*D*	*9,320*						*D*
	Kalauao Koko Head bound										
	H-1 Freeway	5	12,250	F	11,260	2,800	4,540	6,570	8,490	9,660	F
	H-1 Freeway HOV	1	1,810	F	1,690	515	839	1,213	1,568	1,783	E
	H-1 Freeway Zipper	1	1,160	C	920	515	839	1,213	1,568	1,783	C
	Moanalua Road	2	1,310	D	980	**	**	1,020	1,480	1,560	C
	Kamehameha Highway	3	2,450	E	2,060	**	310	1,920	2,340	2,460	D
	Total		*18,980*	*E*	*16,910*						*E*

Table 5-25: Airport Alternative—A.M. Peak Hour Screenline Volumes and LOS (continued)

	Screenline/Facility	2030 No Build Conditions			2030 Airport Alternative						
		Facility Number of Lanes	Forecast Volume (vph)[1]	LOS[2]	Forecast Volume (vph)	Maximum Volume Threshold [2] A	B	C	D	E	LOS[2]
E	**Salt Lake 'Ewa bound**										
	Moanalua Freeway	4	3,420	B	3,310	2,210	3,580	5,180	6,710	7,620	B
	H-1 Freeway	4	3,630	C	3,530	2,210	3,580	5,180	6,710	7,620	B
	H-1 Freeway HOV	NA	NA	NA	NA	515	839	1,213	1,568	1,783	NA
	H-1 Freeway Future zipper lane	NA	NA	NA	NA	515	839	1,213	1,568	1,783	NA
	Nimitz Highway	3	1,770	C	1,540	**	310	1,920	2,340	2,460	C
	Salt Lake Boulevard	2	370	C*	350	**	**	1,020	1,480	1,560	C*
	Total		*9,190*	*C*	*8,730*						*C*
	Salt Lake Koko Head bound										
	Moanalua Freeway	2	3,960	F	3,650	1,030	1,680	2,420	3,130	3,560	F
	Moanalua Freeway HOV	1	1,750	E	1,590	515	839	1,213	1,568	1,783	E
	H-1 Freeway + Shoulder Express (1 lane)	5	7,700	D	6,800	2,800	4,540	6,570	8,490	9,660	D
	H-1 Freeway HOV (1 lane)	1	1,640	E	1,380	515	839	1,213	1,568	1,783	D
	H-1 Freeway Zipper	1	1,520	D	1,460	515	839	1,213	1,568	1,783	D
	Nimitz Highway	5	1,920	C	1,720	**	500	3,160	3,790	3,980	C
	Salt Lake Boulevard	2	830	C*	600	**	**	1,020	1,480	1,560	C*
	Total		*19,320*	*D*	*17,200*						*D*

Table 5-25: Airport Alternative—A.M. Peak Hour Screenline Volumes and LOS (continued)

	Screenline/Facility	2030 No Build Conditions			2030 Airport Alternative						
		Facility Number of Lanes	Forecast Volume (vph)[1]	LOS[2]	Forecast Volume (vph)	Maximum Volume Threshold [2]					LOS[2]
						A	B	C	D	E	
F	**Kapālama Canal 'Ewa bound**										
	Nimitz Highway	3	3,590	F	3,310	**	310	1,920	2,340	2,460	F
	Dillingham Boulevard	2	660	C	610	**	200	1,240	1,560	1,640	C
	N King Street	2	840	C*	820	**	**	1,020	1,480	1,560	C*
	H-1 Freeway	4	7,620	E	7,570	2,210	3,580	5,180	6,710	7,620	E
	Hālona Street	2	1,850	E	1,830	**	**	1,220	1,770	1,870	E
	School Street	2	850	C*	870	**	**	1,020	1,480	1,560	C*
	Total		*15,410*	*E*	*15,010*						*E*
	Kapālama Canal Koko Head bound										
	Nimitz Highway	3	2,580	F	2,310	**	310	1,920	2,340	2,460	D
	Nimitz Flyover (future facility)	2	1,420	B	1,250	1,030	1,680	2,420	3,130	3,560	B
	Dillingham Boulevard	2	1,390	D	1,140	**	200	1,240	1,560	1,640	C
	N King Street	2	1,400	D	1,280	**	**	1,020	1,480	1,560	D
	Olomea Street	2	2,430	F	2,240	**	**	1,220	1,770	1,870	F
	H-1 Freeway	5	10,670	F	9,980	2,800	4,540	6,570	8,490	9,660	F
	School Street	2	1,690	F	1,530	**	**	1,020	1,480	1,560	E
	Total		*21,580*	*E*	*19,730*						*E*

Table 5-25: Airport Alternative—A.M. Peak Hour Screenline Volumes and LOS (continued)

	Screenline/Facility	2030 No Build Conditions			2030 Airport Alternative						
		Facility Number of Lanes	Forecast Volume (vph)[1]	LOS[2]	Forecast Volume (vph)	Maximum Volume Threshold [2]					LOS[2]
						A	B	C	D	E	
G	**Ward Avenue 'Ewa bound**										
	H-1 Freeway	3	7,380	F	7,360	1,620	2,630	3,800	4,920	5,590	F
	Beretania Street	5	3,300	D	3,180	**	**	3,170	4,450	4,690	D
	Kapi'olani Boulevard	4	2,560	D	2,480	**	**	2,110	2,970	3,130	D
	Ala Moana Boulevard	3	2,150	D	2,140	**	310	1,920	2,340	2,460	D
	Total		*15,390*	*E*	*15,160*						*E*
	Ward Avenue Koko Head bound										
	H-1 Freeway	4	6,810	E	6,580	2,210	3,580	5,180	6,710	7,620	D
	Kīna'u Street	3	1,150	C*	1,100	**	**	1,900	2,670	2,810	C*
	S King Street	5	2,800	C*	2,200	**	**	3,170	4,450	4,690	C*
	Kapi'olani Boulevard	2	820	C*	800	**	**	1,020	1,480	1,560	C*
	Ala Moana Boulevard	3	1,740	C	1,510	**	310	1,920	2,340	2,460	C
	Total		*13,320*	*D*	*12,190*						*D*

[1] Peak hour traffic count data was obtained from the State of Hawai'i Department of Transportation (2005) and O'ahuMPO Travel Demand Forecasting Model

[2] LOS thresholds were adapted from *Quality Level of Service Handbook (2002)* by the State of Florida's Department of Transportation (FDOT). The Handbook provides the Generalized Peak Hour Two-Way Volumes for Florida's Urbanized Areas (2002). A directional split of 50% was applied to the two-way volumes to generate the peak hour direction volume thresholds for the purpose of this analysis.

* The reported level of service "C*" means C or better and "B*" means B or better.

** Level of Service thresholds not reported due to type of facility.

Table 5-26: Airport Alternative—P.M. Peak Hour Screenline Volumes and LOS

		2030 No Build Conditions			2030 Airport Alternative						
						Maximum Volume Threshold [2]					
	Screenline/Facility	Facility Number of Lanes	Forecast Volume (vph) [1]	LOS [2]	Forecast Volume (vph)	A	B	C	D	E	LOS [2]
B	*'Ewa Wai'anae bound*										
	H-1 Freeway	3	3,920	D	3,620	*1,620*	*2,630*	*3,800*	*4,920*	*5,590*	C
	H-1 Freeway future HOV	1	1,100	C	1,130	*515*	*839*	*1,213*	*1,568*	*1,783*	C
	Farrington Highway	2	350	C	290	**	*200*	*1,240*	*1,560*	*1,640*	C
	Fort Weaver Road (SB)	2	2,250	F	2,200	**	*200*	*1,240*	*1,560*	*1,640*	F
	Total		*7,620*	*D*	*7,240*						*D*
	'Ewa Koko Head bound										
	H-1 Freeway	3	5,500	E	5,370	*1,620*	*2,630*	*3,800*	*4,920*	*5,590*	E
	H-1 Freeway future HOV	1	990	C	940	*515*	*839*	*1,213*	*1,568*	*1,783*	C
	Farrington Highway	3	290	B*	280	**	*310*	*1,920*	*2,340*	*2,460*	C
	Fort Weaver Road (NB)	2	2,450	F	2,370	**	*200*	*1,240*	*1,560*	*1,640*	F
	Total		*9,230*	*E*	*8,960*						*E*
C	*Waikele Stream 'Ewa bound*										
	H-1 Freeway	4	8,450	F	7,680	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	F
	H-1 Freeway future HOV	1	490	A	440	*515*	*839*	*1,213*	*1,568*	*1,783*	A
	Waipahu Street	1	170	C*	130	**	**	*440*	*700*	*740*	C*
	Farrington Highway	3	1,150	C	1,000	**	*310*	*1,920*	*2,340*	*2,460*	C
	Total		*10,260*	E	*9,250*						*E*
	Waikele Stream Koko Head bound										
	H-1 Freeway	5	6,360	C	6,150	*2,800*	*4,540*	*6,570*	*8,490*	*9,660*	C
	Waipahu Street	1	300	C*	280	**	**	*440*	*700*	*740*	C*
	Farrington Highway	3	640	C	600	**	*310*	*1,920*	*2,340*	*2,460*	C
	Total		*7,300*	*C*	*7,030*						*C*

Table 5-26: Airport Alternative—P.M. Peak Hour Screenline Volumes and LOS (continued)

	Screenline/Facility	2030 No Build Conditions			2030 Airport Alternative						
		Facility Number of Lanes	Forecast Volume (vph) [1]	LOS [2]	Forecast Volume (vph)	Maximum Volume Threshold [2]					LOS [2]
						A	B	C	D	E	
D	*Kalauao 'Ewa bound*										
	H-1 Freeway	4	8,670	F	8,000	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	F
	H-1 Freeway HOV	1	1,720	E	1,520	*515*	*839*	*1,213*	*1,568*	*1,783*	D
	H-1 Freeway Zipper	1	950	C	800	*515*	*839*	*1,213*	*1,568*	*1,783*	B
	Moanalua Road	2	2,060	F	1,730	**	**	*1,020*	*1,480*	*1,560*	F
	Kamehameha Highway	3	2,140	D	1,920	**	*310*	*1,920*	*2,340*	*2,460*	C
	Total		*15,540*	*E*	*13,970*						*E*
	Kalauao Koko Head bound										
	H-1 Freeway	5	7,240	D	6,940	*2,800*	*4,540*	*6,570*	*8,490*	*9,660*	D
	H-1 Freeway HOV (existing only)	NA	n/a	n/a	n/a	*515*	*839*	*1,213*	*1,568*	*1,783*	n/a
	Moanalua Road	2	970	C*	910	**	**	*1,020*	*1,480*	*1,560*	C*
	Kamehameha Highway	3	1,680	C	1,630	**	*310*	*1,920*	*2,340*	*2,460*	C
	Total		*9,890*	*D*	*9,480*						*D*

Table 5-26: Airport Alternative—P.M. Peak Hour Screenline Volumes and LOS (continued)

	Screenline/Facility	2030 No Build Conditions			2030 Airport Alternative						
		Facility Number of Lanes	Forecast Volume (vph) [1]	LOS [2]	Forecast Volume (vph)	Maximum Volume Threshold [2]					LOS [2]
						A	B	C	D	E	
E	*Salt Lake 'Ewa bound*										
	Moanalua Freeway	4	5,890	D	5,580	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	D
	H-1 Freeway	4	3,460	B	3,060	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	B
	H-1 Freeway HOV	1	1,320	D	1,090	*515*	*839*	*1,213*	*1,568*	*1,783*	C
	H-1 Freeway Future zipper lane	1	810	B	660	*515*	*839*	*1,213*	*1,568*	*1,783*	B
	Nimitz Highway	3	3,150	F	2,970	**	*310*	*1,920*	*2,340*	*2,460*	F
	Salt Lake Boulevard	2	990	C*	860	**	**	*1,020*	*1,480*	*1,560*	C*
	Total		*15,620*	*D*	*14,220*						*D*
	Salt Lake Koko Head bound										
	Moanalua Freeway	2	3,510	E	3,490	*1,030*	*1,680*	*2,420*	*3,130*	*3,560*	E
	Moanalua Freeway HOV	1	960	C	1,070	*515*	*839*	*1,213*	*1,568*	*1,783*	C
	H-1 Freeway + Shoulder Express (1 lane)	4	4,090	C	3,750	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	C
	H-1 Freeway HOV (1 lane)	1	1,070	C	990	*515*	*839*	*1,213*	*1,568*	*1,783*	C
	Nimitz Highway	5	3,130	C	3,080	**	*500*	*3,160*	*3,790*	*3,980*	C
	Salt Lake Boulevard	2	450	C*	420	**	**	*1,020*	*1,480*	*1,560*	C*
	Total		*13,210*	*D*	*12,800*						*D*

Table 5-26: Airport Alternative—P.M. Peak Hour Screenline Volumes and LOS (continued)

Screenline/Facility		2030 No Build Conditions			2030 Airport Alternative						
		Facility Number of Lanes	Forecast Volume (vph) [1]	LOS [2]	Forecast Volume (vph)	Maximum Volume Threshold [2] A	B	C	D	E	LOS [2]
F	*Kapālama Canal 'Ewa bound*										
	Nimitz Highway	3	1,790	C	1,590	**	*310*	*1,920*	*2,340*	*2,460*	C
	Nimitz Flyover (future facility)	2	880	A	810	*1,030*	*1,680*	*2,420*	*3,130*	*3,560*	A
	Dillingham Boulevard	2	1,350	D	1,260	**	*200*	*1,240*	*1,560*	*1,640*	D
	N King Street	2	1,440	D	1,280	**	**	*1,020*	*1,480*	*1,560*	D
	H-1 Freeway	4	8,050	F	7,860	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	F
	Hālona Street	2	2,230	F	2,110	**	**	*1,220*	*1,770*	*1,870*	F
	School Street	2	1,380	D	1,280	**	**	*1,020*	*1,480*	*1,560*	D
	Total		*17,120*	*E*	*16,190*						*E*
	Kapālama Canal Koko Head bound										
	Nimitz Highway	3	4,250	F	4,060	**	*310*	*1,920*	*2,340*	*2,460*	F
	Dillingham Boulevard	2	1,100	C	910	**	*200*	*1,240*	*1,560*	*1,640*	C
	N King Street	2	1,560	D	1,480	**	**	*1,020*	*1,480*	*1,560*	D
	Olomea Street	2	1,890	F	1,880	**	**	*1,220*	*1,770*	*1,870*	F
	H-1 Freeway	5	8,040	D	7,940	*2,800*	*4,540*	*6,570*	*8,490*	*9,660*	D
	School Street	2	1,210	D	1,150	**	**	*1,020*	*1,480*	*1,560*	D
	Total		*18,050*	*D*	*17,420*						*E*

Table 5-26: Airport Alternative—P.M. Peak Hour Screenline Volumes and LOS (continued)

	Screenline/Facility	2030 No Build Conditions			2030 Airport Alternative						
		Facility Number of Lanes	Forecast Volume (vph) [1]	LOS [2]	Forecast Volume (vph)	Maximum Volume Threshold [2]					LOS [2]
						A	B	C	D	E	
G	*Ward Avenue 'Ewa bound*										
	H-1 Freeway	3	7,130	F	6,990	*1,620*	*2,630*	*3,800*	*4,920*	*5,590*	F
	Beretania Street	5	3,020	C*	2,780	**	**	*3,170*	*4,450*	*4,690*	C*
	Kapi'olani Boulevard	2	1,620	F	1,520	**	**	*1,020*	*1,480*	*1,560*	E
	Ala Moana Boulevard	3	2,190	D	1,980	**	*310*	*1,920*	*2,340*	*2,460*	D
	Total		*13,960*	*E*	*13,270*						*E*
	Ward Avenue Koko Head bound										
	H-1 Freeway	4	7,370	E	7,310	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	E
	Kīna'u Street	4	1,800	C*	1,780	**	**	*2,540*	*3,560*	*3,750*	C*
	S King Street	6	3,710	C*	3,560	**	**	*3,800*	*5,340*	*5,630*	C*
	Kapi'olani Boulevard	4	2,550	D	2,490	**	**	*2,110*	*2,970*	*3,130*	D
	Ala Moana Boulevard	3	2,330	D	2,270	**	*310*	*1,920*	*2,340*	*2,460*	D
	Total		*17,760*	*D*	*17,410*						*D*

[1] Peak hour traffic count data was obtained from the State of Hawai'i Department of Transportation (2005) and O'ahuMPO Travel Demand Forecasting Model

[2] LOS thresholds were adapted from Quality Level of Service Handbook (2002) by the State of Florida's Department of Transportation (FDOT). The Handbook provides the Generalized Peak Hour Two-Way Volumes for Florida's Urbanized Areas (2002). A directional split of 50% was applied to the two-way volumes to generate the peak hour direction volume thresholds for the purpose of this analysis.

* The reported level of service "C*" means C or better and "B*" means B or better.

** Level of Service thresholds not reported due to type of facility.

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 5-33," 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 Table 3-21. 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 the 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: this location does not have a median wide enough for the fixed guideway columns. To expand the median by 9 feet 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 unsignalized intersection of Farrington Highway and Moloalo Street, the left-turn pockets on both approaches may need to be removed.

- 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 ʻAiea 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, through Keʻehi Lagoon Beach Park, and continuing to Dillingham Boulevard via Lagoon Drive over Keʻehi 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	Roadside	Reduce existing through lanes. Reconstruct curb returns for vehicular turning movements. Reconstruct shoulders.

Middle Street to Iwilei

This alignment will generally travel from the Keʻehi 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 Kaʻaahi 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 Kaʻaahi Street and King Street, one makai-bound left-turn lane will be added for buses to turn left into Kaʻaahi 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 Kaʻaahi 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, Nuʻuanu, 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 Piʻikoi Street will be on both sides of the roadway. This will result in a loss of most on-street parking spaces.
- Between Piʻikoi Street and Keʻeaumoku 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 ʻEwa-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.

Change	The following is a modification of and replaces **Section 5.6.2—Traffic Effects in Station Areas with Park-and-Ride Facilities** **Table 5-34—Stations with Park-and-Ride Facilities** **Table 5-35—Peak Hour Trip Generation—Eat Kapolei and UH West O'ahu Stations** **Table 5-36—East Kapolei and UH West O'ahu Stations Intersection Analysis** **Table 5-37—Peak Hour Trip Generation—Pearl Highland Station** **Table 5-38—Pearl Highlands Station Intersection Analysis** **Table 5-39—Peak Hour Trip Generation—Aloha Stadium Station**

5.6.2 Traffic Effects in Station Areas with Park-and-Ride Facilities

Four park-and-ride facilities are proposed (Table 5-34). The table includes the station location, proposed number of parking spaces, and total number of feeder buses in the a.m. and p.m. peak hours. Effects will be from auto traffic accessing the park-and-ride facilities (parking or dropping passengers) as well as buses serving the station.

Table 5-34: Stations with Park-and-Ride Facilities

Park-and-Ride Station Location	Proposed Number of Parking Spaces	Total Number of Buses in A.M. Peak hour	Total Number of Buses in P.M. Peak hour	Type of Facility
East Kapolei	900	42	42	Surface lot
UH West O'ahu	1,000	20	20	Surface lot
Pearl Highlands	1,600	62	62	Garage
Aloha Stadium	600	42	42	Surface lot

Park-and-ride facilities are generally located in areas containing vacant or undeveloped land. For modeling purposes, it was assumed that fixed guideway riders will not be charged for using these park-and-ride facilities.

The travel demand forecasting model predicts an all-day demand for park-and-ride of about 5,900 cars across the fixed guideway system in 2030 (Table A2-8). Honolulu has had little experience with park-and-rides up to now, and the 600 or so park-and-ride spaces in the current bus system are generally underused. It is anticipated that many people who currently drive to their destinations will be attracted to the speed and reliability of the fixed guideway system, and many of these people will prefer to access the fixed guideway system by car. A total of 4,100 park-and-ride spaces distributed among four different locations will be built as part of the Project. In addition, a 1,000-space commuter parking garage is being planned at the Middle Street Intermodal Center by the City, although not as part of the Project, which is adjacent to a fixed guideway station. Three of the four project locations will be built as surface lots that could be expanded to structured parking garages in the future based on demand.

Table A2-8: Daily Parking and Kiss-and-Ride Demand at Fixed Guideway Stations

Station	Park-and-Ride (spaces)	Spillover Parking (spaces)	Kiss-and-Ride (vehicles)
East Kapolei	1,230	0	325
UH West O'ahu	585	5	220
Ho'opili	0	40	200
West Loch	0	85	435
Waipahu Transit Center	0	35	195
Leeward Community College	0	5	35
Pearl Highlands	2,680	0	510
Pearlridge	0	45	200
Aloha Stadium	1,390	0	95
Pearl Harbor Naval Base	0	25	115
Honolulu International Airport	0	10	35
Lagoon Drive	0	20	85
Middle Street Transit Center	0	25	120
Kalihi	0	35	170
Kapālama	0	5	50
Iwilei	0	95	445
Chinatown	0	0	5
Downtown	0	0	10
Civic Center	0	0	30
Kaka'ako	0	0	15
Ala Moana Center	0	195	765
Total	*5,885*	*625*	*4,060*

Numbers rounded to nearest five

The following sections discuss estimated effects of additional traffic generated by park-and-ride facilities, including the operational effect at key intersections in each station area.

East Kapolei and University of Hawai'i West O'ahu Stations

Table 5-35 summarizes the a.m. and p.m. peak hour trips at the East Kapolei and UH West O'ahu Stations with park-and-ride facilities. These stations are proposed along the future North-South Road between Farrington Highway and Franklin D. Roosevelt (Roosevelt) Avenue:

- East Kapolei Station—the East Kapolei Station will be the 'Ewa terminus station. This station will have an elevated platform and is proposed on the 'Ewa side of North-South Road near a new East-West Road for the Ho'opili area. Approximately 900 parking spaces are proposed. Access to this park-and-ride facility is proposed via the Ho'opili East-West Road. Seven bus routes with 42 transit vehicle trips will serve the station during each a.m. and p.m. peak hour. This station is estimated to generate approximately 796 park-and-ride and kiss-and-ride vehicular trips in the a.m. peak hour.

- UH West O‘ahu Station—this station will be near North-South Road on the UH West O‘ahu campus. Approximately 1,000 parking spaces will be provided. Six bus routes with 20 transit vehicle trips will serve the station during a.m. and p.m. peak hours. This station is estimated to generate approximately 437 park-and-ride and kiss-and-ride vehicular trips during the a.m. peak hour.

Table 5-35: Peak Hour Trip Generation—East Kapolei and UH West O‘ahu Stations

Station	Park-and-Ride				Kiss-and-Ride				Transit Vehicle Trips			
	A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak	
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
East Kapolei	492	0	0	492	152	152	152	152	29	29	29	29
UH West O‘ahu	233	0	0	233	102	102	102	102	29	29	29	29

As part of the ORTP and Ho‘opili Development Plan, several access roadways or connectors will be constructed in anticipation of UH West O‘ahu’s development and new commercial and residential development in the East Kapolei area. Traffic analyses were conducted for both proposed park-and-ride stations. The following future or reconfigured intersections were selected for analysis and are adjacent to the two stations:

- Roosevelt Avenue and North-South Road (future intersection)
- Kapolei Parkway and North-South Road (future intersection)
- North-South Road and Road B (future intersection)
- North-South Road and East-West Road (future intersection)
- Old Fort Weaver Road and Fort Weaver/‘A‘awa Drive (reconfigured intersection)
- Farrington Highway and New ‘Ewa Road (future intersection)
- Farrington Highway and North-South Road (future intersection)
- Farrington Highway and Old Fort Weaver Road (existing intersection)
- Farrington Highway and Kunia (Highway 76) northbound on-ramp (existing intersection)
- Fort Weaver Road and Laulaunui Street (existing intersection)

The results for the 2030 No Build Alternative and the Project are shown in Table 5-36. Under 2030 No Build conditions, five of the seven intersections on Farrington Highway and on Fort Weaver Road will operate at unacceptable LOS E or F during one or both peak hours. Traffic delay at two of these intersections will worsen will the addition of the Project. These intersections are:

- North-South Road and Road B
- North-South Road and East-West Road

Mitigation measures for these intersections are discussed in Section 6.

Table 5-36: East Kapolei and UH West O'ahu Stations Intersection Analysis

Intersection			Control*		2030 No Build		2030 Airport Alternative			
				Peak Hour	Delay (sec)	LOS	Delay (sec)	LOS	Project Delay Change	Effect?
Roosevelt Avenue	&	North-South Road [1]	S	A.M.	28	C	43	D	15	No
				P.M.	28	C	31	C	3	No
Kapolei Parkway	&	North-South Road [2]	S	A.M.	36	C	49	D	13	No
				P.M.	31	C	36	D	5	No
North-South Road	&	Road B [3]	S	A.M.	55	D	74	E	19	**Yes**
				P.M.	45	D	46	D	1	No
North-South Road	&	East-West Road [4]	S	A.M.	34	C	46	D	12	No
				P.M.	36	D	61	E	25	**Yes**
Old Fort Weaver Road	&	Fort Weaver Road/'A'awa Drive	S	A.M.	115	F	93	F	-22	No
				P.M.	68	E	58	E	-10	No
Farrington Highway	&	New 'Ewa Road [5]	S	A.M.	56	E	36	D	-20	No
				P.M.	45	D	42	D	-3	No
Farrington Highway	&	North-South Road [4]	S	A.M.	105	F	31	C	-74	No
				P.M.	41	D	46	D	5	No
Farrington Highway	&	Old Fort Weaver Road	TWSC	A.M.	>400	F	>400	F	<0[6]	No
				P.M.	>400	F	>400	F	<0[6]	No
Farrington Highway	&	Kunia (Highway 76) NB On-Ramp	S	A.M.	5	A	5	A	0	No
				P.M.	2	A	2	A	0	No
Fort Weaver Road	&	Laulaunui St	S	A.M.	131	F	131	F	-8	No
				P.M.	66	E	61	E	-5	No

Note: All intersections are new or modified.

* S = Signal-Controlled TWSC = Two-Way Stop-Controlled

[1] Lane geometry assumed—NB: one left-turn lane, one through lane, one right-turn lane; SB: one left-turn lane, one through lane, one right-turn lane; EB: one left-turn lane, two through lanes, one right-turn lane; westbound (WB): one left-turn lane, two through lanes, one right-turn lane.

[2] Lane geometry assumed—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, two through lanes, one right-turn lane; WB: one left-turn lane, two through lanes, two right-turn lanes.

[3] Future base lane configuration 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] Future base lane configuration 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.

[5] Future base lane configuration assumed for Farrington Highway at New 'Ewa Road: NB: single left-turn lane, one shared through/right-turn lane, single right-turn lane; SB: single left-turn lane, one through lane, single right-turn lane; WB: dual left-turn lanes, two through lanes, single right-turn lane; EB: single left-turn lane, two through lanes, single right-turn lane.

[6] Delay cannot be calculated. However, total volumes reduced with the Project.

Pearl Highlands Station

The Pearl Highlands Station will be on Kamehameha Highway at the Kuala Street intersection adjacent to the shopping center. The proposed park-and-ride facility will be in the vacant 9-acre area near the Waipahu Interchange and Leeward Community College. Approximately 1,600 parking spaces are proposed for the park-and-ride structure, with the following access points:

- An inbound-access-only ramp with direct connection from the H-2 Freeway
- A ramp with direct connection from Koko Head-bound lanes on Farrington Highway
- A signalized intersection on Kamehameha Highway with full access provided by reconfiguration of the existing stop-controlled intersection of Kamehameha Highway and Waihona Street
- A driveway with limited right-in and right-out access for ʻEwa-bound lanes on Farrington Highway (westbound) at Waiawa Road

Table 5-37 presents the estimated peak hour trips that may access this station. Ten bus routes with approximately 62 transit vehicle trips are projected to serve this station area during both peak hours. It is estimated that this station may generate up to 1,547 park-and-ride and kiss-and-ride vehicular trips during the a.m. peak hour.

Table 5-37: Peak Hour Trip Generation—Pearl Highlands Station

Station	Park-and-Ride				Kiss-and-Ride				Transit Vehicle Trips			
	A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak	
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Pearl Highlands	1,073	0	0	1,073	237	237	237	237	47	47	52	47

Five intersections immediately adjacent to this station were selected for analysis:

- Farrington Highway and Waiawa Road eastbound (existing)
- Farrington Highway and Waiawa Road westbound (existing, to be reconfigured to add the Pearl Highlands Station park-and-ride driveway)
- Kamehameha Highway and Waihona Street (existing, to be reconfigured to add the Pearl Highlands Station park-and-ride driveway)
- Kamehameha Highway and Kuala Street
- Ala Ike Street and Waiawa Road (existing)

According to the ORTP, a future planned four-lane roadway, Central Mauka Road, will be constructed to provide access to future residential and commercial development in the Central Oʻahu area. As this new road is a conceptual project, assumptions regarding its connection to Kamehameha Highway have been made for the purpose of the 2030 analysis. It has been assumed that, under the 2030 No Build conditions, the Central Mauka Road would provide a direct connection to

eastbound Kamehameha Highway via a grade separation or an alternative means of connection rather than linking directly to the intersection of Waihona Street and Kamehameha Highway. The intersection of Waihona Street and Kamehameha Highway is also expected to be signalized to serve future 2030 traffic conditions before the introduction of the Project.

As indicated in Table 5-38, the traffic analysis conducted for the No Build Alternative shows that the LOS at all five study intersections is projected to deteriorate to LOS F during one or both peak hours.

The traffic analysis indicates that the addition of the Project, together with the projected park-and-ride and kiss-and-ride services, will result in increased traffic and have an effect at the following intersections:

- Kamehameha Highway and Waihona Street/Pearl Highlands Station park-and-ride driveway
- Kamehameha Highway and Kuala Street
- Farrington Highway (WB) and Waiawa Road/Pearl Highlands Station park-and-ride driveway

Mitigation measures for these intersections are discussed in Section 6.

Table 5-38: Pearl Highlands Station Intersection Analysis

Intersection			Control*	Peak Hour	2030 No Build		2030 Airport Alternative			
					Delay (sec)	LOS	Delay (sec)	LOS	Project Delay Change Compared to No Build	Effect?
Farrington Highway (EB)	&	Waiawa Road	S	AM	149	F	45	D	-104	No
				PM	162	F	109	F	-53	No
Farrington Highway (WB)	&	Waiawa Road/Pearl Highlands Station Park-and-Ride Driveway [1]	TWSC	AM	76	F	>400	F	>0	**Yes**
				PM	30	D	>400	F	>0	**Yes**
Kamehameha Highway	&	Waihona Street/Pearl Highlands Station Park-and-Ride Driveway [2]	TWSC/S[3]	AM	36	D	47	D	11	No
				PM	122	F	217	F	95	**Yes**
Kamehameha Highway	&	Kuala Street	TWSC	AM	75	F	>400	F	>0[4]	**Yes**
				PM	>400	F	>400	F	>0[4]	**Yes**
Ala Ike Street	&	Waiawa Road	TWSC	AM	>400	F	>400	F	<0	No
				PM	32	D	15	C	-17	No

*S = Signal-Controlled TWSC = Two-Way Stop-Controlled

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

[2] With the Project, lane configuration assumed for park-and-ride driveway: dual left-turn lane, single through lane, single right-turn lane.

[3] 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 No Build conditions and 2030 Build conditions, the T-intersection of Waihona Street & Kamehameha Highway is assumed to be signalized under 2030 No Build conditions and 2030 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.

[4] Delay cannot be calculated. However, total volumes are estimated to increase with the Project.

Aloha Stadium Station

A park-and-ride facility is proposed to be constructed on 7 acres of land near Aloha Stadium, across from Ford Island Boulevard, that will provide 600 parking spaces and bus transfer opportunities. Vehicular access to the facility will be via Salt Lake Boulevard.

Table 5-39 indicates traffic from the park-and-ride and kiss-and-ride peak hour vehicular trips. Six bus routes with approximately 42 transit vehicle trips are projected to serve this station area during the a.m. peak period. The Project is estimated to generate approximately 686 a.m. peak hour vehicular trips.

Table 5-39: Peak Hour Trip Generation—Aloha Stadium Station

Station	Park-and-Ride				Kiss-and-Ride				Transit Vehicle Trips			
	A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak	
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Aloha Stadium	556	0	0	556	44	44	44	44	30	30	30	30

Nine existing intersections immediately adjacent to the Aloha Stadium Station were selected for analysis:

- Kamehameha Highway and Honomanu Street
- Moanalua Road and Kamehameha Highway Ramps
- Kamehameha Highway and Salt Lake Boulevard (makai-bound)
- Kamehameha Highway and Salt Lake Boulevard (mauka-bound)
- Moanalua Road and Kaimakani Street
- Salt Lake Boulevard and Kahuapa‘ani Street
- Salt Lake Boulevard and Luapele Drive
- Salt Lake Boulevard and Ala Oli Street
- Salt Lake Boulevard and Bougainville Drive

The results of the analysis shown in Table 5-40 indicate that five of the nine intersections selected for analysis are projected to operate at LOS D or better under No Build Alternative conditions. The four intersections operating at an unacceptable LOS (LOS E or F) are:

- Kamehameha Highway and Honomanu Street
- Kamehameha Highway and Salt Lake Boulevard (mauka-bound)
- Moanalua Road and Kaimakani Street
- Salt Lake Boulevard and Kahuapa‘ani Street

With the Project, none of the study intersections are projected to experience a substantial increase in vehicular delays. The four intersections projected to operate at LOS E or F under the No Build Alternative will continue to do so with the Project. Therefore, the Project will not create a substantial effect at the analyzed intersections in the immediate vicinity of the Aloha Stadium Station.

Table 5-40: Aloha Stadium Station Intersection Analysis

Intersection			Control*	Peak Hour	2030 No Build		2030 Airport Alternative			
					Delay (sec)	LOS	Delay (sec)	LOS	Project Delay Change Compared to No Build	Effect?
Kamehameha Highway	&	Honomanu Street	S	AM	143	F	83	F	-60	No
				PM	161	F	101	F	-60	No
Moanalua Road	&	Kamehameha Highway Ramps	S	AM	18	B	27	C	9	No
				PM	23	C	22	C	-1	No
Kamehameha Highway	&	Salt Lake Boulevard (makai-bound)	S	AM	15	B	11	B	-4	No
				PM	47	D	35	D	-12	No
Kamehameha Highway	&	Salt Lake Boulevard (mauka-bound)	S	AM	156	F	144	F	-12	No
				PM	24	C	21	C	-3	No
Moanalua Road	&	Kaimakani Street	TWSC	AM	88	F	49	E	-39	No
				PM	342	F	312	F	-30	No
Salt Lake Boulevard	&	Kahuapa‘ani Street	S	AM	140	F	63	E	-77	No
				PM	370	F	144	F	-226	No
Salt Lake Boulevard	&	Luapele Drive	S	AM	15	B	8	A	-7	No
				PM	23	C	15	B	-8	No
Salt Lake Boulevard	&	Ala Oli	S	AM	24	C	23	C	-1	No
				PM	18	B	15	B	-3	No
Salt Lake Boulevard	&	Bougainville Drive	S	AM	28	C	28	C	0	No
				PM	48	D	42	D	-6	No

*S = Signal-Controlled TWSC = Two-Way Stop-Controlled

Change	The following are modifications of and replace **Section 5.6.3—Effects of Buses on Traffic near Stations** **Table 5-41—Peak Hour Trip Generation—West Loch Station** **Table 5-42—West Loch Station Intersection Analysis** **Table 5-43—Peak Hour Trip Generation —Pearlridge Station** **Table 5-44—Pearlridge Station Intersection Analysis** **Table 5-45—Peak Hour Trip Generation—Middle Street Transit Center Station** **Table 5-46—Middle Street Transit Center Intersection Analysis** **Table 5-47—Peak Hour Trip Generation—Downtown/Aloha Tower Station** **Table 5-48—Downtown/Aloha Tower Station Intersection Analysis** **Table 5-49—Peak Hour Trip Generation—Ala Moana Center Station** **Table 5-50—Ala Moana Center Station Intersection Analysis**

5.6.3 Effects of Buses on Traffic near Stations

With the Project, the proposed fixed guideway stations will require modifying bus transit service and/or making improvements to accommodate potential fixed guideway riders who access the system by bus. In some cases, the increase in bus-related traffic volumes will be large enough to warrant analysis of local intersections near stations.

Stations that are expected to accommodate a large number of buses were analyzed. The total number of buses serving each station can be found in Appendix B, along with more detailed information on specific routes.

Five stations on the fixed guideway alignment were selected for bus-related traffic analysis:

- West Loch Station
- Pearlridge Station
- Middle Street Transit Center
- Downtown Station
- Ala Moana Center

The size and nature of bus operations on the street system will have a much greater effect on traffic operations than typical passenger vehicles. This feature has been taken into account as part of the bus operations analysis. The assessment of potential bus-related effects at selected station areas also recognized the possible effects of kiss-and-ride (passenger drop offs) and spillover parking.

The following sections present the LOS analysis for intersections around these stations.

West Loch Station

The West Loch Station will be on Farrington Highway in the Waipahu area, just Koko Head of the Kunia Road and Fort Weaver Road interchange. The guideway alignment will run down the center of Farrington Highway. The station itself will be elevated and will have a concourse level.

Estimated peak hour bus volumes as well as spillover parking and kiss-and-ride traffic volumes are shown in Table 5-41. Nine bus routes with approximately 40 transit vehicle trips are projected to serve this station during a.m. and p.m. peak hours. Although this station will not have a park-and-ride facility, it is expected to generate a high amount of spillover parking demand.

Table 5-41: Peak Hour Trip Generation—West Loch Station

Station	Bus Transit Vehicle Trips				Spillover Parking				Kiss-and-Ride			
	A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak	
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
West Loch	32	32	32	32	39	0	0	39	201	201	201	201

Six adjacent intersections around this station are expected to experience a large increase in bus activity, spillover parking demand, and kiss-and-ride activity:

- Farrington Highway and Leokū Street
- Farrington Highway and Leokane Street
- Kunia (Highway 76) Northbound On-Ramp and Waipahu Street
- Leokū Street and Waipahu Street
- Kunia (Highway 76) Northbound On-Ramp and Farrington Highway
- Fort Weaver Road and Laulaunui Street

Table 5-42 presents the intersection analysis results for West Loch station under the No Build Alternative and the Project. These results show that even with the additional transit service and spillover parking and kiss-and-ride activities expected at this location, no substantial traffic effects are expected for the Project.

Table 5-42: West Loch Station Intersection Analysis

Intersection			Control*	Peak Hour	2030 No Build		2030 Airport Alternative			
					Delay (sec)	LOS	Delay (sec)	LOS	Project Delay Change Compared to No Build	Effect?
Farrington Highway	&	Leokū Street	S	A.M.	37	D	48	D	11	No
				P.M.	146	F	126	F	-20	No
Farrington Highway	&	Leokane Street	S	A.M.	24	C	26	C	2	No
				P.M.	27	C	23	C	-4	No
Kunia (Highway 76) NB On-Ramp	&	Waipahu Street	OWSC	A.M.	70	F	45	E	-25	No
				P.M.	38	E	35	D	-3	No
Leokū Street	&	Waipahu Street	S	A.M.	9	A	8	A	-1	No
				P.M.	9	A	8	A	-1	No
Kunia (Highway 76) NB On-Ramp	&	Farrington Highway	S	A.M.	5	A	5	A	0	No
				P.M.	2	A	2	A	0	No
Fort Weaver Road	&	Laulaunui Street	S	A.M.	131	F	123	F	-8	No
				P.M.	66	E	61	E	-5	No

*S = Signal-Controlled OWSC = One-Way Stop-Controlled

Pearlridge Station

The Pearlridge Station will be on Kamehameha Highway in the East Loch area. Estimated bus volumes as well as spillover parking and kiss-and-ride traffic volumes are shown in Table 5-43. Twelve bus routes with approximately 70 transit vehicle trips are projected to serve the station during the a.m. and p.m. peak hours. This station is also expected to experience high spillover park-and-ride demand.

Table 5-43: Peak Hour Trip Generation—Pearlridge Station

Station	Bus Transit Vehicle Trips				Spillover Parking				Kiss-and-Ride			
	A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak	
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Pearlridge	31	31	31	31	19	0	0	19	94	94	94	94

Three intersections around this station are expected to experience a large increase in bus activity, spillover parking demand, and kiss-and-ride activity:

- Kamehameha Highway and Kanuku Street
- Kamehameha Highway and Kaonohi Street
- Kamehameha Highway and Pali Momi Street

Table 5-44 presents the results for the No Build Alternative and the Project at Pearlridge Station. The Kamehameha Highway and Kanuku Street intersection will continue operating at an acceptable peak hour LOS. The impact analysis results

show that even with the additional transit service expected at this location, the LOS will improve. With the No Build Alternative, the Kamehameha Highway and Kaonohi Street and Kamehameha Highway and Pali Momi Street intersections are projected to operate at poor LOS during one or both peak hours. With the Project, LOS at these intersections will substantially improve.

Table 5-44: Pearlridge Station Intersection Analysis

Intersection			Control*	Peak Hour	2030 No Build		2030 Airport Alternative			
					Delay (sec)	LOS	Delay (sec)	LOS	Project Delay Change Compared to No Build	Effect?
Kamehameha Highway	&	Kanuku Street	S	A.M.	29	C	20	B	-9	No
				P.M.	12	B	12	B	0	No
Kamehameha Highway	&	Kaonohi Street	S	A.M.	59	E	28	C	-31	No
				P.M.	76	E	32	C	-44	No
Kamehameha Highway	&	Pali Momi Street	S	A.M.	47	D	20	B	-27	No
				P.M.	59	E	27	C	-32	No

*S = Signal-Controlled

Middle Street Transit Center

The Middle Street Transit Center Station will be on Kamehameha Highway in the Kalihi area. The fixed guideway alignment will run above the H-1 Freeway and down the mauka side of Kamehameha Highway, just east of Middle Street and the freeway. This location is designed to facilitate intermodal transfers between bus and rail service. The station will be elevated and have a concourse level.

Estimated bus volumes, as well as spillover parking and kiss-and-ride traffic volumes, are shown in Table 5-45. Sixteen bus routes, ranging from approximately 61 transit vehicle trips, are projected to serve this station during the a.m. peak hours with the Project.

Table 5-45: Peak Hour Trip Generation—Middle Street Transit Center Station

Station	Bus Transit Vehicle Trips				Spillover Parking				Kiss-and-Ride			
	A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak	
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Middle Street Transit Center	52	44	44	52	11	0	0	11	55	55	55	55

Three intersections in this station area are expected to experience a large increase in bus activity:

- Middle Street and King Street
- Middle Street and Kamehameha Highway
- Laumaka Street and Kamehameha Highway

Table 5-46 presents the results for the No Build Alternative and the Project. With the No Build Alternative, one of the three study intersections is projected to operate at LOS F in the a.m. peak hour:

- Middle Street and Kamehameha Highway

With the fixed guideway and additional bus operations, the intersection LOS for Middle Street and Kamehameha Highway will improve from LOS F to LOS D in the a.m. peak hour for the Project.

In summary, these intersection LOS results demonstrate that even with the additional bus transit service and vehicle trips expected at this location, LOS will improve or remain constant with the addition of the fixed guideway. In general, there will be an improvement in delay over the No Build Alternative with the Project.

Table 5-46: Middle Street Transit Center Intersection Analysis

Intersection			Control*	Peak Hour	2030 No Build		2030 Airport Alternative			
					Delay (sec)	LOS	Delay (sec)	LOS	Project Delay Change Compared to No Build	Effect?
Middle Street	&	King Street	S	A.M.	19	B	16	B	-3	No
				P.M.	15	B	15	B	0	No
Middle Street	&	Kamehameha Highway	S	A.M.	169	F	49	D	-120	No
				P.M.	21	C	22	C	1	No
Laumaka Street	&	Kamehameha Highway	S	A.M.	26	C	19	B	-7	No
				P.M.	23	C	15	B	-8	No

*S = Signal-Controlled

Downtown Station

The Downtown Station will be on Nimitz Highway. The station will be elevated and have a concourse level. Estimated bus volumes, as well as spillover parking and kiss-and-ride traffic volumes, are shown in Table 5-47. Eight bus routes generating 41 transit vehicle trips are projected to serve this station during each a.m. and p.m. peak hour for the Project.

Table 5-47: Peak Hour Trip Generation—Downtown Station

Station	Bus Transit Vehicle Trips				Spillover Parking				Kiss-and-Ride			
	A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak	
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Downtown	20	22	18	24	0	0	0	0	4	4	4	4

Four intersections in the vicinity of this station are expected to experience a large increase in bus activity:

- Nimitz Highway and Bishop Street
- Bishop Street and Queen Street
- Nimitz Highway and Alakea Street
- Nimitz Highway and Halekauwila Street/Richards Street

Table 5-48 presents the results for the No Build Alternative and the Project. With the No Build Alternative, the following intersections are projected to operate at LOS E or F in either the a.m. or p.m. peak hours (or both):

- Nimitz Highway and Alakea Street
- Nimitz Highway and Halekauwila Street/Richards Street

With the introduction of the Project and additional bus services, these intersections will experience a substantial reduction in delay in the a.m. peak hour and a lesser reduction in delay in the p.m. peak hour. The intersection LOS results demonstrate that, even with the additional bus transit service expected at this location, LOS will improve or remain the same with the addition of the fixed guideway. All four analyzed locations show improvements over 2030 No Build conditions for the Project. Although at the intersection of Nimitz Highway and Halekauwila Street/Richards Street, LOS F conditions will still exist.

Table 5-48: Downtown/Aloha Tower Station Intersection Analysis

Intersection			Control*	Peak Hour	2030 No Build		2030 Airport Alternative			
					Delay (sec)	LOS	Delay (sec)	LOS	Project Delay Change Compared to No Build	Effect?
Nimitz Highway	&	Bishop Street	S	A.M.	13	B	16	B	3	No
				P.M.	14	B	14	B	0	No
Bishop Street	&	Queen Street	S	A.M.	41	D	37	D	-4	No
				P.M.	37	D	37	D	0	No
Nimitz Highway	&	Alakea Street	S	A.M.	93	F	64	E	-29	No
				P.M.	25	C	33	C	8	No
Nimitz Highway	&	Halekauwila Street/Richards Street	S	A.M.	140	F	89	F	-51	No
				P.M.	105	F	92	F	-13	No

*S = Signal-controlled

Ala Moana Center Station

The Ala Moana Center Station will be on Kona Street. Estimated bus volumes as well as spillover parking and kiss-and-ride traffic volumes are shown in Table 5-49. Fifteen bus feeder routes with approximately 102 transit vehicles are expected to serve this station during the a.m. and the p.m. peak hours. This station is also expected to have a high spillover parking and kiss-and-ride demand.

Table 5-49: Peak Hour Trip Generation—Ala Moana Center Station

Station	Bus Transit Vehicle Trips				Spillover Parking				Kiss-and-Ride			
	A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak	
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Ala Moana Center	74	74	74	74	87	0	0	87	354	354	354	354

Four intersections in the vicinity of this station are expected to experience large increases in bus activity, spillover parking, and kiss-and-ride activities:

- Ala Moana Boulevard and Atkinson Drive
- Kona Street and Keʻeaumoku Street
- Kona Street and Piʻikoi Street
- Kapiʻolani Boulevard and Keʻeaumoku Street

Table 5-50 presents the results for the No Build Alternative and the Project. With the No Build Alternative, the following intersections are projected to operate at LOS F in either the a.m. or p.m. peak hours (or both):

- Kona Street and Keʻeaumoku Street
- Kapiʻolani Boulevard and Keʻeaumoku Street

With the Project, the Ala Moana Boulevard and Atkinson Drive and Kapiʻolani Boulevard and Keʻeaumoku Street intersections will experience a reduction in vehicle delay. The LOS at these locations will remain at LOS C, D or F for the Project. The LOS at the Kona Street and Piʻikoi Street intersection will be LOS D with the Project.

The stop-controlled intersection of Kona Street and Keʻeaumoku Street will worsen considerably in the a.m. and p.m. peak hour. The introduction of additional bus feeder services and spillover parking and kiss-and-ride vehicle trips will trigger an effect at this intersection. With mitigation, LOS at this location will not change in the a.m. peak with the Project. Mitigation is discussed in Section 6.

Table 5-50: Ala Moana Center Station Intersection Analysis

Intersection			Control*	Peak Hour	2030 No Build		2030 Airport Alternative			
					Delay (sec)	LOS	Delay (sec)	LOS	Project Delay Change Compared to No Build	Effect?
Ala Moana Boulevard	&	Atkinson Drive	S	A.M.	53	D	49	D	-4	NO
				P.M.	48	D	46	D	-2	NO
Kona Street	&	Keʻeaumoku Street	AWSC	A.M.	185	F	317	F	132	**YES**
				P.M.	255	F	487	F	232	**YES**
Kona Street	&	Piʻikoi Street	S	A.M.	26	C	43	D	17	NO
				P.M.	30	C	50	D	20	NO
Kapiʻolani Boulevard	&	Keʻeaumoku Street	S	A.M.	25	C	25	C	1	NO
				P.M.	168	F	142	F	-26	NO

*S = Signalized AWSC = All-way stop-control
Mitigation measure involves signalizing intersection.

Change	The following are modifications of and replace **Section 5.6.4—Maintenance and Storage Facility Effects on Traffic** **Table 5-51—Peak Hour Trip Generation for UH West O'ahu Station and West Loch Station** **Table 5-52—Ho'opili Maintenance and Storage Facility Option Intersection Analysis** **Table 5-53—Leeward Community College Option Maintenance and Storage Facility Intersection Analysis**

5.6.4 Maintenance and Storage Facility Effects on Traffic

This section summarizes the potential localized traffic effects associated with the maintenance and storage facility proposed for the 2030 the Project. These effects were analyzed since the maintenance and storage facility will generate added traffic beyond what would occur under No Build conditions.

This facility will be capable of maintaining and storing up to 100 vehicles for the guideway system. There are two locations being considered for the maintenance and storage facility:

- Near Ho'opili Facility Option
- Near Leeward Community College (LCC) Facility Option

Only one of the sites will ultimately be selected. Either location will include a number of buildings, maintenance facilities, vehicle wash area, storage tracks, and employee parking. It is proposed that the guideway structure will be constructed to transfer trains directly in and out of the proposed maintenance and storage facility. This type of facility is expected to generate primarily employee vehicle trips.

For the purpose of the traffic impact analysis, it was estimated that 30 percent of the employees working the daylight shift (approximately 63 employees) will arrive at the facility during the typical morning peak hour and same number of employees will leave the facility during the typical afternoon peak hour. A large percentage of the employee commute trips are expected to be made by single occupant vehicles. The traffic analysis assumed that the maintenance facility will generate approximately 63 vehicle trips that will be distributed on the local roadway system (based on the regional travel patterns) during the typical morning and afternoon traffic peak hours.

Ho'opili Option

The Ho'opili maintenance and storage facility will be located between the proposed UH West O'ahu Station on North-South Road and the West Loch Station on Farrington Highway east of the Kunia Interchange. This facility is estimated to generate approximately 63 peak hour trips during both the morning and afternoon peak hours.

Traffic accessing this facility will utilize the same roads used to access the UH West O'ahu Station and the West Loch Station under the Project. Trip generation for modes of access, in addition to that generated by the maintenance and storage, is shown in Table 5-51.

Table 5-51: Peak Hour Trip Generation for UH West O'ahu Station and West Loch Station

Type	Bus Transit Vehicle Trips				Formal/Spillover* Park-and-Ride				Kiss-and-Ride			
Peak Hour	AM		PM		AM		PM		AM		PM	
Stations/Alternatives	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
UH West O'ahu Station	29	29	29	29	233	0	0	233	102	102	102	102
West Loch Station	32	32	32	32	39	0	0	39	201	201	201	201

* UH West O'ahu has a formal park-and-ride while any parking near the West Loch Station will be spillover parking

As part of the ORTP, several access roadways or connectors would be constructed in anticipation of the *UH West O'ahu* development and the new commercial/ residential development in the East Kapolei area. Nine existing or future intersections adjacent to the proposed Ho'opili maintenance and storage facility were selected for analysis:

- Kunia (Highway 76) Northbound On-ramp and Farrington Highway (existing intersection)
- Fort Weaver Road and Laulaunui Street (existing intersection)
- North-South Road and Road B (future intersection)
- North-South Road and East-West Road (future intersection)
- Old Fort Weaver Road and Fort Weaver/'A'awa Drive (existing intersection)
- Farrington Highway and New 'Ewa Road (future intersection)
- Farrington Highway and North-South Road
- Farrington Highway and Proposed Ho'opili Maintenance and Storage Facility Access Road
- Farrington Highway and Old Fort Weaver Road

Analysis of the 2030 No Build Alternative conditions shown in Table 5-52 indicates that six intersections will operate at LOS E or F during one or both peak hours:

- Fort Weaver Road and Laulaunui Street
- Old Fort Weaver Road and Fort Weaver Road/'A'awa Drive Farrington Highway and New 'Ewa Road
- Farrington Highway and New 'Ewa Road
- Farrington Highway and North-South Road

- Farrington Highway and Proposed Ho'opili Maintenance and Storage Facility Access Road
- Farrington Highway and Old Fort Weaver Road

However, the traffic analysis conducted for the 2030 with the Project indicates that combined estimated traffic traveling to the *UH West O'ahu* and West Loch Stations will not result in substantial traffic delays at any of the analyzed intersections.

Near Leeward Community College Option

The LCC maintenance and storage facility option will be in the immediate vicinity of the proposed Pearl Highlands Station. This facility is estimated to generate approximate 63 peak hour trips during both the morning and afternoon peak hours. Table 5-37 shows trip generation for park-and-ride and kiss-and-ride access to the Pearl Highlands Station.

Five intersections immediately adjacent to the proposed facility and the Pearl Highlands station were selected for analysis:

- Farrington Highway and Waiawa Road eastbound (existing)
- Farrington Highway and Waiawa Road westbound (existing to be reconfigured to add Pearl Highlands Station park-and-ride driveway for right-in and right-out access)
- Kamehameha Highway and Waihona Street (existing to be reconfigured to add Pearl Highlands Station park-and-ride driveway)
- Kamehameha Highway and Kuala Street (existing)
- Ala Ike Street and Waiawa Road (existing)

Table 5-53 presents the full traffic analysis for this option. Under the Project, the traffic analysis indicates that the proposed LCC maintenance and storage facility will not result in any additional traffic delays. However, traffic projected from the park-and-ride, kiss-and-ride and bus feeder services will result in traffic increases leading to traffic effects at the following locations under the Project:

- Farrington Highway westbound and Waiawa Road/Proposed Pearl Highlands Station access driveway (right-in and right-out only) Kamehameha Highway and Waihona Street/Proposed Pearl Highlands Station park-and-ride driveway (full access)
- Kamehameha Highway and Waihona Street/Pearl Highlands Station Park-and-Ride Driveway
- Kamehameha Highway and Kuala Street (existing)
- Ala Ike Street and Waiawa Road

Table 5-52: Ho'opili Maintenance and Storage Facility Option Intersection Analysis

Intersection			Control*	Peak Hour	2030 No Build		2030 Airport Alternative and Proposed Maintenance & Storage Facility				2030 Airport Alternative and Proposed Maintenance & Storage Facility with Mitigation				
					Delay (sec)	LOS	Delay (sec)	LOS	Project Delay Change Compared to No Build	Effect?	Mitigation	Delay (sec)	LOS	Project Delay Change Compared to No Build	Effect (with Mitigation)?
Hwy 76 NB On-Ramp	&	Farrington Highway	S	A.M.	5	A	6	A	1	NO					
				P.M.	2	A	2	A	0	NO					
Fort Weaver Road	&	Laulaunui Street	S	A.M.	131	F	131	F	0	NO					
				P.M.	66	E	61	E	-5	NO					
North-South Road	&	Road B [1]	S	A.M.	55	D	74	E	19	**YES**	Required [7]	55	D	0	NO
				P.M.	45	D	46	D	1	NO		46	D	1	NO
North-South Road	&	East-West Road [2]	S	A.M.	34	C	46	D	12	NO	Required [8]	41	D	7	NO
				P.M.	36	D	61	E	25	**YES**		38	D	2	NO
Old Fort Weaver Road	&	Fort Weaver Road/ 'A'awa Drive	S	A.M.	115	F	93	F	-22	NO					
				P.M.	68	E	58	E	-10	NO					
Farrington Highway	&	New 'Ewa Road [3]	S	A.M.	56	E	36	D	-20	NO					
				P.M.	45	D	42	D	-3	NO					
Farrington Highway	&	North-South Road [4]	S	A.M.	105	F	31	C	-74	NO					
				P.M.	41	D	46	D	5	NO					
Farrington Highway	&	Proposed Maintenance & Storage Facility Access Road [5]	S	A.M.	377	F	324	F	-53	NO					
				P.M.	57	E	44	D	-13	NO					
Farrington Highway	&	Old Fort Weaver Road	TWSC	A.M.	>400	F	>400	F	<0 [f]	NO					
				P.M.	>400	F	>400	F	<0 [f]	NO					

* S = Signal-Controlled TWSC = Two-Way Stop-Controlled

[1] Future base lane configuration assumed for North-South Road at Road B: northbound: 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; eastbound: single left-turn lane, one through, single right-turn lane.

[2] Future base lane configuration assumed for North-South Road at East-West Connector Road: northbound: one left-turn lane, three through lanes, one right-turn lane; southbound: one left-turn lane, three through lanes, one right-turn lane; eastbound: one left-turn lane, one through lane, one right-turn lane; westbound: two left-turn lanes, one through lane, one right-turn lane.

[3] Future base lane configuration assumed for Farrington Highway at New 'Ewa Road: Northbound: single left-turn lane, one shared through/right-turn lane, single right-turn lane; Southbound: single left-turn lane, one through lane, single right-turn lane; Westbound: dual left-turn lanes, two through lanes, single right-turn lane; eastbound: single left turn lane, two through lanes, single right-turn lane.

[4] Future base lane configuration assumed for Farrington Highway at North-South Road: northbound and southbound: single left-turn lane, three through lanes, single right-turn lane; eastbound and westbound: single left-turn lane, two through lanes, single right-turn lane

[5] Future base lane configuration assumed for Farrington Highway at New 'Ewa Road/Proposed Maintenance and Storage Facility Driveway: northbound and southbound: single left-turn lane, one through lane, single right-turn lane; eastbound and westbound: single left-turn lane, two through lanes, single right-turn lane

[6] Delay cannot be calculated. However, total peak hour volumes are estimated to decrease with the Project.

[7] At North-South Road and Road B, the mitigation will involve widening the Koko Head-bound direction of Road B to include two left-turn lanes, one through lane, and one right-turn lane.

[8] At North-South Road and East-West Connector Road, the mitigation will involve widening the Mauka-bound direction of Road B to include two left-turn lanes, three through lanes, and one right-turn lane.

Table 5-53: Leeward Community College Option Maintenance and Storage Facility Intersection Analysis

Intersection			Control*	Peak Hour	2030 No Build Delay (sec)	2030 No Build LOS	2030 Airport Alternative and Proposed Maintenance & Storage Facility Delay (sec)	2030 Airport Alternative and Proposed Maintenance & Storage Facility LOS	Project Delay Change Compared to No Build	Effect?	2030 Airport Alternative and Proposed Maintenance & Storage Facility with Mitigation: Mitigation	Delay (sec)	LOS	Project Delay Change Compared to No Build	Effect (with Mitigation)?
Farrington Highway (EB)	&	Waiawa Road	S	AM	149	F	50	E	-99	NO					
				PM	162	F	123	F	-39	NO					
Farrington Highway (WB)	&	Waiawa Road/Pearl Highlands Station Park-and-Ride Driveway [1]	TWSC	AM	76	F	>400	F	>0	**YES**	Required [4]	34	C	-42	NO
				PM	30	D	>400	F	>0	**YES**		31	C	1	NO
Kamehameha Highway	&	Waihona Street/Pearl Highlands Station Park-and-Ride Driveway [2]	TWSC/S [3]	AM	36	D	47	D	11	NO	Alternative 1 (Widening Kamehameha Highway) [5]	40	D	4	NO
				PM	122	F	217	F	95	**YES**		111	F	-11	NO
											Alternative 2 (Ramp) [6]	47	D	11	NO
												121	F	-1	NO
Kamehameha Highway	&	Kuala Street	TWSC	AM	75	F	>400	F	>0 [8]	**YES**	Required [7]	13	B	-62	NO
				PM	>400	F	>400	F	>0 [8]	**YES**		251	F	<0	NO
Ala Ike Street	&	Waiawa Road	TWSC	AM	>400	F	>400	F	>0	NO					
				PM	32	F	15	F	-17	NO					

* S = Signal-Controlled TWSC = Two-Way Stop-Controlled

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

[2] With the Project, lane configuration assumed for park-and-ride driveway: dual left-turn lane, single through lane, single right-turn lane.

[3] 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 No Build conditions and 2030 Project conditions, the T-intersection of Waihona Street at Kamehameha Highway is assumed to be signalized. It is also assumed that the future planned Central Mauka Road will provide a direct connection to Kamehameha Highway eastbound through a grade separation project or an alternative means of connection, instead of linking directly to the intersection of Waihona Street and Kamehameha Highway.

[4] At Farrington Highway westbound and Waiawa Road/Proposed Pearl Highlands Station Park-and-ride driveway (right-in and right-out access only), the proposed mitigation measures will require installation of signals. The new signals will require synchronization with the adjacent signals at Farrington Highway eastbound and Waiawa Road.

[5] At Kamehameha Highway and Waihona Street, the proposed Option 1 mitigation measure will involve widening the 'Ewa-bound direction of Kamehameha Highway from two through lanes and one right-turn lane to three through lanes and one right-turn lane at Waihona Street. Necessary signs and traffic lane guidance (dotted lines are required to allow safe merging and weaving maneuvers for traffic intending to use H-2 and H-1 Freeways). Widening of Kamehameha Highway westbound will fully mitigate the traffic effect at this location under the Project.

[6] At Kamehameha Highway and Waihona Street, the proposed Option 2 mitigation measure would involve constructing direct outbound access ramp to facilitate the park-and-ride traffic intending to travel on H-2 Freeway. The traffic effect at this location will be fully mitigated with the additional exiting capacity for the park-and-ride structure.

[7] At Kamehameha Highway and Kuala Street, mitigation includes (1) signalizing 'Ewa-bound Kamehameha Highway at Kuala Street and (2) widening Koko Head-bound Kamehameha Highway from one to two lanes.

[8] Delay cannot be calculated. However, total volumes are estimated to increase with the Project.

Add	The following supplements and is added to the end of **Section 5.6—Localized Traffic Effects in Station Areas**

5.6.5 Pearl Highlands Ramps

Effects to Southbound H-2 Freeway Off-ramp

As shown in Figures A2-1 and A2-2, a new ramp will provide direct auto and bus access from southbound H-2 to the Pearl Highlands Station park-and-ride and transit center. The 2030 volumes on this ramp are anticipated to be approximately 240 vehicles in the a.m. peak hour (Figure A2-1) and 40 vehicles in the p.m. peak hour (Figure A2-2). The new ramp will diverge from the existing southbound off-ramp from H-2 to eastbound H-1 and Waipahu Street (the split to these two destinations occurs after the diverge of the new ramp). The existing southbound H-2 to H-1 ramp exits H-2 as a drop lane as opposed to a diverge and has an approximate capacity of 2000 vehicles per hour according to the HCM. With a 2030 No Build Alternative volume of 415 vehicles in the a.m. peak hour, the capacity of the off-ramp from H-2 will be sufficient to handle demand. The additional 240 vehicles accessing the new ramp will bring the total volume on the off-ramp to 655 vehicles, which will still be handled adequately. In the p.m. peak hour, the 2030 No Build Alternative volume of 950 vehicles will increase to 990 with the anticipated volumes accessing the station. In conclusion, no significant traffic effect to the existing off-ramp or mainline traffic is anticipated to occur with construction of the proposed direct access ramp.

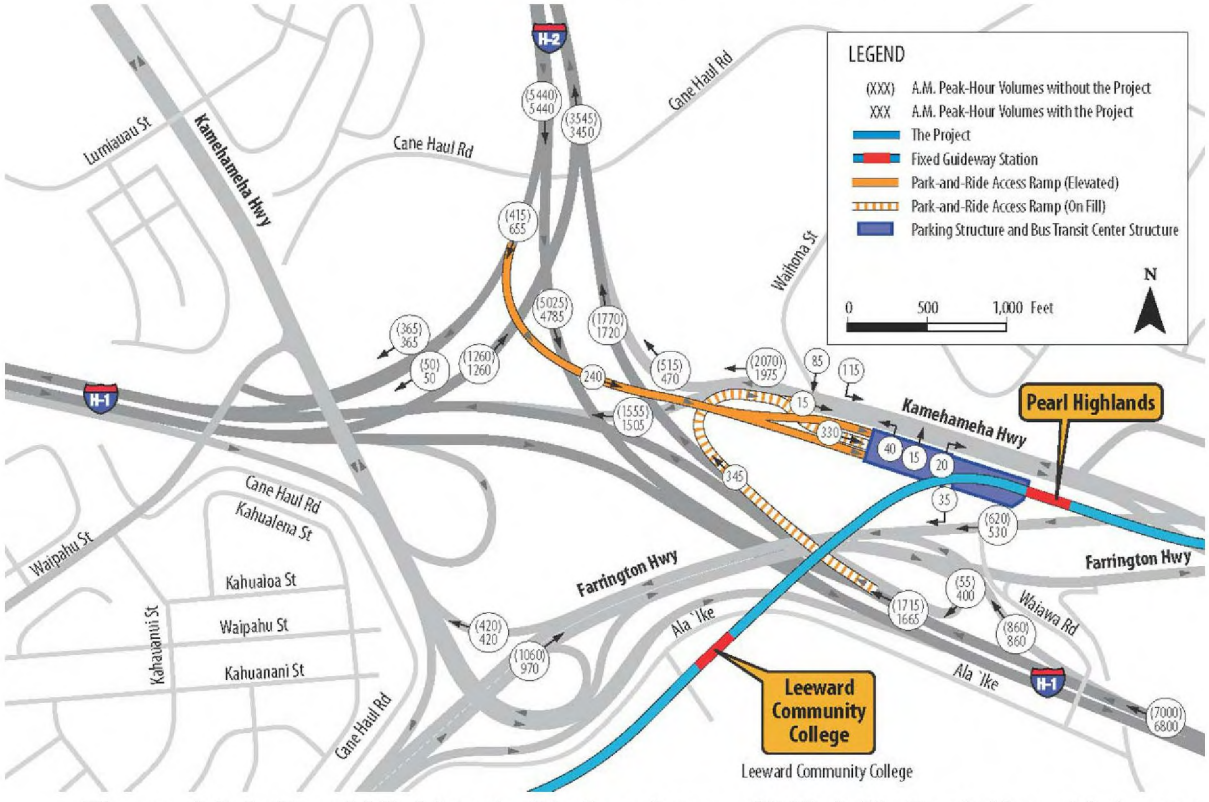

Figure A2-1: Pearl Highlands Station Area—2030 A.M. Peak Hour Volumes

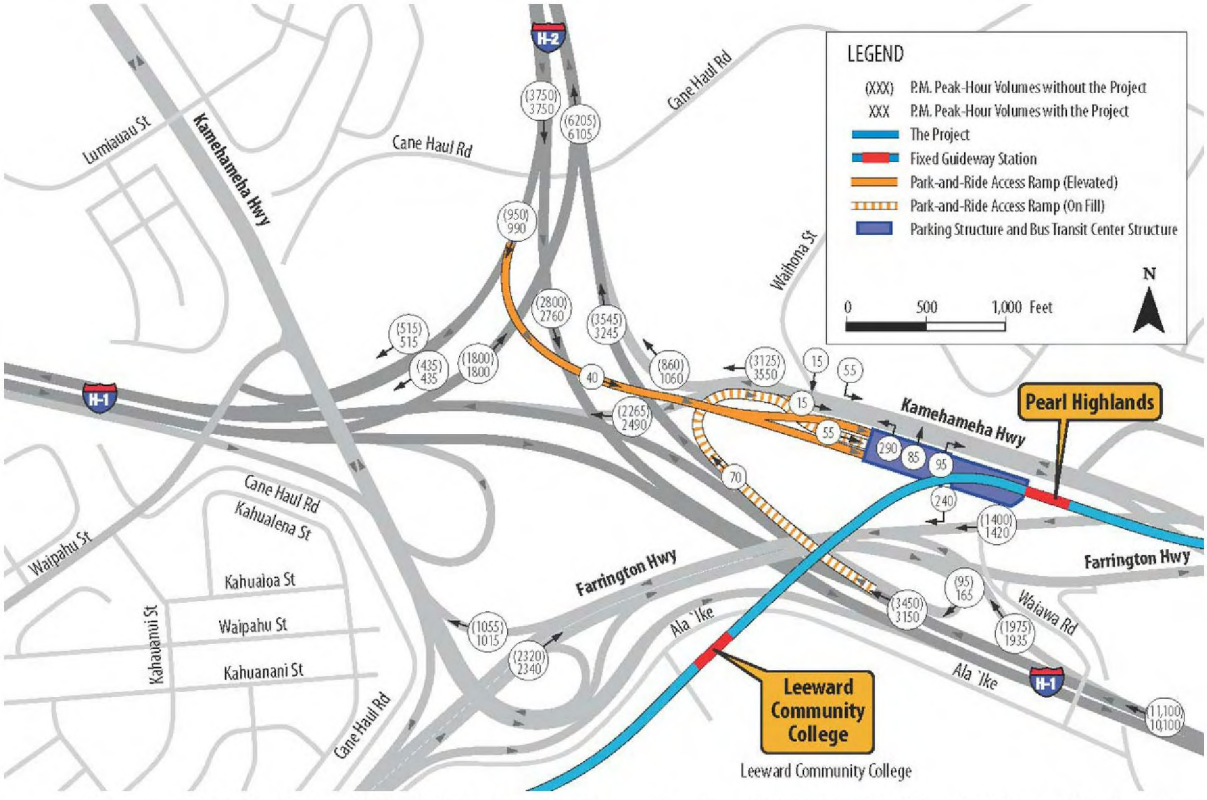

Figure A2-2: Pearl Highlands Station Area—2030 P.M. Peak Hour Volumes

Effects to Northbound H-2 Freeway On-ramp from Westbound Kamehameha Highway

As shown in Figure A2-2, construction of the Project is anticipated to result in an increase in the 2030 volume during the p.m. peak hour on the on-ramp from westbound Kamehameha Highway to northbound H-2. As shown in Appendix E, an analysis of this ramp merge in HCS indicated that without construction of the rail project (No Build Alternative), ramp operations are expected to be LOS F in 2030 during the p.m. peak hour. This is due to a combination of high traffic volumes (3,545 vehicles on the mainline merging with 860 entering vehicles from the Kamehameha on-ramp), a relatively sharp on-ramp angle (approximately 25:1), and a relatively steep upgrade directly after the ramp merge. The Project will result in an addition of approximately 200 vehicles to the Kamehameha on-ramp and a reduction of approximately 300 vehicles on the H-2 mainline, resulting in a net reduction of approximately 100 cars at the merge junction. With the Project, this merge is expected to continue to operate at LOS F. As a result of the net reduction in traffic, the effect of the Project on this merge will not be significant.

Effects to Farrington Highway Weave Section

As shown in Figure A2-2, construction of the Project is anticipated to result in a slight net increase in 2030 volumes during the p.m. peak hour on westbound Farrington Highway between Waiawa Drive and Kamehameha Highway. This section of Farrington Highway currently experiences periods of congestion due in large part to

a weave pattern involving vehicles that exit westbound H-1 at the Waipahu off-ramp, enter westbound Farrington Highway via a left-side on-ramp, weave across two lanes of traffic, and then exit to northbound Kamehameha Highway via a right-side off-ramp. An analysis of this weave in HCS indicated that the additional volumes resulting from the Project will not have a significant effect on the weave section. Assuming a worst cast scenario in which all of the volumes on the on-ramp to Kamehameha Highway weave across from the H-1 off-ramp, the 2030 No Build Alternative is expected to operate at LOS E (see Appendix E). With the additional vehicles exiting the station park-and-ride and entering the traffic stream on Farrington Highway, the weave section is still expected to operate at LOS E. A new traffic signal proposed for the intersection of Waiawa Drive and Farrington Highway is expected to provide additional gaps and opportunities for weaving vehicles to make their maneuver. An Operational and Safety Analysis Report submitted to the Federal Highway Administration (FHWA) is included in Appendix F, Operational and Safety Report, of this Addendum.

5.6.6 Effects on Interstate Freeways

There are seven locations where the Project will either cross or enter interstate freeway airspace, including freeway mainline and access ramps. The guideway crossings will occur in the following locations:

- Fixed guideway crossing of H-1 Freeway in Pearl City
- Fixed guideway crossing of H-1 Freeway in Aiea
- New off-ramp leading to park-and-ride facility over H-2 Freeway in Pearl City
- Fixed guideway crossing of Koko Head bound lanes of H-1 near Honolulu Airport
- Fixed guideway crossing of H-201 Freeway access ramp near Aloha Stadium
- Fixed guideway crossing of H-1 access ramps near Pearl Harbor Naval Base
- Fixed guideway crossing on H-1 access ramps near Ke'ehi Interchange

These will require coordination with and approval by the Federal Highway Administration. Standard minimum horizontal and vertical clearances have been incorporated into Project design. There are no other identified effects resulting from the Project crossings of the interstate.

Change	The following is a modification of and replaces the first and second paragraphs of **Section 5.7—Effects on Freight Movement**

The Project will generally have little direct effect on freight movement in the study corridor. Honolulu Harbor, Kalaeloa Barbers Point Harbor, and Honolulu International Airport are the principal ports for the import and export of goods to and from O'ahu and the primary sources of freight-related traffic. Cargo is delivered from

these ports by truck to a wide array of destinations across O'ahu. Sections of the fixed guideway structure and several stations will be near these facilities.

In some areas along the fixed guideway alignment, left turns in and out of driveways could be restricted due to column placements, requiring right-in/right-out access. In other locations, such as Kaka'ako, column placement could affect existing truck route traffic patterns along certain blocks and streets. However, access to all businesses will be maintained, and reduced roadway congestion resulting from the Project will generally have a positive effect on freight movement.

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

5.8 Effects on Parking

5.8.1 Removal of Existing Parking Capacity

It is estimated that105 on-street and approximately 790 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 two areas: near the Iwilei Station 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.

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 Kaʻaahi 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	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	`Ewa 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			180	Station will be built on mauka end of existing parking lot. Spaces will be replaced at an alternate location on campus.
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 some existing 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.
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.

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	Parking Spaces Removed			Description of Effect
				On-Street Mauka	On-Street Makai	Off-Street	
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	0	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	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			12	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	ʻĀhui	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 Ahui to Kamani Street.
Halekauwila Street	Punchbowl Street	South Street	Side	N/A			Passenger loading zone will be relocated nearby.
			Totals	**42**	**63**	**788**	

5.8.2 Spillover Parking Effects on Station Areas

A review of patronage forecasts at each station indicates that a small number of guideway transit passengers are anticipated to park near stations that do not have designated park-and-ride facilities. This effect is known as spillover parking. Estimated spillover parking demand for each station is shown in Table A2-8. Four stations with the highest spillover parking demand warranted further analysis: West Loch, Pearlridge, Iwilei, and Ala Moana Center. These four stations could each attract a spillover parking demand of 50 to approximately 200 automobiles daily, depending on the location.

Traffic Effects of Spillover Parking

The four stations listed above will generate additional peak-hour trips (from 19 to 87, depending on the location). These trips have the potential to result in traffic effects to the local street system. The following sections discuss the traffic effects created by spillover parking demand for the four station areas. To determine cumulative effects, the analysis included traffic involving spillover parking as well as estimated kiss-and-ride and bus feeder trips at stations.

West Loch Station

The West Loch Station was analyzed in Section 5.6.3, Effects of Buses on Traffic near Stations, because of the substantial feeder bus activity planned. As shown previously in Table 5-41, this station is expected to attract approximately 40 spillover parking trips and approximately 400 kiss-and-ride trips during the A.M. and P.M. peak hours. The LOS results previously shown in Table 5-42 show that even with the additional transit service, spillover parking and kiss-and-ride activities expected at West Loch station, no substantial traffic effects are expected with the Project.

Pearlridge Station

The Pearlridge Station was analyzed in *Section 5.6.3: Effects of Buses on Traffic near Stations* because of the substantial feeder bus activity planned. As shown previously in Table 5-43, this station is expected to attract approximately 20 cars seeking parking spaces and 190 kiss-and-ride trips during the A.M. and P.M. peak hours. The LOS results previously shown in Table 5-44 show that even with the additional transit service, spillover parking and kiss-and-ride activities expected at Pearlridge station, no substantial traffic effects are expected with the Project.

Iwilei Station

The Iwilei Station will be on Dillingham Boulevard near Kaʻaahi Street. This station is expected to attract spillover parking and kiss-and-ride trips, as shown in Table 5-55.

Table 5-55: Peak Hour Trip Generation with Project — Iwilei Station

Type	Spillover Parking				Kiss-and-Ride				Bus Transit Vehicle Trips			
Peak Hour	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.	
Stations	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Iwilei Station	42	0	0	42	206	206	206	206	22	22	22	22

Five intersections around this station are expected to feel the effects of spillover parking and kiss-and-ride traffic:

- Dillingham Boulevard and Kaʻaahi Street
- Dillingham Boulevard and King Street
- King Street and Beretania Street
- King Street and Iwilei Road
- Iwilei Road and Kūwili Street

Table 5-56 presents the intersection analysis results for the No Build Alternative and the Project at the Iwilei Station. With the No Build Alternative, the following intersections are projected to operate at LOS E or F in either or both the a.m. and p.m. peak hours:

- Dillingham Boulevard and King Street
- King Street and Beretania Street

The intersection LOS results demonstrate that, even with the additional spillover parking demand and kiss-and-ride activity at this location, LOS will improve or mostly remain equivalent with the addition of the Project. Therefore, the increase in vehicle activity will not substantially affect local traffic conditions surrounding the Iwilei Station.

Table 5-56: Iwilei Station Intersection Analysis

Intersection			Control *	Peak Hour	2030 No Build		2030 The Project			
					Delay (sec)	LOS	Delay (sec)	LOS	Project Delay	Effect ?
Dillingham Boulevard	&	Ka'aahi Street	S	A.M.	5	A	6	A	1	NO
				P.M.	5	A	5	A	0	NO
Dillingham Boulevard	&	King Street	S	A.M.	65	E	45	D	-20	NO
				P.M.	70	E	70	E	0	NO
King Street	&	Beretania Street	S	A.M.	70	E	54	D	-16	NO
				P.M.	181	F	152	F	-29	NO
King Street	&	Iwilei Road	S	A.M.	30	C	29	C	-1	NO
				P.M.	23	C	25	C	2	NO
Iwilei Road	&	Kūwili Street	OWSC [1]	A.M.	17	C	16	C	-1	NO
				P.M.	23	C	19	C	-4	NO

*S: Signal; OWSC: one-way stop control.

[1] This intersection has a stop sign for Kūwili Street. Analysis was done using HCM stop-controlled methodology, and the LOS and delay in seconds for the worst movement are reported.

Ala Moana Center Station

The Ala Moana Center Station was analyzed in *Section 5.6.3: Effects of Buses on Traffic near Stations* because of the substantial number of buses planned. As previously shown in Table 5-49, this station is expected to attract approximately 90 spillover parking trips and 710 kiss-and-ride trips during the A.M. and P.M. peak hours. The LOS results in Table 5-50 show that combined effect of additional transit service and spillover parking and kiss-and-ride activities expected at this location will result in a substantial effect at the intersection of Kona Street and Ke'eaumoku Street. Mitigation is discussed in Section 6.

Effects on Parking Supply from Spillover Parking Demand

Estimated demand for parking near stations without park-and-ride facilities (spillover parking) was identified by the travel demand forecasting model for the year 2030 and can be seen in Table A2-8. However the actual extent of spillover parking near stations would be influenced by a variety of factors, including:

- Lack of available parking. Some neighborhoods, such as near Ala Moana Center, do not have long-term parking available for commuters. As a result, the actual number of spillover parking would be less, as transit patrons would choose to park elsewhere (and use a different station), or use a feeder bus to access the fixed guideway station.
- Private parking – some stations have existing parking lots (intended for other use) nearby. Whether these facilities, such as a shopping center parking lot, are used by commuters will depend on regulation and enforcement. A shopping center with abundant parking near a station may welcome the commuters as potential customers. If commuters begin to displace regular customers, however, signage and enforcement may be necessary to discourage such use.
- Changing conditions between now and 2030. Additional parking could be provided in the future that is not there now, or feeder bus service could be used at a higher rate than anticipated.
- Future development around station areas. New land uses near stations could change both the demand for and supply of parking. These factors could influence how people choose to access the stations and where they would park.

Potential approaches to mitigation effects of spillover parking are addressed in Chapter 6: Mitigation of Long Term Transportation Effects.

Add	The following is a supplement to and is added after the last paragraph of **Section 5.9 Effects on Bike and Pedestrian Systems**

The O'ahu Bicycle Master Plan is currently being updated and is scheduled to be adopted later in 2009. The draft update includes a prioritized list of bicycle projects developed using criteria that include access to transit. Several projects that would connect existing or future bicycle facilities to rail transit stations are included in the Draft Master Plan.

Higher volumes of pedestrians and bicycles are expected near stations. RTD will work with other City departments and the Hawai'i Department of Transportation to identify and improve key pedestrian and bicycle routes to stations as well as to improve overall safety and accessibility near station entrances. The Project will not prevent any planned bicycle facilities from being construction. The Project will include widening curb lanes on Kamehameha Highway to 13 feet to allow possible designation as a bike route.

Change	The following is a modification of and replaces **Table 5-57—Summary of Potential Effects on Bicycle and Pedestrian Systems due to Fixed Guideway Column Placements**

Table 5-57: Summary of Potential Effects on Bicycle and Pedestrian Systems due to Fixed Guideway Column Placements

Roadway Name	Cross-street From	Cross-street To	Column Placement	Summary of Potential Effects
Farrington Highway	Kunia Road	Awanui Street	Median	Signed shared roadway will be narrowed from 16 feet to 14 feet inbound and from 15 or 14 feet to 13 feet outbound.
Dillingham Boulevard and Kamehameha Highway	Pu'uhale Road	Mokauea Street	Median	Makai sidewalk will be reconstructed to a width of 6 to 8 feet (currently 4 to 6.5 feet).
Dillingham Boulevard	Mokauea Street	Kalihi Street	Median	Makai sidewalk will be reconstructed to a width of 6 feet (currently 4 to 8 feet)
Dillingham Boulevard	McNeill Street	Waiakamilo Road	Median	Makai sidewalk will be reconstructed to a width of 6 to 8 feet (currently 4 to 6 feet).
Dillingham Boulevard	Kōkea Street	Alakawa Street	Side	Makai sidewalk will be reconstructed to a uniform width of 5 feet (currently 4 to 7 feet).
Dillingham Boulevard	Ka'aahi Street	King Street	None	New makai-bound left turn lane for buses to turn into Ka'aahi. This will require acquiring right-of-way. Makai sidewalk will be narrowed to 8 to 10 feet (currently 10 to 15 feet).
Kamehameha Highway	Hekaha Street	Kaonohi Street	Median	Makai sidewalk will be reconstructed to a uniform width of 6 feet (currently 8 to 10 feet).
Kamehameha Highway	Kanuku Street	Kaonohi Street	Median	Mauka sidewalk will be reconstructed to a width of 5.5 to 6.5 feet (currently 4.5 to 16 feet).
Kamehameha Highway	Kaonohi Street	Pali Momi Street (West)	Median	Mauka sidewalk will be reconstructed to a width of 5 to16 feet (currently 4 to 21 feet).
Kamehameha Highway	Līpoa Place	'Aiea Kai Place	Median	A portion of the makai sidewalk will be narrowed to 9 to 13 feet (currently 16 feet).

6 Mitigation of Long-Term Transportation Effects

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

Section 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 A2-9: 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 eastbound (or Koko Head-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 at to have a separate right-turn, through, and left-turn lane (total of three 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 the '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 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 A2-9: 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**

6.2 Mitigation of Parking-related Effects

6.2.1 Removal of Off-street Parking

Approximately 790 private, off-street parking spaces will be purchased for the Project as part of right-of-way needed along the 20-mile length of the corridor 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. 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 105 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 location during construction to ensure safe access to the daycare facility. A new passenger loading zone will be installed in the same general location after construction is completed.

7 Construction-Related Effects

Change	The following is a modification of and replaces **Section 7.1—Construction Staging Plans**

7.1 Construction Staging Plans

Construction staging areas and plans will be identified and developed by the contractors and approved by the City. Specific details will be developed and reviewed with the relevant authorities and approvals sought. These details will include, but are not limited to, specific permitted lane closures or road closures, hours of operation, penalties for extending beyond permitted hours, and holiday restrictions. The maintenance and storage facility, park-and-ride facilities, and stations could be used for construction staging areas. Additional areas will be identified by the contractor. The contractor will be responsible for identifying necessary permits and approvals and where applicable, the City will be the permit applicant. Additional construction and staging areas identified and requested by the contractor will be reviewed and approved by the City. Staging areas will be fenced to deter unauthorized entry. Upon completion of work, staging areas will be restored to a condition equal to or better than existing conditions as appropriate.

Change	The following are modifications of and replace the second and third paragraphs of **Section 7.2—Construction-Related Effects on Transit Service** and **Table 7-1—Bus Routes Affected by Construction**

All existing bus routes within the study corridor were examined to determine the degree of effect during construction. Effects were classified as none, minor, and/or direct. Minor effects occur when a route intersects and crosses a street with construction activity, or when a route traverses a short section of a street within a construction zone. Direct effects occur where a transit route travels along a considerable length of the construction zone. Table 7-1 lists the bus routes that will be affected by construction. Some bus routes pass through multiple parts of the study corridor.

Table 7-1: Bus Routes Affected by Construction—Airport Alternative

Minor Effects	Direct Effects
7, 10, 44, 74, 83A, 86, 86A, 93A, 95, 201, 202	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

TheHandi-Van services will not be directly affected by the physical construction of the fixed guideway system. TheHandi-Van is a curb-to-curb operation not requiring posted bus stops to board and alight passengers. Since TheHandi-Van has flexibility in selecting a route to a destination, TheHandi-Van vehicles are able to access businesses, medical facilities, and other destinations using driveways and parking lots. TheHandi-Van may experience some delays in service during construction in certain areas because of general traffic conditions; however, service will not be affected any more than will general-purpose traffic.

Change	The following is a modification of and replaces the second paragraph of **Section 7.3—Construction-Related Effects on Traffic**

Table 7-2 shows the locations anticipated for temporary lane closures in the study corridor. Additional lanes may be closed during off-peak periods. Utility relocation could also result in temporary lane closures. In addition to travel lanes, a number of turning lanes will also be temporarily closed. Traffic signals adjacent to the fixed guideway could also be temporarily replaced or re-timed. In addition, temporary traffic signals may be placed at some unsignalized intersections during construction. Delivery of construction materials will increase the number of trucks on local roadways.

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
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
Nimitiz Highway	Valkenburgh		3[5]	0	1
Aolele Street	Lagoon Drive		2[6]	0	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

[1]Additional closures could occur in short segments and/or during off-peak travel periods.
[2]Kamehameha Highway narrows to four lanes around the Moanalua Freeway Interchange.
[3] One Kapolei bound lane will be closed at Kamehameha Highway and Center Drive only
[4]One 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.
[5]The left-turn lane in the Town-bound direction will be closed and replaced with an option left-turn/through lane.
[6]The right-turn lane on Lagoon Drive makai-bound will be closed and converted to a right-turn/through lane.
[7]Left turn lanes along Dillingham Boulevard will also be temporarily closed during construction.

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

Approximately 320 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. 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.

Replace	The following is a modification to and replaces the first paragraph of **Section 7.7.1—Maintenance of Traffic Plan Streets and Highways**

Construction will be phased so that the duration of drilled shaft work, which will have the largest effect on traffic, will be minimized. During final design, detailed Work Zone Traffic Control Plans, including detour plans, will be formulated in cooperation with all affected jurisdictions. It is not anticipated that major or secondary highways will be closed to vehicular or pedestrian traffic, with the exception of some freeways during late night and early morning weekend hours. Vehicular or pedestrian access to residences, businesses, or other establishments will be maintained. Utility relocation could also require additional lane closures.

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

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.

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 Maintenance of Traffic (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. Any effects to TheHandi-Van operations resulting from access limitations will be identified and mitigated as appropriate.

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.

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 7.7.1—Maintenance of Traffic Plan Construction Phasing**

Construction Phasing

The Project will be constructed and opened in phases over several years. A plan to accommodate the phased openings will be developed in advance. As the stations are completed and opened, rail service will be extended and feeder bus service from surrounding neighborhoods will be implemented. Express bus service to Downtown from Kapolei, Waipahu, etc., will continue to operate until the Downtown Station opens. Park-and-ride facilities and bus transit centers will open at about the same time as the stations they serve, although park-and-ride capacity and bus service may be lower at first, growing over time with demand. As each station opens, signage will be installed that provides driving directions to available parking (if provided) and to passenger drop-off and pick-up locations. Signage will also direct pedestrians and bicyclists to station entrances.

Phasing will not affect construction methods but will affect the areas that will be disturbed at any specific time. The MOT Plan and the TMP will be developed for the different construction phases to minimize effects to the traveling public. Phasing will not affect construction methods but will affect the areas that will be disturbed at any specific time. The MOT Plan and TMP will be developed for the different construction phases to minimize effects to the traveling public.

Change	The following are modifications of and replace **Section 7.8.1—Kapolei to Waipahu—Including Future Planned Extension to West Kapolei** **Table 7-4—Construction Related Effects on Kaploei Segment, Including West Kapolei Extension** **Section 7.8.2—Waipahu to Aloha Stadium** **Section 7.8.3—Aloha Stadium to Middle Street (Salt Lake)** *[deleted]* **Section 7.8.4—Aloha Stadium to Middle Street (Airport)** **Section 7.8.5—Middle Street to Iwilei** **Section 7.8.6—Iwilei to Ala Moana Center**

7.8.1 Kapolei to Waipahu—Including Future Planned Extension to West Kapolei

This part of the alignment will generally travel from North-South Road (a future street) to Farrington Highway, and ends at Fort Weaver Road. Three stations are planned along this alignment.

Table 7-4 summarizes construction-related traffic effects for the rail alignment at key locations along this segment.

Table 7-4: Construction-related Effects on Kaploei Segment, Including West Kapolei Extension

Intersection/Roadway Segment	Column Placement	Summary of Effects
North-South Road from East-West Collector Road (East Kapolei Station) to future road at UH West O'ahu Station	Roadside	No effects expected. Work area expected to fit within existing utility corridor on the Koko Head side of North-South Road.
Ho'opili Community from North-South Road to Farrington Highway	Future Median	There is a good chance that guideway will be built prior to the start of construction of the Ho'opili Community.
Farrington Highway from Ho'opili Community to Kunia Road	Roadside	Existing one lane in each direction will remain open as construction will take place on mauka side of the road shoulder

Fixed guideway will be within new roadway right-of-way designated in the Kalaeloa Master Plan.

7.8.2 Waipahu to Aloha Stadium

This part of the alignment will travel from the Farrington Highway and Leokū Street Station to the vicinity of Aloha Stadium. Table 7-5 provides a summary of construction-related traffic effects for the Project's alignment at key locations along this segment.

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 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 7-6 provides a summary of construction-related traffic effects for the rail alignment at key locations along this segment.

7.8.4 Middle Street to Iwilei

This part of the 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

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

7.8.5 Iwilei to Ala Moana Center

This part of the alignment will generally travel from Downtown to the Ala Moana Shopping Center via Nimitz Highway, Halekauwila Street, and Kona Street. Five station locations are proposed along this alignment.

Table 7-8 provides a summary of construction-related traffic effects for the rail alignment at key locations along this segment.

Change	The following are modifications of and replace **Table 7-5—Construction Related Traffic Effects on the Waipahu to Aloha Stadium Segment** **Table 7-6—Construction Related Effects on Aloha Stadium to Middle Street Segment (Salt Lake)** *[deleted]* **Table 7-7— Construction Related Effects on Aloha Stadium to Middle Street Segment (Airport)** **Table 7-8—Construction Related Effects on Middle Street to Iwilei Segment** **Table 7-9—Construction Related Effects on Iwilei to Ala Moana Center Segment**

Table 7-5: Construction-related Effects on the Waipahu to Aloha Stadium Segment

Intersection/Roadway Segment	Column Placement	Effects
Farrington Highway and Leokū Street	Median	It is proposed that all left-turn lanes and the Koko Head-bound right-turn lane be closed during construction. It is proposed that one left-turn lane be closed in each direction. Inbound will combine one through lane and free right turn into one with another through lane and one left turn will be provided.
Farrington Highway and Leokane Street	Median	It is proposed that all left-turn lanes be closed during construction.

Table 7-5: Construction-related Effects on the Waipahu to Aloha Stadium Segment (continued)

Intersection/Roadway Segment	Column Placement	Effects
Farrington Highway and Pupukahi Street	Median	It is proposed that all left-turn lanes and the Koko Head-bound right-turn lane be closed during construction.
Farrington Highway and Aniani Place	Median	The road alignment will be shifted makai by 2 feet to eliminate "C" bents, reducing effect to through lanes during construction
Farrington Highway and Waipahu Depot Road	Median	It is proposed that all left-turn lanes be closed during construction. Through lanes will remain open.
Farrington Highway and Mokuola Street	Median	Left-turn lanes will be closed during construction of foundations and columns. Through lanes will remain open
Farrington Highway and Awamoku Street	Median	Left-turn lanes will be closed during construction of foundations and columns. Through lanes will remain open
Farrington Highway and Paiwa Street	Median	Left-turn lanes will be closed during construction of foundations and columns. Through lanes will remain open
Farrington Highway and Kahualii Street	Transition to roadside	Transitioning to makai side of road. Left turn lanes will be closed during construction and through lanes will be shifted curb side, both directions.
Farrington Highway and H-1/ H-2 Freeway Crossing	Median	Contractor will work in the median of H-1 for foundation & column placement. Some lanes of H-1 will be closed periodically during non-peak hours for span erection.
Kamehameha Highway (entire length)	Median	It is proposed that one through lane in the Koko Head direction be closed.
Kamehameha Highway and Acacia Road	Median	It is proposed that one left-turn lane in each direction be closed during construction.
Kamehameha Highway and Waimano Home Road/Lehua Avenue	Median	It is proposed that one Koko Head-bound left-turn lane be closed during construction.
Kamehameha Highway and Pu'u Momi Street	Median	It is proposed that the Koko Head-bound left-turn lane be open during construction.
Kamehameha Highway unsignalized midblock left turns between Pu'u Momi Street and Pu'u Poni Street	Median	It is proposed that the median openings (two) be closed during construction.
Kamehameha Highway and Pu'u Poni Street	Median	It is proposed that the Koko Head-bound left-turn lane be open during construction.

Table 7-5: Construction-related Effects on the Waipahu to Aloha Stadium Segment (continued)

Intersection/Roadway Segment	Column Placement	Effects
Kamehameha Highway unsignalized midblock left turn between Pu'u Poni Street and Kuleana Road	Median	It is proposed that the median opening (to HECO) be closed during construction.
Kamehameha Highway and Kuleana Road	Median	It is proposed that both the 'Ewa and Koko Head-bound left-turn lanes be open during construction.
Kamehameha Highway unsignalized midblock left turn between Kuleana Road and Kaluamoi Place	Median	It is proposed that the median opening be closed during construction.
Kamehameha Highway and Kaluamoi Drive	Median	It is proposed that the median opening be closed, restricting the 'Ewa-bound left-turn lane during construction.
Kamehameha Highway and Ka'ahumanu Street	Median	It is proposed that the 'Ewa-bound left-turn lane be closed during construction.
Kamehameha Highway and Hekaha Street	Median	It is proposed that one 'Ewa-bound left-turn lane be closed during construction.
Kamehameha Highway and Kanuku Street	Median	It is proposed that one 'Ewa-bound left-turn lane be closed during construction.
Kamehameha Highway and Kaonohi Street	Median	It is proposed that one Koko Head-bound left-turn lane be closed during construction.
Kamehameha Highway and Lipoa Place	Median	It is proposed that the median opening be closed, restricting the 'Ewa-bound left-turn lane during construction.
Kamehameha Highway and Pali Momi Street ('Ewa)	Median	It is proposed that one Koko Head-bound left-turn lane be closed during construction.
Kamehameha Highway and 'Aiea Kai Place	Median	It is proposed that the median opening be closed, restricting the 'Ewa-bound left-turn lane during construction.
Kamehameha Highway and McGrew Loop./Honomanu Street	Median	It is proposed that the Koko Head-bound left-turn lane be closed during construction.
Kamehameha Highway and Entrance to Boathouse	Median	It is proposed that the median opening be closed, restricting the 'Ewa-bound left-turn lane during construction.

Table 7-6: 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.

Table 7-6: Construction-related Effects on the Aloha Stadium to Middle Street Segment (continued)

Intersection/Roadway Segment	Column Placement	Effects
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 Hālawa 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
Aolele Street and Lagoon Drive	Roadside	Right-turn onto Aolele Street will be closed. The through-only lane will be converted to a right-turn and through lane.

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

Intersection/Roadway Segment	Column Placement	Effects
Kamehameha Highway and Middle Street	Roadside/ Median	It is proposed that two ‘Ewa-bound, one Koko Head-bound, and left-turn lanes be closed during construction of columns.
Kamehameha Highway and Gaspro	Median	It is proposed that two ‘Ewa-bound, one Koko Head-bound, and left-turn lanes be closed for column construction.
Kamehameha Highway and Laumaka Street	Median	Prior to construction of columns, widening of road on the makai side will take place to accommodate a 40-foot wide construction zone for the median and guideway. It is proposed that the far right ‘Koko Head-bound lane will be closed during road widening construction. During column construction, it is proposed that one ‘Ewa-bound, one Koko Head-bound, and left-turn lanes be closed for column construction. Keep one curbside lane open in each direction.

Table 7-7: Construction-related Effects on the Middle Street to Iwilei Segment (continued)

Intersection/Roadway Segment	Column Placement	Effects
Dillingham Boulevard and Pu'uhale Road	Median	Prior to construction of columns, widening of road on the makai side will take place to accommodate a 40-foot wide construction zone for the median and guideway. It is proposed that the far right Koko Head-bound lane will be closed during road widening construction. During column construction, it is proposed that one 'Ewa-bound, one Koko Head-bound, and left-turn lanes be closed for column construction. Keep one curbside lane open in each direction.
Dillingham Boulevard and Mokauea Street	Median	Prior to construction of columns, widening of road on the makai side will take place to accommodate a 40-foot wide construction zone for the median and guideway. It is proposed that the far right Koko Head-bound lane will be closed during road widening construction. During column construction, it is proposed that one 'Ewa-bound, one Koko Head-bound, and left-turn lanes be closed for column construction. Keep one curbside lane open in each direction.
Dillingham Boulevard and Kalihi Street	Median	Prior to construction of columns, widening of road on the makai side will take place to accommodate a 40-foot wide construction zone for the median and guideway. It is proposed that the far right Koko Head-bound lane will be closed during road widening construction. During column construction, it is proposed that one 'Ewa-bound, one Koko Head-bound, and left-turn lanes be closed for column construction. Keep one curbside lane open in each direction.
Dillingham Boulevard and McNeill Street	Median	Prior to construction of columns, widening of road on the makai side will take place to accommodate a 40-foot wide construction zone for the median and guideway. It is proposed that the far right Koko Head-bound lane will be closed during road widening construction. During column construction, it is proposed that one 'Ewa-bound, one Koko Head-bound, and left-turn lanes be closed for column construction. Keep one curbside lane open in each direction.
Dillingham Boulevard and Waiakamilo Road	Median	Prior to construction of columns, widening of road on the makai side will take place to accommodate a 40-foot wide construction zone for the median and guideway. It is proposed that the far right Koko Head-bound lane will be closed during road widening construction. During column construction, it is proposed that one 'Ewa-bound, one Koko Head-bound, and left-turn lanes be closed for column construction. Keep one curbside lane open in each direction.
Dillingham Boulevard and Kohou Street	Median	Prior to construction of columns, widening of road on the makai side will take place to accommodate a 40-foot wide construction zone for the median and guideway. It is proposed that the far right Koko Head-bound lane will be closed during road widening construction. During column construction, it is proposed that one 'Ewa-bound, one Koko Head-bound, and left-turn lanes be closed for column construction. Keep one curbside lane open in each direction.

Table 7-7: Construction-related Effects on the Middle Street to Iwilei Segment (continued)

Intersection/Roadway Segment	Column Placement	Effects
Dillingham Boulevard and Kōkea Street	Median	Prior to construction of columns, widening of road on the makai side will take place to accommodate a 40-foot wide construction zone for the median and guideway. It is proposed that the far right Koko Head-bound lane will be closed during road widening construction. During column construction, It is proposed that one ‘Ewa-bound, one Koko Head-bound, and left-turn lanes be closed for column construction. Keep one curbside lane open in each direction.
Dillingham Boulevard and Alakawa Street	Median	Prior to construction of columns, widening of road on the makai side will take place to accommodate a 40-foot wide construction zone for the median and guideway. It is proposed that the far right Koko Head-bound lane will be closed during road widening construction. During column construction, it is proposed that one ‘Ewa-bound, one Koko Head-bound, and left-turn lanes be closed for column construction. Keep one curbside lane open in each direction.
Dillingham Boulevard and Costco Rear Parking	Median	Prior to construction of columns, widening of road on the makai side will take place to accommodate a 40-foot wide construction zone for the median and guideway. It is proposed that the far right Koko Head-bound lane will be closed during road widening construction. During column construction, it is proposed that one ‘Ewa-bound, one Koko Head-bound, and left-turn lanes be closed for column construction. Keep one curbside lane open in each direction.
Dillingham Boulevard and King Street	Roadside	It is proposed that the mauka bound right-turn lane be closed during construction. Plan to convert through/right-turn lane into a right-turn only lane.
Dillingham Boulevard and Ka‘aahi Street	Roadside	It is proposed that the mauka bound curbside lane be closed during construction.

Table 7-8: Construction Related Effects on Iwilei to Ala Moana Center Segment

Intersection/Roadway Segment	Column Placement	Effects
Nimitz Highway and River Street	Median	It is proposed that one travel lane and one bike lane in each direction be closed during construction. During off-peak travel hours, additional lane closure may be necessary for delivery of materials.
Nimitz Highway and Kekaulike Street	Median	It is proposed that one travel lane and one bike lane in each direction be closed during construction.
Nimitz Highway and Maunakea Street	Median	It is proposed that one travel lane and one bike lane in each direction be closed during construction.
Nimitz Highway and Smith Street	Median	It is proposed that one travel lane and one bike lane in each direction be closed during construction. Close mauka bound left-turn lanes.
Nimitz Highway and Nu‘uanu Avenue	Median	It is proposed that one travel lane and one bike lane in each direction be closed during construction.

Table 7-8: Construction-related Effects on the Iwilei to Ala Moana Center Segment (continued)

Intersection/Roadway Segment	Column Placement	Effects
Nimitz Highway and Bethel Street	Median	It is proposed that one travel lane and one bike lane in each direction be closed during construction. Close one of two mauka bound left-turn lanes.
Nimitz Highway and Fort Street	Median	It is proposed that one travel lane and one bike lane in each direction be closed during construction.
Ala Moana Boulevard and Bishop Street	Median	It is proposed that one Koko Head-bound traffic lane be detoured makai onto Bishop Street then to Aloha Tower Drive.
Ala Moana Boulevard and Alakea Street	Median	It is proposed that one Koko Head-bound traffic lane be detoured makai onto Bishop Street then to Aloha Tower Drive. Close mauka bound left-turn lane.
Ala Moana Boulevard and Halekauwila Street	Median	It is proposed that one Koko Head-bound traffic lane be detoured makai onto Bishop Street then to Aloha Tower Drive. Close mauka bound left-turn lane.
Halekauwila Street and Punchbowl Street	Median	It is proposed that Koko Head bound traffic between Ala Moana Boulevard and Punchbowl Street be closed and that Halekauwila Street between Punchbowl Street and Ward Avenue temporarily become a one-way street.
Halekauwila Street and South Street	Median	It is proposed that that Halekauwila Street between Punchbowl Street and Ward Avenue temporarily become a one-way street.
Halekauwila Street and Keawe Street	Median	It is proposed that that Halekauwila Street between Punchbowl Street and Ward Avenue temporarily become a one-way street.
Halekauwila Street and Coral Street	Roadside	It is proposed that that Halekauwila Street between Punchbowl Street and Ward Avenue temporarily become a one-way street.
Halekauwila Street and Cooke Street	Roadside	It is proposed that that Halekauwila Street between Punchbowl Street and Ward Avenue temporarily become a one-way street.
Halekauwila Street and Kō‘ula Street	Median	It is proposed that that Halekauwila Street between Punchbowl Street and Ward Avenue temporarily become a one-way street.
Halekauwila Street and ‘Āhui Street	Median	It is proposed that that Halekauwila Street between Punchbowl Street and Ward Avenue temporarily become a one-way street.
Halekauwila Street and Ward Avenue	Median	It is proposed that that Halekauwila Street between Punchbowl Street and Ward Avenue temporarily become a one-way street.
Queen Street and Kamake‘e Street	Roadside/Median	It is proposed that parking be restricted and traffic be shifted to curbsides.
Queen Street and Waimanu Street	Roadside/Median	It is proposed that that parking be restricted and traffic be shifted to curbsides

Table 7-8: Construction-related Effects on the Iwilei to Ala Moana Center Segment (continued)

Intersection/Roadway Segment	Column Placement	Effects
Kona Street and Pensacola Street	Roadside	It is proposed that all ʻEwa bound travel lanes be closed.
Kona Street and Piʻikoi Street	Roadside/Median	It is proposed that all ʻEwa bound travel lanes be closed.
Kona Street and Kona Iki Street	Roadside/Median	It is proposed that all ʻEwa bound travel lanes be closed.

8 Future Build Alternatives Plus Planned Extensions Conditions and Performance

The information contained in this section of Addendum 02 updates Section 8 information from the Transportation Technical Report in regards to the preferred alternative as discussed in the Final EIS. Only information relating to the Airport Alternative (Project) has been updated for this Addendum.

Change	The following is a modification of and replaces **Table 8-1—Daily Transit Boardings—2030 Build Alternatives Plus Planned Extensions**

Table 8-1: Daily Transit Boardings—2030 Build Alternatives Plus Planned Extensions

Alternative	Fixed Guideway Boardings	Total Transit Boardings
2030 No Build	N/A	314,100
Airport Alternative	116,300	453,400
% Change from No Build		*44%*
Airport Alternative plus planned extensions	148,300	460,300
% Change from No Build		*47%*
% Change from Project	*28%*	

Change	The following is a modification of and replaces **Table 8-3—Total Daily Fixed Guideway Ridership—2030 Airport Alternative Plus Planned Extensions**

Table 8-3: Total Daily Fixed Guideway Ridership—2030 Airport Alternative Plus Planned Extensions

Station Name	Koko Head-Bound			'Ewa-Bound		
	Boardings	Alightings	Between Stations	Boardings	Alightings	Between Stations
Planned Extension to West Kapolei						
West Kapolei	4,860	-	4,860	-	4,860	-
Kapolei Transit Center	1,950	50	6,760	50	1,950	4,860
Kalaeloa	790	320	7,230	320	790	6,760
Fort Barrette Road	170	90	7,310	90	170	7,230
Kapolei Parkway	2,570	380	9,500	380	2,570	7,310

Table 8-3: Total Daily Fixed Guideway Ridership—2030 Airport Alternative Plus Planned Extensions (continued)

Station Name	Koko Head-Bound			ʻEwa-Bound		
	Boardings	Alightings	Between Stations	Boardings	Alightings	Between Stations
Airport Alternative						
East Kapolei	1,750	210	11,040	210	1,750	9,500
UH West Oʻahu	5,480	440	16,080	440	5,480	11,040
Hoʻopili	1,420	530	16,970	530	1,420	16,080
West Loch	4,380	780	20,570	780	4,380	16,970
Waipahu Transit Center	2,570	730	22,410	730	2,570	20,570
Leeward Community College	2,050	1,200	23,260	1,200	2,050	22,410
Pearl Highlands	8,710	2,310	29,660	2,310	8,710	23,260
Pearlridge	4,290	1,860	32,090	1,860	4,290	29,660
Aloha Stadium (Kamehameha Highway)	3,210	970	34,330	970	3,210	32,090
Pearl Harbor Naval Base	3,320	2,370	35,280	2,370	3,320	34,330
Honolulu International Airport	3,460	2,400	36,340	2,400	3,460	35,280
Lagoon Drive	2,470	1,570	37,240	1,570	2,470	36,340
Middle Street	1,380	1,720	36,900	1,720	1,380	37,240
Kalihi	2,350	1,770	37,480	1,770	2,350	36,900
Kapālama	1,460	1,410	37,530	1,410	1,460	37,480
Iwilei	1,660	1,780	37,410	1,780	1,660	37,530
Chinatown	1,320	1,040	37,690	1,040	1,320	37,410
Downtown	4,980	7,820	34,850	7,820	4,980	37,690
Civic Center	1,600	3,060	33,390	3,060	1,600	34,850
Kakaʻako	1,280	2,900	31,770	2,900	1,280	33,390
Ala Moana Center	2,420	6,400	27,790	6,400	2,420	31,770
Convention Center	1,830	3,210	26,410	3,210	1,830	27,790
Planned Extension to UH Mānoa						
From Convention Center			13,460			
McCully	120	910	12,670	910	120	13,460
Date Street	120	1,820	10,970	1,820	120	12,670
Mōʻiliʻili	20	3,770	7,220	3,770	20	10,970
UH Mānoa	-	7,220	-	7,220	-	7,220
Planned Extension to Waikīkī						
From Convention Center			12,950			
Kālaimoku Street	170	6,700	6,420	6,700	170	12,950
Liliʻuokalani Avenue	-	6,420	-	6,420	-	6,420
Totals	*74,160*	*74,160*		*74,160*	*74,160*	

Change	The following is a modification of and replaces **Table 8-6—A.M. Two-Hour Peak-Period Fixed Guideway Ridership—2030 Airport Alternative Plus Planned Extensions**

Table 8-6: A.M. Two-Hour Peak-Period Fixed Guideway Ridership—2030 Airport Alternative Plus Planned Extensions

Station Name	Koko Head-Bound			ʻEwa-Bound		
	Boardings	Alightings	Between Stations	Boardings	Alightings	Between Stations
Planned Extension to West Kapolei						
West Kapolei	1030	0	1030	0	500	0
Kapolei Transit Center	570	20	1580	0	490	500
Kalaeloa	160	60	1680	40	130	990
Fort Barrette Road	30	10	1700	10	30	1080
Kapolei Parkway	1410	20	3090	210	150	1100
Airport Alternative						
East Kapolei	750	20	3820	50	130	1040
UH West Oʻahu	2480	50	6250	90	330	1120
Hoʻopili	740	50	6940	160	60	1360
West Loch	1870	200	8610	130	470	1260
Waipahu Transit Center	900	120	9390	250	240	1600
Leeward Community College	150	300	9240	40	410	1590
Pearl Highlands	5070	290	14020	870	230	1960
Pearlridge	1170	670	14520	230	490	1320
Arizona Memorial	1090	220	15390	280	210	1580
Pearl Harbor Naval Base	440	910	14920	120	540	1510
Honolulu International Airport	290	740	14470	100	360	1930
Lagoon Drive	390	560	14300	100	360	2190
Middle Street	320	450	14170	320	180	2450
Kalihi	300	580	13890	160	350	2310
Kapālama	140	520	13510	60	250	2500
Iwilei	350	540	13320	320	240	2690
Chinatown	90	370	13040	80	220	2610
Downtown	660	3270	10430	520	910	2750
Civic Center	140	1180	9390	190	310	3140
Kakaʻako	170	750	8810	250	190	3260
Ala Moana Center	130	1600	7340	490	390	3200
Convention Center	130	650	6820	380	160	3100

Table 8-6: A.M. Two-Hour Peak-Period Fixed Guideway Ridership—2030 Airport Alternative Plus Planned Extensions (continued)

Station Name	Koko Head-Bound			ʻEwa-Bound		
	Boardings	Alightings	Between Stations	Boardings	Alightings	Between Stations
Planned Extension to UH Mānoa						
From Convention Center			3500			
McCully	30	120	3500	270	20	1740
Date Street	20	520	3410	370	20	1490
Mōʻiliʻili	10	730	2910	950	0	1140
UH Mānoa	0	2190		190	0	190
Planned Extension to Waikīkī						
From Convention Center			3320			
Kālaimoku Street	0	2020	1300	480	20	1140
Liliʻuokalani Avenue	0	1300		680	0	680
Totals	*21,030*	*21,030*		*8,390*	*8,390*	

Change	The following are modifications of and replace **Table 8-9—TheBus Routes serving Kapolei Stations—Existing and Build Alternatives, including Planned Extensions** **Table 8-10—TheBus Routes serving West Loch to Pearlridge Station—Existing and Build Alternatives, including Planned Extensions** **Table 8-11—TheBus Routes serving Aloha Stadium to Ala Liliko'i Station—Existing and Build Alternatives, including Planned Extensions** **Table 8-12—TheBus Routes serving Middle Street to Kapālama Station—Existing and Build Alternatives, including Planned Extensions** **Table 8-13—TheBus Routes and Bus Passenger Boardings—Iwilei to Ala Moana Shopping Center Station—Existing and Build Alternatives, including Planned Extensions** **Table 8-14—TheBus Routes serving UH Mānoa Planned Extension Stations—Existing and Build Alternatives** **Table 8-15—TheBus Routes serving Waikīkī Planned Extension Stations—Existing and Build Alternatives**

Table 8-9: TheBus Routes Serving Kapolei Stations—Existing and Build Alternatives, including Planned Extensions

Fixed Guideway Station Locations	2007 Existing Conditions	Airport Alternative	Airport Alternative plus Extensions
West Kapolei (Future Station)	No current routes.	N/S; C, 40A, 416	C, 40/A, 416
Kapolei Transit Center (Future Station)	C, 40/A, 41, 93A, 411, 412, 413, 414, 415	N/S; C, 40/A, 41, 411, 412, 413, 414, 415, 416, 417, 418, 419	C, 40/A, 41, 411, 412, 413, 414, 415, 416, 417, 418, 419
Kalaeloa (Future Station)	No current routes.	N/S; 418	418
Fort Barrette Road (Future Station)	No current routes.	N/S; 418	418
Kapolei Parkway (Future Station)	No current routes.	N/S; 41, 421, 422	41, 421, 422
East Kapolei	No current routes.	C, 41, 416, 411/417, 418, 421, 422	C, 41, 417, 421, 422
UH West O'ahu	No current routes.	C, 41, 93, 411/417, 419, 421	C, 41, 93, 417, 421
Ho'opili	No current routes.	421	421

N/S—No Station

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 8-10: TheBus Routes serving West Loch to Pearlridge Station—Existing and Build Alternatives, including Planned Extensions

Fixed Guideway Station Locations	2007 Existing Conditions	Airport Alternative	Airport Alternative plus Extensions
West Loch	A, E, 40/A, 42, 44, 201, 432, 434	40/A, 42, 98A, 415, 421, 422, 432, 434	40/A, 42, 98A, 415, 421, 422, 432, 434
Waipahu Transit Center	A, E, 40/A, 42, 43, 201, 432, 433, 434	40/A, 42, 50, 432, 433, 434	40/A, 42, 50, 432, 433, 434
Leeward Community College	73 on limited schedule (7:36 AM to 2:35 PM)	No routes	No routes
Pearl Highlands	A, 40/A, 42, 62, 73	D, 40/A, 51, 83/A, 84/A, 98, 441	D, 40/A, 51, 83/A, 84/A, 98, 441
Pearlridge	A, 11, 20, 32, 40/A, 42, 53, 54, 62, 71, 90	40/A, 51, 54, 541, 542, 543, 544, 545, 546, 547, 548	40/A, 51, 54, 541, 542, 543, 544, 545, 546, 547, 548

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 8-11: TheBus Routes serving Aloha Stadium to Ala Liliko'i Station—Existing and Build Alternatives, including Planned Extensions

Fixed Guideway Station Locations	2007 Existing Conditions	Airport Alternative	Airport Alternative plus Extensions
Aloha Stadium	A, 11, 20, 32, 40/A, 42, 62, 74	40/A, 301, 312, 314, 315, 541	40/A, 301, 312, 314, 315, 541
Pearl Harbor Naval Base	9, 11, 20, 40/A, 42, 62, 86/A, 95	40/A, 313, 314	40/A, 313, 314
Honolulu International Airport	19, 20, 31	19, 302, 311	19, 302, 311
Lagoon Drive	No current service, routes operate on Nimitz Highway	31, 306 (19 and 40A on Nimitz Highway)	31, 306 19 and 40A on Nimitz Highway)
Ala Liliko'i	3 (one long block away) 32	N/S; 301, 311 plus 31 one long block away	N/S; 301, 311 plus 31 one long block away

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 8-12: TheBus Routes serving Middle Street to Kapālama Station—Existing and Build Alternatives, including Planned Extensions

Station	2007 Existing Conditions	Airport Alternative	Airport Alternative plus Extensions
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	1, 2, 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	40/A, 52, 85/A, 86/A, 305
Kapālama	C, 9, 40/A, 42, 43, 52, 62	40/A, 52	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 8-13: TheBus Routes and Bus Passenger Boardings—Iwilei to Ala Moana Shopping Center Station—Existing and Build Alternatives, including Planned Extensions

Fixed Guideway Station Locations	2007 Existing Conditions	Airport Alternative	Airport Alternative plus Extensions
Iwilei	No routes directly serve this location. Routes on King & Iwilei	2, 13, 40/A, 52, 54 (plus others on King Street or Iwilei Road)	2, 13, 40/A, 52, 54 (plus others on King Street or Iwilei Road)
Chinatown	Not directly served by transit due to proximity of Hotel and King Transit Streets		
Downtown	E, 88A, 19, 20, 55, 56, 57, 65	17, 19, 55, 56, 57, 57A, 65, 88A	17, 19, 55, 56, 57, 57A, 65, 88A
Civic Center	6, 42, 85/A, 88, 89	6, 13, 88, 89	6, 13, 88, 89
Kaka'ako	6	6	6
Ala Moana Center	C, 5, 6, 8, 17, 18, 19, 20, 23, 40/A, 43, 52, 53, 55, 56, 57/A, 62, 65, 88A (A, 3, 9 on Kapi'olani; E, 42, 98A on Ala Moana Blvd.)	5, 6, 7, 8, 9, 17, 18, 23, 40/A, 52, 88A (A, 3 on Kapi'olani; 19 on Ala Moana Blvd.)	5, 6, 8, 17, 18, 23, 40/A, 52, 88A (3 on Kapi'olani; 19 on Ala Moana Blvd.)

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 8-14: TheBus Routes serving UH Mānoa Planned Extension Stations—Existing and Build Alternatives

Fixed Guideway Station Locations	2007 Existing Conditions	Airport Alternative	Airport Alternative plus Extensions
Convention Center (Future Station)	A, B, 2, 3, 9, 13	N/S; A, 2/B, 3, 7, 9	2, 3
McCully (Future Station)	A, 3, 4, 9	N/S; A, 3, 7, 9, 18	3, 9, 18
Date Street (Future Station)	A, 4	N/S; A, 7, 18	9, 18
Mō'ili'ili (Future Station)	A, F2, 1, 1L, 4, 6	N/S; A, 1, 1L, 6, 7, 18	1, 1L, 6, 18
UH Mānoa (Future Station)	No routes directly serve this station site; although routes do serve the University.		

N/S—No Station

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 8-15: TheBus Routes serving Waikīkī Planned Extension Stations—Existing and Build Alternatives

Fixed Guideway Station Locations	2007 Existing Conditions	Airport Alternative	Airport Alternative plus Extensions
Kālaimoku Street (Future Station)	B, E, F3, 2, 4, 8, 13, 19, 20, 22, 23, 42, 98A, 201, 202, 203	N/S; 2/B, 4, 8, 18, 19, 22, 23	2, 4, 8, 19, 22, 23
Lili'uokalani Avenue (Future Station)	B, E, F3, 2, 4, 8, 13, 19, 20, 22, 23, 42, 98A, 201, 202, 203	N/S; 2/B, 4, 8, 19, 22, 23	2, 4, 8, 19, 22, 23

N/S—No Station

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

Add	The following is a supplement to and is added after the last paragraph of **Section 8.3—Streets and Highways**

As shown in Table A2-10, the planned extensions would reduce VMT, VHT, and VHD compared to the Project alone. The planned West Kapolei and Kapolei Parkway Stations would both have park-and-ride facilities. Neither park-and-ride facility would affect local traffic operations.

Other cumulative effects could include removing additional on-street and off-street parking spaces to accommodate the fixed guideway structure, some adjustments to

widths of travel lanes, and possible spillover parking effects at stations without park-and-ride facilities. With the extensions, spillover parking effects would be reduced at Project stations as demand would become more dispersed.

Table A2-10: Vehicle Miles Traveled, Vehicle Hours Traveled, and Vehicle Hours of Delay—2030 Planned Extensions

Alternative	Daily VMT	Daily VHT	Daily VHD
Project	13,049,000	383,800	85,800
Project with planned extensions	12,989,900	381,100	84,400

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).

Appendix A
LOS Thresholds

No Change

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

Change	Replace Appendix B in its entirety

Feeder Bus Routes and Peak Period Service Levels at Fixed Guideway Stations

Fixed Guideway Station Locations	Alternative							
	2030 No Build	2018 First Project (Via Salt Lake)	2018 First Project (Via Airport)	2030 First Project (Via Salt Lake)	2030 First Project (Via Airport)	2030 Full Project (Via Salt Lake)	2030 Full Project (Via Airport)	2030 Full Project (Via Airport & Salt Lake)
West Kapolei								
Routes	No Station; C, 40/A, 416	No Station; C, 40/A, 416	No Station; C, 40/A, 416	No Station; C, 40/A, 416	No Station; C, 40/A, 416	C, 40/A, 416	C, 40/A, 416	C, 40/A, 416
Number of Buses in Peak Hour	C-3 ea dir via H1 to Kalaeloa to Kapolei Pkwy	C-3 ea dir via H1 to Kalaeloa to Kapolei Pkwy	C-3 ea dir via H1 to Kalaeloa to Kapolei Pkwy	C-3 ea dir via H1 to Kalaeloa to Kapolei Pkwy	C-3 ea dir via H1 to Kalaeloa to Kapolei Pkwy	C-3 ea dir via H1 to Kalaeloa to Kapolei Pkwy	C-3 ea dir via H1 to Kalaeloa to Kapolei Pkwy	C-3 ea dir via H1 to Kalaeloa to Kapolei Pkwy
	40/40A-3 ea dir via H1 to Kalaeloa to Kapolei Pkwy	40/40A-4 ea dir via H1 to Kalaeloa to Kapolei Pkwy	40/40A-4 ea dir via H1 to Kalaeloa to Kapolei Pkwy	40/40A-4 ea dir via H1 to Kalaeloa to Kapolei Pkwy	40/40A-4 ea dir via H1 to Kalaeloa to Kapolei Pkwy	40/40A-4 ea dir via H1 to Kalaeloa to Kapolei Pkwy	40/40A-4 ea dir via H1 to Kalaeloa to Kapolei Pkwy	40/40A-4 ea dir via H1 to Kalaeloa to Kapolei Pkwy
	416-2 ea dir via Ali‘inui to Kapolei Pkwy	416-2 ea dir via Ali‘inui to Kapolei Pkwy	416-2 ea dir via Ali‘inui to Kapolei Pkwy	416-6 ea dir via Ali‘inui to Kapolei Pkwy	416-6 ea dir via Ali‘inui to Kapolei Pkwy	416-6 ea dir via Ali‘inui to Kapolei Pkwy	416-6 ea dir via Ali‘inui to Kapolei Pkwy	416-6 ea dir via Ali‘inui to Kapolei Pkwy
Kapolei Transit Center								
Routes	No Station; C, 40/A, 41, 50, 93A, 411, 413, 414, 415, 416, 417, 418, 419	No Station; C, 40/A, 41, 411, 413, 414, 415, 416, 417, 418	No Station; C, 40/A, 41, 411, 413, 414, 415, 416, 417, 418	No Station; C, 40/A, 41, 411, 413, 414, 415, 416, 417, 418, 419	No Station; C, 40/A, 41, 411, 413, 414, 415, 416, 417, 418, 419	C, 40/A, 41, 411, 413, 414, 415, 416, 417, 418, 419	C, 40/A, 41, 411, 413, 414, 415, 416, 417, 418, 419	C, 40/A, 41, 411, 413, 414, 415, 416, 417, 418, 419
Number of Buses in Peak Hour	C-3 ea dir via Kapolei Pkwy	C-3 ea dir via Kapolei Pkwy	C-3 ea dir via Kapolei Pkwy	C-3 ea dir via Kapolei Pkwy	C-3 ea dir via Kapolei Pkwy	C-3 ea dir via Kapolei Pkwy	C-3 ea dir via Kapolei Pkwy	C-3 ea dir via Kapolei Pkwy
	40/40A-3 EB via Kamokila to Wākea to TC; 3 WB via Kapolei Pkwy to TC	40/40A-4 EB via Kamokila to Wākea to TC; 4 WB via Kapolei Pkwy to TC	40/40A-4 EB via Kamokila to Wākea to TC; 4 WB via Kapolei Pkwy to TC	40/40A-4 EB via Kamokila to Wākea to TC; 4 WB via Kapolei Pkwy to TC	40/40A-4 EB via Kamokila to Wākea to TC; 4 WB via Kapolei Pkwy to TC	40/40A-4 EB via Kamokila to Wākea to TC; 4 WB via Kapolei Pkwy to TC	40/40A-4 EB via Kamokila to Wākea to TC; 4 WB via Kapolei Pkwy to TC	40/40A-4 EB via Kamokila to Wākea to TC; 4 WB via Kapolei Pkwy to TC
	41-terminus-2 ea dir via Farrington to Kamokila to Wākea to TC	41-terminus-4 ea dir via Farrington to Kamokila to Wākea to TC	41-terminus-4 ea dir via Farrington to Kamokila to Wākea to TC	41-terminus-4 ea dir via Farrington to Kamokila to Wākea to TC	41-terminus-4 ea dir via Farrington to Kamokila to Wākea to TC	41-terminus-4 ea dir via Farrington to Kamokila to Wākea to TC	41-terminus-4 ea dir via Farrington to Kamokila to Wākea to TC	41-terminus-4 ea dir via Farrington to Kamokila to Wākea to TC
	50-terminus-2 ea dir via Farrington to Kamokila to Wākea to TC	411-terminus-4 ea dir via Farrington to Kamokila to Wākea to TC	411-terminus-4 ea dir via Farrington to Kamokila to Wākea to TC	411-terminus-6 ea dir via Farrington to Kamokila to Wākea to TC	411-terminus-6 ea dir via Farrington to Kamokila to Wākea to TC	411-terminus-6 ea dir via Farrington to Kamokila to Wākea to TC	411-terminus-6 ea dir via Farrington to Kamokila to Wākea to TC	411-terminus-6 ea dir via Farrington to Kamokila to Wākea to TC
	93A-1 trip EB	413-terminus-2 ea dir via Kalaeloa to Kapolei Pkwy to TC	413-terminus-2 ea dir via Kalaeloa to Kapolei Pkwy to TC	413-terminus-2 ea dir via Kalaeloa to Kapolei Pkwy to TC	413-terminus-2 ea dir via Kalaeloa to Kapolei Pkwy to TC	413-terminus-2 ea dir via Kalaeloa to Kapolei Pkwy to TC	413-terminus-2 ea dir via Kalaeloa to Kapolei Pkwy to TC	413-terminus-2 ea dir via Kalaeloa to Kapolei Pkwy to TC
	411-terminus-2 ea dir via Farrington to Kamokila to Wākea to TC	414-terminus-2 ea dir via Farrington to Kamokila to Wākea to TC	414-terminus-2 ea dir via Farrington to Kamokila to Wākea to TC	414-terminus-2 ea dir via Farrington to Kamokila to Wākea to TC	414-terminus-2 ea dir via Farrington to Kamokila to Wākea to TC	414-terminus-2 ea dir via Farrington to Kamokila to Wākea to TC	414-terminus-2 ea dir via Farrington to Kamokila to Wākea to TC	414-terminus-2 ea dir via Farrington to Kamokila to Wākea to TC
	413-terminus-2 ea dir via Kalaeloa to Kapolei Pkwy to TC	415-terminus-2 NB via Wākea; 4 SB via Wākea	415-terminus-2 NB via Wākea; 4 SB via Wākea	415-terminus-4 NB via Wākea; 4 SB via Wākea	415-terminus-4 NB via Wākea; 4 SB via Wākea	415-terminus-4 NB via Wākea; 4 SB via Wākea	415-terminus-4 NB via Wākea; 4 SB via Wākea	415-terminus-4 NB via Wākea; 4 SB via Wākea
	414-terminus-2 ea dir via Farrington to Kamokila to Wākea to TC	416-2 ea dir via Ali‘inui to Kapolei Pkwy to Wākea	416-2 ea dir via Ali‘inui to Kapolei Pkwy to Wākea	416-6 ea dir via Ali‘inui to Kapolei Pkwy to Wākea	416-6 ea dir via Ali‘inui to Kapolei Pkwy to Wākea	416-terminus-6 ea dir via Ali‘inui to Kapolei Pkwy to Wākea	416-terminus-6 ea dir via Ali‘inui to Kapolei Pkwy to Wākea	416-terminus-6 ea dir via Ali‘inui to Kapolei Pkwy to Wākea
	415-terminus-2 NB via Wākea; 2 SB via Wākea	417-terminus-4 ea dir via N/S Rd to Kapolei Pkwy to TC	417-terminus-4 ea dir via N/S Rd to Kapolei Pkwy to TC	417-terminus-6 ea dir via N/S Rd to Kapolei Pkwy to TC	417-terminus-6 ea dir via N/S Rd to Kapolei Pkwy to TC	417-terminus-6 ea dir via N/S Rd to Kapolei Pkwy to TC	417-terminus-6 ea dir via N/S Rd to Kapolei Pkwy to TC	417-6 ea dir via N/S Rd to Kapolei Pkwy to TC

Feeder Bus Routes and Peak Period Service Levels at Fixed Guideway Stations

Fixed Guideway Station Locations	Alternative							
	2030 No Build	2018 First Project (Via Salt Lake)	2018 First Project (Via Airport)	2030 First Project (Via Salt Lake)	2030 First Project (Via Airport)	2030 Full Project (Via Salt Lake)	2030 Full Project (Via Airport)	2030 Full Project (Via Airport & Salt Lake)
	416-terminus-2 ea dir via Ali'inui to Kapolei Pkwy to Wākea 417-terminus-2 ea dir via N/S Rd to Kapolei Pkwy to TC 418-terminus-2 EB via Kalaeloa to Kapolei Pkwy to TC; 2 WB via Wākea to Kamokila to Farrington 419-terminus-2 ea dir via Farrington to Kamokila to Wākea	418-terminus-2 EB via Kalaeloa to Kapolei Pkwy to TC; 2 WB via Wākea to Kamokila to Farrington	418-terminus-2 EB via Kalaeloa to Kapolei Pkwy to TC; 2 WB via Wākea to Kamokila to Farrington	418-terminus-2 EB via Kalaeloa to Kapolei Pkwy to TC; 2 WB via Wākea to Kamokila to Farrington 419-6 ea dir via Farrington to Kamokila to Wākea	418-terminus-2 EB via Kalaeloa to Kapolei Pkwy to TC; 2 WB via Wākea to Kamokila to Farrington 419-6 ea dir via Farrington to Kamokila to Wākea	418-terminus-2 EB via Kalaeloa to Kapolei Pkwy to TC; 2 WB via Wākea to Kamokila to Farrington 419-6 ea dir via Farrington to Kamokila to Wākea	418-terminus-2 EB via Kalaeloa to Kapolei Pkwy to TC; 2 WB via Wākea to Kamokila to Farrington 419-terminus-6 ea dir via Farrington to Kamokila to Wākea	418-2 EB via Kalaeloa to Kapolei Pkwy to TC; 2 WB via Wākea to Kamokila to Farrington 419-terminus-6 ea dir via Farrington to Kamokila to Wākea
Kalaeloa								
Routes	No Station; 418	No Station; 418	No Station; 418	No Station; 418	No Station; 418	418	418	418
Number of Buses in Peak Hour	418-2	418-2	418-2	418-2	418-2	418-2	418-2	418-2
Fort Barrette Road								
Routes	No Station; 418	No Station; 418	No Station; 418	No Station; 418	No Station; 418	418	418	418
Number of Buses in Peak Hour	418-2	418-2	418-2	418-2	418-2	418-2	418-2	418-2
Kapolei Parkway								
Routes	No Station; 41, 421, 422, 423	No Station; 41, 421, 422	No Station; 41, 421, 422	No Station; 41, 421, 422	No Station; 41, 421, 422	41, 421, 422	41, 421, 422	41, 421, 422
Number of Buses in Peak Hour	41-2 ea dir via Kapolei Pkwy/N/S Rd 421-2 ea dir via N/S Road 422-2 ea dir via N/S Road. 423-1 terminates at Mall via Kapolei Pkwy/N/S Road	41-4 ea dir via Kapolei Pkwy/N/S Rd 421-4 ea dir via N/S Road 422-4 ea dir via N/S Road.	41-4 ea dir via Kapolei Pkwy/N/S Rd 421-4 ea dir via N/S Road 422-4 ea dir via N/S Road.	41-4 ea dir via Kapolei Pkwy/N/S Rd 421-4 ea dir via N/S Road 422-4 ea dir via N/S Road.	41-4 ea dir via Kapolei Pkwy/N/S Rd 421-4 ea dir via N/S Road 422-4 ea dir via N/S Road.	41-4 ea dir via Kapolei Pkwy/N/S Rd 421-4 ea dir via N/S Road 422-4 ea dir via N/S Road.	41-4 ea dir via Kapolei Pkwy/N/S Rd 421-4 ea dir via N/S Road 422-4 ea dir via N/S Road.	41-4 ea dir via Kapolei Pkwy/N/S Rd 421-4 ea dir via N/S Road 422-4 ea dir via N/S Road.

Feeder Bus Routes and Peak Period Service Levels at Fixed Guideway Stations

Fixed Guideway Station Locations	Alternative							
	2030 No Build	2018 First Project (Via Salt Lake)	2018 First Project (Via Airport)	2030 First Project (Via Salt Lake)	2030 First Project (Via Airport)	2030 Full Project (Via Salt Lake)	2030 Full Project (Via Airport)	2030 Full Project (Via Airport & Salt Lake)
East Kapolei								
Routes	No Station; C, 41, 417, 421, 422	C, 41, 416, 417, 418, 421, 422	C, 41, 416, 417, 418, 421, 422	C, 41, 416, 417, 418, 421, 422	C, 41, 416, 417, 418, 421, 422	C, 41, 417, 421, 422	C, 41, 417, 421, 422	C, 41, 417, 421, 422
Number of Buses in Peak Hour	C-3 ea dir via Kapolei Pkwy to N/S Road 41-2 N/S Road to west on E/W Road; 2 E/W Road to south on N/S Road 417-2-ea dir via N/S Road 421-2 ea dir via UHWO Road 422-2 ea dir via East/West Road to N/S Road.	C-3 ea dir via Kapolei Pkwy to N/S Road 41-4 N/S Road to west on E/W Road; 4 E/W Road to south on N/S Road 416-2-ea dir N/S Road to E/W Road to terminate at park-and-ride lot 417-4-ea dir via N/S Road 418-2-ea dir via Kapolei Pkwy to N/S Road to E/W Road to return to N/S Road to Kapolei Pkwy. 421-4 ea dir via UHWO Road 422-4 via E/W Road to south on N/S Road; 4 via N/S Road to east on E/W Road	C-3 ea dir via Kapolei Pkwy to N/S Road 41-4 N/S Road to west on E/W Road; 4 E/W Road to south on N/S Road 416-2-ea dir N/S Road to E/W Road to terminate at park-and-ride lot 417-4-ea dir via N/S Road 418-2-ea dir via Kapolei Pkwy to N/S Road to E/W Road to return to N/S Road to Kapolei Pkwy. 421-4 ea dir via UHWO Road 422-4 via E/W Road to south on N/S Road; 4 via N/S Road to east on E/W Road	C-3 ea dir via Kapolei Pkwy to N/S Road 41-4 N/S Road to west on E/W Road; 4 E/W Road to south on N/S Road 416-6-ea dir N/S Road to E/W Road to terminate at park-and-ride lot 417-6-ea dir via N/S Road 418-2-ea dir via Kapolei Pkwy to N/S Road to E/W Road to return to N/S Road to Kapolei Pkwy. 421-4 ea dir via UHWO Road 422-4 via E/W Road to south on N/S Road; 4 via N/S Road to east on E/W Road	C-3 ea dir via Kapolei Pkwy to N/S Road 41-4 N/S Road to west on E/W Road; 4 E/W Road to south on N/S Road 416-6-ea dir N/S Road to E/W Road to terminate at park-and-ride lot 417-6-ea dir via N/S Road 418-2-ea dir via Kapolei Pkwy to N/S Road to E/W Road to return to N/S Road to Kapolei Pkwy. 421-4 ea dir via UHWO Road 422-4 via E/W Road to south on N/S Road; 4 via N/S Road to east on E/W Road	C-3 ea dir via Kapolei Pkwy to N/S Road 41-4 N/S Road to west on E/W Road; 4 E/W Road to south on N/S Road 417-6-ea dir via N/S Road 421-4 ea dir via UHWO Road 422-4 via E/W Road to south on N/S Road; 4 via N/S Road to east on E/W Road	C-3 ea dir via Kapolei Pkwy to N/S Road 41-4 N/S Road to west on E/W Road; 4 E/W Road to south on N/S Road 417-6-ea dir via N/S Road 421-4 ea dir via UHWO Road 422-4 via E/W Road to south on N/S Road; 4 via N/S Road to east on E/W Road	C-3 ea dir via Kapolei Pkwy to N/S Road 41-4 N/S Road to west on E/W Road; 4 E/W Road to south on N/S Road 417-6-ea dir via N/S Road 421-4 ea dir via UHWO Road 422-4 via E/W Road to south on N/S Road; 4 via N/S Road to east on E/W Road

Feeder Bus Routes and Peak Period Service Levels at Fixed Guideway Stations

Fixed Guideway Station Locations	Alternative							
	2030 No Build	2018 First Project (Via Salt Lake)	2018 First Project (Via Airport)	2030 First Project (Via Salt Lake)	2030 First Project (Via Airport)	2030 Full Project (Via Salt Lake)	2030 Full Project (Via Airport)	2030 Full Project (Via Airport & Salt Lake)
UH West O'ahu								
Routes	No Station; A, C, 41, 50, 417, 421	C, 41, 93, 417, 421	C, 41, 93, 417, 421	C, 41, 93, 417, 419, 421	C, 41, 93, 417, 419, 421	C, 41, 93, 417, 421	C, 41, 93, 417, 421	C, 41, 93, 417, 421
Number of Buses in Peak Hour	A-terminus-4 via Farrington WB to N/S Road, terminates at UH West O'ahu; 4 EB C-3 NB via N/S Road; 3 SB via N/S Road to Kapolei Pkwy 41-2 ea dir via UHWO Road. 50-2 ea dir via UHWO Road to N/S Road 417-2 ea dir via N/S Road 421-2 ea dir via Ho'opili Main	C-terminus-3 NB via N/S Road; 3 SB via N/S Road to Kapolei Pkwy 41-4 ea dir via UHWO Road. 93 Express-terminus-4 ea dir via H-1 Interchange to N/S Road to access road to TC 417-4 SB via N/S Road to access road to TC; 4 NB via N/S Road to Ho'opili Main to TC 421-4 ea dir via Ho'opili Main	C-terminus-3 NB via N/S Road; 3 SB via N/S Road to Kapolei Pkwy 41-4 ea dir via UHWO Road. 93 Express-terminus-4 ea dir via H-1 Interchange to N/S Road to access road to TC 417-4 SB via N/S Road to access road to TC; 4 NB via N/S Road to Ho'opili Main to TC 421-4 ea dir via Ho'opili Main	C-terminus-3 NB via N/S Road; 3 SB via N/S Road to Kapolei Pkwy 41-4 ea dir via UHWO Road. 93 Express-terminus-6 ea dir via H-1 Interchange to N/S Road to access road to TC 417-6 SB via N/S Road to access road to TC; 6 NB via N/S Road to Ho'opili Main to TC 419-terminus-6 ea dir via Farrington Hwy to access road to TC 421-4 ea dir via Ho'opili Main	C-terminus-3 NB via N/S Road; 3 SB via N/S Road to Kapolei Pkwy 41-4 ea dir via UHWO Road. 93 Express-terminus-6 ea dir via H-1 Interchange to N/S Road to access road to TC 417-6 SB via N/S Road to access road to TC; 6 NB via N/S Road to Ho'opili Main to TC 419-terminus-6 ea dir via Farrington Hwy to access road to TC 421-4 ea dir via Ho'opili Main	C-terminus-3 NB via N/S Road; 3 SB via N/S Road to Kapolei Pkwy 41-4 ea dir via UHWO Road. 93 Express-terminus-6 ea dir via H-1 Interchange to N/S Road to access road to TC 417-6 SB via N/S Road to access road to TC; 6 NB via N/S Road to Ho'opili Main to TC 421-4 ea dir via Ho'opili Main	C-terminus-3 NB via N/S Road; 3 SB via N/S Road to Kapolei Pkwy 41-4 ea dir via UHWO Road. 93 Express-terminus-6 ea dir via H-1 Interchange to N/S Road to access road to TC 417-6 SB via N/S Road to access road to TC; 6 NB via N/S Road to Ho'opili Main to TC 421-4 ea dir via Ho'opili Main	C-terminus-3 NB via N/S Road; 3 SB via N/S Road to Kapolei Pkwy 41-4 ea dir via UHWO Road. 93 Express-terminus-6 ea dir via H-1 Interchange to N/S Road to access road to TC 417-6 SB via N/S Road to access road to TC; 6 NB via N/S Road to Ho'opili Main to TC 421-4 ea dir via Ho'opili Main
Ho'opili								
Routes	No Station; 421	421	421	421	421	421	421	421
Number of Buses in Peak Hour	421-2 ea dir via Ho'opili NE	421-4 ea dir via Ho'opili NE	421-4 ea dir via Ho'opili NE	421-4 ea dir via Ho'opili NE	421-4 ea dir via Ho'opili NE	421-4 ea dir via Ho'opili NE	421-4 ea dir via Ho'opili NE	421-4 ea dir via Ho'opili NE

Feeder Bus Routes and Peak Period Service Levels at Fixed Guideway Stations

Fixed Guideway Station Locations	Alternative							
	2030 No Build	2018 First Project (Via Salt Lake)	2018 First Project (Via Airport)	2030 First Project (Via Salt Lake)	2030 First Project (Via Airport)	2030 Full Project (Via Salt Lake)	2030 Full Project (Via Airport)	2030 Full Project (Via Airport & Salt Lake)
West Loch								
Routes	No Station; A, E, 40/A, 42, 50, 415, 421, 422, 432, 434	40/A, 42, 98A, 415, 421, 422, 432, 434	40/A, 42, 98A, 415, 421, 422, 432, 434	40/A, 42, 98A, 415, 421, 422, 432, 434	40/A, 42, 98A, 415, 421, 422, 432, 434	40/A, 42, 98A, 415, 421, 422, 432, 434	40/A, 42, 98A, 415, 421, 422, 432, 434	40/A, 42, 98A, 415, 421, 422, 432, 434
Number of Buses in Peak Hour	A-4 each dir on Farrington	40/A-4 ea dir via Farrington Hwy	40/A-4 ea dir via Farrington Hwy	40/A-4 ea dir via Farrington Hwy	40/A-4 ea dir via Farrington Hwy	40/A-4 ea dir via Farrington Hwy	40/A-4 ea dir via Farrington Hwy	40/A-4 ea dir via Farrington Hwy
	E-3 EB on Farrington, 2 WB on Farrington	42-4 EB via Fort Weaver Rd to Farrington; 4 WB via Farrington to Fort Weaver	42-4 EB via Fort Weaver Rd to Farrington; 4 WB via Farrington to Fort Weaver	42-6 EB via Fort Weaver Rd to Farrington; 4 WB via Farrington to Fort Weaver	42-6 EB via Fort Weaver Rd to Farrington; 4 WB via Farrington to Fort Weaver	42-6 EB via Fort Weaver Rd to Farrington; 4 WB via Farrington to Fort Weaver	42-6 EB via Fort Weaver Rd to Farrington; 4 WB via Farrington to Fort Weaver	42-6 EB via Fort Weaver Rd to Farrington; 4 WB via Farrington to Fort Weaver
	40/A-3 ea dir via Farrington Hwy	98A Express-terminus-4 EB via Kunia to Farrington.	98A Express-terminus-4 EB via Kunia to Farrington.	98A Express-terminus-4 EB via Kunia to Farrington.	98A Express-terminus-4 EB via Kunia to Farrington.	98A Express-terminus-4 EB via Kunia to Farrington.	98A Express-terminus-4 EB via Kunia to Farrington.	98A Express-terminus-4 EB via Kunia to Farrington.
	42-3 EB via Fort Weaver Rd to Farrington; 3 WB via Farrington to Fort Weaver	415-terminus-2 ea dir via Farrington to Old Fort Weaver	415-terminus-2 ea dir via Farrington to Old Fort Weaver	415-terminus-4 ea dir via Farrington to Old Fort Weaver	415-terminus-4 ea dir via Farrington to Old Fort Weaver	415-terminus-4 ea dir via Farrington to Old Fort Weaver	415-terminus-4 ea dir via Farrington to Old Fort Weaver	415-TC terminus-4 ea dir via Farrington to Old Fort Weaver
	50-2 ea dir Farrington	421-terminus-4 ea dir via Farrington to Ho'opili	421-terminus-4 ea dir via Farrington to Ho'opili	421-terminus-4 ea dir via Farrington to Ho'opili	421-terminus-4 ea dir via Farrington to Ho'opili	421-terminus-4 ea dir via Farrington to Ho'opili	421-terminus-4 ea dir via Farrington to Ho'opili	421-TC terminus-4 ea dir via Farrington to Ho'opili
	415-2 WB via Leoku, Farrington to Old Fort Weaver; 2 EB via Kunia Access, Leolua to Leoku	422-terminus-4 ea dir via Farrington to East Kapolei	422-terminus-4 ea dir via Farrington to East Kapolei	422-terminus-4 ea dir via Farrington to East Kapolei	422-terminus-4 ea dir via Farrington to East Kapolei	422-terminus-4 ea dir via Farrington to East Kapolei	422-terminus-4 ea dir via Farrington to East Kapolei	422-TC terminus-4 ea dir via Farrington to East Kapolei
	421-2 WB via Leoku to Farrington; 2 EB via Kunia Access, Leolua to Leoku	432-terminus-2 SB via Leoku; 2 NB via Kunia Access Road	432-terminus-2 SB via Leoku; 2 NB via Kunia Access Road	432-terminus-2 SB via Leoku; 2 NB via Kunia Access Road	432-terminus-2 SB via Leoku; 2 NB via Kunia Access Road	432-terminus-2 SB via Leoku; 2 NB via Kunia Access Road	432-terminus-2 SB via Leoku; 2 NB via Kunia Access Road	432-TC terminus-2 SB via Leoku; 2 NB via Kunia Access Road
	422-2 WB via Leoku to Farrington; 2 EB via Kunia Access, Leolua to Leoku	434-4 EB via Kunia Road to Farrington; 4 WB via Farrington to Kunia Access Road	434-4 EB via Kunia Road to Farrington; 4 WB via Farrington to Kunia Access Road	434-4 EB via Kunia Road to Farrington; 4 WB via Farrington to Kunia Access Road	434-4 EB via Kunia Road to Farrington; 4 WB via Farrington to Kunia Access Road	434-4 EB via Kunia Road to Farrington; 4 WB via Farrington to Kunia Access Road	434-4 EB via Kunia Road to Farrington; 4 WB via Farrington to Kunia Access Road	434-4 EB via Kunia Road to Farrington; 4 WB via Farrington to Kunia Access Road
	432-2 WB via Leoku, Farrington to Kunia Access Road							
	434-2 EB via Kunia Road to Farrington; 2 WB via Farrington to Kunia Access Road							

Feeder Bus Routes and Peak Period Service Levels at Fixed Guideway Stations

Fixed Guideway Station Locations	Alternative							
	2030 No Build	2018 First Project (Via Salt Lake)	2018 First Project (Via Airport)	2030 First Project (Via Salt Lake)	2030 First Project (Via Airport)	2030 Full Project (Via Salt Lake)	2030 Full Project (Via Airport)	2030 Full Project (Via Airport & Salt Lake)
Waipahu Transit Center								
Routes	No Station; A, E, 40/A, 42, 43, 50, 432, 433, 434	40/A, 42, 50, 432, 433, 434	40/A, 42, 50, 432, 433, 434	40/A, 42, 50, 432, 433, 434	40/A, 42, 50, 432, 433, 434	40/A, 42, 50, 432, 433, 434	40/A, 42, 50, 432, 433, 434	40/A, 42, 50, 432, 433, 434
Number of Buses in Peak Hour	A-4-ea dir E-3 EB via Farrington to TC, 2 WB via Paiwa to WTC 40/A-3 ea dir via Farrington Hwy 42/A-3 ea dir via Farrington Hwy 43-2 EB via Waipahu Depot to WTC; 2 WB Mokuola to WTC 50-2 SB via Managers Drive to WTC; 2 NB via WTC to Managers Drive 432-2 EB via Waipahu Street to Waipahu Depot Road to TC; 2 via Mokuola to Waipahu Street 433-terminus-2 EB WTC via Mokuola to Farrington Hwy; 2 WB Farrington to Waipahu Depot Rd to WTC 434-terminus-2 EB via Farrington to Waipahu Depot Road to TC; 2 WB via Mokuola to Farrington	40/A-3 ea dir via Farrington Hwy 42-terminus-4 EB via Fort Weaver Rd to Farrington; 4 WB via Farrington to Fort Weaver 50-terminus-4 SB via Managers Drive to WTC; 2 NB via TC to Managers Drive 432-2 EB via Waipahu Street to Waipahu Depot Road to TC; 2 via Mokuola to Waipahu Street 433-terminus-2 EB WTC via Mokuola to Farrington Hwy; 2 WB Farrington to Waipahu Depot Rd to WTC 434-4 EB via Farrington to Waipahu Depot Road to WTC; 4 WB via Farrington to Mokuola to WTC	40/A-3 ea dir via Farrington Hwy 42-terminus-4 EB via Fort Weaver Rd to Farrington; 4 WB via Farrington to Fort Weaver 50-terminus-4 SB via Managers Drive to WTC; 2 NB via TC to Managers Drive 432-2 EB via Waipahu Street to Waipahu Depot Road to TC; 2 via Mokuola to Waipahu Street 433-terminus-2 EB WTC via Mokuola to Farrington Hwy; 2 WB Farrington to Waipahu Depot Rd to WTC 434-4 EB via Farrington to Waipahu Depot Road to WTC; 4 WB via Farrington to Mokuola to WTC	40/A-3 ea dir via Farrington Hwy 42-terminus-6 EB via Fort Weaver Rd to Farrington; 4 WB via Farrington to Fort Weaver 50-terminus-4 SB via Managers Drive to WTC; 2 NB via TC to Managers Drive 432-2 EB via Waipahu Street to Waipahu Depot Road to TC; 2 via Mokuola to Waipahu Street 433-terminus-2 EB WTC via Mokuola to Farrington Hwy; 2 WB Farrington to Waipahu Depot Rd to WTC 434-4 EB via Farrington to Waipahu Depot Road to WTC; 4 WB via Farrington to Mokuola to WTC	40/A-3 ea dir via Farrington Hwy 42-terminus-6 EB via Fort Weaver Rd to Farrington; 4 WB via Farrington to Fort Weaver 50-terminus-4 SB via Managers Drive to WTC; 2 NB via TC to Managers Drive 432-2 EB via Waipahu Street to Waipahu Depot Road to TC; 2 via Mokuola to Waipahu Street 433-terminus-2 EB WTC via Mokuola to Farrington Hwy; 2 WB Farrington to Waipahu Depot Rd to WTC 434-4 EB via Farrington to Waipahu Depot Road to WTC; 4 WB via Farrington to Mokuola to WTC	40/A-3 ea dir via Farrington Hwy 42-terminus-6 EB via Fort Weaver Rd to Farrington; 4 WB via Farrington to Fort Weaver 50-terminus-4 SB via Managers Drive to WTC; 2 NB via TC to Managers Drive 432-2 EB via Waipahu Street to Waipahu Depot Road to TC; 2 via Mokuola to Waipahu Street 433-terminus-2 EB WTC via Mokuola to Farrington Hwy; 2 WB Farrington to Waipahu Depot Rd to WTC 434-4 EB via Farrington to Waipahu Depot Road to WTC; 4 WB via Farrington to Mokuola to WTC	40/A-3 ea dir via Farrington Hwy 42-terminus-6 EB via Fort Weaver Rd to Farrington; 4 WB via Farrington to Fort Weaver 50-terminus-4 SB via Managers Drive to WTC; 2 NB via TC to Managers Drive 432-2 EB via Waipahu Street to Waipahu Depot Road to TC; 2 via Mokuola to Waipahu Street 433-terminus-2 EB WTC via Mokuola to Farrington Hwy; 2 WB Farrington to Waipahu Depot Rd to WTC 434-4 EB via Farrington to Waipahu Depot Road to WTC; 4 WB via Farrington to Mokuola to WTC	40/A-3 ea dir via Farrington Hwy 42-terminus-6 EB via Fort Weaver Rd to Farrington; 4 WB via Farrington to Fort Weaver 50-terminus-4 SB via Managers Drive to WTC; 2 NB via TC to Managers Drive 432-2 EB via Waipahu Street to Waipahu Depot Road to TC; 2 via Mokuola to Waipahu Street 433-terminus-2 EB WTC via Mokuola to Farrington Hwy; 2 WB Farrington to Waipahu Depot Rd to WTC 434-4 EB via Farrington to Waipahu Depot Road to WTC; 4 WB via Farrington to Mokuola to WTC

Feeder Bus Routes and Peak Period Service Levels at Fixed Guideway Stations

Fixed Guideway Station Locations	Alternative							
	2030 No Build	2018 First Project (Via Salt Lake)	2018 First Project (Via Airport)	2030 First Project (Via Salt Lake)	2030 First Project (Via Airport)	2030 Full Project (Via Salt Lake)	2030 Full Project (Via Airport)	2030 Full Project (Via Airport & Salt Lake)
Leeward Community College								
Routes	No Station; 73-2 terminate at LCC	No routes	No routes	No routes	No routes	No routes	No routes	No routes
Pearl Highlands								
Routes	No Station; A, 40/A, 42, 51, 73, 441	D, 40/A, 51, 83/A, 84/A, 98, 441, 547	D, 40/A, 51, 83/A, 84/A, 98, 441, 547	D, 40/A, 51, 83/A, 84/A, 98, 441	D, 40/A, 51, 83/A, 84/A, 98, 441	D, 40/A, 51, 83/A, 84/A, 98, 441	D, 40/A, 51, 83/A, 84/A, 98, 441	D, 40/A, 51, 83/A, 84/A, 98, 441
Number of Buses in Peak Hour	A-4 each dir on Farrington	D-terminus-4 SB via H2 to direct access lane; 4 NB to H-2	D-terminus-4 SB via H2 to direct access lane; 4 NB to H-2	D-terminus-4 SB via H2 to direct access lane; 4 NB to H-2	D-terminus-4 SB via H2 to direct access lane; 4 NB to H-2	D-terminus-4 SB via H2 to direct access lane; 4 NB to H-2	D-terminus-4 SB via H2 to direct access lane; 4 NB to H-2	D-terminus-4 SB via H2 to direct access lane; 4 NB to H-2
	40/A-3 ea dir via Farrington Hwy	40/A-3 ea dir via Farrington Hwy	40/A-3 ea dir via Farrington Hwy	40/A-3 ea dir via Farrington Hwy	40/A-3 ea dir via Farrington Hwy	40/A-3 ea dir via Farrington Hwy	40/A-3 ea dir via Farrington Hwy	40/A-3 ea dir via Farrington Hwy
	42-3 ea dir via Farrington Hwy	51-4 ea dir via Kamehameha Hwy	51-4 ea dir via Kamehameha Hwy	51-4 ea dir via Kamehameha Hwy	51-4 ea dir via Kamehameha Hwy	51-4 ea dir via Kamehameha Hwy	51-4 ea dir via Kamehameha Hwy	51-4 ea dir via Kamehameha Hwy
	51-4 ea dir via Kamehameha Hwy	83/A Express-terminus-16 SB via H2 to direct access	83/A Express-terminus-16 SB via H2 to direct access	83/A Express-terminus-16 SB via H2 to direct access	83/A Express-terminus-16 SB via H2 to direct access	83/A Express-terminus-16 SB via H2 to direct access	83/A Express-terminus-16 SB via H2 to direct access	83/A Express-terminus-16 SB via H2 to direct access
	73-2 ea direction on Farrington to LCC	84/A Express-terminus-8 SB via H2 to direct access	84/A Express-terminus-8 SB via H2 to direct access	84/A Express-terminus-8 SB via H2 to direct access	84/A Express-terminus-8 SB via H2 to direct access	84/A Express-terminus-8 SB via H2 to direct access	84/A Express-terminus-8 SB via H2 to direct access	84/A Express-terminus-8 SB via H2 to direct access
	441-4 via Central Mauka Road then EB on Kamehameha, 4 via Waimano Home Road to Kamehameha	98 Express-terminus-4 SB via H2 to direct access	98 Express-terminus-4 SB via H2 to direct access	98 Express-terminus-4 SB via H2 to direct access	98 Express-terminus-4 SB via H2 to direct access	98 Express-terminus-4 SB via H2 to direct access	98 Express-terminus-4 SB via H2 to direct access	98 Express-terminus-4 SB via H2 to direct access
		441-2 via H-2 to direct access; 2 via Waimano Home Road to Kamehameha to station	441-2 via H-2 to direct access; 2 via Waimano Home Road to Kamehameha to station	441-4 via Central Mauka Road to station; 4 via Waimano Home Road to Kamehameha to station	441-4 via Central Mauka Road to station; 4 via Waimano Home Road to Kamehameha to station	441-4 via Central Mauka Road to station; 4 via Waimano Home Road to Kamehameha to station	441-4 via Central Mauka Road to station; 4 via Waimano Home Road to Kamehameha to station	441-4 via Central Mauka Road to station; 4 via Waimano Home Road to Kamehameha to station
		547-4 ea direction via Kamehameha Hwy to Station.	547-4 ea direction via Kamehameha Hwy to Station.					

Feeder Bus Routes and Peak Period Service Levels at Fixed Guideway Stations

Fixed Guideway Station Locations	Alternative							
	2030 No Build	2018 First Project (Via Salt Lake)	2018 First Project (Via Airport)	2030 First Project (Via Salt Lake)	2030 First Project (Via Airport)	2030 Full Project (Via Salt Lake)	2030 Full Project (Via Airport)	2030 Full Project (Via Airport & Salt Lake)
Pearlridge								
Routes	No Station; A, 11, 20, 32, 40/A, 42, 51, 53, 54, 71, 90	40/A, 51, 54, 66, 541, 542, 543, 544, 545, 546, 548, 549	40/A, 51, 54, 541, 542, 543, 544, 545, 546, 548	40/A, 51, 54, 541, 542, 543, 544, 545, 546, 547, 548, 549	40/A, 51, 54, 541, 542, 543, 544, 545, 546, 547, 548	40/A, 51, 54, 541, 542, 543, 544, 545, 546, 547, 548, 549	40/A, 51, 54, 541, 542, 543, 544, 545, 546, 547, 548	40/A, 51, 54, 541, 542, 543, 544, 545, 546, 547, 548
Number of Buses in Peak Hour	A-4 ea dir on Kamehameha	40/A-3 ea dir on Kamehameha	40/A-3 ea dir on Kamehameha	40/A-3 ea dir on Kamehameha	40/A-3 ea dir on Kamehameha	40/A-3 ea dir on Kamehameha	40/A-3 ea dir on Kamehameha	40/A-3 ea dir on Kamehameha
	11-terminus-2 circle Pearlridge via Kamehameha WB to Kaonohi	51-4 ea dir on Kamehameha, terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi	51-4 ea dir on Kamehameha, terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi	51-4 ea dir on Kamehameha, terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi	51-4 ea dir on Kamehameha, terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi	51-4 ea dir on Kamehameha, terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi	51-4 ea dir on Kamehameha, terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi	51-4 ea dir on Kamehameha, terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi
	20-terminus-3 circle Pearlridge via Kamehameha WB to Kaonohi	54-4 ea dir on Kamehameha, terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi	54-4 ea dir on Kamehameha, terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi	54-4 ea dir on Kamehameha, terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi	54-4 ea dir on Kamehameha, terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi	54-4 ea dir on Kamehameha, terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi	54-4 ea dir on Kamehameha, terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi	54-4 ea dir on Kamehameha, terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi
	32-terminus-2 circle Pearlridge via Kamehameha WB to Kaonohi	541-4 ea dir terminates at TC; circle Pearlridge via Kamehameha WB to Kaonohi	541-4 ea dir terminates at TC; circle Pearlridge via Kamehameha WB to Kaonohi	541-4 ea dir terminates at TC; circle Pearlridge via Kamehameha WB to Kaonohi	541-4 ea dir terminates at TC; circle Pearlridge via Kamehameha WB to Kaonohi	541-4 ea dir terminates at TC; circle Pearlridge via Kamehameha WB to Kaonohi	541-4 ea dir terminates at TC; circle Pearlridge via Kamehameha WB to Kaonohi	541-4 ea dir terminates at TC; circle Pearlridge via Kamehameha WB to Kaonohi
	40/A-3 ea dir via Kamehameha	542-2 ea dir terminates at TC; circle Pearlridge via Kamehameha WB to Kaonohi	542-2 ea dir terminates at TC; circle Pearlridge via Kamehameha WB to Kaonohi	542-2 ea dir terminates at TC; circle Pearlridge via Kamehameha WB to Kaonohi	542-2 ea dir terminates at TC; circle Pearlridge via Kamehameha WB to Kaonohi	542-2 ea dir terminates at TC; circle Pearlridge via Kamehameha WB to Kaonohi	542-2 ea dir terminates at TC; circle Pearlridge via Kamehameha WB to Kaonohi	542-2 ea dir terminates at TC; circle Pearlridge via Kamehameha WB to Kaonohi
	42-3 ea dir via Kamehameha	543-2 ea dir terminates at TC; circle Pearlridge via Kamehameha WB to Kaonohi	543-2 ea dir terminates at TC; circle Pearlridge via Kamehameha WB to Kaonohi	543-2 ea dir terminates at TC; circle Pearlridge via Kamehameha WB to Kaonohi	543-2 ea dir terminates at TC; circle Pearlridge via Kamehameha WB to Kaonohi	543-2 ea dir terminates at TC; circle Pearlridge via Kamehameha WB to Kaonohi	543-2 ea dir terminates at TC; circle Pearlridge via Kamehameha WB to Kaonohi	543-2 ea dir terminates at TC; circle Pearlridge via Kamehameha WB to Kaonohi
	51-4 ea dir via Kamehameha	544-2 ea dir terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi	544-2 ea dir terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi	544-2 ea dir terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi	544-2 ea dir terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi	544-2 ea dir terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi	544-2 ea dir terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi	544-2 ea dir terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi
	53-3 ea dir via Kamehameha	545-2 ea dir terminates at TC via Kamehameha EB to Kaonohi and Moanalua EB	545-2 ea dir terminates at TC via Kamehameha EB to Kaonohi and Moanalua EB	545-2 ea dir terminates at TC via Kamehameha EB to Kaonohi and Moanalua EB	545-2 ea dir terminates at TC via Kamehameha EB to Kaonohi and Moanalua EB	545-2 ea dir terminates at TC via Kamehameha EB to Kaonohi and Moanalua EB	545-2 ea dir terminates at TC via Kamehameha EB to Kaonohi and Moanalua EB	545-2 ea dir terminates at TC via Kamehameha EB to Kaonohi and Moanalua EB
	54-2 ea dir on Moanalua	546-2 ea dir terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi	546-2 ea dir terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi	546-2 ea dir terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi	546-2 ea dir terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi	546-2 ea dir terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi	546-2 ea dir terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi	546-2 ea dir terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi

Feeder Bus Routes and Peak Period Service Levels at Fixed Guideway Stations

Fixed Guideway Station Locations	Alternative							
	2030 No Build	2018 First Project (Via Salt Lake)	2018 First Project (Via Airport)	2030 First Project (Via Salt Lake)	2030 First Project (Via Airport)	2030 Full Project (Via Salt Lake)	2030 Full Project (Via Airport)	2030 Full Project (Via Airport & Salt Lake)
	71-2 EB via Kamehameha to Kaonohi; 2 WB via Kaonohi to Kamehameha 90 Express-2 EB on Moanalua	548-4 ea dir terminates at TC via Kamehameha EB to Kaonohi and Moanalua EB 549-2 ea dir terminates at TC; circle Pearlridge via Kamehameha WB to Kaonohi	548-4 ea dir terminates at TC via Kamehameha EB to Kaonohi and Moanalua EB	547-4 ea dir terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi 548-4 ea dir terminates at TC via Kamehameha EB to Kaonohi and Moanalua EB 549-2 ea dir terminates at TC; circle Pearlridge via Kamehameha WB to Kaonohi	547-4 ea dir terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi 548-4 ea dir terminates at TC via Kamehameha EB to Kaonohi and Moanalua EB	547-4 ea dir terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi 548-4 ea dir terminates at TC via Kamehameha EB to Kaonohi and Moanalua EB 549-2 ea dir terminates at TC; circle Pearlridge via Kamehameha WB to Kaonohi	547-4 ea dir terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi 548-4 ea dir terminates at TC via Kamehameha EB to Kaonohi and Moanalua EB	547-4 ea dir terminates at TC; circle Pearlridge via Kamehameha EB to Kaonohi 548-4 ea dir terminates at TC via Kamehameha EB to Kaonohi and Moanalua EB
Aloha Stadium								
Routes	No Station; A, 20, 32, 40/A, 42, 51, 74	40/A, 301, 312, 314, 315, 541, 549	40/A, 301, 312, 314, 315, 541	40/A, 301, 312, 314, 315, 541, 549	40/A, 301, 312, 314, 315, 541	40/A, 301, 312, 314, 315, 541, 549	40/A, 301, 312, 314, 315, 541	40/A, 301, 312, 314, 315, 541
Number of Buses in Peak Hour	A-4 ea dir on Kamehameha 20-3 ea dir on Kamehameha 32-2 ea dir, Salt Lake to Kamehameha (to Pearlridge) 40/A-3 ea dir on Kamehameha 42-3 ea dir on Kamehameha 51-4 ea dir on Kamehameha 74-1 ea dir, Salt Lake to Kamehameha	40/A-3 ea dir on Kamehameha 301-4 ea dir terminates at Aloha Stadium via Salt Lake Blvd. 312-7 ea dir terminates at Aloha Stadium via Kamehameha 314-4 ea dir on Salt Lake Blvd; 4 ea dir on Kamehameha 315-4 ea dir in peak hour terminates at Aloha Stadium via Kamehameha 541-4 ea dir terminates at Aloha Stadium via Salt Lake Blvd. 549-2 ea dir on Kamehameha	40/A-3 ea dir on Kamehameha 301-4 ea dir terminates at Aloha Stadium via Salt Lake Blvd. 312-7 ea dir terminates at Aloha Stadium via Kamehameha 314-4 ea dir on Salt Lake Blvd; 4 ea dir on Kamehameha 315-4 ea dir in peak hour terminates at Aloha Stadium via Kamehameha 541-4 ea dir terminates at Aloha Stadium via Salt Lake Blvd.	40/A-3 ea dir on Kamehameha 301-4 ea dir terminates at Aloha Stadium via Salt Lake Blvd. 312-7 ea dir terminates at Aloha Stadium via Kamehameha 314-4 ea dir on Salt Lake Blvd; 4 ea dir on Kamehameha 315-4 ea dir in peak hour terminates at Aloha Stadium via Kamehameha 541-4 ea dir terminates at Aloha Stadium via Salt Lake Blvd. 549-2 ea dir on Kamehameha	40/A-3 ea dir on Kamehameha 301-4 ea dir terminates at Aloha Stadium via Salt Lake Blvd. 312-7 ea dir terminates at Aloha Stadium via Kamehameha 314-4 ea dir on Salt Lake Blvd; 4 ea dir on Kamehameha 315-4 ea dir in peak hour terminates at Aloha Stadium via Kamehameha 541-4 ea dir terminates at Aloha Stadium via Salt Lake Blvd.	40/A-3 ea dir on Kamehameha 301-4 ea dir terminates at Aloha Stadium via Salt Lake Blvd. 312-7 ea dir terminates at Aloha Stadium via Kamehameha 314-4 ea dir on Salt Lake Blvd; 4 ea dir on Kamehameha 315-4 ea dir in peak hour terminates at Aloha Stadium via Kamehameha 541-4 ea dir terminates at Aloha Stadium via Salt Lake Blvd. 549-2 ea dir on Kamehameha	40/A-3 ea dir on Kamehameha 301-4 ea dir terminates at Aloha Stadium via Salt Lake Blvd. 312-7 ea dir terminates at Aloha Stadium via Kamehameha 314-4 ea dir on Salt Lake Blvd; 4 ea dir on Kamehameha 315-4 ea dir in peak hour terminates at Aloha Stadium via Kamehameha 541-4 ea dir terminates at Aloha Stadium via Salt Lake Blvd.	40/A-3 ea dir on Kamehameha 301-4 ea dir terminates at Aloha Stadium via Salt Lake Blvd. 312-7 ea dir terminates at Aloha Stadium via Kamehameha 314-4 ea dir on Salt Lake Blvd; 4 ea dir on Kamehameha 315-4 ea dir in peak hour terminates at Aloha Stadium via Kamehameha 541-4 ea dir terminates at Aloha Stadium via Salt Lake Blvd.

Feeder Bus Routes and Peak Period Service Levels at Fixed Guideway Stations

Fixed Guideway Station Locations	Alternative							
	2030 No Build	2018 First Project (Via Salt Lake)	2018 First Project (Via Airport)	2030 First Project (Via Salt Lake)	2030 First Project (Via Airport)	2030 Full Project (Via Salt Lake)	2030 Full Project (Via Airport)	2030 Full Project (Via Airport & Salt Lake)
Kalaloa								
Routes	No Station; A, 20, 40/A, 42, 51	No Station; 40/A, 312, 314, 315, 549	No Station; 40/A, 312, 314, 315	No Station; 40/A, 312, 314, 315, 549	No Station; 40/A, 312, 314, 315	No Station; 40/A, 312, 314, 315, 549	No Station; 40/A, 312, 314, 315	40/A, 312, 314, 315
Number of Buses in Peak Hour	A-4 ea dir on Kamehameha 20-3 ea dir on Kamehameha 40/A-3 ea dir on Kamehameha 42-3 ea dir on Kamehameha 51-4 ea dir on Kamehameha	40/A-3 ea dir on Kamehameha 312-7 ea dir on Kamehameha 314-4 ea dir on Kamehameha 315-4 ea dir in peak hour via Kamehameha 549-2 ea dir on Kamehameha	40/A-3 ea dir on Kamehameha 312-7 ea dir on Kamehameha 314-4 ea dir on Kamehameha 315-4 ea dir in peak hour via Kamehameha	40/A-3 ea dir on Kamehameha 312-7 ea dir on Kamehameha 314-4 ea dir on Kamehameha 315-4 ea dir in peak hour via Kamehameha 549-2 ea dir on Kamehameha	40/A-3 ea dir on Kamehameha 312-7 ea dir on Kamehameha 314-4 ea dir on Kamehameha 315-4 ea dir in peak hour via Kamehameha	40/A-3 ea dir on Kamehameha 312-7 ea dir on Kamehameha 314-4 ea dir on Kamehameha 315-4 ea dir in peak hour via Kamehameha 549-2 ea dir on Kamehameha	40/A-3 ea dir on Kamehameha 312-7 ea dir on Kamehameha 314-4 ea dir on Kamehameha 315-4 ea dir in peak hour via Kamehameha	40/A-3 ea dir on Kamehameha 312-7 ea dir on Kamehameha 314-4 ea dir on Kamehameha 315-4 ea dir in peak hour via Kamehameha
Pearl Harbor Naval Base								
Routes	No Station; A, 9, 11, 20, 40/A, 42, 51, 86/A, 93A, 95	No Station; 40/A, 314, 549	40/A, 313, 314	No Station; 40/A, 314, 549	40/A, 313, 314	No Station; 40/A, 314, 549	40/A, 313 314	40/A, 313, 314
Number of Buses in Peak Hour	A-4 ea dir on Kamehameha 9-2 EB and 3 WB on Radford 11-2 EB Radford to H-1; 1 WB H-1 to Radford 20-3 ea dir on Kamehameha 40/A-3 ea dir on Kamehameha 42-3 ea dir on Kamehameha 51-4-ea dir on Kamehameha 86/A Express-2 trips WB H1 to Radford exit to PH 93A Express-1 trip EB H1 to Radford exit to PH 95 Express-1 trip WB H1 to Radford exit to PH	40/A-3 ea dir Kamehameha 314-4 SB Radford to WB Kamehameha; 4 EB Kamehameha to NB Radford 549-2 ea dir Kamehameha	40/A-3 ea dir Kamehameha 313-4 SB Radford to EB Kamehameha 314-4 SB Radford to WB Kamehameha; 4 EB Kamehameha to NB Radford	40/A-3 ea dir Kamehameha 314-4 SB Radford to WB Kamehameha; 4 EB Kamehameha to NB Radford 549-2 ea dir Kamehameha	40/A-3 ea dir Kamehameha 313-4 SB Radford to EB Kamehameha 314-4 SB Radford to WB Kamehameha; 4 EB Kamehameha to NB Radford	40/A-3 ea dir Kamehameha 314-4 SB Radford to WB Kamehameha; 4 EB Kamehameha to NB Radford 549-2 ea dir Kamehameha	40/A-3 ea dir Kamehameha 313-4 SB Radford to EB Kamehameha 314-4 SB Radford to WB Kamehameha; 4 EB Kamehameha to NB Radford	40/A-3 ea dir Kamehameha 314-4 SB Radford to WB Kamehameha; 4 EB Kamehameha to NB Radford 549-2 ea dir Kamehameha

Feeder Bus Routes and Peak Period Service Levels at Fixed Guideway Stations

Fixed Guideway Station Locations	Alternative							
	2030 No Build	2018 First Project (Via Salt Lake)	2018 First Project (Via Airport)	2030 First Project (Via Salt Lake)	2030 First Project (Via Airport)	2030 Full Project (Via Salt Lake)	2030 Full Project (Via Airport)	2030 Full Project (Via Airport & Salt Lake)
Honolulu International Airport								
Routes	No Station; 19, 20, 31	No Station; 19, 302, 311	19, 302, 311	No Station; 19, 302, 311	19, 302, 311	No Station; 19, 302, 311	19, 302, 311	19, 302, 311
Number of Buses in Peak Hour	19-2 EB 20-3 EB 31-1 EB	19-4 EB 302-2 EB 311-6 EB	19-4 EB 302-2 EB 311-6 EB	19-4 EB 302-2 EB 311-6 EB	19-4 EB 302-2 EB 311-6 EB	19-4 EB 302-2 EB 311-6 EB	19-4 EB 302-2 EB 311-6 EB	19-4 EB 302-2 EB 311-6 EB
Lagoon Drive								
Routes	No Station; None (routes on Nimitz Highway)	No Station; 306 (others on Nimitz Highway)	31, 306 (others on Nimitz Highway)	No Station; 306 (others on Nimitz Highway)	31, 306 (others on Nimitz Highway)	No Station; 306 (others on Nimitz Highway)	31, 306 (others on Nimitz Highway)	306 (others on Nimitz Highway)
Number of Buses in Peak Hour		306-1 ea dir Aolele to Lagoon Drive	31-6 Lagoon Drive to WB on Aolele in AM; reverse in PM 306-1 ea dir Aolele to Lagoon Drive	306-1 ea dir Aolele to Lagoon Drive	31-6 Lagoon Drive to WB on Aolele in AM; reverse in PM 306-1 ea dir Aolele to Lagoon Drive	306-1 ea dir Aolele to Lagoon Drive	31-6 Lagoon Drive to WB on Aolele in AM; reverse in PM 306-1 ea dir Aolele to Lagoon Drive	306-1 ea dir Aolele to Lagoon Drive
Ala Liliko'i								
Routes	No Station; 3, 32	301, 311, 313, 549 plus 31 one long block away	No Station; 301, 311, plus 31 one long block away	301, 311, 313, 549 plus 31 one long block away	No Station; 301, 311, plus 31 one long block away	301, 311, 313, 549 plus 31 one long block away	No Station; 301, 311, plus 31 one long block away	301, 311 plus 31 one long block away
Number of Buses in Peak Hour	3-6 ea dir Likini to Ala Liliko'i to Ala Ilima 32-2 ea dir Likini to Ala Liliko'i to Salt Lake (to/from Aloha Stadium)	31-6 ea dir Likini to Ala Liliko'i to Ala Ilima 301-4 EB Salt Lake Blvd to NB Ala Liliko'i; 4 SB Ala Liliko'i to WB Salt Lake Blvd 311-4 ea dir Ala Liliko'i to Arizona 313-4 SB Ala Liliko'i to WB Salt Lake Blvd. 549-2 SB Ala Liliko'i to EB on Salt Lake Blvd	31-6 ea dir Likini to Ala Liliko'i to Ala Ilima 301-4 EB Salt Lake Blvd to NB Ala Liliko'i; 4 SB Ala Liliko'i to WB Salt Lake Blvd 311-6 SB Ala Liliko'i to Arizona; 4 NB	31-6 ea dir Likini to Ala Liliko'i to Ala Ilima 301-4 EB Salt Lake Blvd to NB Ala Liliko'i; 4 SB Ala Liliko'i to WB Salt Lake Blvd 311-4 ea dir Ala Liliko'i to Arizona 313-4 SB Ala Liliko'i to WB Salt Lake Blvd. 549-2 SB Ala Liliko'i to EB on Salt Lake Blvd	31-6 ea dir Likini to Ala Liliko'i to Ala Ilima 301-4 EB Salt Lake Blvd to NB Ala Liliko'i; 4 SB Ala Liliko'i to WB Salt Lake Blvd 311-6 SB Ala Liliko'i to Arizona; 4 NB	31-6 ea dir Likini to Ala Liliko'i to Ala Ilima 301-4 EB Salt Lake Blvd to NB Ala Liliko'i; 4 SB Ala Liliko'i to WB Salt Lake Blvd 311-4 ea dir Ala Liliko'i to Arizona 313-4 SB Ala Liliko'i to WB Salt Lake Blvd. 549-2 SB Ala Liliko'i to EB on Salt Lake Blvd	31-6 ea dir Likini to Ala Liliko'i to Ala Ilima 301-4 EB Salt Lake Blvd to NB Ala Liliko'i; 4 SB Ala Liliko'i to WB Salt Lake Blvd 311-6 SB Ala Liliko'i to Arizona; 4 NB	31-6 ea dir Likini to Ala Liliko'i to Ala Ilima 301-4 EB Salt Lake Blvd to NB Ala Liliko'i; 4 SB Ala Liliko'i to WB Salt Lake Blvd 311-4 ea dir Ala Liliko'i to Arizona

Feeder Bus Routes and Peak Period Service Levels at Fixed Guideway Stations

Fixed Guideway Station Locations	Alternative							
	2030 No Build	2018 First Project (Via Salt Lake)	2018 First Project (Via Airport)	2030 First Project (Via Salt Lake)	2030 First Project (Via Airport)	2030 Full Project (Via Salt Lake)	2030 Full Project (Via Airport)	2030 Full Project (Via Airport & Salt Lake)
Middle Street Transit Center								
Routes	No Station; A, B, 1, 2, 16, 31, 32, 203; C, 9, 40/A, 42, 43, 51, 52	A, 1, 2/B, 31, 40/A. 52, 85/A, 86/A, 301, 302, 303, 304, 305, 306	A, 1, 2/B, 40/A. 52, 85/A, 86/A, 301, 302, 303, 304, 305, 306	A, 1, 2/B, 31, 40/A. 52, 85/A, 86/A, 301, 302, 303, 304, 305, 306	A, 1, 2/B, 40/A. 52, 85/A, 86/A, 301, 302, 303, 304, 305, 306	1, 2, 31, 40/A. 52, 85/A, 86/A, 301, 302, 303, 304, 305, 306	1, 2, 40/A. 52, 85/A, 86/A, 301, 302, 303, 304, 305, 306	1, 2, 31, 40/A. 52, 85/A, 86/A, 301, 302, 303, 304, 305, 306
Number of Buses in Peak Hour	A-terminus-4 ea dir TC to Middle Street to King	A-terminus-6 ea dir TC to Middle Street to King	A-terminus-6 ea dir TC to Middle Street to King	A-terminus-6 ea dir TC to Middle Street to King	A-terminus-6 ea dir TC to Middle Street to King	1-terminus-6 ea dir TC to Middle Street to King	1-terminus-6 ea dir TC to Middle Street to King	1-terminus-6 ea dir TC to Middle Street to King
	B-terminus-4 ea dir TC to Middle Street to School	1-terminus-6 ea dir TC to Middle Street to King	1-terminus-6 ea dir TC to Middle Street to King	1-terminus-6 ea dir TC to Middle Street to King	1-terminus-6 ea dir TC to Middle Street to King	2/B-terminus-8 ea dir TC to Middle Street to School Street	2/B-terminus-8 ea dir TC to Middle Street to School Street	2/B-terminus-8 ea dir TC to Middle Street to School Street
	1-terminus-6 ea dir TC to Middle Street to King	2/B-terminus-8 ea dir TC to Middle Street to School Street	2/B-terminus-8 ea dir TC to Middle Street to School Street	2/B-terminus-8 ea dir TC to Middle Street to School Street	2/B-terminus-8 ea dir TC to Middle Street to School Street	31-terminus-6 ea dir H-1 access to Middle St to TC	40/A-3 ea dir Dillingham	31-terminus-6 ea dir H-1 access to Middle St to TC
	2-terminus-6 ea dir TC to Middle Street to School	31-terminus-6 ea dir H-1 access to Middle St to TC	40/A-3 ea dir Dillingham	31-terminus-6 ea dir H-1 access to Middle St to TC	40/A-3 ea dir Dillingham	40/A-3 ea dir Dillingham	52-2 ea dir Dillingham	40/A-3 ea dir Dillingham
	16-terminus-2 ea dir TC to Middle Street to Moanalua	40/A-3 ea dir Dillingham	52-2 ea dir Dillingham	40/A-3 ea dir Dillingham	52-2 ea dir Dillingham	52-2 ea dir Dillingham	85/A Express-terminus-6 WB Dillingham to Middle Street	52-2 ea dir Dillingham
	31-terminus-2 TC to Middle Street to Moanalua; 2 TC to Middle Street to Nimitz	52-2 ea dir Dillingham	85/A Express-terminus-6 WB Dillingham to Middle Street	52-2 ea dir Dillingham	85/A Express-terminus-6 WB Dillingham to Middle Street	85/A Express-terminus-6 WB Dillingham to Middle Street	86/A Express-terminus-2 WB Dillingham to Middle Street	85/A Express-terminus-6 WB Dillingham to Middle Street
	32-terminus-2 EB Middle Street to TC; 2 TC to Middle Street to Nimitz	85/A Express-terminus-6 WB Dillingham to Middle Street	86/A Express-terminus-2 WB Dillingham to Middle Street	85/A Express-terminus-6 WB Dillingham to Middle Street	86/A Express-terminus-2 WB Dillingham to Middle Street	86/A Express-terminus-2 WB Dillingham to Middle Street	301-terminus-4 ea dir Middle Street to H-1access to TC	86/A Express-terminus-2 WB Dillingham to Middle Street
	203 Express-terminus-1 TC Middle Street to School	86/A Express-terminus-2 WB Dillingham to Middle Street	301-terminus-4 ea dir Middle Street to H-1access to TC	86/A Express-terminus-2 WB Dillingham to Middle Street	301-terminus-4 ea dir Middle Street to H-1access to TC	301-terminus-4 ea dir Middle Street to H-1access to TC	302-2 ea dir Middle Street	301-terminus-4 ea dir Middle Street to H-1access to TC
	C-3 ea dir Dillingham	301-terminus-4 ea dir Middle Street to H-1access to TC	302-2 ea dir Middle Street	301-terminus-4 ea dir Middle Street to H-1access to TC	302-2 ea dir Middle Street	302-2 ea dir Middle Street	303-terminus-4 ea dir School St, Middle Street to TC	302-2 ea dir Middle Street
	9-3 WB, 2 EB on Dillingham	302-2 ea dir Middle Street	303-terminus-4 ea dir School St, Middle Street to TC	302-2 ea dir Middle Street	303-terminus-4 ea dir School St, Middle Street to TC	303-terminus-4 ea dir School St, Middle Street to TC	304-terminus-4 ea dir King St, Middle Street to TC	303-terminus-4 ea dir School St, Middle Street to TC
	40/A-3 ea dir Dillingham	303-terminus-4 ea dir School St, Middle Street to TC	304-terminus-4 ea dir King St, Middle Street to TC	303-terminus-4 ea dir School St, Middle Street to TC	304-terminus-4 ea dir King St, Middle Street to TC	304-terminus-4 ea dir King St, Middle Street to TC	305-terminus-4 ea dir Dillingham to Middle Street to TC	304-terminus-4 ea dir King St, Middle Street to TC
	42-3 ea dir Dillingham	304-terminus-4 ea dir King St, Middle Street to TC	305-terminus-4 ea dir Dillingham to Middle Street to TC	304-terminus-4 ea dir King St, Middle Street to TC	305-terminus-4 ea dir Dillingham to Middle Street to TC	305-terminus-4 ea dir Dillingham to Middle Street to TC	306-terminus-1 ea dir via H1 access to Middle Street to TC	305-terminus-4 ea dir Dillingham to Middle Street to TC
	43-2 ea dir on Dillingham	305-terminus-4 ea dir Dillingham to Middle Street to TC	306-terminus-1 ea dir via H1 access to Middle Street to TC	305-terminus-4 ea dir Dillingham to Middle Street to TC	306-terminus-1 ea dir via H1 access to Middle Street to TC	306-terminus-1 ea dir via H1 access to Middle Street to TC		306-terminus-1 ea dir via H1 access to Middle Street to TC

Feeder Bus Routes and Peak Period Service Levels at Fixed Guideway Stations

Fixed Guideway Station Locations	Alternative							
	2030 No Build	2018 First Project (Via Salt Lake)	2018 First Project (Via Airport)	2030 First Project (Via Salt Lake)	2030 First Project (Via Airport)	2030 Full Project (Via Salt Lake)	2030 Full Project (Via Airport)	2030 Full Project (Via Airport & Salt Lake)
	51-4 ea dir Dillingham 52-2 ea dir Dillingham	306-terminus-1 ea dir via H1 access to Middle Street to TC		306-terminus-1 ea dir via H1 access to Middle Street to TC				
Kalihi								
Routes	No Station; C, 7, 9, 40/A, 42, 43, 51, 52	40/A, 52, 85/A, 86/A, 305	40/A, 52, 85/A, 86/A, 305	40/A, 52, 85/A, 86/A, 305	40/A, 52, 85/A, 86/A, 305	40/A, 52, 85/A, 86/A, 305	40/A, 52, 85/A, 86/A, 305	40/A, 52, 85/A, 86/A, 305
Number of Buses in Peak Hour	C-3 ea dir Dillingham 7-4 ea dir Kalihi 9-3 WB, 2 EB on Dillingham 40/A-3 ea dir Dillingham 42-3 ea dir Dillingham 43-2 ea dir on Dillingham 51-4 ea dir Dillingham 52-2 ea dir Dillingham	40/A-3 ea dir Dillingham 52-2 ea dir Dillingham 85/A Express-6 WB Dillingham to Middle Street 86/A Express-2 WB Dillingham to Middle Street 305-3NB on Kalihi; 4 SB on Kalihi	40/A-3 ea dir Dillingham 52-2 ea dir Dillingham 85/A Express-6 WB Dillingham to Middle Street 86/A Express-2 WB Dillingham to Middle Street 305-3NB on Kalihi; 4 SB on Kalihi	40/A-3 ea dir Dillingham 52-2 ea dir Dillingham 85/A Express-6 WB Dillingham to Middle Street 86/A Express-2 WB Dillingham to Middle Street 305-3NB on Kalihi; 4 SB on Kalihi	40/A-3 ea dir Dillingham 52-2 ea dir Dillingham 85/A Express-6 WB Dillingham to Middle Street 86/A Express-2 WB Dillingham to Middle Street 305-3NB on Kalihi; 4 SB on Kalihi	40/A-3 ea dir Dillingham 52-2 ea dir Dillingham 85/A Express-6 WB Dillingham to Middle Street 86/A Express-2 WB Dillingham to Middle Street 305-3NB on Kalihi; 4 SB on Kalihi	40/A-3 ea dir Dillingham 52-2 ea dir Dillingham 85/A Express-6 WB Dillingham to Middle Street 86/A Express-2 WB Dillingham to Middle Street 305-3NB on Kalihi; 4 SB on Kalihi	40/A-3 ea dir Dillingham 52-2 ea dir Dillingham 85/A Express-6 WB Dillingham to Middle Street 86/A Express-2 WB Dillingham to Middle Street 305-3NB on Kalihi; 4 SB on Kalihi
Kapālama								
Routes	No Station; C, 9, 40/A, 42, 43, 51, 52	40/A, 52	40/A, 52	40/A, 52	40/A, 52	40/A, 52	40/A, 52	40/A, 52
Number of Buses in Peak Hour	C-3 ea dir Dillingham 9-3 WB, 2 EB on Dillingham 40/A-3 ea dir Dillingham 42-3 ea dir Dillingham 43-2 ea dir on Dillingham 51-4 ea dir Dillingham 52-2 ea dir Dillingham	40/A-3 ea dir Dillingham 52-2 ea dir Dillingham	40/A-3 ea dir Dillingham 52-2 ea dir Dillingham	40/A-3 ea dir Dillingham 52-2 ea dir Dillingham	40/A-3 ea dir Dillingham 52-2 ea dir Dillingham	40/A-3 ea dir Dillingham 52-2 ea dir Dillingham	40/A-3 ea dir Dillingham 52-2 ea dir Dillingham	40/A-3 ea dir Dillingham 52-2 ea dir Dillingham

Feeder Bus Routes and Peak Period Service Levels at Fixed Guideway Stations

Fixed Guideway Station Locations	Alternative							
	2030 No Build	2018 First Project (Via Salt Lake)	2018 First Project (Via Airport)	2030 First Project (Via Salt Lake)	2030 First Project (Via Airport)	2030 Full Project (Via Salt Lake)	2030 Full Project (Via Airport)	2030 Full Project (Via Airport & Salt Lake)
Iwilei								
Routes	No Station; None at site (routes are on Dillingham, King and Iwilei	2, 13, 40/A, 52, 54 (plus others on King Street or Iwilei Road)	2, 13, 40/A, 52, 54 (plus others on King Street or Iwilei Road)	2, 13, 40/A, 52, 54 (plus others on King Street or Iwilei Road)	2, 13, 40/A, 52, 54 (plus others on King Street or Iwilei Road)	2, 13, 40/A, 52, 54 (plus others on King Street or Iwilei Road)	2, 13, 40/A, 52, 54 (plus others on King Street or Iwilei Road)	2, 13, 40/A, 52, 54 (plus others on King Street or Iwilei Road)
Number of Buses in Peak Hour		2-8 ea dir Liliha/Dillingham to Kaaahi to Iwilei	2-8 ea dir Liliha/Dillingham to Kaaahi to Iwilei	2-8 ea dir Liliha/Dillingham to Kaaahi to Iwilei	2-8 ea dir Liliha/Dillingham to Kaaahi to Iwilei	2-8 ea dir Liliha/Dillingham to Kaaahi to Iwilei	2-8 ea dir Liliha/Dillingham to Kaaahi to Iwilei	2-8 ea dir Liliha/Dillingham to Kaaahi to Iwilei
		13-5 ea dir Liliha/Dillingham to Kaaahi to Iwilei	13-5 ea dir Liliha/Dillingham to Kaaahi to Iwilei	13-5 ea dir Liliha/Dillingham to Kaaahi to Iwilei	13-5 ea dir Liliha/Dillingham to Kaaahi to Iwilei	13-5 ea dir Liliha/Dillingham to Kaaahi to Iwilei	13-5 ea dir Liliha/Dillingham to Kaaahi to Iwilei	13-5 ea dir Liliha/Dillingham to Kaaahi to Iwilei
		40/A-3 ea dir Dillingham to Kaaahi to Iwilei	40/A-3 ea dir Dillingham to Kaaahi to Iwilei	40/A-3 ea dir Dillingham to Kaaahi to Iwilei	40/A-3 ea dir Dillingham to Kaaahi to Iwilei	40/A-3 ea dir Dillingham to Kaaahi to Iwilei	40/A-3 ea dir Dillingham to Kaaahi to Iwilei	40/A-3 ea dir Dillingham to Kaaahi to Iwilei
		52-2 ea dir Dillingham - Kaaahi - Iwilei	52-2 ea dir Dillingham - Kaaahi - Iwilei	52-2 ea dir Dillingham - Kaaahi - Iwilei	52-2 ea dir Dillingham - Kaaahi - Iwilei	52-2 ea dir Dillingham - Kaaahi - Iwilei	52-2 ea dir Dillingham - Kaaahi - Iwilei	52-2 ea dir Dillingham - Kaaahi - Iwilei
		54-4 ea dir Liliha/Dillingham to Kaaahi to Iwilei	54-4 ea dir Liliha/Dillingham to Kaaahi to Iwilei	54-4 ea dir Liliha/Dillingham to Kaaahi to Iwilei	54-4 ea dir Liliha/Dillingham to Kaaahi to Iwilei	54-4 ea dir Liliha/Dillingham to Kaaahi to Iwilei	54-4 ea dir Liliha/Dillingham to Kaaahi to Iwilei	54-4 ea dir Liliha/Dillingham to Kaaahi to Iwilei
Chinatown								
Routes	No Station; None at site (routes are on King and Hotel)	None at site (routes are on King and Hotel)	None at site (routes are on King and Hotel)	None at site (routes are on King and Hotel)	None at site (routes are on King and Hotel)	None at site (routes are on King and Hotel)	None at site (routes are on King and Hotel)	None at site (routes are on King and Hotel)

Feeder Bus Routes and Peak Period Service Levels at Fixed Guideway Stations

Fixed Guideway Station Locations	Alternative							
	2030 No Build	2018 First Project (Via Salt Lake)	2018 First Project (Via Airport)	2030 First Project (Via Salt Lake)	2030 First Project (Via Airport)	2030 Full Project (Via Salt Lake)	2030 Full Project (Via Airport)	2030 Full Project (Via Airport & Salt Lake)
Downtown								
Routes	No Station; E, 17, 19, 20, 55, 56, 57, 57A, 65, 88A, 94	17, 19, 55, 56, 57, 57A, 65, 88A	17, 19, 55, 56, 57, 57A, 65, 88A	17, 19, 55, 56, 57, 57A, 65, 88A	17, 19, 55, 56, 57, 57A, 65, 88A	17, 19, 55, 56, 57, 57A, 65, 88A	17, 19, 55, 56, 57, 57A, 65, 88A	17, 19, 55, 56, 57, 57A, 65, 88A
Number of Buses in Peak Hour	E-3 Bishop to Ala Moana; 3 Ala Moana to Alakea	17-6 ea dir Ala Moana	17-6 ea dir Ala Moana	17-6 ea dir Ala Moana	17-6 ea dir Ala Moana	17-6 ea dir Ala Moana	17-6 ea dir Ala Moana	17-6 ea dir Ala Moana
	17-6 ea dir Ala Moana	19-4 WB on Ala Moana to Alakea	19-4 WB on Ala Moana to Alakea	19-4 WB on Ala Moana to Alakea	19-4 WB on Ala Moana to Alakea	19-4 WB on Ala Moana to Alakea	19-4 WB on Ala Moana to Alakea	19-4 WB on Ala Moana to Alakea
	19-2 WB Ala Moana to Alakea	55-terminus-2 via SB Bishop, Aloha Tower, 2 NB Alakea	55-terminus-2 via SB Bishop, Aloha Tower, 2 NB Alakea	55-terminus-2 via SB Bishop, Aloha Tower, 2 NB Alakea	55-terminus-2 via SB Bishop, Aloha Tower, 2 NB Alakea	55-terminus-2 via SB Bishop, Aloha Tower, 2 NB Alakea	55-terminus-2 via SB Bishop, Aloha Tower, 2 NB Alakea	55-terminus-2 via SB Bishop, Aloha Tower, 2 NB Alakea
	20-3 WB Ala Moana to Alakea	56-terminus-3 SB Bishop to Ala Moana; 3 Ala Moana to NB Alakea	56-terminus-3 SB Bishop to Ala Moana; 3 Ala Moana to NB Alakea	56-terminus-3 SB Bishop to Ala Moana; 3 Ala Moana to NB Alakea	56-terminus-3 SB Bishop to Ala Moana; 3 Ala Moana to NB Alakea	56-terminus-3 SB Bishop to Ala Moana; 3 Ala Moana to NB Alakea	56-terminus-3 SB Bishop to Ala Moana; 3 Ala Moana to NB Alakea	56-terminus-3 SB Bishop to Ala Moana; 3 Ala Moana to NB Alakea
	55-2 Bishop to Ala Moana; 2 Ala Moana to Alakea	57-terminus-3 SB Bishop to Ala Moana; 3 Ala Moana to NB Alakea	57-terminus-3 SB Bishop to Ala Moana; 3 Ala Moana to NB Alakea	57-terminus-3 SB Bishop to Ala Moana; 3 Ala Moana to NB Alakea	57-terminus-3 SB Bishop to Ala Moana; 3 Ala Moana to NB Alakea	57-terminus-3 SB Bishop to Ala Moana; 3 Ala Moana to NB Alakea	57-terminus-3 SB Bishop to Ala Moana; 3 Ala Moana to NB Alakea	57-terminus-3 SB Bishop to Ala Moana; 3 Ala Moana to NB Alakea
	56-3 Bishop to Ala Moana; 3 Ala Moana to Alakea	57A-terminus-1 SB Bishop to Ala Moana;1 Ala Moana to NB Alakea	57A-terminus-1 SB Bishop to Ala Moana;1 Ala Moana to NB Alakea	57A-terminus-1 SB Bishop to Ala Moana;1 Ala Moana to NB Alakea	57A-terminus-1 SB Bishop to Ala Moana;1 Ala Moana to NB Alakea	57A-terminus-1 SB Bishop to Ala Moana;1 Ala Moana to NB Alakea	57A-terminus-1 SB Bishop to Ala Moana;1 Ala Moana to NB Alakea	57A-terminus-1 SB Bishop to Ala Moana;1 Ala Moana to NB Alakea
	57-3 Bishop to Ala Moana; 3 Ala Moana to Alakea	65-terminus-3 SB Bishop to Ala Moana; 3 Ala Moana to NB Alakea	65-terminus-3 SB Bishop to Ala Moana; 3 Ala Moana to NB Alakea	65-terminus-3 SB Bishop to Ala Moana; 3 Ala Moana to NB Alakea	65-terminus-3 SB Bishop to Ala Moana; 3 Ala Moana to NB Alakea	65-terminus-3 SB Bishop to Ala Moana; 3 Ala Moana to NB Alakea	65-terminus-3 SB Bishop to Ala Moana; 3 Ala Moana to NB Alakea	65-terminus-3 SB Bishop to Ala Moana; 3 Ala Moana to NB Alakea
	57A-1 Bishop to Ala Moana;1 Ala Moana to Alakea	88A Express-2 EB Ala Moana from Bishop	88A Express-2 EB Ala Moana from Bishop	88A Express-2 EB Ala Moana from Bishop	88A Express-2 EB Ala Moana from Bishop	88A Express-2 EB Ala Moana from Bishop	88A Express-2 EB Ala Moana from Bishop	88A Express-2 EB Ala Moana from Bishop
	65-3 Bishop to Ala Moana; 3 Ala Moana to Alakea							
	88A Express-2 trips Bishop to Alakea in AM							
	94 Express-2 trips Nimitz to Alakea in AM							

Feeder Bus Routes and Peak Period Service Levels at Fixed Guideway Stations

Fixed Guideway Station Locations	Alternative							
	2030 No Build	2018 First Project (Via Salt Lake)	2018 First Project (Via Airport)	2030 First Project (Via Salt Lake)	2030 First Project (Via Airport)	2030 Full Project (Via Salt Lake)	2030 Full Project (Via Airport)	2030 Full Project (Via Airport & Salt Lake)
Civic Center								
Routes	No Station; 6, 42, 85, 85A, 88, 89	6, 13, 88, 89	6, 13, 88, 89	6, 13, 88, 89	6, 13, 88, 89	6, 13, 88, 89	6, 13, 88, 89	6, 13, 88, 89
Number of Buses in Peak Hour	6-3 ea dir on Queen 42-3 NB on South 85 Express-3 trips NB on South 85A Express-3 trips NB on South 88 Express-2 trips NB on South 89 Express-2 trips NB on South	6-4 ea dir on Queen 13-5 NB on South 88 Express-2 trips NB on South 89 Express-2 trips NB on South	6-4 ea dir on Queen 13-5 NB on South 88 Express-2 trips NB on South 89 Express-2 trips NB on South	6-4 ea dir on Queen 13-5 NB on South 88 Express-2 trips NB on South 89 Express-2 trips NB on South	6-4 ea dir on Queen 13-5 NB on South 88 Express-2 trips NB on South 89 Express-2 trips NB on South	6-4 ea dir on Queen 13-5 NB on South 88 Express-2 trips NB on South 89 Express-2 trips NB on South	6-4 ea dir on Queen 13-5 NB on South 88 Express-2 trips NB on South 89 Express-2 trips NB on South	6-4 ea dir on Queen 13-5 NB on South 88 Express-2 trips NB on South 89 Express-2 trips NB on South
Kaka'ako								
Routes	No Station; 6	6	6	6	6	6	6	6
Number of Buses in Peak Hour	6-3 ea dir on Ward	6-4 ea dir Ward	6-4 ea dir Ward	6-4 ea dir Ward	6-4 ea dir Ward	6-4 ea dir Ward	6-4 ea dir Ward	6-4 ea dir Ward

Feeder Bus Routes and Peak Period Service Levels at Fixed Guideway Stations

Fixed Guideway Station Locations	Alternative							
	2030 No Build	2018 First Project (Via Salt Lake)	2018 First Project (Via Airport)	2030 First Project (Via Salt Lake)	2030 First Project (Via Airport)	2030 Full Project (Via Salt Lake)	2030 Full Project (Via Airport)	2030 Full Project (Via Airport & Salt Lake)
Ala Moana Center								
Routes	No Station; C, 5, 6, 8, 17, 18, 19, 20, 23, 40/A, 43, 51, 52, 53, 88A (A, 3, 9 on Kapi'olani; E, 42, 98A on Ala Moana Blvd.)	5, 6, 7, 8, 9, 17, 18, 23, 40/A, 52, 88A (A, 3 on Kapi'olani; 19 on Ala Moana Blvd.)	5, 6, 7, 8, 9, 17, 18, 23, 40/A, 52, 88A (A, 3 on Kapi'olani; 19 on Ala Moana Blvd.)	5, 6, 7, 8, 9, 17, 18, 23, 40/A, 52, 88A (A, 3 on Kapi'olani; 19 on Ala Moana Blvd.)	5, 6, 7, 8, 9, 17, 18, 23, 40/A, 52, 88A (A, 3 on Kapi'olani; 19 on Ala Moana Blvd.)	5, 6, 8, 17, 18, 23, 40/A, 52, 88A (3 on Kapi'olani; 19 on Ala Moana Blvd.)	5, 6, 8, 17, 18, 23, 40/A, 52, 88A (3 on Kapi'olani; 19 on Ala Moana Blvd.)	5, 6, 8, 17, 18, 23, 40/A, 52, 88A (3 on Kapi'olani; 19 on Ala Moana Blvd.)
Number of Buses in Peak Hour	C-3 EB on Kona, C	5-3 EB on Kona; 3 WB on Kona	5-3 EB on Kona; 3 WB on Kona	5-3 EB on Kona; 3 WB on Kona	5-3 EB on Kona; 3 WB on Kona	5-3 EB on Kona; 3 WB on Kona	5-3 EB on Kona; 3 WB on Kona	5-3 EB on Kona; 3 WB on Kona
	5-3 EB on Kona; 3 WB on Kona	6-4 EB on Kona, C	6-4 EB on Kona, C	6-4 EB on Kona, C	6-4 EB on Kona, C	6-4 EB on Kona, C	6-4 EB on Kona, C	6-4 EB on Kona, C
("C" following Kona refers to route circling Ala Moana Center via Mahukona, Atkinson, and Ala Moana Blvd.)	6-3 EB on Kona, C	7-15 EB Kona	7-15 EB Kona	7-15 EB Kona	7-15 EB Kona	8-4 EB Kona, C	8-4 EB Kona, C	8-4 EB Kona, C
	8-4 EB on Kona in AM; 6 in PM, C	8-15 EB Kona, C	8-15 EB Kona, C	8-15 EB Kona, C	8-15 EB Kona, C	17-6 EB Kona	17-6 EB Kona	17-6 EB Kona
	17-6 EB on Kona	9-4 EB Kona	9-4 EB Kona	9-4 EB Kona	9-4 EB Kona	18-2 EB Kona, C	18-2 EB Kona, C	18-2 EB Kona, C
	18-2 EB on Kona, C	17-6 EB Kona	17-6 EB Kona	17-6 EB Kona	17-6 EB Kona	23-2 EB Kona, C	23-2 EB Kona, C	23-2 EB Kona, C
	19-3 EB on Kona, C	18-2 EB Kona, C	18-2 EB Kona, C	18-4 EB Kona, C	18-4 EB Kona, C	40/A-3 EB Kona, C	40/A-3 EB Kona, C	40/A-3 EB Kona, C
	20-3 EB on Kona, C	23-2 EB Kona, C	23-2 EB Kona, C	23-2 EB Kona, C	23-2 EB Kona, C	52-2 EB Kona, C	52-2 EB Kona, C	52-2 EB Kona, C
	23-2 EB on Kona, C	40/A-3 EB Kona, C	40/A-3 EB Kona, C	40/A-3 EB Kona, C	40/A-3 EB Kona, C	88A Express-2 EB Kona, C	88A Express-2 EB Kona, C	88A Express-2 EB Kona, C
	40/A-3 EB Kona, C	52-2 EB Kona, C	52-2 EB Kona, C	52-2 EB Kona, C	52-2 EB Kona, C	3-5 ea dir Kapi'olani	3-5 ea dir Kapi'olani	3-5 ea dir Kapi'olani
	43-2 EB on Kona, C	88A Express-2 EB Kona, C	88A Express-2 EB Kona, C	88A Express-2 EB Kona, C	88A Express-2 EB Kona, C	19-4 ea dir Ala Moana	19-4 ea dir Ala Moana	19-4 ea dir Ala Moana
	51-4 EB on Kona, C	A-6 ea dir Kapi'olani	A-6 ea dir Kapi'olani	A-6 ea dir Kapi'olani	A-6 ea dir Kapi'olani			
	52-2 EB on Kona, C	3-5 ea dir Kapi'olani	3-5 ea dir Kapi'olani	3-5 ea dir Kapi'olani	3-5 ea dir Kapi'olani			
	53-3 EB on Kona, C	19-4 ea dir Ala Moana	19-4 ea dir Ala Moana	19-4 ea dir Ala Moana	19-4 ea dir Ala Moana			
	88A Express-2 trips EB Kona							
	A-4 ea dir Kapi'olani							
	3-6 ea dir Kapi'olani							
	9-3 WB, 2 EB Kapi'olani							
	E-3 ea dir Ala Moana							
	42-3 ea dir Ala Moana							
	98A Express-2 EB on Ala Moana							

Feeder Bus Routes and Peak Period Service Levels at Fixed Guideway Stations

Fixed Guideway Station Locations	Alternative							
	2030 No Build	2018 First Project (Via Salt Lake)	2018 First Project (Via Airport)	2030 First Project (Via Salt Lake)	2030 First Project (Via Airport)	2030 Full Project (Via Salt Lake)	2030 Full Project (Via Airport)	2030 Full Project (Via Airport & Salt Lake)
Convention Center								
Routes	No Station; A, B, 2, 3, 9, 13	No Station; A, 2/B, 3, 7, 9	No Station; A, 2/B, 3, 7, 9	No Station; A, 2/B, 3, 7, 9	No Station; A, 2/B, 3, 7, 9	2, 3	2, 3	2, 3
Number of Buses in Peak Hour	A-4 ea dir Kapiʻolani	A-6 ea dir Kapiʻolani	A-6 ea dir Kapiʻolani	A-6 ea dir Kapiʻolani	A-6 ea dir Kapiʻolani	2-6 SB Kalākaua; 4 NB Kalākaua	2-6 SB Kalākaua; 4 NB Kalākaua	2-6 SB Kalākaua; 4 NB Kalākaua
	B-4 ea dir Kalākaua	2/B-8 ea dir Kalākaua	2/B-8 ea dir Kalākaua	2/B-8 ea dir Kalākaua	2/B-8 ea dir Kalākaua	3-5 ea dir Kapiʻolani	3-5 ea dir Kapiʻolani	3-5 ea dir Kapiʻolani
	2-6 ea dir Kalākaua	3-5 ea dir Kapiʻolani	3-5 ea dir Kapiʻolani	3-5 ea dir Kapiʻolani	3-5 ea dir Kapiʻolani			
	3-6 ea dir Kapiʻolani	7-15 EB Kapiʻolani;8 WB Kapiʻolani	7-15 EB Kapiʻolani;8 WB Kapiʻolani	7-15 EB Kapiʻolani;8 WB Kapiʻolani	7-15 EB Kapiʻolani;8 WB Kapiʻolani			
	9-3 WB, 2EB Kapiʻolani	9-4 ea dir Kapiʻolani	9-4 ea dir Kapiʻolani	9-4 ea dir Kapiʻolani	9-4 ea dir Kapiʻolani			
	13-4 ea dir Kalākaua							
McCully								
Routes	No Station; A, 3, 9, 18	No Station; A, 3, 7, 9, 18	No Station; A, 3, 7, 9, 18	No Station; A, 3, 7, 9, 18	No Station; A, 3, 7, 9, 18	3, 9, 18	3, 9, 18	3, 9, 18
Number of Buses in Peak Hour	A-4 ea dir Kapiʻolani	A-6 ea dir Kapiʻolani	A-6 ea dir Kapiʻolani	A-6 ea dir Kapiʻolani	A-6 ea dir Kapiʻolani	3-5 ea dir Kapiʻolani	3-5 ea dir Kapiʻolani	3-5 ea dir Kapiʻolani
	3-6 ea dir Kapiʻolani	3-5 ea dir Kapiʻolani	3-5 ea dir Kapiʻolani	3-5 ea dir Kapiʻolani	3-5 ea dir Kapiʻolani	9-4 EB McCully to Kapiʻolani	9-4 EB McCully to Kapiʻolani	9-4 EB McCully to Kapiʻolani
	9-3 WB, 2 EB Kapiʻolani	7-15 EB Kapiʻolani;8 WB Kapiʻolani	7-15 EB Kapiʻolani;8 WB Kapiʻolani	7-15 EB Kapiʻolani;8 WB Kapiʻolani	7-15 EB Kapiʻolani;8 WB Kapiʻolani	18-4 ea dir McCully	18-4 ea dir McCully	18-4 ea dir McCully
	18-2 ea dir McCully	9-4 ea dir Kapiʻolani	9-4 ea dir Kapiʻolani	9-4 ea dir Kapiʻolani	9-4 ea dir Kapiʻolani			
		18-2 ea dir McCully	18-2 ea dir McCully	18-2 ea dir McCully	18-2 ea dir McCully			
Date Street								
Routes	No Station; A, 18	No Station; A, 7, 18	No Station; A, 7, 18	No Station; A, 7, 18	No Station; A, 7, 18	9, 18	9, 18	9, 18
Number of Buses in Peak Hour	A-4 ea dir University	A-6 ea dir University	A-6 ea dir University	A-6 ea dir University	A-6 ea dir University	9-4 WB via Date	9-4 WB via Date	9-4 WB via Date
	18-2 SB University to WB Date; 2 EB Date to NB University	7-15 NB University; 8 SB University	7-15 NB University; 8 SB University	7-15 NB University; 8 SB University	7-15 NB University; 8 SB University	18-4 SB via University to Date to McCully; 4 NB via McCully to Date to U	18-4 SB via University to Date to McCully; 4 NB via McCully to Date to U	18-4 SB via University to Date to McCully; 4 NB via McCully to Date to U
		18-2 SB via University to Date to McCully; 2 NB via McCully to Date to U	18-2 SB via University to Date to McCully; 2 NB via McCully to Date to U	18-4 SB via University to Date to McCully; 4 NB via McCully to Date to U	18-4 SB via University to Date to McCully; 4 NB via McCully to Date to U			

Feeder Bus Routes and Peak Period Service Levels at Fixed Guideway Stations

Fixed Guideway Station Locations	Alternative							
	2030 No Build	2018 First Project (Via Salt Lake)	2018 First Project (Via Airport)	2030 First Project (Via Salt Lake)	2030 First Project (Via Airport)	2030 Full Project (Via Salt Lake)	2030 Full Project (Via Airport)	2030 Full Project (Via Airport & Salt Lake)
Mo'ili'ili								
Routes	No Station; A, 1, 1L, 6, 18	No Station; A, 1, 1L, 6, 7, 18	No Station; A, 1, 1L, 6, 7, 18	No Station; A, 1, 1L, 6, 7, 18	No Station; A, 1, 1L, 6, 7, 18	1, 1L, 6, 18	1, 1L, 6, 18	1, 1L, 6, 18
Number of Buses in Peak Hour	A-4 ea dir University 1-6 ea dir King 1L-3 ea dir King 6-3 EB King to NB University; 3 SB University to WB King 18-2 ea dir University	A-6 ea dir University 1-6 ea dir King 1L-4 ea dir King 6-4 ea dir University 7-15 NB University; 8 SB University 18-2 ea dir University	A-6 ea dir University 1-6 ea dir King 1L-4 ea dir King 6-4 ea dir University 7-15 NB University; 8 SB University 18-2 ea dir University	A-6 ea dir University 1-6 ea dir King 1L-4 ea dir King 6-4 ea dir University 7-15 NB University; 8 SB University 18-4 ea dir University	A-6 ea dir University 1-6 ea dir King 1L-4 ea dir King 6-4 ea dir University 7-15 NB University; 8 SB University 18-4 ea dir University	1-6 ea dir King 1L-4 ea dir King 6-4 ea dir University 18-4 ea dir University	1-6 ea dir King 1L-3 ea dir King 6-4 ea dir University 18-4 ea dir University	1-6 ea dir King 1L-4 ea dir King 6-4 ea dir University 18-4 ea dir University
UH Mānoa								
Routes	No Station; None at site (routes on University, King and Dole)	No Station; None at site (routes on University, King and Dole)	No Station; None at site (routes on University, King and Dole)	No Station; None at site (routes on University, King and Dole)	No Station; None at site (routes on University, King and Dole)	None at site (routes on University, King and Dole)	None at site (routes on University, King and Dole)	None at site (routes on University, King and Dole)
Kālaimoku Street								
Routes	No Station; B, E, 2, 4, 8, 13, 19, 20, 22, 23, 42, 98A, 203	No Station; 2/B, 4, 8, 19, 22, 23	No Station; 2/B, 4, 8, 19, 22, 23	No Station; 2/B, 4, 8, 19, 22, 23	No Station; 2/B, 4, 8, 19, 22, 23	2, 4, 8, 19, 22, 23	2, 4, 8, 19, 22, 23	2, 4, 8, 19, 22, 23
Number of Buses in Peak Hour	B-4 WB Kūhiō E-3 WB Kūhiō 2-6 ea dir Kūhiō 4-4 ea dir Kūhiō 8-4-ea dir Kūhiō in AM; 6 in PM 13-4 ea dir Kūhiō 19-2 ea dir Kūhiō 20-3 ea dir Kūhiō 22-1 EB AM; PM 1 EB, 2WB Kūhiō 23-2 ea dir Kūhiō 42-3 ea dir Kūhiō 98A Express-2 EB trips on Kūhiō in AM; reverse in PM 203 Express-2 EB trips on Kūhiō in AM; reverse in PM	2/B-8 ea dir Kūhiō 4-4 ea dir Kūhiō 8-15 EB Kūhiō; 8 WB 19-4 ea dir Kūhiō 22-1 EB AM; PM 1 EB, 2WB Kūhiō 23-2 ea dir Kūhiō	2/B-8 ea dir Kūhiō 4-4 ea dir Kūhiō 8-15 EB Kūhiō; 8 WB 19-4 ea dir Kūhiō 22-1 EB AM; PM 1 EB, 2WB Kūhiō 23-2 ea dir Kūhiō	2/B-8 ea dir Kūhiō 4-4 ea dir Kūhiō 8-15 EB Kūhiō; 8 WB 19-4 ea dir Kūhiō 22-1 EB AM; PM 1 EB, 2WB Kūhiō 23-2 ea dir Kūhiō	2/B-8 ea dir Kūhiō 4-4 ea dir Kūhiō 8-15 EB Kūhiō; 8 WB 19-4 ea dir Kūhiō 22-1 EB AM; PM 1 EB, 2WB Kūhiō 23-2 ea dir Kūhiō	2-6 ea dir Kūhiō 4-4 ea dir Kūhiō 8-4 ea dir Kūhiō 19-4 ea dir Kūhiō 22-1 EB AM; PM 1 EB, 2WB Kūhiō 23-2 ea dir Kūhiō	2-6 ea dir Kūhiō 4-4 ea dir Kūhiō 8-4 ea dir Kūhiō 19-4 ea dir Kūhiō 22-1 EB AM; PM 1 EB, 2WB Kūhiō 23-2 ea dir Kūhiō	2-6 ea dir Kūhiō 4-4 ea dir Kūhiō 8-4 ea dir Kūhiō 19-4 ea dir Kūhiō 22-1 EB AM; PM 1 EB, 2WB Kūhiō 23-2 ea dir Kūhiō

Feeder Bus Routes and Peak Period Service Levels at Fixed Guideway Stations

Fixed Guideway Station Locations	Alternative							
	2030 No Build	2018 First Project (Via Salt Lake)	2018 First Project (Via Airport)	2030 First Project (Via Salt Lake)	2030 First Project (Via Airport)	2030 Full Project (Via Salt Lake)	2030 Full Project (Via Airport)	2030 Full Project (Via Airport & Salt Lake)
Lili'uokalani Avenue								
Routes	No Station; B, E, 2, 4, 8, 13, 19, 20, 22, 23, 42, 98A, 203	No Station; 2/B, 4, 8, 19, 22, 23	No Station; 2/B, 4, 8, 19, 22, 23	No Station; 2/B, 4, 8, 19, 22, 23	No Station; 2/B, 4, 8, 19, 22, 23	2, 4, 8, 19, 22, 23	2, 4, 8, 19, 22, 23	2, 4, 8, 19, 22, 23
Number of Buses in Peak Hour	B-4 WB Kūhiō E-3 WB Kūhiō 2-6 ea dir Kūhiō 4-4 ea dir Kūhiō 8-4-ea dir Kūhiō in AM; 6 in PM 13-4 ea dir Kūhiō 19-2 ea dir Kūhiō 20-3 ea dir Kūhiō 22-1 EB AM; PM 1 EB, 2WB Kūhiō 23-2 ea dir Kūhiō 42-3 ea dir Kūhiō 98A Express-2 EB trips on Kūhiō; reverse in PM 203 Express-2 EB trips on Kūhiō in AM; reverse in PM	2/B-8 ea dir Kūhiō 4-4 ea dir Kūhiō 8-15 EB Kūhiō; 8 WB 19-4 ea dir Kūhiō 22-1 EB AM; PM 1 EB, 2WB Kūhiō 23-2 ea dir Kūhiō	2/B-8 ea dir Kūhiō 4-4 ea dir Kūhiō 8-15 EB Kūhiō; 8 WB 19-4 ea dir Kūhiō 22-1 EB AM; PM 1 EB, 2WB Kūhiō 23-2 ea dir Kūhiō	2/B-8 ea dir Kūhiō 4-4 ea dir Kūhiō 8-15 EB Kūhiō; 8 WB 19-4 ea dir Kūhiō 22-1 EB AM; PM 1 EB, 2WB Kūhiō 23-2 ea dir Kūhiō	2/B-8 ea dir Kūhiō 4-4 ea dir Kūhiō 8-15 EB Kūhiō; 8 WB 19-4 ea dir Kūhiō 22-1 EB AM; PM 1 EB, 2WB Kūhiō 23-2 ea dir Kūhiō	2-6 ea dir Kūhiō 4-4 ea dir Kūhiō 8-4 ea dir Kūhiō 19-4 ea dir Kūhiō 22-1 EB AM; PM 1 EB, 2WB Kūhiō 23-2 ea dir Kūhiō	2-6 ea dir Kūhiō 4-4 ea dir Kūhiō 8-4 ea dir Kūhiō 19-4 ea dir Kūhiō 22-1 EB AM; PM 1 EB, 2WB Kūhiō 23-2 ea dir Kūhiō	2-6 ea dir Kūhiō 4-4 ea dir Kūhiō 8-4 ea dir Kūhiō 19-4 ea dir Kūhiō 22-1 EB AM; PM 1 EB, 2WB Kūhiō 23-2 ea dir Kūhiō

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Appendix C
Screenline and LOS Worksheets

Change	The following is a modification of and replaces ***Table C-5: 2030 with Airport Alternative—A.M. Peak Hour Screenline Impacts Analysis*** ***Table C-6: 2030 with Airport Alternative—P.M. Peak Hour Screenline Impacts Analysis***

Table C-5: 2030 with First Project Airport Option—A.M. Peak Hour Screenline Impacts Analysis

Screenline / Facility	Year 2005 Conditions								2030 No Build Conditions								2030 with First Project Airport Option								Screenline Impact Analysis	
	Facility Number of Lanes	Observed Volume* (vph)	*Maximum Volume Threshold [b]* A	B	C	D	E	LOS [b]	Facility Number of Lanes	Forecast Volume (vph) [a]	*Maximum Volume Threshold [b]* A	B	C	D	E	LOS [b]	Forecast Volume (vph)	*Maximum Volume Threshold [b]* A	B	C	D	E	LOS [b]	Project Impact? (Yes or No)	Cumulative Impact? (Yes or No)
B. 'Ewa 'Wai'anae bound																										
H-1 Fwy	3	3,330	*1,620*	*2,630*	*3,800*	*4,920*	*5,590*	C	3	4,360	*1,620*	*2,630*	*3,800*	*4,920*	*5,590*	D	4,260	*1,620*	*2,630*	*3,800*	*4,920*	*5,590*	D		
H-1 Fwy future HOV	NA	NA	*515*	*839*	*1,213*	*1,568*	*1,783*	NA	1	1,180	*515*	*839*	*1,213*	*1,568*	*1,783*	C	1,080	*515*	*839*	*1,213*	*1,568*	*1,783*	C		
Farrington Hwy	1	590	**	*200*	*660*	*780*	*810*	C	2	340	**	*200*	*1,240*	*1,560*	*1,640*	C	320	**	*200*	*1,240*	*1,560*	*1,640*	C		
Fort Weaver Rd (SB)	2	1,440	**	*200*	*1,240*	*1,560*	*1,640*	D	2	2,220	**	*200*	*1,240*	*1,560*	*1,640*	F	2,150	**	*200*	*1,240*	*1,560*	*1,640*	F		
Total		***5,360***						***C***		***8,100***						***D***	***7,810***						***D***	***NO***	***NO***
'Ewa Koko Head bound																										
H-1 Fwy	3	4,130	*1,620*	*2,630*	*3,800*	*4,920*	*5,590*	D	3	3,870	*1,620*	*2,630*	*3,800*	*4,920*	*5,590*	D	3,500	*1,620*	*2,630*	*3,800*	*4,920*	*5,590*	C		
H-1 Fwy future HOV	NA	NA	*515*	*839*	*1,213*	*1,568*	*1,783*	NA	1	1,790	*515*	*839*	*1,213*	*1,568*	*1,783*	F	1,540	*515*	*839*	*1,213*	*1,568*	*1,783*	D		
Farrington Hwy	2	210	*230*	*1,390*	*1,650*	*1,700*	**	A	3	210	**	*310*	*1,920*	*2,340*	*2,460*	B*	160	**	*310*	*1,920*	*2,340*	*2,460*	B*		
Fort Weaver Rd (NB)	2	3,120	**	*200*	*1,240*	*1,560*	*1,640*	F	2	2,770	**	*200*	*1,240*	*1,560*	*1,640*	F	2,570	**	*200*	*1,240*	*1,560*	*1,640*	F		
Total		***7,460***						***E***		***8,640***						***E***	***7,770***						***D***	***NO***	***NO***
C. Waikele Stream 'Ewa bound																										
H-1 Fwy	4	6,110	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	D	5	10,070	*2,800*	*4,540*	*6,570*	*8,490*	*9,660*	F	9,760	*2,800*	*4,540*	*6,570*	*8,490*	*9,660*	F		
Waipahu St	1	360	**	**	*440*	*700*	*740*	C*	1	300	**	**	*440*	*700*	*740*	C*	290	**	**	*440*	*700*	*740*	C*		
Farrington Hwy	2	1,160	**	*200*	*1,240*	*1,560*	*1,640*	C	3	910	**	*400*	*2,530*	*3,030*	*3,180*	C	860	**	*400*	*2,530*	*3,030*	*3,180*	C		
Total		***7,630***						***D***		***11,280***						***E***	***10,910***						***E***	***NO***	***NO***
Waikele Stream Koko Head bound																										
H-1 Fwy	4	7,380	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	E	4	8,460	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	F	8,080	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	F		
H-1 Fwy future HOV	NA	NA	*515*	*839*	*1,213*	*1,568*	*1,783*	NA	1	1,560	*515*	*839*	*1,213*	*1,568*	*1,783*	D	1,360	*515*	*839*	*1,213*	*1,568*	*1,783*	D		
Waipahu St	1	580	**	**	*440*	*700*	*740*	D	1	290	**	**	*440*	*700*	*740*	C*	150	**	**	*440*	*700*	*740*	C*		
Farrington Hwy	2	1,210	**	*200*	*1,240*	*1,560*	*1,640*	C	3	1,530	**	*310*	*1,920*	*2,340*	*2,460*	C	1,210	**	*310*	*1,920*	*2,340*	*2,460*	C		
Total		***9,170***						***E***		***11,840***						***E***	***10,800***						***E***	***NO***	***NO***
D. Kalauao 'Ewa bound																										
H-1 Fwy	5	6,840	*2,800*	*4,540*	*6,570*	*8,490*	*9,660*	D	5	7,280	*2,800*	*4,540*	*6,570*	*8,490*	*9,660*	D	7,120	*2,800*	*4,540*	*6,570*	*8,490*	*9,660*	D		
Moanalua Rd	2	1,130	**	**	*1,020*	*1,480*	*1,560*	D	2	1,370	**	**	*1,020*	*1,480*	*1,560*	D	1,150	**	**	*1,020*	*1,480*	*1,560*	D		
Kamehameha Hwy	3	970	**	*310*	*1,920*	*2,340*	*2,460*	C	3	1,080	**	*310*	*1,920*	*2,340*	*2,460*	C	1,050	**	*310*	*1,920*	*2,340*	*2,460*	C		
Total		***8,940***						***D***		***9,730***						***D***	***9,320***						***D***	***NO***	***NO***
Kalauao Koko Head bound																										
H-1 Fwy	5	10,140	*2,800*	*4,540*	*6,570*	*8,490*	*9,660*	F	5	12,250	*2,800*	*4,540*	*6,570*	*8,490*	*9,660*	F	11,260	*2,800*	*4,540*	*6,570*	*8,490*	*9,660*	F		
H-1 Fwy HOV	1	1,740	*515*	*839*	*1,213*	*1,568*	*1,783*	E	1	1,810	*515*	*839*	*1,213*	*1,568*	*1,783*	F	1,690	*515*	*839*	*1,213*	*1,568*	*1,783*	E		
H-1 Fwy Zipper	1	1,510	*515*	*839*	*1,213*	*1,568*	*1,783*	D	1	1,160	*515*	*839*	*1,213*	*1,568*	*1,783*	C	920	*515*	*839*	*1,213*	*1,568*	*1,783*	C		
Moanalua Rd	2	1,390	**	**	*1,020*	*1,480*	*1,560*	D	2	1,310	**	**	*1,020*	*1,480*	*1,560*	D	980	**	**	*1,020*	*1,480*	*1,560*	C		
Kamehameha Hwy	3	2,520	**	*310*	*1,920*	*2,340*	*2,460*	F	3	2,450	**	*310*	*1,920*	*2,340*	*2,460*	E	2,060	**	*310*	*1,920*	*2,340*	*2,460*	D		
Total		***17,300***						***F***		***18,980***						***E***	***16,910***						***E***	***NO***	***NO***
E. Salt Lake 'Ewa bound																										
Moanalua Fwy	4	3,700	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	C	4	3,420	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	B	3,310	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	B		
H-1 Fwy	3	2,460	*1,620*	*2,630*	*3,800*	*4,920*	*5,590*	B	4	3,630	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	C	3,530	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	B		
H-1 Fwy HOV	NA	NA	*515*	*839*	*1,213*	*1,568*	*1,783*	NA	NA	NA	*515*	*839*	*1,213*	*1,568*	*1,783*	NA	NA	*515*	*839*	*1,213*	*1,568*	*1,783*	NA		
H-1 Fwy Future zipper lane	NA	NA	*515*	*839*	*1,213*	*1,568*	*1,783*	NA	NA	NA	*515*	*839*	*1,213*	*1,568*	*1,783*	NA	NA	*515*	*839*	*1,213*	*1,568*	*1,783*	NA		
Nimitz Hwy	3	1,050	**	*310*	*1,920*	*2,340*	*2,460*	C	3	1,770	**	*310*	*1,920*	*2,340*	*2,460*	C	1,540	**	*310*	*1,920*	*2,340*	*2,460*	C		
Salt Lake Bl	1	330	**	**	*440*	*700*	*740*	C*	2	370	**	**	*1,020*	*1,480*	*1,560*	C*	350	**	**	*1,020*	*1,480*	*1,560*	C*		
Total		***7,540***						***C***		***9,190***						***C***	***8,730***						***C***	***NO***	***NO***
Salt Lake Koko Head bound																										
Moanalua Fwy	2	3,730	*1,030*	*1,680*	*2,420*	*3,130*	*3,560*	F	2	3,960	*1,030*	*1,680*	*2,420*	*3,130*	*3,560*	F	3,650	*1,030*	*1,680*	*2,420*	*3,130*	*3,560*	F		
Moanalua Fwy HOV	1	1,020	*515*	*839*	*1,213*	*1,568*	*1,783*	C	1	1,750	*515*	*839*	*1,213*	*1,568*	*1,783*	E	1,590	*515*	*839*	*1,213*	*1,568*	*1,783*	E		
H-1 Fwy + Shoulder Express (1 lane)	5	7,600	*2,800*	*4,540*	*6,570*	*8,490*	*9,660*	D	5	7,700	*2,800*	*4,540*	*6,570*	*8,490*	*9,660*	D	6,800	*2,800*	*4,540*	*6,570*	*8,490*	*9,660*	D		
H-1 Fwy HOV (1 lane)	1	1,620	*515*	*839*	*1,213*	*1,568*	*1,783*	E	1	1,640	*515*	*839*	*1,213*	*1,568*	*1,783*	E	1,380	*515*	*839*	*1,213*	*1,568*	*1,783*	D		
H-1 Fwy Zipper	1	1,510	*515*	*839*	*1,213*	*1,568*	*1,783*	D	1	1,520	*515*	*839*	*1,213*	*1,568*	*1,783*	D	1,460	*515*	*839*	*1,213*	*1,568*	*1,783*	D		
Nimitz Hwy	5	1,420	**	*500*	*3,160*	*3,790*	*3,980*	C	5	1,920	**	*500*	*3,160*	*3,790*	*3,980*	C	1,720	**	*500*	*3,160*	*3,790*	*3,980*	C		
Salt Lake Bl	1	520	**	**	*440*	*700*	*740*	D	2	830	**	**	*1,020*	*1,480*	*1,560*	C*	600	**	**	*1,020*	*1,480*	*1,560*	C*		
Total		***17,420***						***D***		***19,320***						***D***	***17,200***						***D***	***NO***	***NO***

Table C-5: 2030 with First Project Airport Option—A.M. Peak Hour Screenline Impacts Analysis (continued)

Screenline / Facility	Year 2005 Conditions								2030 No Build Conditions								2030 with First Project Airport Option								Screenline Impact Analysis	
	Facility Number of Lanes	Observed Volume* (vph)	Maximum Volume Threshold [b] A	B	C	D	E	LOS [b]	Facility Number of Lanes	Forecast Volume (vph) [a]	Maximum Volume Threshold [b] A	B	C	D	E	LOS [b]	Forecast Volume (vph)	Maximum Volume Threshold [b] A	B	C	D	E	LOS [b]	Project Impact? (Yes or No)	Cumulative Impact? (Yes or No)
F. Kapalama Canal 'Ewa bound																									
Nimitz Hwy	2	1,340	**	200	1,240	1,560	1,640	D	3	3,590	**	310	1,920	2,340	2,460	F	3,310	**	310	1,920	2,340	2,460	F		
Dillingham Blvd	2	690	**	200	1,240	1,560	1,640	C	2	660	**	200	1,240	1,560	1,640	C	610	**	200	1,240	1,560	1,640	C		
N King St	2	600	**	**	1,020	1,480	1,560	C*	2	840	**	**	1,020	1,480	1,560	C*	820	**	**	1,020	1,480	1,560	C*		
H-1 Fwy	4	7,300	2,210	3,580	5,180	6,710	7,620	E	4	7,620	2,210	3,580	5,180	6,710	7,620	E	7,570	2,210	3,580	5,180	6,710	7,620	E		
Halona Street	2	1,160	**	**	1,220	1,770	1,870	C*	2	1,850	**	**	1,220	1,770	1,870	E	1,830	**	**	1,220	1,770	1,870	E		
School St	2	780	**	**	1,020	1,480	1,560	C*	2	850	**	**	1,020	1,480	1,560	C*	870	**	**	1,020	1,480	1,560	C*		
Total		***11,870***						***D***		***15,410***						***E***	***15,010***						***E***	***NO***	***NO***
Kapalama Canal Koko Head bound																									
Nimitz Hwy	4	3,210	**	400	2,530	3,030	3,180	F	3	2,580	**	310	1,920	2,340	2,460	F	2,310	**	310	1,920	2,340	2,460	D		
Nimitz Flyover (future facility)	NA	NA	NA	NA	NA	NA	NA	NA	2	1,420	1,030	1,680	2,420	3,130	3,560	B	1,250	1,030	1,680	2,420	3,130	3,560	B		
Dillingham Blvd	2	1,400	**	200	1,240	1,560	1,640	D	2	1,390	**	200	1,240	1,560	1,640	D	1,140	**	200	1,240	1,560	1,640	C		
N King St	2	1,340	**	**	1,020	1,480	1,560	D	2	1,400	**	**	1,020	1,480	1,560	D	1,280	**	**	1,020	1,480	1,560	D		
Olomea St	2	1,950	**	**	1,220	1,770	1,870	F	2	2,430	**	**	1,220	1,770	1,870	F	2,240	**	**	1,220	1,770	1,870	F		
H-1 Fwy	4	9,490	2,210	3,580	5,180	6,710	7,620	F	5	10,670	2,800	4,540	6,570	8,490	9,660	F	9,980	2,800	4,540	6,570	8,490	9,660	F		
School St	2	1,580	**	**	1,020	1,480	1,560	F	2	1,690	**	**	1,020	1,480	1,560	F	1,530	**	**	1,020	1,480	1,560	E		
Total		***18,970***						***F***		***21,580***						***E***	***19,730***						***E***	***NO***	***NO***
G. Ward Avenue 'Ewa bound																									
H-1 Fwy	3	7,290	1,620	2,630	3,800	4,920	5,590	F	3	7,380	1,620	2,630	3,800	4,920	5,590	F	7,360	1,620	2,630	3,800	4,920	5,590	F		
Beretania St	5	2,790	**	**	3,170	4,450	4,690	C*	5	3,300	**	**	3,170	4,450	4,690	D	3,180	**	**	3,170	4,450	4,690	D		
Kapiolani Blvd	4	1,920	**	**	2,110	2,970	3,130	C*	4	2,560	**	**	2,110	2,970	3,130	D	2,480	**	**	2,110	2,970	3,130	D		
Ala Moana Blvd	3	1,800	**	310	1,920	2,340	2,460	C	3	2,150	**	310	1,920	2,340	2,460	D	2,140	**	310	1,920	2,340	2,460	D		
Total		***13,800***						***E***		***15,390***						***E***	***15,160***						***E***	***NO***	***NO***
Ward Avenue Koko Head bound																									
H-1 Fwy	3	5,740	1,620	2,630	3,800	4,920	5,590	F	4	6,810	2,210	3,580	5,180	6,710	7,620	E	6,580	2,210	3,580	5,180	6,710	7,620	D		
Kinau St	3	1,250	**	**	1,900	2,670	2,810	C*	3	1,150	**	**	1,900	2,670	2,810	C*	1,100	**	**	1,900	2,670	2,810	C*		
S King St	5	2,080	**	**	3,170	4,450	4,690	C*	5	2,800	**	**	3,170	4,450	4,690	C*	2,200	**	**	3,170	4,450	4,690	C*		
Kapiolani Blvd	2	710	**	**	1,020	1,480	1,560	C*	2	820	**	**	1,020	1,480	1,560	C*	800	**	**	1,020	1,480	1,560	C*		
Ala Moana Blvd	3	1,610	**	310	1,920	2,340	2,460	C	3	1,740	**	310	1,920	2,340	2,460	C	1,510	**	310	1,920	2,340	2,460	C		
Total		***11,390***						***E***		***13,320***						***D***	***12,190***						***D***	***NO***	***NO***

[a] Peak hour traffic count data was obained from the State of Hawaii Department of Transporation (2005).
[b] LOS threadsholds were adapted from *Quality Level of Service Handbook (2002)* by the State of Florida's Department of Transportation (FDOT). The Handbook provides the Generanlized Peak Hour Two-Way Volumes for Florida's Urbanized Areas (2002).
A directoinal split of 50% was applied to the two-way volumes to generate the peak hour direction volume threasholds for the purpose of this analysis.
* The reported level of service "C*" means C or better and "B*" means B or better.
** Level of Service thresholds not reported due to type of facility.

Table C-6: 2030 with First Project Airport Option—P.M. Peak Hour Screenline Impacts Analysis

Screenline / Facility	Year 2005 Conditions								2030 No Build Conditions								2030 with First Project Airport Option								Screenline Impact Analysis	
	Facility Number of Lanes	Observed Volume (vph) [a]	*Maximum Volume Threshold [b]*					LOS [b]	Facility Number of Lanes	Forecast Volume (vph)	*Maximum Volume Threshold [b]*					LOS [b]	Forecast Volume (vph)	*Maximum Volume Threshold [b]*					LOS [b]	Project Impact? (Yes or No)	Cumulative Impact? (Yes or No)
			A	*B*	*C*	*D*	*E*				*A*	*B*	*C*	*D*	*E*			*A*	*B*	*C*	*D*	*E*			
B. 'Ewa 'Wal'anae bound																										
H-1 Fwy	**3**	4,110	*1,620*	*2,630*	*3,800*	*4,920*	*5,590*	D	3	3,920	*1,620*	*2,630*	*3,800*	*4,920*	*5,590*	D	3,620	*1,620*	*2,630*	*3,800*	*4,920*	*5,590*	C		
H-1 Fwy future HOV	**NA**	NA	*515*	*839*	*1,213*	*1,568*	*1,783*	NA	1	1,100	*515*	*839*	*1,213*	*1,568*	*1,783*	C	1,130	*515*	*839*	*1,213*	*1,568*	*1,783*	C		
Farrington Hwy	**1**	310	**	*200*	*660*	*780*	*810*	C	2	350	**	*200*	*1,240*	*1,560*	*1,640*	C	290	**	*200*	*1,240*	*1,560*	*1,640*	C		
Fort Weaver Rd (SB)	**2**	2,400	**	*200*	*1,240*	*1,560*	*1,640*	F	2	2,250	**	*200*	*1,240*	*1,560*	*1,640*	F	2,200	**	*200*	*1,240*	*1,560*	*1,640*	F		
Total		***6,820***						***E***		***7,620***						***D***	***7,240***						***D***	***NO***	***NO***
'Ewa Koko Head bound																										
H-1 Fwy	**3**	4,080	*1,620*	*2,630*	*3,800*	*4,920*	*5,590*	D	3	5,500	*1,620*	*2,630*	*3,800*	*4,920*	*5,590*	E	5,370	*1,620*	*2,630*	*3,800*	*4,920*	*5,590*	E		
H-1 Fwy future HOV	**NA**	NA	*515*	*839*	*1,213*	*1,568*	*1,783*	NA	1	990	*515*	*839*	*1,213*	*1,568*	*1,783*	C	940	*515*	*839*	*1,213*	*1,568*	*1,783*	C		
Farrington Hwy	**2**	620	*230*	*1,390*	*1,650*	*1,700*	**	B	3	290	**	*310*	*1,920*	*2,340*	*2,460*	B*	280	**	*310*	*1,920*	*2,340*	*2,460*	C		
Fort Weaver Rd (NB)	**2**	2,060	**	*200*	*1,240*	*1,560*	*1,640*	F	2	2,450	**	*200*	*1,240*	*1,560*	*1,640*	F	2,370	**	*200*	*1,240*	*1,560*	*1,640*	F		
Total		***6,760***						***D***		***9,230***						***E***	***8,960***						***E***	***NO***	***NO***
C. Waikele Stream 'Ewa bound																										
H-1 Fwy	**4**	6,710	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	E	4	8,450	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	F	7,680	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	F		
H-1 Fwy future HOV	**NA**	NA	*515*	*839*	*1,213*	*1,568*	*1,783*	NA	1	490	*515*	*839*	*1,213*	*1,568*	*1,783*	A	440	*515*	*839*	*1,213*	*1,568*	*1,783*	A		
Waipahu St	**1**	530	**	**	*440*	*700*	*740*	D	1	170	**	**	*440*	*700*	*740*	C*	130	**	**	*440*	*700*	*740*	C*		
Farrington Hwy	**2**	1,280	**	*200*	*1,240*	*1,560*	*1,640*	D	3	1,150	**	*310*	*1,920*	*2,340*	*2,460*	C	1,000	**	*310*	*1,920*	*2,340*	*2,460*	C		
Total		***8,520***						***E***		***10,260***						***E***	***9,250***						***E***	***NO***	***NO***
Waikele Stream Koko Head bound																										
H-1 Fwy	**4**	4,790	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	C	5	6,360	*2,800*	*4,540*	*6,570*	*8,490*	*9,660*	C	6,150	*2,800*	*4,540*	*6,570*	*8,490*	*9,660*	C		
Waipahu St	**1**	420	**	**	*440*	*700*	*740*	C*	1	300	**	**	*440*	*700*	*740*	C*	280	**	**	*440*	*700*	*740*	C*		
Farrington Hwy	**2**	790	**	*200*	*1,240*	*1,560*	*1,640*	C	3	640	**	*310*	*1,920*	*2,340*	*2,460*	C	600	**	*310*	*1,920*	*2,340*	*2,460*	C		
Total		***6,000***						***C***		***7,300***						***C***	***7,030***						***C***	***NO***	***NO***
D. Kalauao 'Ewa bound																										
H-1 Fwy	**5**	8,410	*2,800*	*4,540*	*6,570*	*8,490*	*9,660*	D	4	8,670	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	F	8,000	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	F		
H-1 Fwy HOV	**1**	1,530	*515*	*839*	*1,213*	*1,568*	*1,783*	D	1	1,720	*515*	*839*	*1,213*	*1,568*	*1,783*	E	1,520	*515*	*839*	*1,213*	*1,568*	*1,783*	D		
H-1 Fwy Future Zipper Lane	**NA**	NA	*515*	*839*	*1,213*	*1,568*	*1,783*	NA	1	950	*515*	*839*	*1,213*	*1,568*	*1,783*	C	800	*515*	*839*	*1,213*	*1,568*	*1,783*	B		
Moanalua Rd	**2**	2,020	**	**	*1,020*	*1,480*	*1,560*	F	2	2,060	**	**	*1,020*	*1,480*	*1,560*	F	1,730	**	**	*1,020*	*1,480*	*1,560*	F		
Kamehameha Hwy	**3**	2,110	**	*310*	*1,920*	*2,340*	*2,460*	D	3	2,140	**	*310*	*1,920*	*2,340*	*2,460*	D	1,920	**	*310*	*1,920*	*2,340*	*2,460*	C		
Total		***14,070***						***D***		***15,540***						***E***	***13,970***						***E***	***NO***	***NO***
Kalauao Koko Head bound																										
H-1 Fwy	**5**	5,740	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	D	5	7,240	*2,800*	*4,540*	*6,570*	*8,490*	*9,660*	D	6,940	*2,800*	*4,540*	*6,570*	*8,490*	*9,660*	D		
H-1 Fwy HOV (Existing only)	**1**	1,360	*515*	*839*	*1,213*	*1,568*	*1,783*	D	NA	NA	*515*	*839*	*1,213*	*1,568*	*1,783*	NA	n/a	*515*	*839*	*1,213*	*1,568*	*1,783*	n/a		
Moanalua Rd	**2**	870	**	**	*1,020*	*1,480*	*1,560*	C*	2	970	**	**	*1,020*	*1,480*	*1,560*	C*	910	**	**	*1,020*	*1,480*	*1,560*	C*		
Kamehameha Hwy	**3**	1,500	**	*310*	*1,920*	*2,340*	*2,460*	C	3	1,680	**	*310*	*1,920*	*2,340*	*2,460*	C	1,630	**	*310*	*1,920*	*2,340*	*2,460*	C		
Total		***9,470***						***D***		***9,890***						***D***	***9,480***						***D***	***NO***	***NO***
E. Salt Lake 'Ewa bound																										
Moanalua Fwy	**4**	5,900	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	D	4	5,890	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	D	5,580	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	D		
H-1 Fwy	**4**	3,550	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	B	4	3,460	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	B	3,060	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	B		
H-1 Fwy HOV	**1**	1,410	*515*	*839*	*1,213*	*1,568*	*1,783*	D	1	1,320	*515*	*839*	*1,213*	*1,568*	*1,783*	D	1,090	*515*	*839*	*1,213*	*1,568*	*1,783*	C		
H-1 Fwy Future zipper lane	**NA**	NA	*515*	*839*	*1,213*	*1,568*	*1,783*	NA	1	810	*515*	*839*	*1,213*	*1,568*	*1,783*	B	660	*515*	*839*	*1,213*	*1,568*	*1,783*	B		
Nimitz Hwy	**3**	2,460	**	*310*	*1,920*	*2,340*	*2,460*	E	3	3,150	**	*310*	*1,920*	*2,340*	*2,460*	F	2,970	**	*310*	*1,920*	*2,340*	*2,460*	F		
Salt Lake Bl	**1**	730	**	**	*440*	*700*	*740*	E	2	990	**	**	*1,020*	*1,480*	*1,560*	C*	860	**	**	*1,020*	*1,480*	*1,560*	C*		
Total		***14,050***						***D***		***15,620***						***D***	***14,220***						***D***	***NO***	***NO***
Salt Lake Koko Head bound																										
Moanalua Fwy	**2**	3,330	*1,030*	*1,680*	*2,420*	*3,130*	*3,560*	E	2	3,510	*1,030*	*1,680*	*2,420*	*3,130*	*3,560*	E	3,490	*1,030*	*1,680*	*2,420*	*3,130*	*3,560*	E		
Moanalua Fwy HOV	**1**	240	*515*	*839*	*1,213*	*1,568*	*1,783*	A	1	960	*515*	*839*	*1,213*	*1,568*	*1,783*	C	1,070	*515*	*839*	*1,213*	*1,568*	*1,783*	C		
H-1 Fwy + Shoulder Express (1 lane)	**4**	4,500	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	C	4	4,090	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	C	3,750	*2,210*	*3,580*	*5,180*	*6,710*	*7,620*	C		
H-1 Fwy HOV (1 lane)	**1**	330	*515*	*839*	*1,213*	*1,568*	*1,783*	A	1	1,070	*515*	*839*	*1,213*	*1,568*	*1,783*	C	990	*515*	*839*	*1,213*	*1,568*	*1,783*	C		
Nimitz Hwy	**5**	1,500	**	*500*	*3,160*	*3,790*	*3,980*	C	5	3,130	**	*500*	*3,160*	*3,790*	*3,980*	C	3,080	**	*500*	*3,160*	*3,790*	*3,980*	C		
Salt Lake Bl	**1**	350	**	**	*440*	*700*	*740*	C*	2	450	**	**	*1,020*	*1,480*	*1,560*	C*	420	**	**	*1,020*	*1,480*	*1,560*	C*		
Total		***10,250***						***D***		***13,210***						***D***	***12,800***						***D***	***NO***	***NO***

Table C-6: 2030 with First Project Airport Option—P.M. Peak Hour Screenline Impacts Analysis (continued)

Screenline / Facility	Year 2005 Conditions								2030 No Build Conditions								2030 with First Project Airport Option								Screenline Impact Analysis	
	Facility Number of Lanes	Observed Volume (vph) [a]	*Maximum Volume Threshold [b]* A	B	C	D	E	LOS [b]	Facility Number of Lanes	Forecast Volume (vph)	*Maximum Volume Threshold [b]* A	B	C	D	E	LOS [b]	Forecast Volume (vph)	*Maximum Volume Threshold [b]* A	B	C	D	E	LOS [b]	Project Impact? (Yes or No)	Cumulative Impact? (Yes or No)
F. Kapalama Canal 'Ewa bound																										
Nimitz Hwy	3	1,780	**	310	1,920	2,340	2,460	C	3	1,790	**	310	1,920	2,340	2,460	C	1,590	**	310	1,920	2,340	2,460	C		
Nimitz Flyover (Future Facility)	NA	NA	NA	NA	NA	NA	NA	NA	2	880	1,030	1,680	2,420	3,130	3,560	A	810	1,030	1,680	2,420	3,130	3,560	A		
Dillingham Blvd	2	1,460	**	200	1,240	1,560	1,640	D	2	1,350	**	200	1,240	1,560	1,640	D	1,260	**	200	1,240	1,560	1,640	D		
N King St	2	1,340	**	**	1,020	1,480	1,560	D	2	1,440	**	**	1,020	1,480	1,560	D	1,280	**	**	1,020	1,480	1,560	D		
H-1 Fwy	4	7,570	2,210	3,580	5,180	6,710	7,620	E	4	8,050	2,210	3,580	5,180	6,710	7,620	F	7,860	2,210	3,580	5,180	6,710	7,620	F		
Halona St	2	1,800	**	**	1,220	1,770	1,870	E	2	2,230	**	**	1,220	1,770	1,870	F	2,110	**	**	1,220	1,770	1,870	F		
School St	2	1,220	**	**	1,020	1,480	1,560	D	2	1,380	**	**	1,020	1,480	1,560	D	1,280	**	**	1,020	1,480	1,560	D		
Total		***15,170***						***E***		***17,120***						***E***	***16,190***						***E***	***NO***	***NO***
Kapalama Canal Koko Head bound																										
Nimitz Hwy	3	2,770	**	310	1,920	2,340	2,460	F	3	4,250	**	310	1,920	2,340	2,460	F	4,060	**	310	1,920	2,340	2,460	F		
Dillingham Blvd	2	1,080	**	200	1,240	1,560	1,640	C	2	1,100	**	200	1,240	1,560	1,640	C	910	**	200	1,240	1,560	1,640	C		
N King St	2	1,110	**	**	1,020	1,480	1,560	D	2	1,560	**	**	1,020	1,480	1,560	D	1,480	**	**	1,020	1,480	1,560	D		
Olomea St	2	1,670	**	**	1,220	1,770	1,870	D	2	1,890	**	**	1,220	1,770	1,870	F	1,880	**	**	1,220	1,770	1,870	F		
H-1 Fwy	4	7,320	2,210	3,580	5,180	6,710	7,620	E	5	8,040	2,800	4,540	6,570	8,490	9,660	D	7,940	2,800	4,540	6,570	8,490	9,660	D		
School St	2	990	**	**	1,020	1,480	1,560	C*	2	1,210	**	**	1,020	1,480	1,560	D	1,150	**	**	1,020	1,480	1,560	D		
Total		***14,940***						***E***		***18,050***						***D***	***17,420***						***E***	***NO***	***NO***
G. Ward Avenue 'Ewa bound																										
H-1 Fwy	3	6,790	1,620	2,630	3,800	4,920	5,590	F	3	7,130	1,620	2,630	3,800	4,920	5,590	F	6,990	1,620	2,630	3,800	4,920	5,590	F		
Beretania St	5	2,510	**	**	3,170	4,450	4,690	C*	5	3,020	**	**	3,170	4,450	4,690	C*	2,780	**	**	3,170	4,450	4,690	C*		
Kapiolani Blvd	2	1,420	**	**	1,020	1,480	1,560	D	2	1,620	**	**	1,020	1,480	1,560	F	1,520	**	**	1,020	1,480	1,560	E		
Ala Moana Blvd	3	1,650	**	310	1,920	2,340	2,460	C	3	2,190	**	310	1,920	2,340	2,460	D	1,980	**	310	1,920	2,340	2,460	D		
Total		***12,370***						***E***		***13,960***						***E***	***13,270***						***E***	***NO***	***NO***
Ward Avenue Koko Head bound																										
H-1 Fwy	3	6,150	1,620	2,630	3,800	4,920	5,590	F	4	7,370	2,210	3,580	5,180	6,710	7,620	E	7,310	2,210	3,580	5,180	6,710	7,620	E		
Kinau St	4	1,870	**	**	2,540	3,560	3,750	C*	4	1,800	**	**	2,540	3,560	3,750	C*	1,780	**	**	2,540	3,560	3,750	C*		
S King St	6	3,370	**	**	3,800	5,340	5,630	C*	6	3,710	**	**	3,800	5,340	5,630	C*	3,560	**	**	3,800	5,340	5,630	C*		
Kapiolani Blvd	4	1,840	**	**	2,110	2,970	3,130	C*	4	2,550	**	**	2,110	2,970	3,130	D	2,490	**	**	2,110	2,970	3,130	D		
Ala Moana Blvd	3	2,120	**	310	1,920	2,340	2,460	D	3	2,330	**	310	1,920	2,340	2,460	D	2,270	**	310	1,920	2,340	2,460	D		
Total		***15,350***						***D***		***17,760***						***D***	***17,410***						***D***	***NO***	***NO***

Notes:

[a] Peak hour traffic count data was obained from the State of Hawaii Department of Transporation (2005).

[b] LOS threadsholds were adapted from *Quality Level of Service Handbook (2002)* by the State of Florida's Department of Transportation (FDOT). The Handbook provides the Generanlized Peak Hour Two-Way Volumes for Florida's Urbanized Areas (2002). A directoinal split of 50% was applied to the two-way volumes to generate the peak hour direction volume threasholds for the purpose of this analysis.

* The reported level of service "C*" means C or better and "B*" means B or better.

** Level of Service thresholds not reported due to type of facility.

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

Change	The following is a modification of and replaces **Table D-1: 2007 A.M. Two-Hour Peak Period Transit Trips Origin-Destination Format** **Table D-2: 2030 No Build A.M. Two-Hour Peak Period Transit Trips Origin-Destination Format** **Table D-4: 2030 Airport Alternative A.M. Two-Hour Peak Period Transit Trips Origin-Destination Format**

Table D-1. 2007 A.M. Two-Hour Peak Period Transit Trips Origin-Destination Format

		Downtown	Kakaako	Mo'ili'ili - Ala Moana	Waikiki	Kaimuki - Wai'alae	Palama - Liliha	Kalihi - Iwilei	Airport - Pearl Harbor	Salt Lake - Aliamanu	Pearl City - 'Aiea	Ewa	Kapolei	Makakilo	Waipahu - Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kaneohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki - Manoa	UH Manoa	Ala Moana Center	Total
1	Downtown	138	85	135	119	85	102	131	70	72	28	7	4	1	12	3	9	7	18	26	37	2	3	6	44	33	72	1,249
2	Kakaako	153	35	72	96	65	51	81	29	21	12	2	1	-	3	-	5	5	9	9	4	1	1	4	30	27	38	754
3	Mo'ili'ili - Ala Moana	698	199	163	224	292	118	201	69	66	30	3	5	2	7	1	5	4	42	11	17	2	2	2	89	96	103	2,451
4	Waikiki	581	188	222	196	272	79	139	114	38	38	6	1	3	44	-	5	7	79	8	32	10	17	7	88	86	427	2,687
5	Kaimuki - Wai'alae	529	154	306	310	292	68	111	36	33	15	3	1	1	7	1	1	-	81	9	12	2	-	4	97	103	108	2,284
6	Palama - Liliha	679	151	126	97	63	249	365	141	129	53	1	7	-	17	-	4	4	8	23	20	4	1	-	38	76	59	2,315
7	Kalihi - Iwilei	270	92	80	60	38	132	117	122	92	51	3	4	1	8	2	6	3	8	16	8	2	3	4	24	36	44	1,226
8	Airport - Pearl Harbor	80	17	15	18	20	33	72	106	77	42	3	1	1	21	2	6	3	1	4	4	4	-	6	2	12	13	563
9	Salt Lake - Aliamanu	324	108	59	42	33	83	187	246	326	156	6	3	2	34	3	8	6	5	14	13	1	2	4	15	64	27	1,771
10	Pearl City - 'Aiea	268	52	47	42	30	48	156	258	218	497	19	32	4	184	28	46	29	3	13	13	4	-	7	12	86	18	2,114
11	Ewa	134	32	39	89	30	28	40	44	27	59	249	113	8	75	4	12	5	4	2	5	5	1	19	18	87	13	1,142
12	Kapolei	48	14	16	37	9	14	22	15	14	24	43	132	27	30	1	5	3	4	4	2	3	-	57	11	38	10	583
13	Makakilo	60	17	18	41	16	21	19	16	15	18	7	56	7	11	1	1	2	3	3	3	4	1	13	12	39	6	410
14	Waipahu - Waikele	134	28	45	128	19	28	52	52	40	138	70	80	9	282	48	79	38	6	1	9	9	1	28	11	81	20	1,436
15	Waiawa	27	3	12	22	3	7	9	12	11	36	4	7	1	65	7	51	22	1	-	1	-	1	3	2	14	2	323
16	Mililani	166	30	41	33	26	24	55	58	32	68	6	19	1	84	30	332	225	6	6	3	19	16	3	23	85	10	1,401
17	Wahiawa	76	19	19	23	18	15	27	35	21	41	4	12	-	46	12	206	203	4	1	2	7	23	3	10	43	7	877
18	East Honolulu	314	61	147	152	255	38	67	25	25	6	2	1	1	6	-	1	1	241	7	28	4	-	1	46	113	52	1,594
19	Kaneohe	362	76	66	53	36	101	118	65	54	27	-	4	-	8	-	1	1	6	336	126	30	2	5	14	64	22	1,577
20	Kailua	446	85	56	63	47	87	94	58	44	25	1	7	-	13	-	3	1	14	107	385	7	1	1	14	83	33	1,675
21	Ko'olau Loa	43	12	11	14	6	5	12	9	5	3	-	2	-	2	-	2	1	2	14	4	186	8	-	3	14	5	363
22	North Shore	50	15	16	18	10	11	21	16	10	8	1	1	1	12	2	29	41	2	2	2	47	118	1	5	31	9	479
23	Wai'anae	175	45	47	59	35	21	60	60	31	23	6	75	6	21	1	8	5	4	8	8	3	1	423	16	80	22	1,243
24	Makiki - Manoa	508	130	172	174	138	95	144	45	48	16	-	3	1	11	1	3	-	20	6	8	2	2	3	78	86	79	1,773
25	UH Manoa	59	15	28	27	25	9	12	6	5	4	2	1	1	4	-	2	1	6	1	2	2	-	2	13	3	10	240
26	Ala Moana Center	33	18	24	42	16	8	11	4	4	3	1	-	1	2	-	1	1	5	3	2	-	1	2	11	4	-	197
	Total	6,355	1,681	1,982	2,179	1,879	1,475	2,323	1,711	1,458	1,421	449	572	79	1,009	147	831	618	582	634	750	360	205	608	726	1,484	1,209	32,727

Table D-2: 2030 No Build A.M. Two-Hour Peak Period Transit Trips Origin-Destination Format

		Downtown	Kakaako	Mo'ili'ili - Ala Moana	Waikiki	Kaimuki - Wai'alae	Palama - Liliha	Kalihi - Iwilei	Airport - Pearl Harbor	Salt Lake - Aliamanu	Pearl City - 'Aiea	Ewa	Kapolei	Makakilo	Waipahu - Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kaneohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki - Manoa	UH Manoa	Ala Moana Center	Total
1	Downtown	154	141	199	144	114	149	187	99	95	49	11	11	5	14	10	11	6	24	29	32	5	6	5	57	76	73	1,706
2	Kakaako	339	90	173	196	153	126	217	76	53	29	4	7	2	10	3	3	2	14	10	19	-	2	7	66	85	50	1,736
3	Mo'ili'ili - Ala Moana	792	269	195	242	318	119	241	87	65	33	5	8	2	12	6	6	5	48	14	10	3	4	2	106	122	101	2,815
4	Waikiki	587	231	245	203	310	76	151	122	32	32	9	7	3	61	6	6	5	74	5	42	11	14	4	99	116	409	2,860
5	Kaimuki - Wai'alae	495	182	322	306	314	62	117	43	24	17	5	2	3	5	1	2	1	86	9	9	3	-	3	104	136	93	2,344
6	Palama - Liliha	656	179	126	86	62	274	392	146	127	58	6	12	1	20	4	4	4	13	25	18	4	-	3	37	54	48	2,359
7	Kalihi - Iwilei	281	134	89	66	53	164	151	135	113	61	6	9	2	10	5	7	5	6	11	14	2	2	5	29	28	43	1,431
8	Airport - Pearl Harbor	78	16	13	19	27	33	70	112	73	59	4	3	2	20	11	5	5	-	6	6	-	3	3	4	14	12	598
9	Salt Lake - Aliamanu	284	123	55	35	28	84	178	229	313	175	3	15	2	33	16	9	3	9	12	14	5	4	1	17	72	19	1,738
10	Pearl City - 'Aiea	220	52	38	34	35	39	137	254	181	562	25	78	-	208	99	53	25	7	9	15	6	3	8	15	93	21	2,217
11	Ewa	215	58	59	163	40	35	67	60	31	85	500	606	44	146	19	15	19	10	5	10	10	-	31	21	65	20	2,334
12	Kapolei	112	30	34	81	23	20	42	37	20	59	194	784	93	84	19	10	13	8	4	4	6	2	105	17	35	28	1,864
13	Makakilo	62	16	23	42	13	12	27	17	15	24	47	287	47	28	7	5	4	2	-	4	3	-	30	5	24	6	750
14	Waipahu - Waikele	165	40	68	171	29	30	42	54	35	152	205	188	21	315	104	81	37	8	6	5	4	5	12	16	67	17	1,877
15	Waiawa	118	25	41	94	22	15	43	51	28	146	36	93	7	187	152	146	79	2	5	4	6	7	7	9	52	19	1,394
16	Mililani	154	31	40	36	22	23	54	48	26	92	24	53	4	106	120	359	233	5	5	4	9	15	6	11	70	10	1,560
17	Wahiawa	79	21	28	24	12	14	25	32	16	40	6	29	3	46	37	177	222	2	3	3	9	19	7	9	40	3	906
18	East Honolulu	322	85	157	149	266	39	74	29	24	19	2	5	-	6	2	2	1	277	8	33	3	2	1	56	116	44	1,722
19	Kaneohe	341	73	51	45	38	96	118	53	52	28	1	3	1	14	3	4	6	1	372	132	32	1	4	10	70	18	1,567
20	Kailua	451	88	66	58	38	88	107	58	34	35	4	11	1	5	5	3	3	19	107	414	7	-	5	15	77	19	1,718
21	Ko'olau Loa	47	12	10	17	6	6	14	11	6	3	1	2	-	1	1	1	3	3	12	5	224	9	2	4	12	7	419
22	North Shore	61	20	14	20	10	14	21	17	13	14	1	8	-	8	11	30	48	5	3	3	59	133	-	10	30	10	563
23	Wai'anae	146	45	47	53	30	25	52	56	31	25	24	266	14	38	11	11	9	4	7	9	2	1	458	13	43	17	1,437
24	Makiki - Manoa	489	166	181	163	148	88	150	56	43	19	4	3	2	12	-	2	4	21	6	8	4	3	1	90	194	75	1,932
25	UH Manoa	58	18	29	24	27	9	14	3	8	4	2	1	1	5	2	1	2	6	2	2	-	1	3	15	3	14	254
26	Ala Moana Center	31	22	25	39	14	7	10	4	3	1	1	1	-	2	1	1	-	4	2	2	-	-	2	10	5	-	187
	Total	6,737	2,167	2,328	2,510	2,152	1,647	2,701	1,889	1,461	1,821	1,130	2,492	260	1,396	655	954	744	658	677	821	417	236	715	845	1,699	1,176	40,288

Table D-4: 2030 Airport Alternative A.M. Two-Hour Peak Period Transit Trips Origin-Destination Format

		Downtown	Kakaako	Mo'ili'ili - Ala Moana	Waikiki	Kaimuki - Wai'alae	Palama - Liliha	Kalihi - Iwilei	Airport - Pearl Harbor	Salt Lake - Aliamanu	Pearl City - 'Aiea	Ewa	Kapolei	Makakilo	Waipahu - Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kaneohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki - Manoa	UH Manoa	Ala Moana Center	Total
1	Downtown	87	114	167	141	97	142	153	100	95	60	22	19	9	29	13	18	10	27	28	34	5	7	8	52	80	79	1,596
2	Kakaako	319	57	154	197	134	124	223	89	63	38	13	7	3	14	7	6	4	21	11	18	4	2	6	74	87	45	1,720
3	Mo'ili'ili - Ala Moana	778	259	169	221	305	117	248	100	67	47	4	10	2	21	9	10	7	47	13	20	9	4	3	104	129	100	2,803
4	Waikiki	555	210	229	169	367	81	154	202	32	65	25	19	6	80	20	7	9	80	9	38	9	16	6	91	117	397	2,993
5	Kaimuki - Wai'alae	517	185	318	332	296	57	124	57	31	23	4	7	3	10	7	4	1	86	7	7	1	1	5	102	150	91	2,426
6	Palama - Liliha	707	205	139	98	68	306	428	204	144	81	6	14	1	31	9	10	6	7	29	26	3	1	5	41	76	74	2,719
7	Kalihi - Iwilei	288	143	105	76	39	158	105	149	106	69	12	12	4	17	16	5	4	9	19	13	-	6	2	34	40	47	1,478
8	Airport - Pearl Harbor	107	25	26	31	30	41	70	114	88	61	12	13	4	46	16	11	5	1	10	6	-	4	8	7	30	21	787
9	Salt Lake - Aliamanu	405	162	80	60	41	104	246	408	371	216	11	33	4	72	21	12	8	5	16	14	5	3	4	16	136	33	2,486
10	Pearl City - 'Aiea	512	130	101	105	61	81	280	446	266	675	43	123	9	311	103	53	31	11	23	26	10	3	10	19	261	46	3,739
11	Ewa	562	201	187	574	120	93	214	225	122	181	587	777	52	254	26	37	29	23	15	23	21	2	40	43	281	51	4,740
12	Kapolei	276	99	93	308	61	48	112	127	65	105	221	777	106	142	21	26	24	8	18	11	8	2	104	30	138	72	3,002
13	Makakilo	168	61	60	163	40	37	67	75	36	54	66	320	52	65	8	9	6	7	7	6	9	-	33	17	86	16	1,468
14	Waipahu - Waikele	393	110	201	722	69	63	125	162	97	216	218	213	23	387	114	95	43	12	11	12	17	1	13	30	220	71	3,638
15	Waiawa	270	65	117	416	53	34	90	120	60	189	49	130	14	269	155	155	80	8	8	10	7	7	9	15	122	45	2,497
16	Mililani	341	102	95	111	64	46	129	153	79	143	34	124	8	189	125	374	243	9	13	10	7	16	8	19	191	29	2,662
17	Wahiawa	187	64	54	66	35	24	70	83	41	65	14	61	5	82	43	199	225	8	12	6	4	25	6	15	128	19	1,541
18	East Honolulu	338	92	172	167	253	43	77	48	25	16	4	8	1	9	4	3	4	273	5	35	2	2	1	48	148	39	1,817
19	Kaneohe	337	76	61	54	31	92	124	77	61	40	5	10	-	14	5	9	3	4	330	126	35	3	-	15	106	22	1,640
20	Kailua	439	97	62	62	44	86	106	64	41	38	8	9	-	20	4	3	2	22	103	387	12	-	1	14	103	31	1,758
21	Ko'olau Loa	47	15	10	19	7	5	11	13	8	6	4	2	1	3	2	-	3	-	12	4	217	8	1	6	17	11	432
22	North Shore	112	42	39	45	24	22	40	41	27	22	3	18	1	30	10	35	56	3	4	4	60	142	3	15	67	16	881
23	Wai'anae	257	92	86	113	55	46	96	164	66	57	32	286	21	72	15	15	18	11	12	6	4	1	513	14	127	31	2,210
24	Makiki - Manoa	512	174	194	166	154	91	164	68	48	26	4	7	3	15	1	8	-	23	9	7	1	3	1	92	195	78	2,044
25	UH Manoa	57	18	25	25	23	8	13	11	4	6	9	5	2	10	3	4	3	4	3	2	-	2	4	13	-	10	264
26	Ala Moana Center	22	11	16	28	11	10	11	2	5	3	2	3	-	3	2	2	1	4	2	2	-	1	2	8	4	-	155
	Total	8,593	2,809	2,960	4,469	2,482	1,959	3,480	3,302	2,048	2,502	1,412	3,007	334	2,195	759	1,110	825	713	729	853	450	262	796	934	3,039	1,474	53,496

Add	Add new Appendix E in its entirety

Appendix E
Pearl Highlands HCS Analysis Results

Table E-1: Merge Analysis On-ramp from Kamehameha Highway with Westbound H-1 to Northbound H-2 Freeways—2030 No Build P.M. Peak

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / ***Site Information***

Analyst	Ryan Avery	Freeway/Dir of Travel	H2
Agency or Company	PB	Junction	Kamehameha Hwy
Date Performed	8/10/2009	Jurisdiction	Honolulu
Analysis Time Period	PM Peak	Analysis Year	2030

Project Description: No-Build

Inputs

Upstream Adj Ramp	Terrain: Grade	Downstream Adj Ramp
☐ Yes ☐ On		☑ Yes ☑ On
☑ No ☐ Off		☐ No ☐ Off
L_{up} = ft	S_{FF} = 55.0 mph S_{FR} = 45.0 mph	L_{down} = 1200 ft
V_u = veh/h	Sketch (show lanes, L_A L_D V_R V_f	V_D = 1800 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/Hr)	PHF	Terrain	%Truck	%Ru	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	3545	0.95	Grade	2	0	0.990	1.00	3769
Ramp	860	0.95	Grade	4	0	0.962	1.00	941
UpStream								
DownStream	1800	0.95	Grade	2	0	0.990	1.00	1914

Merge Areas

Estimation of v_{12}

$V_{12} = V_F(P_{FM})$

L_{ED} = (Equation 25-2 or 25-3)

P_{FM} = 1.000 using Equation (Exhibit 25-5)

V_{12} = 3769 pc/h

V_3 or V_{av34} 0 pc/h (Equation 25-4 or 25-5)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 25-8)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	4710	Exhibit 25-7		Yes

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	4710	Exhibit 25-7	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$

D_R = 39.8 (pc/mi/ln)

LOS = F (Exhibit 25-4)

Speed Determination

M_S = 0.725 (Exhibit 25-19)

S_R = 45.6 mph (Exhibit 25-19)

S_0 = N/A mph (Exhibit 25-19)

S = 45.6 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{ED} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-12)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 25-15 or 25-16)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 25-18)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 25-14		
$V_{FO} = V_F - V_R$		Exhibit 25-14		
V_R		Exhibit 25-3		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 25-14		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086 V_{12} - 0.0009 L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Determination

D_s = (Exhibit 25-19)

S_R = mph (Exhibit 25-19)

S_0 = mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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Table E-2: Merge Analysis On-ramp from Kamehameha Highway with Westbound H-1 to Northbound H-2 Freeways—2030 Project P.M. Peak

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / ***Site Information***

Analyst	Ryan Avery	Freeway/Dir of Travel	H2
Agency or Company	PB	Junction	Kamehameha Hwy
Date Performed	8/10/2009	Jurisdiction	Honolulu
Analysis Time Period	PM Peak	Analysis Year	2030

Project Description: Build

Inputs

Upstream Adj Ramp	Terrain: Grade	Downstream Adj Ramp
☐ Yes ☐ On		☑ Yes ☑ On
☑ No ☐ Off		☐ No ☐ Off
L_{up} = ft	S_{FF} = 55.0 mph S_{FR} = 45.0 mph	L_{down} = 1200 ft
V_1 = veh/h	Sketch (show lanes, L_A, L_D, V_R, V_I)	V_D = 1800 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/Hr)	PHF	Terrain	%Truck	%Ru	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	3245	0.95	Grade	2	0	0.990	1.00	3450
Ramp	1060	0.95	Grade	4	0	0.962	1.00	1160
UpStream								
DownStream	1800	0.95	Grade	2	0	0.990	1.00	1914

Merge Areas

Estimation of v_{12}

$V_{12} = V_F(P_{FM})$

P_{FM} = 1.000 using Equation (Exhibit 25-5)

V_{12} = 3450 pc/h

V_3 or V_{av34} = 0 pc/h (Equation 25-4 or 25-5)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☑ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☑ No

If Yes, V_{12a} = pc/h (Equation 25-8)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	4610	Exhibit 25-7		Yes

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	4610	Exhibit 25-7	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$

D_R = 38.9 (pc/mi/ln)

LOS = F (Exhibit 25-4)

Speed Determination

M_S = 0.684 (Exhibit 25-19)

S_R = 46.1 mph (Exhibit 25-19)

S_0 = N/A mph (Exhibit 25-19)

S = 46.1 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

P_{FD} = using Equation (Exhibit 25-12)

V_{12} = pc/h

V_3 or V_{av34} = pc/h (Equation 25-15 or 25-16)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 25-18)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 25-14		
$V_{FO} = V_F - V_R$		Exhibit 25-14		
V_R		Exhibit 25-3		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 25-14		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086 V_{12} - 0.0009 L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Determination

M_S = (Exhibit 25-19)

S_R = mph (Exhibit 25-19)

S_0 = mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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Table E-3: Weave Analysis On-ramp from Westbound H-1 Freeway to Northbound Kamehameha Highway Across Westbound Farrington Highway—2030 No Build P.M. Peak

FREEWAY WEAVING WORKSHEET

General Information

Analyst	Ryan Avery
Agency/Company	PB
Date Performed	7/24/2009
Analysis Time Period	PM

Site Information

Freeway/Dir of Travel	WB Farrington Highway
Weaving Seg Location	H1 to Kamhameha Highway
Jurisdiction	Honolulu
Analysis Year	2030

Inputs

Freeway free-flow speed, S_{ff} (mi/h)	45	Weaving type	C
Weaving number of lanes, N	3	Volume ratio, VR	0.73
Weaving seg length, L (ft)	1700	Weaving ratio, R	0.48
Terrain	Level		

Conversions to pc/h Under Base Conditions

(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	920	0.95	2	0	1.5	1.2	0.990	1.00	978
V_{o2}	0	0.95	2	0	1.5	1.2	0.990	1.00	0
V_{w1}	1055	0.95	2	0	1.5	1.2	0.990	1.00	1121
V_{w2}	1400	0.95	2	0	1.5	1.2	0.990	1.00	1488
V_w				2609	V_{nw}				978
v									3587

Weaving and Non-Weaving Speeds

	Unconstrained		Constrained	
	Weaving (i = w)	Non-Weaving (i = nw)	Weaving (i = w)	Non-Weaving (= nw)
a (Exhibit 24-6)	0.08	0.0020		
b (Exhibit 24-6)	2.30	6.00		
c (Exhibit 24-6)	0.80	1.10		
d (Exhibit 24-6)	0.60	0.60		
Weaving intensity factor, Wi	0.94	1.49		
Weaving and nonweaving speeds, Si (mi/h)	33.05	29.07		

Number of lanes required for unconstrained operation, Nw 1.88
Maximum number of lanes, Nw (max) 3.00

☐ If Nw < Nw(max) unconstrained operation ☐ If Nw > Nw (max) constrained operation

Weaving Segment Speed, Density, Level of Service, and Capacity

Weaving segment speed, S (mi/h)	31.86
Weaving segment density, D (pc/mi/ln)	27.53
Level of service, LOS	E
Capacity of base condition, c_b (pc/h)	4680
Capacity as a 15-minute flow rate, c (veh/h)	4931
Capacity as a full-hour volume, c_h (veh/h)	4684

Notes

a. Weaving segments longer than 2500 ft are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
b. Capacity constrained by basic freeway capacity.
c. Capacity occurs under unconstrained operating conditions.
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some localized queuing are expected in such cases.
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some localized queuing are expected in such cases.
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.30. Poor operations and some localized queuing are expected in such cases.
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some localized queuing are expected in such cases.
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some localized queuing are expected in such cases.

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Add	Add new Appendix F in its entirety

Appendix F
Operational and Safety Report

Pearl Highlands Station Freeway Ramp Operational and Safety Analysis Report Honolulu High-Capacity Transit Corridor Project

October 5, 2009

Prepared for:
City and County of Honolulu

1 Introduction

This report provides an operational and safety analysis of freeway ramps and segments near the proposed Pearl Highlands Station. It also discusses proposed modifications to the highway system that include additional access and design exceptions. There are two interstate access modifications proposed with the Honolulu High-Capacity Transit Corridor Project (Project):

- A new direct access ramp from the H-2 Freeway to a park-and-ride and transit center to serve commuters from Central Oʻahu—the ramp would diverge from the existing ramp from southbound H-2 to westbound H-1.
- A revised access ramp to northbound H-2 at Kamehameha Highway—the Project would restripe the existing H-2 lane configuration to extend the on-ramp merge lane by approximately 500 feet.

This report serves as the first step in the Interstate Access Modification Request process that will need to be approved by the Federal Highway Administration (FHWA). A full eight-point Access Modification Study will be completed after the Project Record of Decision.

2 Methodology

Year 2030 No Build Alternative volumes for the freeway mainline, ramps, and nearby highways were estimated by applying a growth rate to existing counts. The growth rate was derived from Project travel demand model plots for Existing Year (2007) and Year 2030. Project scenario volumes were developed based on anticipated trip volumes to and from the rail station, as well as examination of travel demand model plots of the No Build and Project scenarios. Ramp merge sections were analyzed using Highway Capacity Software (HCS) (version 5.21). Existing accident data was obtained from the Hawaiʻi Department of Transportation (HDOT).

3 Analysis of the H-2 Southbound Freeway Off-ramp

As shown in Appendix A, a new ramp is proposed to provide direct auto and bus access from the off-ramp from southbound H-2 to westbound H-1 into the Pearl Highlands Station park-and-ride and transit center. The 2030 volumes on the existing H-2 to H-1 ramp are anticipated to be approximately 240 vehicles in the a.m. peak hour and 40 vehicles in the p.m. peak hour. The new ramp would diverge from the existing southbound off-ramp from H-2 to westbound H-1 and Waipahu Street (the split to these two destinations occurs after the diverge of the new ramp). The existing southbound H-2 to westbound H-1 ramp exits H-2 as a drop lane as opposed to a diverge, with a posted speed of 45 mph. This results

in an approximate capacity of 2,100 vehicles per hour according to the Highway Capacity Manual (2000). Table 1 summarizes current and future projected ramp volumes. With a 2030 No Build volume of 415 vehicles in the a.m. peak hour, the volume-to-capacity (v/c) ratio of 0.19 indicates an approximate level of service (LOS) of A. The additional 240 vehicles accessing the new ramp would bring the total volume on the off-ramp to 655 vehicles, which would result in a v/c ratio of 0.31 and an estimated LOS B. In the p.m. peak hour, the 2030 No Build volume of 950 vehicles would be increased to 990 with the anticipated volumes accessing the station. This is anticipated to result in the operations on the ramp remaining at LOS C.

The impacts on safety from the additional traffic on the ramp are anticipated to be minimal. With a v/c ratio of less than 0.50 during both the a.m. and p.m. peak hours, the impact on congestion and resulting increase in likelihood of accidents is expected to be minimal with the proposed new ramp and accompanying volume.

In conclusion, no significant operational or safety impact to the existing off-ramp or mainline traffic is anticipated to occur with construction of the proposed direct access ramp.

Table 1: H-2 Southbound Traffic Volumes

	Current Traffic Volume	2030 No Build Traffic Volume	2030 Project Traffic Volume	Net Change in Volume: Project vs. No Build
AM Peak Hour				
H-2 Southbound Total	**4,885**	**5,440**	**5,440**	**0**
H-2 to H-1 Westbound/Waipahu St	365	415	655	240
H-2 to H-1 Eastbound	4,520	5,025	4,785	-240
PM Peak Hour				
H-2 Southbound Total	**3,300**	**3,750**	**3,750**	**0**
H-2 to H-1 Westbound/Waipahu St	840	950	990	40
H-2 to H-1 Eastbound	2,460	2,800	2,760	-40

4 Analysis of the H-2 Northbound Freeway On-ramp from Westbound Kamehameha Highway

As shown in Table 2 and Appendix A, construction of the Project is anticipated to result in an increase in the 2030 volume during the p.m. peak hour on the on-ramp from westbound Kamehameha Highway to northbound H-2. As shown in Appendix B, an analysis of this ramp merge in HCS indicated that, without construction of the Project (No Build), ramp operations are expected to be LOS F in 2030 during the p.m. peak hour. This is due to a combination of high traffic volumes (3,545 vehicles on the mainline merging with 860 entering vehicles from the Kamehameha Highway on-ramp), a relatively sharp on-ramp angle (approximately 25:1) and a relatively steep upgrade directly after the ramp merge. The Project will result in an addition of approximately 200 vehicles to the Kamehameha Highway on-ramp and a reduction of approximately 300 vehicles on the mainline H-2, resulting in a net reduction of approximately 100 cars at the merge junction. With the Project, this merge is expected to continue to operate at LOS F.

To mitigate for potential increase in merging traffic, the Project 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. To accomplish this, the existing lanes will be narrowed from 12 feet to 11 feet, the inside shoulder will be reduced from 4 feet to 2 feet, and the outside shoulder from 10 feet to 3 feet. The proposed restriping is shown in Appendix C.

A review of HDOT accident history indicated that one accident occurred where the ramp from westbound Kamehameha Highway meets northbound H-2 between 2004 and 2006. Thus, this is not considered a *high-accident location,* which is defined as a location with at least three accidents per year for 3 consecutive years. With the elimination of the existing sharp-angle merge, the proposed mitigation is anticipated to result in a safer operating environment at this location, as vehicles entering from westbound Kamehameha Highway will have more time and distance (as well as better sight distance) to merge with vehicles on the mainline. Longer acceleration lanes have been recommended as a method of increasing safety on short curve on-ramps.[1]

The reduction in lane and shoulder widths on the bridge is expected to reduce safety slightly.[2] As shown in Figure 1, narrowing the lanes from 12 feet to 11 feet will result in an accident modification factor of 1.05. Similarly, as shown in Figure 2, narrowing the shoulders to 2 or 3 feet will result in a modification factor of approximately 1.2 to 1.3.

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[1] McCartt, A.T., et al. 2004. "Types and characteristics of ramp-related motor vehicle crashes on urban interstate roadways in Northern Virginia." *Journal of Safety Research 35.*

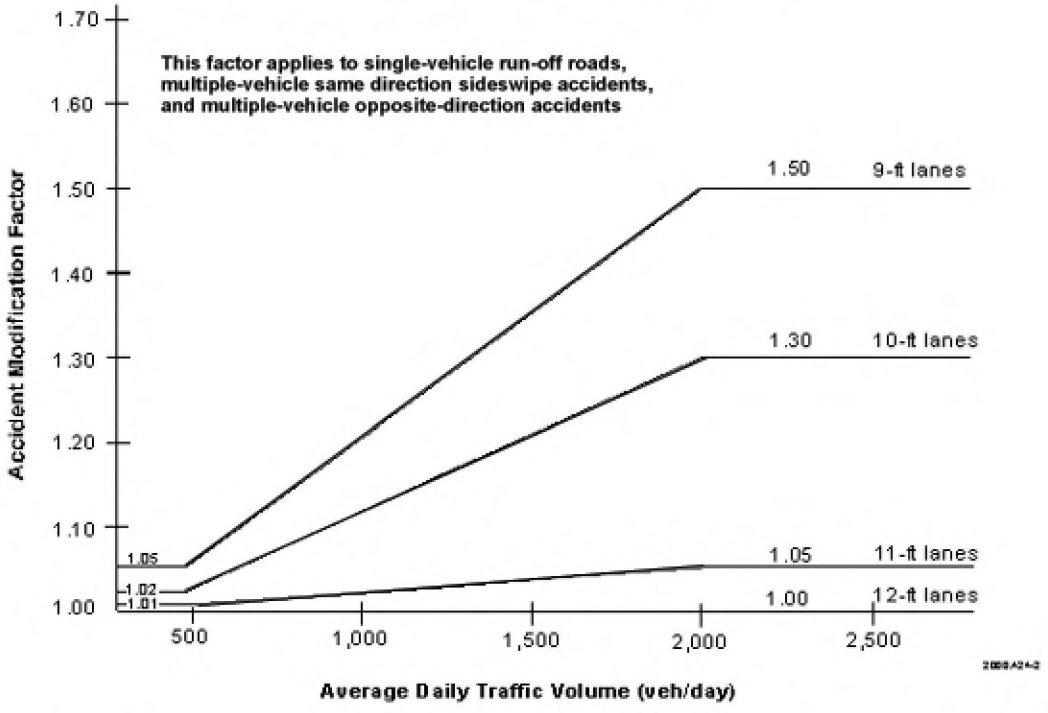
[2] U.S. Department of Transportation. December 2000. *Prediction of the expected safety performance of rural two-lane highways.*

In summary, the narrowing of shoulders and lane widths may result in a slightly higher potential for accidents, but eliminating the sharp-angle merge and providing a longer acceleration lane for the merge is expected to increase safety and reduce the potential for accidents.

Table 2: H-2 Northbound Traffic Volumes

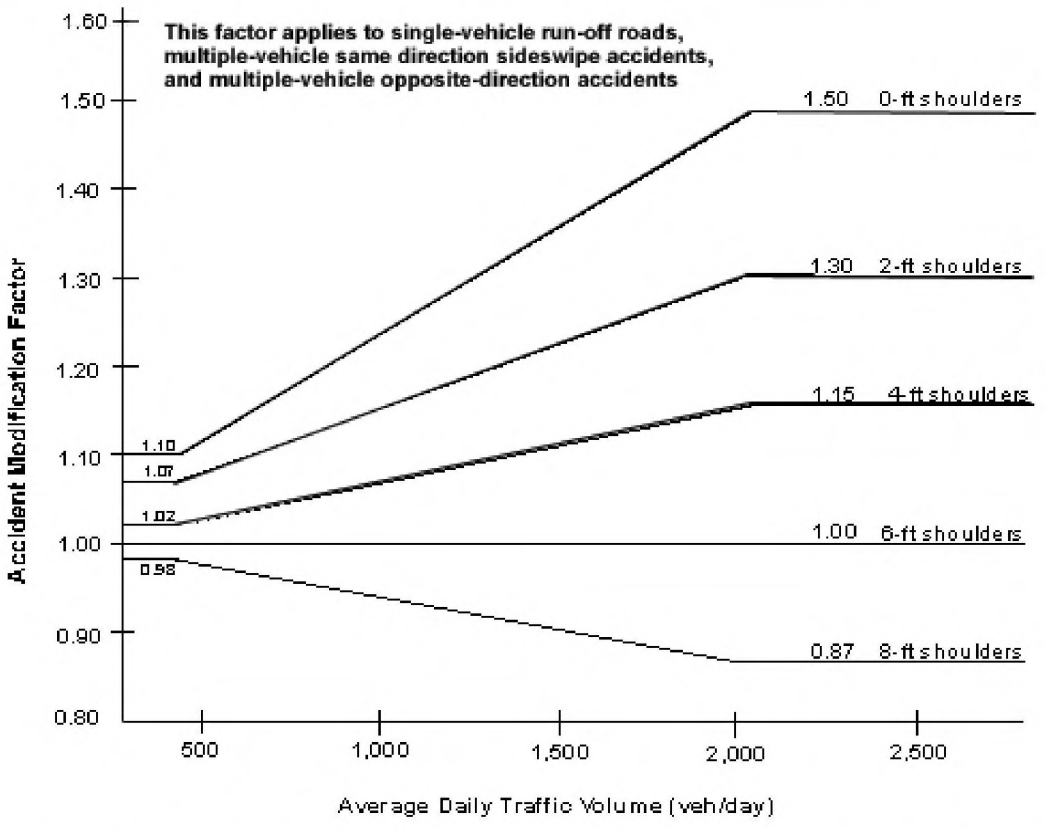
	Current Traffic Volume	2030 No Build Traffic Volume	2030 Project Traffic Volume	Net Change in Volume: Project vs. No-Build
AM Peak Hour				
H-1 Westbound to H-2 Northbound	1,560	1,770	1,720	-50
Kamehameha Hwy. Westbound to H-2 Northbound	270	515	470	-45
H-2 Northbound Total	**1,830**	**2,285**	**2,190**	**-95**
PM Peak Hour				
H-1 Westbound to H-2 Northbound	3,125	3,545	3,245	-300
Kamehameha Hwy. Westbound to H-2 Northbound	475	860	1,060	200
H-2 Northbound Total	**3,600**	**4,405**	**4,305**	**-100**

Figure 1. Accident Modification Factor for Lane Width



Source: *Prediction of the expected safety performance of rural two-lane highways;* U.S. Department of Transportation, December 2000; p. 31.

Figure 2. Accident Modification Factor for Shoulder Width



Source: *Prediction of the expected safety performance of rural two-lane highways;* U.S. Department of Transportation, December 2000; p. 34.

Appendix A—Volume Diagrams

Figure A-1. Existing Conditions

Figure A-2. 2030 A.M.

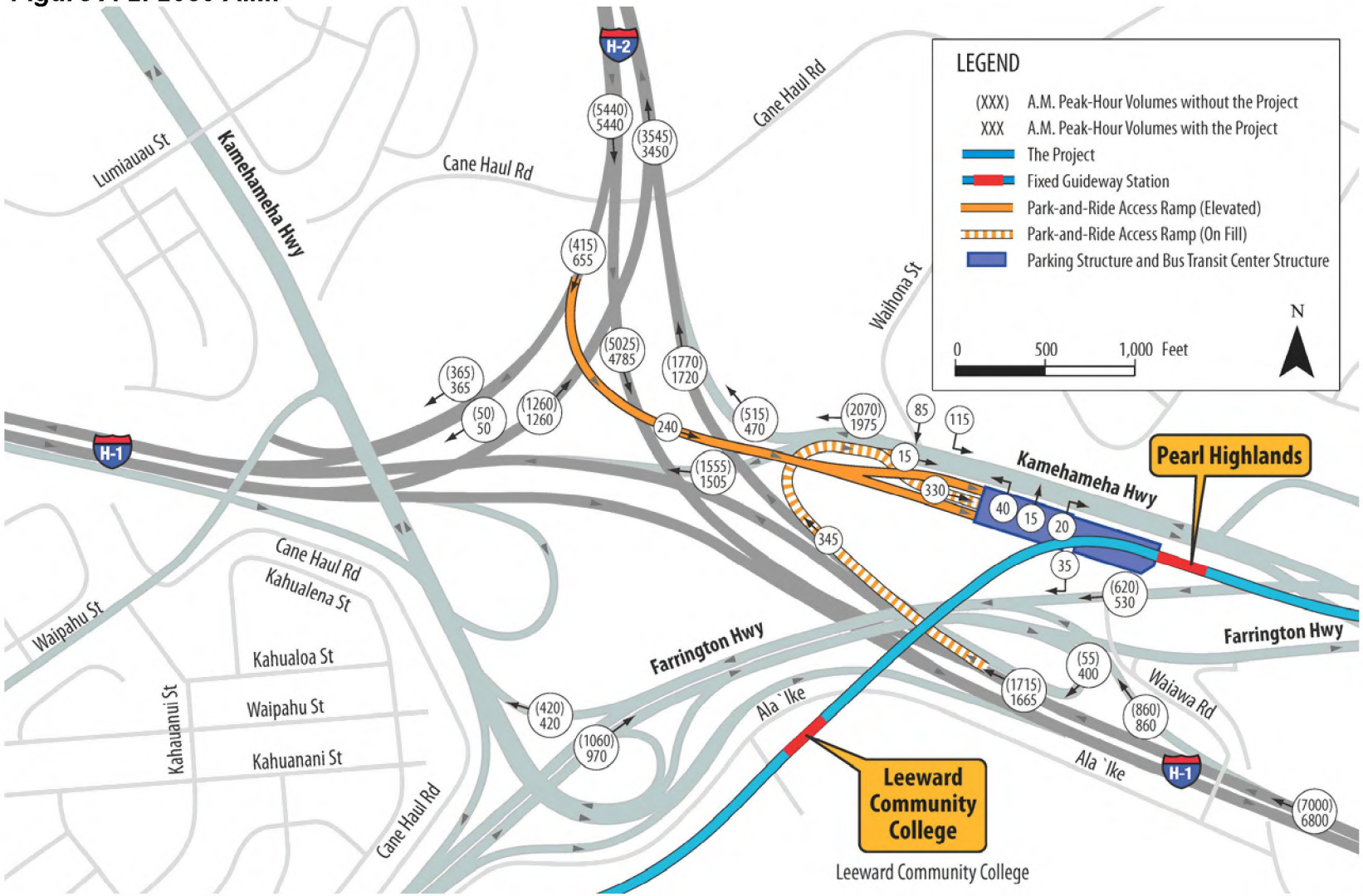
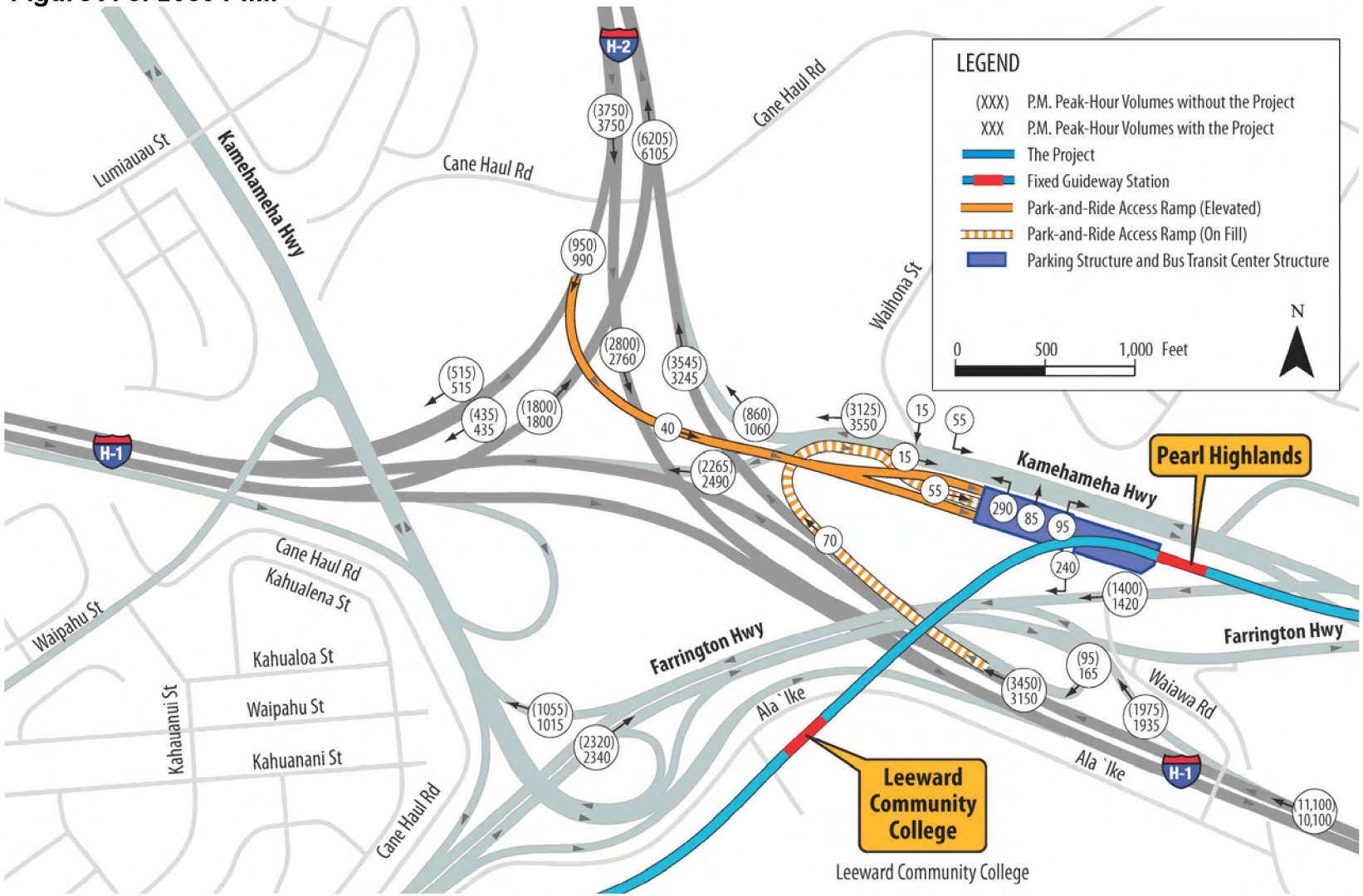


Figure A-3. 2030 P.M.



Appendix B—HCS Analysis Results

Figure B-1. Merge Analysis: On-ramp from Kamehameha Highway with Westbound H-1 to Northbound H-2—2030 No Build P.M. Peak

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information / Site Information

Analyst	Ryan Avery	Freeway/Dir of Travel	H2
Agency or Company	PB	Junction	Kamehameha Hwy
Date Performed	8/10/2009	Jurisdiction	Honolulu
Analysis Time Period	PM Peak	Analysis Year	2030

Project Description: No-Build

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☒ No ☐ Off; L_{up} = ft; V_u = veh/h

Terrain: Grade

S_{FF} = 55.0 mph S_{FR} = 45.0 mph

Sketch (show lanes, L_A, L_D, V_R, V)

Downstream Adj Ramp: ☒ Yes ☒ On ☐ No ☐ Off; L_{down} = 1200 ft; V_D = 1800 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	3545	0.95	Grade	2	0	0.990	1.00	3769
Ramp	860	0.95	Grade	4	0	0.962	1.00	941
UpStream								
DownStream	1800	0.95	Grade	2	0	0.990	1.00	1914

Merge Areas

Estimation of v_{12}

$V_{12} = V_F(P_{FM})$

L_{EQ} = (Equation 25-2 or 25-3)

P_{FM} = 1.000 using Equation (Exhibit 25-5)

V_{12} = 3769 pc/h

V_3 or V_{av34} = 0 pc/h (Equation 25-4 or 25-5)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☒ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☒ No

If Yes, V_{12a} = pc/h (Equation 25-6)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	4710	Exhibit 25-7		Yes

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	4710	Exhibit 25-7	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$

D_R = 39.8 (pc/mi/ln)

LOS = F (Exhibit 25-4)

Speed Determination

M_S = 0.725 (Exhibit 25-19)

S_R = 45.6 mph (Exhibit 25-19)

S_0 = N/A mph (Exhibit 25-19)

S = 45.6 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{EQ} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-12)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 25-15 or 25-16)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 25-18)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 25-14		
$V_{FO} = V_F - V_R$		Exhibit 25-14		
V_R		Exhibit 25-3		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 25-14		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086 V_{12} - 0.0009 L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Determination

M_S = (Exhibit 25-19)

S_R = mph (Exhibit 25-19)

S_0 = mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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Figure B-2. Merge Analysis: On-ramp from Kamehameha Highway with Westbound H-1 to Northbound H-2—2030 Build P.M. Peak

RAMPS AND RAMP JUNCTIONS WORKSHEET

General Information | ***Site Information***

Analyst	Ryan Avery	Freeway/Dir of Travel	H2
Agency or Company	PB	Junction	Kamehameha Hwy
Date Performed	8/10/2009	Jurisdiction	Honolulu
Analysis Time Period	PM Peak	Analysis Year	2030

Project Description: Build

Inputs

Upstream Adj Ramp: ☐ Yes ☐ On ☒ No ☐ Off; L_{up} = ft; V_u = veh/h

Terrain: Grade

S_{FF} = 55.0 mph S_{FR} = 45.0 mph

Sketch (show lanes, L_A, L_D, V_R, V_f)

Downstream Adj Ramp: ☒ Yes ☒ On ☐ No ☐ Off; L_{down} = 1200 ft; V_D = 1800 veh/h

Conversion to pc/h Under Base Conditions

(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Ru	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$
Freeway	3245	0.95	Grade	2	0	0.990	1.00	3450
Ramp	1060	0.95	Grade	4	0	0.962	1.00	1160
UpStream								
DownStream	1800	0.95	Grade	2	0	0.990	1.00	1914

Merge Areas

Estimation of v_{12}

$V_{12} = V_F(P_{FM})$

L_{ED} = (Equation 25-2 or 25-3)

P_{FM} = 1.000 using Equation (Exhibit 25-5)

V_{12} = 3450 pc/h

V_3 or V_{av34} = 0 pc/h (Equation 25-4 or 25-5)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☒ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☒ No

If Yes, V_{12b} = pc/h (Equation 25-8)

Capacity Checks

	Actual	Capacity		LOS F?
V_{FO}	4610	Exhibit 25-7		Yes

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{R12}	4610	Exhibit 25-7	4600:All	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$

D_R = 38.9 (pc/mi/ln)

LOS = F (Exhibit 25-4)

Speed Determination

M_S = 0.684 (Exhibit 25-19)

S_R = 46.1 mph (Exhibit 25-19)

S_0 = N/A mph (Exhibit 25-19)

S = 46.1 mph (Exhibit 25-14)

Diverge Areas

Estimation of v_{12}

$V_{12} = V_R + (V_F - V_R)P_{FD}$

L_{ED} = (Equation 25-8 or 25-9)

P_{FD} = using Equation (Exhibit 25-12)

V_{12} = pc/h

V_3 or V_{av34} pc/h (Equation 25-15 or 25-16)

Is V_3 or V_{av34} > 2,700 pc/h? ☐ Yes ☐ No

Is V_3 or V_{av34} > 1.5 * V_{12}/2 ☐ Yes ☐ No

If Yes, V_{12a} = pc/h (Equation 25-18)

Capacity Checks

	Actual	Capacity		LOS F?
V_F		Exhibit 25-14		
$V_{FO} = V_F - V_R$		Exhibit 25-14		
V_R		Exhibit 25-3		

Flow Entering Merge Influence Area

	Actual	Max Desirable		Violation?
V_{12}		Exhibit 25-14		

Level of Service Determination (if not F)

$D_R = 4.252 + 0.0086 V_{12} - 0.0009 L_D$

D_R = (pc/mi/ln)

LOS = (Exhibit 25-4)

Speed Determination

D_s = (Exhibit 25-19)

S_R = mph (Exhibit 25-19)

S_0 = mph (Exhibit 25-19)

S = mph (Exhibit 25-15)

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Appendix C—Proposed H-2 Northbound Freeway Restriping Plan