

This chapter identifies the short-term, construction-related effects on transportation from the Build Alternatives and discusses mitigation to address potential effects along the study corridor. These effects would be temporary and would occur between 2009 and 2018 at various times and locations in the study corridor. Mitigation is intended to address the temporary effects of Project construction.

The Project would be opened to the public as construction phases are completed, and there would be temporary effects on transportation in station areas in the interim between the opening of each phase and project completion. These short-term effects would be primarily transit-related as bus routes are changed to complement the fixed guideway service.

7.1 Construction Staging Plans

Prior to the start of construction, construction staging areas and plans would be identified and developed by the contractor and approved by the City. For each segment of the work, specific details would be developed and reviewed in consultation with relevant authorities, and needed approvals would be sought. These details would 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 lots, and stations could be used for construction staging areas. These areas would be sufficient for the first construction phase. Additional construction and staging areas identified and requested by the contractor would be reviewed and approved by the City. Selected staging areas are not expected to cause a substantial effect. The average duration that a staging site would be used would depend on the construction sequencing and type of construction.

7.2 Construction-Related Effects on Transit Service

Local access to transit would be affected by lane closures within the construction corridor. TheBus routes affected by construction would generally be maintained by temporarily diverting or relocating routes within their current service areas to ensure reliable service. TheBus stops along diverted and relocated routes would be temporarily relocated, particularly if a stop's current location is affected by temporary closure of a right lane during 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 would be affected by construction. Since some bus routes pass through multiple

parts of the study corridor, they may experience both minor and direct effects, depending on location.

Table 7-1: Bus Routes Affected by Construction

Minor Effects	Direct Effects
1, 2, 5, 7, 10, 11, 13, 17, 18, 31, 40, 40A, 44, 74, 83A, 86, 86A, 93A, 95, 201, 202, 413, 415, B, F11, F12 and F13	2, 3 4, 6, 8, 9, 11, 13, 19, 20, 22, 23, 31, 32, 40, 40A, 42, 43, 52, 53, 54, 55, 56, 57, 57A, 62, 65, 71, 73, 88, 88A, 98A, 201, 202, 203, 434 , A, B, C, E, F2, F3

In addition to TheBus routes operating near the fixed guideway alignment, the construction would affect TheHandi-Van operations. School bus routes may also be affected by temporary delays caused by construction activities. Delays in schedule may require alternative routes between stops.

A Transit Mitigation Program as further described in Section 7.7.2, would be developed to identify and implement those efforts considered necessary to address construction effects on transit service. Examples of mitigation efforts are identified in Section 7.7.2.

The Project would be constructed in phases and opened as sections are completed. As a result, there would be stations where fixed guideway service would temporarily end while the next section is under construction. This phased opening approach would require interim changes to bus transit service to complement the fixed guideway service. This could have a short-term effect at station areas as bus routes are temporarily moved to connect with fixed-guideway stations. This includes additional buses traveling near certain fixed-guideway stations and associated traffic and pedestrian effects from the bus service. A plan to accommodate the use of phased openings would be developed in advance.

7.3 Construction-Related Effects on Traffic

This section discusses potential construction-related traffic effects (e.g., lane closures) that may occur throughout the day, including peak travel periods. Additional lanes may be closed during off-peak travel periods. These additional lane closures would accommodate construction equipment. Construction activities would likely occur in a temporary construction corridor. Estimates of construction-related procedures that would affect road closures are as follows:

- Column Foundations (drilled shafts)—lane closures would be required throughout the column foundation installation process. The degree of traffic disruption around areas of drilled shaft work would vary depending on the roadway’s width and the availability of alternate routes. The following scenarios are anticipated:
 - Off-peak closures—two lanes would be closed for each half-mile construction segment for foundation and column construction. If the alignment is along a roadway that is less than three lanes wide (e.g.,

Halekauwila Street), the road would be closed to all but local vehicular traffic during off-peak periods. If the street's median is more than 8 feet wide (e.g., Farrington Highway in parts of Waipahu), closure of only two lanes may be possible.

- Peak closures—during peak times, closure may be restricted to one or two lanes, but the length of closure would remain the same. If a street is only two lanes wide, efforts would be made to open one lane during peak periods if necessary.
 - Cross-streets—if cross-streets are at least 150 feet apart to allow space for the required equipment, the only potential restrictions on cross-streets would be on turning movements onto the alignment road where lanes are closed. Access could be closed off-peak during erection of segments.
- Columns—lane closures would be required throughout the column construction process. Lane closures similar to those assumed for column foundations are assumed for aboveground column construction.
 - Guideway Structure—during construction of the guideway structure between the columns, lane closures would be required. However, if the active work area spans an intersection, the cross-street would be open (with possible turning restrictions during peak hours) but closed during off-peak hours. Lane closure could also be needed in the off-peak direction during delivery and erection of segments.
 - Stations—lane closures would be required at all locations where stations would be constructed over a roadway. Some operations would likely require completely closing all lanes for construction. These operations would be scheduled for permitted night work.
 - Park-and-Ride and Other System Facilities—park-and-ride and other system facilities (e.g., traction power substations and the maintenance and storage facility) would primarily be built on parcels not located on public streets and highways. Substantial lane closures are not anticipated during construction of these facilities, but brief lane closures may be necessary during construction of entrances and exitways.

Table 7-2 shows the locations anticipated for temporary lane closures in the study corridor. In addition to travel lanes, a number of turning lanes would also be temporarily closed. Also, traffic signals adjacent to the proposed fixed guideway could also be temporarily replaced or re-timed. Delivery of construction materials would increase the numbers of trucks on local roadways.

Balanced cantilever construction likely would be used for the longer spans crossing the H-1 and H-2 Freeways and possibly Fort Weaver Road. Individual lanes would be closed to allow this work to be completed without full roadway closure. A detailed schedule showing which lanes would be affected would be prepared for the erection of segments. The actual means and methods for erecting these segments would be the contractor's decision. Construction with segmented precast sections would be

brought in to avoid the need for substantial shoring or false work. Phased opening of the Project to the public would have only minor effects on traffic. This would be limited to the station areas where bus transit service has been temporarily altered to complement the interim configuration of the fixed-guideway service.

Table 7-2: Potential Peak Period Temporary Lane Closures during Construction¹

Roadway Name	Cross Street From	Cross Street To	Number of Lanes	Number of Lanes to be Temporarily Closed ¹	
				Kapolei Bound	Koko Head Bound
Common to All Build Alternatives					
Farrington Highway	Paiwa Street	Kahualii Street	4	1 (a.m.) 0 (p.m.)	0 (a.m.) 1 (p.m.)
Kamehameha Highway	Acacia Road	Boathouse Entrance	6 ³	0	1
Kamehameha Highway	Middle Street	Laumaka Street	5	1	1
Dillingham Boulevard. and Kamehameha Highway	Kohou Street	Alakawa Street (Costco Rear Parking)	4	1	1
Halekauwila Street	Punchbowl Street	South Street	2	1	0
Halekauwila Street	Keawe Street	Ward Avenue	2	0	1
Kona Street	Pensacola Street	Ke'eaumoku Street	2	1	0
Salt Lake Alternative					
Salt Lake Boulevard	Luapele Drive	Maluna Street/ Namur Road	6	1	1
Salt Lake Boulevard	Wanaka Street	Kahikolu Place	2	0 ²	0 ²
Salt Lake Boulevard	Ala Liliko'i Street	Ala Napunani Street	5	1	1
Salt Lake Boulevard	Ala Napunani Street	Pu'uloa Road	5	0	1
Pūkōloa Street	Pu'uloa Road	Ahua Street	5	0	1
Airport Alternative					
Kamehameha Highway	Salt Lake Boulevard	Center Drive	5 ³	0	1
Airport & Salt Lake Alternative					
Salt Lake Boulevard	Luapele Drive	Maluna Street/ Namur Road	6	1	1
Salt Lake Boulevard	Wanaka Street	Kahikolu Place	2	0 ²	0 ²
Salt Lake Boulevard	Ala Liliko'i Street	Ala Napunani Street	5	1	1
Salt Lake Boulevard	Ala Napunani Street	Pu'uloa Road	5	0	1
Pūkōloa Street	Pu'uloa Road	Ahua Street	5	0	1
Kamehameha Highway	Salt Lake Boulevard	Center Drive	5 ³	0	1

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

² An existing lane may be removed but would be supplemented with an additional lane at the time of construction

³ The Kamehameha Highway narrows to four lanes around the Moanalua Freeway interchange

7.4 Construction-Related Effects on Parking

In general, on-street parking would be temporarily affected by construction. Table 7-3 identifies parking spots that would be temporarily unavailable at various points along the Project's alignment. All curb parking in areas adjacent to project construction would be temporarily unavailable to preserve vehicle travel lanes. Some parking lots adjacent to the study corridor would also be affected. Construction vehicle parking would occur in the designated staging areas.

Table 7-3: Construction-Related Parking Reductions

Roadway Name	Cross Street From	Cross Street To	On-Street Parking Temporarily Lost During Construction
Common to All Build Alternatives			
Moloalo Place	Waipahu Depot Street	Mokuola Street	5
Ka'aahi Street	Dillingham Boulevard	Iwilei Road	17
Halekauwila Street	Punchbowl Street	South Street	21
Halekauwila Street	South Street	Keawe Street	15
Halekauwila Street	Keawe Street	Coral Street	38
Halekauwila Street	Coral Street	Cooke Street	10
Halekauwila Street	Cooke Street	Kamani Street	44
Halekauwila Street	Kamani Street	Ward Avenue	9
Queen Street	Ward Avenue	Kamake'e Street	46
Queen Street Extension	Kamake'e Street	Waimanu Street	21
Kona Street	Pensacola Street	Pi'ikoi Street	92
Salt Lake Alternative and Airport & Salt Lake Alternative			
Salt Lake Boulevard	Lawehana Street	Maluna Street	17
Pūkōloa Street	Māpunapuna Street	Ahua Street	38

7.5 Construction-Related Effects on Bike and Pedestrian Facilities

Access to residences and businesses would be maintained during all construction phases. Warning and/or notification signs of modification to bicycle and pedestrian facilities during construction would be provided. Proposed pedestrian detours would be submitted to the City for review and approval to ensure they are reasonable for all pedestrians and meet ADA regulations. Proper deterrents, such as barriers or fencing, would be placed to prevent access (short-cuts) though the construction area.

Many crossings would be temporarily eliminated, and disruptions would occur along adjacent sidewalks and bike paths. In areas where additional right-of-way may be

required (e.g., Dillingham Boulevard), sidewalks may be temporarily removed and pedestrians rerouted to safe locations. Information on the existing and proposed bikeway system within Honolulu was obtained from the *Bike Plan Hawai'i Master Plan* (HDOT 2003) and the *Honolulu Bicycle Master Plan* (DTS 1999).

7.6 Construction-Related Effects on Freight Movement

The fixed guideway would be built along several roadways that are heavily used freight routes. Construction effects on freight could occur during off-peak hours. If a roadway is less than three lanes wide, it would need to be closed. Freight movement may be delayed by the need to use an alternative route. Loading zones along the route would be temporarily eliminated.

7.7 Mitigation of Construction-Related Effects

The mitigation program is intended to address the temporary effects of project construction. Based on the transportation analysis conducted for the Project, long-term mitigation efforts for construction-related effects are not expected. Development of the Maintenance of Traffic (MOT) Plan and the Transit Mitigation Program (TMP) would identify the primary mitigation measures that would address temporary construction-related effects on transportation.

The MOT Plan would address effects on streets and highways, transit, businesses and residences, pedestrians and bicyclists, and parking. It would also identify additional bus service that may be necessary to mitigate effects. The construction methods identified by each contractor would be included in the MOT Plan. The TMP would identify and mitigate effects on transit services operating during project construction. These plans would be developed by the contractor for each construction phase and coordinated and/or approved by HDOT and the City prior to starting construction in an area. The MOT Plan and the TMP would include site-specific traffic control measures and would be developed in conjunction with the system's final design. The key objectives of these plans would be to limit effects on existing traffic and maintain access to businesses. These plans would be shared with the public.

7.7.1 Maintenance of Traffic Plan

The following sections discuss measures included in the MOT Plan that would help mitigate construction-related transportation effects. The contractor would be given parameters, such as the number of lanes that could be closed and the procedures for closures, and would develop the MOT plan accordingly with approval from the City or HDOT. The MOT plan would address roadway closures for streets identified in Table 7-2. The Plan would specifically account for the effect of drilled shaft installation, crane access and operations, and the delivery and operation of materials trucks. The MOT Plan would also address the delivery and unloading of pre-cast guideway sections, including crane positioning for unloading. The contractor would submit any proposed changes to the MOT Plan to the City for approval.

Streets and Highways

Construction would be phased so that the duration of drilled shaft work, which would have the largest effect on traffic, would be minimized. During final design, detailed Work Zone Traffic Control Plans, including detour plans, would be formulated in cooperation with all affected jurisdictions. Unless unforeseen circumstances occur, no designated major or secondary highway would be closed to vehicular or pedestrian traffic. In areas where a roadway is over three lanes wide, no roadway would be completely closed, so vehicular or pedestrian access to residences, businesses, or other establishments would still be provided.

Temporary lane closures would occur during non-peak hours, to minimize effects on heavy commuter traffic. It should be assumed that guideway segments would be delivered along arterial routes to the corridor. Delivery of other large equipment such as drilling equipment, cranes, launching gantry truss sections, etc., would also occur along arterial routes to the corridor. City and HDOT approvals would be sought for proposed haul routes and included in the contract packages.

An extensive public information program would be implemented to provide motorists with a thorough understanding of the location and duration of construction activities, as well as anticipated traffic conditions. The MOT Plan would also address traffic signal changes and the relocation of freight loading zones that would be temporarily eliminated.

Transit

The MOT Plan would determine when and where changes in bus service could be needed and would include Transportation Demand Management (TDM) elements. The Project would work with TheBus on potential changes to bus routes and service. Changes in bus service could include improving frequencies on existing routes or adding new routes that circumvent specific construction areas.

Businesses and Residences

During construction, access to businesses and residences near construction activities could be temporarily affected. In several locations left-turn lanes would be closed during construction, requiring drivers to change their approach and make a right-hand turn to the businesses. Such closures are expected on Farrington Highway in Waipahu, Kamehameha Highway in Pearl City, Salt Lake Boulevard, and Dillingham Boulevard. Segments of Halekauwila and Queen Streets may be made temporarily one-way or have parking eliminated during construction.

Mitigation to reduce disruptions in access to existing businesses may include the following:

- Maintaining auto access to residences and businesses during all phases of construction work

- Phasing and timing construction to maintain access to individual businesses for pedestrians, bicyclists, passenger vehicles, and trucks during business hours and important business seasons
- Taking existing freight movement into consideration when selecting detours; detours would ensure that roadways are capable of temporarily allowing for freight movement
- Providing access to emergency vehicles in areas where lane closures would affect the entire roadway; in areas where all lanes in one direction would be closed, a sufficient amount of space would be available for use by emergency vehicles

Pedestrians and Bikes

Pedestrian and bike access would be maintained during construction as much as possible, while emphasizing safety. Measures to maintain safe and efficient pedestrian and bike access would meet ADA regulations and could include the following:

- Maintaining pedestrian and bike access to residences and businesses during all construction phases
- Channelizing pedestrian flow in areas where sidewalks would be in close proximity to construction; channelized structures are generally steel-framed, three-sided plywood structures built above existing sidewalks
- Making extensive use of signage to direct pedestrians and bicyclists to the safest and most efficient routes through construction zones; signs would warn pedestrians and bicyclists well in advance of sidewalk and bike lane closures

Parking

The MOT Plan would consider potential measures to replace parking spaces temporarily lost during construction. These measures may include possible lease of off-street spaces. A temporary loading zone relocation plan would also be included.

Construction Phasing

The Build Alternatives would be constructed in phases. For example, the Airport & Salt Lake Alternative could be phased such that the guideway between East Kapolei and Ala Moana Center along Salt Lake Boulevard is built first, followed by a connection from Middle Street Transit Center to Honolulu International Airport. The connection from the Airport to Aloha Stadium could be completed as the final phase of the Project when additional funds become available.

The choice of phasing would affect construction methods and therefore the effects of construction on the transportation system. The MOT Plan and the TMP would be developed for the different construction phases to minimize effects to the traveling public.

7.7.2 Transit Mitigation Program

The Project's TMP would define adjustments that would mitigate the effects of construction on transit service. The TMP would minimize effects on existing bus service, and would be customized for each construction phase to properly serve projected rider demands. In some construction sections, parallel bus routes on roads not directly affected by construction may receive an increase in service to accommodate rider demand shifted from affected bus routes. Public information and outreach would be conducted to influence current and prospective transit rider behavior.

The TMP would consider the following factors in determining required bus route service adjustments:

- Minimizing the extent of changes for bus stops and rerouting (if necessary)
- The MOT Plan, as it relates to bus routes and pedestrian access to existing or relocated bus stops
- The severity and duration of construction along each corridor segment and within each construction phase
- Differences between scheduled bus route travel times currently operating and scheduled travel times expected during construction
- Differences between current travel times for existing traffic and traffic during construction, and whether transit can and should be given temporary traffic priority treatments during construction
- The types of temporary traffic priority treatments for transit that could be provided at a reasonable cost during construction

The TMP would generally maintain existing bus routes and stops. In areas where interruptions are expected, the following approaches may be adopted:

- Temporarily closing or relocating bus stops
- Rerouting existing service for short segments where no additional bus service is required
- Rerouting existing service for longer segments that require additional bus service
- Introducing new service to operate on different alignments not affected as heavily by construction
- Ceasing operation of routes (or portions of routes) on a temporary basis and redeploying the affected service hours to parallel routes
- Initiating a public information program to inform transit riders of service changes during construction
- Rerouting school bus routes that would be substantially delayed

7.8 Construction Traffic Effects

This section assesses potential transportation effects associated with the construction of the Project. It includes potential construction-related traffic effects, including temporary lane closures. The analysis is for individual segments of the proposed alignment. Construction-related traffic effects may be considered inconvenient, but are temporary in nature.

Detailed construction traffic management plans would be developed during the Project's preliminary engineering stage. These plans would attempt to ensure that traffic operations on affected roadways are maintained to the greatest extent possible during construction.

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

This part of the alignment would generally travel from the Kapolei terminus to Wākea Street (a future street), Saratoga Avenue (a future street), and North-South Road (a future street) to Farrington Highway, and ends at Fort Weaver Road. Eight stations are planned along this alignment (three as part of the Project, and five as part of the Future Planned Extension to West Kapolei).

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 Kapolei Segment, Including West Kapolei Extension

Intersection/Roadway Segment	Column Placement	Summary of Effects
Kapolei Parkway from Kalaeloa Boulevard to Kamaaha Avenue	Median	Close left-turn lanes; close one through lane in each direction.
Wākea Street from Road "A" to Roosevelt Avenue	Median	Close left-turn lanes; close one through lane in each direction.
Saratoga Avenue from Wākea to North-South Road	Median	No effects expected. Work area expected to fit within wide median.
North-South Road from Saratoga Avenue to Kapolei Parkway	Median	Close left-turn lanes; close one through lane in each direction.
North-South Road from Kapolei Parkway to East-West Collector Road	Roadside	No effects expected. Work area expected to fit within wide median.
Ho'opili Community from North-South Road to Farrington Highway	Median	Left-turn lanes would be closed during construction of foundations and columns. Through lanes would remain open
Farrington Highway from Ho'opili Community to Kunia Road	Roadside	Existing one lane in each direction would remain open as construction be take place on road shoulder

Fixed guideway would 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 would 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 (Salt Lake)

This part of the alignment would generally travel from Aloha Stadium along Salt Lake Boulevard to Pūkōloa Street, run adjacent to the Moanalua Stream and end at Middle Street. Five 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 Aloha Stadium to Middle Street (Airport)

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

7.8.5 Middle Street to Iwilei

This part of the alignment would generally travel from the Ke'ehi Interchange to Iwilei via Kamehameha Highway and Dillingham Boulevard. Three station locations are proposed along this alignment

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

7.8.6 Iwilei to Ala Moana Center

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

Table 7-9 provides a summary of construction-related traffic effects for the rail alignment at key locations along this segment.

Table 7-5: Construction Related Traffic 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.
Farrington Highway and Leokane Street	Median	It is proposed that all left-turn lanes be closed during construction.
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 would be shifted makai by 2 ft to eliminate "C" bents, reducing effect to through lanes during construction
Farrington Highway and Waipahu Depot Road	Median	"C" bent footings at 8 locations due to station and alignment shift.
Farrington Highway and Mokuola Street	Median	Left-turn lanes would be closed during construction of foundations and columns. Through lanes would remain open
Farrington Highway and Awamoku Street	Median	Left-turn lanes would be closed during construction of foundations and columns. Through lanes would remain open
Farrington Highway and Paiwa Street	Median	It is proposed that one through lane in each direction be maintained for installation for three "C" bent footings.
Farrington Highway and Kahualii Street	Median	It is proposed that one through lane in out-bound direction be closed during construction of foundations and columns
Farrington Highway and H-1/ H-2 Freeway Crossing	Median	One lane may need to be closed to provide working area for installation of columns
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 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.
Kamehameha Highway unsignalized midblock left turn between Pu'u Poni Street and Kuleana Road	Median	It is proposed that the median opening be closed during construction.

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

Intersection/Roadway Segment	Column Placement	Effects
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 Koko Head of Pu'u Poni Street	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 one left-turn lane in each direction be closed, restricting the 'Ewa-bound left-turn lane 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 left-turn lane in each direction 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 (Salt Lake)

Intersection/Roadway Segment	Column Placement	Summary of Effects
Salt Lake Boulevard and Kalaloa Street	Roadside	It is proposed that one through lane in each direction be closed.
Salt Lake Boulevard and Kahuapa'ani Street	Roadside	It is proposed that both left-turn lanes and one through lane in each direction be closed. The remaining through lane would be changed to a left-turn lane and right-turn lanes would be changed into through/ right-turn lanes.
Salt Lake Boulevard and Luapele Drive	Median	It is proposed that one through lane in each direction be closed.
Salt Lake Boulevard and Ala Oli Street	Median	It is proposed that one through lane in each direction be closed.
Salt Lake Boulevard and Bougainville Drive	Median	It is proposed that one through lane in each direction be closed. The west bound bike lane is replaced with a shared vehicle/bike lane.
Salt Lake Boulevard and Lawehana Street	Median	It is proposed that one through lane in each direction be closed. The west bound bike lane is replaced with a shared vehicle/bike lane.
Salt Lake Boulevard and Pakini Street-Marshall Road	Median	It is proposed that one through lane in each direction be closed. The west bound bike lane is replaced with a shared vehicle/ bike lane.
Salt Lake Boulevard and Maluna Street-Namur Road	Median	It is proposed that both left-turn lanes and one through lane in each direction be closed during construction. Change one through lane in each direction into a through/ left-turn lane.
Salt Lake Boulevard and Wanaka Street	Roadside	It is proposed that the Koko Head-bound through lane be closed and the left-turn lane be converted into a temporary through/left-turn lane.
Salt Lake Boulevard and Likini Place-Radford Drive	Roadside	It is proposed that the Koko Head-bound through lane be closed and the left-turn lane be converted into a temporary through/left-turn lane.
Salt Lake Boulevard and Kahikolu Place	Roadside	It is proposed that the Koko Head-bound through lane be closed and the left-turn lane be converted into a temporary through/ left-turn lane.
Salt Lake Boulevard and Ala Liliko'i Street	Median	It is proposed that one through lane in each direction and the Koko Head-bound left-turn lane be closed. Change one Koko Head-bound through lane into a through/ left-turn lane.
Salt Lake Boulevard and Arizona Road	Median	It is proposed that one through lane in each direction be closed.
Salt Lake Boulevard and Peltier Avenue	Median	It is proposed that one through lane in each direction be closed.
Salt Lake Boulevard and Ala Napunani Street	Median	It is proposed that one through lane in each direction be closed.

Table 7-6: Construction Related Effects on Aloha Stadium to Middle Street Segment (Salt Lake) (continued)

Intersection/Roadway Segment	Column Placement	Summary of Effects
Salt Lake Boulevard-Pūkōloa Street and Pu'uloa Road	Roadside	It is proposed that one through lane in each direction be closed.
Pūkōloa Street and Māpunapuna Street	Roadside	It is proposed that the Koko Head-bound through/ right-turn lane be closed. Change the through/ left-turn lane into a left/ through/ right-turn lane.
Pūkōloa Street and Hua Street	Roadside	It is proposed that the right-turn lane be closed during construction. Plan to convert left-turn lane into a left/ right-turn lane.

Table 7-7: Construction Related Effects on Aloha Stadium to Middle Street Segment (Airport)

Intersection/Roadway Segment	Column Placement	Effects
Kamehameha Highway and Salt Lake Boulevard	Roadside	This intersection would not be affected by construction.
Kamehameha Highway and Kalaloa Street	Median	It is proposed that the existing 'Ewa-bound left-turn lane be closed during construction.
Kamehameha Highway and Hālawa Drive/Arizona Street	Median	Construction expected to fit within median.
Kamehameha Highway and Radford Drive/Makalapa Gate	Median	It is proposed that both left-turn lanes be closed during construction.
Kamehameha Highway and Center Drive	Roadside	This intersection would not be affected by construction.
Kamehameha Highway and Valkenburgh Street	Roadside	This intersection would not be affected by construction.
Kamehameha Highway and Main Street	Roadside	This intersection would not be affected by construction.
Kamehameha Highway and Elliott Street	Roadside	This intersection would not be affected by construction.
Aolele Street and Paiea Street	Roadside	This intersection would not be affected by construction.
Aolele Street and Lagoon Drive	Roadside	This intersection would not be affected by construction.

Table 7-8: 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	It is proposed that one 'Ewa-bound, one Koko Head-bound, and left-turn lanes be closed for column construction. Keep one through lane in each direction.
Dillingham Boulevard and Pu'uhale Road	Median	It is proposed that one 'Ewa-bound, one Koko Head-bound, and left-turn lanes be closed for column construction. Keep one through lane in each direction.
Dillingham Boulevard and Mokauea Street	Median	It is proposed that one 'Ewa-bound, one Koko Head-bound, and left-turn lanes be closed for column construction. Keep one through lane in each direction.
Dillingham Boulevard and Kalihi Street	Median	It is proposed that one 'Ewa-bound, one Koko Head-bound, and left-turn lanes be closed for column construction. Keep one through lane in each direction.
Dillingham Boulevard and McNeill Street	Median	It is proposed that one 'Ewa-bound, one Koko Head-bound, and left-turn lanes be closed for column construction. Keep one through lane in each direction.
Dillingham Boulevard and Waiakamilo Road	Median	It is proposed that one 'Ewa-bound, one Koko Head-bound, and left-turn lanes be closed for column construction. Keep one through lane in each direction.
Dillingham Boulevard and Kohou Street	Median	It is proposed that one 'Ewa-bound, one Koko Head-bound, and left-turn lanes be closed for column construction. Keep one through lane in each direction.
Dillingham Boulevard and Kōkea Street	Median	It is proposed that one 'Ewa-bound, one Koko Head-bound, and left-turn lanes be closed for column construction. Keep one through lane in each direction.
Dillingham Boulevard and Alakawa Street	Median	It is proposed that one 'Ewa-bound, one Koko Head-bound, and left-turn lanes be closed for column construction. Keep one through lane in each direction.
Dillingham Boulevard and Costco Rear Parking	Median	It is proposed that one 'Ewa-bound, one Koko Head-bound, and left-turn lanes be closed for column construction. Keep one through lane 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 Kaahi Street	Roadside	It is proposed that the mauka bound curbside lane be closed during construction.

Table 7-9: 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.
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

**Table 7-9: Construction Related Effects on Iwilei to Ala Moana Center Segment
(continued)**

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

7.8.7 University Avenue—Future Planned Extension

This part of the alignment would generally travel from the intersection of Kalākaua Avenue and Kapi‘olani Boulevard to the UH Mānoa campus. The alignment would follow Kapi‘olani Boulevard to University Avenue, terminating on the UH Mānoa lower campus. Three station locations are proposed along this alignment.

Table 7-10 provides a summary of construction-related traffic effects for the rail alignment at key locations along this segment.

Table 7-10: Construction Related Effects on University Avenue Extension Segment

Intersection/Roadway Segment	Column Placement	Summary of Effects
Kona Street and Mahukona Street	Median	It is proposed that the intersection and roadway be closed during construction.
Kapi‘olani Boulevard from Atkinson Drive to Kalākaua Avenue	Roadside	It is proposed that one travel lane be closed during construction.
Kapi‘olani Boulevard from Kalākaua Avenue to Pumehana Street	Roadside	It is proposed that three through lanes and one left-turn lane be closed during construction.
Kapi‘olani Boulevard from Pumehana Street to McCully Street	Roadside	It is proposed that three through lanes and one left-turn lane be closed during construction.
Kapi‘olani Boulevard from McCully Street to Wiliwili Street	Median	It is proposed that two through lanes and one left-turn lane be closed during construction.
Kapi‘olani Boulevard from Wiliwili Street to University Avenue	Median	It is proposed that two through lanes and one left-turn lane be closed during construction.
University Avenue from Kapi‘olani Boulevard to Date Street	Median	It is proposed that the parking, bike lanes, and left-turn lanes be closed during construction.
University Avenue from Date Street to King Street	Median	It is proposed that the parking, bike lanes, and left-turn lanes be closed during construction.
University Avenue from King Street to Varsity Place	Median	It is proposed that the parking, bike lanes, left-turn lanes, and a right-turn lane be closed during construction.

7.8.8 Waikīkī—Future Planned Extension

This part of the alignment would travel from the intersection of Kalākaua Avenue and Kapi‘olani Boulevard to the Koko Head side of Waikīkī. The alignment would then follow Kalākaua Avenue to Kūhiō Avenue, ending at Ka‘iulani Avenue. Two station locations are proposed along this alignment.

Table 7-11 provides a summary of construction-related traffic effects for the rail alignment at key locations along this segment.

Table 7-11: Construction Related Effects on Waikiki Extension Segment

Intersection/Roadway Segment	Column Placement	Effect Summary
Kalākaua Avenue from Kapi'olani Boulevard to Ala Wai Boulevard	Roadside	It is proposed that one through lane be closed during construction.
Kalākaua Avenue from Ala Wai Boulevard to McCully Boulevard	Roadside	Construction is expected to fit within the 'Ewa-bound lane, which would be permanently closed.
Kalākaua Avenue from McCully Boulevard to Kuamo'o Avenue	Roadside	Construction is expected to fit within the 'Ewa-bound bus-only lane, which would be permanently closed.
Kūhiō Avenue from Kuamo'o Street to Namahana Street	Roadside	Construction is expected to fit within the right-turn only lane, which would be permanently closed.
Kūhiō Avenue from Namahana Street to 'Ōlohana Street	Roadside	Construction is expected to fit within the 'Ewa-bound lane, which would be permanently closed.
Kūhiō Avenue from 'Ōlohana Street to Kālainoku Street	Roadside	It is proposed that one through lane be closed during construction in addition to the lane, which would be permanently closed.
Kūhiō Avenue from Kālainoku Street to Kai'olu Street	Roadside	Construction is expected to fit within the 'Ewa-bound lane, which would be permanently closed.
Kūhiō Avenue from Kai'olu Street to Kealohilani Street	Roadside	It is proposed that one through lane and one left-turn lane be closed during construction. This closure is in addition to the lane that would be permanently closed.
Kūhiō Avenue from Kealohilani Street to Paoakalani Street	Roadside	It is proposed that one through lane be closed during construction in addition to the lane that would be permanently closed.